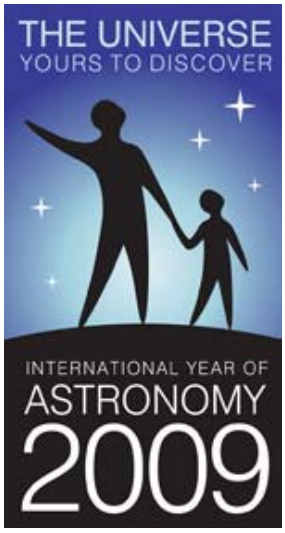
# International Year of Astronomy 2009

## Final Report




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# International Year of Astronomy 2009
# Final Report









Partners for the International Year of Astronomy 2009

Edited by Pedro Russo and Lars Lindberg Christensen
Editorial support: Mariana Barrosa and Lee Pullen
Approved by the IAU IYA2009 Executive Committee Working Group

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IYA2009 Global Sponsors



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# Foreword

IYA2009 marked the 400th anniversary of the first astronomical observation through a telescope by Galileo Galilei. It has been, and still is, a global celebration of astronomy and its contributions to society and culture, with a strong emphasis on education, public engagement and the involvement of young people, with events at national, regional and global levels throughout the whole of 2009. UNESCO endorsed IYA2009 and the United Nations proclaimed the year 2009 as the International Year of Astronomy on 20 December 2007. These report aim to give a still brief account of IYA2009, from its inception to the present and how its legacy will influence the future of astronomy communication on a planet-wide scale.

Astronomy is one of the oldest fundamental sciences. It continues to make a profound impact on our culture and is a powerful expression of the human intellect. Huge progress has been made in the last few decades. One hundred years ago we barely knew of the existence of our own Milky Way. Today we know that many billions of galaxies make up our Universe and that it originated approximately 13.7 billion years ago. One hundred years ago we had no means of knowing whether there were other solar systems in the Universe. Today we know of more than 400 planets around other stars in our Milky Way and we are moving towards an understanding of how life might have first appeared. One hundred years ago we studied the sky using only optical telescopes and photographic plates. Today we observe the Universe from Earth and from space, from radio waves to gamma rays, using cutting-edge technology. Media and public interest in astronomy have never been higher and major discoveries are front-page news throughout the world.

As this report clearly shows, IYA2009 was an immense success. However, it is important to not just note successes, but also areas for improvement. IYA2009 should be seen as a learning experience; since it was the first time ever that such a huge network, consisting of as many as 148 nations working together on a single science communication venture, was put together, not all challenges could be met. Looking back on these will give future astronomy popularisers a head start and help them make their own projects as effective as possible. Finally, perhaps, looking back at the actions and events and the popular reaction, we will be able to truly gauge how often and how deeply IYA2009's motto, The Universe, Yours to Discover, was fulfilled during the Year.

Paris, France, 1 July 2010

Catherine Cesarsky
Former President of the International Astronomical Union, Chair of the IYA2009 Executive Committee Working Group & High Commissioner for Atomic Energy, France

# Preface

IYA2009 was launched by the International Astronomical Union (IAU) and UNESCO under the theme “The Universe, Yours to Discover”. Abundant in grass-roots initiatives and global projects, this venture has been highly visible and its impact will last for years. Reflecting on the events of the past year is on the agenda, and there is no shortage of success stories to tell.

We have to go back more than 40 years, to the Apollo Moon programme, to find another science event that has engaged the public as much as the International Year of Astronomy 2009 (IYA2009). At its peak in 1969, Neil Armstrong and Buzz Aldrin’s first steps on the Moon reached an audience of more than a billion. Forty years later, IYA2009 has brought space back to a mass audience once again with an estimated global audience of at least 815 million people.

We are now in a position to reflect upon IYA2009, taking an objective view on projects that have taken place and we can see how the astronomy education and public outreach landscape is changing. There are certainly many initiatives to consider, from the twelve Cornerstone projects to the thousands of national activities that have brought together hundreds of thousands of people in many countries for astronomy-themed events.

The report is a compilation of the achievements of the 216 IYA2009 stakeholders — 148 countries, 40 international organisations and 28 global projects. The report shows the excitement, engagement and community involvement engendered by IYA2009. The report is intended to stand as a record of the legacy of this astonishing international celebration of astronomy.

In the report, about half of the stakeholder organisations discuss the number of people reached by the events they organised, as well as the budgets they had available to implement their activities. Funds equivalent to at least 18 million Euros were devoted to IYA2009 activities — and this financial investment was complemented by enormous in-kind contributions from the amateur and professional astronomers, educators and organisers who helped to run the events.

Reports from the IYA2009 network show that at least 815 million people worldwide were reached by IYA2009 activities. Star parties, public talks, exhibits, school programmes, books, citizen-scientist programmes, science-arts events, IYA2009 documentaries and parades honouring astronomy and its achievements made IYA2009 the largest science event so far in this century.

The global IYA2009 projects have also been more successful than anyone initially dared to imagine. Two worldwide star parties were held in 2009: 100 Hours of Astronomy in April, and Galilean Nights in October. In total more than three million people were involved, with many members of the public seeing night-sky objects such as the planets and the Moon through a telescope for the very first time — a life-changing experience for many.

The IYA2009 Cornerstone project, From Earth to the Universe, is a worldwide exhibition that brought the striking beauty and intriguing science of astronomy images to the public. It was staged in unexpected and accessible locations such as parks, metro stations, shopping malls, hospitals, libraries and even prisons. From Earth to the Universe has been exhibited in about 1000 locations in about 70 countries and 40 languages throughout the world in 2009 and has been viewed by at least 10 million people. The exhibition continues in venues around the world to this day.

Several IYA2009-affiliated movies were released during IYA2009, and received critical acclaim. More than 450 000 DVDs of Eyes on the Skies, a film documenting the history of the telescope, were distributed worldwide in 33 languages. The film received a MEDEA 2009 Jury Award and the International Association for Media in Science’s Award at TECHFILM 2010. Another IYA2009 film, 400 Years of the Telescope, a 1.8 million euro production, has been seen by over ten million individuals. The film has garnered four peer-reviewed Telly awards, for animations, writing, cinematography and production. The astronomy Indiana Jones-style movie BLAST!, a 385 000 euro production, has been seen by 1.2 million people and has recently been broadcast on BBC World News, reaching over a million households around the world. *Naming Pluto*, the film about Venetia Burney Phair, the most influential 11 year-old in the history of science, has won cinematic and scientific acclaim in different festivals, including the prize for Best Documentary, second place at the Palm Springs SHORTFEST, the Best Short Documentary at the

Rockport Film Festival, Best UK Documentary at the Falstaff Film Festival, a Remi Jury Award at the Houston Worldfest and the Festival Award at the Paso Robles Festival.

In the framework of the IYA2009 Cornerstone project, Developing Astronomy Globally, more than five thousand telescopes have been distributed to over 30 developing countries, to help promote astronomy education and outreach there. As part of the IYA2009 legacy, the IAU has initiated and is now implementing Astronomy for the Developing World, a pioneering ten-year plan to exploit astronomy in the service of education and capacity building in the developing world. The IAU has recently chosen the South African Astronomical Observatory as the location for its Office for Astronomy Development (OAD). The OAD will coordinate a wide range of activities designed to stimulate astronomy throughout the world.

The IYA2009 presence in the new media sphere has been tremendous: the number of IYA2009-related blog entries and tweets reached millions. The IYA2009 Cornerstone Project Cosmic Diary, a blog where 60 professional astronomers from around the world blog about their lives, families, friends, hobbies and interests, as well as their work, had more than 250 000 visitors and more than 2100 blog entries. As another example, more than 10 000 people participated in Meteorwatch on Twitter, making this the first event of its kind, and also one of the biggest mass-participation events of IYA2009. On both nights of the Perseid meteor shower it was the #1 top "trending topic", by far the most-discussed thing on the Twitter network anywhere in the world!

Astronomy enthusiasts proved keen to innovate in ways of sharing astronomy with the public, and one original way was through street parades. In January Indian astronomers took the grand opportunity to showcase IYA2009 to the citizens of India by presenting a tableau on astronomy in the Republic Day Parade in New Delhi. Around 30 000 people were present to witness it. During the Brazilian carnival Unidos da Tijuca, a samba school from Rio de Janeiro themed its parade "astronomy" in celebration of IYA2009. The parade typically has 600 000 spectators, and the number of TV viewers can reach hundreds of millions, or even a billion. In Dublin astronomy topics lined the streets during the St. Patrick's Day Parade, with more than 675 000 participants. In October a Galileo-actor marched as part of the famous Columbus Day Parade in New York City, the world's largest celebration of Italian-American culture.

The global IYA2009 projects have also been more successful than anyone initially dared to imagine. Two worldwide star parties were held in 2009: 100 Hours of Astronomy in April, and Galilean Nights in October. In total more than 3 million people got involved, with many members of the public seeing night sky objects such as planets and the Moon through a telescope for the very first time; a life-changing experience for many. A record-breaking and unprecedented live 24-hour webcast called Around the World in 80 Telescopes was a true highlight during 100 Hours of Astronomy. Featuring astronomical research observatories both on and off the planet, the webcast gave members of the public a snapshot of life at research observatories around the world during a single 24-hour period, showing viewers the wide range of astronomers' activities at many, often very different, observatories. The marathon webcast, which had at least 200 000 viewers worldwide, gave a striking demonstration of the global diversity of astronomical research.

Another hit of IYA2009 is the Galileoscope, a low-cost telescope kit especially designed for the project. More than 110 000 of these educational tools have been distributed in 96 countries, and another 70 000 are in production. This style of practical science extended to a wide variety of award-winning dark-skies education programmes that are underway worldwide. More than 20 000 measurements of the night sky were made by citizen scientists during IYA2009; many of these projects will continue in 2010. These involve people in scientific research that is beneficial to researchers measuring the impact of human development on our environment, highlighting the fact that we all live on a single planet with shared resources.

Seventeen developing countries, namely Macedonia, Nepal, Uganda, Mongolia, Nicaragua, Nigeria, Kenya, Ethiopia, Gabon, Rwanda, Uruguay, Tajikistan, Ghana, Trinidad and Tobago, Mozambique, Pakistan and Tanzania, have received seed grants to stimulate astronomy educational and outreach. Their activities span from astronomy education workshops for teachers, recording and preservation of indigenous astronomy knowledge, production of school astronomy education resources in local languages and many more.

The From Earth to the Universe project enabled more than 500 exhibits of the most beautiful and inspiring large-format astronomical images in 70 countries. The IYA2009 Special project, The World at Night, coordinated exhibitions in 24 shopping centres in 18 states across the US, during summer and autumn 2009. Both global

projects are a reminder of the beauty of the night sky and for others it was the impression of how all humanity is one family under the universal eternal roof of the celestial vault.

More than 75 nations have run Galileo Teacher Training Programs, creating one of the largest astronomy education networks at a global level. The Portal to the Universe created the first "one-stop shop" for astronomy news and has so far had more than 300 000 visitors since its opening in April 2009.

Political interest in IYA2009 was also high, which in itself is an achievement for any popularisation initiative. In the United States of America, the House of Representatives passed a resolution supporting IYA2009. The Spanish Congress of Deputies also passed a law supporting astronomy in the framework of IYA2009. Heads of State were keen to express their support for the Year. The President of the Portuguese Republic, Prof. Dr. Aníbal Cavaco Silva, personally presided over the Portuguese IYA2009 Honour Committee. The President of the Republic of Slovenia, Dr. Danilo Turk, became the patron of IYA2009 in Slovenia. Lech Kaczynski presided over the Polish IYA2009 Honour Committee, while Prince Felipe of Spain (Prince of Asturias) did the same for the Spanish IYA2009 Honour Committee. The former Belgium Prime Minister and current President of the European Council, Herman Van Rompuy, voiced support of astronomy during an IYA2009 event in Belgium held in April 2009. The former European Commissioner for Science and Research and present European Commissioner for Environment, Janez Potočnik, expressed his support of astronomy during the European opening of IYA2009 in Prague, Czech Republic. In the US, the event celebrating IYA2009 at the White House with President Obama and the First Family on 5 October 2009 made headlines. In Nepal the total solar eclipse observation event on 22 July 2009 was attended by the Prime Minister of Nepal, Madhav Kumar together with thousands of members of the public. Iran's President Mahmoud Ahmadinejad pointed that IYA2009 provided a chance for young scientists to develop a more vivid vision of man's future during his inaugural speech of the 3rd International Astronomy and Astrophysics Olympiad in Tehran, Iran. Pope Benedict XVI gave an eloquent speech in which he said "*The International Year of Astronomy is meant not least to recapture for people throughout our world the extraordinary wonder and amazement which characterised the great age of discovery in the sixteenth century.*"

IYA2009 was a huge event not only on Earth, but also above it. In March the space shuttle *Discovery* launched towards the International Space Station. On board was the Japanese astronaut and IYA2009 supporter Koichi Wakata. He took a special flag with the IYA2009 logo with him. Another IYA2009 enthusiast, Canadian Space Agency Astronaut and Expedition 20/21 crew member Bob Thirsk, recorded a special IYA2009 message during his long-term mission on board the International Space Station, to remind the marvels of the night sky and propose once more a rediscovery of interest in astronomy and the Universe. In May the space shuttle *Atlantis* was launched to refurbish the NASA/ESA Hubble Space Telescope, astronaut Mike Massimino took onboard a replica of Galileo's telescope that was used 400 years ago to change our view of the Universe and our place within it. May also saw the launch of the highly anticipated European Space Agency missions Herschel and Planck, which are probing the origins of our Universe. The IYA2009 logo was proudly displayed on the Ariane 5 launcher that lifted the two spacecraft into space. So, evidently, it was a momentous event on and off our planet!

Some projects crossed country borders in a literal sense. The GalileoMobile was a science education itinerant project that spent two months bringing life-changing experiences and the excitement of astronomy to young children in Chile, Bolivia and Peru. In total the GalileoMobile visited around 3000 children in 30 schools, covering a distance of 7000 km. Tunisia's Astro-Bus was a similar project. From January to September the Astro-Bus visited around 60 regions all over the country, crossing approximately 15 000 km, sharing its content with 100 000 Tunisians of all ages. Telescopes have also travelled more than 20 000 km across Argentina, providing thousands of people with the opportunity of observing the firmament through a telescope.

Most of the incredible initiatives have come from individual countries. IYA2009 supporters in Sweden created the world's largest model of the Solar System. The Sun is represented by the huge spherical Ericsson Globe Arena in central Stockholm and the planets are distributed along the country. Finland also made a huge scale Solar System model, with the Sun located at the Helsinki Central Railway Station, with a giant sticker representing our local star. During the display around 50 000 people saw it every day! Sticking with the transport theme, some Paris Metro stations have been decked out with about 500 metres of astronomical images, allowing millions of passengers to marvel at the Universe.

During 2009 nearly two million Canadians have experienced a so-called "Galileo moment", an engaging astronomical experience that has opened their eyes to the Universe. In Portugal more than 300 000 people participated in this year's astronomy-themed Oceans festival. It featured a Guinness World Record 4.8-km long

canvas painted with the help of enthusiastic volunteers. In Japan more than 7 million people were outside stargazing during 2009.

The highest participation figures came from India, where over 700 million people were reported as being reached by IYA2009 events. This was mainly due to Indian astronomers proudly showcasing their work at the Republic Day parade in Delhi. With 30 000 people watching in person and an estimated 700 million watching on television, this was by far the biggest single event in the IYA2009 programme .

In Brazil, a budget equivalent to 2 million Euros helped the organisers to reach 2.2 million people, with more than 16 600 events around the country, from national Olympiads of astronomy and astronautics to exhibitions and regional meetings on astronomy teaching. There was a big focus on education, with educational astronomy kits being produced, and 55 000 astronomy books and 20 000 Galileoscopes being distributed to state schools.

South Korea was one of the most active countries in IYA2009, with more than 500 activities reaching some 11 million people. A partial solar eclipse on 22 July was the highlight of the year, with viewing events widely held across the nation in 45 locations with over 400 000 people reached, from kindergarten children to the President of the Republic of Korea.

In the United Kingdom, the organisers used a budget of more than 1 million Euros to reach over one million people: 300 000 at local star-parties, 300 000 at IYA2009 planetarium shows and the 400 000 people who attended the global exhibition project, From Earth to the Universe.

The International Year of Astronomy 2009 was never seen as a “one-off” event lasting just one year, but as a means of creating structures for collaboration, lasting self-sustaining activities and innovative concepts for the communication of astronomy. Most of the IYA2009 Cornerstone projects will continue beyond 2009 unchanged or in a slightly changed form. The maintenance of the IYA2009 networks is one of the priorities of the IYA2009 legacy and the global networks will continue to operate and engage millions of people.

The examples above are just a few of the many IYA2009 highlights that during 2009 helped the citizens of the world to rediscover their place in the Universe and to engage in a personal sense of wonder and discovery.

Pedro Russo
IYA2009 Global Coordinator

Lars Lindberg Christensen
Secretary of the IYA2009 Executive Committee Working Group & IYA2009 Secretariat Manager

# IYA2009 Overview

The IYA2009 activities took place at global and regional levels, and especially at the national and local levels. National Nodes in each country were running activities throughout the year. Several collaborations between professional and amateur astronomers, science centres, educators, and science communicators were established.



Bollington town Mayor Councillor Shirley Sockett receives a report suggesting ways of reducing light pollution in town, Bollington, UK, 26.07.09

# Origins and Foundation

2009 is the International Year of Astronomy (IYA2009), a global celebration of cosmic proportions. Events officially began on 2009 New Year's Day, but the story behind the Year began long before. This article will outline those early moves, and features input from two key individuals: Franco Pacini and Catherine Cesarsky, former and present presidents of the International Astronomical Union (IAU), respectively.

## The initial ideas

Perhaps the first person to think of celebrating a year of astronomy was Franco Pacini. In 2002 he reasoned that as mathematics had a Year in 2000 and Physics was set to have one in 2005, there was potential in astronomy achieving the same level. Pacini wrote to the President of the European Union, whose office replied with interest. He also organised a meeting with the Mayor of Florence, to enlist his support. The positive feedback Pacini received cemented the Year's value in his mind. He explains, "Certainly when I became interested I considered it to be the most important thing we could do in terms of public outreach."

Soon after, in 2003, the IAU was holding its General Assembly in Sydney, Australia. The suggestion was formally raised that 2009 could be the perfect year to focus on astronomy, as it would be the 400th anniversary of Galileo Galilei's first observations through a telescope, a pivotal point in human history. The Year would be an occasion to promote astronomy and enhance the interest and knowledge of the young generation and the general public in this field.

The IAU members voted unanimously in favour of this, and events were set in motion. Resolution B3 concerned the International Year of Astronomy. It was documented that introducing telescopes into astronomical observations had brought about a fundamental revolution in humankind's perception of the world outside the Earth, and that these developments have been immensely important for science and technology. Astronomy, it was considered, appeals to the imagination of humans from all walks of life, and is a powerful way to kindle the interest of young people into scientific research and education. Resolution B3 officially recommended that 2009, the 400$^{th}$ anniversary of Galileo's accomplishments and the real birth of modern telescopic astronomy, be declared the "Year of Astronomy".

As Galileo was Italian, it was requested that Italy submit a request to the United Nations Educational, Scientific and Cultural Organization (UNESCO). The IAU also confirmed its readiness to play a lead role in IYA2009. Cesarsky explains, "The IAU invented IYA, and of course always thought it would take a leading role. There was never question of anybody else." Soon after, a Working Group was formed, chaired by Pacini.

## UNESCO's endorsement and important meetings

In August 2005, these initial plans paid off handsomely as UNESCO decided to endorse 2009 as the International Year of Astronomy They declared "that the study of the universe has led to numerous scientific discoveries that have great influence not only on humankind's understanding of the universe but also on the technological, social and economic development of society" and "that astronomy proves to have great implications in the study of science, philosophy, religion and culture". It was one large step toward making IYA2009 a reality.

The IAU Working Group "2009 Year of Astronomy" requested advice from the IAU Working Group "Communicating Astronomy with the Public". This team produced a document titled "Recommendations for IAU's role in the 2009 International Year of Astronomy", the contents of which would be integral to the formation of IYA2009. The idea of the IAU taking a lead role was reaffirmed, and then a series of recommendations were listed. These included developing a logo and slogan, formulating plans for effective communication with national representatives, brainstorming the official website, and coordinating with various IAU Commissions. Other recommendations that would later become a reality include encouraging national websites following the www.astronomy2009.xx format, with xx being the country domain extension; creating a dedicated team (to be later known as the Secretariat); developing a 24-hour webcast (now known as "Around the World in 80 Telescopes"); and supporting ongoing projects such as Universe Awareness. It was realised that lessons from the Year of Physics could be learnt. Einstein had been a good link for the media, and the idea was raised that Galileo could perform the same function for astronomy.

In 2006 the IAU held another General Assembly, this time in Prague. No decision by the UN regarding endorsing IYA2009 had been made at this point. A special session of the Assembly helped to reinforce plans for IYA2009 which would come to the fore in the event of a positive decision by the UN. Topics ranged from explaining the decision-making process to suggestions for the IAU's role and ideas from attendees. The first Single Points of Contact (SPoCs) were appointed, individuals responsible for the National Nodes designed to coordinate regional activities. The session helped prove in everyone's minds the importance of IYA2009, and the fact that with proper planning it could become not only a reality, but also a success.

A meeting was held the following year, designed to bring together many of the individuals instrumental in IYA2009 planning. Hosted at the European Southern Observatory's headquarters in Munich, Germany, most of the conference was devoted to discussing and choosing IAU-led global events, and national events to be organised by SPoCs. By this point 90 countries had affirmed their commitment to IYA2009, and there were 26 SPoCs in attendance at the meeting. It was also successful in building a real sense of community among IYA2009 supporters.

## Rapid progress and valuable lobbying

Proceedings reached a crescendo in 2007. First, the Communicating Astronomy with the Public Conference's main topic was IYA2009. Presentations and posters were used to spread the message, gather and improve ideas, and keep everyone up-to-speed with developments. The Cornerstone Projects, well-organised initiatives specifically targeting IYA2009's goals, were further refined. The overall organisation was clarified, and fundraising benchmarks set. Overall great progress was made, especially in developing national projects to support the Year's aims. In 2007 the slogan was decided upon ("The Universe, Yours to Discover"), and the logo, vital for branding IYA2009, was also selected.

Lobbying then took centre stage, led by Claus Madsen and Enikö Patkos from ESO with daily support of the ESO Director General Catherine Cesarsky. In order to convince the UN that a particular topic deserves International Year status, many countries must show their support. Cesarsky elaborates, "the UN agreement demanded a lot of lobbying and follow up, country by country, with at the same time a strong connection with Italy." To this end, SPoCs from participating nations sent letters, e-mails, had telephone conversations and face-to-face meetings with policy-makers in their countries. These included foreign ministries, heads of international relations, and UN affairs departments. SPoCs were encouraged to present official papers to support their efforts, such as copies of the UN Resolution Criteria, the UNESCO proposal document, the IYA2009 brochure, and bespoke letters outlining how the Year would support the county in question, be it though economical, science, or educational benefits, to name but a few.

In October, an important and required document was completed. This detailed exactly how IYA2009 would fulfil the UN Resolution 53/199 on the Proclamation of International Years and UN Decision 35/424 on the guidelines for International Years and Anniversaries. A large part of the UN's decision on whether to mark an International Year depends on its suitability according to the criteria. As one might expect, persuading the UN to approve, endorse and indeed encourage an International Year requires some important documentation, and this piece was vital.[1]

Then, on 17 December 2007, the news that astronomers had been waiting for arrived: the UN accepted this recommendation[2], and 2009 was officially to be the International Year of Astronomy! The UN agreed that astronomy is one of the oldest sciences, yet still contributes fundamentally to the evolution of other sciences. It was also noted that the Year could play a crucial role in raising public awareness of the importance of astronomy. The IAU's support was recognised, and acknowledgement given that the organisation could continue to act, giving IYA2009 the widest impact.

## Problems posed

The journey toward making IYA2009 a reality was long and arduous. Which hurdles were most difficult to overcome? Pacini says, "I would say the problems were always to try to put together an effective core. That was relatively easy as far as IAU was concerned because we had the Executive Committee. We presented the proposal

[1] See Appendix C.
[2] http://www.astronomy2009.org/static/archives/documents/pdf/n0747577_eng.pdf

in July 2003... And it went extremely smoothly. The word spread that there would be such a thing, there was a consensus that it would be a beautiful opportunity."

Although IYA2009's origins can be traced back to 2002 and possibly even earlier, many consider this announcement to be the point at which everything became a reality. Preparations went into overdrive, and the network of astronomers swelled to record-breaking levels. Now IYA2009 is in full swing, and the carefully laid plans are already bearing fruit. There are currently a staggering 148 National Nodes[3], from Afghanistan to Zimbabwe. Events are taking place on a global scale, from public observing sessions using small telescopes, to the 12 official Cornerstone Projects[4]. The largest astronomy network ever is working together to bring the Universe down to Earth.

## Looking back

It is undeniably a great achievement considering its humble beginnings just six years ago. Did the key players think that IYA2009 would become as large as it is today? At times Pacini rather doubted this: "No, I must say at some moment I became a little more pessimistic because I thought it was too difficult to put together an effective team with very little money going around the world and saying let's celebrate astronomy." Cesarsky, on the other hand, was more hopeful: "Yes, I must admit that I anticipated success, I am glad I was right. I have seen a lot of the Year of Physics (I participated in many of the events throughout the world), and I was convinced astronomy would do at least as well, or in fact better."

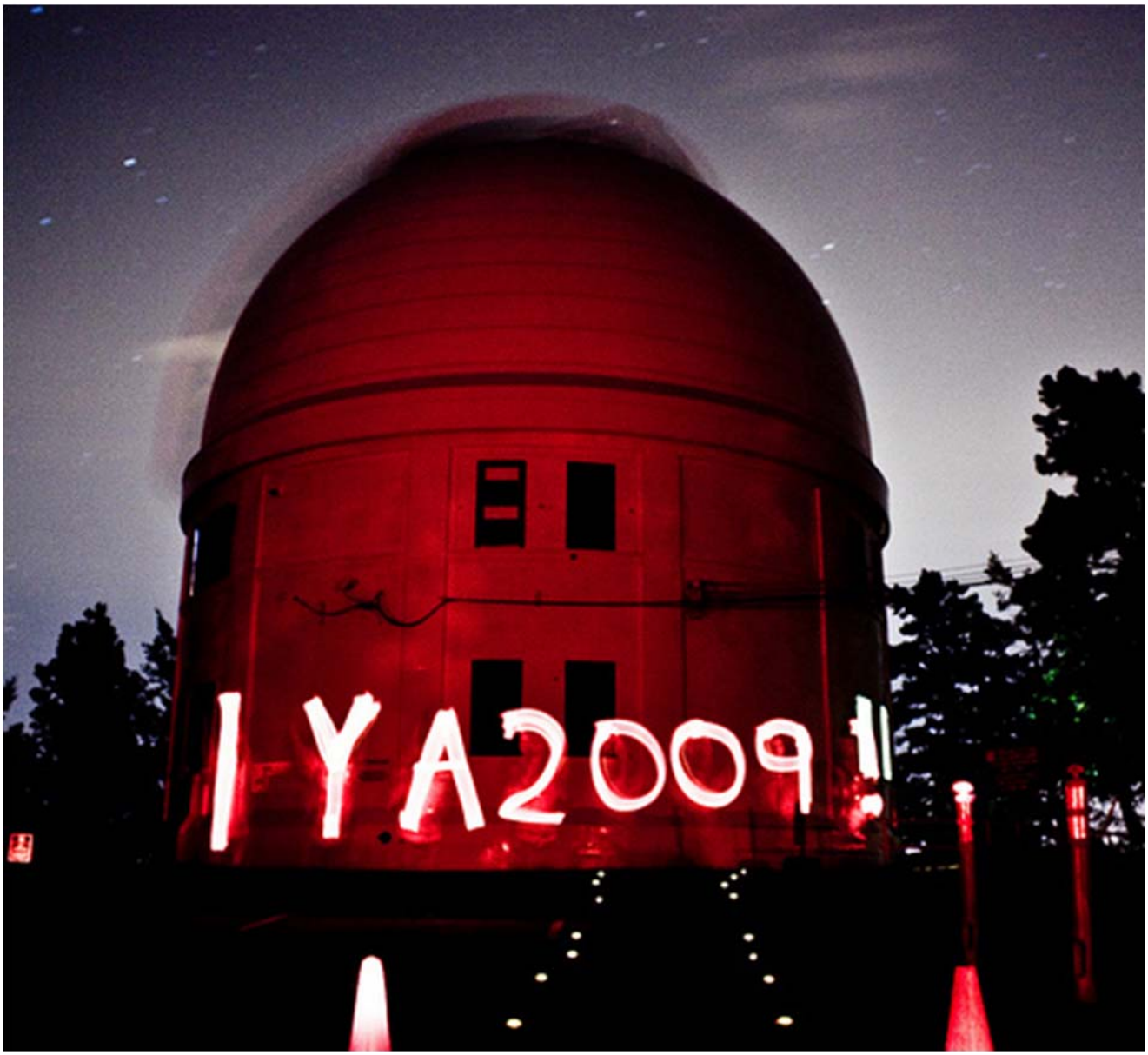
Could things have been done differently? Pacini has some thoughts on this question. "This is the problem with these initiatives, most of them are temporary initiatives, in other words make a very nice exhibit or a very nice conference. But these things disappear afterwards. I wish there could have been more creation of science centres or museum, structures which remain and can be used by adults and children beyond the Year of Astronomy. We need to think about when the Astronomy Year has finished. Maybe we will have an upsurge in the number of children who want to become astronomers. But it would be nice to have more planetaria. Working toward more infrastructures, that probably hasn't been done sufficiently."

[3] http://www.astronomy2009.org/organisation/nodes/national/
[4] http://www.astronomy2009.org/globalprojects/cornerstones/

## Vision

The vision of the International Year of Astronomy 2009 is to help people rediscover their place in the Universe through the sky, and thereby engage a personal sense of wonder and discovery. Everyone should realise the impact of astronomy and other fundamental sciences on our daily lives, and understand how scientific knowledge can contribute to a more equitable and peaceful society.

As mentioned IYA2009 activities took place locally, nationally, regionally and internationally. National Nodes were formed in each country to prepare and implement activities for 2009. These nodes established collaborations between professional and amateur astronomers, science centres and science communicators to prepare activities for 2009. 148 countries were involved in this global undertaking. To help coordinate this extensive global programme and to provide an important resource for the participating countries, the IAU has a central IYA2009 Secretariat and an IYA2009 website (www.astronomy2009.org) as the principal IYA2009 resource for public, professionals and media alike.




Light Painting Celebrating IYA2009, Victoria, British Columbia, Canada, 12.08.09

## Goals and Objectives

The major goals of IYA2009 are to:

1. Increase scientific awareness.
2. Promote widespread access to new knowledge and observing experiences.
3. Empower astronomical communities in developing countries.
4. Support and improve formal and informal science education.
5. Provide a modern image of science and scientists.
6. Facilitate new networks and strengthen existing ones.
7. Improve the gender-balanced representation of scientists at all levels and promote greater involvement by underrepresented minorities in scientific and engineering careers.
8. Facilitate the preservation and protection of the world's cultural and natural heritage of dark skies in places such as urban oases, national parks and astronomical sites.

| Goals<br>To: | Objectives<br>To: |
|---|---|
| *1. Increase the scientific awareness* among the general public through the communication of scientific results in astronomy and related fields, as well as the process of research and critical thinking that leads to these results. | Make astronomical breakthroughs more visible in the daily lives of billions of people through all available means of communication (TV/radio documentaries, newspapers, web pages, exhibitions, stamps, blogs, web portals, advertising campaigns etc).<br>Facilitate individual astronomical observing opportunities. |
| 2. *Promote widespread access to the universal knowledge of fundamental science* through the excitement of astronomy and sky-observing experiences. | Enable as many laypeople as possible, especially children, to look at the sky through a telescope and gain a basic understanding of the Universe. |
| *3. Empower astronomical communities in developing countries* through the initiation and stimulation of international collaborations. | Involve astronomical communities of the developing nations in the Year, thereby providing examples of how outreach and education is carried out in different parts of the world. |
| 4. *Support and improve formal and informal science education* in schools as well as through science centres, planetariums and museums. | Develop formal and informal educational material and distribute all over the world.<br>Conduct focused training of event leaders and presenters. |
| 5. *Provide a modern image of science and scientists* to reinforce the links between science education and science careers, and thereby stimulate a long-term increase in student enrolment in the fields of science and technology, and an appreciation for lifelong learning. | Popular talks by scientists of all ages, genders, races.<br>Facilitate portraits — on TV, in web blogs, biographies — of scientists that break with the traditional "lab coat view" of scientists, showing the excitement of scientific discovery, the international aspect of scientific collaborations and portraying the social sides of scientists. |
| 6. *Facilitate new, and strengthen existing, networks* by connecting amateur astronomers, educators, scientists and communication professionals through local, regional, national and international activities. | Connect as many individuals (named "IYA ambassadors") as well as organisations (amateur and professional) in networks, for instance by creating of new internal and external electronic communication infrastructures. These networks will become part of the heritage of IYA2009. |
| 7. *Improve the gender-balanced representation of scientists* at all levels and promote *greater involvement by underrepresented minorities in scientific and engineering careers.* | Provide access to excellent role models and mentors, formally and informally, and publicise them.<br>Provide information about the female "dual-career" problem and possible solutions. |

| | |
|---|---|
| 8. *Facilitate the preservation and protection of the world's cultural and natural heritage of dark skies in places such as urban oases, national parks and astronomical sites,* through the awareness of the importance and preservation of the dark skies and astronomical sites for the natural environment and humanity heritage. | Involve the dark-sky community in the IYA2009.<br><br>Collaborate on the implementation of the UNESCO and IAU "Astronomical and World Heritage" initiative.<br>Lobby the organizations, institutions, as well as local, regional and national governments to approve preservation laws for dark skies and historical astronomical sites.<br><br>Bring the issues of natural environment and energy preservation to the agenda of decision makers. |

# The UN Millennium Development Goals

The IYA2009 was, first and foremost, an activity for everyone around the world. It aimed to convey the excitement of personal discovery, the pleasure in sharing fundamental knowledge about the Universe and our place in it. The UN Millennium Development goals form a blueprint agreed by every country and the entire world's leading development institutions. The inspirational aspects of the International Year of Astronomy embody an invaluable resource for humanity and aim to contribute to four of the UN Millennium Development goals.

## Help to achieve universal primary education

The IYA2009 programme intended to add to the quality of primary education by providing access to basic astronomy to teachers and pupils all over the world. The night sky spans all nations. We just have to provide guidance to understanding what we see and discover. Providing equal chances globally to access knowledge will result in the development of international cooperation in scientific research and relevant applications and in its broader effect will be to assist the developing world to match the western world.

## Help to eradicate extreme poverty and hunger

An increase in scientific wealth has been shown to be associated with an increase in economic wealth in developing countries, thereby contributing to the fight against poverty, improving economic capacity and establishing good governance. The IYA2009 programme aimed to empower astronomical communities in developing countries through the initiation and stimulation of international collaborations. These small steps can contribute to increasing the scientific, technological and economic wealth in developing countries.

## Promote gender equality and empower women

One of the IYA2009 goals was to improve the gender-balanced representation of scientists at all levels and promote greater involvement of underrepresented minorities in scientific and engineering careers. Gender equality is a priority concern of the whole scientific community regardless of its geographical location. The problems and difficulties are different in all regions and continents, so the IYA2009 initiated special programmes to meet local needs.

## Develop a global partnership for development

Development relies on several factors, including the use of fundamental science to develop and use practical applications adequately. The IYA2009 programme connected networks of professional and amateur astronomers and astrophysicists from all over the world, so that valuable sources of knowledge could be shared. The aim of the Year was to channel the information obtained to the right development projects and applications.'

# Leadership and Coordination

## The recipe for an International Year

International Years have a long and varied history, from the first International Polar Year in 1882/1883, to modern equivalents such as the International Heliophysical Year in 2007/2008. Studying these previous initiatives, it became clear that a recipe of sorts involving the necessary components of a successful International Year could be concocted.

First and foremost, a good idea is needed. This must be something to capture people's imagination, be relevant to society, and ideally have the potential to continue beyond the year in question. Next, it must be possible to put a strong case together in order to persuade policy makers of the value of having a year dedicated to the theme. This leads to the next two recipe points: a UN Body recommendation, leading to a UN Proclamation. Without these, official International Year status would be impossible. These are large hurdles to overcome, but the list continues. A large network, ideally already in existence and that can be built upon, is required if the initiative is to have global reach. There must be ideas for national and worldwide activities, as well as the funds to realise these. Finally, there must be genuine enthusiasm, engagement and excitement from all involved parties.

## Strategic planning: setting up the Network

Once the UN Proclamation was confirmed, organisation could begin in earnest. The IAU was the logical choice for the central coordination role, as it is the world's largest body of professional astronomers. One problem became quickly apparent: the IAU had 64 national members, although 194 sovereign states are recognised by the UN.

A plan was devised to overcome this. Countries with professional astronomers, most often through academia, were researched. If this was not possible, or sometimes in conjunction with, professional organisations, active and visible amateur and enthusiast astronomers were identified. Neighbouring countries were also asked to support nearby nations who might be lacking in experts. Help was also requested from UNESCO delegations. Over time, a long list of astronomy experts from nations around the globe was amassed. These would later become National Nodes and Single Points of Contact.

During this research phase, successful transnational science communication and education institutions often cropped up. Great potential was seen in these lending their valuable expertise by supporting and implementing activities around the globe. The first set of Organisational Nodes had been discovered.

## Strategic planning: defining the project

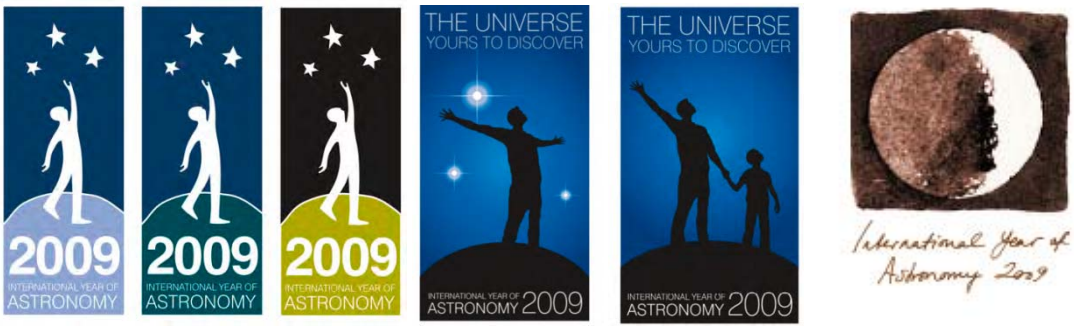
It is now possible to list some of the defining moments of the planning process for IYA2009, in chronological order:

*2003*: Establishment of the IAU Working Group, which defines IYA2009.
*2005:* Establishing rationale and vision.
*2006:* Goals and objectives.
*2006–2007*: Launching and devising initial projects:

- Portal to the Universe (idea presented for the first time in the C55 Business Meeting in the IAU GA in Prague)
- The Universal Times ➔ Cosmic Diary
- "Connect people with the night sky and to help them become aware of light pollution issues" ➔ Dark Skies Awareness
- "Arrange a series of live webcasts over a 24-hour period from telescopes around the world." ➔ 100 Hours of Astronomy (Around the World in 80 Telescopes)
- "Type of Opening: International Polar Year of World Year of Physics?" ➔ IYA2009 Opening Ceremony

*2006–2007:*

- SPoCs meeting in Garching, March 2007
- CAP2007 conference in Athens, October 2007
- Logo studies:




*July 2007:*
The IYA2009 Secretariat was established at the European Southern Observatory's headquarters in Garching, near Munich in Germany. This is to be the central hub of IYA2009 activities, coordinating during the planning, execution and evaluation phases.

By this point a significant amount of groundwork had been completed, and a clear view of the Year was emerging. The following diagram shows how the various aspects were designed to be interconnected:




## Strategic planning: funding the project

It was recognised as early as the "International Year Recipe" stage, that without adequate funding any venture on such a grand scale would be doomed from the beginning. National funding was deemed to be the responsibility of National Nodes. It was agreed that this was the only practical way of delegating over so many countries. Global funding would be used to finance the IYA2009 Secretariat, to provide operations and communication products, and to provide seed funding to the Cornerstone projects. Initial estimates placed this funding as 300 000 EUR to 1 million EUR, if major sponsors could be found.

The next step was fundraising. Organisations, institutions and agencies related to astronomy, space science and the natural sciences were contacted. Many of these were from the Organisational Associates list formed earlier. Private companies were offered the opportunity to become Global Official Partners or Global Sponsors. The strategy was to initially send direct mail and then follow up with personal calls to specific contacts and fundraisers. An elaborate Google Spreadsheet was used to keep track of proceedings. Thirty three Organisational Associates agreed to provide financial backing, along with three Global Sponsors. Unfortunately, no Global Official Partners were found, but a very respectable total of 650 000 EUR had been guaranteed.

## Global Projects: Cornerstones

IYA2009 was supported by 12 Cornerstone projects. These were global programmes of activities centred on specific themes and are some of the projects that help to achieve IYA2009's main goals. A franchising approach was taken with these Cornerstones. They have a common identity and central coordination. Key is that they have common goals, defined by IYA2009. They are also encouraged to share resources and expertise. Cornerstones are also financially independent thanks to seed funding from the IYA2009 Secretariat, of around 15 000 EUR per project.

## Global Projects: Special projects and products

IYA2009 Special projects were intended to give large global projects (which satisfy the vision of IYA2009) greater international recognition and an opportunity to link with celebrations worldwide. Criteria were established, which projects must satisfy. These include aligning with at least one of IYA2009's goals; being global in scope; being financially independent; and evidence must be given of successful implementation, in the form of human resources, funding, planning, or other relevant factors. In total, 16 projects have met these criteria.

Special products are commercial products that satisfy the vision of IYA2009 to achieve greater international recognition, are an opportunity to link with celebrations worldwide, and to use the IYA2009 global network to reach out. As with the Special projects, specific criteria must be met to achieve Special product status. These include aligning with IYA2009's vision, being available globally, being adaptable to other languages, and offering a financial contribution (minimum 5000 EUR per product). During IYA2009 there were eight Special products.

## Keeping the momentum

Having such a large network presents its own problems, one of which is ensuring adequate communication to maintain momentum. Several methods have been adopted to help. First is the website, which features news articles and points of interest. There are also daily updates on the web and new media outlets, such as Twitter, Facebook, and Portal to the Universe. This is in addition to weekly newsletters sent to the Single Points of Contacts, Cornerstones, Media Partners and any others who wish to be included. The Communicating Astronomy with the Public journal is published quarterly, and features IYA2009 stories, updates and best practices. Taken together, a lot of time and effort has been put into keeping the momentum of IYA2009 up over the Year.

The International Astronomical Union has also established an Executive Committee Working Group (IYA2009 WG), chaired by the then IAU President, Catherine Cesarsky, to lead the IAU's efforts for IYA2009. The IAU envisioned its role in IYA2009 as taking responsibility for:

- Organising a small number of truly global events.
- Establishing the international IYA2009 website (www.astronomy2009.org). This served as a focal point for IYA2009 activities and as a clearinghouse for activities and projects at the national level. It provided information useful for the global coordination of this event. For instance:
    - Contact information for the organisers for press, educators and public.
    - Background information.
    - Latest news.
    - Resources
    - Lists of global and international events.
    - Lists of events in each country.
    - Links to the IYA2009 pages in each country.
    - Ideas for local, regional and national events.
- Liaising with the several IYA2009 stakeholders and partners, namely:
    - National Nodes.
    - Organisational Nodes.
    - Organisational Associates.
    - Media Partners.
    - Cornerstones.
    - Special Task Groups.
    - Special Projects.
    - Global Sponsors.

## Organisational Structure Overview

The IYA2009 happened at all levels: international, national, regional and local. Most of the events were organised locally and rely on local amateur and professional astronomers. However, an international network of interconnecting organising bodies ensures that the best ideas and practices were shared:



# IAU

The International Astronomical Union was the initiator and international leader of IYA2009. The IAU was founded in 1919 and maintains a small secretariat in Paris. Its mission is to promote and safeguard the science of astronomy through international cooperation. The Individual Members are professional astronomers active in research and education in astronomy all over the world. The IAU is a grassroots organisation run by its members for the benefit of astronomy worldwide. It maintains friendly relations with organisations that include amateur astronomers in their membership. Currently the IAU has nearly 10 000 Individual Members in 87 countries. In addition to arranging scientific meetings, the IAU promotes astronomical education and research in developing countries through its International Schools for Young Astronomers, Teaching for Astronomy Development and World Wide Development of Astronomy programmes and through joint educational activities with UNESCO and other bodies.

The IAU acted as a catalyst and coordinator for IYA2009 at the global level, largely, but not exclusively, through the IYA2009 website and the Secretariat. The IAU was the primary interface with bodies such as UNESCO and the United Nations.



IAU General Assembly, Rio de Janeiro, Brazil, 13.09.09

# UNESCO

UNESCO — the United Nations Educational, Scientific and Cultural Organization — was founded on 16 November 1945. It is a specialised agency of the United Nations that, through its day-to-day work in education, the social and natural sciences, culture and communication, aims to build peace in the minds of men.

UNESCO functions as a laboratory of ideas and a standard setter to forge universal agreements on emerging ethical issues. The Organization also serves as a clearinghouse for the dissemination and sharing of information and knowledge, while helping Member States to build their human and institutional capacities in diverse fields. In short, UNESCO promotes international cooperation among its 192 Member States and six Associate Members in the fields of education, science, culture and communication.

In the field of science, UNESCO acts as an advocate and as a platform for sharing ideas and standard setting and promotes dialogue between scientists and policy makers. The Organization empowers and catalyses innovative initiatives in the field of international cooperation in science, in particular through networks and capacity building activities.

UNESCO is working to create the conditions for a genuine dialogue between nations based on respect for shared values and the dignity of each civilisation and culture. The world urgently requires a global vision of sustainable development based upon the observance of human rights, mutual respect and the alleviation of poverty, all of which lie at the heart of UNESCO's mission and activities.

# IYA2009 EC WG

The task of the IAU IYA2009 Executive Committee Working Group was to define and coordinate IYA2009.

The members are:

- Catherine Cesarsky (Chair) (IAU President 2006–2009)
- Ian Robson (UK)
- Dennis Crabtree (Canada)
- Lars Lindberg Christensen (Denmark — ESO/ESA/IAU)
- Claus Madsen (Denmark — ESO)
- Norio Kaifu (Japan)
- Ian Corbett (IAU-UK)
- Doug Isbell (USA)
- Susana Deustua (USA)
- Robert Hill (UK)
- Kevin Govender (South Africa)
- Mary Kay Hemenway (USA)
- Yolanda Berenguer (UNESCO)
- Karel A. van der Hucht (IAU General Secretary 2006–2009), ex-officio

## IYA2009 Secretariat

The central hub of the IAU activities for the IYA2009 was the Secretariat. This was established to coordinate activities during the planning, execution and evaluation of the Year. The Secretariat liaised continuously with the National and Organisational Nodes, Task Groups, Partners and Organisational Associates, the media and the general public to ensure the progress of the IYA2009 at all levels.

### Pedro Russo — IAU Coordinator for IYA2009

(July 2007 — December 2010)
Pedro Russo was the global coordinator for the largest network ever in Astronomy, the International Year of Astronomy 2009 (IYA2009). Pedro coordinated the planning, implementation, execution and evaluation of the global IYA2009 activities, projects and events. He was also responsible for the communication between the thousands of stakeholders of the project, including projects and national chairs, astronomy community, media and society with respect to all global IYA2009 issues.

### Mariana Barrosa — IYA2009 Coordination Assistant

(April 2008 — May 2010)
Mariana supported the planning, coordination, preparation, implementation and revision of the International Year of Astronomy 2009 and other joint programming processes.

### Lee Pullen — IYA2009 Staff Writer

(October 2008 — July 2010)
Lee assisted in the development and production of all communication products for the IYA2009, including producing content, proofing, editing and liaising with journalists.

### Lars Lindberg Christensen — IYA2009 Secretariat Manager

Lars was acting IYA2009 coordinator until July 2007, and after that continued as manager of the IYA2009 Secretariat, i.e. oversaw the strategy of the project, the budget (including fundraising) and ensured a smooth daily workflow for the Secretariat, which was hosted by the Education and Outreach Department (ePOD) at the European Southern Observatory.

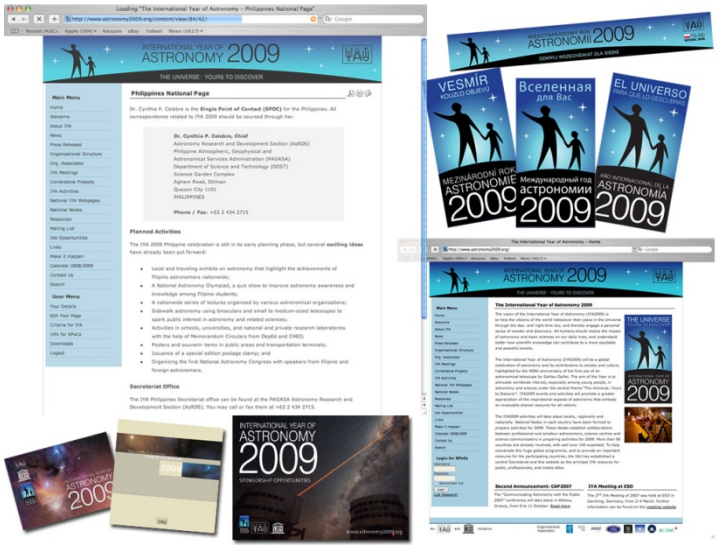
# Website

The IYA2009 website (www.astronomy2009.org) was been set up and more than 148 member countries have established national committees and appointed Single Points of Contact (SPoCs). The Secretariat and the website were important coordination and resource centres for all the countries that took part, but most particularly for those developing countries that lacked the national resources to mount major events alone. The web presence was managed by Lars Holm Nielsen and Raquel Shida (ESO ePOD).

The International Year of Astronomy 2009 (IYA2009) has an overwhelming online presence worldwide. There is no doubt that one of the keys to the success of IYA2009 lies in its prominent online resources. In this section we will give an overview of the many facets of its online presence at the international and national levels, showing what most attracted the public, what worked well, and what didn't. An attempt to present the outcome quantitatively will be made.

## Introduction: historical overview

The first website for IYA2009 was created in 2006. Its main purpose was to publicise information for organisers and possible sponsors. It was based on Simplicity, a Content Management System created by the ESA/Hubble European Information Centre (Nielsen et al. 2006).




In an intermediary phase, the website was migrated to an open source Content Management System (CMS), Joomla, and an attempt to provide more resources at the organisational level was made. In a dedicated area, Single Points of Contact (SPoCs) were given the opportunity to download a wide variety of communication products to be used in the promotion of IYA2009 in their own countries. The number of pages grew fast, as did the number of visitors.

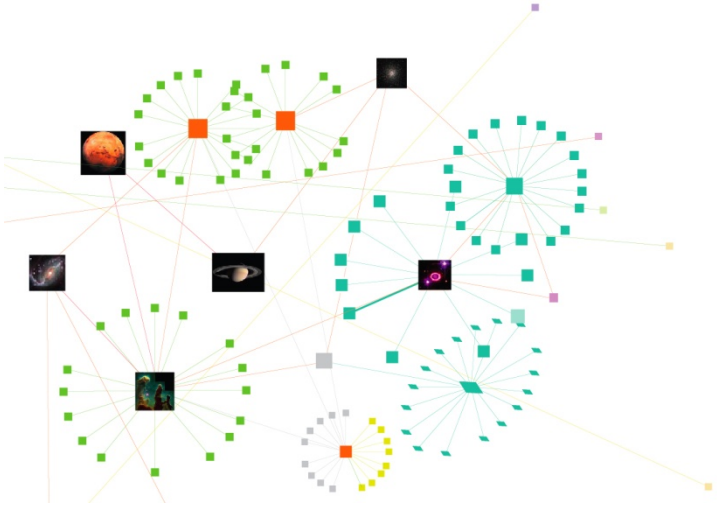
Unfortunately Joomla proved to not be an appropriated system for the purposes of IYA2009; it was vulnerable to hacker attacks and was difficult to customise to our specific needs. These reasons, along with the necessity of improving the design and making the website friendly to the general public, made us develop a new web solution.

In the previous CAP conference a proposal for the IYA2009 presence on the web was presented (Shida et al. 2007). The main goal was to make the IYA2009 website more accessible to the general public and provide branding resources. This was fully achieved, thanks to a new CMS called Djangoplicity, developed by the web & advanced projects team at ESO Headquarters in Germany.

## The Network

Key points:

- IYA2009 was a project based on an **international network**, structured on individuals and organisations that acted as nodes. Every National and Organisational Node was tied to one or more nodes, sharing ideas and projects related with the development of IYA2009;
- **Relying on National Nodes was indispensable for the success of the whole project**. This is a case where it is better to have numerous — even though small — nodes spread all over the world, rather than having just one big central node and few points of contact here and there;
- One of the first suggestions of the IYA2009 Secretariat, made even before the Year started, was that each National Node created its own website, in its local language, adapted to its local needs. Most of them successfully worked on that, and **111 National Nodes built their own pages**. That number represents 75% percent of all participating countries;
- National websites played key roles in the organisation and implementation of national events, educating citizens about the importance of astronomy and encouraging them to look at the sky.



## Social Networking

Social networks, such as Facebook and Twitter, have the capability of connecting people at a relatively low coast, making them great tools for projects like IYA2009. They provide a fast way to get in touch with the public (at least the young adults interested in technology) and a good way to create brand awareness.



IYA2009 was (and still is!) present in all the most popular social online networks:

- YouTube (more than 100 000 viewers and more than 800 videos)
- Facebook (almost 7000 fans)
- MySpace (hundreds of followers)
- Orkut (several hundred members)
- LinkedIn (hundreds of members)
- Twitter (more than 5000 followers)
- Flickr (over 1750 photos in the IYA2009 Group)
- and many others.

## Analysis: what does the public want to see online?

### The most popular pages during 2009 on www.astronomy2009.org

For the analysis presented in this section, data was collected from Google Analytics during the period range of 01 January 2009 and 10 January 2010, date of the Closing Event of IYA2009. In total, during this period, the website www.astronomy2009.org received nearly **3 million visitors**. This does not reflect that actual number of people who accessed information about the IYA2009, as the 111 national websites were excluded from the metrics. The most visited pages were, in this order:

1. IYA2009 home page
2. Image Archive
3. Global Projects
4. Resources
5. Branding and Identity Guidelines
6. Video Archive
7. National Nodes
8. Galileoscope
9. Poster Archive
10. Cornerstone Projects
11. News & Press Coverage
12. Updates
13. Meetings & Global Events
14. Educational Material Archive
15. Presentation Archive

Not surprisingly, the multimedia archives and the constant updates of content were very important to the users. The public is eager to see new events happening, and to read what goes on as time passes by.

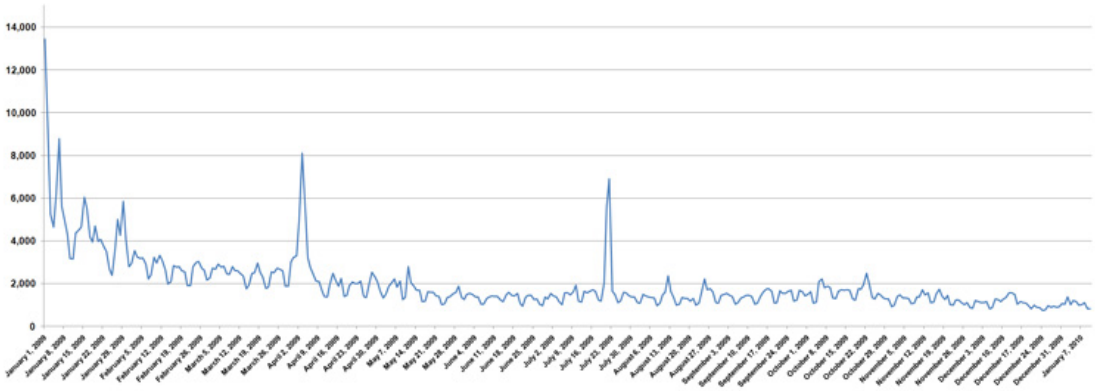



## Highlights of the Year

- 2 626 179 Page views
- 611 477 Unique visitors
- Average: 2208 visits/day

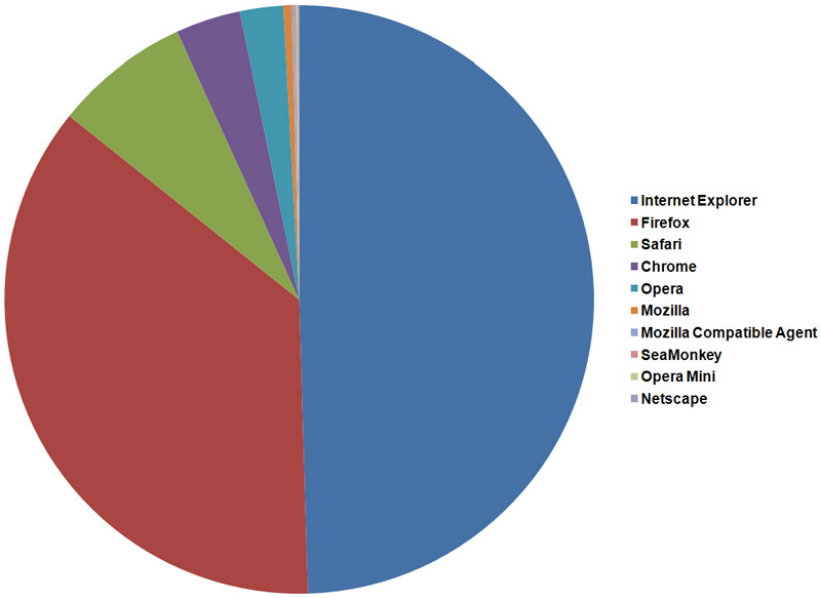
## Peaks

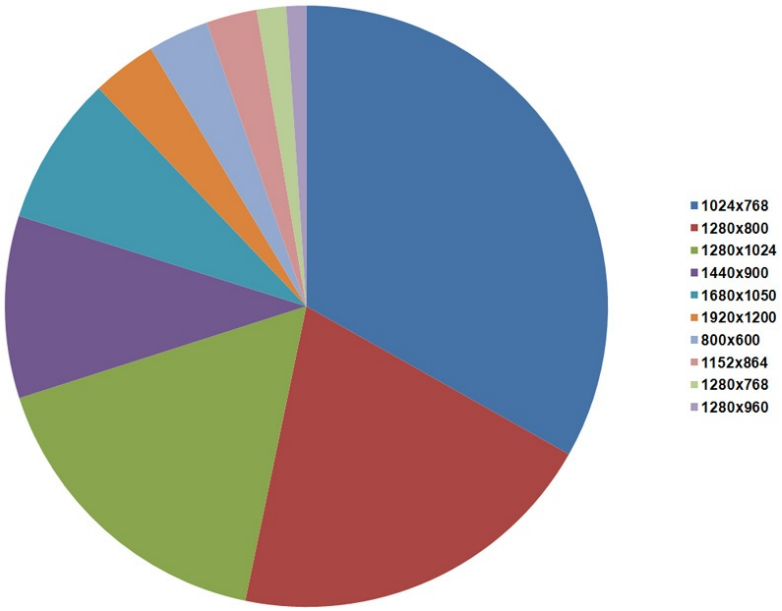
- 1 January: Beginning of IYA2009
- 15 January: Opening Ceremony
- 29 January: IYA2009 was featured in NASA's Astronomy Picture of the Day website
- 3 April: 100 Hours of Astronomy and Around the World in 80 Telescopes
- 22 July: Total Solar Eclipse

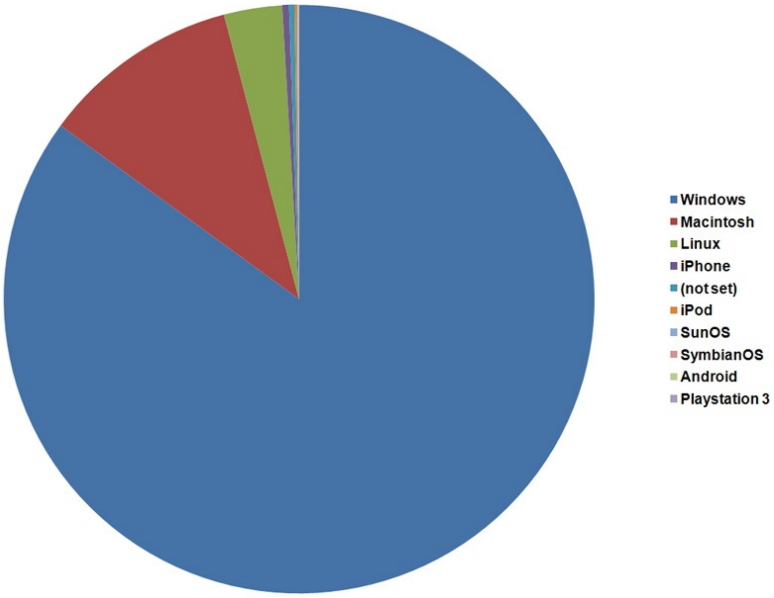



## Some interesting analysis for web designers

The visitors of astronomy2009.org are the same ones that will visit the websites of new international astronomy outreach projects. An analysis of what computer systems they use is essential for the planning and implementation of new web-based projects. Below are some data gathered from 01 January 2009 to 10 January 2010:






## Results and Conclusions

The data analysis provided some interesting, some surprising, and some expected results. Below we summarise these:

- Providing “open source” resources (printed products and videos) proved to be very efficient in the advertising and promotion of IYA2009 branding worldwide;
- The National Nodes and the National websites were essential for the success of the project as a whole;
- The public craves high quality videos and images;
- Frequent updates are important to maintain constant traffic to the website;
- Language seems to be an issue: among the top 10 countries that visited the website, 4 of them are English-speaking countries;
- There are more than 1000 different screen resolutions being currently used, with 1280 pixels wide being the most popular (37%);
- Internet Explorer is the most used browser (50%), closely followed by Firefox (36%);
- 85% of the users use Windows as operating system.

## Communication Strategy

Through outreach involving an array of global projects, many barriers were broken down between the astronomical research community and the public. It is hoped that this undertaking will inspire future appreciation for the science of astronomy, in turn generating support for greater research to usher in new, exciting discoveries.

A comprehensive communication plan to highlight astronomical research was created in the years leading up to 2009 by the IYA2009 Secretariat on behalf of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Astronomical Union (IAU). These organisations' working astronomers and science communication professionals charted a course for IYA2009 that continues today through the "IYA2009 Beyond" programme .

For maximum effectiveness, the IYA2009 Secretariat was embedded in a well-functioning public relations department at the European Southern Observatory (ESO). Though acting as the central authority and coordinator for IYA2009, the Secretariat adopted a supportive rather than controlling stance in regards to the many grassroots efforts that emerged to promote astronomy. Whenever possible, the initiatives by amateur and professional astronomers were provided with the resources necessary to make an impact.

A practical and important aspect of the arrangement with ESO in housing the Secretariat was to ensure that hundreds of high-quality images and videos accompanied the communication products. Press releases were made available to national and organisational point-of-contacts and other stakeholders well in advance to allow time to translate, adapt and circulate the materials in their home countries. Most people working in these national nodes were not communication professionals, but instead were oftentimes researchers who wanted to help get the word out.

To further assist astronomers in promoting their field, the Secretariat provided a toolkit with communication guidelines regarding media interaction. In developing countries where the media is not used to covering science, and also in countries with extensive non-scientific media, this toolkit proved adept at spreading the vision and goals of IYA2009.

In all, 28 press releases, 122 "weekly newsletters" and 710 "news updates" went out from the IYA2009 Secretariat. This content filled global news cycles with well-heeded messages of the importance and inspirational aspects of astronomy research. These daily updates and weekly summaries posted regularly on the IYA2009 website kept the public and participating researchers well-informed of events and special projects. During 2009, the website had more than 820 000 visitors, with over 500 000 between 1 April 2009 and 10 March 2010.

Many IYA2009 projects spoke to the importance and joy of astronomical research. Professional astronomers shared their excursions for observations and explained their technical work to the general public in the IYA2009 Cornerstone project called the Cosmic Diary. Via regular posts and monthly feature articles about cutting-edge research, including five blogs from the European Space Agency (ESA) and 14 from ESO, the Cosmic Diary racked up than 220 000 visitors during 2009. Portal to the Universe was also launched to act as a one-stop Web site for astronomy news, sharing the latest scientific discoveries and encouraging people to look up and wonder.

Many national research organisations and dedicated astronomical agencies aided in these and many other initiatives. Examples beyond ESO include ESA, the European Science Foundation, the U.K.'s Science & Technology Facilities Council, the Ministry of Education and Science in Spain, the Swiss Academy of Sciences, Italy's Agenzia Spaziale, France's L'Institut National des Sciences de l'Univers and Commissariat à l'Énergie Atomique, the Portugese Astronomical Society, the Nederlandse Onderzoekschool Voor Astronomie, the Croatian Science Portal, and more.

Political interest in IYA2009 was also high — an achievement for any popularisation program. For example, in the United States of America, the House of Representatives passed a resolution supporting astronomy. The Spanish Congress of Deputies also passed a law supporting astronomy in the framework of IYA2009.

Overall, the promotion of astronomical research through IYA2009 had a clear societal impact as measured by media coverage. As tracked by the global media monitor Meltwater, over one thousand online news articles per month — and in some months twice that — were written about IYA2009 and its pro-astronomy message.

European newspapers, including El Pais and El Mundo in Spain, Público in Portugal and Il Denaro in Italy ran special sections dedicated to astronomy and IYA2009 the entire year.

IYA2009 was a huge event not only on Earth, but also above it, demonstrating the intersection of public support and the advancement of research goals. In May, the highly anticipated ESA missions Herschel and Planck, which are probing the origins of our Universe, were launched aboard a rocket that proudly displayed the IYA2009 logo. Also that month, the space shuttle Atlantis was launched to refurbish the NASA/ESA Hubble Space Telescope, carrying on board a replica of Galileo's telescope (in the framework of IYA2009) used 400 years ago to change our view of the cosmos. Earlier in 2009, the space shuttle Discovery carried the Japanese astronaut Koichi Wakata, and a special flag with the IYA2009 logo. Another IYA2009 enthusiast, Canadian Space Agency astronaut and Expedition 20/21 crew member Bob Thirsk, recorded an exclusive IYA2009 message during his long-term mission on board the International Space Station to propose a rediscovery of interest in astronomy and space sciences.

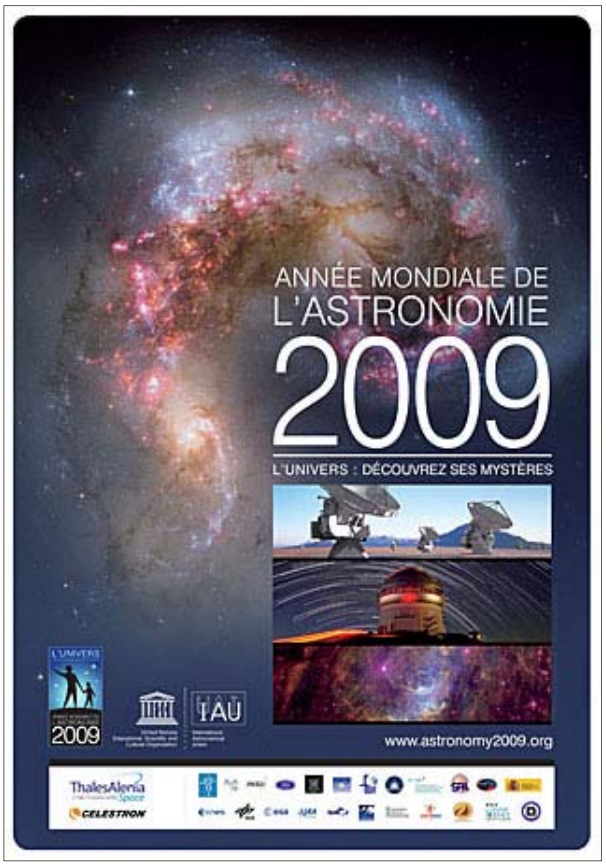
Several communication products were produced and these are listed in the following.

## Products

### Posters in 6 official UN languages

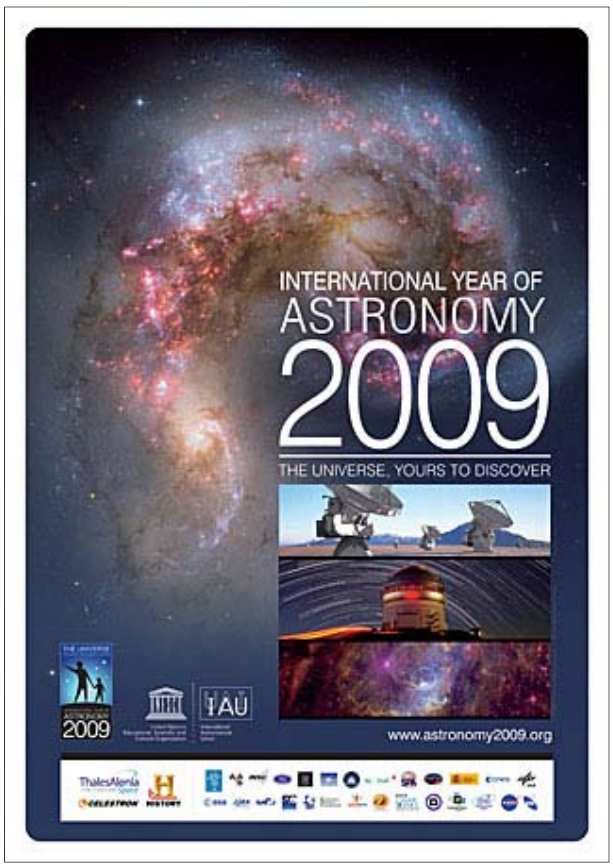






ANNÉE MONDIALE DE
L'ASTRONOMIE
2009
L'UNIVERS : DÉCOUVREZ SES MYSTÈRES
2009
IAU
www.astronomy2009.org
ThalesAlenia
CELESTRON


2009
探索我们的宇宙
国际天文年
2009
IAU
www.astronomy2009.org
ThalesAlenia
CELESTRON


2009
探索我们的宇宙
国际天文年
2009
IAU
www.astronomy2009.org
ThalesAlenia
CELESTRON


INTERNATIONAL YEAR OF
ASTRONOMY
2009
THE UNIVERSE, YOURS TO DISCOVER
2009
IAU
www.astronomy2009.org
ThalesAlenia
CELESTRON
HISTORY

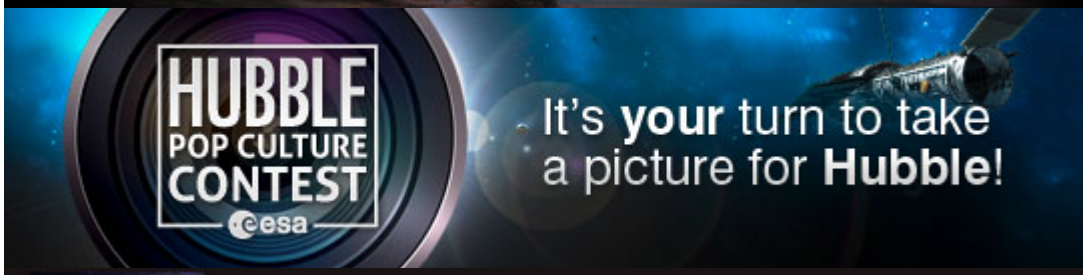
Web News Features

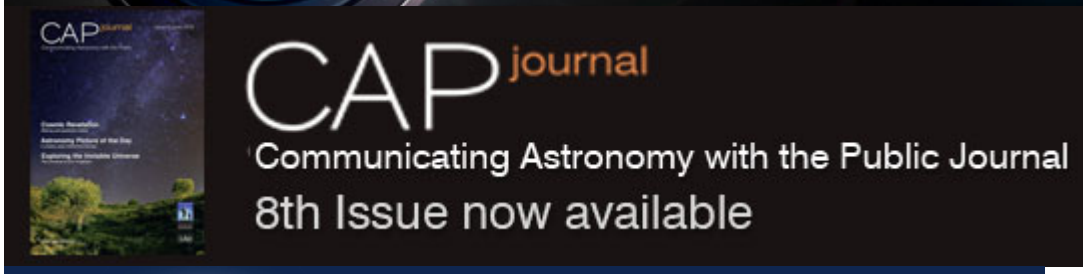


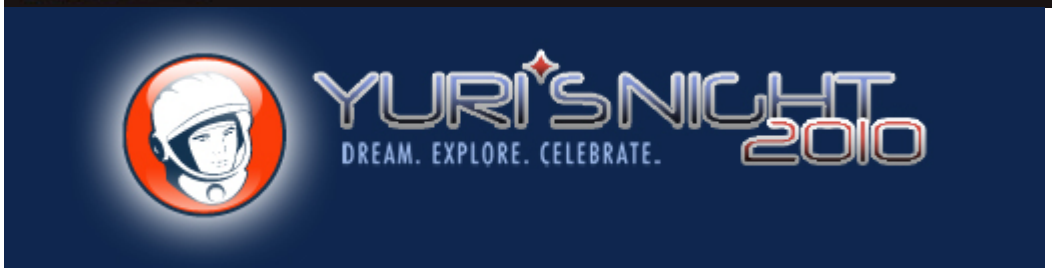






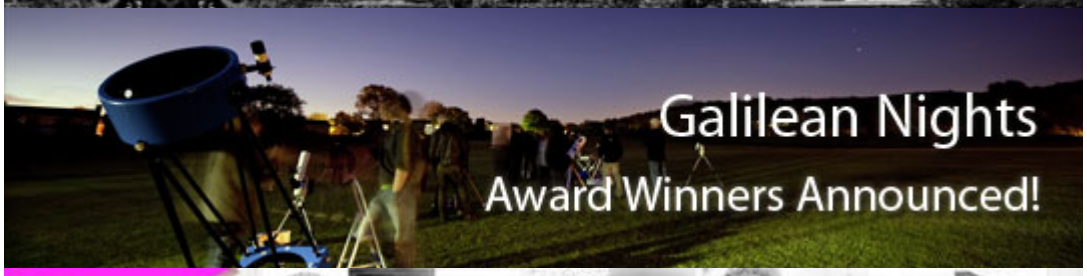




"30 Nights of StarPeace"
Moves West

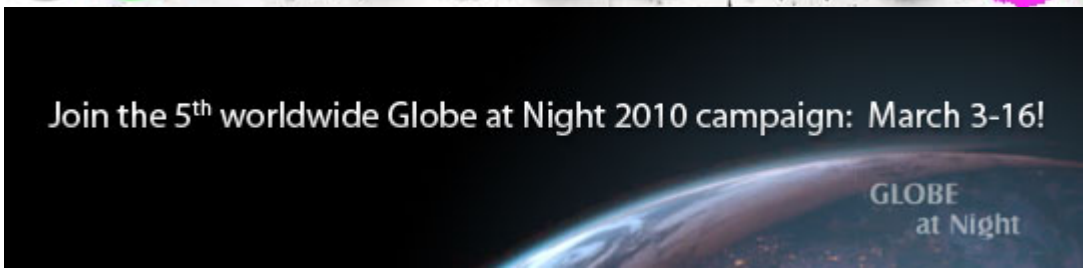

April 2010
GLOBAL
ASTRONOMY
MONTH


TEACHING
WITH
TELESCOPES
SITE
WORK
AHEAD


London's National Maritime Museum
scoops 2009 Visit London Award for IYA2009


Galilean Nights
Award Winners Announced!


Celebrating the International Year of Astronomy
The Hubble Classroom Collage


Join the 5th worldwide Globe at Night 2010 campaign: March 3-16!
GLOBE
at Night


400 Years of the Astronomical Telescope
poster released


The Galileo Teacher Program
brings astronomy into the classroom

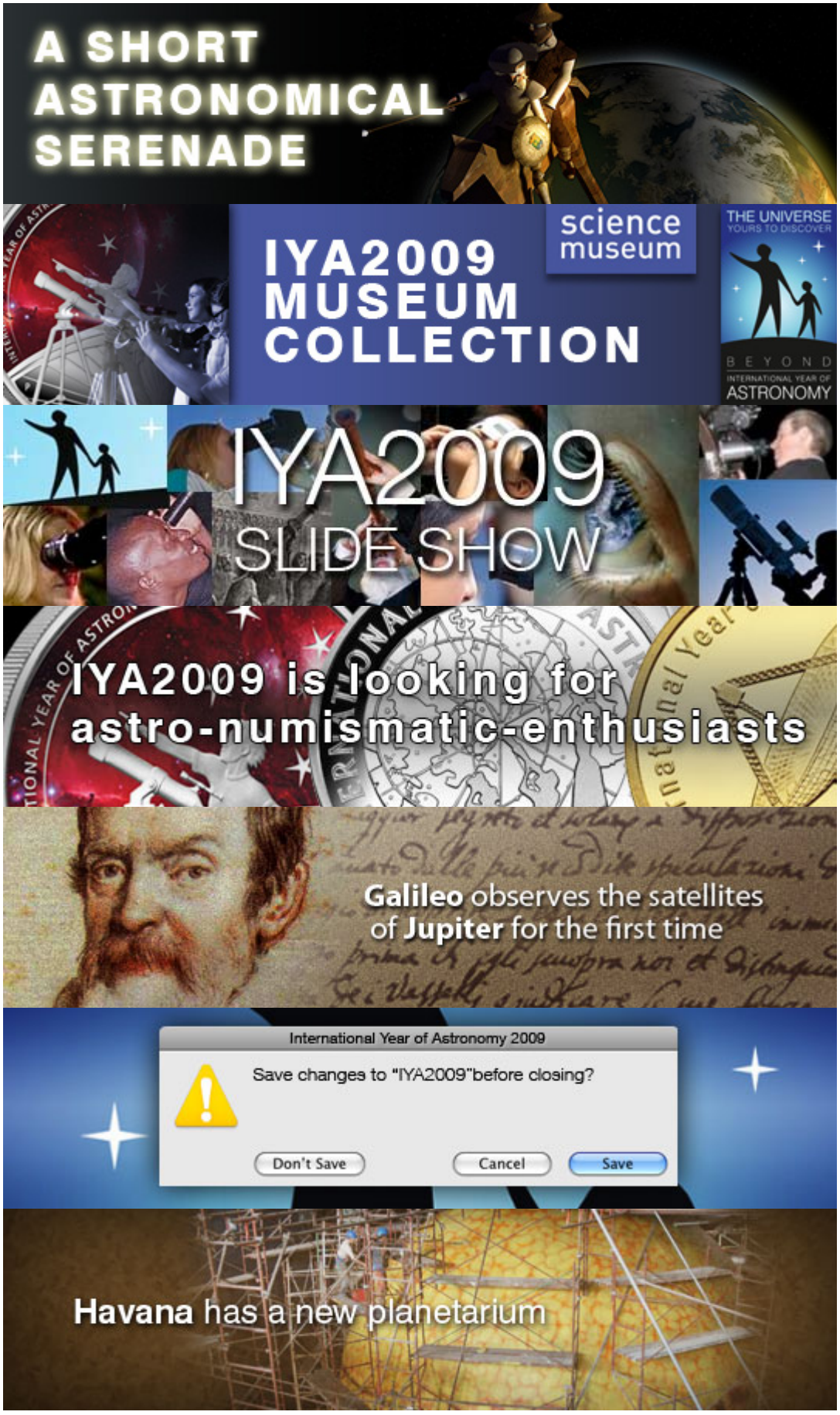

GLOBAL ASTRONOMY MONTH
April 2010
Global Astronomy Month 2010
One People, One Sky


22&23 April 2010
London/UK
She is an Astronomer conference:
Celebrating success and
seeking solutions


HELLO!
RED PLANET
25 to 30 January 2010
BEAUTY WITHOUT BORDERS


The lives of Galileo
now a TV show!

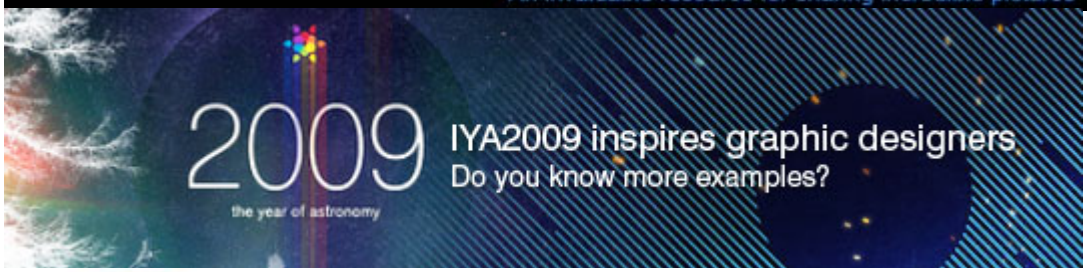

ASTRONOMY BEYOND 2009
IYA2009 Closing Ceremony Videos Now Online


A SHORT ASTRONOMICAL SERENADE
science museum
IYA2009 MUSEUM COLLECTION
THE UNIVERSE YOURS TO DISCOVER
BEYOND
INTERNATIONAL YEAR OF ASTRONOMY
IYA2009 SLIDE SHOW
IYA2009 is looking for astro-numismatic-enthusiasts
Galileo observes the satellites of Jupiter for the first time
International Year of Astronomy 2009
Save changes to "IYA2009"before closing?
Don't Save
Cancel
Save
Havana has a new planetarium


Flying to a Black Hole
Geminid meteor shower peaks mid-December
Cross the Universe in Paris metro stations!
Eyes on the Skies wins Special Jury Award
at the 2009 MEDEA Awards
www.physicstoday.org
physics today
December 2009
Feature issue on light pollution
and its effects on astronomy
EYES ON THE SKIES
400 Years of Telescopic Discovery
MEDEA Award 2009 finalist
.astronomy
Leiden 2009
Image: Keith B. Quattrocchi 2009


CAP journal
Communicating Astronomy with the Public Journal
7th Issue now available


NASA Images
An invaluable resource for sharing incredible pictures


2009
the year of astronomy
IYA2009 inspires graphic designers
Do you know more examples?

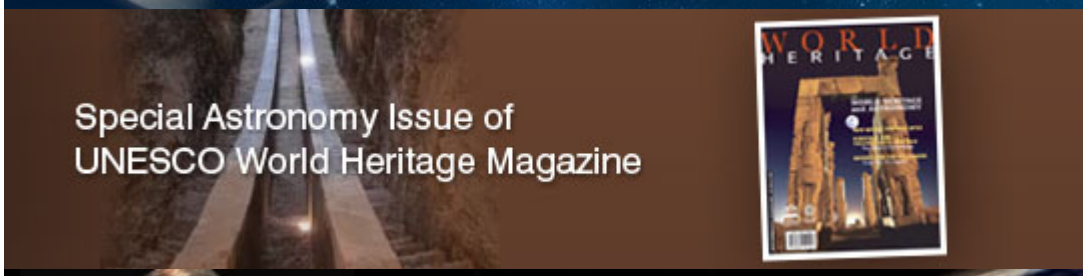

planetearth®
Present for The Future
Closing Ceremony, 20-22 November, Lisbon

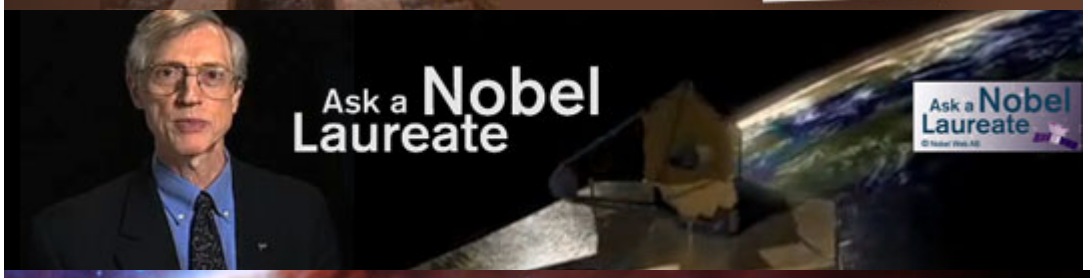

Send a message to Venus!


IYA2009 Astronomical Exhibit in Monaco

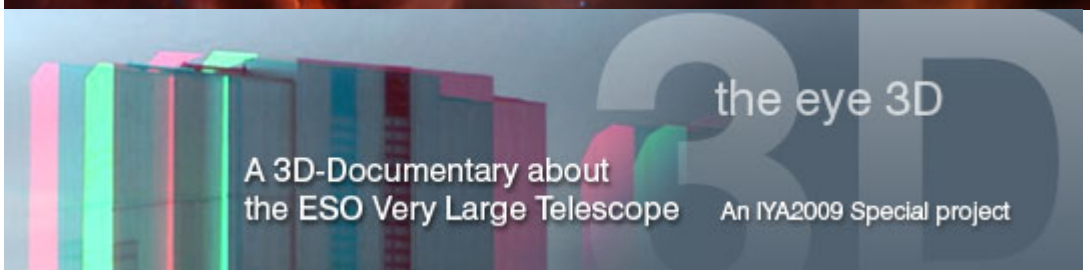

Canada Surpasses Goal of
1,000,000 Galileo Moments


Jupiter: Project 24
JUPITER: PROJECT 24

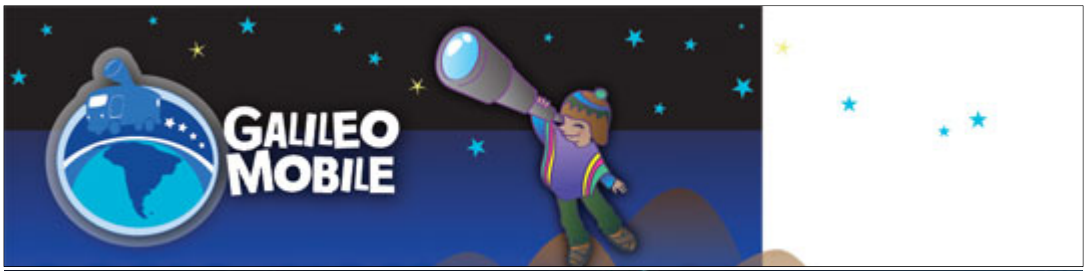

Special Astronomy Issue of
UNESCO World Heritage Magazine
WORLD HERITAGE

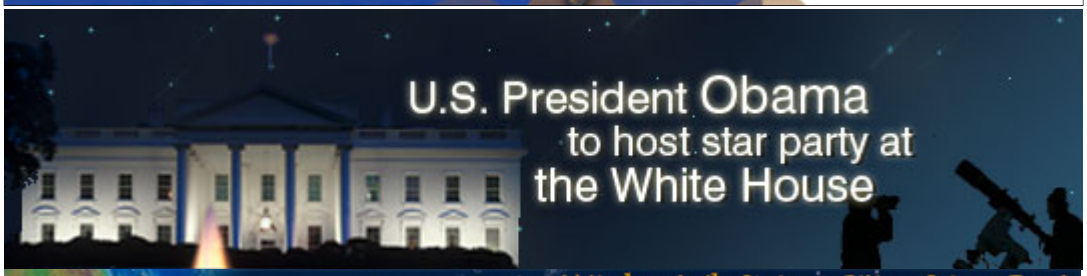

Ask a Nobel Laureate
Ask a Nobel Laureate


Canada Surpasses Goal of
1,000,000 Gaileo Moment


the eye 3D
A 3D-Documentary about
the ESO Very Large Telescope
An IYA2009 Special project


Galilean Nights
Get Ready for a Galileo Experience!
Galilean Nights
at Cosmic Diary
Cosmic Diary
Galilean Nights
blog
IYA2009
Mani Bhaumik Prize
for Excellence in Astronomy Education and Public Outreach
announced today
HUBBLE'S
AMAZING RESCUE
THE UNLIKELY STORY OF HOW THE WORLD'S MOST BELOVED TELESCOPE WAS SAVED
LARGEST: Giant
of the Solar System
First light from Turkey's biggest telescope
ngc7479
m56
m74
Çanakkale Astrophysics Research Center and Ulupınar Observatory
Astronomy
beyond 2009
Closing Event of IYA2009
9-10 January 2010


GALILEO
MOBILE


U.S. President Obama
to host star party at
the White House


A Windows to the Universe Citizen Science Event
www.windows.ucar.edu
GREAT
World
Wide
STAR
COUNT
WINDOWS TO THE UNIVERSE
OCTOBER 9-23, 2009


scienceface org
IYA2009
has three new
Special Projects

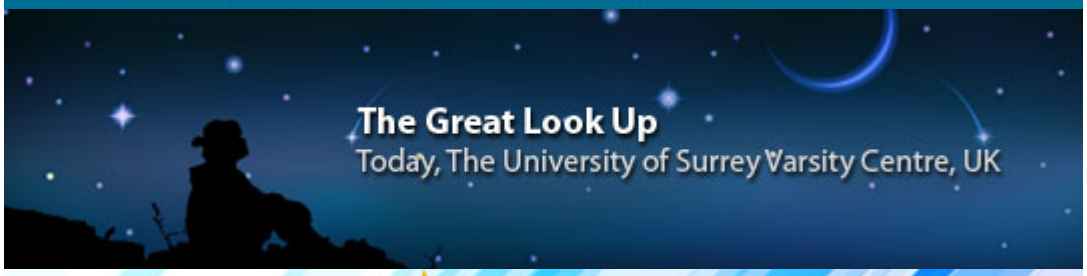

09
Astroparticle physics
the European week
10-17 October 2009


The Sun:
Our nearest star
The Moon:
Our natural satellite
JUPITER
Saturn:
The ringed planet
Galilean Nights presentations now available!
UN-declared
World Space Week
4 - 10 October 2009

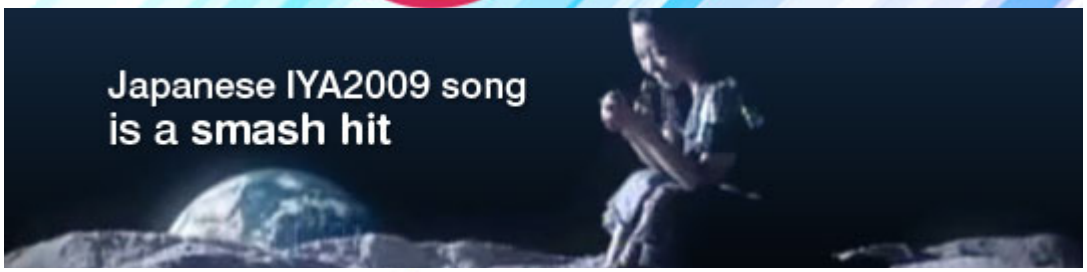

World Space Week
4 - 10 October 2009
"She Is An Astronomer"
2010 Calendar
European Researchers'
night 2009: 25 September
Israeli Sci-Fi and Fantasy Festival
celebrates IYA2009
Galilean Nights: Global Astronomy Event Invites
the World to Discover Our Universe
Galilean Nights
THE LIVES OF GALILEO
Official IYA2009 comic,
"The Lives of Galileo",
goes from strength to strength
Discover our Universe
with ESO's
GIGAGALAXY ZOOM


365
DAYS OF
ASTRONOMY
DAILY PODCAST OF THE IYA
365 Days of Astronomy
Podcast Wins Prestigious
Parsec Award


UNESCO
the Courier
Special Edition: Enigmas of the Universe


The Great Look Up
Today, The University of Surrey Varsity Centre, UK

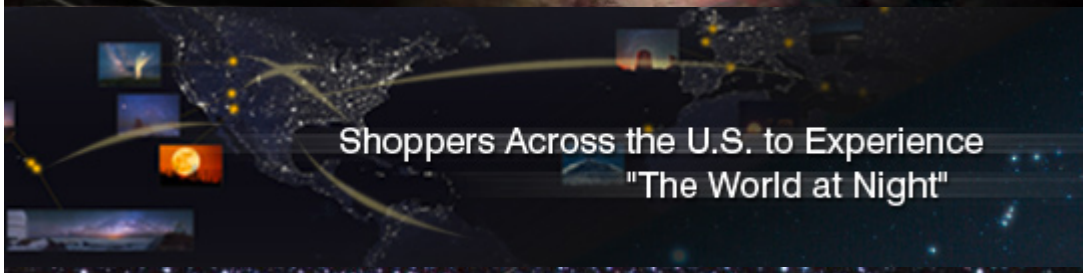

Galilean
Nights
Website launch!


Japanese IYA2009 song
is a smash hit


Google
Galileo's telescope
reaches 400th
anniversary

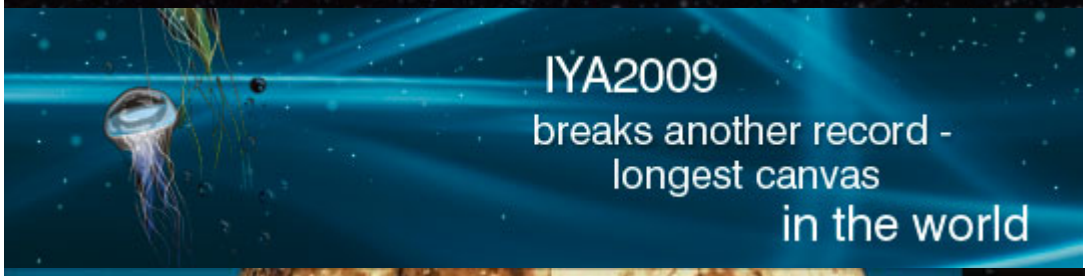

400 years
of telescopes being used
for outreach


Women in Astronomy and Space Science 2009

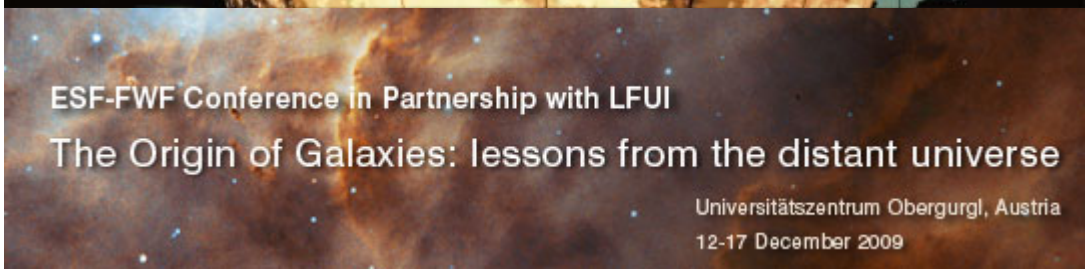

Shoppers Across the U.S. to Experience
"The World at Night"


twitter
Twitter Perseid meteorwatch
set for August 11 and 12


twitter
Twitter Perseid meteorwatch
set for August 11 and 12


IYA2009
breaks another record -
longest canvas
in the world

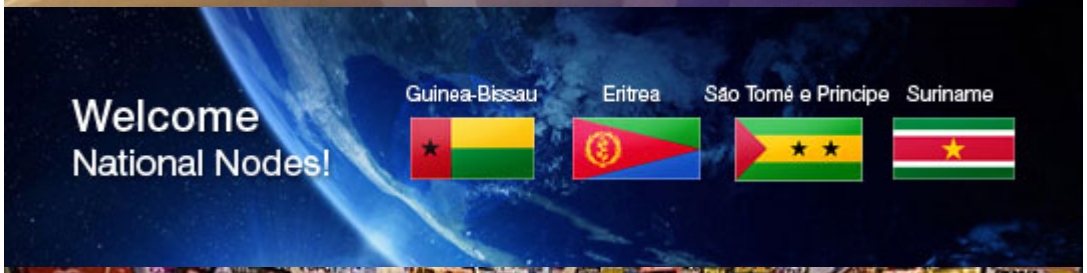

INTERNATIONAL LIGHT FESTIVAL
SKYWAY '09
11-16.08. TORUŃ, POLAND


ESF-FWF Conference in Partnership with LFUI
The Origin of Galaxies: lessons from the distant universe
Universitätszentrum Obergurgl, Austria
12-17 December 2009


EXPERIENCE
THE PLANETS
Our solar system through the eyes of artists

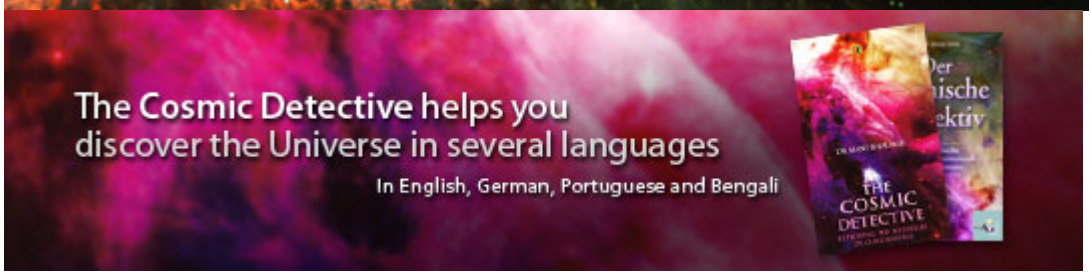

4th International UNAWE
Workshop: Rio de Janeiro,
August 8 - 9, 2009


Happy Birthday IAU!
IAU


Welcome
National Nodes!
Guinea-Bissau
Eritrea
São Tomé e Principe
Suriname


IYA2009 News Round-up


Cape Town, South Africa, 15-19 March 2010
Communicating Astronomy with the Public 2010
An IAU Comission 55 conference
IAU

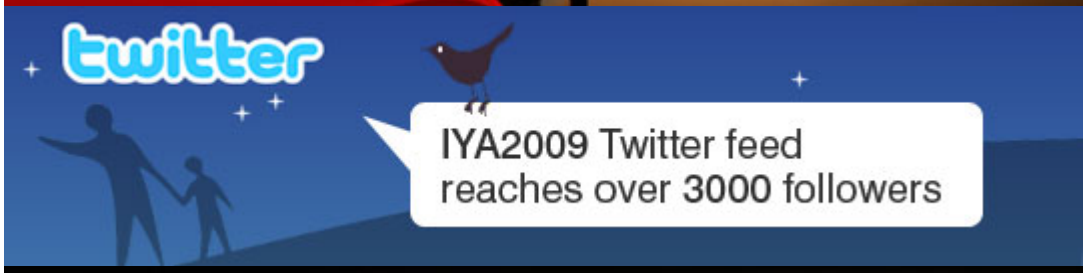

The Cosmic Detective helps you
discover the Universe in several languages
In English, German, Portuguese and Bengali
THE COSMIC DETECTIVE


New Moon Landing edition of Star Walk
During IYA2009, the world celebrates
40 years since the Moon landings
International Cassini Scientist for a Day
100 HOURS OF ASTRONOMY
Sidewalk Astronomy
and Star Party Awards
Competition Results
EXPERIENCE
our solar system through the eyes of artists
Launching Friday July 31, 2009
WWW.EXPERIENCETHEPLANETS.COM
The Universe comes to the US Capitol
ICYA 2009
International Conference
of Young Astronomers
7-13.09.2009
Cracow, Poland

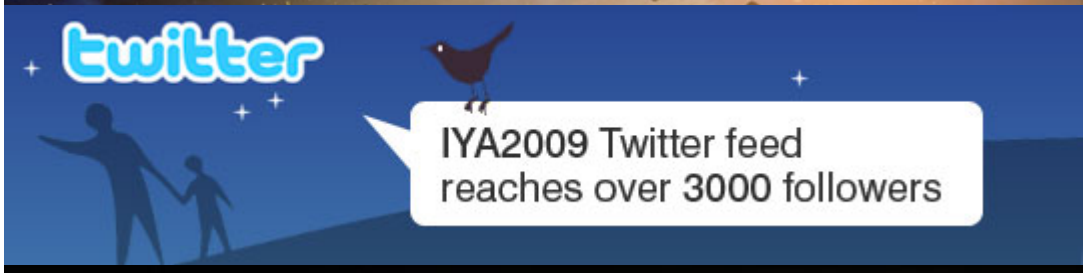

Moon for all mankind
IYA2009 Presentations
INTERNATIONAL YEAR OF ASTRONOMY 2009
Galilean Nights
New IYA2009 Cornerstone Project
Cosmic Diary
Happy Birthday!
The latest IYA2009 Brochure is now out!
2009
The International Year of Astronomy 2009 raises millions of eyes to the skies
Belfast looks to the sky for inspiration


The International Year of Astronomy 2009
raises millions of eyes to the sky
GALILEOSCOPE
50-MM (2-INCH) F/10 REFRACTOR KIT
WITH 20-MM EYEPIECE (25X) & 2X BARLOW LENS
2009
IAU
Call for Requests for donated Galileoscopes

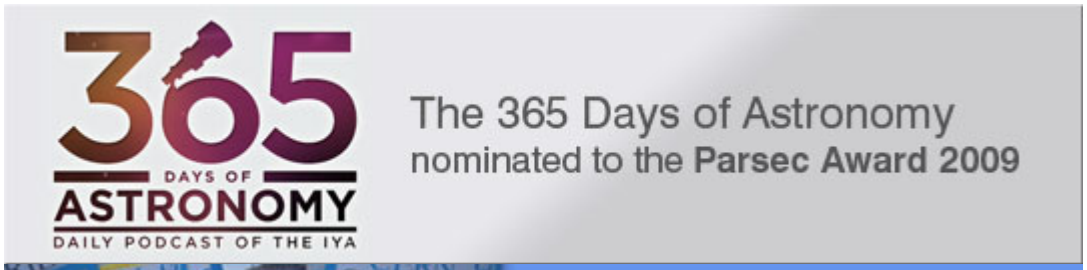

Worldwide broadcast for July's solar eclipse


twitter
IYA2009 Twitter feed
reaches over 3000 followers


THE UNIVERSE
HISTORY launches new website
celebrating The Universe

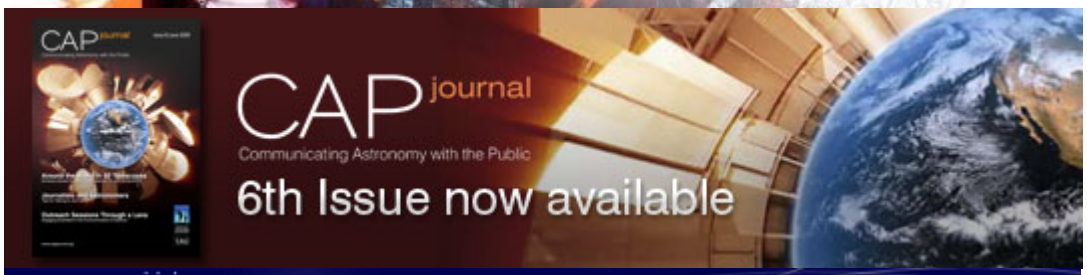

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THE UNIVERSE
HISTORY launches new website
celebrating The Universe


365
DAYS OF
ASTRONOMY
DAILY PODCAST OF THE IYA
The 365 Days of Astronomy
nominated to the Parsec Award 2009

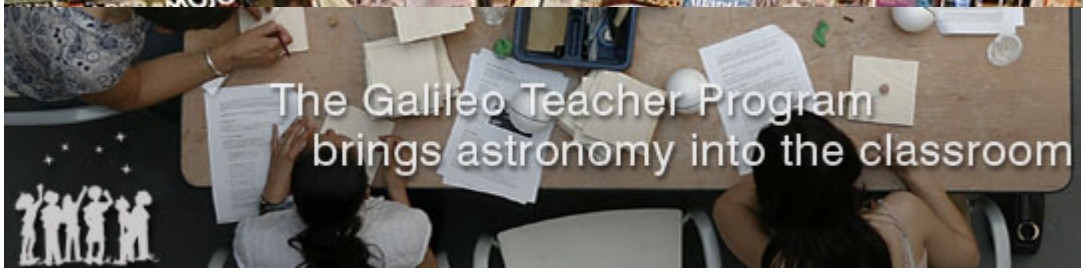

CERN COURIER
CERN Courier
IYA2009 Special Issue
CERN COURIER


IYA2009 Classical Concert
by the joint EUMETSAT-ESOC
Chamber Music Ensemble


CAP journal
Communicating Astronomy with the Public
6th Issue now available


Galileo-kun and his friends
Comicbook


IYA2009 News Round-up

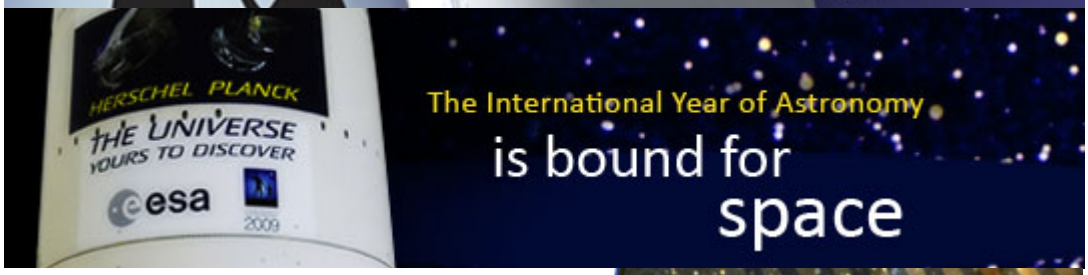

The Galileo Teacher Program
brings astronomy into the classroom


.astronomy
Leiden 2009
Image: Keith B. Quattrocchi 2009
IYA2009 and Web 2.0
A Telescope per School in Slovenia
THE UNIVERSE YOURS TO DISCOVER
INTERNATIONAL YEAR OF ASTRONOMY 2009
Catherine Cesarsky (IAU President)
Interview on the JAXA website
THE UNIVERSE YOURS TO DISCOVER
INTERNATIONAL YEAR OF ASTRONOMY 2009
International Year of Astronomy 2009
Brief Status Report
The International Year of Astronomy 2009
Help People Rediscover Their Place in the Universe
ReVista
HARVARD REVIEW OF LATIN AMERICA • SPRING 2009
GALILEOSCOPE
IYA2009
IYA2009: telescopes donated to budding astronomers
International Year of Astronomy 2009
YOU ARE GALILEO!


Angolan science minister urges
institutions to work with astronomers
on the occasion of IYA2009


GALILEO
MOBILE
Special Project
Everyone's sky
through South
American eyes


HERSCHEL PLANCK
THE UNIVERSE
YOURS TO DISCOVER
esa
An
amazing
week for
astronomy


HERSCHEL PLANCK
THE UNIVERSE
YOURS TO DISCOVER
esa
2009
The International Year of Astronomy
is bound for
space


esa
announces workshop
for science teachers

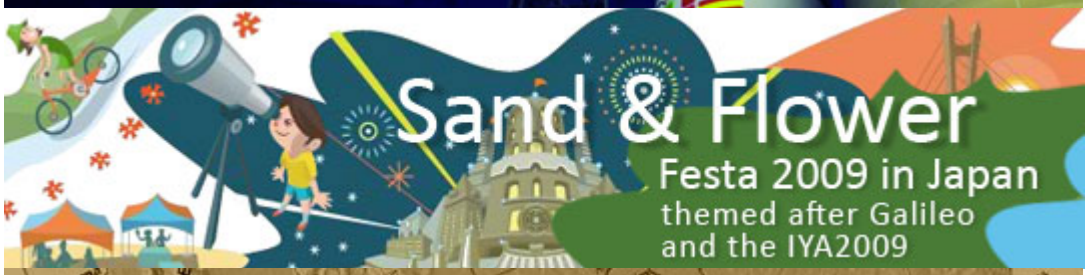

United Nations support
space science education

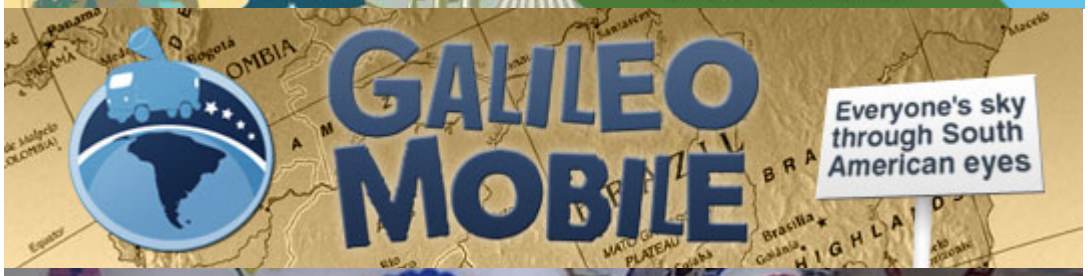

2009:
A Year full of
astronomical
stamps!
Danmark 8.00


KSS' 3rd Falakyati Mela in Pakistan


IYA2009 Boosts
GLOBE at Night
to Record Number
of Dark-Skies
Observations


Touching the Edge
of the Universe
world premiere


Sand & Flower
Festa 2009 in Japan
themed after Galileo
and the IYA2009


GALILEO
MOBILE
Everyone's sky
through South
American eyes

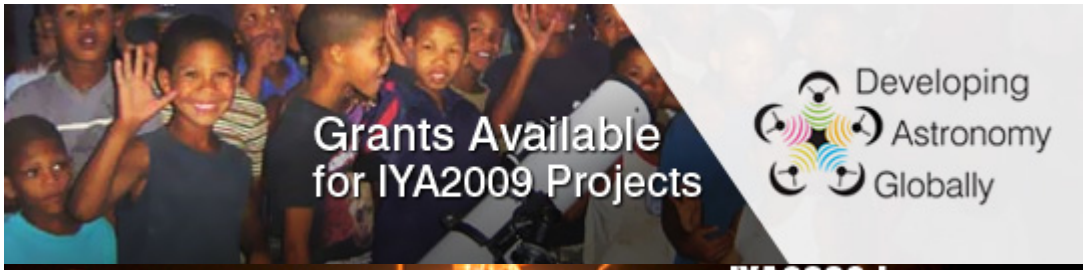

INOVARTE 2009 Contest rewards Portuguese astronomy themed craft work


Mauna Kea Brand
IYA2009
Trading Cards
TELESCOPE

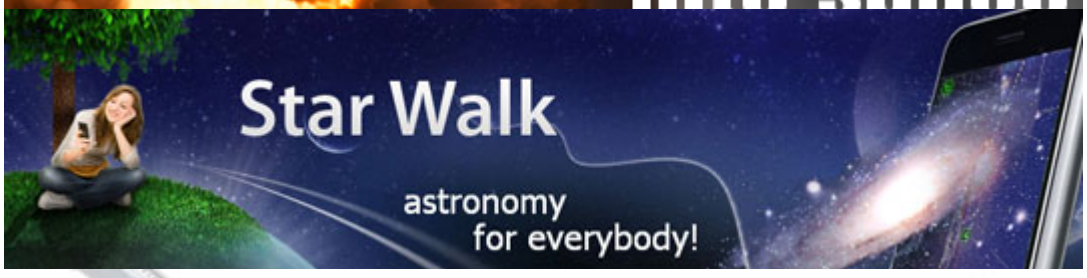

The Starry Messenger:
An educational film drama
to celebrate the International
Year of Astronomy 2009.
29 May 2009
The 90th
anniversary
of the 1919
solar eclipse.
Belgium Prime Minister
Herman Van Rompuy
voices support for
IYA2009
Belgium Prime Minister
Herman Van Rompuy
engaged with
IYA2009
Galilean
Nights
A new IYA2009
Cornerstone Project
Cosmic
DIARY
The Cosmic Diary Features
the Hottest Topics
in Astronomy
IYA2009 News Round-up


PORTAL TO THE UNIVERSE
goes live!
SHE IS AN ASTRONOMER
was launched today
IFF'09
Immersive Film Festival
Espinho, Portugal
IYA 2009 DARK SKIES AWARENESS CORNERSTONE PROJECT
Annual Dark-Sky Week Celebration
IYA2009 welcomes three new national nodes:
Fiji Islands, Grenada & Zambia
Hawaiian Starlight:
Exploring the Universe from Mauna Kea
Now on DVD
IYA2009 FirstScope Telescope at special price for IYA2009 Nodes


A Journey to the Stars in Taiwan
Star Walk
Easter Eggs Hunt
100 Hours of Astronomy:
Around the World in 80 Telescopes
100 HOURS OF ASTRONOMY
2–5 April 2009
with:
100HA live blog from
with:
100 Hours of Astronomy:
The Cosmic Diary Blogs
100 Hours of Astronomy:
Worldwide astronomy marathon set to break records
Cosmic DIARY
GREENWICH 1894
Cosmic Diary:
Time Travel at Greenwich
Read the article on Astronomy Now


Grants Available
for IYA2009 Projects
Developing
Astronomy
Globally

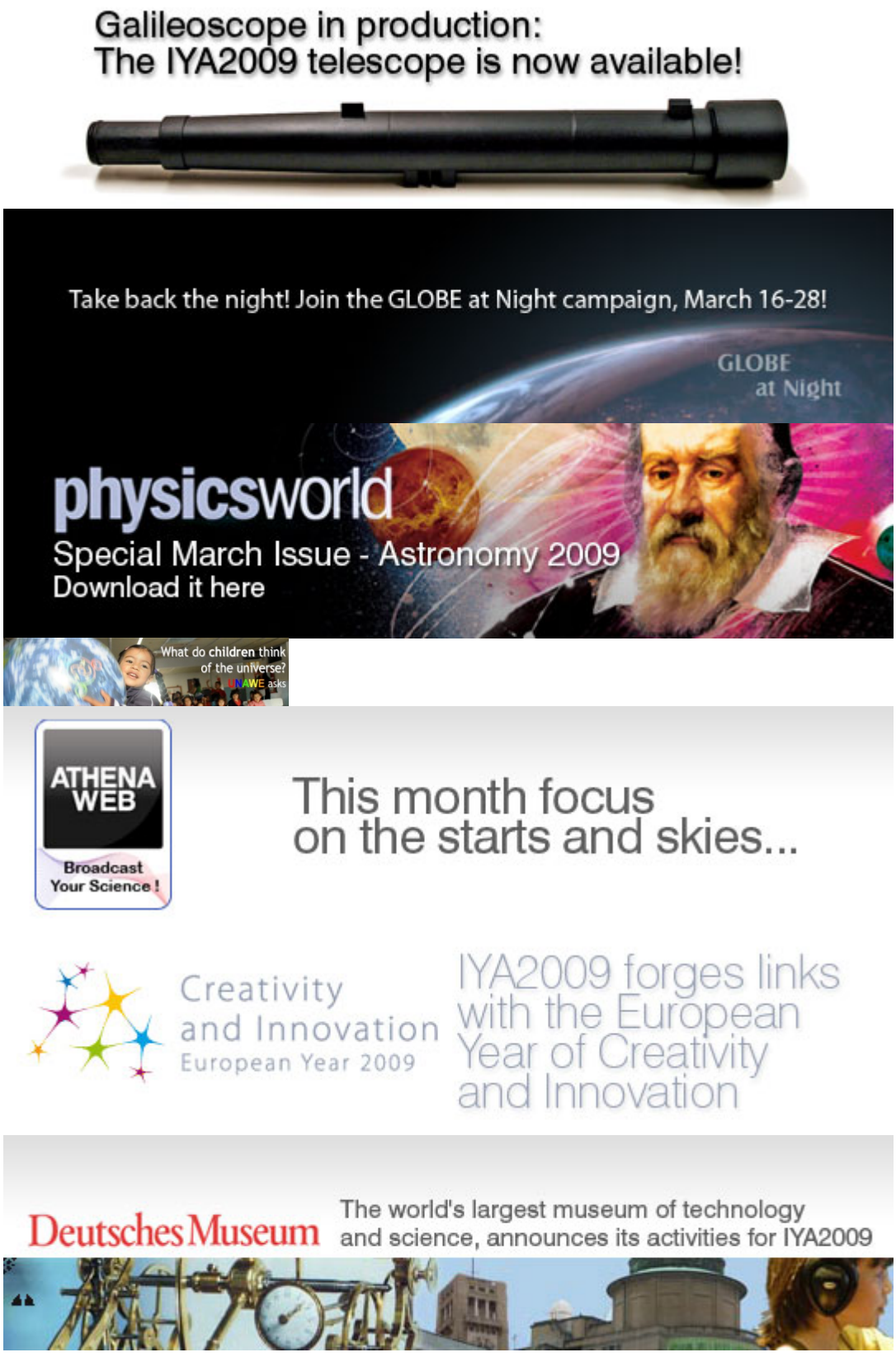

IYA2009 logo
has been
blasted off
into space

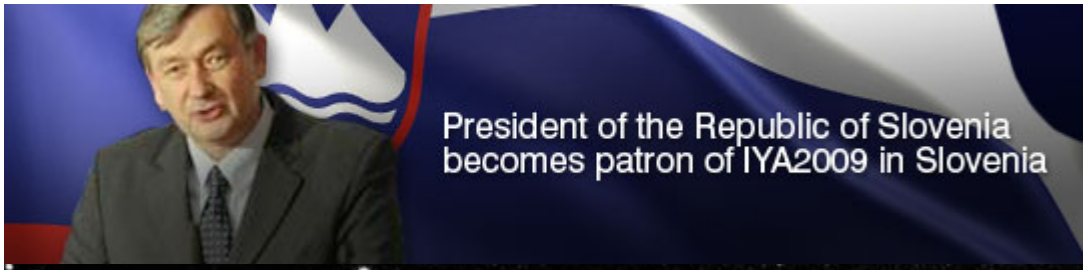

Star Walk
astronomy
for everybody!

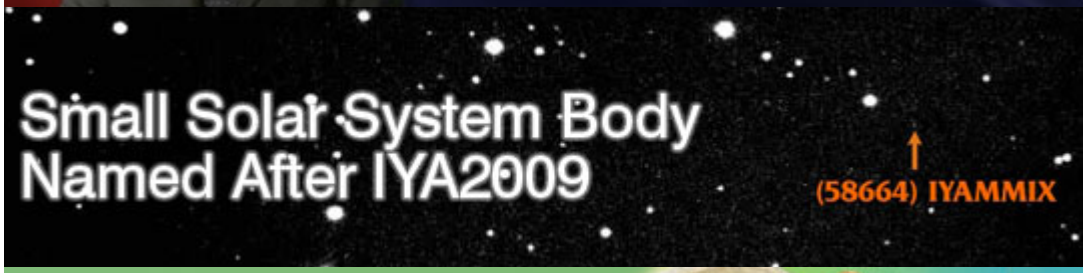

IYA2009 Astronomy
Beginners' Pack in German
amazon.de

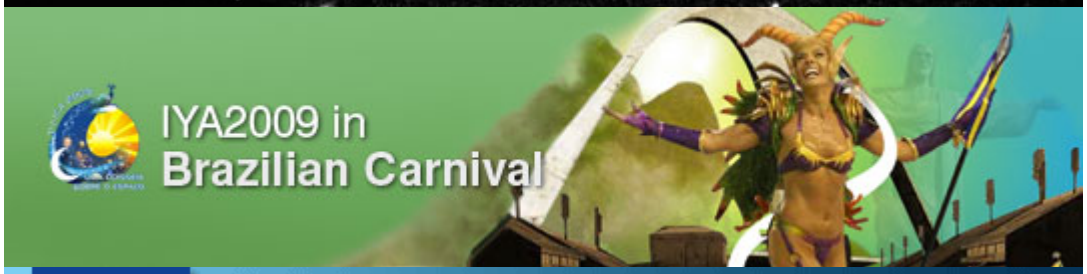

Sky & Telescope's article on 100 Hours
of Astronomy. Read it here.
100 HOURS
OF ASTRONOMY
SKY
& TELESCOPE

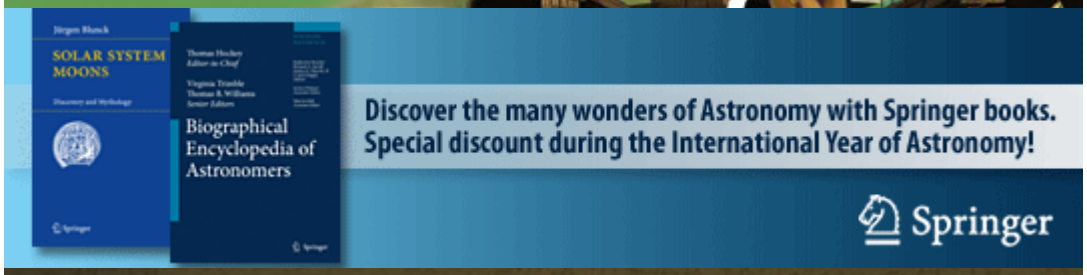

Planetarium shows ready
to celebrate IYA2009
GALILEO
Galileo: Images of the universe
from antiquity to the telescope.
Exhibition, Florence, Italy


Galileoscope in production:
The IYA2009 telescope is now available!
Take back the night! Join the GLOBE at Night campaign, March 16-28!
GLOBE
at Night
physicsworld
Special March Issue - Astronomy 2009
Download it here
What do children think of the universe?
UNAWE asks
ATHENA WEB
Broadcast Your Science !
This month focus
on the starts and skies...
Creativity
and Innovation
European Year 2009
IYA2009 forges links with the European Year of Creativity and Innovation
Deutsches Museum
The world's largest museum of technology and science, announces its activities for IYA2009


President of the Republic of Slovenia
becomes patron of IYA2009 in Slovenia

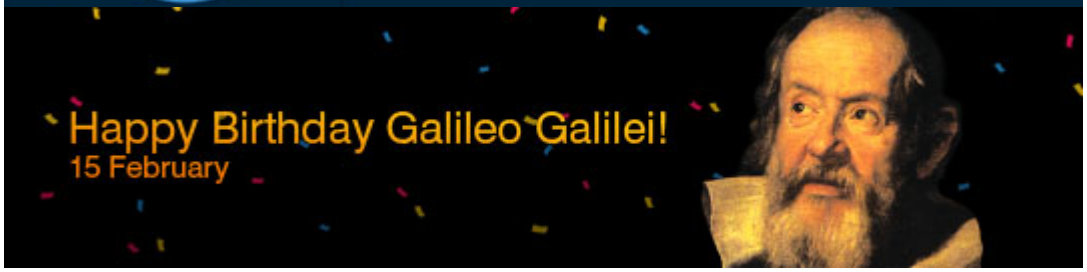

Small Solar System Body
Named After IYA2009
(58664) IYAMMIX


IYA2009 in
Brazilian Carnival


SOLAR SYSTEM MOONS
Biographical Encyclopedia of Astronomers
Discover the many wonders of Astronomy with Springer books.
Special discount during the International Year of Astronomy!
Springer


1894 Astronomer Royal
becomes new Cosmic Diary blogger
Cosmic
DIARY
GREENWICH 1894

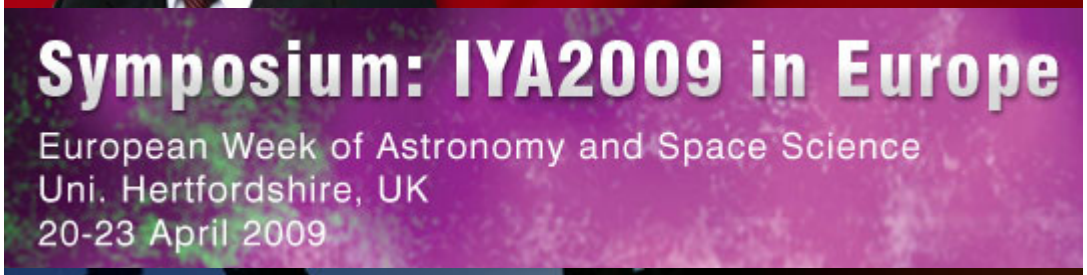

STARLIGHT
A COMMON HERITAGE
Declaration and Proceedings Book Available

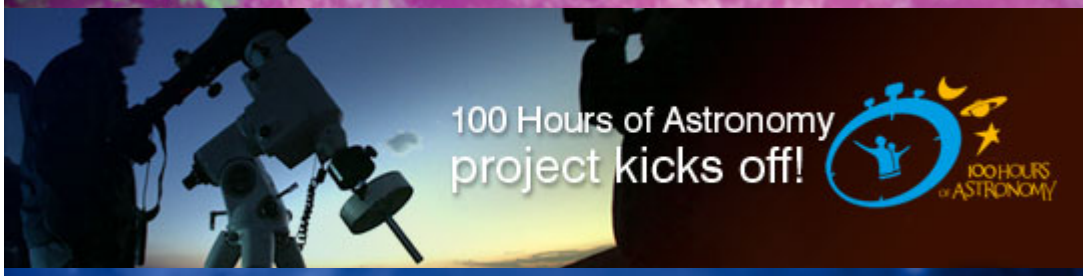

Happy Birthday Galileo Galilei!
15 February

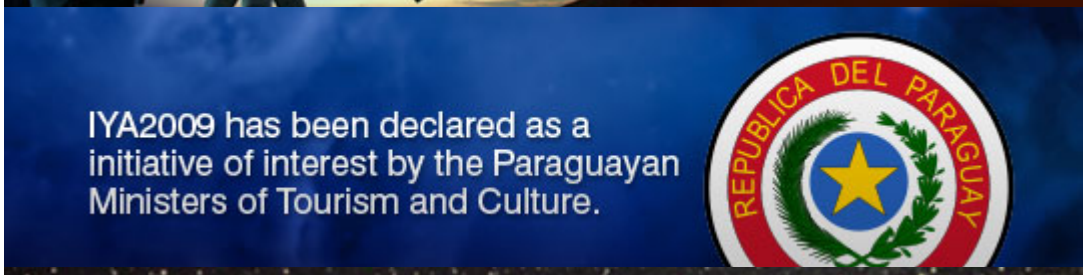

StarPeace Event
in India and Pakistan


Valcato
hosting
To celebrate IYA2009, Valcato Hosting is offering one year of free web hosting for any and all astronomy websites!


President of the Polish Republic presides over the Polish IYA2009 Honour Committee.


Symposium: IYA2009 in Europe
European Week of Astronomy and Space Science
Uni. Hertfordshire, UK
20-23 April 2009


100 Hours of Astronomy
project kicks off!
100 HOURS OF ASTRONOMY


IYA2009 has been declared as a initiative of interest by the Paraguayan Ministers of Tourism and Culture.
REPUBLICA DEL PARAGUAY


Comet Lulin
one to watch in 2009

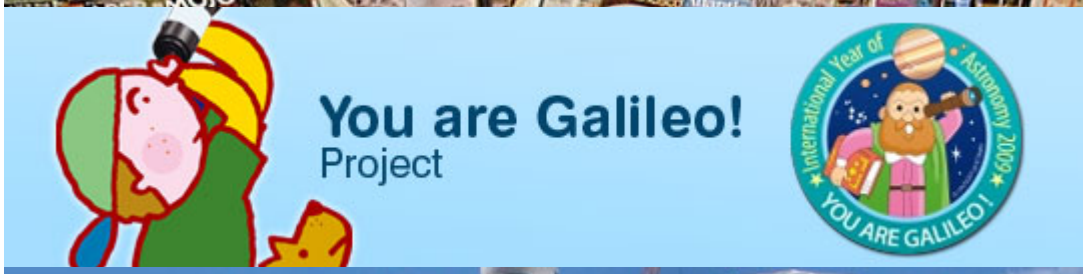

Mani Bhaumik
is the first IYA2009 Patron
President of the Portuguese
Republic presides over the Portuguese
IYA2009 Honour Committee.
Listen to the
Official IYA2009 songs
nightscape: IYA2009 Special
CAP journal
Astrology and Astronomy
From Conjunction to Opposition
CAP journal
Communicating Astronomy with the Public
5th Issue now available
YOU DECIDE
100 HOURS of ASTRONOMY
Hubble's Next Discovery
You Decide

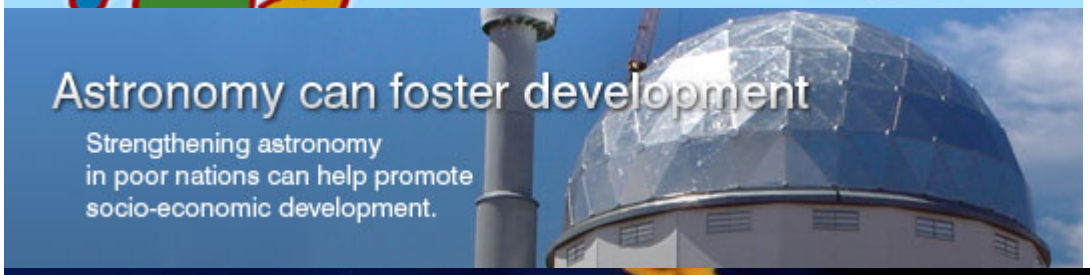

IYA2009 Opening Event in Spain - Today!
Watch the Webcast
INTERNATIONAL YEAR OF ASTRONOMY
Limited Edition pin commemorates the IYA2009
Disney
Celebrating the 1919 Eclipse at Príncipe
Annular Solar Eclipse
26 Jan 2009
IYA2009 Official Products
2009
IYA Official Products
2009
A Message in the Stars...


HISTORY
THE UNIVERSE
INTERNATIONAL YEAR OF ASTRONOMY 2009
Working together
to benefit Astronomy
IYA2009 Opening Event in Germany - Today!
Watch the Webcast
Working together
to benefit astronomy
Live Opening Ceremony Coverage
INTERNATIONAL YEAR OF
ASTRONOMY
2009
IYA2009 Opening Ceremony launches today!
Anniversary
of Galileo's observations
IYA2009 Opening Ceremony
UNESCO – Paris, France
15-16 January


Not just stargazing:
Europe builds on centuries of cooperation
in astronomical research
Janez Potočnik
(European Commissioner
for Science and Research)


IYA2009 News Round-up


You are Galileo!
Project
International Year of Astronomy 2009
YOU ARE GALILEO!


Astronomy can foster development
Strengthening astronomy
in poor nations can help promote
socio-economic development.

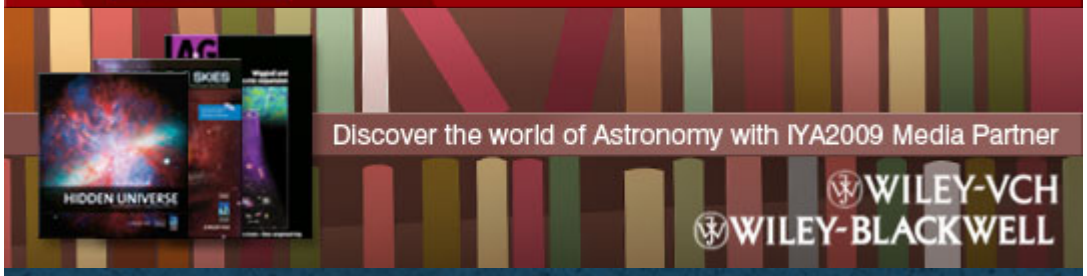

ESConet
European Science
Communication
Network
Workshop in Science
Communication for IYA2009 Nodes
25-27 March 2009


Out-of-this-world astronomy ads
debut on Toronto transit
Having a long day?
It will only get longer.
www.CoolCosmos.net


The Universe
Yours to Discover in Prague, Czech Republic


INTERNATIONAL YEAR OF
TIME TO CELEBRATE ASTRONOMY AROUND THE WORLD
2009


nature
A BIG YEAR FOR ASTRONOMY
nature magazine
A Big Year for Astronomy

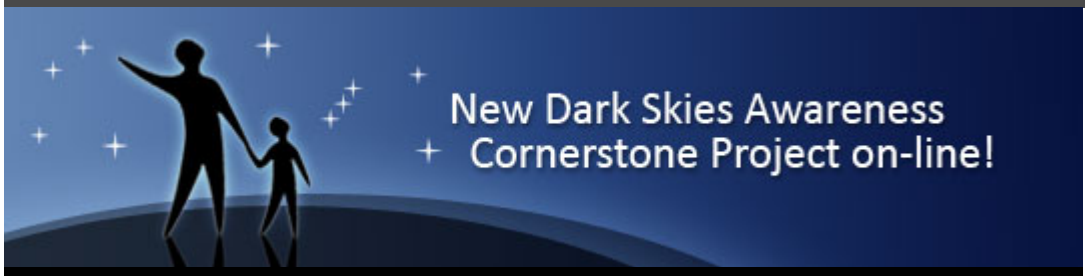

HIDDEN UNIVERSE
Discover the world of Astronomy with IYA2009 Media Partner
WILEY-VCH
WILEY-BLACKWELL


Cosmic Diary
Meet the Astronomers
See where they work
Know what they know
1 of January
www.cosmicdiary.org
coming soon

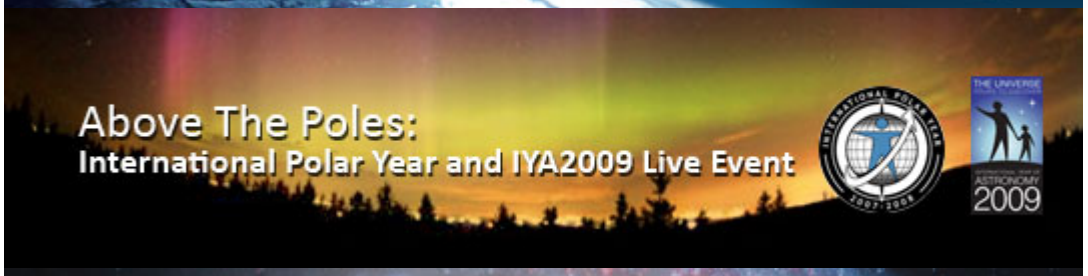

Live streaming coverage of the
Newgrange (Ireland)Winter Solstice 2008
Sunday 21st December 2008

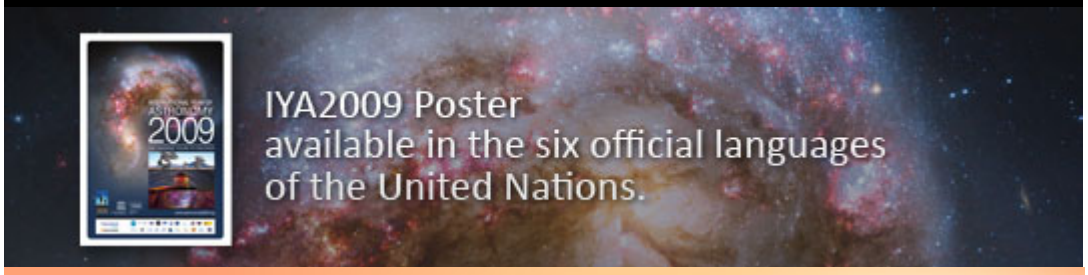

Spanish Congress of Deputies
has proposed a law supporting
Astronomy and IYA2009!

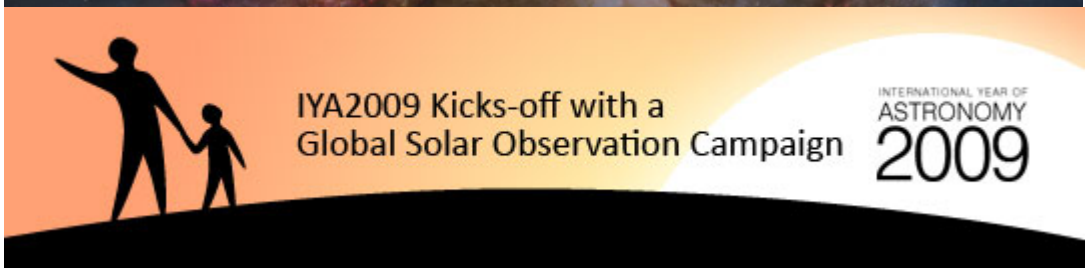

Spanish Congress of Deputies
has passed a law supporting
Astronomy and IYA2009!


New Dark Skies Awareness
Cornerstone Project on-line!


WELCOME
TO THE NEW IYA2009 NODES
MOLDOVA
MALI
AZERBAIJAN
IMO


Above The Poles:
International Polar Year and IYA2009 Live Event
2009


IYA2009 Poster
available in the six official languages
of the United Nations.

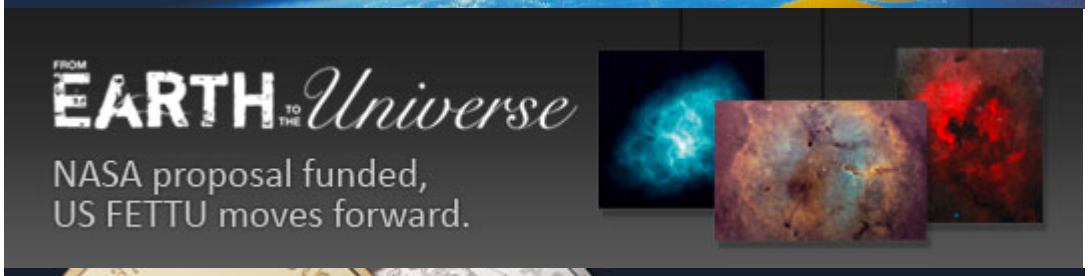

IYA2009 Kicks-off with a
Global Solar Observation Campaign
INTERNATIONAL YEAR OF
ASTRONOMY
2009


The Year to Celebrate Astronomy
Sky & Telescope's feature article on IYA2009. Read it here.
SKY & TELESCOPE

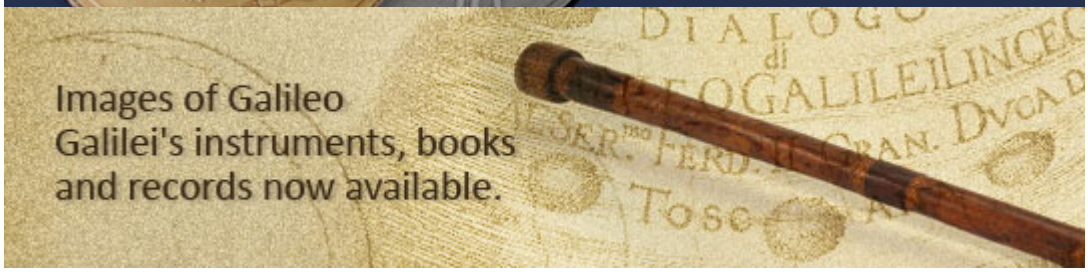

WELCOME
TO THE NEW IYA2009 NODES
CAPE VERDE
CAMEROON
ANDORRA
Eur Astro


Space and astronomy a hit with pupils as 1000 UK schools get free telescopes


SGAC IYA2009
Essay Competition


FROM EARTH TO THE Universe
NASA proposal funded, US FETTU moves forward.

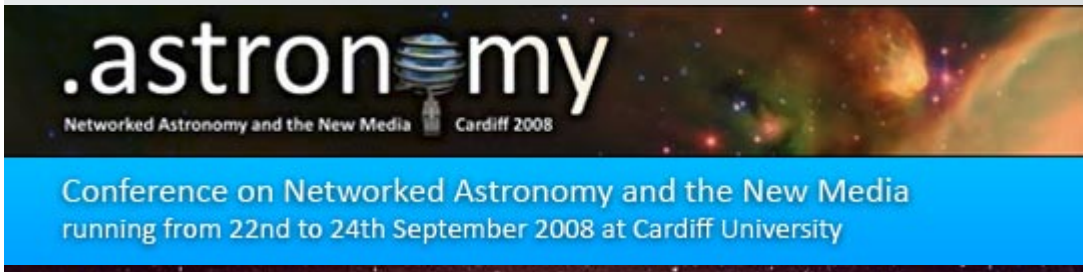

Royal Australian Mint Shoots for the Stars with Astronomy Coins

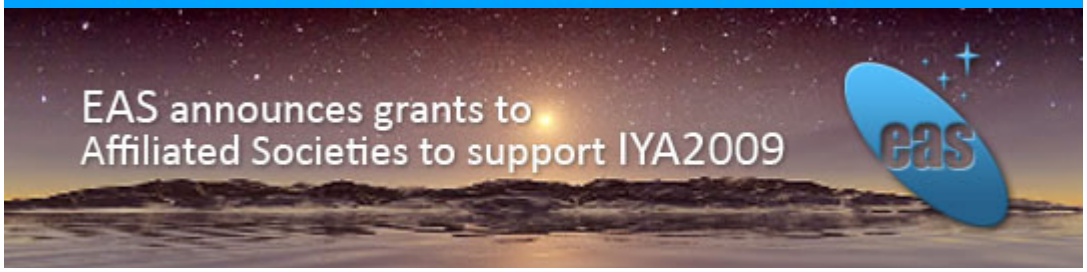

Images of Galileo Galilei's instruments, books and records now available.


Prince Felipe of Spain (Prince of Asturias) presides over the Spanish IYA2009 Honour Committee.
NASA
NASA Selects IYA2009 Student Ambassadors
FROM EARTH TO THE Universe
NASA proposal funded, US FETTU moves foward.
Guidelines for the selection of IYA2009 Official Products
INTERNATIONAL YEAR OF ASTRONOMY 2009
GREAT WORLD WIDE STAR COUNT
A Window to the Universe Citizen Science Event
Oct 20 - Nov 03 2008
EYES ON THE SKIES
Book and DVD
IAU Symposium 260
The Role of Astronomy in Society and Culture - UNESCO, Paris - 19-23 January 2009


WELCOME
TO THE NEW IYA2009 NODES
ALBANIA
AFGHANISTAN
DPR KOREA

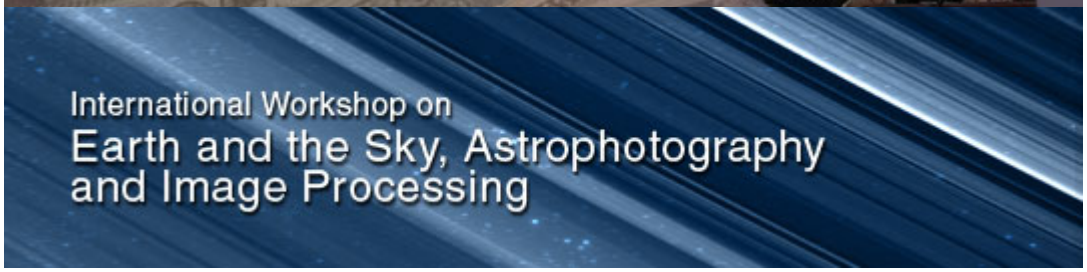

365
DAYS OF
ASTRONOMY
DAILY PODCAST OF THE IYA
THE 365 DAYS OF ASTRONOMY PODCAST IS A PROJECT THAT WILL PUBLISH ONE PODCAST PER DAY, FOR ALL 365 DAYS OF 2009.
THE PODCAST EPISODES ARE WRITTEN, RECORDED AND PRODUCED BY PEOPLE AROUND THE WORLD.


.astronomy
Networked Astronomy and the New Media
Cardiff 2008
Conference on Networked Astronomy and the New Media
running from 22nd to 24th September 2008 at Cardiff University


EAS announces grants to
Affiliated Societies to support IYA2009
eas


CELESTRON
'09 International Year of
Astronomy

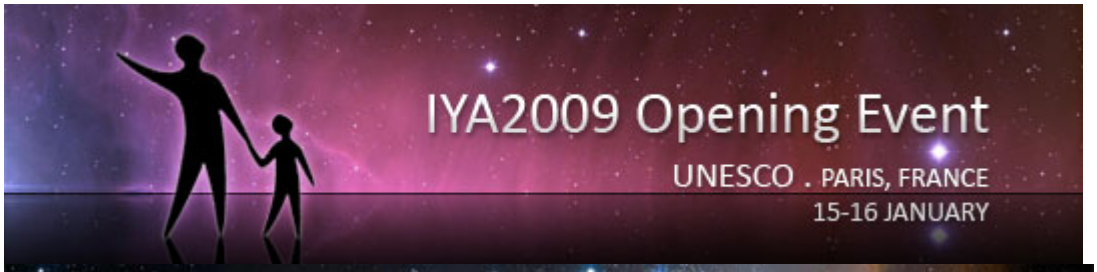

United States
House of Representatives
US House of Representatives
Resolution Supporting IYA2009
International Year of Astronomy

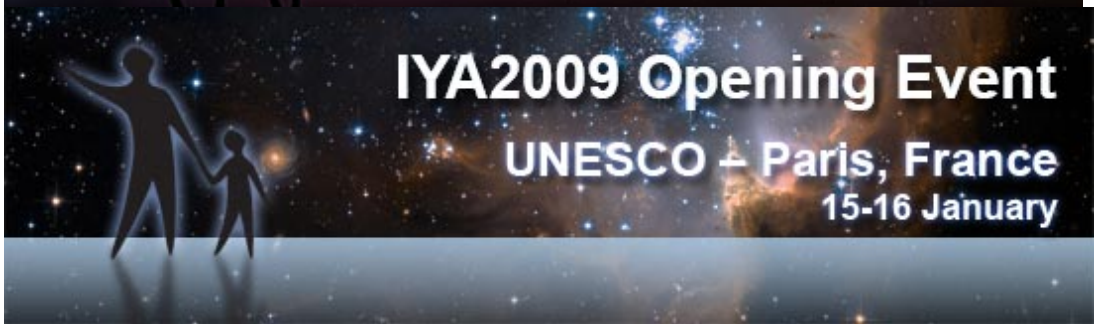

International Workshop on
Earth and the Sky, Astrophotography
and Image Processing


ASTRONOMY
2009
Make it Happen!
IYA2009 Donation Campaign
WELCOME
TO THE NEW IYA2009 NODES
BELARUS
GHANA
LEBANON
iEARN
NASA
LUNAR
SCIENCE
INSTITUTE
IYA2009 endorsed by ICSU
ICSU




THE LIVES OF GALILEO
The official IYA2009 cosmic comic book, by Fiami


IYA2009 Opening Event
UNESCO . PARIS, FRANCE
15-16 JANUARY


IYA2009 Opening Event
UNESCO – Paris, France
15-16 January






Brochures
Ver.2
Objectives:

- General IYA2009 awareness
- SPoC Engagement
- Task groups Engagement
- UNESCO and UN lobbying
- VIP lobbying
- Fund raising

Ver.3
Objectives:

- General IYA2009 awareness
- SPoC Engagement
- Task groups Engagement
- VIP lobbying
- Fund raising
- Public Engagement

Release: February-March 2008
Number of copies: 10 000

Ver.4
Objectives:

- General IYA2009 awareness
- Public Engagement
- SPoC Engagement
- Task groups Engagement
- VIP lobbying
- Fund raising

Release: November-December 2008
Number of copies: 20 000

### Newsletters

Email every week and relevant documents.

## Press Releases

(Distributed using the IAU Press distribution channels

iya0601 — News Release: The IAU announces the IYA
http://www.astronomy2009.org/news/pressreleases/detail/iya0601/
26 October 2006, Munich

The International Astronomical Union will be coordinating the International Year of Astronomy in 2009. This initiative is an opportunity for the citizens of Earth to gain a deeper insight into astronomy's role in enriching all human cultures. Moreover, it will serve as a platform for informing the public about the latest astronomy discoveries while emphasizing the essential role of astronomy in science education.

**iya0602 — News Release: IYA2009 web page public, National Node chairs appointed**
http://www.astronomy2009.org/news/pressreleases/detail/iya0602/
21 December 2006, Munich
The web page for the International Year of Astronomy 2009 (IYA2009) http://www.astronomy2009.org/ has just gone public. The page is the main starting point for the global and local IYA2009 events and everyone interested in IYA2009 can use this page to get in contact with their local IYA2009 National Node. The Communicating Astronomy with the Public 2007 Conference (CAP2007) held in Athens (October 2007) will have IYA2009 as the main theme.

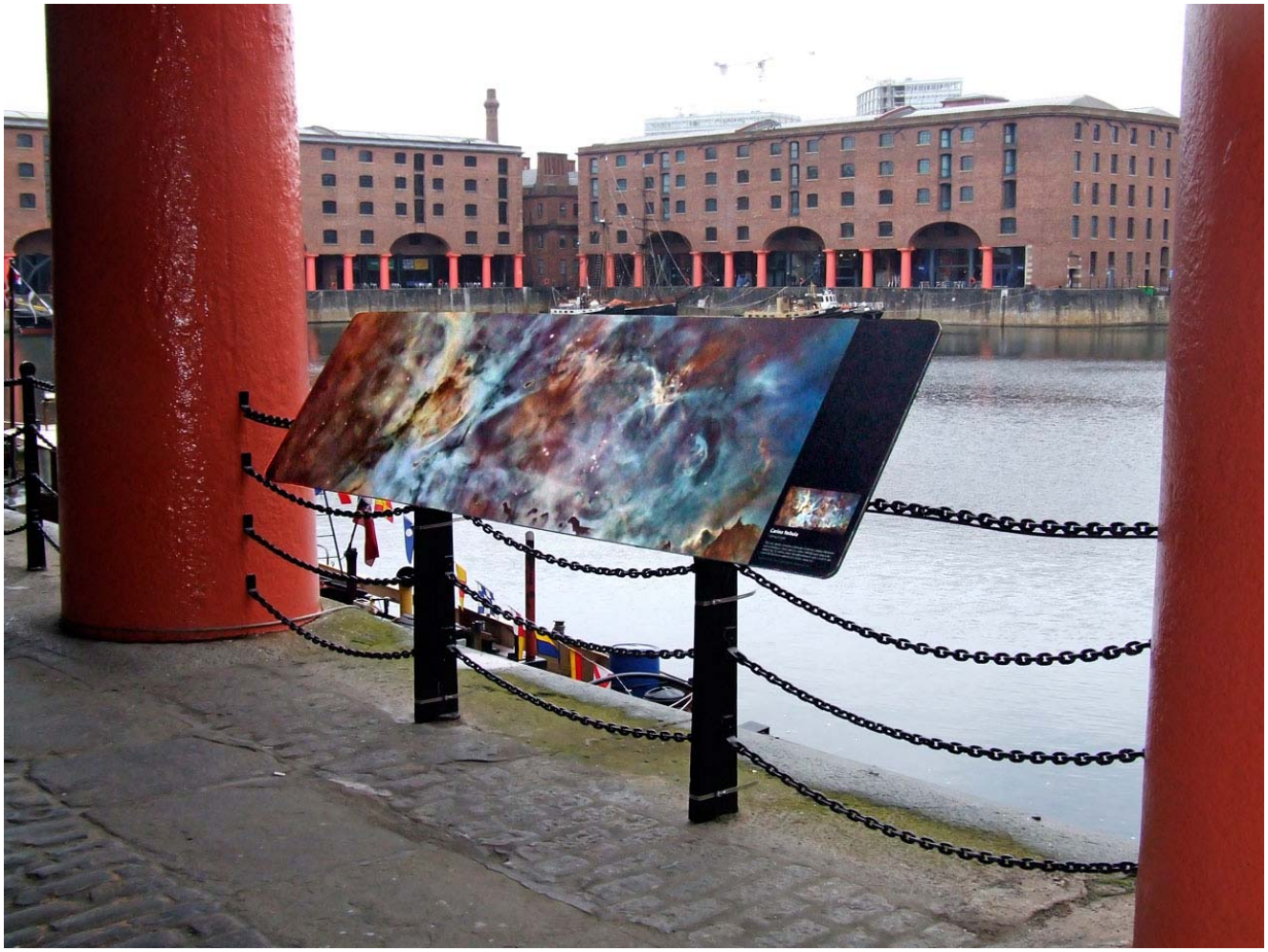
**iya0701 — News Release: The UN declares 2009 the International Year of Astronomy**
http://www.astronomy2009.org/news/pressreleases/detail/iya0701/
20 December 2007, Paris
Early this morning (CET) the United Nations (UN) 62nd General Assembly proclaimed 2009 the International Year of Astronomy. The Resolution was submitted by Italy, Galileo Galilei's home country. The International Year of Astronomy 2009 is an initiative of the International Astronomical Union and UNESCO.

**iya0801 — News Release: The IYA2009 welcomes the 100th participating country**
http://www.astronomy2009.org/news/pressreleases/detail/iya0801/
17 January 2008, Paris




The organisers of the International Year of Astronomy 2009 (IYA2009), the International Astronomical Union and UNESCO, welcomed this week the 100th participating country to the growing ranks of participating countries and organisations for this worldwide astronomy project. This milestone is reached only four weeks after the official Proclamation of IYA2009 by the United Nations.

iya0802 — News Release: The first IYA2009 Cornerstone Project brings the stars to Liverpool
http://www.astronomy2009.org/news/pressreleases/detail/iya0802/
5 June 2008, Liverpool



A prototype exhibit of astronomy images called From Earth to the Universe is a precursor of the wide range of events planned in celebration of the International Year of Astronomy in 2009. The dazzling display of images will take viewers deep into the Universe from 7-29 June 2008 and will be held at the Albert Dock in Liverpool, UK.

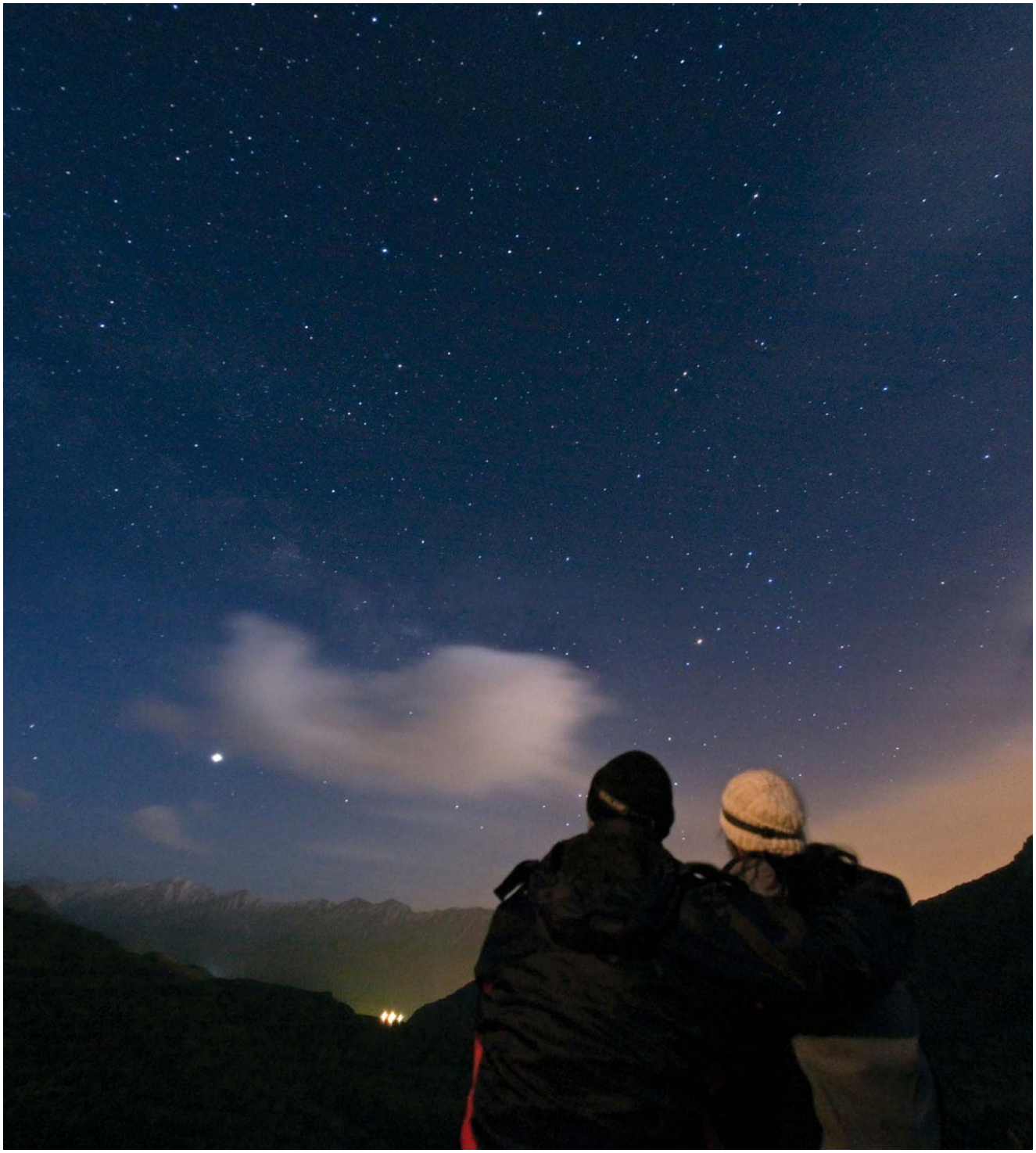
iya0803 — News Release: UNESCO and the IAU sign key agreement on Astronomy and World Heritage Initiative
http://www.astronomy2009.org/news/pressreleases/detail/iya0803/
30 October 2008, Paris



A Memorandum of Understanding is to be signed today, 30 October 2008, between UNESCO and the International Astronomical Union (IAU). The IAU will be integrally involved in the process of developing UNESCO's Astronomy and World Heritage Initiative, helping to promote astronomical sites of "Outstanding Universal Value".

iya0804 — News Release: The International Year of Astronomy 2009 Opening Ceremony: Save the Date
http://www.astronomy2009.org/news/pressreleases/detail/iya0804/
21 November 2008, Paris
With just six weeks to go before 2009, the International Year of Astronomy project is getting ready for its grand Opening Ceremony. This promises to be a spectacular event, held at the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Headquarters in Paris, 15 and 16 January 2009. Hundreds of attendees are expected, including members of royal families, government ministers, Nobel Prize winners and other eminent scientists. The press is invited to attend and to "save the date" in the calendar.

iya0805 — News Release: http://www.astronomy2009.org/news/pressreleases/detail/iya0805/
The Universe is yours to discover during the International Year of Astronomy 2009
29 December 2008, Paris



With 2009 just over the horizon, stargazers around the world are busy preparing for the International Year of Astronomy. A staggering 135 nations are collaborating to bring the Universe closer to Earth. Events and activities will take place over the coming 365 days and beyond, in a spectacle of cosmic proportions.

iya0901 — News Release: http://www.astronomy2009.org/news/pressreleases/detail/iya0901/
The International Year of Astronomy 2009 Opening Ceremony: Invitation to the Media
9 January 2009, Paris



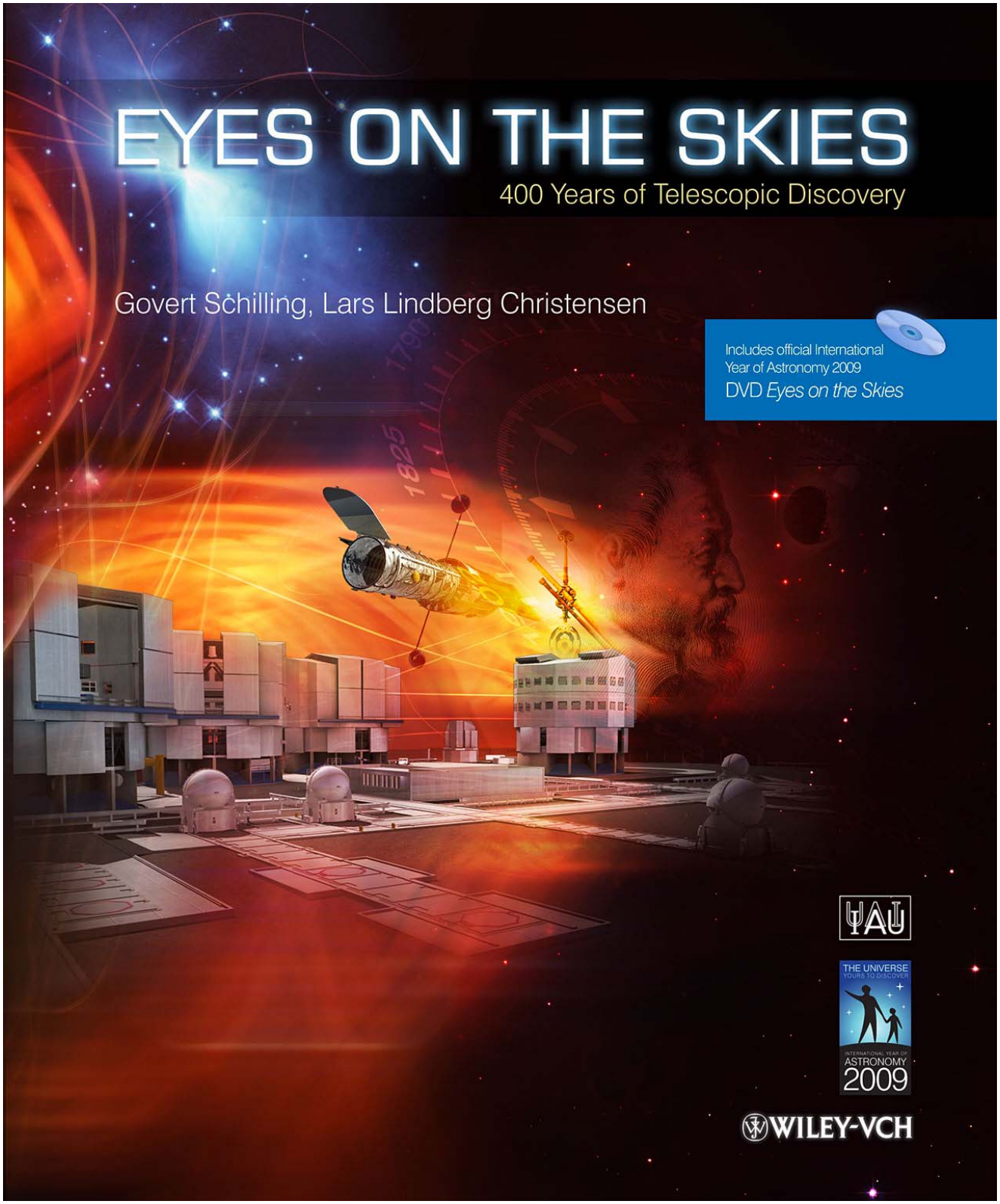

The grand Opening Ceremony of the International Year of Astronomy 2009 is just around the corner. It will be held at the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Headquarters in Paris, 15 and 16 January 2009, and promises to be a spectacular event. Hundreds of attendees are expected, including members of royal families, ministers, Nobel Prize winners, scientists from around the globe, and young astronomy undergraduate students from more than 100 countries. The media are invited to attend, and see firsthand how 2009 will make the Universe yours to discover. A webcast feed will be available.

**iya0902 — News Release: Kick-off for the International Year of Astronomy 2009**
http://www.astronomy2009.org/news/pressreleases/detail/iya0902/
15 January 2009, Paris



Astronomers from around the world have gathered in Paris for the start of the International Year of Astronomy 2009 (IYA2009), the largest network ever for sharing the wonders of the Universe with the public.

**iya0903 — News Release: IAU releases milestone book and movie celebrating the telescope**
http://www.astronomy2009.org/news/pressreleases/detail/iya0903/
23 January 2009, Paris




One of the International Astronomical Union's contributions to the International Year of Astronomy 2009 is the new book and movie Eyes on the Skies — 400 Years of Telescopic Discovery, telling the fascinating story of the

telescope, from its invention to the modern day. Review copies of the book, published by Wiley, and documentary movie are available for the press.

**iya0904 — News Release: 100 Hours of Astronomy project kicks off!**
http://www.astronomy2009.org/news/pressreleases/detail/iya0904/
10 February 2009, Paris



The International Year of Astronomy 2009 (IYA2009) is about to reach new heights as the Global Cornerstone Project, 100 Hours of Astronomy, scheduled to take place from 2–5 April 2009, ramps up. The project invites amateur astronomers, educators, professional astronomers, planetaria, science centres and more to arrange events around the world during this 4-day period and to publicise them now on the project website. For those wishing to visit the frontiers of astronomy from their home, a 24-hour webcast from the largest telescopes on the planet will take a unique look behind the scenes at state of the art research facilities.

iya0905 — News Release: Global launch for From Earth to the Universe project
http://www.astronomy2009.org/news/pressreleases/detail/iya0905/
25 February 2009, Paris




Worldwide exhibitions of large-scale astronomical images are being launched in over 40 countries around the world. The IYA2009 Cornerstone project, From Earth to the Universe (FETTU), is designed to bring the undeniable beauty of astronomy to the general public in a series of free showings across the world.

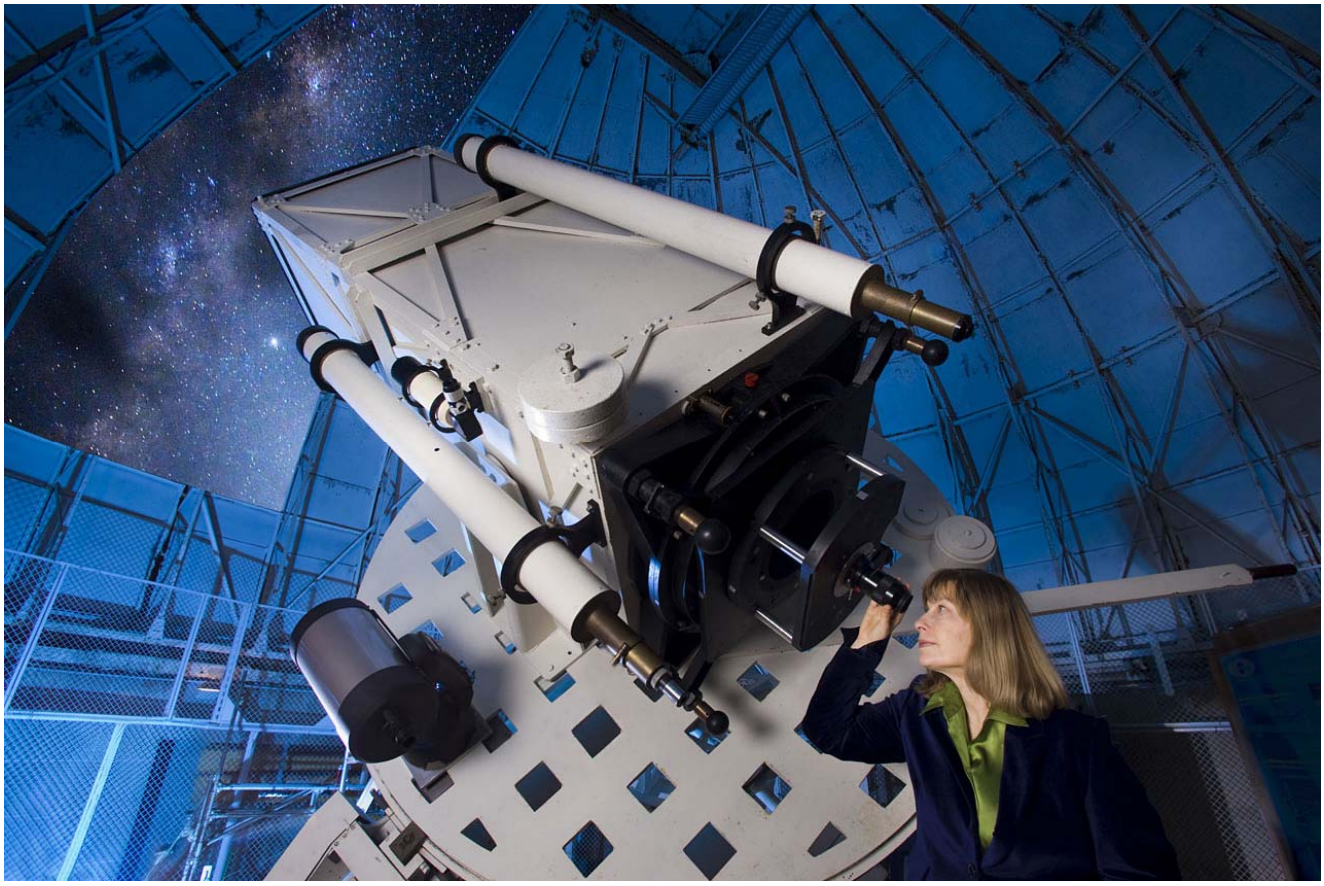
## iya0906 — News Release: Galileoscope in production: The IYA2009 telescope is now available!

http://www.astronomy2009.org/news/pressreleases/detail/iya0906/
4 March 2009, Paris



The Galileoscope — a high quality, easy-to-assemble and easy-to-use telescope at an unprecedentedly low price — is now available to order. A Cornerstone project of the International Year of Astronomy 2009 (IYA2009), the Galileoscope was developed by a team of leading astronomers, optical engineers and science educators to make the wonders of the night sky more accessible to everyone. Orders can now be placed through www.galileoscope.org for delivery beginning in late April.

**iya0907 — News Release: IAU Vice-President receives L'ORÉAL–UNESCO award**
http://www.astronomy2009.org/news/pressreleases/detail/iya0907/
5 March 2009, Paris



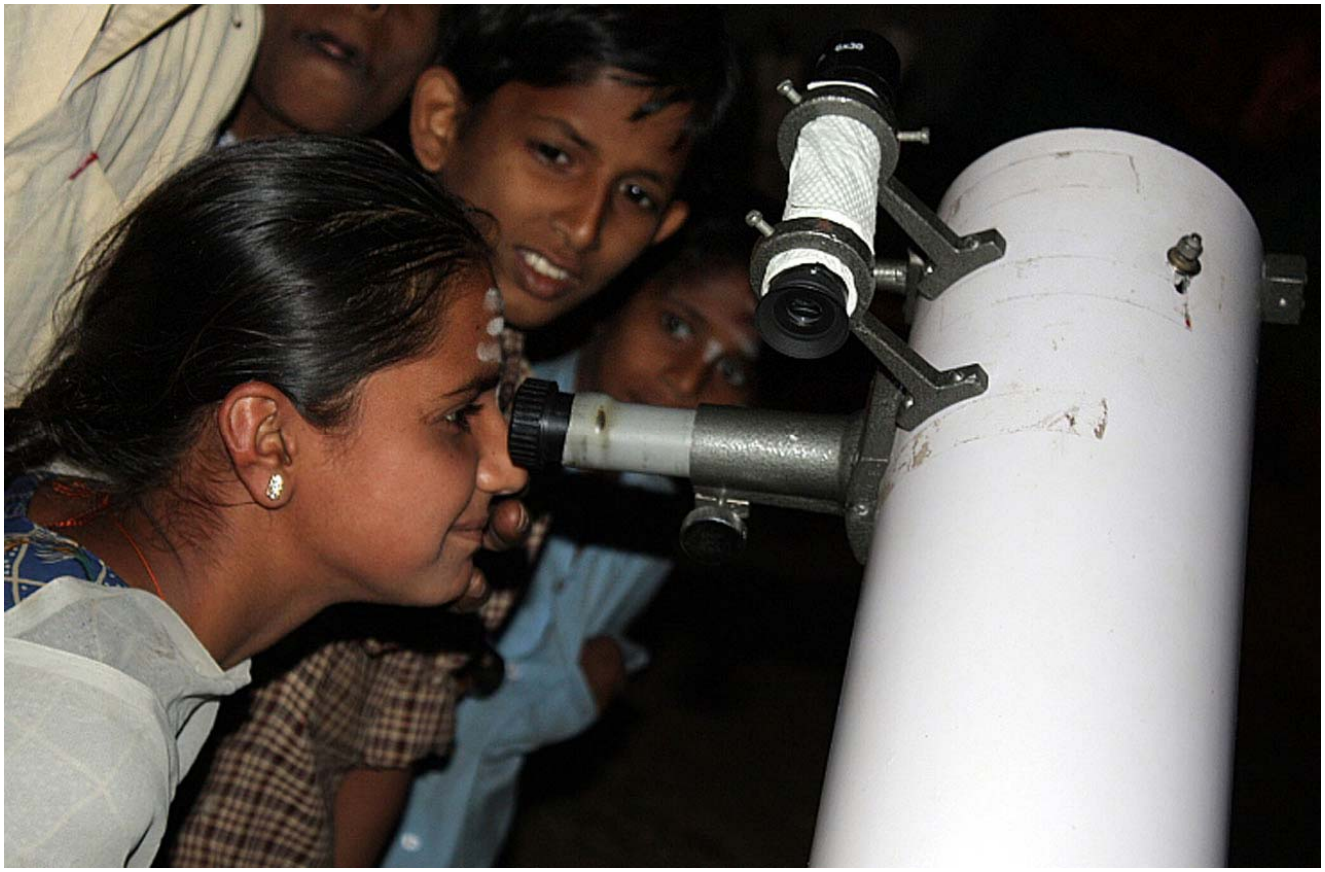
Beatriz Barbuy, Vice-President of the International Astronomical Union (IAU) today receives a L'ORÉAL–UNESCO award for exceptional women scientists. The 2009 Laureates will each receive $100 000.

**iya0908 — News Release: 100 Hours of Astronomy: worldwide astronomy marathon set to break records**
http://www.astronomy2009.org/news/pressreleases/detail/iya0908/
30 March 2009, Paris




The International Year of Astronomy 2009 Cornerstone project, 100 Hours of Astronomy, is on track to be the largest single science public outreach event ever. More than 1500 events have been registered in over 130 countries and this number is increasing every day. 100 Hours of Astronomy is a truly global project; an event on a scale never attempted before, with more than one million people expected to participate!

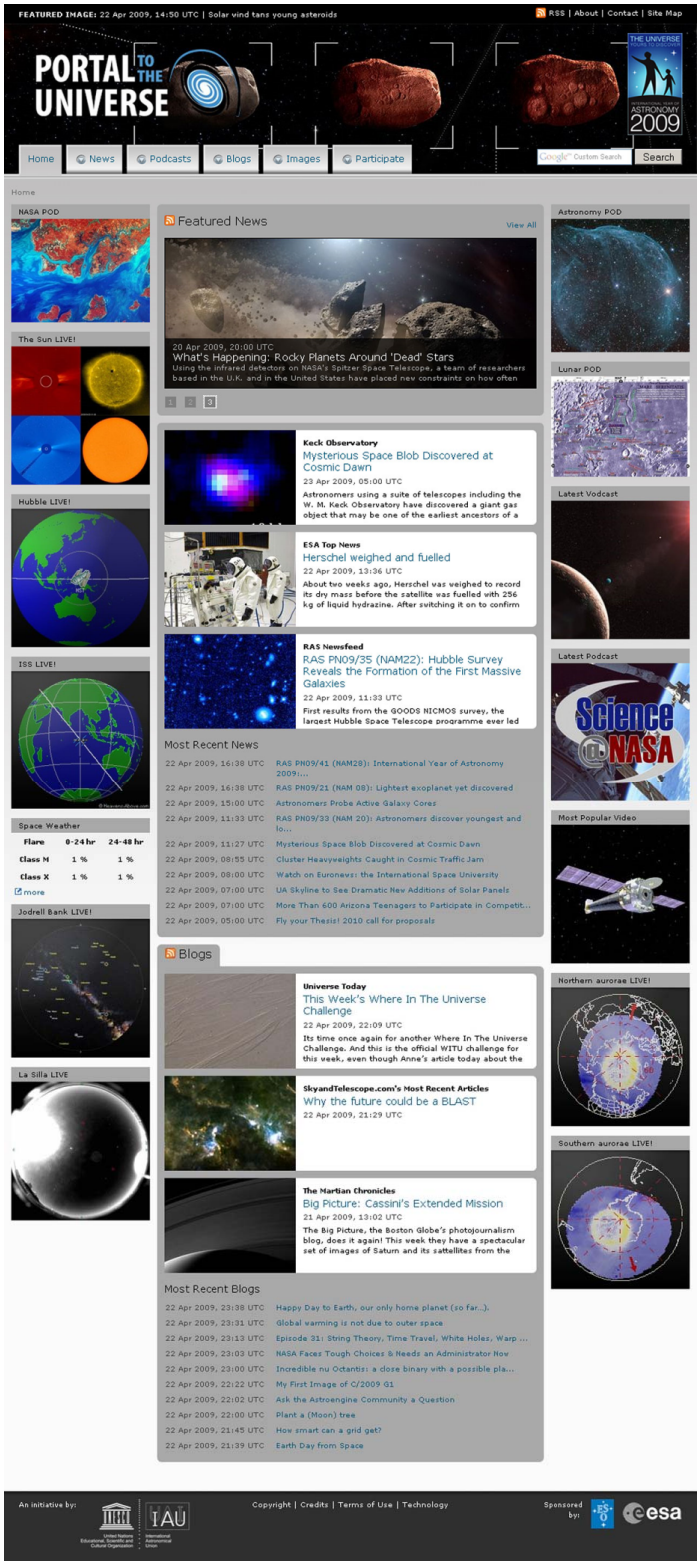
**iya0909 — News Release: The She Is An Astronomer project seeks to break down misconceptions and gender issues in astronomy and science**
http://www.astronomy2009.org/news/pressreleases/detail/iya0909/
21 April 2009, Paris



The highly anticipated International Year of Astronomy 2009 Cornerstone project , She Is An Astronomer, was launched today. She Is An Astronomer aims to help achieve several of the United Nations Millennium Development Goals, including promoting gender equality and empowering women.

## iya0910 — News Release: The Portal to the Universe opens its doors

http://www.astronomy2009.org/news/pressreleases/detail/iya0910/
23 April 2009, Paris




Keeping up-to-date with cutting-edge astronomy and space science breakthroughs has just become that much easier, thanks to the Portal To The Universe, the latest Cornerstone project of the International Year of Astronomy 2009 (IYA2009). As a high-tech website embracing Web 2.0 technologies, the Portal to the Universe aims to become a one-stop-shop for astronomy news.

**iya0911 — News Release: The Galileo Teacher Training Programme brings astronomy into the classroom**
http://www.astronomy2009.org/news/pressreleases/detail/iya0911/
9 June 2009, Paris



The Galileo Teacher Training Programme has been launched, bringing training and resources to teachers around the globe. The project's aim is to improve astronomy education for children of all nations, by better equipping their tutors through a comprehensive set of resources and practical guidance.

iya0912 — News Release: Media invitation for the 27th General Assembly of the International Astronomical Union
http://www.astronomy2009.org/news/pressreleases/detail/iya0912/
18 June 2009, Paris




The International Year of Astronomy coincides with the 27th General Assembly of the International Astronomical Union (IAU) in 2009. More than two thousand astronomers from all around the world are expected to meet and present their latest discoveries in Rio de Janeiro in August. A number of exciting media events are planned.

**iya0913 — News Release: International Year of Astronomy 2009 raises millions of eyes to the skies**
http://www.astronomy2009.org/news/pressreleases/detail/iya0913/
1 July 2009, Paris



As the International Year of Astronomy 2009 (IYA2009) reaches its six-month milestone, over a million people have already looked at the sky through a telescope for the first time, and even more have newly engaged in astronomy. This is just one of many achievements, as countless ongoing projects and planned initiatives indicate that the IYA2009 is well on the way towards achieving many of its goals.

**iya0914 — News Release: IAU General Assembly finishes with the launch of successor to the International Year of Astronomy**
http://www.astronomy2009.org/news/pressreleases/detail/iya0914/
13 August 2009, Rio de Janeiro




The XXVIIth General Assembly of the International Astronomical Union (IAU) had its Closing Ceremony today in Rio de Janeiro, Brazil. In addition to the discussion of new scientific results one of the major outcomes of the 2009 General Assembly is the launch of a decadal global strategy with the aim of fostering education and capacity building throughout the world.

iya0915 — News Release: Galilean Nights: Global Astronomy Event Invites the World to Discover Our Universe
http://www.astronomy2009.org/news/pressreleases/detail/iya0915/
17 September 2009, Paris



Wind the clock back 400 years and follow in the footsteps of a giant — experience now just what first amazed Galileo in 1609! The latest Cornerstone project of the International Year of Astronomy 2009 (IYA2009), Galilean Nights, will see thousands of public observing events around the world replicating Galileo's observations and bringing what he saw 400 years ago to the public of today. From 22 to 24 October, amateur and professional astronomers, science centres, schools and all interested groups are invited to be part of the Galilean Nights project and to register their events on the project website www.galileannights.org. We can all make this a worldwide success.

**iya0916 — News Release: The GalileoMobile starts its South American voyage: astronomy education goes on tour through the Andes Mountains**
http://www.astronomy2009.org/news/pressreleases/detail/iya0916/
5 October 2009, Paris




Today marks the beginning of the GalileoMobile Project, a two-month expedition to bring the wonder and excitement of astronomy to young people of Chile, Bolivia and Peru. A group of astronomers and educators will travel through a region of the Andes Mountains aboard the GalileoMobile, offering astronomical activities, such as workshops for students and star parties for the general public. Professional filmmakers on the trip will produce a multilingual documentary capturing the thrill of discovery through science, culture and travel.

**iya0917 — News Release: Call for Submissions to the IYA2009/Mani Bhaumik Prize for Excellence in Astronomy Education and Public Outreach**
http://www.astronomy2009.org/news/pressreleases/detail/iya0917/
15 October 2009, Paris



The International Year of Astronomy 2009 (IYA2009) is soliciting nominations and submissions for the IYA2009/Mani Bhaumik Prize for Excellence in Astronomy Education and Public Outreach.

**iya0918 — News Release: Galilean Nights: Get Ready for a Galileo Experience!**
http://www.astronomy2009.org/news/pressreleases/detail/iya0918/
21 October 2009, Paris



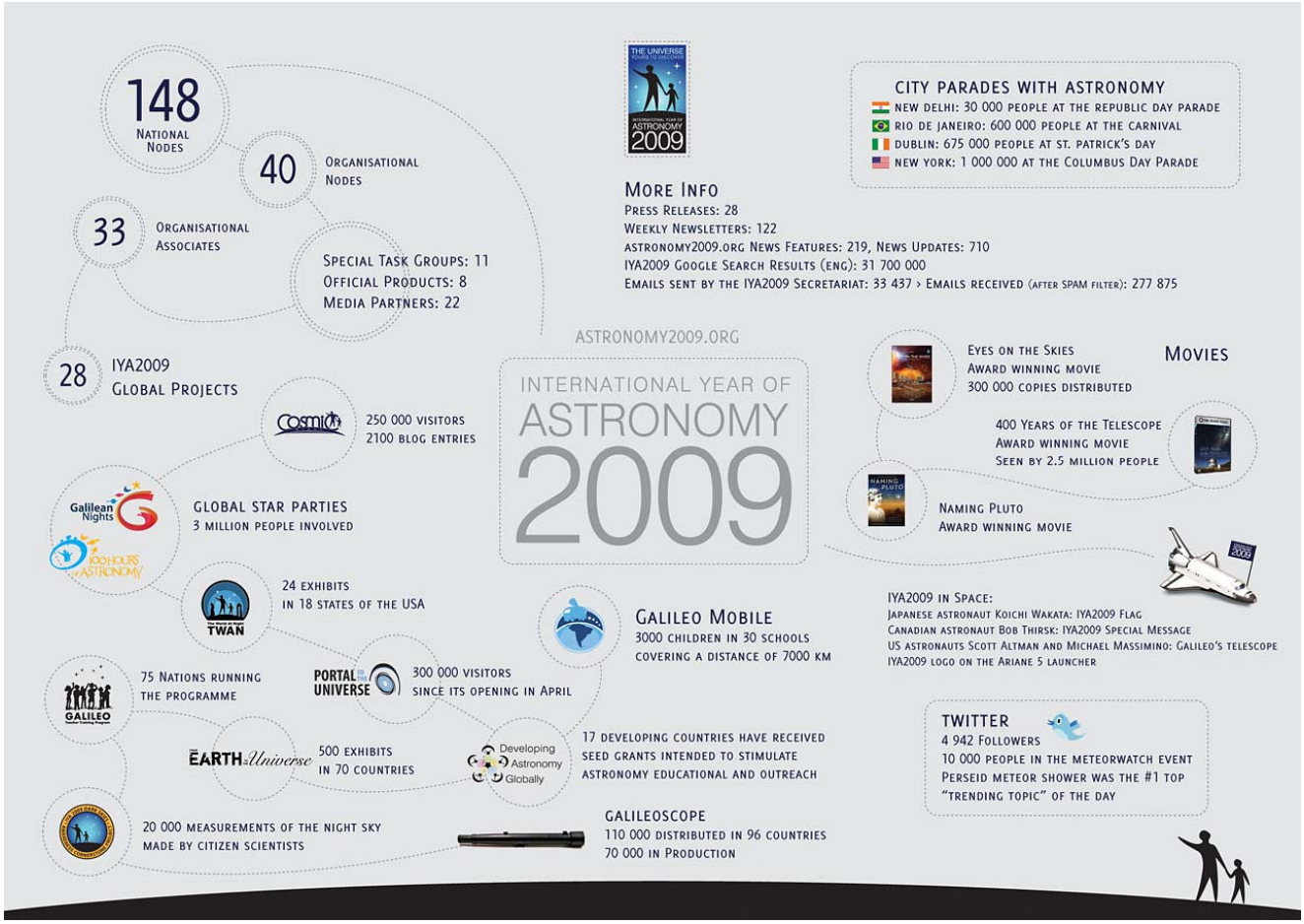
The International Year of Astronomy 2009 Cornerstone project, Galilean Nights, begins tomorrow. Hundreds of thousands of people all around the world will experience their own “Galileo moment” when they look up at the sky through a telescope for the first time. Galilean Nights will be a global experience, with more than 1000 public observing events in over 70 countries, and this number is still increasing each day.

**iya0919 — News Release: The International Year of Astronomy 2009 Closing Ceremony: Save the Date**
http://www.astronomy2009.org/news/pressreleases/detail/iya0919/
17 December 2009, Paris



On 9 and 10 January 2010 the International Year of Astronomy 2009 (IYA2009) will be brought to an official close with a ceremony to be held in Padova, Italy, in the Aula Magna of the University of Padova, where Galileo taught experimental physics and astronomy. The final event of this global celebration of astronomy and its contribution to society and culture will be attended by the key figures behind IYA2009 as well as prominent astronomers. The press is invited to attend.

**iya1001 — News Release: The International Year of Astronomy 2009: The Largest Science Education and Public Outreach Event in History**
http://www.astronomy2009.org/news/pressreleases/detail/iya1001/
8 January 2010, Paris




As the International Year of Astronomy 2009 (IYA2009) comes to a close, the true scope of the venture is becoming clear. The final count of countries involved stands at 148, a staggering number that confirms that the IYA2009 network is the largest ever in science. Activities and events from these participating nations paint a picture of professional and amateur astronomers bringing the Universe down to Earth through countless projects, opening the eyes of the public to the wonders above.

**iya1002 — News Release: From Earth to the Universe Wins Prize for Excellence in Astronomy Education and Public Outreach**
http://www.astronomy2009.org/news/pressreleases/detail/iya1002/
26 February 2010, Paris



The International Year of Astronomy 2009/Mani Bhaumik Prize for Excellence in Astronomy Education and Public Outreach has been awarded to From Earth to the Universe (FETTU). This award recognises FETTU's important contribution in improving public awareness of astronomical achievements, and in stimulating the use of astronomy for the promotion of scientific education and culture in 2009.

**iya1003 — News Release: South African Astronomical Observatory Selected as Host for the IAU Office for Astronomy Development**
25 May 2010, Paris
http://www.astronomy2009.org/news/pressreleases/detail/iya1003/



The Executive Committee of the International Astronomical Union (IAU) has selected the SAAO, a national facility of the South African National Research Foundation (NRF), to host the IAU Office for Astronomy Development (OAD). The Office is the key component of the decadal global strategy plan, Astronomy for the Developing World, launched at the 2009 IAU General Assembly in Rio de Janeiro, Brazil, and is aimed at using astronomy to foster education and capacity building throughout the world.

## Press Events

- Opening Ceremony, Jan. 2009

## Video Material

- IYA2009 HD and FullDome logo Identity
- Trailer: “The International Year of Astronomy 2009 — the Universe, Yours to Discover”

## Presentations

- Available on: http://www.astronomy2009.org/content/view/316/92/)

## Posters

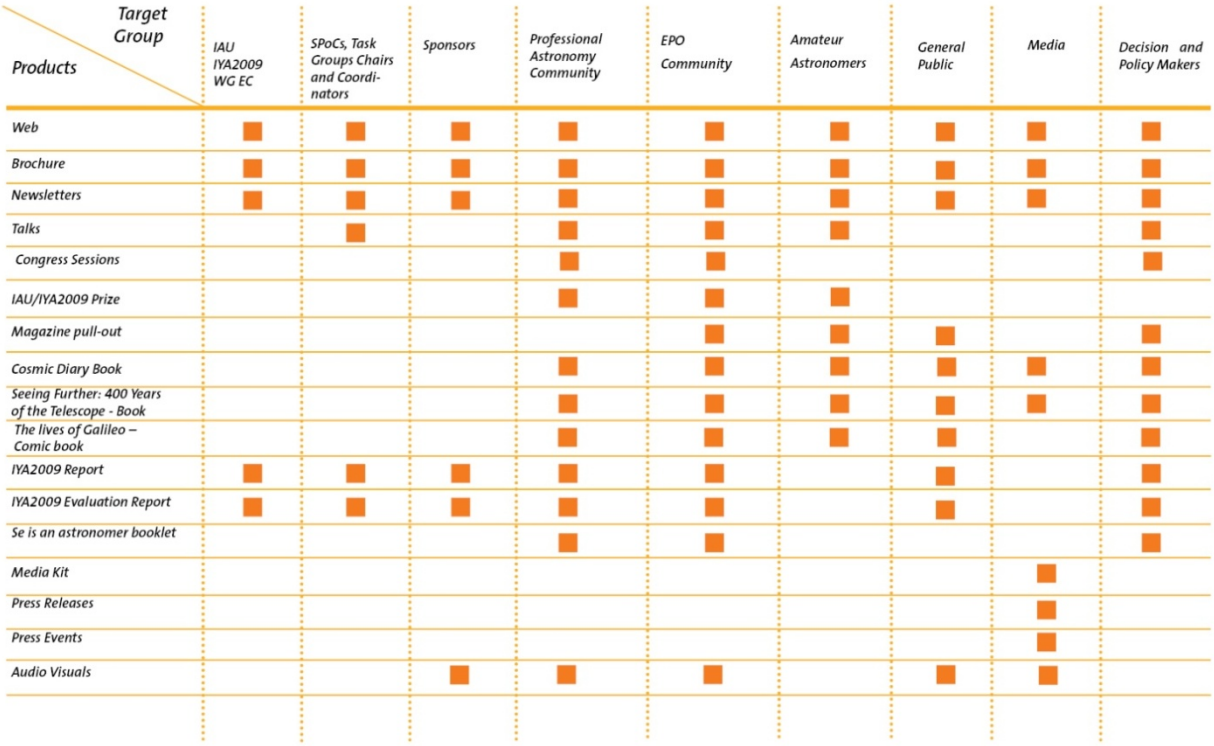
- The IYA2009 Posters (available on: http://www.astronomy2009.org/content/view/320/70/)

## Logo & Branding

- The IYA2009 Logo and guidelines are available on: http://www.astronomy2009.org/content/view/123/51/

## Communication products matrix

The IYA2009 Secretariat produced a communication guide to help the different IYA2009 stakeholders to improve their communication: http://www.astronomy2009.org/resources/guides/



| Products \ Target Group | IAU IYA2009 WG EC | SPoCs, Task Groups Chairs and Coordi-nators | Sponsors | Professional Astronomy Community | EPO Community | Amateur Astronomers | General Public | Media | Decision and Policy Makers |
|---|---|---|---|---|---|---|---|---|---|
| Web | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Brochure | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Newsletters | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Talks | | ■ | | ■ | ■ | ■ | | | ■ |
| Congress Sessions | | | | ■ | ■ | | | | ■ |
| IAU/IYA2009 Prize | | | | ■ | ■ | ■ | | | |
| Magazine pull-out | | | | | ■ | ■ | ■ | | ■ |
| Cosmic Diary Book | | | | ■ | ■ | ■ | ■ | ■ | ■ |
| Seeing Further: 400 Years of the Telescope - Book | | | | ■ | ■ | ■ | ■ | ■ | ■ |
| The lives of Galileo – Comic book | | | | ■ | ■ | ■ | ■ | | ■ |
| IYA2009 Report | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ |
| IYA2009 Evaluation Report | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ |
| Se is an astronomer booklet | | | | ■ | ■ | | | | ■ |
| Media Kit | | | | | | | | ■ | |
| Press Releases | | | | | | | | ■ | |
| Press Events | | | | | | | | ■ | |
| Audio Visuals | | | ■ | ■ | ■ | | ■ | ■ | |

## Networks

IYA2009 promoted and facilitated the creation of international networks to foster a global appreciation of the role and value of science and astronomy as a unifying activity for humanity. IYA2009 started up, connected and supported networks of professional and amateur astronomers, educators and astrophysicists from all over the world, so that all these valuable sources of knowledge can be shared. The networks of hundreds, if not thousands of astronomical organisations, nationally and internationally, will be one of the legacies of IYA2009 that will last far beyond the year 2009.

The activities of IYA2009 took place largely at the national level, and a significant global network has been created. This global network has reached most of the countries in the world.



Astronomical exhibit, Baghdad, Iraq, August 2009

## Fundraising

The IYA2009 Secretariat approached more than 200 international institutions (companies, foundations, organisations, individuals and others) to seek funds to support the IYA2009 global project. The fundraising activities took place throughout 2007 and 2008 and part of 2010 and it was a joint effort between the IYA2009 Secretariat, fundraiser (Robert Hill) and the IAU IYA2009 EC WG.

- Identify the right contact inside the organisation, most of the times through personal contacts and usually a high-level manager or marketing and communications director
- Introduction by phone or face-to-face meetings to give an overview of IYA2009 and its projects
- Identify common goals and projects between IYA2009 and institution
- Production of a custom partnership opportunities brochure, with an overview of potential areas and projects to support
- Follow-up by phone, email or face-to-face meeting until final decision was taken by the institution

In order to normalise the level of support different levels of sponsorship were foreseen, each level of donation entitled organisations to different benefits associated with various IYA2009 products and activities:

### Level 1. IYA2009 Global Official Partner (min.350 KEUR)

A level 1 partnership presupposed a payment of 350 KEUR or more to the IAU to support the preparation, implementation and evaluation aspects of IYA2009 activities. In return, Global Official Partners would have received the highest level of return available, as seen in the table below. Two such positions were available, but none were filled.

### Level 2. IYA2009 Global Sponsors (min. 50 KEUR)

Global Sponsors contributed at least 50 KEUR to the IAU in support of the preparation, implementation and evaluation aspects of IYA2009 activities. These donors received wide recognition throughout IYA2009, as described in the following table. IYA2009 had three Global Sponsors.

### Level 3. IYA2009 Organisational Associates (min. 5 KEUR)

Organisational Associate donated at least 5 KEUR a year to the IAU during 2008, 2009 and 2010. Organisational Associates received recognition throughout the year and were involved with special events celebrating IYA2009. IYA2009 had 33 Organisational Associates.

### Level 4. IYA2009 Media Partner (in-kind contribution)

Due to the diverse forms an IYA2009 Media partnership can take, this was discussed on a case-by-case basis. As a foundation, media partners provided coverage and publicity for the IYA2009 global and international projects, namely the global projects. IYA2009 had 22 Media Partners.

### Level 5. IYA2009 Cornerstone Institutional Partner (in-kind contribution, min. 10 KEUR)

We also had a level of sponsorship associated with the Cornerstone projects. A level 5 Cornerstone Institutional Partner applied to those institutions supporting the Cornerstone projects by providing in-kind contributions corresponding to 10 KEUR or more. These contributions were donated in the form of working time, office space, telephone use, internet use, etc.

### Level 6. IYA2009 Private Contributor (no min. contribution)

These were voluntary and spontaneous donations from organisations or individuals that wish to contribute to the preparation, implementation and evaluation of the IYA2009. IYA2009 received 11 donations; one of the contributions from an individual reached the level of global sponsor, which entitled this contribution to a new level of support, the IYA2009 Patron.

The table below summarises the available opportunities for partnerships:

## List of IYA2009 partnership opportunities

| | LEVEL 1<br>Min 350KEUR | LEVEL 2<br>Min 50KEUR | LEVEL 3<br>Min 5KEUR | LEVEL 4<br>In-kind | LEVEL 5<br>In-kind | LEVEL 6<br>No Min. |
|---|---|---|---|---|---|---|
| **1. Official IYA2009 web site** | | | | | | |
| Logo in Top banner | ■ | | | | | |
| Logo in footer | | | ■ | | | |
| Side bar | | ■ | | | | |
| Special page | ■ | ■ | | ■ | | ■ |
| Link | ■ | ■ | ■ | ■ | | |
| **2. Corporate stationary** | | | | | | |
| **Letter**<br>Logo in header | ■ | | | | | |
| Logo in footer/side bar | | ■ | ■ | ■ | | |
| **Business Card** | | | | | | |
| Logo | ■ | | | | | |
| **3. Brochure** | | | | | | |
| Logo on front page | ■ | | | | | |
| Logo on back page | | ■ | | | | |
| Logo on inside page | | | ■ | ■ | | |
| **4. Trailer** | | | | | | |
| Logo in opening credits | ■ | | | | | |
| Logo in end credits | | ■ | | | | |
| **5. Poster** | | | | | | |
| Highlight | ■ | | | | | |
| Logo in footer | | ■ | ■ | ■ | | |
| **6. Presentations** | | | | | | |
| Logo on opening slide | ■ | | | | | |
| Logo on closing slide | | ■ | ■ | ■ | | |
| **7. Other products** | | | | | | |
| Final IYA2009 Evaluation Report | ■ | ■ | ■ | ■ | | |
| IYA2009 Media Kit | ■ | ■ | ■ | ■ | | |
| Multimedia presentation | ■ | | | | | |
| **8. Cornerstone & special projects** | | | | | | |
| 100 Hours of Astronomy | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo in the webcast | | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| The Galileoscope | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on Galileoscope (up to 1 million or more telescopes) | ■ | | | | negotiable | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| The Cosmic Diary | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo in the book | ■ | negotiable | | | ■ | |
| Logo/Ident in the documentary | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| She is an Astronomer | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Dark Skies Awareness | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Galileo Teacher Training Programme | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Universe Awareness (UNAWE) | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Logo on UNAWE products (when applicable) | negotiable | negotiable | | | negotiable | |
| Developing Astronomy Globally | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Portal to the Universe | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| From Earth to the Universe | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Logo on one of the exhibition panels | | negotiable | | | negotiable | |
| The World at Night | | | | | | |
| Logo on website front page | ■ | negotiable | | | ■ | |
| Logo on other communication products | ■ | negotiable | | | ■ | |
| Logo on one of the exhibition panels | ■ | negotiable | | | negotiable | |
| **9. Special events** (Opening Event, 100 Hour of Astronomy, IAU General Assembly, Closing Event) | | | | | | |
| Official Speech by Director or CEO | ■ | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Exhibition Space | ■ | negotiable | negotiable | negotiable | | |
| Acknowledgement at the Welcome Ceremony | | ■ | ■ | ■ | | |
| Inserts in conference bags | ■ | ■ | | ■ | | |
| Invitations | ■ | ■ | ■ | ■ | | |
| Full page colour advertisement in the Conference Program | ■ | negotiable | negotiable | negotiable | | |
| 10. Official recognition | | | | | | |
| Letter of Recognition and Gratitude from the IAU | ■ | ■ | ■ | ■ | ■ | ■ |

Some findings:

- The fundraising activities are extremely time consuming and difficult
- The IYA2009 fundraising success rate was 16% (37 supporting institution out of 230 institutions contacted)
- Fundraising was however much more successful with organisations with a direct link with astronomy and space sciences and with more " modest" contributions (~5000 €/year)
- If possible, contract a professional fundraiser in the planning phase of the project to ensure a higher return on the investment.
- Individual donors are important, special during economic hard times.
- Keep an up-to-date brochure, the brochure should explain what your project is and what it does, including goals, organisation, activities,
- A fundraising plan or proposal must include:
    a. Description of your goals and potentially overlap with institutions and donors' goals
    b. Timeline showing what you'll work on month by month
    c. Make it a living document and adapt it to your evolving needs.
- If possible provide regular feedback to your donors by for example email newsletters

# Global Budget

Summary of the preliminary (as of 1 July 2010) IYA2009 Budget for the global coordination from 2007—2010
All values in Euros (€)

## Income

- IAU: 121 874
- Global Sponsors: 139 980
- Organisational Associates: 472 055
- Official products: 23 382
- Donors: 42 962
- Miscellaneous: 3 000

**Total income: 662 786**

## Expenses

### Secretariat

- Personnel: 271 071
- Travels: 32 273
- Communication products (incl. Brochures, prizes, etc.): 80 095

### Global projects

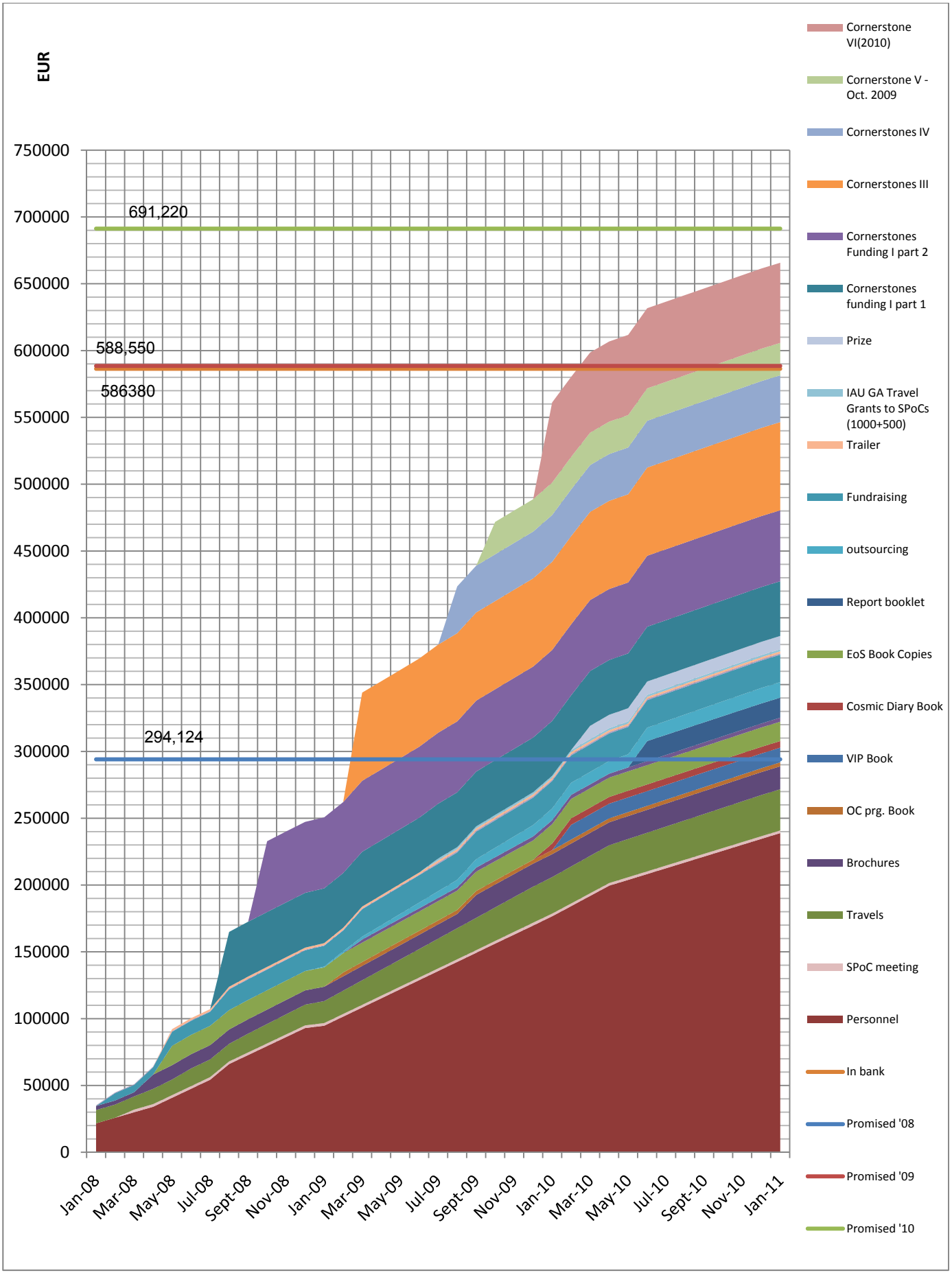
Cornerstones Funding: 279 347

**Total Expenses: 662 786**

## Important in-kind contributions to the global coordination

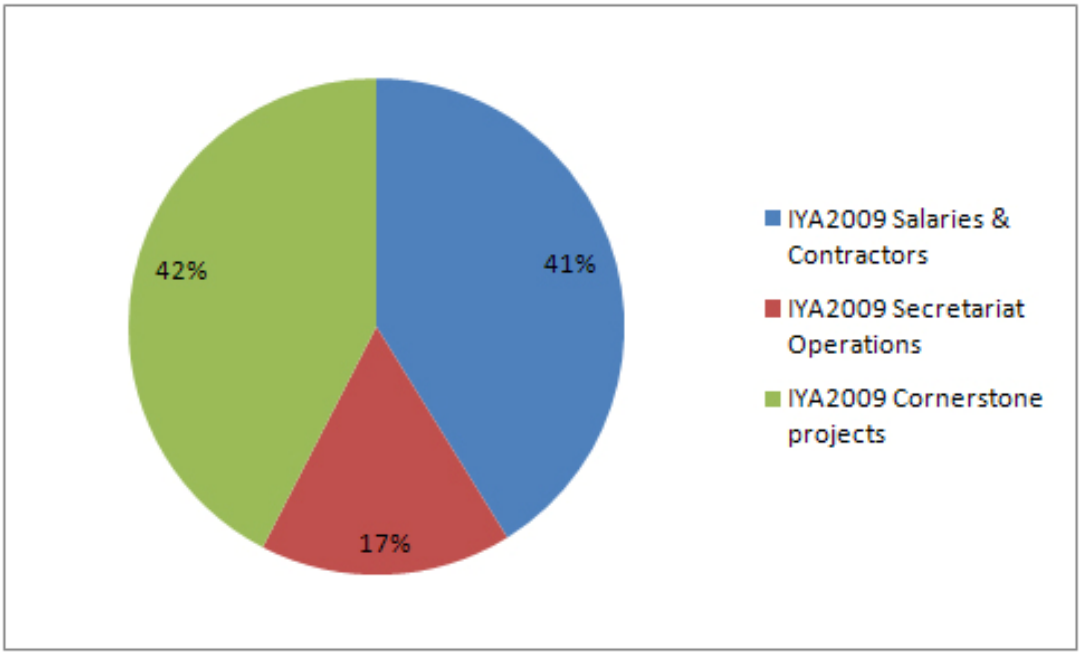
- History Channel: History contributed to promoting IYA2009 with on-air promotional videos and other promotional media.
- ESO: Infrastructure and logistics to host the IYA2009 secretariat, including communications, office space and material, managerial support, technical and scientific support, distribution support, etc.

Below an overview of the evolution of the IYA2009 budget (as per 1 July 2010).


EUR
750000
700000
650000
600000
550000
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
691,220
588,550
586380
294,124
Jan-08
Mar-08
May-08
Jul-08
Sept-08
Nov-08
Jan-09
Mar-09
May-09
Jul-09
Sept-09
Nov-09
Jan-10
Mar-10
May-10
Jul-10
Sept-10
Nov-10
Jan-11
Cornerstone VI(2010)
Cornerstone V - Oct. 2009
Cornerstones IV
Cornerstones III
Cornerstones Funding I part 2
Cornerstones funding I part 1
Prize
IAU GA Travel Grants to SPoCs (1000+500)
Trailer
Fundraising
outsourcing
Report booklet
EoS Book Copies
Cosmic Diary Book
VIP Book
OC prg. Book
Brochures
Travels
SPoC meeting
Personnel
In bank
Promised '08
Promised '09
Promised '10

Besides the IYA2009 Global Coordination, the IYA2009 participants used the following budgets to implement their activities:

- IYA2009 National Nodes Total: Budget: 9 713 200 €
- IYA2009 Organisational Nodes: Total Budget: 2 637 500 €
- IYA2009 Global projects (incl. Cornerstones): Total Budget: 4 573 050 €



Distribution of the IYA2009 Budgets.

# IYA2009 Partners

IYA2009 was supported by a strong network of partners, including global sponsors, a patron and organisational associates.

Organisational associates are leading institutions and agencies with strong links to the fields of astronomy, space science and natural science.



IYA2009 Closing Ceremony, Padua, Italy, 31.12.09

## IYA2009 Global Sponsors




**ThalesAlenia Space**
Webpage: www.thalesonline.com/space/




**Celestron**
Webpage: www.celestron.com




**History**
Webpage: http://www.historychannel.tv/

**IYA2009 Patron**

# IYA2009 Patron: Dr. Mani Bhaumik

Dr. Mani Bhaumik was the IYA2009 Patron, a dedicated supporter of IYA2009's global activities.



Dr. Mani Bhaumik, physicist, internationally bestselling author, celebrated lecturer, entrepreneur, and a philanthropist. He is a laser physicist who announced the successful demonstration of the world's first efficient excimer laser at the Denver, Colorado meeting of the Optical Society of America in May 1973. This is the class of laser that would eventually eliminate the need for glasses or contact lenses in many cases requiring vision correction. The procedure popularly known as Lasik takes less than a minute and has helped over fifteen million people worldwide.



Dr. Mani Bhaumik with Nobel Prize Laureate Dr. Robert Wilson during the IYA2009 Opening Event in Paris, France

In recognition of his pioneering research in high energy lasers and new laser systems, he was elected by his peers as a fellow of the Institute of Electrical and Electronics Engineers as well as of the American Physical Society.

Dr. Bhaumik's current interest is in sharing with the public the astounding advances in quantum physics and cosmology and their implications for our lives, work, technology, and spiritual development. This he endeavours to do through books, articles, lectures, and TV programs. He is also keenly interested in research on the origin and the nature of consciousness and how that knowledge can be utilised in improving the quality of our existence.

Honours and awards:

- Elected fellow of the American Physical Society for Advancement of Physics, 1976
- Elected fellow of the Institute of Electrical and Electronics Engineers for development of high power lasers and new laser systems, 1982
- Elected to the prestigious Cosmos Club, Washington, D.C.
- Elected Member of the scientific honour society, Sigma Xi, Los Angeles
- Received Honorary D.Sc degree for Lifetime Academic Achievements from Indian Institute of Technology, 1995
- Received Lifetime Achievement Award, North America Bengali association, Los Angeles, 2003
- Honoured by the Cultural Association of Bengal for Philanthropic Services to community, New York, 2005
- Received Mahatma Gandhi Humanitarian Award from Indian American Heritage Foundation presented by Sir Ben Kingsley, Beverly Hills, 2005
- Received Award for Outstanding Achievement in Science and Philanthropic Contribution from Asian Heritage Committee, New York, 2006
- Elected fellow of the Asiatic Society, Calcutta, India, 2006
- Listed in Who's Who in America and in Who's who in the World
- Listed in the American Men and Women in Science

## IYA2009 Organisational Associates

The IYA2009 Organisational Associates are the Organisations, Institutions and Agencies related to astronomy, space science and natural science which support the global coordination of IYA2009 financially.




European Southern Observatory
Webpage: http://www.eso.org/




American Astronomical Society
Webpage: http://www.aas.org




L'Institut National des Sciences de l'Univers
Webpage: http://www.insu.cnrs.fr




Canadian Astronomical Society
Webpage: http://www.casca.ca/




Sterrewacht Leiden
Webpage: http://www.strw.leidenuniv.nl/




Nederlandse Onderzoekschool Voor Astronomie (NOVA)
Webpage: http://www.astronomie.nl/



Science & Technology Facilities Council
Webpage: http://www.scitech.ac.uk/




Swiss Academy of Sciences
Akademie der Naturwissenschaften
Webpage: http://www.scnat.ch/




The Society for Popular Astronomy
Webpage: http://www.popastro.com/home.htm




National Research Council Canada
Webpage: http://www.nrc-cnrc.gc.ca/




Ministerio de Educación y Ciencia (Spain)
Webpage: http://www.mec.es/




Centre National d'Etudes Spatiales
Webpage: http://www.cnes.fr/




Deutsches Zentrum für Luft- und Raumfahrt
Webpage: http://www.dlr.de/




European Space Agency
Webpage: www.esa.int




National Aeronautics and Space Administration
Webpage: http://www.nasa.gov/




Japan Aerospace Exploration Agency
Webpage: http://www.jaxa.jp/




National Astronomical Observatory of Japan
Webpage: http://www.nao.ac.jp/




Armagh Planetarium
Webpage: www.armaghplanet.com/




The Planetary Society
Webpage: www.planetary.org




European Science Foundation
Webpage: www.esf.org




Indian Space Research Organisation
Webpage: www.isro.org




International Center for Relativistic Astrophysics Network
Webpage: www.icranet.org




NASA Lunar Science Institute
Webpage: http://lunarscience.arc.nasa.gov/




Nordic Optical Telescope
Webpage: http://www.not.iac.es/




Excellence Cluster Universe
Webpage: www.universe-cluster.de




European Astronomical Society
http://eas.unige.ch/




Agenzia Spaziale Italiana
http://www.asi.it




National Radio Astronomy Observatory
http://www.nrao.edu/



Commissariat à l'Énergie Atomique
http://www.cea.fr




Korea Astronomy and Space Science Institute
http://www.kasi.re.kr/html/english/




Portuguese Astronomical Society
http://www.sp-astronomia.pt




Associated Universities, Inc.
http://www.aui.edu/




Croatian Science Portal
http://www.crosci.net/

## IYA2009 Media Partner

In order to promote our activities, the IYA2009 Secretariat is establishing a network of media partners that will write and report on IYA2009 activities around the world.




**Planetarian — Journal of the International Planetarium Society**
Website: www.ips-planetarium.org/planetarian/




**Sky & Telescope**
Website: www.skyandtelescope.com




**Astronomy Now**
Website: www.astronomynow.com




**Physics World**
Website: www.physicsworld.com




**Astronomy Ireland**
Website: www.astronomy.ie




**Astronomía**
Website: www.astronomia-e.com




**Redshift**
Website: www.redshift-live.com




**Sky at Night Magazine**
Website: www.skyatnightmagazine.com




**Cosmotoons**
Website: www.cosmotoons.com




**Taffy Entertainment**
Website: www.taffyentertainment.com/




**Wiley-VCH**
Website: http://www.wiley-vch.de/astronomy/




**Springer**
Website: http://www.springer.com/astronomy




Athenaweb-The European Science Films Portal
Website: http://www.athenaweb.org/




History
Website: http://www.historychannel.tv/




Science Newspaper
Website: http://www.sciencenewspaper.eu/




Astronomy & Astrophysics
Website: http://www.aanda.org/




Popular Mechanics
Website: www.popularmechanics.com




Astrocast.TV
Website: www.astrocast.tv




Medea Awards
Website: http://www.medea-awards.com




Cambridge University Press
Website: http://www.cambridge.org/




Cosmos
Website: www.cosmosmagazine.com

# IYA2009 Cornerstones Projects

The International Year of Astronomy 2009 was supported by twelve Cornerstone projects. These are global programmes of activities centred on specific themes and are some of the projects that will help to achieve IYA2009's main goals; whether it is the support and promotion of women in astronomy, the preservation of dark-sky sites around the world or educating and explaining the workings of the Universe to millions, the twelve Cornerstones were key elements in the success of IYA2009.



Galilean Nights, Calcutta, India, 24.10.09

# 100 Hours of Astronomy: an event 400 years in the making

## Cornerstone project

Mike Simmons, Douglas Pierce-Price
(Astronomers Without Borders, ESO)
mikes@astronomerswithoutborders.org, dpiercep@eso.org
www.100hoursofastronomy.org

Active Task Group number: 13

Number of people working on the project: ~200

- Full-time: 2
  Part-time: ~198
- Paid: 1
  Volunteers: ~199

Budget: 30 000 €

Sources:
- IAU
- Commercial sponsorships

Estimated total number of people reached: 2 000 000.

## Main Activities

### 100 Hours of Astronomy

100 Hours of Astronomy took place 2-5 April in over 100 countries in a planet-wide celebration of astronomy. The opening event, held in conjunction with the opening of an important exhibition of astronomy artefacts including one of Galileo's telescopes, was held at the Franklin Institute in Philadelphia, USA and was webcast live. Science centre activities and debates on current topics of interest in astronomy followed on the webcast. The 24-hour live webcast Around the World in 80 Telescopes then streamed from research facilities worldwide with more than 170 000 unique visitors looking in. The 24-hour Global Star Party followed on the evening of 4 April with amateur astronomers taking their telescopes to the streets to share views of the Moon, Saturn and other objects with a public estimated at one million people. The final day, Sunday, 5 April, was designated as Sun Day with solar observing for the public in a programme organised by the IYA2009 Solar Physics Task Group.




More than 2300 events in 99 countries were registered on the central web site but we know that many more took place that were not registered. The majority of events were public observing but many science centres, planetariums, observatories and other facilities also scheduled special programs throughout the four-day event.

We believe Around the World in 80 Telescopes, the very popular 24-hour observatory webcast, was used by clubs and other institutions as the basis for events as well.

Wide volunteer participation was accomplished through direct networking of participants using existing sidewalk astronomy and other amateur astronomy networks. Feedback indicated far greater attendance at public events than usual. We feel this is largely due to the participation of local organisations using common branding to advertise their events as part of global activities. There had never previously been a programme that mobilized astronomy enthusiasts in this way, and the unique nature of 100 Hours of Astronomy made it possible to accomplish greater participation and attendance than previous events.

Organisers: 100 Hours of Astronomy Task Group.

Website: www.100hoursofastronomy.org

Budget: 30 000 €

## Lessons Learned

Recruit the participants who will be taking part directly by using existing networks and creating networks with social media. Brand global programs as truly global, i.e., as one worldwide event. This motivates both participants like local astronomy clubs who see it as an opportunity to be a part of something international. It also attracts the attention of local media in most of the world where international programmes don't ordinarily reach, and it this local marketing that brings the public to the local events.

## Legacy

Global Astronomy Month is a follow-up to 100 Hours of Astronomy with an expanding time frame and slate of activities taking advantage of the excitement created and the lessons learned. It is anticipated that this will be an annual event. www.gam-awb.org

# Galileoscope: millions looking at the sky

## Cornerstone Project

Richard Tresch Fienberg (American Astronomical Society)
rick.fienberg@aas.org
www.galileoscope.org

Task Group Members: 20
- Volunteers: 14
- Paid: 6

Number of people reached by IYA2009:1 800 000

Budget: 2 200 000 €

Sources:
- Product sales
- Donations

## General Overview

The Galileoscope Cornerstone Project was designed to solve a long-standing problem in astronomy education and outreach: the lack of a high-quality but inexpensive telescope for student observations that is available worldwide. The project successfully addressed this problem through the design and production of the Galileoscope kit and the creation of educational and outreach materials localized in various countries on how to effectively use the Galileoscope.

The project was designed from the start to present a long-term solution to earlier telescope kit problems and to put largely self-sustaining and lasting structures in place. Because the project was built upon organisations committed in the long-term to astronomy education (e.g., American Astronomical Society, National Optical Astronomy Observatory, Astronomical Society of the Pacific), education efforts with the Galileoscope will be sensibly maintained.

Through the end of IYA2009 the Galileoscope cornerstone project will have delivered nearly 175,000 telescope kits to recipients in more than 96 countries worldwide. We have worked hard to develop, produce, and distribute Galileoscopes so that people everywhere can experience the thrill of observing lunar mountains and craters, Jupiter's Galilean satellites, the rings of Saturn, and bright star clusters like the Pleiades through a telescope that they will be proud to own and that offers superior optics and mechanics, and demonstrable educational value, at an astoundingly low cost.

Our research on existing telescope kits did not identify a model suitable for the goals of the program. Thus, our team designed its own telescope kit superior to those available on the market at a production cost that allows sale at a very economical price. An extensive design effort was undertaken to optimize the optical and mechanical capabilities of the telescope and to make assembly by the user as easy as possible. In order to manage the effort, and having been unable to develop a manufacturing partnership with an existing telescope company, we had to form a new company, Galileoscope, LLC, to execute the project. Galileoscope, LLC, partnered with Merit Models of Racine, Wisconsin, for manufacturing and with Leman USA of Sturtevant, Wisconsin, for distribution and shipping. Galileoscope, LLC, has had revenues and expenses through IYA2009 of approximately $3 million. Very careful management of company financials and contributions of personal funds by members of the Galileoscope team, combined with the all-volunteer effort from the participants, have made the venture financially viable (marginally!) and resulted in the success of the project.

## Main Activities

### List of Activities

1. Sales of Galileoscopes to individuals
2. Sales of Galileoscopes to organisations
3. Donations of Galileoscopes
4. Galileoscope teacher workshops

### Sales of Galileoscopes to individuals

Through our project website, we accepted orders from individuals all over the world for small numbers of Galileoscopes. The average order was for 2.4 Galileoscopes at U.S. $58.39, including the cost of the Galileoscopes and the cost of shipping by postal/parcel service. The total number of Galileoscopes sold through our website was 64 478 as of 31 March 2010.

Number of people reached: As of 31 March 2010, we had sold 64,478 Galileoscopes to 26,971 individuals. Many of these were purchased by parents or teachers for use by their children or students, so the number of people reached by these telescopes is of order 100,000, probably more.

Budget: Gross sales (including shipping): U.S. $1,574,940 (1 282 837 €).

Organisers: Rick Fienberg, Doug Arion and Steve Pompea

### Sales of Galileoscopes to organisations

On our website we made available a Request for Quotation form that organisations could download to initiate an order for 100 or more Galileoscopes, which we could deliver by low-cost freight service. We obtained a freight quote from our distributor and sent it, along with an invoice, to the customer, who usually responded with a firm order and a deposit. As of 31 March 2010, we had sold 102,369 Galileoscopes to 180 organisational/institutional customers around the world. The largest single orders were for 20,000 from Brazil and 15,000 each from Norway and the United States.

Number of people reached: As of 31 March 2010, we had sold 109,617 Galileoscopes to 180 organisations and institutions. Many of these were purchased by formal and informal educators for use by their students and visitors. Based on informal surveys, we estimate that each of these Galileoscopes will be used by at least 10 people, so the number of people reached by these telescopes is of order 1 million.

Budget: Gross sales (including freight): U.S. $1,506,132 (1 226 791 €).

Organisers: Rick Fienberg, Doug Arion and Steve Pompea

### Donations of Galileoscopes

The spirit of IYA2009 was to share the universe with those who might not yet have had an opportunity to look through a telescope and to contemplate the wonders of the night sky. So, from the outset, we encouraged those who could afford it not just to buy Galileoscopes for themselves, but also to donate some to underserved youth, especially those in developing countries. Among the approximately 175,000 Galileoscopes sold to date, about 22,000 were purchased for donation.

Number of people reached: The 15,000 Galileoscopes donated to U.S. schools by Ric and Jean Edelman are expected to reach about 3,700 elementary, middle, and high-school teachers, each of whom will use them in activities with of order 100 students, so the Edelman Galileoscopes will reach of order 370,000 students. Another 7,000 or so Galileoscopes were donated to developing countries, where they'll each be used by at least 10 students, reaching another 70,000. Thus the donated Galileoscopes will, in total, reach upwards of a half million people.

Budget: Approximately U.S. $365,000 (297 303 €) (included in the totals quoted above), not including some shipping costs to be paid by recipients of the donated telescopes.

Organisers: Rick Fienberg, Doug Arion, Steve Pompea and Kevin Govender

### Galileoscope teacher workshops

The Galileoscope is not just a telescope; it's also an education programme that incorporates a telescope. As such, it is a strategic tool to get kids doing science, i.e., making observations and testing ideas. The Galileoscope education programme began as an extension of Hands-On Optics, developed by the U.S. National Optical Astronomy Observatory, the Optical Society of America, and SPIE-The International Society of Optical Engineering. It has been augmented by countless formal and informal educators during IYA2009. As just a few examples, NOAO has a programme to teach optics and use the Galileoscope at 10 sites throughout Arizona. The National Earth Science Teachers Association has planned 19 Galileoscope teacher workshops throughout the U.S. The Astronomical Society of the Pacific, which led the U.S. component of the Galileo Teacher Training Program, has 12 Galileoscope workshops for teachers planned at 12 U.S. sites. Twenty large science centres have received Galileoscopes through the Association of Science Technology Centers and have already conducted numerous workshops with them. And we have received many reports from institutional customers around the world concerning their successful Galileoscope teacher workshops. The Galileoscope education programme will continue to be supported through the new website TeachingWithTelescopes.org.

Number of people reached: Thousands of teachers, hundreds of thousands of students.

Organisers: Steve Pompea, Robert Sparks, and many, many other astronomy educators

## Lessons Learned

This project was unusual for IYA2009 because it involved the creation and sale of a product. The lessons learned are the usual ones for any commercial enterprise: make sure you have enough capital on hand to sustain the project until it becomes viable on its own, and make sure you have all proper systems in place to provide superior customer service. We failed on both accounts, yet still managed to succeed overall through the liberal application of blood, sweat, tears, and personal funds. We couldn't raise any outside capital because of the global economic meltdown of late 2008 and because our project was intentionally designed for cost recovery rather than profitability. And we didn't provide superior customer service for two reasons: we couldn't afford it, and we planned for a small number of large orders but actually received a large number of small ones.

## Legacy

It is very important to the Galileoscope team, and to the wider astronomical community, that this project continues beyond IYA2009. Accordingly, we are working on a plan to transition manufacturing and order processing to another company. Under this plan, the Galileoscope will be offered much as it is now, with the website (www.galileoscope.org) as the primary point of sale. As the project evolves from a volunteer effort to a professional, commercial enterprise, there will be notable improvements in customer service and reductions in wait time from order to delivery.

Importantly, the donation programme — which has distributed about 7,000 telescopes to underserved youth worldwide, in cooperation with our IYA2009 sister project Developing Astronomy Globally — will continue, though with modifications to make it more effective. We recently received a donation for thousands more Galileoscopes for U.S. classroom teachers; this will enable us to augment our current educational efforts.

The educational networks where Galileoscopes have been distributed remain largely unchanged and intact. For example, in the U.S. Galileoscopes have been distributed through networks of small science centres, through the Association of Science-Technology Centers, through outreach centres of observatories, and through teacher professional organizations. Online training has been offered to many of these organizations, and the National Optical Astronomy Observatory will consolidate the newly created training resources online in 2010.

## Cornerstone Project

Mariana Barrosa (IAU/IYA2009 Secretariat)
mbarrosa@eso.org
www.cosmicdiary.org

Task Group Members:4

- Volunteers:: 0
- Paid: 4

Number of people reached by IYA2009: 220 000

Budget: 11 000 €

Sources: IAU/IYA2009 funding for Cornerstones

## General Overview

This project started out as a mere thought back in 2007. Planning for the International Year of Astronomy 2009 had begun in earnest, and ideas were being thrown around for Cornerstone projects to form its foundation. There was a lot of enthusiasm for various ventures, and one in particular had the potential to really put a human face on astronomers working at the forefront of science. Soon named “The Cosmic Diary”, it was to be an online blog for professional stargazers where they could write about their research as well as their personal lives.

We were asked to take this project on and we were happy to accept the challenge. The first step was to recruit bloggers. We asked International Year of Astronomy 2009 Single Points of Contact in various countries to recommend candidates who would be enthusiastic enough to keep blogging for at least a year, as well as possessing a natural talent for communication. We were careful to choose astronomers from different countries, as well as those researching varying areas of astronomy. The idea of the bloggers representing a cross-section of professionals was at the very core of the project.

At the same time, we were working with designer Andre Roquette and web developer Nuno Marques to find the best technical solutions and look to set up the website. Before long more astronomers wanted to join, and NASA, the European Space Agency, the Japan Aerospace Exploration Agency, and the European Southern Observatory all requested sub-blogs. We even had an historical blog run by the Royal Observatory Greenwich, reproducing diaries written in 1894.

In total, we had 60 bloggers from 35 different countries. This was about three times our original aim of having 24 bloggers. The Cosmic Diary was growing naturally, which was excellent. The Cosmic Diary went live on the 1st of January 2009, the very first day of the International Year of Astronomy. Over the course of the year, most of our bloggers showed the enthusiasm that we had hoped for, writing over 1500 blog posts ranging from a frontline report of a satellite launch to the confusion over how to greet people from different cultures. Many of the 220,000 visitors left comments after posts, asking the astronomers questions and engaging in conversation. We had an average of 600 visitors a day, between the 1st of January and the 31st December 2009. According to data gathered by Google Analytics, the Cosmic Diary reached 197 countries/territories.

In addition to the regular posts, some of the bloggers were asked to write a feature article about a scientific topic. Fortnightly, these feature articles were highlights of the website. The fact that experts were writing their own text for the public was unusual enough in the scientific community, and the method of disseminating these, via the blog, added to their appeal.

It was a natural step to compile them into a book, along with more in-depth information about their authors, where they live, and where they conduct their work. The result of this is Postcards from the Edge of the Universe, where we compiled the articles written by our bloggers, during 2009.

Occasionally, we had special temporary blogs to cover some of the most important IYA2009 events:

- IYA2009 Opening ceremony Live blog
- 100 Hours of Astronomy Live Blog
- Galilean Nights Live Blog
- IYA2009 Closing Ceremony Live Blog
- Cosmic Diary manager and editor Lee Pullen reported live in text and images from the events. These special Live Blogs proved to be very popular and were translated in peaks of site visitors' numbers.
- Occasionally, the Cosmic Diary collaborated with other IYA2009 Global Projects like 100 Hours of Astronomy, Galilean Nights and GalileoMobile, either by reporting these events on the Live Blogs or by featuring blog posts from the projects on cosmicdiary.org. A Cosmic Diary Facebook page was also set up which presently counts with 638 members.

## Main Activities

1. Normal running of www.cosmicdiary.org
2. Feature articles
3. IYA2009 Opening ceremony Live blog
4. 100 HA Live Blog
5. Hosting the official 100HA Blogs
6. Galilean Nights Live Blog
7. Galilean Nights Blog
8. Hosting the GalileoMobile Blog
9. IYA2009 Closing Ceremony Live Blog
10. Facebook page

## Legacy

The Cosmic Diary blog will continue after 2009, although in a slightly different, simpler format. A book compiling the feature articles written by some of the bloggers during the duration of the project were compiled in a book — Postcards From the Edge of the Universe — soon to be published and distributed worldwide

# The Portal to the Universe: a one-stop universe of news

## Cornerstone Project

Lars Lindberg Christensen (ESO); Adam Hadhazy (ESO)
lars@eso.org; ahadhazy@eso.org
www.portaltotheuniverse.org

Task Group Members: 25 team members

Number of people reached by IYA2009: 165 000

Budget: 20 000 € + 10 000 €/year in running costs.

Sources:

- Sponsorship from ESO
- IAU/IYA2009

## General Overview

The Portal to the Universe (PTTU) provides a global, one-stop portal for online astronomy content, serving as an index and aggregator for astronomy content for laypeople, press, educators, decision-makers, scientists and more. In its first month of operation PTTU had more than 40 000 unique visitors.

The site itself features news, blogs, video podcasts, audio podcasts, images, videos and more. Web 2.0 collaborative tools, such as the ranking of different services according to popularity, help the user to sift constructively through the wealth of information available and promote interactions within the astronomy multimedia community. A range of “widgets” (small applications) have also been developed to tap into all sorts of existing “live data”, such as near-live pictures of the Sun, live positions of spacecraft or live observations from telescopes.

The Portal enables real-time access to content by aggregating (pulling) from providers of dynamic content like blogs, images, news, etc. and distributing (pushing) to users, as well as indexing and archiving, collecting and maintaining a central repository of useful information. Modern technology such as RSS feeds and standardised metadata make it possible to tie all the suppliers of astronomy information together with a single, semi-automatically updating portal. The result is a technologically advanced site that brings together strands of astronomy content from across the world wide web.

## Lessons Learned

The Portal to the Universe (PTTU) remains a work in progress. We continue to add new content often — press releases, podcasts and blogs — but have much more to bring into the fold. We expect that the implementation of a “filtering” programme will allow us to add “mixed-content” feeds; many university press departments, podcasts and blogs cover astronomy-related content only occasionally, and at present the posts from such feeds must be filtered manually. With this system in place, we will have significantly more content and better “presence” online regarding breaking news. This will likely be a best practice moving forward.

We also will be adding Twitter and expanding into more social media. PTTU’s Facebook page is getting upgraded at present. It is too early to tell how well social media will drive traffic to PTTU.

Other best practices include automatically updating image feeds and widgets that track the locations of satellites, planets, the ISS, etc. This gives the page a dynamic look that is different daily.

## Legacy

The Portal to the Universe will continue under Beyond IYA2009.

# She is an Astronomer: breaking down misconceptions

## Cornerstone Project

Helen Walker (STFC Rutherford Appleton Laboratory),
Francesca Primas (ESO), Eniko Patkos (ESO)

helen.walker@stfc.ac.uk
www.sheisanastronomer.org

Task Group Members:16

- Volunteers: 16
- Paid: 6 (part-time for website)

Number of people reached by IYA2009: 30 000+

Budget: 15 000 €

Sources:

- IYA2009

## General Overview

She is an Astronomer has been a great success because even the creation of the Cornerstone Project was in itself a challenge to national organisations and created/raised awareness. It was only at the IAU when countries produced posters of their IYA2009 activities that the attempts to do something for each Cornerstone Project revealed the variety of activities for She is an Astronomer which had taken place (some of which are listed earlier in Section 3, but it has proved impossible to find them all). The website worked really well, because resources came in from many different places (implying we were not duplicating other sites). The website proved to be a valuable focus, and the money to have it professionally set up and managed was essential. People enjoy reading the pages (as a dwell time of over five minutes shows — this is regarded as a very high figure), and people wanted to contribute events and resources from the moment it went live. The IAU Resolution B4 calls, in essence, for a climate change in the culture of the workplace, whether that workplace is the classroom, lecture theatre, office, lab or observatory. Most of the work of She is an Astronomer has been exploring, in one way or another, the present climate — what it is and what is wrong with it, what needs to change and how it can be helped to change. By 'supporting and encouraging' women in astronomy, the changes to the culture will benefit everyone, men and women. What has proved surprising is the willingness of people (and countries) to do their own 'thing' to support women in astronomy, not wanting any support, or advertising, from She is an Astronomer, and feeling no necessity or desire to inform the Cornerstone Project of their work. It was encouraging to see activities taking place at all levels, from visits to schools to special meetings to celebrate senior women in astronomy and physics. Hopefully the momentum and awareness can be maintained and the activities developed.

## Main Activities

### List of Activities

1. She is an Astronomer website
2. She is an Astronomer web forum
3. She is an Astronomer conference
4. She is an Astronomer calendar
5. e-mentoring
6. IAU Resolution B4
7. senior Russian female astronomers honoured with conference
8. Turkish women astronomers visits to schools
9. Romanian astronomers hand out IYA2009 badges on International Women's Day
10. Korea invited a female astronomer to join their 'meet an astronomer in the classroom' project

11. Meetings on gender issues in India (Bangalore, Pune) and Lebanon by French Astronomer
12. Australian book launch, UK book launch
13. Portugal and UK had TV and radio programmes featuring female astronomers
14. Spain had a TV series 'Mujeres en las Estrelles'
15. French film/documentary 'Astronomy and Space careers'
16. America had camps for girls scouts
17. America had camps for photographers
18. India included three female astronomers in their film for schools
19. Saudi Arabia organised lectures on the Universe especially for women
20. Tunisia held a meeting for International Women's Day with lectures by women scientists
21. Exhibitions on women in astronomy in Mexico, Australia, Germany and Spain
22. Lectures by women astronomers in UK, Ireland, Belgium, France, USA and Australia
23. Conference on women and diversity in USA
24. twitter (SheAstronomer)

## She is an Astronomer website

The website was professionally designed and built, which made it easy to maintain. Four main areas were identified for the She is an Astronomer website: profiles of current female astronomers, profiles of historic female astronomers, events/activities and resources. Profiles were gathered from female astronomers at all stages of their careers and from many countries, with the collection of profiles from American astronomers as the finale, since there are many well-known female astronomers in the USA. There are over 70 profiles available on the website from 26 countries, and we aim to reach 100 profiles. Profilers were asked to nominate other women they knew and so we reached new places and new people. The profilers were asked to give a piece of advice for a younger astronomer, and these have given fascinating insights into the challenges and opportunities of being a woman in astronomy. There were a wide range of events listed on the website, from meetings and exhibitions about women in astronomy to two book launches, one about an Australian pioneer radio astronomer (Ruby Payne-Scott) and the other about early British and Irish female astronomers. We were offered (and discovered) the names of several recently-deceased pioneering astronomers, such as Beth Brown, and new information on others, for example Paris Pişmiş, who came from Turkey and is still celebrated there as one of their pioneering women in science even after she had left the country to work abroad. The website will continue to grow through 2010 as resources are added and new suggestions for the 'London List' to 'support and encourage' women in astronomy. The most popular page on the website was the profile from Annapurni Subramanian, with an astonishing 16,400 hits, and the most visited historic profile was Maria Winkelmann-Kirch (who features on the March page in the calendar). Although the majority of visitors were from the UK, USA, Canada, Australia, Germany and Spain, there were visitors from 128 countries.

Number of people reached: Around 15000 unique visitors, average dwell time around 5 and a half minutes.

Budget: 10 000 €

Organisers: Helen Walker

## She is an astronomer web forum

The web forum was set up and had a life of its own, thanks to the lively, young and experienced moderators. It ran for around seven months. There were about ten active contributors to the forum including the moderators. The moderators organised an astronomy picture twice a week, and looked for relevant news items including items from the main website. They also attracted people to the site with less serious items. The 'feature of the day' was a popular area, as was the 'off topic' café and 'fun and games'. Serious topics were introduced but did not provoke a long discussion. However, the most read topics were 'Do you have a space related job?', 'Are you studying science?', 'Are we alone?', 'Getting the IAU resolution working', 'Two women share Nobel prize'. Many people were looking at the content and reading the more serious items, but not many people (men or women) wanted to share their views and discuss issues using the web forum.

Number of people reached: 1866 unique visitors, average dwell time 4 minutes

Budget: Around 1000 Euros to run the web forum, set-up costs included in the main website costs.

Organisers: Helen Walker

## "She is an Astronomer: celebrating success and seeking solutions" conference

A two-day conference was organised in London, to draw together various strands which had arisen from the profiles and reports during the year. There were talks on gender issues, careers, work-life balance, mentoring, She is an Astronomer activities and IYA2009 activities. Over 60 people registered for the conference but due to ash-induced travel problems, around 40 people attended. The lack of women at the most senior levels has often been likened to a 'Leaky Pipe' suggesting that if more female students are pumped in at one end, more female professors will naturally flow out at the other end. At the London conference, the 'Labyrinth' was judged to be more appropriate than the Leaky Pipe, a combination of a lot of small problems which confuse and discourage women at every step, eventually losing the women in a maze where they no longer know which way to turn to solve a complex mix of challenges. Unfortunately, this means that there is no 'magic bullet', such as getting more female science students in universities. The replies to the question given to all the participants at the meeting ('what would support and encourage you?') showed a sensitivity to, and a frustration with, the culture in the workplace, that their careers do not progress as quickly as their male colleagues and their work is not recognised as quickly as their male colleagues' work. They appreciated having role models, and meetings to discuss issues face-to-face. They want information. They need support in dealing with other peoples' attitudes such as gender stereo-typing, and women's own attitudes such as the 'imposter syndrome'. This was illustrated in the profiles we received — senior astronomers often said how 'lucky' they were to get an award or a promotion. After the passing of the IAU Resolution B4 at the Rio General Assembly, a 'London List' is being developed on the website, with suggestions from contributors and profilers as to what can be done to 'support and encourage' women in astronomy, inspiring a 'pick and mix' approach (On-going).

Number of people reached: Over 800 reached from website access (40 attended)

Organisers: Helen Walker

## e-mentoring

One element that came out of the profiles and from the London conference was the importance of mentoring. Many profilers gave credit to people (men and women) who had mentored them and said how much this had helped them in their careers. The London conference brought together several different styles of mentoring. MentorSET in the UK organises one-to-one mentoring, offering training to both mentor and mentee and encouraging face-to-face meetings. The Maria Mitchell Observatory in the USA has small groups with four female students and two male students working on projects over the summer. The Ruhr University in Bochum Germany has several different opportunities including small discussion groups for peer mentoring. She is an Astronomer will investigate mentoring further, to see if an e-mentoring service for women by women can be set up, since we want something that will help women internationally and particularly those in isolated places where there are few women scientists around. (Project on-going).

Organisers: Helen Walker and Anita Heward

## She is an Astronomer website

The website was professionally designed and built, which made it easy to maintain. Four main areas were identified for the She is an Astronomer website: profiles of current female astronomers, profiles of historic female astronomers, events/activities and resources. Profiles were gathered from female astronomers at all stages of their careers and from many countries, with the collection of profiles from American astronomers as the finale, since there are many well-known female astronomers in the USA. There are over 70 profiles available on the website from 26 countries, and we aim to reach 100 profiles. Profilers were asked to nominate other women they knew and so we reached new places and new people. The profilers were asked to give a piece of advice for a younger astronomer, and these have given fascinating insights into the challenges and opportunities of being a woman in astronomy. There were a wide range of events listed on the website, from meetings and exhibitions about women in astronomy to two book launches, one about an Australian pioneer radio astronomer (Ruby Payne-Scott) and the

other about early British and Irish female astronomers. We were offered (and discovered) the names of several recently-deceased pioneering astronomers, such as Beth Brown, and new information on others, for example Paris Pişmiş, who came from Turkey and is still celebrated there as one of their pioneering women in science even after she had left the country to work abroad. The website will continue to grow through 2010 as resources are added and new suggestions for the 'London List' to 'support and encourage' women in astronomy. The most popular page on the website was the profile from Annapurni Subramanian, with an astonishing 16,400 hits, and the most visited historic profile was Maria Winkelmann-Kirch (who features on the March page in the calendar). Although the majority of visitors were from the UK, USA, Canada, Australia, Germany and Spain, there were visitors from 128 countries.

Number of people reached: Around 15000 unique visitors, average dwell time around 5 and a half minutes.

Budget: 10 000 €

Organisers: Helen Walker

IAU Resolution B4
See Appendix E.

## Lessons Learned

Having a team of professional web designers, builders and managers made a real difference not only to the look and feel of the site, but also to the ease of loading content and adding new pages for new activities. This was all thought through before work started. It would have been very helpful to have employed a content researcher, to go out and hunt down material (or generate it) rather than relying on helpful emails. After a slow start the profiles worked really well, both current and historic. I think we had about a 30% or lower success rate for profilers responding positively at the start, but later women were volunteering to join in, which was very satisfying. Most of the popular profiles had around 1000 or more visits, showing that people were very interested in the careers of female astronomers. The web forum worked less well than expected, despite having very good, experienced web forum moderators. Constant vigilance was needed to stop people joining the forum solely in order to post adverts or inappropriate content. This was not an issue for the main website because only the web managers could load material, and they checked links before publishing them. It really seems that people interested in this topic do not want to discuss the issues in a web forum, even when they are very interested in the topics. A small enthusiastic Task Group would have been better than the large group of senior experts who had little time to contribute to the project. Some firm commitment of time to the project is needed as a pre-requisite of membership. I want to capture more of the activities that individual countries did, on their own initiative, to celebrate women in astronomy, information and pictures — some of the material on the IAU posters was exciting and an inspiration which should not be lost (how can this be done).

## Legacy

The web forum has now closed (as planned). The website is still active and new content will be added throughout 2010 — profiles, history, resources, suggestions for the London List. In response to the profiles and the conference we are now exploring e-mentoring, and will start generating content and links giving more information. (This is new but will definitely be part of the legacy from She is an Astronomer.) The website is hosted by the Royal Astronomical Society and will remain available.

## Comments

I found it so exciting when I went round the posters at the IAU to see the variety of activities that countries had undertaken on their own initiative to celebrate the work of female astronomers in their countries and to encourage girls at school to study astronomy/science. Merely creating the Cornerstone Project raised awareness. One year is enough to start a project like this, but not long enough to bring any issues like mentoring or the climate change needed in the workplace to fruition.

# Dark Skies Awareness: seeing in the dark

## Cornerstone Project

Constance E. Walker
National Optical Astronomy Observatory (NOAO)
cwalker@noao.edu
www.darkskiesawareness.org

Task Group Members: 54
- Paid: 2
- Volunteers: 52

Number of people reached by IYA2009: 200 000+
(not including Earth Hour)

Budget: 11 000 €

Sources: IAU IYA2009 Secretariat

## General Overview

The preservation of dark skies is a growing global concern, yet it is one of the easiest environmental problems people can address on local levels. For this reason, “Dark Skies Awareness” was created as a cornerstone project of the International Year of Astronomy 2009. Its goal has been to raise public awareness of the impact of artificial lighting on local environments by getting people worldwide involved in a variety of programs. The programs provide resources on light pollution for new technologies like a presence in Second Life and podcasts, for local thematic events at national parks and observatory open houses, for international thematic events like International Dark Skies Week and Earth Hour, for a programme in the arts like an international photo contest, for global citizen-science programs that measure night sky brightness worldwide, and for educational materials like a kit with a light shielding demonstration. Dark Skies Awareness has also supported the concept of Dark Skies Communities through the Starlight Reserve Concept and the International Dark Sky Places program. The Dark Skies Awareness programs have been successfully implemented around the world during IYA2009 to promote social awareness of the effects of light pollution on public health, economic issues, ecological consequences, energy conservation, safety and security, and astronomy. The Cornerstone Project has the momentum and drive to continue beyond IYA2009, thanks to the dedicated people involved.

## Main Activities

Using New Technology:
- 12 “365 Days of Astronomy” Podcasts on Dark Skies Awareness Issues
- Second Life (Dark Skies Awareness programs on Astronomy Island)
- MySpace and Facebook on Dark Skies Awareness

Educational Materials:
- The Great Switch Out (homeowner’s guide)
- Downloadable Resources on Dark Skies Awareness
- Planetarium Program
- 2 DVD set of resources on Dark Skies Awareness
- Dark Skies Education Kit
- Dark Skies Rangers Program

The Arts:
- Earth and Sky photography contest on Dark Skies Importance

International and USA National Events:
- Earth Hour
- World Night in Defence of the Starlight

- International Dark Sky Week
- Dark Skies Discovery Sites
- Nights in the National Parks

Global Citizen-Science Star Hunts:

- GLOBE at Night
- How Many Stars?
- Great World Wide Star Count

Dark Skies Communities:

- Starlight Reserves
- IDA Dark Sky Places

## GLOBE at Night

One of the most productive "DSA" programs that will most likely be sustained is the GLOBE at Night program. During IYA2009, the GLOBE at Night programme endeavoured to promote social awareness of the dark sky by measuring light pollution and submitting results on-line. During IYA2009 alone, over 15,700 measurements from 70 countries were contributed during the 2-week campaign period. That amount is twice the number of measurements on average from previous years. This included meter measurements, which were used to measure quantitatively the sky brightness in magnitude/square arcsecond. 73% were from the U.S. (all 50 states). 900 measurements were from Chile. There were over 200 measurements each from the Czech Republic, Hungary and the United Kingdom. 13 other countries reported more than 100 measurements (Argentina, Australia, Canada, Colombia, Finland, Germany, Macedonia, Mexico, Poland, Romania, South Africa, Spain and Turkey). (Among all 3 official Dark Skies Awareness star hunting programs, there has been a total of over 50,500 measurements in 4 years, over 35,000 from GLOBE at Night, 12,000 from the GWWSC and 3500 from How Many Stars.)

The GLOBE at Night programme was been expanded to include trainings of the general public, but especially educators in schools, museums and science centres in unique ways that include blogging, podcasting, on-line forums, Skype-videoconferencing and teleconferences in addition to on-site workshops.

Close to 400 education kits for Dark Skies Awareness have been built and distributed at the training workshops by the end of 2009. The kit includes material for a light shielding demonstration, a digital Sky Quality Meter, Dark Skies Ranger Activities and other dark skies education and GLOBE at Night resources on 2 CDs and 2 DVDs, advertising materials (postcards, poster, flyers, etc), light pollution trading cards, a book called "There Once was a Sky Full of Stars", and a Quiet Skies Activity (with an AM radio and a fan).

The GLOBE at Night website explains clearly the simple-to-participate-in, 5 step program. The website offers background information on key concepts. There are interactive games and fun quizzes to check proficiency on the key concepts. Teacher (and Family) Guides come in 13 different languages. And to help advertise the campaign, there are downloadable postcards and flyers (in Spanish too). The report page is user-friendly and map page has data in various formats.

The programme includes new activities with which to prepare the public (and especially students) to participate in any star hunt campaign. In particular, the activities introduce children and adults to the affects light pollution has on public health, economic issues, ecological consequences, energy conservation, safety and security, and astronomy. The new set of activities is called "Dark Skies Rangers" and is being adopted internationally by the Galileo Teacher Training Program.

There are also projects being developed for what to do with the data once it is taken. There is now a database of more than 4 years worth of data to inter-compare. Students can make comparisons of data over time (changes, trends); make comparisons of data with population density; search for dark sky oases; monitor areas for ordinance compliance; as well as search for affects of light pollution on animals or plants, human health, safety, security, energy consumption, and cost.

Organisers: Constance E. Walker with help from National Optical Astronomy Observatory (NOAO)'s Education & Public Outreach staff and Tom Baker from ESRI.

Website: Constance E. Walker with help from National Optical Astronomy Observatory (NOAO)'s Education & Public Outreach staff and Tom Baker from ESRI.

**Number of people reached:** 50 000

**Budget:** The National Optical Astronomy Observatory (NOAO) provided many tens of thousands of US dollars for kits, workshops, paying salaries to update the website and run the campaign. NOAO is operated by the Association of Universities for Research in Astronomy (AURA), Inc. under cooperative agreement with the National Science Foundation. GLOBE at Night has been supported by a grant from the National Science Foundation.

## Dark Skies Rangers Program

Activities from the new "Dark Skies Rangers" prepare the public (and especially students) to participate in any star count campaign. The activities introduce children and adults to the affects light pollution has on public health, economic issues, ecological consequences, energy conservation, safety and security, and astronomy. The programme is being adopted internationally by the Galileo Teacher Training Program. There are three categories in the Dark Skies Ranger programme before becoming a Dark Skies Ranger: Explorer, Protector, and Advocate.

In Dark Skies Explorer, educators hold a session for students (or the local community) on the importance of shielding lights through an interactive demonstration and a Powerpoint presentation on what light pollution is, its importance and relevance to one's life (e.g., its effect on safety, wildlife, health, energy, cost, and astronomy). In a second activity, students make an audit of the energy efficiency of outdoor lighting at their school. They determine how much energy and money is lost to poor lighting and determine economical, energy efficient and task-effective improvements.

In Dark Skies Protector, students are engaged in activities on how light pollution effects wildlife and other issues. Older students promote a symposium in which they role-play key people and do research on important dark skies issues such as the impact on wildlife, human health, personal and municipal budgets and government regulations. They detail possible solutions and inform the public via methods like TeacherTube.

In a second Dark Skies Protector activity called "The Night You Hatched", the younger kids role-play turtles hatching on a beach at night to experience the affect too much lighting has on their survival. There is also another activity on how light pollution affects insects and other animals.

The Dark Skies Advocate prepares for the star-hunting campaigns by participating 2 activities. These activities help monitor the night sky during the campaigns and introduce concepts and skills such as how to find a constellation, what is a magnitude, and how these concepts and skills help to measure night sky brightness. One activity uses glow in the dark puffy paints to draw the outline of the constellation (e.g., Cygnus or Orion) on a transparency to hold at arms length and identify the constellation. A "Magnitude Reader" is made by students to convey the concept of a limiting magnitude by using layers of transparencies.

Students then engage in a star-hunt programme at Night to determine the night sky brightness in their town. By participating in any of the 3 star-hunting programs, students join people all around the globe in contributing to a worldwide database on light pollution. For older students, as an optional "Going Further", the data can be analyzed using various online tools.

To become a Dark Skies Ranger, students can present results from the Dark Skies Explorer, Protector or Advocate activities to local authorities (e.g., a city council or a school board) or school community (e.g., at a Family Science Night or a student conference within or between schools or classrooms).

**Organisers:** Constance E. Walker with help from National Optical Astronomy Observatory (NOAO)'s Education & Public Outreach staff and Tom Baker from ESRI.

**Website:** www.darkskiesawareness.org/DarkSkiesRangers/

**Number of people reached:** 50 000

**Budget:** The National Optical Astronomy Observatory (NOAO) provided many tens of thousands of US dollars for kits, workshops, paying salaries to update the website and run the campaign. NOAO is operated by the

Association of Universities for Research in Astronomy (AURA), Inc. under cooperative agreement with the National Science Foundation. GLOBE at Night has been supported by a grant from the National Science Foundation.

## Using Technology: Podcasts, Second Life, MySpace and Facebook

Podcasts: 10-minute audio podcast about once a month on dark skies programs, events, and resources during IYA2009 have been contributed to the 365DaysOfAstronomy.org/ podcast. Dark Skies podcasts are on "Let There Be Night", IDA educational materials, GLOBE at Night, outdoor lighting (by the NPS), DSA programs, Dark Sky Places on Jan. 18 & Aug. 17, Feb. 2, Mar. 6, Apr. 25, May 16 & June 18, respectively, as well as later in the year.

In Second Life, as the scene changes from city to suburban to rural to forest, the avatar sees the "magnitude changes" in Orion. This scene is being orchestrated by Adrienne Gauthier of the New Media group. In a holodome above this area, there is an urban street that allows visitors to switch between good and bad lighting to see the impact of their actions. This urban street scene, created by Chuck Bueter and associates, was one of the finalists for the Linden Prize, a prestigious prize for innovations in Second Life.

MySpace and Facebook web pages introduce new audiences to dark sky issues. These were created by a dark skies advocate still in high school, to address that age group.

The funding to continue the 365 Days of Astronomy podcasts in 2010 has been obtained. The Second Life presence for Dark Skies Awareness will continue for as long as the Astronomy 2009 island is open and the social networking sites will continue at least as they are now.

**Organisers:** Constance Walker, Robert Sparks, staff from the International Dark-Sky Association, staff from the National Radio Astronomy Observatory in the USA, Chuck Bueter, Adrienne Gauthier, Pamela Gay and Carter Smith.

**Website:** www.darkskiesawareness.org

## Educational Materials: homeowner's guide to quality outdoor lighting, downloadable resources, planetarium program, 2 DVD set of resources, and educational kits on dark skies awareness.

The Great Switch Out: A Homeowner's Guide to Quality Outdoor Lighting (See www.darksky.org.)

Downloadable posters, brochures and displays on the effects of light pollution on health, wildlife, energy, astronomy, safety and glare control (See www.darksky.org)

A planetarium programme for small and portable domes to advocate dark skies and to introduce participants to outdoor lighting issues. (See www.LetThereBeNight.org.)

A 2 DVD set with videos, activities, songs, powerpoints, images and other ancillary materials (See www.LetThereBeNight.org.)

The educational kit (supplied by NOAO and explained in the GLOBE at Night section)

The Homeowner's Guide, posters, brochures and displays will continue to be downloadable from the International Dark Sky Association website for the foreseeable future. Parts of the planetarium programme and the resources on the 2 DVD set will be placed online to also be downloadable. The DVDs and educational kit will be available until resources run out.

**Organisers:** Constance Walker, staff from the International Dark-Sky Association (IDA), and Chuck Bueter and Art Klinger.

**Website:** www.darkskiesawareness.org/DarkSkiesRangers/

**Number of people reached:** 50 000

**Budget:** $2000 US dollars of the Dark Skies Awareness funds from the IYA Secretariat for the DVDs; $60,000 US dollars for 400 educational kits funded through NOAO; unknown amount for IDA staff salary to produce

downloadable resources; unknown amount for C. Bueter and A. Klinger's time to produce DVDs and planetarium show.

## The Arts: The International Earth and Sky Photography Contest on Dark Skies Importance

Submissions to the contest had been received during the second half of International year of Astronomy 2009. Submitted photographs were all taken during the year of astronomy and were all created in the "TWAN style"—showing both the Earth and the sky—by combining elements of the night sky set against the Earth horizon with backdrop of a notable location or landmark. This style of photography is called "landscape astrophotography."

The contest was open to anyone of any age, anywhere around the world. About 200 entries were received from over 30 countries including Algeria, Armenia, Bangladesh, Canada, Chile, Columbia, Croatia, France, Greece, Iceland, Indonesia, India, Iran, Italy, Macedonia, Nepal, Norway, Philippines, Poland, Portugal, Romania, Serbia, Spain, Switzerland, Turkey, UK, and USA. Nearly 30% of the entries were from the United States. Other major contributors were Romania, Iran, and Poland.




"Milky Way above Romania" by Cristina Tinta Vass (www.skyphotographers.com). 2nd winner in Against the Lights category, International Earth & Sky Photo Contest. The splendid Milky Way above the light dome of a city shows the contrast between natural look of the sky and artificially light dominated cities.

According to the contest theme of "Dark Skies Importance," the submitted photos were judged in two categories: "Beauty of the Night Sky" and "Against the Lights." The selected images are those most effective in impressing people on both how important and amazing the starry sky is and how it affects our lives, and also how bad the problem of light pollution has become. Today, most city skies have become virtually empty of stars. Light pollution obscures the stars, interferes with astronomical observatories and, like any other form of pollution, disrupts ecosystems and has adverse health effects.




The winners of the Earth and Sky Photo Contest were announced at the beginning of April 2010 as part of the opening of worldwide activities coordinated by Astronomers Without Borders — for the Global Astronomy Month — a new annual programme for the worldwide astronomy community to share the beauty of the night sky with others and connect with other astronomy enthusiasts around the world.(From the TWAN report).

**Organisers:** The World at Night and Dark Skies Awareness with technical help from the University of Hawaii

**Website:** http://www.twanight.org/newTWAN/news.asp?newsID=6046 / www.darkskiesawareness.org

**Number of people reached:** 10 000+

**Budget:** 12 500 € in-kind time and effort.

### International and National Events: Earth Hour, World Night in Defence of the Starlight, Dark Skies Discovery Sites, Nights in the National Parks

Earth Hour — On March 28, 2009, 1 billion people in over 4100 cities and iconic landmarks in 87 countries turned off non-essential lights, conserving energy while allowing the public to see the dark skies from cities. Hosted by the World Wildlife Fund.

World Night in Defence of Starlight was the 1st night of the International Dark Sky Week (April 20 – 26, 2009).

Dark Skies Discovery Sites are in rural locations (e.g. a backyard observatory or a community park or school) where the public can learn about the importance of dark skies. Led by the Astronomical League and in the U.K. by Dark Skies Scotland.

Nights in the National Parks — Throughout 2009, dark sky observing (with light pollution education) have been highlighted from within 24 U.S. National Parks with near-pristine skies.

Earth Hour has its own source of funding. Dark Skies Awareness (DSA) has been involved in promoting the campaign, getting communities to organise and participate in it. DSA will continue to support Earth Hour without any need for funding. Similarly, Dark Skies Awareness will continue to promote World Night in Defence of Starlight and the International Dark Sky Week (IDSW) without any need for funding. The U.S. National Parks Service will be continuing aspects of Nights in the National Parks. Right now the U.S. NPS has started a Sky Ranger programme in this regard. The Dark Skies Discovery Sites in Scotland is expanding throughout the United Kingdom and has secured funding to do so. The U.S. Dark Skies Discovery Sites program, led by the Astronomical League is on hold and may resume with time and funding.

**Organisers:** Members of World Wildlife Fund, Starlight Initiative, US National Park Service, Dark Skies Scotland, and Dark Skies Awareness as well as Jennifer Barlow (IDSW)

**Website:** www.darkskiesawareness.org

**Number of people reached:** A billion people (mostly for Earth Hour).

**Budget:** World Wildlife Fund, Starlight Initiative, US National Park Service, and Dark Skies Scotland have internal funding. Amounts are unknown.

## Global Citizen-Science Star-Hunt Programs

How Many Stars? (HMS)

- Campaign: All year-round
- Uses Little Dipper & 3 belt stars in Orion
- Visit hms.sternhell.at/

Great World Wide Star Count (GWWSC)

- 2010 Campaign: October
- Uses Cygnus and Sagittarius
- Visit www.starcount.org

GLOBE at Night (GaN)

- 2010 Campaign: March 3-16
- Uses Orion and Sky Quality Meters
- Visit www.globeatnight.org

All of these star hunts have citizen-scientists record the brightness of the night sky by matching its appearance toward the constellation with star maps of progressively fainter stars. Measurements are submitted on-line and resulting maps of all worldwide observations are created.

Inspired by these programs, The Milky Way Marathon in Brazil and the Big Aussie Star Hunt in Australia were born this year (www.astronomia2009.org.br/ and www.starhunt.net.au/). Both use Scorpio in their campaigns, which ended in September. They will possibly continue in the future. How Many Stars and the Great World Wide Star Count campaigns will continue, as well as GLOBE at Night.

There is also a radio wavelength analog to the visible wavelength version of the star hunt programs called Quiet Skies. Quiet Skies is a programme where students learn how Radio Frequency Interference (RFI) blinds radio telescopes at certain frequencies. There is a kit loan programme to schools and museums in the U.S.. Participants measure the RFI levels in their communities, enter their measurements into a database, and later results are graphically displayed. The programme is led by the U.S. National Radio Astronomy Observatory (NRAO). (See www.gb.nrao.edu/php/quietskies/.) This programme did not get the funding hoped. Only 20 RFI kits were made. However, included in the Dark Skies kits made by NOAO is a simple hands-on version that uses an AM radio and a handheld, battery-run fan to detect RFI.

**Organisers:** For HMS, GWWSC & GaN: Dr. Günther Wuchterl, University Corporation for Atmospheric Research staff, Constance Walker and NOAO staff, Tom Baker at ESRI.

**Number of people reached:** 100 000

### Dark Skies Communities

UNESCO, the IAU and colleagues been instrumental in creating a formal Starlight Declaration to recognize that the ability to view a dark sky has been an inspiration to all throughout time and that necessary measures should be implemented to raise public awareness. As such the IYA2009 Dark Skies Awareness Cornerstone Project has helped to promote the declaration through initiating the IAU B5 resolution under Pedro Russo's suggestion. And during the year, Dark Skies Awareness (DSA) has also supported the Starlight Reserve Concept (i.e., a site where a commitment has been made to defend and preserve the night sky quality). In the same vein, DSA has also supported IDA in terms of their International Dark-Sky Communities, Parks and Reserves (i.e., a certification programme to promote the establishment of special protection areas for natural night skies). (See www.starlight2007.net/StarlightReserves.html and www.darksky.org under "Policy/Programs", then "IDSCommunities, Parks and Reserves".) For Dark Skies Awareness to continue promoting the Dark Skies Places, no funding is needed.

Organisers: Starlight Initiative and the International Dark-Sky Association staff

Website: www.starlight2007.net/StarlightReserves.html / www.darksky.org under "Policy/Programs", then "IDSCommunities, Parks and Reserves"; www.darkskiesawareness.org

## Lessons Learned

Having monthly teleconferences worked quite well for a year and a half in preparation for and well during IYA2009. The teleconferences kept plans moving along and people on task, especially when Task Group Member were assigned only a couple of tasks at a time (e.g., a reasonable task load).

In hindsight, having a web page that Task Group could go to and exchange documents and ideas is something I, as chair, should have set up to make the process easier for all concerned.

And sufficient funding would have been an excellent encouragement for involvement and making projects possible.

Implementing an evaluation tool from the start of IYA2009 would have been an excellent idea. Funding for that would have been needed as well.

Having so many Task Group Members internationally, it was not always easy to stay in touch with them but really helped in promoting international events for Dark Skies Awareness. Learning from the other Task Group members was invaluable. More was done successfully in terms of Dark Skies Awareness programs worldwide then could ever be expressed in this report.

## Legacy

Programs Which Will Be Sustained Beyond IYA2009 by the US and International DSA Task Groups:

- One of the most productive "DSA" programs that will most likely be sustained by the U.S. National Optical Astronomy Observatory (NOAO) is the GLOBE at Night campaign. How Many Stars and the Great World Wide Star Count will also most likely continue and be provided with endorsement by the DSA Task Groups.
- The Second Life presence for Dark Skies Awareness will continue for as long as the Astronomy 2009 Island is open and the social networking sites will continue at least as they are now.
- The Great Switch Out (A Homeowner's Guide to Quality Outdoor Lighting), posters, brochures and displays will continue to be downloadable from the International Dark Sky Association website for the foreseeable future. Parts of the planetarium programme and the resources on the 2 DVD set and Dark Skies Educational Kit will be available until funding from NOAO runs out.
- Earth Hour has its own source of funding so will continue after 2009. Dark Skies Awareness (DSA) has been involved in promoting the campaign, getting communities to organise and participate in it. DSA will continue to support Earth Hour without any need for funding.
- Similarly, Dark Skies Awareness will continue to promote World Night in Defence of Starlight and the International Dark Sky Week without any need for funding.
- The U.S. National Parks Service will be continuing aspects of Nights in the National Parks. Right now the U.S. NPS has started a Sky Ranger programme in this regard.

- The Dark Skies Discovery Sites in Scotland is expanding throughout the United Kingdom and has secured funding to do so.
- The U.S. Dark Skies Discovery Sites program, led by the Astronomical League is on hold and may resume with time and funding.
- UNESCO, the IAU and colleagues have been instrumental in creating a formal Starlight Declaration to recognize that the ability to view a dark sky has been an inspiration to all throughout time and that necessary measures should be implemented to raise public awareness. As such the IYA2009 Dark Skies Awareness Cornerstone Project has helped to promote the declaration through initiating the IAU B5 resolution under Pedro Russo's suggestion. And during the year, Dark Skies Awareness (DSA) has also supported the Starlight Reserve Concept (i.e., a site where a commitment has been made to defend and preserve the night sky quality). In the same vein, DSA has also supported IDA in terms of their International Dark-Sky Communities, Parks and Reserves (i.e., a certification programme to promote the establishment of special protection areas for natural night skies). No funding is needed for Dark Skies Awareness to continue promoting these programs




Some recommendations on how to sustain Dark Skies Awareness programs:

- Help find funding to continue:
- Improvements and expansion of the GLOBE at Night website
- The new Dark Skies Ranger programme as part of the Galileo Teacher Training Programme and hopefully UNAWE.
- The Dark Skies Education Kits
- Improvement on the programme to analyze the data from GLOBE at Night
- The How Many Stars Programme
- The Great World Wide Star Count Programme
- Dark Skies Discovery Sites (led by the Astronomical League)
- Help with networking: access to contacting different communities that has been available during IYA2009.
- Help with advertising and marketing all of the Dark Skies Programs so that they continue
- beyond IYA2009.
- Continue to keep the IYA leaders posted with updates.

## Comments

On behalf of the IYA2009 Dark Skies Awareness Task Group and the U.S. IYA2009 Dark Skies are a Universal Resource Working Group, I (C. Walker) want to thank the IYA Secretariat's Office for allowing our involvement in what was an exciting year that has proven successful in ways never predicted and will live on in more positive ways still unforeseen. However, I would like to leave you with a commentary written for Sky and Telescope (May 2010 issue) on behalf of IYA Dark Skies Awareness:

The arc of the Milky Way seen from a truly dark location is part of our planet's natural heritage. Yet, with half of the world's population now living in cities, many urban dwellers have never experienced the wonderment of pristinely dark skies and maybe never will. So how do you explain to these urban dwellers the importance of what they've lost to artificial skyglow? How can you make them aware that light pollution is a concern on many fronts: safety, energy conservation, cost, health and effects on wildlife, as well as our ability to view the stars? Finally, how do you convince them that it's worthwhile to take steps, even small ones, to help redress this issue?

In preparing for last year's celebration of the International Year of Astronomy (IYA), the Dark Skies Awareness (DSA) Working Group and I, as its chair, wrestled with these questions. (DSA was 1 of 12 global cornerstone projects for IYA). Ultimately I've come to believe that to influence cultural change effectively — to make people literally look up and see the light — we must make children a main focus, use approaches that offer involvement on many levels, from cursory to committed, and offer involvement via many venues. We must make the programs and resources as turn-key as possible, especially for educators — and provide ways to visualize the problem with simple, easily grasped and enjoyable activities.

As I watched the International Year of Astronomy unfold, what astounded me was not only the involvement in DSA from a large number of people worldwide but also the creativity they brought to the table. Their efforts caused a revolution in their communities — sparked by some aspect of a DSA programme but fuelled by their ingenuity and sweat.

In one instance, this revolution was the outcome of simply providing a dark-skies kit to a teacher in Chile, as part of a well-organised effort through the Cerro Tololo Inter-American Observatory to work with schools in regions near astronomical sites. A book included in the kit, Bob Crelin's There Once was a Sky Full of Stars, struck a chord with her students. The students translated the book and made one of the best dark-skies videos from a kid's perspective that I have ever seen. The video can be found (with English subtitles) on YouTube at http://is.gd/7wuvP.

In another instance, creativity flew off the Richter scale. It all started with preparations in advance of last year's GLOBE at Night campaign (www.globeatnight.org), which encourages people all over the world to record and report the brightness of their night sky by matching Orion's appearance with star maps of progressively fainter stars. One Indiana school district took this simple concept to a whole new level. Thousands of its students observed the constellation of Orion from their backyards — amassing 20% of the 2009 GLOBE at Night data — but they did not stop there. They asked the question: how much of our night sky have we lost?

To find the answer, the students visualized the sky with a 3-D model of their Globe at Night sky measurements. First they stacked 35,000 LEGO® blocks to represent a pristinely dark sky in which 1000s of stars could be seen, and then they took away 12,000 blocks according to their Globe at night sky measurements. What remained corresponded to a sky 9 times brighter than the truly dark ideal. The students presented their findings to local leaders and were honoured for their efforts (details are at www.LetThereBeNight.com).

Countless individuals around the world have now contributed toward preserving dark skies by raising public awareness, either through their own grassroots efforts or through the DSA programs, many of which will continue beyond the IYA. Seeing their efforts bear fruit will take time but ultimately have lasting effects. Perhaps this year you too will choose starlight over our light.

# Astronomy & World Heritage: universal treasures

## Cornerstone Project

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Task Group Members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

United Nations Educational, Scientific and Cultural Organization

World Heritage Convention

## General Overview

The cosmos has captivated the imagination of civilisations throughout the ages. The desire to understand or interpret what people see in the sky is often reflected in architecture, petroglyphs, urban planning and other cultural representations. These material testimonies of astronomical observations, found in all geographical regions, span all periods from prehistory to today.

UNESCO and the IAU are working together to promote collaboration in research and education as part of UNESCO's Thematic Initiative, Astronomy and World Heritage. This project creates an opportunity to evaluate and recognise the importance of astronomical heritage in terms of the enrichment of the history of humanity, the promotion of cultural diversity, and the development of international exchange.

The fact that Astronomy and World Heritage has been recognised as one of the IYA2009 Cornerstone projects reflects the fact that support from the international community is vital if we are to save cultural properties connected with astronomy from progressive deterioration and to recognise astronomical heritage by the inclusion of the most representative of these properties on the World Heritage List.

Conversely, our status as an IYA2009 Cornerstone project has given us an opportunity to develop several key projects during 2009, namely:

- the ICOMOS–IAU Thematic Study on the Heritage Sites of Astronomy, which will become a document of the Convention;
- the expansion of the Astronomy and World Heritage Timeframe currently held on the UNESCO website into a more broadly accessible database and a public forum; and
- the publication of a special issue of UNESCO's quarterly World Heritage Magazine with Astronomy as its featured theme. This is published in three languages and is distributed to States Parties and other interested organisations and individuals throughout the world. A separate article in this volume ("Astronomy and World Heritage" by Clive Ruggles) describes these activities in more detail.

The Cornerstone project has also brought about some key collaborations, most notably between the Thematic Initiative and

- the Ancient Skies project1, a global scientific project that is striving to collect, verify and publish available information about various human cultures, their astronomical knowledge and its representation in the sky within a single web accessible knowledge base; and
- the Starlight Initiative, which is working to protect the natural heritage of the dark night sky.

## The World Heritage Convention, science heritage, and the development of the Initiative

The 1972 Convention concerning the protection of cultural and natural World Heritage has provided a unique opportunity to preserve exceptional properties world-wide and to raise awareness about scientific concepts linked to these properties.

UNESCO's mission regarding World Heritage is to assist the States Parties to this Convention to safeguard sites inscribed on the World Heritage List, to support activities led by States Parties in the preservation of World Heritage, and to encourage international cooperation in heritage conservation.

In 1994, the World Heritage Committee adopted a Global Strategy whose objective is to promote activities for a representative and balanced World Heritage List, in order to fully reflect the cultural and natural diversity of heritage of outstanding universal value.

Properties with a relationship to science are amongst the least represented on the UNESCO World Heritage List and the significance of these properties, located in all the regions of the world, is not sufficiently recognised. Recognising this, and recognising also the absence of an integrated thematic approach for sites that have a symbolic or direct connection to astronomy, the UNESCO World Heritage Centre, in close consultation with its States Parties, developed, in 2005, the Thematic Initiative "Astronomy and World Heritage". Its main aim was, and remains, to provide an opportunity to identify the properties connected with astronomy, to keep their memory alive, and to preserve them from progressive deterioration, through the inscription of the most representative properties on the World Heritage List.

A principal objective of the Initiative has always been to establish a link between Science and Culture through the recognition of the scientific values of cultural sites linked to astronomy. The identification, preservation and the promotion of these properties are fields of action in the implementation of this programme .

## Implementing the Initiative

In May 2007, the Executive Committee of the IAU unanimously adopted a proposal to establish an official partnership with UNESCO within the framework of the Initiative in order to ensure its effective implementation. An Implementation Strategy for the Initiative was developed jointly by UNESCO and the IAU, and this was duly examined by the World Heritage Committee at its 32nd session in Quebec, Canada, in 2008.

In signing the Memorandum of Understanding in October 2008, whose purpose was to carry out this implementation strategy, UNESCO and the IAU underlined the fundamental role that culture plays in scientific progress and, conversely, that science plays in our cultural enrichment. This is a step towards the recognition of the importance of astronomical heritage world-wide, in terms of its enrichment of the history of humanity, the promotion of cultural diversity, and the enhancement of international exchange.

The collaboration aims to share best practice, to increase the role of the World Heritage Convention, and provide an opportunity to raise public awareness — especially among the young — about astronomical heritage. This will allow us to enhance the links between science, education, culture, and communication. UNESCO and the IAU are also working together to encourage States Parties to the World Heritage Convention to actively participate in the development and implementation of the Thematic Initiative.

The significance of this collaboration lies in three essential questions:

- How can we identify astronomical sites of Outstanding Universal Value?
- How can we protect and promote them?
- What benefits can States Parties and communities draw from adopting this path?

## Milestones, supporting activities, and the IYA2009

The Global Thematic Study on astronomical heritage being developed jointly by the International Council on Monuments and Sites (ICOMOS) — the Advisory Body to the World Heritage Committee that is concerned with cultural nominations — and the IAU Working Group on Astronomy and World Heritage represents the first major milestone for the Initiative. It will establish a methodological approach for the consideration of sites associated with astronomy on the basis of the World Heritage criteria, and provide support for the preparation of possible nominations for the World Heritage List.

The Working Group discussion meetings held in 2009 in Spain, Brazil, Russia and Italy have succeeded in widening the input to the Thematic Study, resulting, for example, in the inclusion of a section on Space Heritage contributed by a group of authors from the Russian Federation as well as the addition of several important case studies.

The publication of an issue of the UNESCO World Heritage Magazine devoted to astronomical and science heritage is another milestone achieved during 2009 itself.

Beyond 2009, the focus of the Initiative will shift towards common efforts to promote the identification and preservation of astronomical sites and their associated technological heritage through public awareness-raising campaigns and international projects. This is a crucial and vital step in safeguarding these sites for future generations.

In his address on the occasion of the Opening Ceremony of the IYA2009 in January 2009, the Director-General of UNESCO underlined that "*the sky belongs to everyone, and everyone has the right to enjoy the wonders it holds, to seek to discover its greatest mysteries. Astronomy brings us together, across borders, religions and beliefs; it is an instrument of peace and understanding among peoples.*"

In August 2010 the IAU Astronomy and World Heritage Working Group in collaboration with ICOMOS released the report: "Heritage Sites of Astronomy and Archaeoastronomy in the context of the World Heritage Convention" .

Below you can find the press release:

From Stone Age to Space Age — Astronomy & World Heritage Thematic Study released

Paris, 3 August 2010: The UNESCO World Heritage Committee, at its 34th session in Brasilia, Brazil, has, for the first time, endorsed a study in science heritage. The thematic study on the Heritage Sites of Astronomy and Archaeoastronomy, prepared within the framework of the International Year of Astronomy 2009, presents an overall vision of astronomical heritage and attempts to identify some of the most outstanding examples that are of significance to everyone.

The study is the result of a collaboration between the IAU Working Group on Astronomy and World Heritage and the International Council on Monuments and Sites (ICOMOS), the advisory body to UNESCO regarding cultural sites. The two organisations worked together to produce a detailed account of the rich history of astronomy around the world and the key sites for this heritage. The document, the full title of which is "Heritage Sites of Astronomy and Archaeoastronomy in the context of the World Heritage Convention", identifies broad issues in the assessment of cultural heritage relating to astronomy and includes examples of historical sites, some already on the World Heritage List or national Tentative Lists. This study was an integral part of the successful International Year of Astronomy 2009, whose activities in 148 countries reached millions of people and increased public understanding and appreciation of astronomy around the world.

The study has several objectives. One is to gain a clearer picture of the character and composition of astronomical heritage around the world. Another is to identify just how to define this type of heritage in the context of the World Heritage Convention. The report details the main characteristics we should expect from an astronomical heritage site, and compares this to a representative sample of major heritage sites for astronomy around the world.

Sixteen main topics are identified in the report, which covers human history from the Stone Age to the Space Age.

"Astronomy represents a rich and significant part of humanity's shared cultural and natural heritage. Recognising this formally means that we can now identify and clarify astronomical value in the context of the World Heritage Convention," says Clive Ruggles, chair of the IAU's Working Group on Astronomy and World Heritage and co-author of the study.

Anna Sidorenko-Dulom, Chair of the International Year of Astronomy 2009 Cornerstone project Astronomy and World Heritage and coordinator of the thematic initiative Astronomy and World Heritage at UNESCO World Heritage Centre adds: "Recently there has been a lot of interest in reviewing the relationship between the heritage of the sciences, the traditional knowledge of indigenous communities, and the World Heritage Convention. In this

context, the new Thematic Study provides the foundation for assisting State Parties to harmonise their Tentative Lists at a thematic level and to prepare nominations, including comparative analyses explaining the importance of nominated properties in their national and international context. This raises the serious possibility of including astronomical sites of outstanding universal value in the World Heritage List."

The study therefore has important practical implications for the effective implementation of the World Heritage Convention and for helping State Parties create credible nomination dossiers. But as well as its practical benefits for the management of world heritage, the study is a useful tool for helping to understand humanity's history.

"This document proposes valuable new concepts for heritage, combines different categories of cultural heritage in previously unexplored ways, and highlights hitherto unrecognised links between cultural and natural heritage," says Michel Cotte, co-author of the study and ICOMOS advisor. "We believe that the vision arising from this study is more broadly applicable beyond astronomy to the history of science. This will be to the lasting benefit of the whole of science and technology heritage."

### Notes

The ICOMOS-IAU Thematic Study (ISBN 978-2-918086-01-7) is freely available for download from the website of the IAU's Working Group on Astronomy and World Heritage: http://www.astronomicalheritage.org and from the IYA2009 website:
http://www.astronomy2009.org/resources/documents/detail/astronomy_world_heritage_thematic_study/

The document "Heritage Sites of Astronomy and Archaeoastronomy in the context of the UNESCO World Heritage Convention: A Thematic Study", was coordinated and written by Clive Ruggles and Michel Cotte with contributions by Margaret Austin, Juan Belmonte, Amanda Chadburn, Von Del Chamberlain, David DeVorkin, Eduardo Fayos-Solá, Danielle Fauque, Ivan Ghezzi, Ian Glass, He Nu, John Hearnshaw, Tofigh Heidarzadeh, Rebekah Higgitt, Jarita Holbrook, Manuela Incerti, Stanisław Iwaniszewski, Subhash Kak, Stéphane Le Gars, Stephen McCluskey, Giulio Magli, Cipriano Marín, Mikhail Marov, Ricardo Moyano, Casiana Muñoz-Tuñón, William Breen Murray, Efthymios Nicolaidis, Ray Norris, Park Jeong Eun, Juan Pérez Arencibia, Michael Rappenglück, Angel Rodriguez, Shi Yun-li, Malcolm Smith, John Steele, Richard Wainscoat, Richard Wielebinski, Tom Wilson, Gudrun Wolfschmidt, Günther Wuchterl, Michael Wright and Xu Fengxian.

The Thematic study was published by ICOMOS and IAU, with the ISBN 978-2-918086-01-7 (e-book) and supported by Instituto de Astrofísica de Canarias (IAC) and Starlight Initiative.

The IAU is the international astronomical organisation that brings together almost 10,000 distinguished astronomers from all nations of the world. Its mission is to promote and safeguard the science of astronomy in all its aspects through international cooperation. The IAU also serves as the internationally recognised authority for assigning designations to celestial bodies and the surface features on them. Founded in 1919, the IAU is the world's largest professional body for astronomers.

### Links

- ICOMOS–IAU Thematic Study: (ISBN 978-2-918086-01-7): http://www.astronomy2009.org/resources/documents/detail/astronomy_world_heritage_thematic_study/
- IAU's Working Group on Astronomy and World Heritage: http://www.astronomicalheritage.org
- UNESCO's Astronomy and World Heritage Initiative: http://whc.unesco.org/en/activities/19
- ICOMOS Thematic Studies: http://www.icomos.org/studies
- 34th Session of the World Heritage Committee website: http://www.34whc.brasilia2010.org.br/

# Galileo Teachers Training Program: bringing astronomy into the classroom

## Cornerstone Project

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www.galileoteachers.org

Task Group Members: 7

Number of people reached by IYA2009: 5 500 teachers

Budget: 50 000 €

Sources:

- IAU
- LCOGT
- ESA
- Fundação Calouste Gulbenkian
- Universidade Federal do Rio Grande do Sul

## General Overview

The Galileo Teacher Training Programme was born under the auspices of the IYA2009, but it followed the experience of already existing astronomy education projects. The main goal for 2009 was to take advantage of the momentum created and build the basis of a strong network of Astronomy Education promoters around the globe. With the help of IYA2009 SPOCs we have successfully named GTTP representatives in nearly 100 nations. More than 5000 teachers around the globe received training on topics related to astronomy. A website was created and we started to populate it with some good resources and tools to help trainers in their mission.

Counting mostly on volunteer effort we must say that the achieved results were overwhelming. We are very confident that the seeds of a very strong cooperative effort are in place and we have no doubt that no one engaged in this effort only in the scope of IYA2009, all promoters have plans for the future. International collaborations already started and we saw several examples of nations promoting joint programmes. As examples we can quote the amazing group of trainers present in the first GTTP South America or the US group that promoted the global IASC campaign, the support Spain is giving to the Spanish speaking nations, or the Portuguese speaking nation's network beginning to take shape. The main vision of GTTP for the future is to engage as many educators as possible around the globe in the use of hands-on tools and resources in their regular classes and spark in their students the interest for science and the understanding of how fragile and beautiful our Planet is and recognize the breath taking harmony and efficiency of our Universe is. As a by-product of this effort we will try to raise the interest of the business sector and convince them that investing in training teachers is a good investment not only as a corporate social responsibility but also because of the value of the capacity building power training teachers represents.
We can only hope that financial support will come to aid this promising endeavour and that this network will be much more than a source of astronomy education best practices but also a true promoter of global citizenship awareness a true mutual benefit exchange example.

## Main Activities

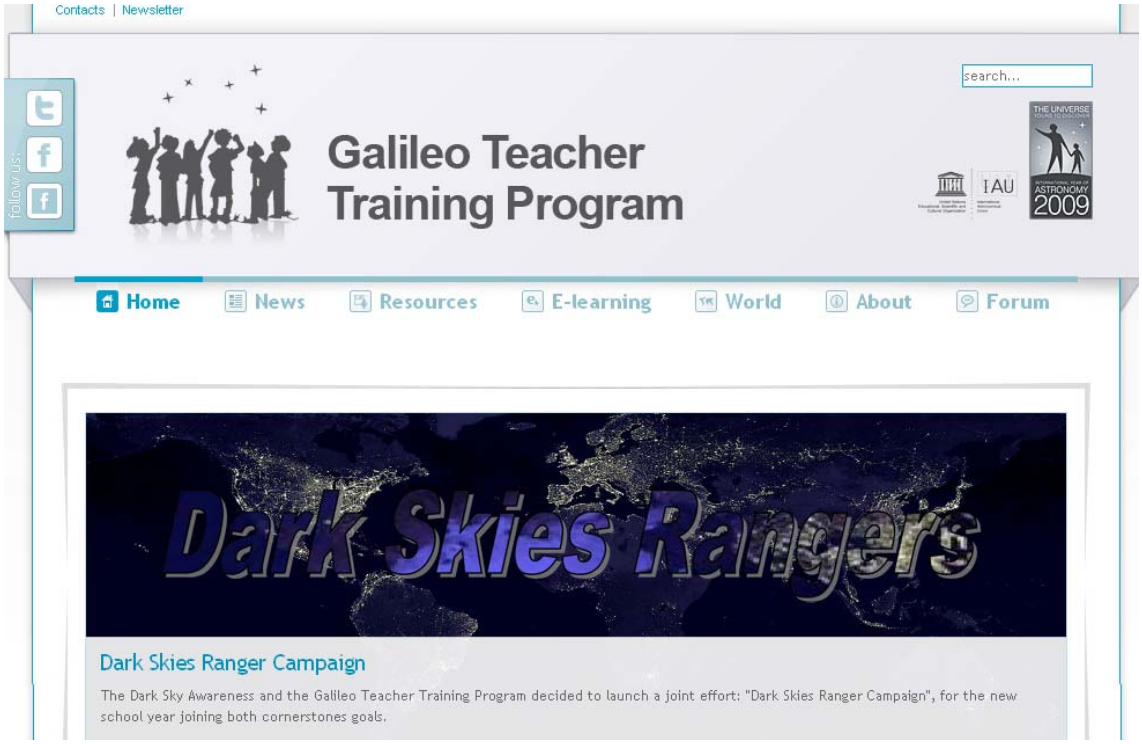
The main objective during IYA2009 was to create a strong global network, to create the basis of a flexible website, start the construction of a rated and classified repository of resources for science education. All this initial steps were successfully taken, a fundamental building block for the future of this programme . Several countries adapted/adopted/integrated/promoted GTTP during IYA2009. The following is a brief summary of all the effort during 2009.

GTTP Training Sessions in the following countries:

- Albania
- Armenia
- Australia
- Austria
- Bangladesh
- Belgium
- Brazil
- Canada
- Chile
- China
- China/Hong Kong
- Colombia
- Costa Rica
- Denmark
- Ecuador
- France
- Gabon
- Grenada
- Honduras
- Hungary
- Iceland
- India
- Indonesia
- Israel
- Japan
- Kenya
- Macedonia
- Malta
- Mongolia
- Morocco
- Nepal
- Nicaragua
- Oman
- Pakistan
- Poland
- Portugal
- Romania
- Spain
- Tajikistan
- Thailand
- Turkey
- UK
- Uruguay
- USA
- Uzbekistan
- Zambia

GTTP sessions were organised in partnership with GLOBAL HOU, EUHOU, ASP and ESA.

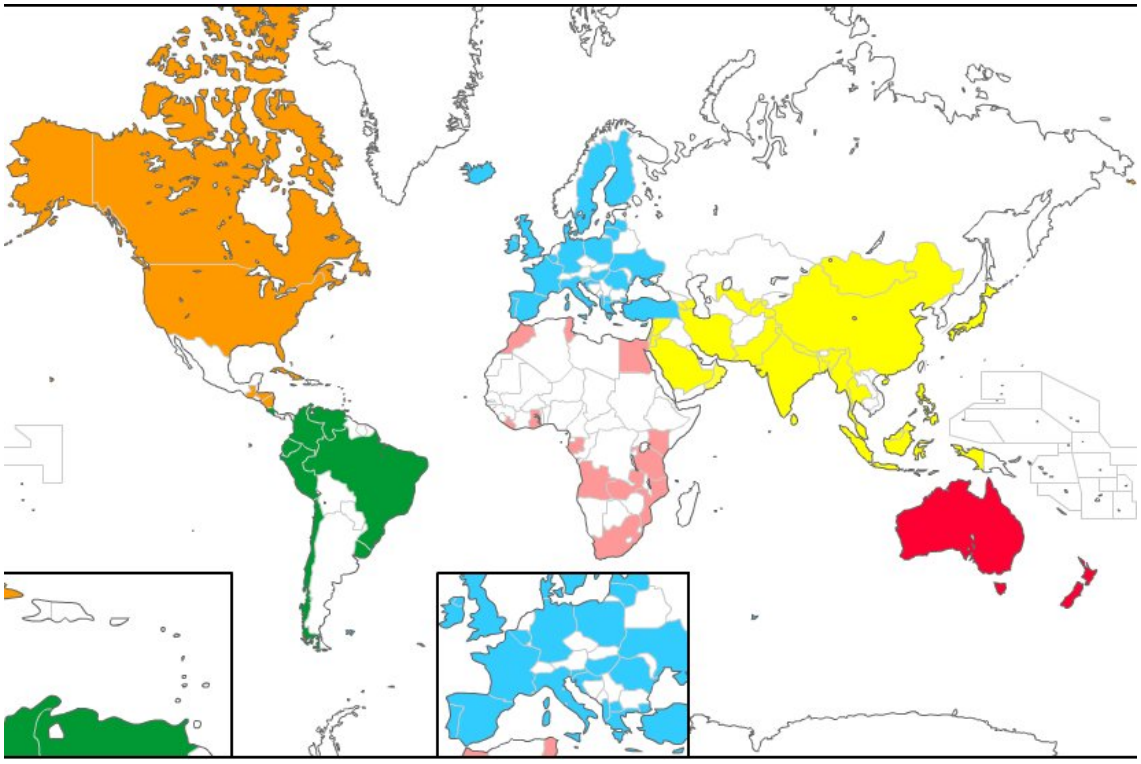
## Development of a dedicated website




The idea was to create a one-stop-shop for educators seeking advice, support or resources for an innovative teaching style. A dedicated website was created, which, along with forums, wikis and news items, will contain resources, selected by partners as being of a high standard and fitting the remit of GTTP, through astronomy and space science, showing teachers and students real research in action.

The structure of the site allows a multilingual and interactive space for science educators containing resources and tools, project and activity suggestions. This will be a platform where innovative communication methods will be used to share results, post questions and provide answers. It will be a global experience provider and an aggregator of the global GTTP effort. A presence in the social networks is also being implemented: www.facebook.com/galileoteachers

## Building a Network



The long term goal is to build a "network of excellence" of teacher trainers (the Galileo Ambassadors) training educators globally in an enduring, self-sustaining and scalable model in addition to a network of teachers implementing good practice in the classroom (the Galileo Teachers) and exchanging experiences with each other.

The necessary step is to train teachers in the use of the well-tailored instruments now available to them, and most importantly to build a network of promoters of such resources, acting as a "worldwide helpdesk" (connected via the GTTP website forums etc.). This is the heart of GTTP — empowering educators worldwide with the necessary skills to cross the bridge from an efficient but old method to an innovative one, and support them along the journey.

We have successfully named GTTP representatives in nearly 100 nations. We seek now to strengthen this network by investing in new and already existing values of such unique gathering of skills:

- The creation of a closely-linked global network that will accompany and support teachers after training sessions;
- The excellence of the network (both in terms of education, science research and access to state-of-the-art facilities);
- The use of real research examples (e.g. using robotic telescopes) as tools for teaching science content;
- The use of inquiry-based, self-evolving tutoring methods;
- The use of hands-on activities to teach curriculum content in a "learn by doing" approach;
- The use of a virtual world ("Universe Quest"), a game environment to develop basic scientific knowledge;
- The connection between real scientists and schools;
- The active promotion of multicultural dialogue through scientific quests.
- A certification process that will ensure the quality of both trainers and training sessions (appendix for certification process)
- Build a strong sustainable network of scientists and educators, sharing knowledge, expertise and resources, co-operating globally to build a more scientifically literate society. The network will act as a "Professional Learning Communities," where teachers have a sustainable place to learn, reflect and evaluate their students and their own learning with their peer teachers and content experts."

## Resources Repository

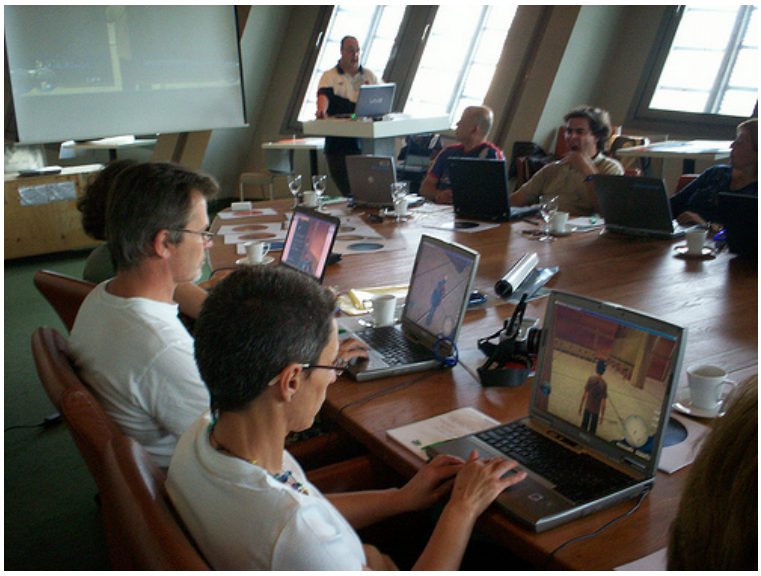
Although finding materials on the web nowadays is not a problem, educators need some sort of quality assurance on the resources they may wish to use. Having this in mind we created the database structure needed to ensure meeting the envisioned quality criteria. The mechanism to rate and classify the resources was also created and tested in the initial version of the resources repository created within GTTP website.
The advantage of having a web-based repository of digital content is enormous. It can be made freely available and teachers can easily adapt the contents to match their curriculum demands. It enables the programme to reach remote areas, so less fortunate teachers can also benefit from it. It is easy to update with low or no cost at all which is a very useful characteristic to science fields when subjects are constantly being updated with new results.

The long term view is to pull together the very best of the already existing resources, developed worldwide by organizations such as Global Hands-on Universe, Faulkes Telescope, Astronomical Society of Pacific, ESA, ESO, NASA, etc. To rate and classify this resources enabling end users to easily find a package that can meet their basic quality standards and their curriculum needs. Teacher training promoters can use this repository as a source of resources for their training sessions.
GTTP also aims to provide educators and students with access to state-of-the-art facilities – research-grade robotic telescopes and data archives, and an exciting "virtual world" in which they can explore and learn. At this stage only some of the steps envisioned were taken but they represent the building blocks of the major idea.

## A sample of GTTP workshops promoted around the globe

### ESA/GTTP Workshop

The Galileo Teacher Training Programme workshop was organised by ESA and GTTP, was held at the NEMO Science Centre, Amsterdam, the Netherlands, from Monday 29 June to Wednesday 1 July 2009. It was a 3-day workshop. The complete programme can be accessed here: http://astronomy2009.esa.int/science-e/www/object/index.cfm?fobjectid=44960



The participants had a chance to hear about ESA recent developments and their educational offer. Teachers had the opportunity to get in touch with several examples of new technologies for education. For example:
Salsa J — An image processing software, Thinking Worlds — An authoring tool to build games, Stellarium, Faulkes Telescope — a robotic telescope for schools, etc.

Each of the teachers who participated was presented with a GTTP session certificate recognising their participation in the workshop. This was the first group to receive a GTTP session certificates during the International Year of Astronomy 2009.

Organisers: ESA / GTTP.

Website: http://astronomy2009.esa.int/science-e/www/object/index.cfm?fobjectid=44960

Number of people reached: 19

Budget: 10 000 €

GTTP Kenya and Zambia

We trained teachers and young professionals on the already existing astronomy software. We were fortunate to work with 10 teachers from Kenya High School and Nairobi school. The teachers are always invited to the classroom sessions with the students and later a short brainstorming meeting between the teachers and HOU volunteers is encouraged. The aim of inviting the teachers into the classrooms is to give them an opportunity to learn the software with their students as well as assess the benefits of the packages. The feedback from the teachers after the session, during the meetings is that they think the packages are helpful in enhancing their teaching techniques. We have also managed to train about 20 volunteers from Kenyan universities and Zambian universities. In June of last year during the IHY/SCINDA workshop in Livingstone Zambia, I was able to meet with a few undergraduate students and take them through some of the free software. We thereafter visited a local high school with the volunteers. In Kenya, we have so far held trainings with students from Nairobi University and Jomo Kenyatta University. The students who have already formed their own student organizations use the skills they learn to do community projects with schools in the area.



Plans are underway for a GTTP workshop in 2010 for more teachers who will serve as astronomy/science ambassadors. We have already received some funding from Las Cumbres Observatory Global Telescope Network (LCOGT) for the workshop.

Organiser: Susan Murabana (African Hands-on Universe)

Number of people reached: 30

Budget: 1000 €

GTTP Indonesia

GTTP, Indonesian National Institute of Aeronautics and Space (LAPAN), Bandung, Indonesia, 4-5 December 2009, 17 teachers. workshop material: fundamental astronomy, fundamental astrophysics, telescope, measuring in astronomy, dark skies, astronomy software, spectroscope, sun glasses, sundial, telescope, observation.



Organiser: Avivah Yamani (Langitselata)

Number of people reached: 17

Budget: 1000 €

GTTP China
In order to achieve Galileo Teacher Training Program's aims, China Hand-On Universe organisation (CHOU) has promoted nationwide sessions, conferences and online courses in the International Year of Astronomy 2009. With the cooperation of the Beijing Planetarium and the Department of Astronomy of Beijing Normal University, CHOU has trained 17 core primary and secondary school teachers in May for learning how to observe the total solar eclipse, and a summer conference including about 80 primary and secondary school teachers was held in Beijing, Tongling and Wuhan simultaneously in July for the total solar eclipse observing and teacher training. Also, CHOU and the Astronomical Society of Xinjiang Province jointly organised courses for 120 teachers of primary and secondary schools in July 2009.




Organiser: Hongfeng Guo. (NAOC)

Number of people reached: 200

GTTP Japan
There were 3 training sessions as GTTP in Japan. We used JAHOU spectrum curriculum and/or PAOFITS.

| Date | City | Participants | Theme |
|---|---|---|---|
| 11 January | Sendai | 30 | Hubble, Brightness of Sun |
| 19 September | Tokyo | 5 | Galactic rotation |
| 12 October | Okayama | 30 | Hubble |

Besides the training sessions, the JAHOU spectrum curriculum was provided, written in English through the website (http://www.jahou.org/). A translated versions of the FITS image processor "Makalii" was also provided to the national nodes in Indonesia and China.

Organiser: Toshihiro Handa.(JAHOU)

Number of people reached: 65

GTTP Portugal

During 2009 there were 10 GTTP training sessions in Portugal. The sessions were distributed to cover the whole country. There were sessions in Bragança, Coimbra, Constância, Espinho, Faro, Lisboa, Madeira and Azores Islands. The sessions were part of the national IYA2009 plan and were accredited by the Portuguese Ministry of Education.



Organisers: Portuguese Commission of IYA2009.

Number of people reached: 300

Organisers: Portuguese node of IYA2009 / NUCLIO

Webpage:
http://www.astronomia2009.org/index.php?option=com_content&task=blogcategory&id=39&Itemid=130

GTTP Spain

Astronomy and Education: an IAU/UCM course for Teachers. The main GTTP course with a general view of all GTTP (EU-HOU) contents. This course was part of the Complutensian Summer Courses. Professor and Researchers involved in IBSE implementation in their nations from USA, United Kingdom, Colombia, Portugal and Spain were invited to lecture on astronomy, mathematics and education to a group of 20 Science Secondary teachers from all around Spain and also to work on some exercises specially developed for this first course.



VERANO COMPLUTENSE

www.ucm.es/cursosverano — El Escorial, 30 de julio de 2009 / Año V. nº 159

Además:

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Mayor Oreja pide que el Congreso bloquee nuevas negociaciones con ETA

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Manuel Gari:

«El cambio climático solamente lo niegan los necios»

Cultura... 6

La poesía de la desobediencia de Antonio Gamoneda

Hoy 19.00 h.

CONCIERTO DE DANZA Y MÚSICA DEL NORTE DE LA INDIA

Patio del Infantes

23.00 h.

CONCIERTO DE FADOS

Katia Guerreiro

Mª Cristina Aula Magna

La respuesta está en el cielo

La chispa de Kepler encendió la luz en el Universo. Desechó la perfección del círculo y descubrió el movimiento en elipse que traslada a los planetas alrededor del sol. Fue una pista más para investigar el espacio, ahora menos desconocido gracias a Galileo, que hace 400 años empezó a usar telescopios para mirar la cara de la Luna. Pero aún quedan muchos misterios por resolver, tantos como estrellas. Motivar a los jóvenes, despertar su curiosidad con profesores formados en educación científica, es el objetivo del Programa Galileo, del que se habló en el curso *Astronomía y educación. Programa Galileo de la Unión Astronómica Internacional para profesores.* Pág. 3

Organiser: Ana Ines Gomes de Castro. (Universidad Complutense de Madrid)

Number of people reached: 27

Webpage: www.houspain.com

GTTP Canada

Two three-day summer institutes were offered, in Halifax NS and Toronto ON, reaching about 40 teachers in total. But we put higher priority on developing support resources for teachers, and offering workshops. In Ontario, for instance, IYA2009 was a special theme of the Science Teachers Association of Ontario three-day conference, and several hundred teachers attended about 20 workshops and presentations. In Quebec, 8 workshops were presented at the science teachers' annual conference, reaching over 100 teachers. The Canadian Space Agency held its annual three-day workshop, reaching 100 teachers, though this was not specifically IYA2009-themed. Across the country, planetariums, science centres, and observatories offered regular astronomy programmes to hundreds of teachers.

Organisers: John Percy / Julie Duval.

Number of people reached: 1040

### GTTP USA

A GTTP session was promoted during the ASP Meeting and several were promoted by the University of Texas at the Mc Donald Observatory:

- Earth, Moon, and Stars- June 15-17 — 14 teachers
- Formation of Planetary Systems — June 18-21 — 17 teachers
- Explore our Solar System — June 23-25 — 12 teachers
- Chandra: Stellar Evolution — June 29 — July 2 — 13 teachers
- Explore our Solar System — July 6-8 — 15 teachers
- Age of the Milky Way — July 9-13 — 19 teachers
- MONET: Remote Observing — July 20-22 — 20 teachers
- «Please_provide_a_list_of_training_sessio»

The programme received no direct support from the local authorities. GTTP is being included in the workshops that are produced with the aid of grant funding and/or donor funding for our teacher workshops. Some teachers who attend the workshops are self-funded

Organiser: Mary Kay Hemenway (University of Texas)

### 1st GTTP South America — Brazil — Porto Alegre

The first Galileo Teacher Training Programme (GTTP) session in South America was held in Porto Alegre (Brazil) on 22-24 July 2009 within the programme of the 2009 GHOU Meeting. It was attended by 12 school teachers (most of them high school physics teachers), six undergraduate students preparing to be physics teachers and a few invited astronomy educators.

11instructors from Portugal, United States and France trained these in-service and future teachers in the use of software SalsaJ, Stellarium, Universe Quest and Google docs, and showed how to apply them to the school curriculum with activities such as Measuring distance to Cepheids, Hubble unit and Discovering extrasolar planets. The attendants had the opportunity to learn how to access robotic telescopes, how to use a digital camera for capturing images of the night sky and how to participate in the GHOU Asteroid Search Campaign. There were two observing sessions with telescopes. The web site for the workshop and conference is at http://astro.if.ufrgs.br/GHOU2009/GHOU2009.htm, where the activities programme and the list of participants can be found.

All the teachers highlighted the importance of the workshop for their professional development and the applicability of these tools to the teaching of astronomy. The activities that they enjoyed the most are SalsaJ and Stellarium: eight teachers said that they intend to use them with their students in physics classes and suggested physics subjects which could be explored using these tools. The third activity in their preference was sun4all. One teacher, who has an astronomy club at his school, said that he is already engaged in the Asteroid Hunt Program.

Another session was held in Rio de Janeiro (during the IAU GA). This was the first GTTP Brazil and was integrated in a workshop devoted to Astronomy and Astrobiology coordinated by Marcelo Emilio and João Canalle. Both are experiment astronomy educators. The venue was held at Universidade Estadual do Rio de Janeiro. Besides the presence of the Portuguese team of GTTP the venue also had representatives of the Faulkes Telescope and Dark Sky Awareness cornerstone. It was a very rich training session and highly appreciated by the participants.

Organiser GTTP South America: Maria de Fátima Oliveira Saraiva. (Universidade Federal do Rio Grande do Sul,

Organiser GTTP Brazil: Marcelo Emílio (Universidade Estadual de Ponta Grossa) and João Canalle (Universidade Estadual do Rio de Janeiro)

### GTTP in Armenia

Armenia promoted one workshop for 30 school teachers in July 2009 and an Astronomical Education session at ArAS VIII annual meeting for 10 teachers. During the workshop teachers were trained on the use of modern astronomical methods such as: using projectors, small telescopes, astronomical software, videos/movies, practical exercises, outdoor activities, etc. Special emphasis was made to the use of internet as a permanent update source of information . Teachers visited the Byurakan Astrophysical Observatory and had the opportunity to meet with professional astronomers and learn about the current work at BAO.

There are plans to repete the event in 2010. Promoters had the support of Armenia's Ministry of Education and Science.

Organiser: Marietta Gyulzadia Byurakan — Astrophysical Observatory/ Yerevan Physical-Mathematical School

### GTTP in India

India was a very active activities promoter. Training sessions were promoted for teachers from several parts of the country and reached over 500 educators. Teachers from rural areas were trained at HBSCE, Mumbai in a session that covered basic astronomy themes, educators from western India received training on Solar System topics.

An intermediate level astronomy course also took place for teachers participating in the Astronomy Olympiad Programme and planetaria staff.

Several localities received training covering basic astronomy, familiarisation with the night sky and topics covering astronomy curriculum in school.

Promoters had support from local authorities which allowed to cover expenses related to travel.

Similar activities are planned for 2010 and the promoters intend to expand the training programmes to neighbouring countries with smaller / non-existent astronomy base (e.g. Nepal, Bangladesh, Sri Lanka, Myanmar, Kampuchea, Maldives, Pakistan, Bhutan), although they foresee that travel support willbe difficult.

Organiser: Aniket Sule — Homi Bhabha Centre for Science Education (HBCSE — TIFR)

### GTTP in Israel

The partner from Israel invested in the creation of a 3D planetarium programme for school devoted to demonstrate sizes in space and give special attention to light pollution aspects. They have also continued their effort to maintain a very successful programme based on Live astronomical webcast technology a powerful tool to enrich the teaching of astronomical topics in classroom. Examples can be seen here:

- http://www.bareket-astro.com/live/transit_xo-3b/cast.html
- http://www.bareket-astro.com/live/webcast/web_cast.html
- http://www.bareket-astro.com/live/comet/lulin2009.html

The ASTRO-EDU programme allowed students to participate in real science projects by using the partner observatory remotely. It is a state of the art equipment that allows the exposure of participating students to analyze and process real data. It is a It is "research based" in the sense that it integrates scientific research with education, globally speaking. Over the following year a new state of-the-art educational website, including lesson plans, online activities, video training, a CCD library, and much more will be released. At the astronomical database there are articles & lesson plans ; from the solar system to cosmology & photometry, classroom posters for download by subject, CCD library, tutorials, interactive solar system tour, remote control activities with our Mars rover robot, live feeds from the observatory — and much more.

Organiser: Barkeep Observatory

### GTTP Mongolia

In Mongolia the training workshop was devoted to the use of the Galileo telescope in an event jointly organised by



National University of Mongolia and National Astronomical Observatory of Japan(NAOJ) . Another venue, this time for government people, amateurs and researchers took place aiming to establish a network, a path that has very good testing grounds and that reveals to be a powerful ally to help educators in schools.

For 2010 plans are already outlined to promote new workshops for teachers.

Organiser: Chinzorig Bayarkhuu

### GTTP Thailand

The National Astronomical Research Institute of Thailand had organised a few days astronomy training programme for high school teachers. The training programs were conducted four times through the year 2009. The 1st training programme was held on 4-6 February at Nan province, the 2nd was on 22-24 April at Chiangrai province, the 3rd was on 10-12 September at Angtong province and the last one was on 16-17 November at Prajuabkirikun province. Day sessions were consisted of talks on introduction to astronomy, fundamental concepts, sky and all its objects observation, basic astronomical tools, how to make a simple telescope, demonstrated free available astronomical resources which they can use in their classroom and also hands on activities to the teachers. At night, participants could observe some constellations, moon, planets and deep sky objects by using naked eyes, many types of binoculars and telescopes…. In the workshops, we also introduced sky and objects observation through the stellarium program. In total, there were about 536 participants attended these workshops.

In 2010, Thailand is planning to have three teacher training workshops spread all over Thailand. There will be a course for beginners and will emphasize on using tools for astronomical observations such as binocular and telescope. From our surveys, we found that lots of Thai teacher never touch or use telescope. Actually, NARIT has done several teacher's training programs in Basic Astronomy and Astronomy Education Media for teachers nation-wide. The trainings were given in Thai language. In January 2010, we will join with National Science and Technology Development Agency (NSTDA) for the Teacher's training programme for teachers.

Plans for 2010 include sessions on astrophotography.

The programme has support from the Thai Government

Organiser: Nuanwan Sanguansak — NARITA

### GTTP in France

The French partner is the leader of the European Hands-on Universe Programme . The programme counts with partners in over 14 European nations. Within the scope of this programme and perfectly aligned with GTTP goals there was a training session for European teachers held at Observatoire de Haute-Provence.

May 2009,for the first time, there was a teacher training session for about 20 French teachers (math, physics...) from Aix-Marseille Academy, dedicated to spectroscopy (in visible and radio), during two days at OHP; it will be organised every year now (next one at OHP in April 2010).

Several training session, under Commenius Programme are already planned for 2010 and 2011.

Organisers: Roger Ferlet, Anne Laure Melchior, Olivier Marco (IAP — University Pierre & Marie Curie)

### GTTP in Iceland

In Iceland teacher training efforts began in 2008 in order to prepare teachers for IYA2009. Other training sessions took place along the year were educators had the opportunity to learn: how to make a scale model of the Solar System (Solar System Walk), about the phases of the Moon, eclipses, the Sun and about the night sky.

GTTP in Iceland has plans to offer similar sessions in 2010 in various locations. The We are planning to offer similar sessions in 2010 in various locations in Iceland. The focus will be more on stargazing and the use of the Galileoscope, which we will donate to every elementary and high school in Iceland (300 pieces).
Among planned activities:
1) How to use the Galileoscope.
2) Knowing your way around the night sky ("top ten objects").

3) How to connect observations with in-class teaching.
4) Activities that teachers can do in class with cheap and easy to get materials.
During 2009 there was some support from the Ministry of Education, Science and Culture that allowed the distribution of Galileoscopes. There was also support from the Department of Astrophysics at the Science Institute of the University of Iceland.

The group promoting GTTP in Iceland includes the chairmen of the Astronomical Society of Iceland (Professionals) and the Amateur Astronomical Society of Iceland. Our website, http://www.stjornuskodun.is, is the number one astronomy website in Iceland. It's used extensively by teachers and students, as well as the general public as a portal to the universe.

Organiser: Sverrir Guömundsson – Astronomy Society of Iceland

### GTTP in Colombia

Partner in Colombia was very active and special focus needs to be drawn to the cooperation established between Spain and Colombia. The country was represented in the session promoted in Spain and plain support from the Spanish partner was provided to get GTTP programme successfully implemented in Colombia. Teacher s in Colombia participated in a Dark Skies Awareness Session and in the GTTP campaign (My Moon) promoted during the World Space Week.

Several plans are on the way for 2010 and beyond: Accredited workshops for teachers, Iberoamerican School of astronomy for the teaching of technology for education. Continued cooperation with universities are foreseen for the future of GTTP in Colombia.

Organiser: León Jaime Restrepo — Universidad de San Buenaventura

### GTTP Australia

The promoters in Australia are experimented Astronomy Educators. Several workshops were run in the country during 2009 although only one was formally a GTTP session. The GTTP representative has institutional support to coordinate the effort at a national level and several workshops are planned for 2010 and beyond.

Organiser: Robert Hollow (CSIRO)

## Lessons Learned

The IYA2009 was a once in a lifetime opportunity to trigger such a large scale and ambitious programme . The attention attracted towards astronomy associated with the possibility of integrating such modern tools in the daily lives of teachers and students was determinant to the success of the first steps taken; nonetheless this was just the start and a lot of work remains ahead of us:

- The importance of institutional recognition of the programme by IAU was a fundamental step. More such steps are now needed to reach the initially proposed goals for the near future;
- Accreditation of a basic GTTP curriculum is key, at a local and international level ;
- It is fundamental that science education resources, well rated and properly classified, are freely available to schools, funding problems in schools is a global issue;
- There is a large necessity to produce training material, videocasts, podcasts etc. and to make it freely available online;
- Resources need to be adapted to local curricula and translated to local languages. English can be a barrier in many nations (mostly for the teachers and educators);
- Promoting activities that foster international cooperation and media moments is crucial for keeping the build effort alive;
- We must train students for the future as quickly as we can, especially in developing nations were young people are being left behind by the fast growing digital divide;
- Teacher's follow-up is very important to ensure they are confident to take the steps following the training session;
- Create opportunities to implement activities that will attract media attention such as the International Asteroid Search Campaign; Dark Skies Rangers Campaign, etc

- Foster the cooperation among members of local and global networks. Embrace the possibility of implementing real research activities with support of local science community;
- Register every step of the training and implementing journey and share them with the school and local community;
- Pre and post evaluation is an important tool to help design the proper solution for every nation;
- Keeping educational authorities aware of developments and achievements is key for building a trustable relationship between them and GTTP promoters;

### What went well:

- As a positive outcome we can stress the optimistic attitude assumed and the excitement exhibited by the participants of the workshops;
- The recognition by several local institutions and authorities of the importance, relevance and possibilities of the programme ;
- The commitment of GTTP promoters in many nations to keep the created momentum alive.

### What went less well:

- Raising funds for education isn't always an easy task. More work is needed to convince possible sponsors that education and capacity building is a key for the development of a sustainable civilization;
- The communication channels to reach teachers aren't always easy. A more efficient publicity mechanism is necessary;
- The digital divide is a very serious topic, especially for developing regions and it is being overseen by local leaders and education authorities; The lack of computers in many schools is a recurrent issue but even more is the reality that schools are overcoming this handicap but educators have no clue how to include new technologies in the formal educational system.

### Best Practices:

- The International Asteroid Search Campaign was a very good example of applicability of training efforts. The programme reached a truly global dimension and the outcomes became media attractors in several countries reaching hundreds of students and teachers.
- The cooperation started between the Spanish speaking countries was a very important achievement showing how strong a community can be when existing resources and programmes are shared.

## Legacy

For GTTP it was extremely important to have the back up and support of the IYA2009 Secretariat and the endorsement and support of IAU. The continuation of institutional support recognition of the programme are decisive for the successful accomplishment of the GTTP mission. The creation of new opportunities to engage the astronomy community in a regular educational effort is very important. Some regular injection of seed funds to guarantee the continuation of the dynamics started during IYA2009 is crucial. The amount invested so far wasn't huge and an opportunity like IYA2009 doesn't appear frequently. In order to avoid losing the achievements so far the programme should be embraced by IAU and its growth carefully fostered. A network of nearly 100 nations involved, whose GTTP representatives are deeply engaged in EPO is a promise of a fruitful and strong community of astronomy appreciators around the globe.

The network created in the framework of GTTP will embrace the newcomers and guarantee the continuation and enhancement of the newly-built GTTP community. The website is now the first building block of a major communication platform and resources gatherer.

It is paramount for success to join hands with other similar projects. There is an urgent need for these types of efforts and we are only a handful of promoters. The network created under IYA2009 and the possibility to use all the fantastic resources created in 2009 will redefine the way things are done in the future.

From 2010 on GTTP will become a Programme Group under Commission 46 of IAU.

GTTP shared the 3rd prize with the Galileoscope in the Mani Bhaumik Award for Excellence in Astronomy Education and Public Outreach. This award will be invested in the promotion of teacher training workshops for developing nations.

Promoters of GTTP will actively continue to seek funding opportunities to reach the mission of the programme .

## Cornerstone Project

Carolina Ödman
carolina@saao.ac.za
http://www.unawe.org/

Task Group Members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview

Universe Awareness (UNAWE) exists through the tremendous participation of an extremely diverse group of people worldwide who have brought a sense of wonder about the universe to hundreds of thousands of young children all around the world, either working with communities directly, or through teacher training programmes. We are proud of the geographical and cultural diversity represented in the network. It demonstrates the universality of the vision of Universe Awareness – and of the IYA — that *being exposed to the beauty and scale of the Universe from a very young age stimulates a sense of awe and wonder, curiosity about the natural world and understanding and tolerance towards others*.

The cornerstone programme is supported by an International Office based at the University of Leiden in the Netherlands, which serves a community of professionals and volunteers. It provides coordination support and networking to the UNAWE members through various means, including its organisation website (www.unawe.org/site), a collection of international, free and multilingual educational resources (www.unawe.org/joomla/) and the organisation of workshops. As a programme UNAWE became officially affiliated with the IAU and forms part of the Union's decadal development strategy[5].

Representatives of the UNAWE community came together at several international events during 2009, including the Opening Ceremony of the IYA2009 in Paris and the following IAU Symposium 'The Rôle of Astronomy in Society and Culture' (January – most UNAWE countries), the '2nd International Meeting of Astronomy and Astronautics' in Campos de Goytacazes, Brazil (April — Brazil, Uruguay and other South American countries), the 'European week of Astronomy and Space Science' in Hatfield, UK (April – most European countries), Building the Scientific Mind, Cairo, Egypt (May – Egypt, Indonesia, India), the 4th International UNAWE Workshop organised in conjunction with the IAU General Assembly in Rio de Janeiro Brazil (August – most UNAWE countries). These events were crucial opportunities for UNAWE members to meet each other and exchange experiences. UNAWE Also partnered with other programmes, such as the Galileo Teacher Training Programme (provision of resources) and the Galileomobile.

We should however emphasize that most work took place in each country on the ground, and was carried out by professionals and volunteers engaging with young children, teachers and families either as specific programmes or as an integrated part of large initiatives. Those initiatives are too numerous to mention in this report but we invite the reader to look for those activities in national reports or to contact UNAWE directly for further information.

A few examples of activities include:

- A DVD of cartoons, stories and songs about the Universe with a booklet for teachers produced by UNAWE Belgium. Funds were raised to distribute 1500 of those in primary schools across the country.

[5] http://iau.org/static/education/strategicplan_091001.pdf

- Award-winning astronomical art workshops organised independently by Deidre Kelleghan ('Deadly Moons', 'Astronomy mural at O'Connells Boys National School'), Miruna Popescu (Armagh, Northern Ireland, 'Over us All is the SElfsame Sky') and Blackrock Castle Observatory (Cork, 'Capture the Cosmos') across the Irish island. The latter led to children's artworks being auctioned, with the funds raised used to buy a telescope for UNAWE Tanzania. This gave UNAWE Tanzania the necessary momentum to establish a national programme that continues to grow.
- 43 Teacher training workshops held in Venezuela, which involved more than 1500 teachers and reached well over 60,000 children and led to 10 regional astronomy festivals
- Specific UNAWE activities for children at science festivals in China, Colombia, Egypt, Indonesia, Palestine, South Africa, Turkey and many other countries.
- The development of a UNAWE programme for social integration in inner cities in Germany with child development specialists
- UNAWE Uruguay built on long-term and successful efforts to include an astronomy curriculum for primary schools to be implemented nationally
- The development of an astronomy curriculum for primary schools to be implemented nationally in Uruguay
- Astronomy and science awareness programmes in the major cities in India as well as in rural areas in Tamil Nadu reaching hundreds of thousands of children.
- Popular lecture series in Guatemala
- A travelling 'Astro-Bus' reaching a large fraction of rural primary school in every province in Tunisia as well as numerous teacher training workshops and curriculum development activities.
- A book of traditional astronomical stories from the Spanish-speaking world produced by UNAWE Spain was translated into several other languages. A CD of traditional Spanish music with astronomical lyrics (traditional and modern) was produced to accompany the book.
- A national programme was established in the Netherlands with professional coordination and integration into the education system via partner organisations and ministerial support.
- A number of articles were published about UNAWE, including a feature article in the French magazine 'l'Astronomie'.
- Educational resources translated by the Slovenian National IYA task group
- Astronomy plays at a children's theatre festival in Serbia
- Multicultural astronomy workshops at science festivals in Italy with foreign astronomers
- etc.

## Involvement Statistics (2009 only)

### Preliminary remark

This list is not exhaustive and while the openness of UNAWE is one of the reasons for its success, it makes it difficult to be aware of everything that takes place globally. Moreover, some countries have developed their own UNAWE programme as a cornerstone without going through the International Office. We hope that such laudable initiatives are reported in their respective national reports. We apologise in advance to those whose efforts are not mentioned here, but wish to express our appreciation of their engagement and encourage them to contact the International Office so that we can give them the visibility they deserve.

| *Country* | *Number of people/organisations involved** | *Full time ** * | *Paid* |
|---|---|---|---|
| International Office | 2 | 1 | 1 |
| Belgium | 6 people and 4 organisations | 0 | 0 |
| Benin | 9 people and 21 schools | 0 | 0 |
| Brazil | 15 people and 4 organisations | 0 | 0 |
| Chile | 2 | 0 | 0 |
| China | 6 people and 5 schools | 0 | 0 |
| Colombia | 20 people and 8 organisations | 0 | 0 |
| Egypt | 9 people | 0 | 0 |
| Ethiopia | 12 people and 4 organisations | 0 | 0 |
| France | 1 person | 0 | 0 |
| Germany | 14 people | 0 | 0.5 |
| Guatemala | 10 people | 0 | 0 |

| | | | |
|---|---|---|---|
| Iceland | 4 people | 0 | 0 |
| India | 39 people and 4 organisations | 0 | 0 |
| Indonesia | 17 people | 0 | 0 |
| Iran | 3 people and 1 organisation | 0 | 0 |
| Ireland | 25 people and 15 organisations | 0 | 0 |
| Italy | 3 people and 1 organisation | 0 | 0 |
| Kenya | 5 people, 4 schools, 2 sponsors | 0 | 0 |
| Malta | 7 people and two schools | 0 | 0 |
| Mexico | 1 person | 0 | 0 |
| Mozambique | 4 people and two schools | 0 | 0 |
| Netherlands | 8 people and 8 organisations | 1 | 1 |
| Palestine | 14 people and 2 organisations | 0 | 0 |
| Portugal | 2 people | 0 | 0 |
| Romania | 15 people and 4 organisations | 0 | 0 |
| Serbia | 17 people | 0 | 0 |
| Slovenia | 12 people | 0 | 0 |
| South Africa | 4 people | 0 | 0 |
| Spain | 47 people | 0 | 0 |
| Sri Lanka | 2 people and 1 organisation | 0 | 0 |
| Tanzania | 5 people | 0 | 0 |
| Tunisia | 5 people and 1 organisation | 0 | 0 |
| Turkey | 10 people and 1 organisation | 0 | 0 |
| United Kingdom | 7 people and 1 organisation | 0 | 0 |
| United States | 3 people, 3 schools, 1 organisation | 0 | 0 |
| Uruguay | 4 people | 0 | 0 |
| Venezuela | 30 people, 9 organisations, 51 schools | 2 (equiv.) | 2 (equiv.) |

*: Note that the number of people/schools/organisations involved is a minimum estimate. In most countries more people are involved so this number is a poor representation of the scale of the various programmes.

**: Many people dedicate their paid time to UNAWE, but this in-kind contribution is not accounted for in this table. Others take part on a voluntary basis.

## Impressions from UNAWE Activities Around the World



UNAWE Teacher Training in the Netherlands



UNAWE activity in Tunisia




UNAWE Activity in Venezuela



Science Kidz Festival in South Africa



Science Kidz Festival in South Africa



Sun activity in Tunisia



Astronomy cinema in Tunisia



UNAWE 4th Workshop in Brazil

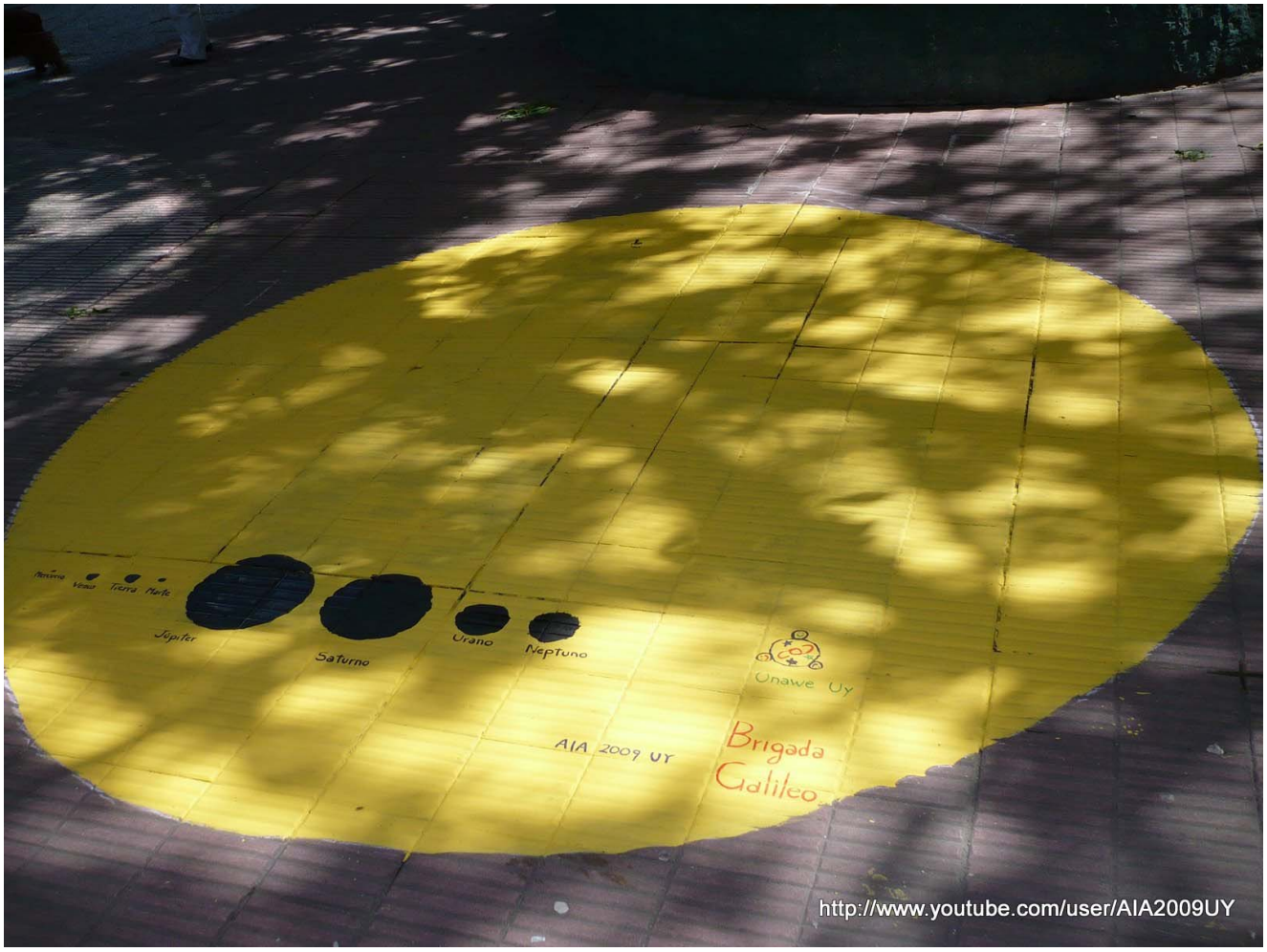


UNAWE activity in Romania. Credit: Sabin Iacob


UNAWE in Tanzania



Brigada Galileo in Uruguay



Brigada Galileo in Uruguay



Brigada Galileo in Uruguay



Travelling Exhibition Museo Ciencia y Juego in Colombia



Travelling Exhibition Museo Ciencia y Juego in Colombia




UNAWE in Tanzania



Theatre in Mozambique

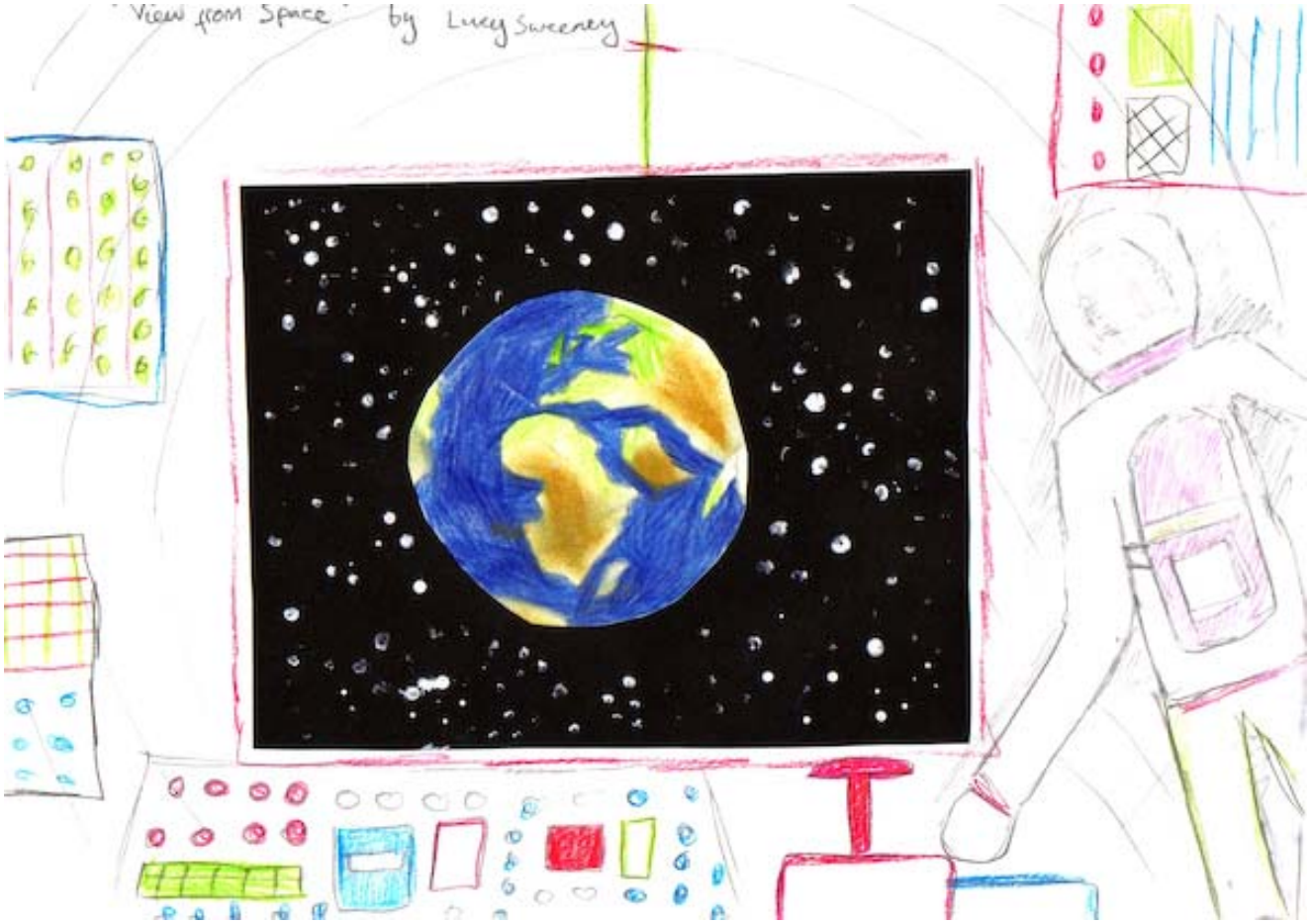


Sidewalk Astronomy in Romania. Credit: Sabin Iacob


Mural OConnells in Ireland



UNAWE Activity in Egypt



Drawing from an UNAWE Activity in Ireland

## Challenges

UNAWE faces two main challenges: the sustainability of certain national programmes and formal evaluation.

In view of the diversity in formats and scales of the programmes it is extremely difficult to estimate the number of children, schools, families and teachers reached, let alone evaluate the short-term impact of the programme. We received overwhelmingly positive feedback and the commitment by a number of organisations and governments to their national programmes demonstrates this. Unfortunately we cannot be sure that any negative feedback would have reached us and are not in a position to monitor if certain groups have 'fallen off the map' or why.

The hope is that these programmes will have a long-term impact on the children reached and their communities and that UNAWE is embedded enough within our partner organisations to continue on similar scales in the future.

## Legacy

The programme benefited from a coordination office that provided time and support to coordinate, communicate and promote national programmes. The office was also active in raising funds, which will ensure that Universe Awareness will continue beyond 2009 and 2010.

# From Earth to the Universe: millions looking at the sky

## Cornerstone Project

Kimberly Arcand & Megan Watzke(Chandra X-ray Center/Smithsonian Astrophysical Observatory/NASA)

kkowal@cfa.harvard.edu & mwatzke@cfa.harvard.edu
www.fromearthtotheuniverse.org

Task Group Members: 10 active Task Group members + hundreds of exhibits organisers

- Volunteers: N/A
- Paid: 3

Number of people reached by IYA2009:10 000 000

Budget: 262 000 € (324 761 $US)
Sources:

- IAU/IYA2009
- NASA
- CXC
- Many local organisers' fund raising efforts

## General Overview

FETTU, a global initiative selected by the IAU as a cornerstone project for IYA2009, is a worldwide effort to bring the striking beauty and intriguing science of astronomy images to the public to unexpected and publicly-accessible locations such as parks, metro stations, shopping malls, hospitals, libraries, and even prisons. Exhibits have occurred in about 500 locations in about 70 countries in 40 languages throughout the world in 2009 and many are continuing into 2010. In the United States alone, over 40 FETTU exhibits are occurring in 25 states at airports, nature centres, college campuses, and institutes for the blind, among other locations. The FETTU project is the first of its kind as a large-scale, worldwide astronomy outreach exhibit in non-traditional locations, has unique implications for informal science learning, and has exposed millions of people around the world to the wonders of the Universe in which they live.

The goal of FETTU is to engage the public — especially those who think they are not interested in astronomy or science — by providing widespread access to current astronomy research and increasing scientific awareness through the beauty of astronomical images. Once a connection is established through the aesthetics of the displays, the objective is to provide an introduction to modern astronomical information with a pipeline to deeper learning. This is encouraged through on-site activities implemented by the local people preparing the exhibits ("local organisers") such as interactions with scientists and educators through question and answer sessions, telescope viewings or visitor "tours"; scavenger hunts for family learning, creative thinking and play; informational take-aways such as exhibit guides, postcards, posters and other handouts; referrals to online and regional educational resources, and more.

The first steps for the FETTU project included compiling a selection of 125 astronomy images that had been chosen by a committee of astronomers and outreach specialists to showcase the most dramatic and exciting views of our Universe. The images (actual data only) come from ground and space-based observatories, and represent the wide variety of cosmic objects that are known to exist: planets, comets, stars, nebulae, galaxies and galaxy clusters. All types of light were included, from the long wavelengths of radio and infrared to the shorter wavelengths of ultraviolet and X-ray light. Textual descriptions written and edited by astronomy communication professionals — including object, colour, scale, and observatory (or astrophotographer) information — were proofed for scientific accuracy and along with the images. This was curated into a package that was free to download in multiple formats and use for outreach events during the IYA2009 and continuing for events into 2010.

No restrictions were imposed on how the images had to be physically exhibited as long as they were displayed in the spirit of IYA2009. Guidelines were prepared on possible types of printing processes and other exhibit creation information was provided on the FETTU web site and in newsletters and advertising materials (e.g., through the IYA2009 secretariat). The local organisers preparing the exhibits were encouraged to use the monetary resources, venue options, cultural preferences, etc., in their areas to create the FETTU exhibit that worked best for their locations, leveraging their knowledge to best portray the science display as an accessible, social, and liveable experience for their specific audience.

The first FETTU prototype exhibition occurred in Liverpool, U.K. at Albert Docks in June 2008. Albert Docks is a well-visited area with a lively atmosphere of shoppers, tourists, walkers and Tate Liverpool attendants. Formal observation sessions of this first exhibit and its participants as well as press coverage showed that the exhibit was a success, with at least 1/5 of the traffic stopping to view FETTU images. The prototype helped demonstrate that the concept and the actual production of FETTU were possible. Local organisers of FETTU exhibits worldwide have often remarked that the photos and reports from this first exhibit not only sparked their interest in the project but also helped them to raise funds to make the project a reality in their area. The physical exhibit in Liverpool also prototyped new high definition, direct-to-substrate, high quality, all-weather print materials that were subsequently used in locations for outdoor exhibits such as in the U.S.

To date, the response to FETTU has been outstanding. FETTU has been featured on every continent except Antarctica. Hundreds of exhibits were produced in Brazil alone. The wide range of FETTU events has reflected the diversity of the communities and countries in which it has landed, making astronomical discoveries visible to laypeople around the world in their everyday lives, and, thus, increasing scientific awareness. From public parks to airports to art festivals to shopping malls to even prisons, FETTU has found its way into incredibly exciting publicly-accessed places (see http://www.fromearthtotheuniverse.org/table_events.php for a full list).

The FETTU project has proved to be an effective means of science communication to the general public, exposing audiences to astronomy that might otherwise never have had the opportunity. FETTU can be regarded as a way to encourage informal learning in science by arousing pleasure through curiosity. This project takes a grassroots-type of approach to recasting the rules of more typical informal science learning environments. By emphasizing the point that learning is everywhere and all around us with astronomy displays in unexpected locations, by separating popular astronomy images from their perhaps better known “telepresence” online and presenting them “bodily and in common”, by using the images’ visual persuasion to spark socially-based engagement, “From Earth to the Universe” enables the beholder to take a cosmic journey of free-choice learning..

## Main Activities

Over 500 FETTU sites in 70 countries with hundreds of related activities tied to individual locations and exhibits such as star parties/sidewalk astronomy events, scavenger hunts, questions and answer sessions with experts, art contests, and many other educational activities.

As mentioned previously, the full scale of FETTU exhibits and accompanying activities is too numerous to list individually. Instead, we mention some highlights, some of which are expanded in the Activity sections below. FETTU exhibits have been placed in such locations as the hallways of the Iranian Parliament, outside on a plaza in Reykjavik, Iceland, in an art museum in Shanghai, China, during a space art contest for children in Enayetpura, Bangladesh, throughout many villages in Uruguay, in a prison in Coimbra, Portugal, and at UNESCO World Heritage sites such as Stonehenge in the U.K and the Alhambra in Spain. A complete list of past and ongoing FETTU events is maintained at http://www.fromearthtotheuniverse.org/table_events.php

### FETTU in Iran

Organisers exhibited FETTU in Qeshm Island and Pasabandar harbor in the south of Iran as the opening event of International Year of Astronomy 2009 in Iran. Qeshm Island local inhabitants are among poor and less educated people of Iran. Geo Park Museum of Qeshm hosted the first FETTU exhibition in Iran. This exhibition was staged from 1 January to 15 March 2009 and contained 20 images. Also, a FETTU astronomy photo exhibition in the Parliament of Iran was inaugurated by Professor Yousef Sobuti, father of modern astronomy in Iran on September 27, 2009. FETTU and a selection of astro-photos of the sky of Iran photo exhibition was inaugurated in the presence of Ali Larijani, chairman of Iranian Parliament, members of the Parliament and Iranian professional astronomers. Dr. Sadollah Nassiri Gheydari, professional astronomer, member of strategic council of Iranian

National Observatory (INO) and member of the education committee in Iranian Parliament, was the one who suggested an astronomy photo exhibition in the Iranian Parliament. “I intended to bring astronomy among members of the Parliament and let them see the glory and beauty of the heavens,” he said. Organisers also exhibited FETTU in the International Olympiad on Astronomy and Astrophysics 2009 in Tehran (Oct. 17-26), and in early November it was exhibited in the national committee of UNESCO in Tehran.





Organiser Irene Shivaei reported that “when we saw the excited and wondered faces of people when they saw the beauties of our Universe or when they heard about the huge distances, it was the biggest success for all of us. Especially that we exhibit the photos in border regions where there is not much education and most of the inhabitants are poor people, the joy and smile which shaped on their faces when they saw the photos and colours and hugeness was really a big success. In countries like Iran we don’t have access to the photos of space telescopes or big Earth observatories, and opportunities such as FETTU help us to bring astronomy and science more effectively among the public. Photo exhibitions are a good tool to teach people astronomy and make them interested in science.” FETTU is still going around Iran in 2010. Also a TV programme has been recorded with FETTU photos and their descriptions which had a very good response from audiences

Organiser: Irene Shivaei/StarPeace organisation

## FETTU in Spain

The FETTU exhibits in Andalusia, Spain, during 2009 were 15 as a whole. Eight of them fit into the “platinum “category, and were installed at the capitals or important cities of each of the eight Andalusian provinces. One of the platinum exhibits was placed, in spring, at the Malaga main train station, with one and a half million visitors in one month. The second platinum exhibition in order of number of visitors (estimated in a quarter million people) was placed at the Alhambra monumental complex, the most visited monument in Spain. It could be expected that people just passing by at train stations would remain quite indifferent to this kind of exhibition, but the reactions were absolutely the contrary. The impressive images, the size and appeal of the LED-back-illuminated panels, made people stop, read, and even take notes. Their lower-grade exhibits were installed at seven locations in 2009 and they will continue circulating all around Andalusia during 2010. Also, FETTU organisers prepared a CD that includes an English version of their virtual exhibition. For the moment, the on-line version of the virtual exhibition is available only in Spanish. They are making the final evaluation of the FETTU programme in Spain, but they estimate their total number of visitors around 2 million in 2009.



Number of people reached: 2 000 000

Organiser: David Galadi-Enriquez/Calar Alto Observatory

## FETTU in Denmark

The Danish version of FETTU opened in the city of Roskilde. The official opening took place at the Town Hall Square in the Centre of Copenhagen by the Danish minister of research. 38 images were chosen and with the captions were printed on the 1 meter by 1 meter posters. This version moved around Denmark until January 2010 to Frederiksberg, Skærum Mølle, Gram, Herning, Århus, Haslev, Lemvig, and Sorø. The city of Copenhagen bought their own copy of the exhibition and this is now touring the schools of Copenhagen. By the end of 2009, approximately more than 100,000 people (2% of the Danish population) saw the exhibition. Most people are amazed about the fantastic images. The organisers been surprised about the wide audience being fascinated about the exhibition: small kids with their grandparents, drunkards in the street, ministers. In this way they reach a lot of people — and make an impact as far as they can judge — with a rather modest effort. In particular, they appreciate that exhibitions like this can be located in places where people normally do not expect to see astronomy and hence reach people who would not actively seek information about astronomy. From February 2010 and onwards the exhibition will be permanently on display in one of the science centres in Denmark.






Number of people reached: 100 000+

Webpage: http://www.astronomi2009.dk/udstilling

Budget: DKK 230.000 (30 907€)

Organisers: Kristian Pedersen (Niels Bohr Institute, Copenhagen Univ.)

## FETTU in Russia

In Russia, a FETTU photo collection was shown within the framework of an international exhibit of calligraphy, in multiple locations in Moscow. In the fall of 2009, it was shown at the Sokolniki Exhibition center and at the Crocus Expo exhibition center. It will be featured in the ancient city of Novgorod in 2010. The organisers reported that they "value not only its aesthetic, but also the cognitive, educative influence. By realizing this project we try to help people feel differently about themselves and probably change their life perceptions" — Oleg Vetoshnikov. Number of people reached: Thousands of teachers, hundreds of thousands of students.



Number of people reached: 30 000+

Webpage: http://www.world.calligraphy-mvk.ru/content/view/2824/1143/lang,english/

Organisers: VK, PrimeFoto, Fujifilm, Oleg Vetoshnikov/MVK International Exhibition Company

## FETTU in Canada

In Victoria, Canada, large digital FETTU displays were mounted in two major downtown shopping centres, Bay Centre (February) and Mayfair Shopping Centre (October), as well as at the Victoria International Airport (February — May). An abbreviated version was also shown on monitors in the University of Victoria's new science building throughout 2009. The FETTU exhibits were launched in February by a Canadian Space Agency scientist who gave a free public lecture on Mars exploration (and then visited schools on Vancouver Island). These digital incarnations of FETTU were presented on large LCD screens provided by SONY Style, two of which allowed viewers to interact

with the images. The FETTU exhibition images were augmented with images from the Canadian IYA image collection (http://www.galaxydynamics.org/iya2009), from artists (including Aboriginal artists), from children, and from members of the Victoria Centre, Royal Astronomical Society of Canada (RASC); some 3D images were also included. A special feature of the art involved a digital showing of "ORGANIVERSE"" by international artist Henri van Bentum. Inclusion of artwork added interpretations of the universe from other perspectives that generated interest and help to bridge between the science and human appreciation of the cosmos. During a small fraction of the hours the exhibits were operating each week, volunteers from the RASC, University of Victoria and National Research Council were present to interact with the public, who received astronomy information (astronomy trading cards, star finders, posters, etc.) and had an opportunity to look through a replica Galileo telescope. Feedback from the exhibits was very positive, not only from the public but also from the hosting institutions.

Two things of particular to note about this FETTU exhibit:

1. The initiative, vision, connections with the business community, and overall coordination were by a volunteer from outside the astronomy community who was inspired by IYA;
2. There were no costs associated with high-quality colour printing, mounting, transportation, etc.







Number of people reached: 25 000+

Webpage: http://victoria.rasc.ca/events/iya2009/fettu2.htm

Organisers: Natasha van Bentum (co-ordinator); Eric Chisholm, Jim Hesser, Mike Peddle, Garry Sedun (NRC); Sherry Buttnor, Joe Carr, Sid Sidhu (RASC); and many other volunteers from the participating organizations.

## FETTU in Brazil

250 versions of FETTU were distributed for the 228 Local Nodes of the Brazilian IYA2009 network who displayed them in 556 places. The local organisers also raised enough funds to send copies of FETTU to other countries such as Angola, Mozambique, and Uruguay. The sheer volume of images produced guaranteed that untold numbers of people were able to experience the Universe, perhaps in ways they never otherwise would be able to do. The FETTU exhibitions (they called them "Cosmic Landscapes: From Earth to the Big Bang") had an impact on the Brazilian public that was much bigger than they expected at the beginning. They travelled to distant schools and isolated communities, in addition to public libraries and shopping centres in big towns. In schools, students had access to the materials during their class breaks. They commented on the FETTU panels with the teachers in the following classes, who invited organisers to give talks.





Number of people reached: 511 300

Webpage: www.astronomia2009.org.br

Budget:177 000 USD (144 172 €)

Organisers: Augusto Damineli and many others.

## FETTU in China

Organisers in China created among others a FETTU exhibition in the YUE HU art museum. They also sent mobile porters into local Universities, and science museums such as Tongji Uni and Shanghai Science Museum. The travelling exhibition occurred in May and June 2009. The very big exhibition in the art museums was timed to the total solar eclipse of 2009. FETTU organisers cooperated with local Shanghai television stations to show the eclipse live to all over China on the 22nd of July. The live programme lasted 4 hours and the Channels were occupied by the black Sun! This was the first time that in Shanghai so many people especially children could enjoy such a large astronomy party. They have a strong desire to organise more activities like FETTU. Shanghai has one Astronomical Museum. As a 20 million population city, they have no planetarium (such a planetarium just like Beijing's). They are going to have a plan to discuss about the schedule of building Shanghai's Planetarium. They reported that they really appreciated having core information and experience with FETTU to help learn how to run and establish a planetarium.





Number of people reached: 100 779

Webpage: http://www.shao.ac.cn

Budget: 200 000 RMB (24 000€)

Organisers: Zhu Dayi/Shanghai Astronomical Observatory (SHAO)

## FETTU in Slovenia

Organisers created a travelling exhibit plus a very large ("platinum") FETTU exhibition in Park Tivoli in Ljubljana, Slovenia. The exhibition ran from June 17th until September 4th 2009. It contained 120 pictures (at 180x120 cm). They had a big event on August 28th combining the guided tour of the exhibition with public observations of Jupiter and the Moon with more than 30 telescopes for the public's use. There were between 5,000-10,000 visitors. Even the president of Slovenia came to this event and had a first look through the telescope. The FETTU exhibition will be in this park again. It is aimed at school groups who could not see the exhibition in the summer due to summer holidays, but also for everyone else — it is a nice decoration of pre-New Year and winter Ljubljana. The exhibition opened from November 26 until February 15, 2010. This means that together with the summer exhibition, all 120 panels will be on display for about 5 months. The travelling exhibitions are also still going on — 2 sets of photos touring until Spring 2010. In addition, the organisers promoted the FETTU exhibition on 10 trainboards, which were travelling across Slovenia on different trains from June until December 2009.






Number of people reached: 200 000

Webpage: http://www.astronomija2009.si/short/razstava.html

Budget: 35 000€

Organisers: Andreja Gomboc and Bojan Kambič

## FETTU in the U.K.

The first FETTU exhibition occurred in Liverpool, U.K. at Albert Docks in June 2008. This location was selected because of an early partnership with the Science Photo Library, a U.K.-based company that provided much support for the prototype effort. Albert Docks is a well-visited section of Liverpool (tourism surveys suggest that 64% of visitors to the area stop at Albert Docks) with a bustling atmosphere of shoppers, tourists, walkers and Tate Liverpool attendants. Observations of exhibit participants showed that approximately half of the people walking along the dock stopped to look at the pictures and about 1 in 6 of all strollers viewed the accompanying textual materials.




In the UK, the Royal Astronomical Society provided funds to put the Liverpool FETTU prototype exhibition on tour throughout 2009 in city centre venues. It was in each venue for approximately 3-4 weeks: 04 January–16 January, Dublin as part of BT Young Engineers Festival; 19 February–23 March, Glasgow Science Centre, Glasgow; 24 March–27 April, St Andrew Square, Edinburgh, as part of the Edinburgh International Science Festival; 04 May–06 June, Eureka Children's Museum, Halifax; 13 June–17 July, Belfast City Hall, as part of the Belfast Carnival 22 July–10 August, Techniquest, Cardiff; 29 August–26 September, Oxford University Parks, Oxford 13 October–15 November, Manchester Science Festival; 11 December 2009–04 January 2010, Stonehenge. Evaluation is still ongoing, but anecdotal evidence suggests that the scale of the exhibition amazes people, and that people are attracted by the stunning images to learn more about astronomy. There are conversations ongoing to site the exhibition permanently somewhere once it has finished the tour.

Webpage: http://www.astronomy2009.co.uk/index.php/from-earth-projectsmenu-47

Budget: 30 000 GBP (26 370€)

Organisers: Gary Evans/SPL, Steve Owens/U.K. IYA et al.

## FETTU in the U.S.A. with NASA

In the United States, many of the 40 FETTU exhibits were funded by a NASA grant that allowed for two large displays in airports, as well as a travelling version that has visited nearly a dozen cities including Anchorage, AK, Columbus, OH, Fayetteville, AR, New York City, and multiple towns in Puerto Rico. Other U.S. FETTU locations in such places as Madison, WI, and the Bay Area in California, also partially funded by NASA, produced exhibits and corresponding activities.

FETTU arrived at Tucson International Airport in February, 2009 and was supported by a national press release; both daily newspapers in Tucson mentioned FETTU, including page 1 in the Tucson Citizen (circulation ~25,000). Given that March is an extra-busy month of tourist events, we estimate that more than 1/12th (> 400,000 people) of the total passengers passed through the airport while FETTU was there.



Memphis hosted FETTU in April, 2009. The exhibit was held at the Benjamin Lee Hooks Central Library with heavy support from the Memphis Astronomical Society. Rhodes College provided an opening FETTU event attracting 300 Memphians to the lectures. The most circulated local newspaper, the Commercial Appeal, published an article promoting the educational value of the exhibit. Ridgeway High School organised a visit for their students to FETTU. Members of the Memphis Astronomical Society volunteered their knowledge and expertise during their visits. Over 50 FETTU images were installed at Hartsfield-Jackson Atlanta International Airport, the world's busiest airport, in May 2009. Over 80 million domestic and some 10 million international passengers travel through the airport each year. If 1-2% of visitors pass the exhibit (considered a conservative estimate), it had an audience of

500,000 to 1 million. The exhibit has been mentioned in media, including the Hartsfield Jackson Airport newspaper (circ. 10,000), and the New York Times. One of the images in the airport FETTU exhibition is a scaled image of Uranus and is now part of the Metro Atlanta Solar System, a scale model of the Solar System dedicated September, 2009.





An exhibit of 57 images opened at the O'Hare International Airport in Chicago, Illinois. Based on 2008 data, approximately 52 million passengers passed through O'Hare in 2009. If only 10% of the passengers passed by the exhibit, that will mean 5 million views of the exhibit (a similar estimate comes from looking at the CTA blue line riders, all of whom pass by the exhibit). An exhibit of 20 spinning FETTU banners was also placed outside of the Adler Planetarium on Chicago's Museum Campus, where it is estimated that it was seen by 2 million people (based on Campus visits of 8 million people annually.)

FETTU panels for the visually impaired were produced featuring tactile and Braille captions. The exhibit opened in July at the Martin Luther King Jr. library in D.C. It displayed at Yerkes Observatory (Wisconsin), Center for Science and Industry (Ohio), Atlanta Center for the Visually Impaired (Georgia), UMass-Boston (Massachusetts) and many other locations.

Webpage: http://www.astronomy2009.co.uk/index.php/from-earth-projectsmenu-47

Number of people reached: 1 000 000+

Budget: US $300 117 (244 460€)

Organisers: Kimberly Arcand & Megan Watzke/CXC; Chris De Pree/Agnes Scott College, Mark Subbarao/Adler Planetarium, Doris Daou/Lunar Science Institute, Laura Trouille/UW-Madison, Amit Kapadia, Doug Isbell, Simon Steel, and many others

## Formal Evaluation

The evaluation strategy of the NASA-funded FETTU locations we employed in the United States is based on previously demonstrated successful informal education evaluation models that are recommended by the National Science Foundation (NSF) publication, "Framework for Evaluating Impacts of Informal Science Education Projects" (2008). Consultation from a well-known expert at the Harvard-Smithsonian Center for Astrophysics allowed for a preliminary evaluation of the Liverpool, U.K. prototype using exhibition observation and exit-interview protocols that were adapted specifically for FETTU data collection. These observation and interview protocols were then edited for the international FETTU locations, posted to the FETTU web site and circulated in newsletters to the FETTU organisers world-wide. Some countries had the budget and time to perform full evaluations (such as the U.S., Brazil and the U.K.), some were able to perform basic data collection (such as Argentina, Iceland, India, Uruguay,

etc.), but many countries, however, did not. The FETTU organisers/co-chairs have collected useful interview data with approximately 25 of the international FETTU organisers and intend to collect more as time and budget allows.

In the U.S., NASA-funded FETTU site evaluations are providing information about the success of using non-traditional settings and space science imagery to attract new audiences to further engagement with astronomy learning opportunities. Our strategy has been to evaluate the impact of FETTU on three audiences using a master evaluation protocol that was adapted for local venues and different exhibit sizes. The three audiences targeted were:

1. Viewing audiences (subgroups: viewers who only tour the exhibit; viewers who also participate in an exhibit-related activity). We are exploring four areas of impact: 1) knowledge, awareness, understanding of science content 2) attitudes and values toward astronomy 3) enjoyment, inspiration 4) behaviour (e.g. follow-up reading or web browsing of NASA news, etc.)
2. Staff of Host-partner institutions (building up the capacity to organise outreach events, increasing knowledge of NASA and U.S. IYA programs, increasing opportunities to link science and the arts, creating a sustainability legacy)
3. Local community partners at each site (sponsors/institutions/ media/amateur astronomy clubs/teachers), nurturing new partnerships for science education for sustainability, "push" and "pull" with other space science programs through partnerships.

The viewing audience is surveyed at the exhibit site. This samples immediate impact and has required 1-2 data collectors for 2-3 days at each site. Sites have been using their own local data collectors (with evaluation training provided beforehand by an evaluation professional), which is more cost and time efficient. At least 15 separate location types in the U.S. have conducted the evaluations with larger exhibits reaching the goal of 50-100 data points of participant observations and interviews. A reputable evaluator is being hired to analyze the summative U.S. NASA-funded FETTU data accumulated from the host sites. We intend to provide the broader space science education community with results by October 2010 that document the contributions of the FETTU exhibit to several of the informal education objectives as defined under NASA Office of Education's Outcome III (informal education).

In addition to the methodologies for the data collection in the U.S. described above, there have been other methods of data collection throughout the international community that were wide-ranging in both scope and methodology, from locations in Spain, U.K., Brazil, Argentina, and other countries. Details of those efforts will be forthcoming in 2010 as budget and time allow.

## Lessons Learned

As the first-time organisers of such a project, we experienced and learned a vast number of new and useful things. Some of these may be well known to people who have participated in similar types of grassroots, informal science education activities. However, we believe other lessons learned from FETTU may not be well understood and it would beneficial to the community if some of these issues were studied further and more robustly.

### Viability of FETTU Model

The backbone of the FETTU project was an online repository of high-resolution images and appropriate and vetted caption material. These materials were cleared of copyright restrictions, as long as the local organisers signed user agreement forms and exhibited them in the spirit of IYA2009. By removing the "heavy lifting" of organizing the content, FETTU ostensibly freed up local organisers to focus their efforts on raising funds for the physical installation, securing logistics, and developing promotional and educational materials for the exhibits. We believe this type of model could be used for other types of science content at similarly relative low cost it required for FETTU.

### Variability of "Success"

We believe that each venue that hosted FETTU can be considered a 'success' as any exposure of astronomical content to new audiences was one goal of the project. However, we discovered that certain factors played into how many people were reached and the width and breadth of their experience. For example, we found certain types of locations worked better than others in drawing and sustaining traffic. As such, airports might have large numbers of people that can be exposed to the astronomy images, but locations that are "slower paced" (a library, a public park, a college campus) might enable more engagement with the content while encouraging social

interaction. Likewise, we noticed that the inclusion of supplemental activities ("fun" and educational) allowed for increased and longer attention from the public. A corollary to that was the obvious benefit of a dedicated and energetic volunteer corps assisting at the exhibit.

### How the Project Spread

One surprising — and rewarding — aspect to the project was how it developed and spread over the course of the entire IYA2009. Because of limited funds, we were not able to do much advertising of the FETTU project prior to 2009. While we gave several talks, developed materials online and enabled some to be physically distributed, it was unclear just how many people would hear about the opportunity. A major boost for FETTU was the prototype of exhibit that was held on the Albert Docks in Liverpool, UK during June 2008. The documentation of the public enjoying the images — both in photos of the event and anecdotal accounts — seemed to spark others to believe this type of exhibit could be successful. From there, word seemed to build, first slowly and then seemingly exponentially. In short, it appeared to us that many local organisers came forward to establish their own FETTU once either seeing an example physically somewhere else or looking at the photo collection of the exhibits online. The more FETTUs were held, the more interest in new FETTUs emerged. Evidence of this can be found in the sheer number of exhibits that were initiated over IYA2009. At the end of 2008, there were a little more than a dozen FETTUs planned. By the end of IYA2009, the number of FETTU exhibit sites had climbed to over 500.

### Summary

This account gives a taste of some of the valuable lessons we, the organisers, were able to learn over the course of IYA2009 with the FETTU project. We hope we can adapt what we have learned and apply it to other endeavours for both ourselves and other members of the science communication community.

## Legacy

Although the International Year of Astronomy was the impetus for the project, FETTU exhibits and activities in conjunction with them will last into 2010 and beyond. More than 30 countries around the world, including the United Kingdom, India, Germany, Brazil, Canada, Russia, Slovenia, Iran, Colombia, Peru, France, Denmark, the United States, and others have plans for FETTU in 2010 and many more countries are working to follow suit.

Plans for FETTU in 2010 in the U.S. include a continuation of the travelling FETTU to several new locations including Alabama, Rhode Island and Indiana. The FETTU exhibits in Chicago's O'Hare and Atlanta's Hartsfield airports have been extended and will remain in place at least through June 2010. A new version of FETTU will appear in Chicago's Midway airport as well. Arrangements are being made to transfer these panels from the airports to children's hospitals in the Chicago and Atlanta areas once the run in the airports is finished.

Detailed timeline maps are continually being updated for the U.S. and international communities. In addition, we believe the FETTU model could work for other projects to broaden the appeal of astrophysics and other physical sciences to larger numbers of people. In the U.S., we are for example, applying for funding for a FETTU-inspired exhibit on physical processes for 2011 and 2012 and have recently received funding for a FETTU-inspired research exhibition that will circulate at science centres for the ongoing "Aesthetics & Astronomy" studies in 2010. Future "international years of" such as the upcoming year of Chemistry in 2011 might also be able to adapt some aspects of the FETTU model to exhibit their own material in similar ways.

# Developing Astronomy Globally: astronomy for all

## Cornerstone Project

Kevin Govender
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www.developingastronomy.org

Task Group Members: 7

Number of people reached by IYA2009:

Budget: 35 000 €

Sources: IYA2009 Secretariat

## General Overview

### Background

The Developing Astronomy Globally (DAG) Cornerstone Project was initiated during the Communicating Astronomy with the Public (CAP) Conference in 2007. It's inclusion on the IYA2009 agenda was in order to ensure that IYA2009 benefits those countries which do not have strong astronomical communities. Specifically the goals of DAG were: (i) to use the momentum of IYA to stimulate the establishment and enhancement of regional structures/networks around the world that would focus on the development of astronomy. These structures would support current and future development work of the IAU and other programme s; and (ii) Ensure sufficient reach and benefit of IYA and other cornerstones to developing regions.

Adopting a regional approach DAG looked at the following 8 regions, according to the IAU breakdown for development:

- Region 1: North America
- Region 2: Latin America (including Central America and the Caribbean)
- Region 3: Europe
- Region 4: Middle East and North Africa
- Region 5: Sub-Saharan Africa
- Region 6: Central Asia
- Region 7: Far East and South-East Asia
- Region 8: Oceania (including Australia and New Zealand)

The three focus areas were: 1. Professional development: This would address tertiary education, research training and research infrastructure in order to build professional astronomy research capacity within the country. 2. Development of public understanding of astronomy: This would target the general public and take the form of activities and events that stimulate an interest in astronomy. This focus area includes the development of an amateur astronomy community. 3. School-level education development: This would address primary and secondary education. It would focus on taking astronomy to the classroom (and beyond e.g. younger children through UNAWE) and stimulating an interest in Mathematics and Science amongst young people.

From the outset DAG was seen as a project to kick off activities which would last well beyond 2009. As such it was aligned with the IAU's strategic plan for development (entitled "Astronomy for the Developing World"). As of August 2010, DAG projects were still very much on the go with activities set to be handed over from the volunteers driving the cornerstone to the IAU's Office for Astronomy Development.

## Human Resources

The cornerstone was initially driven through volunteer effort with the task group comprising Kevin Govender (South Africa, SAAO – chair of DAG); Norio Kaifu (Japan, NAOJ); Filipe Pires (Portugal, Universidade do Porto); Barbara Villone (Italy, INAF); Ana Lopes (Portugal, Nature); Dan Hillier (UK, ROE); and Hakim L. Malasan (Indonesia, Institut Teknologi Bandung). Due to the wide reach of DAG and the amount of coordination required, extra human resources were necessary to cover the gaps which the volunteer time could not. Through funding from the IYA2009 secretariat the cornerstone really took off following the appointment of Mr Lolan Naicker on a half time basis. Mr Naicker was based at the South African Astronomical Observatory (SAAO) in Cape Town, South Africa, and contributed significantly to the project during his one year term (December 2008 to December 2009). Another extremely important person in the project was a Japanese volunteer, Mr Jun Takahashi, who spent 5 months at the SAAO (September 2009 to January 2010) mainly at his own cost. All these people continue to be involved in the projects on an ad hoc basis.

## Global Astronomy Survey

Coordinated from South Africa, DAG started off by conducting a global astronomy "self-evaluation" survey targeting mainly underdeveloped regions. The purpose of the survey was to establish a "bottoms-up" evaluation of the state of astronomy in any given country. This data could then be used to plan development activities both for the country and for the region, and was subsequently used in other DAG projects. Focus areas of the survey were threefold: professional, public and school level. Participants in the survey were asked to rank their countries within each focus area and provide associated explanations and descriptions of the local situations. This survey or self evaluation continues to grow with a dynamic user controlled webpage for each country on the DAG website. Currently these surveys have been completed for 58 countries across the world and are freely available for viewing on the DAG website. Comments, modifications and updates are always encouraged.

## African Students at IYA2009 opening

Early in the year DAG coordinated the attendance of African students at the IYA2009 opening event in Paris. This project involved selecting students from 5 African countries and arranging all travel logistics to get them to the opening ceremony. Funds were provided by UNESCO and feedback from the students was extremely positive. This project set the DAG team in motion and prepared them for the management of funds on an international level, a non-trivial task when one considers the laws governing the movement of large sums of money across borders. This experience was to prove invaluable in the implementation of the next major DAG project…

## Seed grants for the stimulation of astronomy

In April 2009 the IAU and UNESCO, through the IYA2009 secretariat, provided funding to support IYA2009 related projects and activities in developing regions – essentially small grants that would be used to "seed" astronomy projects in target countries. A call for proposals was sent out to Single Points of Contact around the world via the DAG cornerstone. There were 38 applicants who responded. The selection committee, comprising the DAG task group and vetted by the IAU Executive Committee Working Group on IYA2009, waded through an impressive list of quality proposals that included such projects as astronomy education workshops for teachers, the recording and preservation of indigenous astronomy knowledge, the production of school astronomy education resources in local languages and many more. Twelve proposals were eventually selected from the following countries; Macedonia, Nepal, Uganda, Mongolia, Nicaragua, Nigeria, Kenya, Ethiopia, Gabon, Rwanda, Uruguay and Tajikistan. Selections were made based on project alignment with the IYA2009 goals, more specifically the DAG goals, and on needs as indicated by the Global Astronomy Survey. In December 2009, following additional funding being received, four additional Seed Grants were awarded to Ghana, Trinidad-and-Tobago, Mozambique and Pakistan. This brings the total number of grants up to 16. Some of these projects were delayed for various reasons and are still underway with reports pending. Completed reports, summaries and updates are available on the DAG website.

## Regional Astronomy Development Workshops

Together with the IAU's Commission 46, DAG developed a model for regional "astronomy development workshops" and proceeded to raise funds and rally support for a pilot programme in East Africa. In November 2009 this programme was realised in Kenya, thanks to sponsorship by the IAU Commission 46 TAD programme and the International Science Programmes (ISP) of Uppsala University, Sweden, along with invaluable support from the University of Nairobi (UoN) and the South African Astronomical Observatory (SAAO).

The main objective of these regional initiatives is to stimulate astronomy development activities through empowering local lecturers and students to drive the process themselves. Specific objectives in support of this are:

- Introduce astronomy topics to inspire students and lecturers to pursue astronomy studies and research
- Provide basic training to participants on doing astronomy outreach
- Provide basic training to participants on doing practical astronomy research
- Network locally and regionally regarding outreach
- Network locally and regionally on a university research level
- Set up a regional steering committee to be responsible for astronomy activities into the future
- Stimulate the formation of student organisations that would support astronomy activities
- Hold high level discussions with decision makers
- Identify potential astronomy research students and champions for astronomy development

The Nairobi workshop was attended by 43 people including 29 Kenyans and 14 foreign participants and resource persons. The participants were selected from various universities around Kenya and neighbouring Eastern African countries of Uganda, Rwanda, Ethiopia and Tanzania. Each country, was represented by at least one lecturer and one student (if not in the field of astronomy then at least a related field such as Physics or Mathematics). From Kenya there were student-lecturer pairs from 8 higher education institutions. The role of the lecturers would be to investigate the possibility of starting an astronomy programme or module as part of the Physics or Mathematics department at their university. The role of the student was to return to their university and establish a student club or society that could propagate the objectives of astronomy development. Selections were based on references, enthusiasm shown during IYA2009, and on the potential for the person to drive development activities in their country.

The workshop was a blend of lectures at the conference venue, and hands-on laboratory exercises conducted at the University of Nairobi. Presenters included:

- Ed Guinan: Chair of the IAU's Commission 46 Teaching for Astronomy Development programme
- Petri Vaisenen: Astronomer at the South African Astronomical Observatory
- Hakeem Oluseyi: Department of Physics and Space Sciences, Florida Institute of Technology
- Charles McGruder: American Society for Black Physicists/Western Kentucky University
- Kevin Govender: South African Astronomical Observatory

A high level meeting was also organised between the IAU and the Kenyan Government Policy makers drawn from amongst University Vice Chancellors, College Principals, National Council for Science and Technology, Ministry of Higher Education Science and Technology and Kenya National Academy of Sciences. From the feedback received, both the workshop and the high level meeting were deemed a success and at the end of the workshop participants were issued with certificates of participation. Each country also received one astronomy textbook entitled "Universe: Stars and Galaxies" which would help lecturers to prepare small modules on astronomy or to use it as a reference. Kenya also received a telescope and outreach resources to continue driving astronomy in the region.

Following from this workshop the East African Astronomical Society was established and discussions regarding the development of astronomy in the region continue on a special email list set up for East Africa. The full report for this workshop is available on the DAG website and serves as an example of a regional development activity which could be conducted in other developing regions.

## Distribution of donated telescopes

There were generous telescope donations made during IYA2009 from the Galileoscope Cornerstone Project and Celestron, with the objective of supporting developing regions. DAG coordinated the process of distribution which included:

- Issuing a call for requests to all regions of the world
- Establishing an international selection panel to evaluate requests
- Coordination of selection process
- Global distribution of telescopes (this was mainly coordinated by the shipping company Leman USA Inc for the Galileoscopes and Celestron's various agents for their donations)
- Consolidating reports of usage

To date, although a large percentage of telescopes have reached the allocated destinations, there are still selected recipients waiting to receive them. Great difficulties have had to be overcome with high transport costs and many challenges with customs and tax issues specific to different regions. However, through coordination of deliveries to regions rather than countries as well as generous donations received for transportation, such as the Armagh Planetarium for example, which sponsored the transport of Celestron telescopes for the Sub-Saharan Africa region, DAG has been able to ensure that the bulk of the telescopes reached their destinations.

Approximately 5200 Galileoscopes have already been shipped to the following countries, either for further distribution to developing regions or usage within the country itself: Turkey; Poland; Germany; Senegal; United Arab Emirates; Romania; Vietnam; Nepal; Jamaica; Serbia; Azerbaijan; Venezuela; Uruguay; Turkey; Albania; Pakistan; France; Kenya. The Galileoscopes for a number of African countries were shipped in bulk to South Africa and arrived in Cape Town in August 2010, with distribution further afield underway at time of writing this text.

Celestron donations included 20 “go-to” Nexstars and 160 of the popular Firstscopes. These were destined for all 8 DAG regions of the world and have been shipped to USA; Brazil; Uruguay; Trinidad & Tobago; Guatemala; Madagascar; Ghana; Kenya; South Africa (to be sent further to Gabon, Rwanda, Mozambique); Nepal; Vietnam; New Zealand.

Reports from recipients will be posted on the DAG website as they are received. Much gratitude and acknowledgement must go to Michelle Meskill of Celestron and the team at Galileoscope including Rick Fienberg (American Astronomical Society), Doug Arion (Carthage College) and Steen Sanderhoff (Leman USA Inc.).

## Offline Resources

DAG coordinated the consolidation and distribution of “offline” electronic resources which are available on CDs and DVDs and free to copy. These resources are targeted at countries or regions without abundant internet access – the idea is to capture some of the myriad of resources available on the internet in an offline format so that developing regions can benefit. The collection of 9 CDs and DVDs are made up of contributions from other cornerstones and international projects which have produced electronic materials and videos. This collection is dynamic and meant to evolve as new materials are found.

## Opportunities Database

The DAG website hosts an opportunities database for students and lecturers from developing regions. This has not grown as large as was initially envisaged mainly due to the lack of human resources to drive it. However, it remains a much needed and appreciated resource (judging from feedback received) which can be developed further by the IAU beyond IYA2009.

## Developing Astronomy in Africa

Since Sub-Saharan Africa was identified as a focus area for development in the IAU strategic plan, DAG set out to follow this lead and pay more attention to this region. This may be evident from the support given to other African countries in other DAG projects. Although there was no bias in terms of strict selection processes mentioned, the preparatory work done with African countries before implementation of other DAG projects highlighted them as ideal target areas. Some of the (humble) efforts in preparatory work include:

- Email lists: Anyone interested in developing astronomy in Africa have been encouraged to join the Astronomy in Africa email list. There are also regional lists (Eastafrica and Westafrica) for more region-specific discussions. A space on the DAG website has also been provided for African updates and initiatives. This has proven an invaluable resource for communication amongst relevant stakeholders.
- Real-time meetings: DAG has coordinated several meetings held to discuss the development of astronomy in Africa. These have usually been held in Cape Town physically and linked to the rest of Africa and the world via Skype. Since the most recent meeting recordings of the full discussion are made available on the DAG website for those who could not attend.
- 10 Year Plan for Developing Astronomy in Africa: Through numerous discussions with people from across Africa a draft plan has been established for the development of astronomy in Africa over the next decade. This plan is still fluid and open for comment. It is expected that each region in Africa would develop plans which would largely align with this 10 year structure but which would be very specific to their respective regions. The idea is that everything should always be in line with the IAU’s decadal strategy for astronomy development. This plan is also available on the DAG website.

## Impression from DAG around the world



Presentation session at Ambo university, Ethiopia



Mr. Tolu Biressa delivering presentations at Wollega university, Ethiopia



Telescope observation session at Ambo University, Ethiopia



Telescope observation session at Wollega University, Ethiopia



Telescope observation session at Mizan –Tepi University (Tepi campus, Ethiopia)



NOMMO ASTRONOMIA: Association for Astronomy & Space Sciences in Gabon



NOMMO ASTRONOMIA: Association for Astronomy & Space Sciences in Gabon




Astronomy workshop for secondary School students from schools in Southwestern Uganda



Project of Training about topics on Astronomy for High School Teachers, Astronomical Observatory of UNAN-Managua, Nicaragua



Over a hundred people have looked at the sky through a telescope for the first time during star party on evening 1 July 2009 in Mongolia



Nomads in countryside are learning about Northern stars on 1 July evening after workshop in Mongolia




Young researchers and students participating in the Mongolia workshop with Dr. Sikiguchi and Mrs.Dulmaa



Teachers for Astronomy and Physics from the countryside in Mongolia



Discussion with students of KHGU on astronomical themes. Tajikistan



Mobile Astronomical Observatory. Observations of astronomical objects at night on 20 May 2009 in the city of Khujand, Tajikistan



Outreach: Looking at the sky and Basic astronomy is explained to students in Rwanda



Looking at the sky and Basic astronomy is explained to students in Rwanda


Quiz time on Astronomy in High Schools in Rwanda:



Students, teachers and general public watching solar eclipse at TSA, Nepal



Students, teachers and general public watching solar eclipse at TSA, Nepal



Teacher training at Tanahun, Nepal



Star party at Chitwan, Nepal



Star party at Deepshikha Boarding School Dang, Nepal



Teacher training at Dang, Nepal

## Legacy

In terms of the future of DAG, beyond IYA2009, much of what has been started will feed well into the IAU strategic plan for astronomy in the developing world. Almost all activities have served as pilot projects which demonstrated what could be done in order to develop astronomy globally. The momentum of IYA2009 has been utilised to drive these projects thus far but after 2009 they will have to fall into the hands of the IAU's Office for Astronomy Development as well as the IAU's Commission 46 (Astronomy Education and Development).

# Galilean Nights: The Galileo Experience

## Cornerstone Project

Catherine Moloney
cmoloney@eso.org
Web

Task Group Members:14
- Volunteers:12
- Paid: 2

Number of people reached by IYA2009: — 1 000 000

Budget: 12 000€

Sources:
- IAU/IYA2009

## General Overview

Following the unprecedented success of IYA2009's 100 Hours of Astronomy (www.100hoursofastronomy.org), which featured hugely popular projects such as a Global Star Party, the live 24-hour webcast "Around the World in 80 Telescopes", a Science Centre webcast, Sun Day and 100 Hours of Remote Astronomy, another series of astronomy events was highlighted on 22 and 24 October 2009. This IYA2009 Cornerstone Project was called Galilean Nights and saw amateur and professional astronomers around the globe taking to the streets, pointing their telescopes to the wonders that Galileo observed 400 years ago.

The focus of the project was sidewalk observations of gas giant Jupiter and its moons and allowed members of the public to observe the Sun, our own Moon and many more celestial marvels.

## Main Activities

Number of registered activities: 1 300

List of Main Activities:
1. Public observing events
2. Remote observing
3. Astrophotography competition / flickr group
4. Liveblog and group blog
5. Website and resources

### Public Observing Events

The main focus of Galilean Nights was the 1300 public observing events that took place on 22-24 October 2009. With the aim to share astronomy with the public, giving many their first glimpse of the night sky through a telescope, Galilean Nights was embraced by people all around the world. 1 300 events took place in 88 countries, but many more events took place as part of Galilean Nights that were not registered on the official website. Events were incredibly varied, from individuals putting on an observing session for a small handful of friends and family to organised groups hosting thousands of people in large public areas. The setting and locations of events were equally as varied — telescopes set up on street corners attracting the attention of youths attending nearby nightclubs; virtual observing exhibits set up in shopping malls; research observatories opening their doors to the public; a cycling tour of Bangalore, India, even observing sessions on a cruise ship travelling to Hawaii! Weather was a factor for many, particularly in parts of Europe, some events were cancelled or postponed, but some organisers were able to put on ingenious "Plan B" activities, from theatre shows to lectures, enthusiasts managed to share their love of astronomy even under cloudy skies. The Galilean Nights Event Awards were chosen to mark the efforts of the organisers; with six categories, each with a winner and two highly commended entries.

Outstanding Galilean Nights Event Winner: “Galilean Nights Festival at Targoviste” run by SARM — The Romanian Society for Meteors and Astronomy. This truly spectacular event attracted around 3200 attendees. The organisers really went above and beyond by arranging for a press conference and a special live TV broadcast.
Largest number of registered events held by a single group Winner: Centro de Estudos Astronômicos de Alagoas — CEAAL, Brazil. 29 events. Centro de Estudos Astronomicor de Alagoas really embraced Galilean Nights and ran outreach activities of all varieties. From putting on astrophotography exhibitions in major shopping malls and at the university, public observing sessions all over the city, to travelling with a mobile planetarium to more remote locations. Through their activities CEAAL reached tens of thousands of people.

Highest attendance at a single registered event Winner: “Exposição de Telescópios” run by Clube de Astronomia de Brasília, Brazil. More than16 500 people observed Jupiter and its moons with their own eyes over the course of seven days.

Community outreach Winner: Centro de Estudos Astronômicos de Alagoas, Brazil. This group travelled in a caravan through five cities in the State of Alagoas in Brazil to reach small communities with their Galilean Nights activities.
Most innovative event Winner: Dinner on Mars, Portugal. Run by Portugal’s Navegar Foundation, this highly creative event saw diners sample dishes such as “Olympus Mons Duck” and “Valles Marineris Monkfish” whilst watching an astronomical tour projected onto a planetarium dome.

Best “Plan B” Winner: The Galilean Night with hot tea and a journey to Jupiter, Romania. Over six hours the Asociatia Astroclubul Bucuresti, Romania, hosted 300 visitors, prepared 250 cups of tea, and made six presentations. The event was broadcast by three major TV stations, four radio stations and nine websites, and was featured on the Galilean Nights LiveBlog.

## Remote Observing

To compliment the many public observing events, the Galilean Nights Remote Observing was developed to share the event with individuals and groups over the internet. Remote observing enabled those living too far from public events to still take part in Galilean Nights, and also provided a way for those attending public events to compliment their experiences by allowing them to access larger observatories, for example to make their own observations using facilities that would otherwise be unavailable to them. The remote observing activities were also well used by the organisers of the public events, either provided as an extra to their public observing or as a replacement, “Plan B” activity where their initial plans had to be changed due to bad weather. Six remote observing facilities were used for Galilean Nights, with some accessed via their usual public pages, others creating a special access page specifically for the event. The participating observatories were:

- LightBuckets. Location: Australia and the USA. Telescopes: 200-600mm diameter Ritchey-Chretien
- MyTelescope. Location: Canada. Telescopes: 250mm diameter Schmidt-Cassegrain
- Virtual Telescope. Location: Italy. Telescopes: 360mm Celestron C14
- Global Rent-a-Scope (GRAS). Location: Australia and the USA. Telescopes: 90-150 mm diameter Takahashi Sky 90
- Micro-Observatory. Location: USA. Telescopes: Five 150mm telescopes
- Universe Alive, a live webcast that took place on 24 October 15:00 to 16:30 UT. Location: Iran. Telescopes: 200mm and 350mm

Webpage: http://www.galileannights.org/remote_observing.html

Number of people reached: Universe Alive, a live webcast by one of the six participating observatories, had an audience of 4 785 during the live broadcast.

Organisers: Overseen by Terry Bridges

## Astrophotography Competition

The Galilean Nights Astrophotography Competition was introduced to encourage involvement in different aspects of astronomy by hobby astronomers — rather than just passively looking through a telescope, people were encouraged to take photos of their chosen subject. The competition and the underlying aim (for people to take a different approach to observing) were taken on board by many event organisers. Many events provided the

opportunity to the attending public to take photographs through telescopes, even as simple as using mobile phone cameras through a Galileoscope. Attendees had their observing experience enhanced by the opportunity to take something away with them, particularly as it was something they had “created” themselves. While these simple astrophotography photos were not then submitted to the competition, the fact that astrophotography was part of many events indicates that the initiative was a success.

The competition itself was incredibly well received by the participants, many of whom expressed gratitude at an opportunity to share their photographs in a competitive environment. About 100 photos submitted, across the two categories “Earth and Sky” and “Beyond Earth” and the quality of the entries was extremely high. After narrowing down a shortlist of ten entries per category, the winners (a winner and two runner-ups for each category and an overall winner across both categories) were announced on 21 December 2009. Several months after the close of the competition and the end of Galilean Nights, participants to the competition are still active among the Galilean Nights Flickr group, uploading, sharing and discussing their recent astrophotographs.



## Overall Winner

Masahiro Miyasaka of Japan for the image “Milky Way Waterfall”:
http://www.flickr.com/photos/43894176@N07/4041205097/in/pool-galileannights



## Beyond Earth category

Winner: Luis Santo for his image of M42 http://www.flickr.com/photos/44050495@N05/4051547780/in/pool-galileannights

First runner-up: Richie Jarvis for his image of M45 http://www.flickr.com/photos/richiejarvis/4046461726/in/pool-galileannights

Second runner-up: ANIC Asociación de niños indagadores del cosmos for their image Moon Waning
http://www.flickr.com/photos/astroanic/4047871344/in/pool-galileannights

## Earth and Sky category

Winner: Masahiro Miyasaka for the image Milky Way Waterfall
http://www.flickr.com/photos/43894176@N07/4041205097/in/pool-galileannights

First runner-up: Pablo Díez Vigil for CTBA 07:45 http://www.flickr.com/photos/pdiezvig/4032270507/in/pool-galileannights

Second runner-up: Kouji Ohnishi for Pleiades Dances
http://www.flickr.com/photos/microlensing/4046384368/in/pool-galileannights

Website: http://www.galileannights.org/competition.html

Organisers: Galilean Nights Task Group member and Europlanet Press Officer: Anita Heward and Galilean Nights Task Group Chair: Catherine Moloney

### Live Blog and Group Blog

With over 1300 events making up Galilean Nights we wanted a way of keeping the public informed about activities occurring at different locations around the world and making people feel involved in the global nature of the project. In collaboration with Cosmic Diary, a Group Blog was created to give individual organisers from many different countries a voice and an opportunity to share the story of their events and activities in their own words with the global IYA2009 network. The Group Blog ran for approximately twenty days, with twenty articles published by Galilean Nights organisers from ten different countries. The articles were a wonderful way of hearing what Galilean Nights and IYA2009 meant to astronomy enthusiasts around the globe, from Canada to Australia, Uruguay to Tanzania, and Iraq to China. We even heard about a Galilean Nights event that took place in the middle of the Pacific Ocean!

To complement the group blog, Galilean Nights also saw the return of the Cosmic Diary Live Blog. Following on from the successful Live Blog activities at the IYA2009 Opening Ceremony and during 100 Hours of Astronomy, Lee Pullen agreed be part of Galilean Nights. Lee's informative, witty and irreverent style proved popular during the Opening Ceremony and 100 Hours of Astronomy events, and his posts gave readers a unique insight into events taking place behind-the-scenes, as well as a different view point on the main "headline" activities. Lee posted 29 posts between15 October and 6 November and on each day of Galilean Nights (22 October to 24 October) Lee attended different events in the Munich area and wrote about his experiences. At the same time, Lee also gathered information about other events happening elsewhere in the world and was able to write posts about those as well, helping to maintain the global perspective on the project

Website:

- Live Blog: http://cosmicdiary.org/galilean_nights/
- Group Blog: http://cosmicdiary.org/blogs/galilean_night/

Organisers: Lee Pullen and Catherine Moloney. A collaboration between Galilean Nights and the Cosmic Diary Cornerstone Project.

## Legacy

Numerous event organisers have reported that their Galilean Nights activities were so well received that they will be repeating their activities in the future and even turning them into recurring events beyond IYA2009. The Galilean Nights Flickr group is still active, with many who submitted images to the Astrophotography Competition continuing to upload and discuss their astrophotographs.

# IYA2009 Special Projects

The Cornerstone projects were supported by 16 Special projects, which develop interactions and link the different initiatives and projects within IYA2009. These projects provide extra means to achieve the IYA2009's main goals and objectives.

Guidelines were established for the selection of IYA2009 Special projects:

Although the focus of the global activities were on the Cornerstones, it is acknowledged that these were certainly not the only big projects that contributed to the vision and goals of IYA2009. It is for this reason that a category within the global structure has been set aside for "IYA2009 Special projects". These projects provide extra means to achieve the IYA2009's main goals and objectives. The category of IYA2009 Special projects was intended to give large global projects (which satisfy the vision of IYA2009) greater international recognition and an opportunity to link with celebrations worldwide. Special projects were selected according to the prioritised criteria below:

- It should satisfy at least one of the IYA2009 goals and align with the IYA2009 vision;
- It should be a global project;
- It should be financially independent (special projects should not seek funding from the IYA2009 Secretariat);
- It should demonstrate sufficient potential for successful implementation (this may be in the form of human resources, funding, implementation plans, etc);
- The bulk of the project should be implemented during 2009 (if the project goes far beyond 2009 then there should be some IYA2009 theme/focus of the project during 2009);

## Special project

Chair:
Babak A. Tafreshi (Director and founder)
btafreshi@twanight.org
www.twanight.org

Active Task Group members:
Babak Tafreshi, Mike Simmons, Jerry Bonnell.

Number of people working on the project:
45 people in 30 countries including our global photographers, regional coordinators and event organisers, consultants, web developers.

- Full-time: 1
- Part-time: 44
- Paid: 2
- Volunteers: 43

Number of people who attended or were reached by activities:
TWAN website alone made over 4.5 million views from 200 countries and territories (nearly all over the world) since its launch on 25 December 2008. Our exhibits and workshops have probably exposed several hundred thousand, besides our media programmes with much wide attention which accompanied many of our exhibitions and workshops.

## Main Activities

### List of Activities

- Germany : 2008-2009, Exhibitions and large screen shows in about 10 cities of Germany including Berlin, Cologne, Stuttgart, Schwenningen, Saarbrucken.
  http://www.twanight.org/newTWAN/news_photo.asp?newsID=6025
- France: Jan. 2009, exhibition, presentations, and large screen show at UNESCO, Paris, during IYA opening ceremony and IAU260 symposium:
  http://www.twanight.org/newTWAN/news_photo.asp?newsID=6030
- United States: 2009, Travelling exhibitions in 18 different states of US, in 24 shopping centres across the country, many of them included presentations and side events
  http://www.twanight.org/newTWAN/news.asp?newsID=6035
- Korea: 2009, exhibitions and presentations in about 20 locations in South Korea including several events in Seoul: http://www.twanight.org/newTWAN/news.asp?newsID=6021
- Chile: 2009, year-long travelling exhibition in Chile with collaboration of ESO, travelled to about 30 locations across the country including the presidential palace in Santiago:
  http://www.twanight.org/newTWAN/news_photo.asp?newsID=6043
- India: Oct. 2008 National level workshop in India and permanent exhibition at Delhi planetarium:
  http://www.twanight.org/newTWAN/news.asp?newsID=6017
- Italy: 2009, Six-month long exhibition in Turin and Chivasso, Italy and a 4-day national-level opening event with presentations and shows: http://www.twanight.org/newTWAN/news.asp?newsID=6026
  2009, exhibitions in Friuli province: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6032
- Hungary: 2009-2010, travelling exhibition and presentations in Hungary in 6 locations so far including a major event at the National Museum palace in Budapest:
  http://www.twanight.org/newTWAN/news_photo.asp?newsID=6041
- Thailand: 2009-2010, permanent exhibition at the National Science centre of Thailand (with a major opening and workshop) and smaller travelling exhibit:
  http://www.twanight.org/newTWAN/news_photo.asp?newsID=6036

- Sweden: 2009-2010, travelling exhibition and presentations in Sweden: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6042
  Presentation at the Nobel Museum in Stockholm, in Malmo, and Lund University, for the 2009 Lennart Nilsson Award (given to TWAN director): http://www.twanight.org/newTWAN/news.asp?newsID=6040
- Australia: 2009-2010 travelling exhibition and presentation in Australia, in Sydney and Perth so far.
- Iran: 2010 national-level 3-day workshop in Zanjan — Iran, major opening for a permanent exhibition and a travelling show:
  http://www.twanight.org/newTWAN/news.asp?newsID=6049
  2010, travelling exhibit in the province of Sistan and Baluchestan in southeast Iran. April 2010, first TWAN exhibit and presentations in Tehran
- Brazil: 2009-2010, travelling exhibition in the state of Rio de Janeiro including exhibition in the national observatory astronomy museum, two workshops in April 2009 and April 2010: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6031
- Algeria: 2009, Exhibitions and workshops in cities of Algiers and Constantine
- Second Life: 2009-2010 several TWAN themed exhibitions in the virtual world: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6033
- Turkey: 2009-2010 TWAN travelling exhibit and local workshops
- UK: TWAN images contributed to "1001 Inventions: Discover the forgotten story of 1000 years of science from the Muslim world" (www.1001inventions.com) in National Science Museum, London, winter 2010.
- Canada: Exhibition and presentations in University of British Columbia in collaboration of Royal Astronomical Society of Canada
- Nepal: 2009, Public presentations, starparty, and workshop, imaging mission: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6044
- Hong Kong: 2009, exhibitions and presentations, travelling display in public schools
- Ireland: 2009, large screen shows at BlackRock Observatory/Castle
- South Africa: 2009, small-scale exhibitions

## Notable Publications and Media Contributions

- Publication of the first major TWAN book in German by KOSMOS publisher, will be released in Oct. 2010
- 2008-2010, over 50 TWAN photos at Astronomy Picture of the Day by NASA (http://apod.nasa.gov)
- TWAN and AWB story in The film "Acquainted With the Night" by a Canadian film company, will be released in June 2010. Also, a TWAN TV documentary starts production in summer 2010. http://www.markhamstreetfilms.com/acquainted.html and http://www.twanight.org/newTWAN/news_photo.asp?newsID=6044
- Publication of TWAN exhibition book in Korea, Jan 2010
- Publication of TWAN 2010 calendar in Korea, Nov. 2009
- Publication of TWAN 2010 calendar in Turkey, Nov. 2009
- Publication in several Swedish and British media source about TWAN and interviews with TWAN director Babak Tafreshi, for the 2009 Lennart Nilsson Award which was given to Babak Tafreshi and Carolyn Porco (NASA/Cassini) http://www.twanight.org/newTWAN/news.asp?newsID=6040
- LIFE magazine, several TWAN photos by Wally Pacholka, 2009-2010
- http://www.twanight.org/newTWAN/news.asp?newsID=6028
- Interview with TWAN creator Babak Tafreshi in Discover magazine, May 2010
- 2009-2010 over 10 TWAN images on National Geographic News website
- National Geographic magazine, March 2010 issue, a TWAN photo by Amir Abolfath as the editors choice in Your Shot section
- TWAN and astrophotography article in BBC Sky At Night magazine and CD, march 2010
- TWAN article and photo gallery in Muy Interesante (the main Spanish popular science magazine). Nov. 2009
- TWAN article and photo gallery in COSMOS (the main Australian popular science magazine), Dec. 2009-Jan. 2010 issue
- TWAN on PBS News Hour program: http://www.twanight.org/newTWAN/news.asp?newsID=6038
- TWAN on MSNBC http://www.msnbc.msn.com/id/29470549/
- TWAN photo gallery in National Geographic — Hungarian edition, Nov. 2009
- TWAN photo gallery in New Scientist website and magazine, Nov. 2009
- TWAN photo gallery on Daily mail — UK website and newspaper, Nov. 2009

- TWAN article and 35 pages of photo gallery + cover photo of Sky & Telescope Beautiful Universe 2009 http://www.twanight.org/newTWAN/news.asp?newsID=6018
- Photo gallery and article in Science-DongA, the leading popular science magazine in Korea which reaches about 100,000 people, March 2009 http://www.twanight.org/newTWAN/news/6021-4.jpg
- Photo gallery in Korea most popular website (Naver) http://photo.naver.com/galleryn/46
- TWAN photo gallery in Focus — Italy magazine, March 2009
- TWAN-NASA Health calendar, 2009
- TWAN contribution to HDTV in Canada for several astronomy programs
- TWAN contribution to Hubblecasts
- TWAN contribution to Eyes on the Skies documentary
- TWAN contribution to IYA2009 trailer
- TWAN/AWb article and cover photo in Mercury magazine of ASP, Spring 2008 http://www.twanight.org/newTWAN/news.asp?newsID=6011
- TWAN article in Sky & Telescope, May 2008 http://www.twanight.org/newTWAN/news.asp?newsID=6006
- TWAN article in French Astronomie, May 2008 http://www.twanight.org/newTWAN/news.asp?newsID=6009
- TWAN article in CAP journal, Feb 2008 http://www.twanight.org/newTWAN/news.asp?newsID=6005

Contests

- International Earth and Sky photo contest received entries from 30 countries, organised in collaboration with Dark Sky Awareness project: http://www.twanight.org/newTWAN/news.asp?newsID=6046
- Regional Earth and Sky photo contest for India and South America in collaboration with the Dark Sky Awareness project: http://www.twanight.org/newTWAN/news.asp?newsID=6020

## The World at Night Travels Across the United States

From August to November 2009, families and children in 24 United States communities experience The World at Night (TWAN) images. TWAN exhibitions travel to 24 shopping centres in 18 different states to celebrate the International year of Astronomy 2009. The exhibitions are simultaneously in six various shopping centres and travel from one area to the other from 1 August to 8 November. Shopping centres are ideal locations where visitors will experience the wonders of the night sky that are invisible from the well-lit cities and towns where they live. TWAN exhibitions continue to increase astronomy awareness among the public through the International Year of Astronomy 2009 and beyond.



TWAN exhibition, Buena Park Downtown Shopping Center, California, August 2009. Photo: Wally Pacholka

The programme stars Over Developers Diversified Realty brings innovative arts and education initiatives to customers at shopping centres around the country. The programme is being implemented at 24 of Developers Diversified's shopping centres — both small and large markets — across the country to display TWAN exhibition.

The exhibit is a collection of stunning photographs showcasing international landmarks such as Yellowstone National Park in the United States, the Parthenon in Greece and magnificent monuments across Asia, all set against the celestial attractions. Together, the 24 Stars Over Developers Diversified Realty properties will serve as the largest exhibition of The World at Night in the United States. In addition to The World at Night exhibit, each property will incorporate an education element as well as customise the programme to best utilise its space and create programming that appeals to its customers, including "Dancing Under the Stars" or "Movies Under the Stars" or create new supplemental initiatives such as Boy and Girl Scout astronomy badges, a contest to win a trip to space camp, partnering with industry organisations such as the Adler Planetarium in Chicago, science fairs, fashion shows, and children's events such as creating constellations and telescopes.

Organisers: TWAN and Developers Diversified Realty in US.

Website: http://www.twanight.org/newTWAN/news.asp?newsID=6035

Estimated number of people who attended or were reached by this activity: Over 50 000.

Budget: ~50 000 €

## TWAN travelling events in South Korea

TWAN exhibition in East Asia started in Seoul, Korea on 1 March 2009 and travelled to over 20 locations in various cities and science centres / museums and open areas during IYA2009. For public promoting the exhibition, a

photo-based report and article of TWAN and the exhibition appeared in the March 2009 issue of monthly Science-DongA, the most successful popular science magazine Korea which reaches about 100 000 people in the country. The exhibition organisers also published a TWAN exhibition book in Korean and English, TWAN 2010 calendar in Korean and English. And a promoted the exhibit in most popular media sources in the country.



Organisers: TWAN, Korea Astronomy and Space Science Institute (National Observatory), Korea national committee of International Year of Astronomy (IYA2009).

Website:

- http://www.twanight.org/newTWAN/news.asp?newsID=6021
- http://photo.naver.com/galleryn/46

Estimated number of people who attended or were reached by this activity: Over 50 000.

Budget: ~33 000 €

## The World at Night in Chile

During the International Year of Astronomy 2009, Chile, a country famous for spectacular dark skies, hosted public TWAN exhibits in about 30 locations in 20 cities of the country. Tens of thousands people visited a stunning collection of The World at Night images. Production and travels of two exhibition sets was supported by the European Southern Observatory (ESO) and coordinated by TWAN photographer in Chile, Stephane Guisard.




In April 2009, Antofagasta, a port city in northern Chile, was the first venue before the exhibition travel to the central and southern part of the country. Tarapaca, near the Bolivia border, was another northern Chile region which hosted TWAN in several locations. The VI O'Higgins region in central Chile exhibited TWAN in over a dozen locations including the region's capital San Fernando. However the most visited display was in Santiago during July 2009. The Centro Cultural Palacio de la Moneda, under the presidential palace, was the venue, while the exhibit returned to the capital in October for the celebration of Science week. In organising TWAN-Chile events ESO collaborated with the national Conicyt (equivalent of the National Science Foundation) in Explora programme , which made the exhibitions travel around and make them visible to many schools.

Organisers: TWAN, ESO, Chile national Conicyt.

Website:

- http://www.twanight.org/newTWAN/news_photo.asp?newsID=6024
- http://www.twanight.org/newTWAN/news_photo.asp?newsID=6043

Estimated number of people who attended or were reached by this activity: Over 30 000.

Budget: ~25 000 €

## The World at Night in Iran

There is a significant public interest to astronomy in Iran. The amateur astronomy community of the country is alive and growing, based on its young population. The average age of an amateur astronomer in Iran is 18-20 and it's very notable that females include half of the amateur astronomy community. There are two monthly astronomy magazines, about 100 astronomy clubs (with many of them based at schools and educational centres), and a national committee to organise annual competitions (such as national Messier Marathon), workshops and conferences, and a popular weekly TV programme dedicated to astronomy and skygazing. Night sky photography is a major interest for Iranian amateur astronomers and TWAN global team of about 30 photographers includes three Iranians.

The first TWAN astrophotography workshop in the Middle East was organised in Iran from 3-5 March 2010. The university city of Zanjan in the northwestern part of the country hosted the event. With several leading professional astronomers and two major research centres, Zanjan is a destination for young Iranian students who are interested to continue in physics and astronomy. The city is known as also famous for its natural and historic attraction including attractions including the World Heritage Soltaniyeh Dome and historic city was the capital of Persia for a period of time in the 14th century.

For the astrophotography and image processing workshop, five TWAN members were invited from Germany, Turkey and Iran: Gernot Meiser, Tunc Tezel, Oshin Zakarian, Babak Tafreshi, and Amir Abolfath. The event was the main TWAN members gathering in the recent months. Iranian astrophotographer Alireza Vafa was another invited lecturer at the workshop. As noted by Asadollah Ghamarynezhad, a well-known amateur astronomer in the country and head of the TWAN workshop and exhibition organizing committee, “the event was very well received by Iranian amateur astronomers and over 100 participants were selected from a larger list of registered forms. The participants were from 25 different cities all across the country.”

TWAN workshop and major exhibition in Zanjan was also announced as the ending event of International Year of Astronomy 2009 in Iran (the Persian solar year changes at vernal equinox on 21 March). The event also received collaboration from various organizations in Zanjan and the capital Tehran including Zanjan municipality, Zanjan Art Center, Astronomical Society of Iran — Amateur Committee and Asemane Shab (Night Sky) company and educational institute (the leading provider of astronomical equipments in the country). The local organising committee was mainly supported by young dedicated amateur astronomers of Aytan Astronomy Club in Zanjan.

Special guests and lecturers attended the opening event. Prof Yousef Sobouti, widely considered as the most distinguished astronomer in the country, opened the sessions which was followed by noted from the local organisers and hosts. Gernot Meiser (TWAN-Germany) and Babak Tafreshi (TWAN director) introduced TWAN and Astronomers Without Borders in a large screen show. The programme continued by a memorable live performance of traditional Persian music with background of The World at Night images. The artists prepared a special music theme for TWAN starry images. With support of Zanjan municipality and Zanjan Art Center, TWAN produced a large-size exhibition for the city including 35 one-metre long light boxes and 40 other 1-2 metre mounted prints and panoramic photos of several metres long. The exhibition opened during the three-day workshop and it continues to display in two sections: a long-term travelling exhibition in the educational centres of the region, and a permanent display of light boxes at Zanjan planetarium.

Organisers: TWAN, Zanjan Art Center, Astronomical Society of Iran.

Website: http://www.twanight.org/newTWAN/news.asp?newsID=6049

Estimated number of people who attended or were reached by this activity: Over 20 000.

Budget: ~29 000 €

## International Earth and Sky Photo contest on Dark Skies Importance

Submissions to the contest had been received during the second half of International year of Astronomy 2009. Submitted photographs were all taken during the year of astronomy and were all created in the “TWAN style”—showing both the Earth and the sky—by combining elements of the night sky set against the Earth horizon with backdrop of a notable location or landmark. This style of photography is called “landscape astrophotography.”

The contest was open to anyone of any age, anywhere around the world. About 200 entries were received from over 30 countries including Algeria, Armenia, Bangladesh, Canada, Chile, Columbia, Croatia, France, Greece, Iceland, Indonesia, India, Iran, Italy, Macedonia, Nepal, Norway, Philippines, Poland, Portugal, Romania, Serbia, Spain, Switzerland, Turkey, UK, and USA. Nearly 30% of the entries were from the United States. Other major contributors were Romania, Iran, and Poland.




According to the contest theme of "Dark Skies Importance," the submitted photos were judged in two categories: "Beauty of the Night Sky" and "Against the Lights." The selected images are those most effective in impressing people on both how important and amazing the starry sky is and how it affects our lives, and also how bad the problem of light pollution has become. Today, most city skies have become virtually empty of stars. Light pollution obscures the stars, interferes with astronomical observatories and, like any other form of pollution, disrupts ecosystems and has adverse health effects.

The Photo Contest and Global Astronomy Month: the winner announcement of the Earth and Sky Photo Contest at the beginning of April is part of the opening of worldwide activities coordinated by Astronomers Without Borders — for the Global Astronomy Month — a new annual programme for the worldwide astronomy community to share the beauty of the night sky with others and connect with other astronomy enthusiasts around the world.

Organisers: TWAN and Dark Skies Awareness project.

Website:
http://www.twanight.org/newTWAN/news.asp?newsID=6029
http://www.twanight.org/newTWAN/news.asp?newsID=6046
http://www.twanight.org/newTWAN/news.asp?newsID=6048

Estimated number of people who attended or were reached by this activity: Over 10 000.

Budget: ~12 500 € in-kind time and effort.

## The World at Night in India

With almost 20% of the world population and amazing diverse landmarks, India was selected as the first destination for one of TWAN's major programmes. From 3 — 6 October 2008, an international workshop on "The Earth and the Sky, Astrophotography and Image Processing" was held in New Delhi by Nehru Planetarium. TWAN and Astronomers Without Borders (AWB) were international organising partners of the event. Along with the workshop there was an exhibition of TWAN photographs graced Nehru Planetarium.



*The World at Night exhibition in Nehru Planetarium, New Delhi, India.*

TWAN photographs were later absorbed into a permanent gallery at the planetarium, with an official opening ceremony held on 21 October. TWAN images are presented in large light boxes inside the planetarium's main exhibition hall. The images not only fascinated Indian media and officials at the opening ceremony, including the director of Archaeological Survey of India (ASI) and representatives of the science ministry, but also hundreds of daily visitors including many young students visiting the planetarium. The photographs connect the planetarium visitors to the night sky, adding to the enjoyment of the planetarium show.

Implementation planning for the workshop, the-first-of-its-kind in India, started several months in advance, in Delhi. Interaction with astronomers of the Indian Institute of Astrophysics, Bangalore, and Arya Bhata Institute for Observational Sciences (ARIES) in Nainital resulted in new educational ideas for the programme . The workshop was held in collaboration with Vigyan Prasar, National Science Centre, and National Bal Bhavan in Delhi. Two voluntary organisations — Science Popularization Association of Communicators and Educators (SPACE) and Amateur Astronomers Association of Delhi — gave outstanding support in organising the event. The workshop lecturers were selected based on a combination of Indian astronomers and astrophotographers associated with TWAN and AWB, that is, Mike Simmons (USA), Stefan Seip (Germany), Gernot Meiser (Germany), and Babak Tafreshi (Iran). Undergraduate students were main participants in the workshop, even as there were high school students present. With great enthusiasm to start serious night sky photography many participants had attended the event from outside the capital, undertaking 48 hours of train travel to reach Delhi.

The practical session of the workshop was held on the evening of 4 October, near the town of Nuh, about 70 km south west of Delhi, a casual observing site of SPACE. Astrophotographers and educators from SPACE and TWAN demonstrated various methods of astrophotography under clear sky through the night. And in the latter half of day there were interesting side lectures, including an introduction to astronomy in Nepal by a representative of the Nepal Astronomical Society, Kathmandu, and sketching the night sky vs. astrophotography by Irene Shivae from Iran. Shivae also introduced a new project idea for IYA2009 called Star Peace. A celebration of the science of the skies in the land of heritage, TWAN-India activities were considered to be a wonderful way of showcasing India's monumental and multilayered cross-cultural heritage with the backdrop of celestial attraction in TWAN images. India also has plenty of astronomical heritages — medieval as well as modern — which make interesting locations for the TWAN photographs.

The workshop marked the beginning of TWAN India imaging missions. Locally supported by astronomical centres, TWAN photographers travelled to important observatories both at the slopes of Himalaya in north India (Nainital) and on green hills of southern India (IIA observatory at Vainu Bappu). A photography trip to World Heritage sites of Hampi temples, Jantar Mantar Observatory in Jaipur, Goa, and monuments in Delhi was also organised with permission and cooperation of the ASI.

Organisers: TWAN, AWB, Nehru Planetarium in Delhi, National Council of Science, Technology and Communication in India.

Website:
http://www.twanight.org/newTWAN/news.asp?newsID=6017
http://nehruplanetarium.org/taarewiki/pmwiki.php?n=Site.AstrophotographyAndImageProcessingWorkshop

Estimated number of people who attended or were reached by this activity: Over 10 000.

Budget: ~25 000 €

## The World at Night in Hungary

The World at Night greets Hungary with a travelling exhibition organised by the Hungarian Astronomical Association and the IYA2009 national committee and coordinated by the Hungarian TWAN member Tamas Ladanyi. Several organisations supported the exhibition including Epson company which sponsored the art quality prints.



Tamas Ladanyi, TWAN photographer in Hungary, introduces The World at Night in the local TV, at the opening ceremony of TWAN exhibition in the National Museum of Hungary, Budapest (Oct. 2009)

The first exhibition was held during 16-31 October in the spectacular venue of the National Museum of Hungary in Budapest. The opening ceremony included public lectures, live music with TWAN video show, and broadcast by Hungarian TV. The organising team created a website for the exhibition, while the most popular Hungarian website, and the Hungarian edition of the National Geographic magazine introduced TWAN and the travelling event. The second exhibition is hosted by the Museum of Rippl-Ronai in the historic city of Kaposvar during December. About 50 TWAN images were exhibited in connection with announcement of the first Dark Sky Park in Hungary which is located in this region (Zselic Starry Sky Park). Date and programme of next TWAN exhibitions in Hungary during 2010 will be announced on our events calendar.

Organisers: TWAN, Hungarian Astronomical Association, IYA2009 in Hungary.

Website: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6041 / http://www.twan.mcse.hu/

Estimated number of people who attended or were reached by this activity: Over 10 000.

Budget: ~17 000 €

## Lessons Learned

When dealing with a project with no major sponsor and wide range of global activities, the solution is looking for local support. Many organisations in various countries helped us in running TWAN exhibitions, workshops, and imaging missions. From venues who sponsored printing cost and license fees, to places where covered travelled cost for TWAN photographers to give lectures and share pictures.

## Legacy

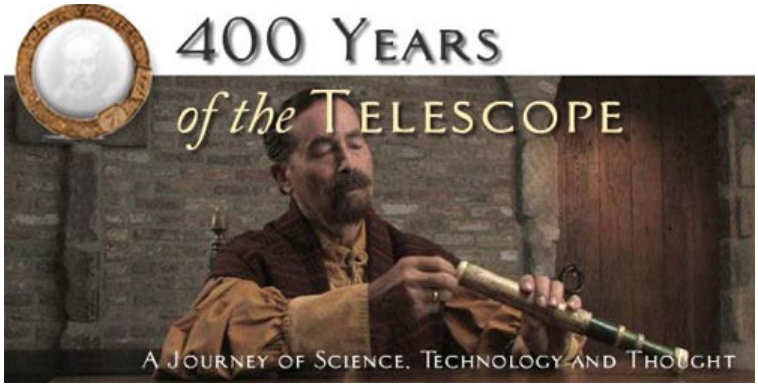
The activities continue and in 2010 will be comparable to what we did in 2009. In 2010 TWAN travelling exhibitions will continue in the US, Canada, Iran, Chile, Korea, Hungary, Germany, Brazil, Sweden, and Hong Kong. Several

new countries will host TWAN exhibitions and workshops. In autumn 2010 a TWAN book will be released in Germany and planning started for English and other editions of the first TWAN multi-language book. There is a growing collaboration with National Geographic website. TWAN contributes as a source of night sky images. The film “Acquainted With the Night” by a Canadian film company, in production now and will include a prominent section about TWAN. Also, a TWAN TV documentary starts production in summer 2010. TWAN tours to see and photograph stunning night skies from most beautiful landscapes start in autumn 2010. The first considered destinations are Namibia, Nepal, Chile, and Canada. New images, reports, and newsletter every two to three weeks will appear on TWAN website which is among the most popular websites for astrophotographers and general astronomy enthusiasts, also travellers. New sections allow for more interaction with visitors.

# 400 Years of the Telescope

## Special project

Kris Koenig (Interstellar Studios)
kris@interstellarstudios.com
www.400years.org




Active Task Group number: 11

Number of people working on the project: 250+

- Full-time: 4
  Part-time: 250
- Paid: All
  Volunteers: None

Budget: 1 823 000 €

Sources:
- National Science Foundation
  Private investor

Estimated total number of people who attended or were reached by all these activities: 10 000 000.

## General Overview

The 400 Years of the Telescope project is an exciting multimedia celebration of Galileo's first telescopic observations of the cosmos, and the resulting journey of discovery for humanity.

The project partners are proud to share their corner of the IYA2009 ~

- High definition documentary, 400 Years of the Telescope, to be distributed internationally for broadcast in 2009.
- Companion full-dome and traditional planetarium program, Two Small Pieces of Glass, distributed by International Planetarium Society.
- Coordinated outreach programs with educational organizations, amateur astronomy organizations, national broadcasters and planetariums.
- Interactive website www.400years.org
- 400 Years of the Telescope companion coffee table book and DVD
- Monthly newsletter
- Series of events, online forums and activities

400 Years of the Telescope project partners include; Interstellar Studios, Southern Oregon Public Television, 'Imiloa Astronomy Center of Hawaii, Carnegie Science Center, the Astronomical Society of the Pacific, and the Institute for Learning Innovation.

Spearheaded by Interstellar Studios, with the support and guidance of 400 Years of the Telescope Advisory Board members, the project concept emerged in the fall of 2007 with the intention to support International Year of Astronomy 2009 goals. 400 Years of the Telescope Advisors and Kris Koenig, Producer / Director began to design the project to include media products that link the public with activities, in order to create awareness, harness interest, and educate the public about achievements in astronomy, and other sciences, made possible through the discovery of the telescope.

### Documentary

400 Years of the Telescope; A Journey of Science, Technology and Thought, is slated to air in the United States on PBS 10 April 2009, and available for international distribution. With comprehensive footage from the globe's major observatories and a series of interviews by an international, diverse group of professional astronomers, the documentary content follows the story of the development of telescope technology and the ensuing profound impact on humanity's view of its place within the universe. Culminating in the present day, the film illustrates how the telescope's influence continues to dominate our attempts to perceive the cosmos.

### Planetarium Programme

Two Small Pieces of Glass, a 22-minute companion programme will be distributed internationally in eleven languages, via the network of the International Planetarium Society (IPS) reaching 850 planetariums worldwide. The traditional dome version will be disseminated free of charge, through the IPS December 2008 Newsletter, and the full dome version will be made available for a nominal fee upon request. The content of the programme links the professional world of astronomy to the world of the amateur astronomer, thereby supporting one of the project's overarching goals to encourage everyone to view the universe through a telescope. With stunning visualizations and realistic deep space imaging, the programme is a journey through space bound to inspire star parties and sidewalk astronomy worldwide.

### Amateur Astronomy Club Outreach Programme

The 400 Years of the Telescope project is designed to lead documentary and planetarium viewers to telescope viewing opportunities across the globe. With a strong complimentary outreach effort, where amateur astronomy clubs are equipped with outreach toolkits; and partnering incentives and press kits are provided for broadcasters and planetaria, coordinated star parties and sidewalk astronomy events will be organised worldwide. Through interfacing with local astronomy clubs on site at planetaria and science centres worldwide, participants will be provided with engaging telescope and night sky viewing activities.

### Interactive Website

www.400years.org will serve as a resource, populated with rich educational content and project information for teachers, students, families, and the general public. The website will attract viewers for repeat visits with interactive puzzles; flash animation virtual views of the universe through various historical telescopes; 70 hours of complete uncut astronomer and historian interviews (searchable by keyword); stunning film stills available for wallpaper download; current news of IYA2009 happenings and scientific discoveries via the newsletter; film clips; planetarium program, and amateur astronomy club event, location and date information; and a listing of project events and workshops around the globe. The website will be hosted by PBS, and a Spanish language mirror site will be posted online.

### Book and DVD

The 400 Years of the Telescope "coffee table" book, and the documentary DVD, will leave a lasting imprint of the project, beyond the year 2009. A broad project overview, containing the highest quality film stills and fascinating excerpts from astronomer interviews, the hardcover book will be distributed internationally and online. The DVD will be available in eleven languages at a nominal price, thereby making the entire programme highly accessible to the general public and available for educational use by teachers, clubs, and organisations.

### Monthly Newsletter

The 400 Years of the Telescope project newsletter is produced in collaboration with the US Node IYA2009. It is published on a monthly basis, both in electronic and hard copy format (upon demand), and contains news from the world's major observatories; IYA2009 announcements/articles from the IAU IYA2009 Secretariat and the National Nodes; 400 Years of the Telescope project updates; a Planetarium News column; an Astronomical Society of the Pacific informal science education column; and the IYA2009 Dark Skies Cornerstone Project column.

## Main Activities

### 400 Years of the Telescope

PBS documentary.

Website: www.400years.org

Estimated number of people who attended or were reached by this activity: 5 000 000.

Budget: 900 000 €

### Two Small Pieces of Glass

Planetarium programme . Distributed to over 1000 theatres worldwide. Most played planetarium programme in 2009.

Organisers: 400 Years Task Group.

Website: www.400years.org

Estimated number of people who attended or were reached by this activity: 5 000 000 +

Budget: 900 000 €

## Legacy

The planetarium show continues to be distributed around the world and should continue to be screened for several years to come. The documentary will have another US primetime airing in April 2010 and domestic DVD sales and downloads continue. International distribution also continues with old Eastern block countries picking the film up for distribution in 2010. The film is also schedule for several international film festivals in 2010.

# Around the World, Around the Sky

## Special Project

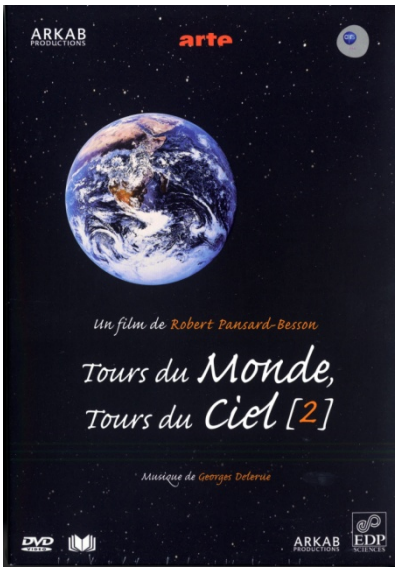
Robert Pansard-Besson
robertpansard-besson@club-internet.fr

Task Group Members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A




## General Overview

Taking up the title of a ten-film series on the history of astronomical observatories from antiquity until today broadcasted by Arte in 1990 (Tours du monde, tours du ciel — Around the world, around the sky), this project deals with astronomy and observatories, but today, with a new story and a new treatment.

It is an exploration journey around the world, encountering astronomical observatories that are working today, in order to understand their observations and discoveries of the Universe. This journey around the world then combines with another one, a journey around the sky.

This new Around the World, Around the Sky stands as an homage to astronomers for IYA2009.

Pierre Léna, astrophysician, from the Sciences Academia, and Michel Serres, historian of sciences and philosopher, from the French Academia, participated in the film and once more shed light on the narrative.

It is a journey around the world and around the sky, but at the same time a journey in science, technique, history, and philosophy.

# Millions of Earths

## Special Project

Alain Tixier
info@betaprod.fr
http://www.betaprod.fr/spip.php?page=prodencours-EN

Task Group Members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview

Our planet Earth is increasingly at stake in all respects. Research carried out on other planets in space can develop knowledge of our own world and its protection.

For some years now, an amazing quest has set people's spirits on fire: who will be the first person to find a planet similar to Earth, where life like ours might exist? Looking for planets like Earth outside the Solar System allows us to learn about the origin of life, to have a better understanding of how we have come to live on our planet, and also to detect other environments favourable to living creatures.

Planet hunters are in a class of their own. The aim of this film is to follow them closely in their thrilling research, relying on human qualities in order to share their dreams and discoveries. The film will focus on current research of planets similar to the Earth. The community of scientists specialising in extra-solar planets is ruled by solidarity, which implies sharing all discoveries made. However, it is not free from competition.

The film Millions of Earths is essentially the history of the discovery of new worlds. Man is born with a natural curiosity about the Universe around them, exoplanet hunters particularly. They will share both their professional curiosity with the viewers (what do planetary systems look like?) and also the beginning of a genuine revolution, now in process. And what if life exists elsewhere, maybe in another form?

# 1919 Eclipse




## Special Project

Richard S. Ellis and Gisa Weszkalnys
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http://www.1919eclipse.org/

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## General Overview

In the spring of 1919, British astronomer Arthur Eddington travelled to the small island of Principe, in the Gulf of Guinea, to carry out what would become one of the landmark experiments of contemporary physics. His measurements would not only confirm Albert Einstein's Theory of General Relativity, they would kick start our modern understanding of the Universe and how it evolved. The phenomenon of gravitational lensing that the test used now gives us a unique window on the Cosmos. It is fitting that, 90 years later in the International Year of Astronomy, a group of us have gone back to commemorate this event with the people of São Tomé and Príncipe. Eddington's Expedition.

Einstein's Theory of General Relativity predicts that light will be deflected as it propagates through the warped space-time around a massive object: a phenomenon known as gravitational lensing. The amount of deflection can be calculated accurately and differs from a similar effect in Newtonian gravity by a factor of two. Hence a measurement of this deflection is a sure way of discriminating between these two theories of gravity.

In 1919, a total eclipse of the Sun supplied an excellent opportunity to measure the difference in deflection angles. During the eclipse, the Sun would lie in front of the Hyades star cluster, the richest concentration of stars on the ecliptic plane. Arthur Eddington, the Plumian Professor of Astronomy and Director of the Cambridge Observatory, took photographs of the stars from Oxford in January. He would then photograph it again during the eclipse in May. By comparing the ordinary positions of the stars with the apparent positions during the eclipse, he would be able to measure the deflection of light due to the Sun.

Eddington, and his collaborator Cottingham, travelled to the island of Príncipe, from where the eclipse would be visible, while his colleagues Crommelin and Davidson set out to perform the same experiment in the small city of Sobral, in the North-East of Brazil. São Tomé and Príncipe was an isolated outpost of the Portuguese empire, which until recently, had been the main worldwide supplier of cocoa. The smaller island of Príncipe was sparsely populated and covered by large plantations. Eddington picked the Sundy plantation to set up the experiment.

The total eclipse, on the 29th of May, 1919, was almost obscured by clouds. Fortunately, for a brief window of time, the sky was sufficiently un-obscured for Eddington and Cottingham to make their observations at same time as Crommelin and Davidson in Sobral. The two experiments, combined with the measurements from Oxford made a compelling case for gravitational lensing from General Relativity.

### The Legacy of the 1919 expedition

The 1919 expeditions to Príncipe and Sobral kick-started a revolution in theoretical physics and astronomy, and made Einstein an international celebrity. From Einstein's theory it became possible to construct a mathematically consistent model of the Universe: a Universe that expands and cools with time. Yet another set of predictions that arise from an expanding Universe have been confirmed with stunning accuracy: we measure galaxies receding out to cosmological distances, there is a relic bath of light left over from the hot thermal beginning of the cosmos and the abundances of light elements is consistent with a phase of nucleosynthesis when the Universe was only a few minutes old.

The phenomenon of gravitational lensing, the crucial test of the 1919 expedition, has developed to become one of the workhorses of modern astronomy and astrophysics. A gravitational lens can be used as a telescope larger than any on Earth, to see more distant objects than otherwise possible. It has also been used to measure the abundance of dark compact objects, candidates for the elusive dark matter, to measure the density profiles of clusters of galaxies, to detect black holes and constrain the growth of structure in the Universe. It is now at the heart of many up and coming observatories, either from ground or from space, to constrain the nature of dark energy. Without a doubt, gravitational lensing has given us a new perspective on the Cosmos.

## The Celebrations

The idea of celebrating 1919 expedition to Príncipe was first discussed by one of us, Gisa Weszkalnys, in the autumn of 2007, with the President of the Region of Príncipe. Together with Richard Ellis, a plan was put forward to place a plaque at Sundy with a brief description and explanation of the experiment. The plaque would be unveiled during a set of events that would include public lectures and a small exhibition. This proposal was put forward to the Royal Astronomical Society and the International Astronomical Union with a request for funding. Gisa Weszkalnys and Richard Ellis visited São Tomé and Príncipe in September of 2008 where they secured the full support of the São Tomean government and were graciously received by the President of the country, Fradique de Menezes.




President José Cassandra unveils the plaque describing Eddington's experiment, at Roça Sundy plantation, on 29th May 2009. Underneath is a detail from the plaque.



Roça Sundy (left of photo) is a remote plantation, surrounded by tropical rainforest on a distant island. The Príncipean government is keen for the historic science conducted here to become an integral part of local culture and a viable attraction for ecotourists, bringing valuable income.



The anniversary celebrations at Roça Sundy were warmly taken up by the local residents, who arranged a show of dancing, music and *dêxa*, a traditional form of song from the region.



A new set of postage stamps issued on São Tomé and Príncipe to celebrate the anniversary of Eddington's 1919 expedition.



Prof. Pedro Ferreira talks to a crowded room in the capital city of São Tomé. A series of public outreach talks in Europe and Africa has been well attended, and received mainstream media attention during the week of the anniversary itself.

In parallel, the Lisbon Geographical Society, planned to commemorate the event by organizing a small workshop in Lisbon followed by a series of events in São Tomé and Príncipe. Funded by the Portuguese Ministry of Science and Technology, and with the support of the RAS and the IAU, a combined event was planned. Richard Massey designed a bilingual plaque, which was constructed in Edinburgh then shipped to São Tomé.

The official celebrations began on the 22nd of May in Lisbon with Pedro G. Ferreira giving a talk on the legacy of Eddington's measurements. That evening, we (Gisa Weszkalnys, Richard Massey and Pedro Ferreira) along with representatives from the Lisbon Geographical Society, flew to São Tomé for a week of celebrations. Throughout our stay we were put up in the Omali Lodge (in São Tomé) and the Bom Bom Resort (in Príncipe) thanks to the generosity of Dutch eco-entrepreneur Rombout Swanborn.

During the week we gave a series of popular talks on Eddington and astronomy in lecture theatres at the Portuguese Cultural Centre and the Polytechnical Institute (which stands as the main higher education institute in São Tomé). These were supplemented with receptions at various embassies and interviews with the local radio, newspapers and the BBC World Service. During the week of the trip, Eddington and Einstein were very much in the media in São Tomé. While we were in São Tomé, three members of the NGO, Scientists in the World, flew over to Príncipe and throughout the week ran workshops with the teachers and children in the schools on the island.

On the morning of the 28th of May, we were flown over to Príncipe on a small Dornier airplane to be hosted by President José Cassandra and various members of the Príncipe government. We gave two talks in the National Assembly and were then driven to Sundy plantation where the local villagers celebrated our arrival. In the middle of drumming, singing and dancing we brought out some telescopes and observed the clear night sky with enthusiastic children who had turned out for the event. That evening we ate traditional dishes in the sumptuous dining hall of the main house in a dinner hosted by the president.

The formal celebration took place in the forecourt of the Sundy Plantation, with the unveiling of the plaque by President José Cassandra. The local villagers turned out en masse and a number of flights had been chartered to fly over a selection of diplomats, government ministers, civil servants, academics and journalists. A new set of postage stamps was commissioned for the purpose, celebrating Eddington in Príncipe. The unveiling was followed by a series of speeches by, amongst others, the president, the Minister of Education, and Pedro G. Ferreira representing the RAS and IAU. The formal events were followed by a lunch with open-air entertainment, dancing and a session of dêxa, a traditional form of music from the region. That afternoon, we flew back to São Tomé and the following morning we returned to Europe.

## Legacy

Our visit was met with tremendous enthusiasm and interest. Throughout our stay, our hosts repeatedly suggested that such events should happen more often: either through annual lectures and workshops for teachers and students on the island or with the development of a centre celebrating the event in Príncipe. An international scientific conference “New Worlds in Astroparticle Physics” will be held on São Tomé in September. The regional and national government are keen on pursuing such ideas and some of the embassies have shown interest in financially supporting the endeavour. It is clear that Eddington’s trip to Príncipe can be an important part of São Tomean cultural heritage and we hope there will be support for these initiatives in the future.

# The Sky — Yours to Discover

## Special Project

Carlota Simões
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http://www.museudaciencia.pt/index.php?iAction=Actividades&iArea=5&iId=18

Number of people reached by IYA2009: N/A

Budget: 2000 €

Sources:

- Sponsors

## General Overview

The Sky — Yours To Discover is a project which invites children and young people to gaze up at the sky and identify stars, imagine new constellations, and create original stories.

The main goals of the venture are stimulating curiosity and interest towards astronomy, inviting the general public to look directly at the skies, raising awareness of the night sky, and eventually bringing into discussion the question of light pollution.

This project may involve science centres, schools, planetariums, and astronomers, all helping to motivate children of different cultures and backgrounds to observe the night sky with their own eyes.

The Sky — Yours to Discover is a project from the Science Museum of the University of Coimbra (Portugal) and several associated partners all over the world:

This competition of constellations for children invited the junior public to look directly at the sky. In Portugal, about seventeen hundred children from eighty different schools applied. The best Portuguese proposals were published both online and in a book. The international version of the project became a Special Project with partners in all five continents. Australia, USA, Cuba, Brazil and Venezuela in America, Portugal, United Kingdom, Romania and Slovenia in Europe, Mozambique, South Africa, Uganda, Ghana and Kenya in Africa, India, Iraq, United Arab Emirates and Indonesia in Asia. The best international proposals were published online. Since the project was easy to implement locally, and since the diplomas were given directly by each organizing partner, we don't know the exact number of participants all over the world, as well as the impact of the project in most part of the countries. We are still waiting for the best proposals from several partners.

## Main Activities

### List of Activities

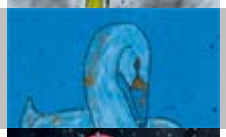
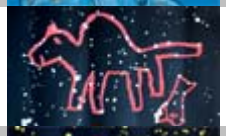
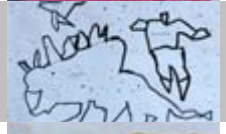
- Planetarium sessions
- astronomical observations
- storytelling sessions
- drawing constellations sessions

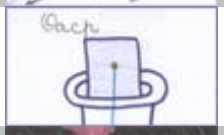
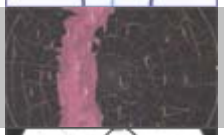
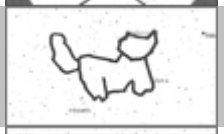
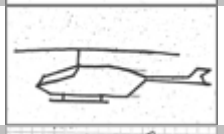
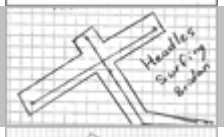
#### Associated Partners

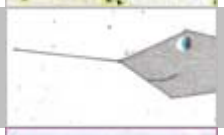
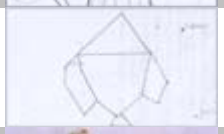
- Science Museum of the University of Lisbon (Portugal)
- Centro Ciência Viva de Constância (Portugal)
- Museu de Astronomia e Ciências Afins (Rio de Janeiro, Brazil)
- The University of Texas at Austin — Department of Astronomy and McDonald Observatory (USA)
- Australian Centre for Astrobiology (Australia)

- Escola Portuguesa de Moçambique (Mozambique)
- University of Glamorgan (United Kingdom)
- Confederation of Indian Amateur Astronomers (India)
- Clackamas Community College, Oregon (USA)
- Museo Nacional de Historia Natural (Cuba)
- Johannesburg Planetarium (South Africa)
- University of Nebraska — Omaha (USA)
- Amateur Astronomers Association of Kurdistan — Erbil (Iraq)
- Ghana Science and Planetarium Project (Ghana)
- Arab Union for Astronomy and Space Sciences
- and University of Sharjah (United Arab Emirates)
- University of Nairobi (Kenya)
- Mbarara University of Science and Technology (Uganda)
- Langitselatan Group (Indonesia)
- Centro de Investigaciones de Astronomia (Venezuela)
- Louis Cruls Astronomy Club / Instituto Federal de Ciência e Tecnologia Fluminense (Brazil)
- Cluj County School Inspectorate (Romania)
- Moj Planet (Slovenia)
- Astronomie-Wien (Austria)

## Works

| | | |
|---|---|---|
| The small penguin constellation | Slovenia |  |
| The star guardian | Slovenia |  |
| The swan constellation | Slovenia |  |
| A duck, a frog and a key<br>An elephant and a camel | Slovenia |  |
| The scorpion | Slovenia |  |
| The avessius constellation | Slovenia | |
| The avessius constellation | Slovenia |  |
| The avessius constellation | Slovenia |  |
| A doe and a stag | Slovenia |  |
| The winter sky | Slovenia |  |

| | | |
|---|---|---|
| The mars country | Slovenia |  |
| The galaxy | Slovenia |  |
| Constelação “Athes” | Mozambique |  |
| As Espadas | Mozambique |  |
| Grifo | Mozambique |  |
| Constelação Leonidas | Mozambique |  |
| O Olho O Olho e a Espada | Mozambique |  |
| A poção mágica | Mozambique |  |
| Shiryo | Mozambique |  |
| The Awareness Ribbon | Texas — USA |  |
| Gaza the Amazing Savior | Texas — USA |  |
| The Blackhawk | Texas — USA |  |
| Mount Nata<br>Headless Surfing Bridan | Texas — USA |  |
| The unknown leopard | Texas — USA |  |
| Constelação “Vaca sagrada” | Portugal |  |

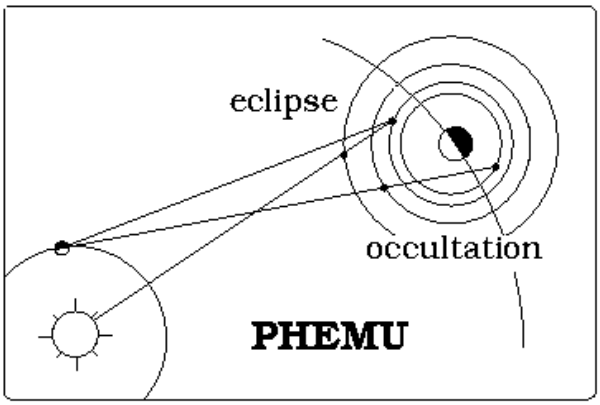
| | | |
|---|---|---|
| Benjamim Franklin | Portugal |  |
| O Amor da Sereia | Portugal |  |
| Lenda da borboleta Amure | Portugal |  |
| Quando as constelações atacaram a Terra | Portugal |  |
| Rodisis — A Guerreira Romana | Portugal |  |
| Constelação da Girafa | Portugal |  |
| Constelação do Violino | Portugal |  |
| Um Sorriso pela Paz | Portugal |  |

## Lessons Learned

The project was so easy to implement by each of the partners that, at the end, we are having difficulties in producing a final report, describing the real impact of the project all over the world. On the other hand, if we impose more control by one of the organisers, it may lead to a project not so flexible and simple to implement.

# The mutual phenomena of the Galilean satellites of Jupiter

## Special project




J.E. Arlot (Paris Observatory/IMCCE/CNRS)
arlot@imcce.fr
http://www.imcce.fr/hosted_sites/ama09/phemu09_en.html

Active Task Group number: 4

Number of people working on the project: 120

- Full-time: 0
  Part-time: All
- Paid: 20
  Volunteers: Others

Budget: 50 000 €

## Main Activities

### Mutual events observations

In 2009, it was the equinox on Jupiter, so the four Galilean satellites were occulting and eclipsing each other. Since these satellites are bright and observable even with a small telescope, we ask every people to observe these events and to record them on a cameascope.

If the observers were following a specific protocol of observation, the data recorded will be used for scientific purpose. It will be possible to understand better the dynamics of the satellites by analysing all the observations together.

Organisers: IMCCE — J.E. Arlot.

Website: http://www.imcce.fr/hosted_sites/ama09/phemu09_en.html

## Lessons Learned

The collaboration amateur-professional appeared to be very fruitful and we encourage professional astronomers to associate the amateurs to their studies, especially for observations easy to make.

## Comments

Organised campaigns of astronomical observations are a powerful tool to allow people from all around the world to work together and to share data and information.

# BLAST!

## Special Project

Paul Devlin, Director
info@blastthemovie.com
+1 866-610-1520
http://www.blastthemovie.com




Task Group Members: 16

- Full0-time: 1
- Part-time: 5
- Volunteer/Intern: 10

Number of people reached by IYA2009: 1 125 000

Budget: 485 000 USD (385 870 €)

Sources:

- Broadcaster pre-sales
- New York State Council of the Arts (NYSCA) Individual Artist Grant
- Swedish Space Corporation
- Donations

## General Overview

BLAST! is astrophysics Indiana Jones-style! The movie takes the viewer on a journey around the world and across the Universe to launch a revolutionary new telescope on a NASA high-altitude balloon.

The Balloon-borne, Large Aperture, Submillimeter, Telescope (BLAST) seeks to map out how stars and galaxies formed by collecting, for the first time, faint sub-millimeter light above the top of the atmosphere. The movie BLAST! follows this arduous scientific pursuit through several catastrophic failures in exotic locales before arriving at transcendent triumph on the desolate Antarctic ice. The extreme events provide the structure for a classically suspenseful narrative, with a built-in twist at the end.

Newly-released ratings show that over one million people have seen the movie, and this number is set to rise significantly in the future.



Director Paul Devlin had extraordinary access to the scientists and their project through his astrophysicist brother, Mark Devlin, PhD, the principal investigator. This provided an opportunity to reveal the personal and family sacrifices, the obsessions, and even the philosophical questioning of scientists. BLAST! has unique emotional resonance and is ideal for broad audiences because it focuses on the humanity of scientists.

The movie been screening on the film festival circuit and receiving phenomenal reviews:

*"The magic formula for a successful mainstream science movie. You'll laugh, you'll cry, and you'll walk away astounded."* — Discovery Space

*"An adventure tale with twists and turns, lively characters, and some lessons about life, the universe and everything. It's the character-driven approach that guarantees that we care whether they succeed."* — Doc-a-Day

" One could be forgiven for mistaking BLAST! as a drama and getting lost in the plot. We may still be some distance away from a scientifically literate public, but this film is at least a thoughtful step in the right direction. A refreshing take, not only upon scientists and the practice of their art, but also on humanity as a whole." — Culture Wars

# StarPeace

## Special project

Chairs:
Mohammad Javad Torabi, Kazem Kookaram, Irene Shivaei, Siavash Safarianpour, Houman Najafi (Sky Peace non-profit NGO Core team).

torabi@starpeace.org, kookaram@starpeace.org, shivaei@starpeace.org, safarianpour@starpeace.org, najafi@starpeace.org
www.starpeace.org

Number of active Task Group members: 15

- Full-time: 0
- Part-time: 15

Number of people who attended or were reached by activities: 10 000

Budget: 60 000 €

Sources:
- Local sponsors
- Donations
- Budget of associated organisations

## General Overview

StarPeace project is a Global Special project of IYA2009 which intends to hold common and public star parties near the border lines in cooperation with astronomy groups from different countries with shared land and sea borders, in IYA2009. Both groups in two neighbour countries hold common and public star parties in regions around their borders according to geographical conditions of the region. Although political border has separated people of both countries, applicants of the sky observation look at the sky simultaneously and the sky joins them. Furthermore, scientific speech, astronomical photos exhibition and etc may be established at the same time depending upon activity potential in same border point.

This project may be done in all countries with shared land border, but they are divided into two categories according to the public star party programme . In the first category there are countries which have no free border, so public star party is held in a place near the shared border of the countries so that people of both countries are joined by the sky. The second category includes countries with free border; people of both countries are gathered together in zero-border point in a night to improve their connection in the sky as well as Earth.

To cover all countries worldwide, StarPeace project recommends countries limited by their water border to choose a night by cooperation of astronomy groups of other country with the same situations to observe the sky, so that infinity of the sky and freedom of water join their countries. It should be noted that countries limited by their water borders should be geographically near each other so that they can observe the sky simultaneously for some hours. Presently, StarPeace has 37 active astronomical clubs from 28 countries and, StarPeace clubs held around 50 star parties near the borders in 20 joint StarPeace parties.

# Main Activities

## List of Activities

- Opening event between Iran and United Arab of Emirates, 1 January 2009
- Joint event between India and Pakistan, Lunar eclipse on 9 February 2009
- Joint event between Pakistan (Lahore and Karachi), Iran (Pasabandar), Oman (Muscat), India (Bhuj and Ahmedabad), Astronomy day on 1 May 2009
- Joint event between Macedonia and Serbia, 22-24 May 2009
- Joint event between Romania, Hungary and Serbia, Open Borders Day on 23 May 2009
- Joint event between Brazil, Uruguay, Iraq, Iran, Pakistan, India, Nepal and New Zealand, World Environmental Day on 5 June 2009
- Joint event on the border between India and Bangladesh, 21 July 2009
- Joint event between New Zealand, China, Philippines, Maldives, Nepal, India, Iran, Iraq and Brazil, International Day of Peace on 21 September 2009
- Joint event between Syria, Iraq, border of Iran and Azerbaijan, World Science Day on 10 November 2009
- Joint event between Philippines and Indonesia, 4 December 2009
- Joint event between Sri Lanka, Maldives, India, Nepal, Pakistan, Tanzania and United Arab Emirates, Annular solar eclipse on 15 January 2010

## Opening event between Iran and United Arab of Emirates, January 1, 2009

StarPeace Opening Event for International Year of Astronomy 2009 held successfully between Iran and United Arab Emirates with the message of peace and the sky. The whole programme included four main activities: joint stargazing nights between Iran and UAE, astronomy and space lectures for public, an astronomy photo exhibition and “Dawn of the IYA” Sun observation campaign.

Joint stargazing nights between Iran and UAE was held during 31 December (Iran) and 1 January (Iran and Emirates). In Iran, in these two nights local inhabitants in Qeshm Island, Persian Gulf, were watching the sky with the help of StarPeace team and at the same time on 1 January on the other side of Persian Gulf, the StarPeace ambassador in UAE, Hasan Ahmad Alhariri, and his team from Dubai Astronomy Group were assisting local inhabitants to observe the sky. Although there was a water border between Iranian and Arab people in Iran and UAE, StarPeace made a bridge by the sky between these two nations and showed that there is no border for science and astronomy and all the people can be connected through astronomy. In Qeshm, StarPeace team held stargazing nights in three areas; one near one of the biggest free markets of Qeshm which is a very crowded place, another one near a conference hall where astronomy lectures were held by StarPeace members and another telescope was by the sea, Persian Gulf. As a whole, around 500 people attended stargazing programme in Qeshm. More than 150 people attended the UAE public star party in the desert at one night. During these nights StarPeace members showed local inhabitants sky objects such as the Moon, Jupiter, Mercury, Venus and Deep Sky Objects such as the Orion Nebula by telescopes and naked eye and talked about the beauties of the sky with them.

Besides stargazing nights, the StarPeace team in Iran organised astronomy and space lectures and speeches for the public too. Team members talked about International Year of Astronomy 2009 for the public and explained to them what they can do to celebrate this year and how they can participate in national and international activities during 2009. Moreover, there were lectures about IYA2009 projects, who invented the telescope, light pollution, Dark Skies Awareness, and space (past, now and in the future).

Moreover, StarPeace exhibited “From Earth To The Universe” (FETTU) astronomy photo gallery in Qeshm, which is one of the International Year of Astronomy 2009 Cornerstone projects. The exhibition was held in Geo-park Museum of Qeshm in Qeshm city. The collection of the best photos from space telescopes and Earth observatories in this gallery brought the beauty and infinity of space among Qeshm people.

Furthermore, during 1 January StarPeace took part in “Dawn of the International Year of Astronomy 2009” Sun observation campaign. StarPeace team showed the sun to the public by telescopes and talked about our Sun for them. Watching their mother star by naked eyes through sunglasses prepared by the StarPeace team brought joy and excitement to Qeshm people.

Organisers: Sky Peace NGO, Dubai Astronomy Group.

Website: www.dubaiastronomy.com/

Estimated number of people who attended or were reached by this activity: 650.

Budget: 2000 € (just in Iran).

## Joint event between India and Pakistan, Lunar eclipse on February 9, 2009

On 9 February, during a penumbral lunar eclipse, StarPeace connected two countries, Pakistan and India, together. Society of the Sun in Pakistan and Kutch Amateur Astronomy Club in India organised this event successfully in SOS villages of both countries.

Narendra Sagar Gor form Kutch Amateur Astronomy Club held the event in Bhuj SOS children village, India, for about 70 children and their teachers. The programme begins with introduction speeches on the basics of the eclipse. After that children went outdoors and observe the moon by telescope.




Meanwhile, a few kilometres away, children in Lahore SOS children village, Pakistan, were attending in astronomy lectures and workshops. Hassaan Ghazali from The Society of Sun taught them the basics of the eclipse, Moon phases, Solar System planets, etc. Due to bad weather conditions children saw the Moon just after rising over the horizon but unfortunately it soon disappeared behind clouds.

During these two events Narendra Gor and Hassaan Ghazali made a phone connection. While children in Lahore yelled “we are your friends”, children in Bhuj were so excited and one of them talked to Hassaan Ghazali and told him she was enjoying the event thoroughly. Children in two countries were so excited and happy that they persisted to have such programmes again.

On one of the posters in Lahore these words were written: “One Sun, One Earth, No Borders!” StarPeace project’s goal is to promote peace between nations and to show that there is no real border between humans, just like the sky in which there is no border lines! Where ever you are the sky is the same.

Organisers: Society of the Sun in Pakistan and Kutch Amateur Astronomy Club in India.

Website: www.1sun.org, kutchastronomy.blogspot.com

Estimated number of people who attended or were reached by this activity: 200.

## Joint event between Pakistan (Lahore and Karachi), Iran (Pasabandar), Oman (Muscat), India (Bhuj and Ahmedabad), Astronomy day on 1 May 2009

Six StarPeace parties took place across Asia during Astronomy Day 2009. To bring peace and science among people, StarPeace cooperators held a public stargazing party from four countries on 1 May 2009: Oman-Iran-Pakistan-India.

In Iran, the StarPeace core team in cooperation with Astronomers of Southeast of Iran Society and Astronomy Society of Mehbaang mounted their telescopes among local inhabitants in Pasabandar, a coastal village in the most southeast part of Iran. StarPeace team mounted their telescopes in three locations in the village. Two telescopes were mounted near harbor. A lot of men and boys came there and among them were a lot of seamen; they knew most of constellations and stars in the sky the same way that we know but with different names.

Khalid Marwat held a stargazing party for inhabitants of Karachi harbor. Around 250 visitors came from near locations to the observing venue on 1 May. The security situation in Karachi made the number much lower. Three telescopes and some binoculars were mounted. The most viewed item was Saturn, followed by the Moon. M13, the globular and M57, the Ring Nebula were liked by the late observers. Multiple star (Mizar and Alcor) were appreciated by many. It indeed opened their understanding of additional concepts about stars.

During the programme Khalid Marwat talked with Hassaan Ghazali from Lahore and Kazem Kookaram from Iran and received StarPeace message, “which was very imaginative, thought provoking and overwhelmingly wonderful”, Khalid told.

The observation on first night of Friday was liked so much by the public that it was continued for the next Saturday evening too. It was the same show but the visitors this time were from farther localities that came to know about the star party. 350 visitors came this time.

Banners were set up in Lahore: “One Sun, One Earth, No Borders!” Hassaan Ghazali and Umair Asim in cooperation with two other astronomers mounted three telescopes in the Lahore Planetarium. Planetarium visitors and the public were treated to fantastic views of the planet Saturn and the Moon. People were also mesmerised by views of craters on the Earth’s Moon and the seas of solidified lava which are not discernible to the unaided eye.

In India Manoj Pai and two other astronomers in Ahmedabad put up one telescope with a pair of binoculars for a group of 30 interested visitors. Narendra Sagar Gor in Bhuj, a city near Pakistan and India border held a star party for their group members; they observed the Moon and Saturn and discussed about peace promotion and astronomy.

With Oman, StarPeace covered north and south of the Oman Sea with four countries. Dr. Saleh Said Al-Shidhani held a star party in Muscat for the public. Around 80 visitors enjoyed observing the Moon and Saturn by two telescope which was mounted in a garden. Also lectures about astronomy were held for the public.

Organisers: The Szabist Night Hawk Society, The Society of the Sun (SoSun), Umair Asim, Kutch Amateur Astronomy club, Oman Astronomical Society.

Websites:

- www.1sun.org
- www.umairasim.com
- http://kutchastronomy.blogspot.com
- www.falakoman.org

Estimated number of people who attended or were reached by this activity: 1000.

## Joint event between Macedonia and Serbia, 22-24 May 2009

StarPeace event between Macedonia and Serbia was held on the weekend between 22 and 24 May. The event was held on the peak “Odvrakjenica” on the mountain Golija, near the city Novi Pazar in Serbia. For this event there were participants from five astronomy clubs from Macedonia and Serbia: Skopje Astronomical Society from Skopje— Macedonia, AD Novi Pazar from Novi Pazar — Serbia, Astronomy club Aristarh from Kraguevac —

Serbia, Astronomy club Univerzum from Backa Palanka — Serbia and Astronomical Society Ruger Boshkovic from Belgrade — Serbia. In total there were 11 participants on the event from all the clubs and one special guest from Brazil that also participated in the event.

There were seven telescope setups, from which four were used for making astrophotography, and three for observations, and two binoculars that were available to us. During both observation nights there were more than 30 students that visited the event from the city of Novi Pazar that were really interested to have the chance for the first time to see the sky through a telescope. They were amazed to see Saturn and its rings, the colliding between the Whirlpool galaxy (M51) and NGC 5195. During their visit except of this objects they had a chance to see more than 15 different and beautiful objects on the sky.

The weekend was fulfilled with a lot of companionship that connect the members of different astronomy clubs together, under one sky, so they can make new friends, tell about different astronomical experiences, giving advices about astronomical observations and equipment and trying to give their best to give their knowledge to all the children that came and visit the Star Peace event on Golija.

Organisers: Skopje Astronomical Society from Skopje — Macedonia, AD Novi Pazar from Novi Pazar — Serbia, Astronomy club Aristarh from Kraguevac — Serbia, Astronomy club Univerzum from Backa Palanka — Serbia and Astronomical Society Ruger Boshkovic from Belgrade — Serbia.

Website: www.astronomija.com.mk

## Joint event between Romania, Hungary and Serbia, Open Borders Day on 23 May 2009

StarPeace parties took place across East of Europe on 23 May 2009. 23 May is Open Borders Day between Romania, Hungary and Serbia. StarPeace clubs held joint public StarPeace parties near common border point on 23 May 2009: Beba Veche in Romania, Kübekháza in Hungary, Kanjiža in Serbia.

Kübekháza is a settlement (village) in Csongrád County, in Hungary, with 1603 inhabitants and an area of 27.31 km$^2$, directly near the Romanian-Serbian-Hungarian triple border point. There is a triple-border memorial at this point. Kanjiža (Serbian or Kanjiža; Hungarian: Magyarkanizsa or Kanizsa) is a town and municipality in the North Banat District of Vojvodina, Serbia. The Kanjiža town has a population of 10 193, while the Kanjiža municipality has 27 440 inhabitants. Beba Veche is a commune in Timiş County, Romania. It is located in the west of the county, at Romanian border with Serbia and Hungary.

These StarPeaceparties were the first Triple StarPeace parties in triple border point.

Organisers: SZHCS (Szegedi helyi csoport:local group in Szeged) — Hungary, Antares Astroclub — Romania, Bucharest Astroclub — Romania, Teleskop Centar Subotica — Serbia.

Websites:

- www.astroclubul.ro
- www.antares.darksky.ro

## Joint event between Brazil, Uruguay, Iraq, Iran, Pakistan, India, Nepal and New Zealand, World Environmental Day on 5 June 2009

On 5 June World Environmental Day, StarPeace colleagues from Brazil to Uruguay, Iraq, Iran, Pakistan, India, Nepal and New Zealand, broke the artificial Earth borders. World Environmental Day, was a memorable day for all StarPeace friends. StarPeace colleagues from all around the world, from Brazil to Uruguay, Iraq, Iran, Pakistan, India, Nepal and New Zealand, broke the artificial Earth borders with three key words: Sky, Peace, and Environment.




In Brazil, Marcelo de Oliveira Souza, from Louis Cruls Astronomy Club, Campos dos Goytacazes, Rio de Janeiro held the StarPeace event. TV News transmitted live the event for more than 40 cities. As Marcelo said, “the event was a big success.” They talked with Andrea Sanchez in Uruguay and Mohammad Torabi in Iran from the public square.

In Iraq, although the weather was dusty, Azhy Hasan from Amateur Astronomers Association of Kurdistan (AAAK) held the StarPeace event in Kurdistan of Iraq. They light candles under star lights!

Due to holiday in Iran on 5 June the Iranian StarPeace team, Sky Peace Non-Profit Non-Governmental Organisation held the event on 6 June in the observatory of Science and Astronomy Center of Tehran. StarPeace team with the help of Plan for Land environmental society organised lectures about environment, astronomy and peace including a lecture by two Iranian cyclists who cycling around the world for peace and environmental conservation. At the end the group planted an olive tree with the message of peace on observatory’s yard.

In Pakistan, Hassan Ghazali from Society of the Sun with the help of Umair Asim hosted members of the general public and special invitees from the SOS Children’s Villages and the Sharif Educational Complex at the PIA Planetarium in Lahore. They held lectures about life on Earth and nature of other planets. After the lecture, the lights for peace were lit at the Planetarium Globe and messages of peace were shared between the participants. At the end the observation session had been held.

In India, Sumarasar village, a rural area near Bhuj, Narendra Sagar Gor from Kutch Amateur Astronomy club held the StarPeace event. Narendra said: “This was the first time programme in the history of the village”. More than 500 people joined the programme from Bhuj and Gandhidham. Live chatting and telephone conferencing was made between Pakistan and Iran.

In Nepal, Jayanta Acharya, SPoC and Chair International Year of Astronomy 2009 in Nepal with the help of Suresh Bhattarai from Astronomical Society of Nepal held a star party with around 50 students and discussion sessions about environment and pollution, peace and astronomy relations. They also formed an Eco Club with 10 students from Class 4 to Class 10.

Also Andrea Sanchez in Uruguay, Manoj Pai in Ahmedabad, India from Astronomy Club Ahmedabad and Paul Moss in New Zealand from SKY (Southern Kaitiaki and You) celebrated World Environmental Day and borderless sky by holding star parties and lighting candles under star lights.

Stars for Global Peace event was supported by StarPeace, Astronomers Without Borders and UNAWE programme .

Organisers: Amateur Astronomers Association of Kurdistan(AAAK) — Iraq, Louis Cruls Astronomy Club — Brazil, Sky Peace NGO — Iran, Society of the Sun with the help of Umair Asim — Pakistan, Kutch Amateur Astronomy club — India, Astronomical Society of Nepal — Nepal, Astronomical Society of Nepal — India, SKY (Southern Kaitiaki and You) — New Zealand / supported by StarPeace, Astronomers Without Borders and UNAWE programme .

Websites:

- http://calc.zip.net
- www.1sun.org
- http://kutchastronomy.blogspot.com
- http://astronomy-nepal.blogspot.com
- www.sky.org.nz
- www.1au.in

## Joint event on the border between India and Bangladesh, 21 July 2009

On the evening of 21 July, amateur astronomers from two neighbouring countries, India and Bangladesh held their first joint star party on the Ground Zero between two countries which share over 4000 km of closed high security, heavily fenced, strictly guarded border.

While many of the amateur astronomers worldwide, as well as those around Asia were focused on the Total Solar Eclipse activity, a small group of amateur astronomers carried out a small activity, which had a tremendous impact worldwide. For the first time in the history of two countries, whose relations were marred with cross border firing and acts of violence, actually had members of the armed forces of both sides of the border, rubbing shoulders with amateur astronomers at the very border dividing the two countries. Both these countries share over 4000 km of closed high security, heavily fenced, strictly guarded border. The security forces on either side of the border are in a constant state of struggle with fights in form of “border disputes”. This area is also prone to cross border smuggling, acts of terrorism, trade zone for transfer of counterfeit currencies, drugs, etc. The air has a permanent smell of smoke and gunpowder.




The International Year of Astronomy 2009 has sprung up several such surprises. Some of them included star parties between two different countries at the same venue for the first time. But this was an event which made major difference. An actual star party was held on the Ground Zero between two different countries, which was also attended by the security forces of each country.

On 21 July 2009, a few hours before sunset amateur astronomers from two different countries India and Bangladesh had a star party at the border which is heavily guarded by the Border Security Force (BSF) in Indian side and Bangladesh Rifles (BDR) in the Bangladesh.

As per Indo-Bangla border treaty, no-one can have any form of activity, which appears as a war potential within 150 yard of the border “zero line”. The demarcation between the two countries is visible through numbered pillars. The Indian side has multi-layered, heavily built, flood lit border fence around 150 yard off from the zero line. No-one is allowed to cross the fence between sunrise and sunset. Even during the day time, one needs to cross multilayer permission procedure to cross the border.

As the time for sunset drew closer, the amateurs were asked by the security forces to leave the area as no movement was officially permitted after sunset.

After arrival into the mainland of each country, either amateur group decided to give the gifts, which they had brought for their counterparts, to the security forces. In addition to this gift, the SWAN also gave them AWB Logo, a Picture of Mt. Kanchendjungha. This event appeared in various newspapers and TV the next day.

Organisers: Sky Watchers association of North Bengal — India, Bangladesh Astronomical Society — Bangladesh / Supported by StarPeace AWB.

Website: www.astronomy2009-bd.org/Indo_bangla_meet_at_border.htm

## Joint event between New Zealand, China, Philippines, Maldives, Nepal, India, Iran, Iraq and Brazil, International Day of Peace on 21 September 2009

For another time StarPeace clubs drew a memorable peaceful line across the world. From New Zealand to China, Philippines, Maldives, Nepal, India, Iran, Iraq and Brazil amateur astronomers united to show peace between them on the International Day of Peace, 21 September.

The event was programmed to hold in a historical or cultural place in each country. StarPeace astronomy groups brought their telescopes among people and showed them planet Jupiter which looks like a bright diamond in the sky during these nights.

In New Zealand the event was held successfully. Paul Moss was the organiser and he held two StarPeace events in Wellington. He brought telescopes and held discussions with people. Also there was a video conference with other StarPeace ambassadors.

In India Manoj Pai conducted a stargazing programme for children at Kankaria lake, Ahmedabad.

In China, Dr. Jin Zhu held StarPeace event from a place in Shenzhen which is very near the sea.

In Nepal, Suresh Bharatti held the event successfully with “Namaste” from Nepali people.

In Iran three groups held the Peace event in Gonbad Kavoos, Ahvaz and Shiraz. In Ahvaz, South of Iran, Science Society of Physics department of Azad University of Ahvaz showed Jupiter and its four Galilean moons to the public in the university. In Gonbad Kavoosh, North of Iran Najma Astronomy Society held the event near the tallest brick tower of the world. In Shiraz, Middle of Iran, amateur astronomers** with the help of Sadra astronomical group held the event by the tomb of Hafeez who was a very famous Iranian poet. The public welcomed the event so much that it was continued until midnight.

In Maldives, Iraq and Philippines unfortunately the weather became rainy with heavy clouds. In Iraq, Philippines and Iran, the International Day of Peace coincided with Eid Al-Fitr, which is one of the most important Islamic ceremonies. Although our friends in Maldives, Iraq and Philippines was not able to observe the Jupiter “their thoughts were with us, and ours with them, that is the most important aspect to us!” as Paul Moss said.

Organisers: SKY (Southern Kaitiaki and You) — New Zealand, Beijing Planetarium — China, Astronomy Club Ahmedabad — India, Nepal Astronomical Society (NASO) — Nepal, Science Society of Physics department of Azad University of Ahvaz — Iran, Najma Astronomy Society — Iran, Amatuer astronomers with the help of Sadra astronomical group — Iran.

Website: www.sky.org.nz, www.1au.in, www.astronomy2009.org.cn, http://astronomy-nepal.blogspot.com

## Joint event between Syria, Iraq, border of Iran and Azerbaijan, World Science Day on 10 November 2009

Four StarPeace clubs in four neighbouring countries Azerbaijan, Iran, Iraq and Syria held joint star parties on World Science Day, 10 November. Established by UNESCO in 2001, the World Science Day for Peace and Development (WSDPD) is celebrated on 10 November each year. To celebrate this day StarPeace clubs organised a stargazing party for the public in Azerbaijan, Iran, Iraq and Syria simultaneously.

Iran and Azerbaijan held their StarPeace event on a border bridge over Aras River located along the border between Iran and Azerbaijan. Iranian StarPeace team in companion with a group of professional astronomers from Azerbaijan Science Academy located their telescopes on the border bridge near Jolfa town, so tourists and merchants who were passing the bridge between two countries would stopped by to observe Jupiter and celestial objects through telescopes.

Azhy Hasan from Amateur Astronomers Association of Kurdistan and StarPeace Iraq ambassador, held the event in Erbil city in the Iraqi Kurdistan Region. Nearly 250 of students of Salahadin University were invited to join the 1st Star Peace event of Iraq. After two presentations about StarPeace project and WSDPD, there was a stargazing programme . “The view of Jupiter and M45 through telescopes charmed everybody out there, even the security

guard team!" Azhy said. At the same time Mohammed AlAsseri the president of Syrian Amateur Astronomers Association from Syria held the event in Damascus.

Meanwhile there was a telephone communication between Iraqi team, Syrian and Iranian team. Students and guests who have participated in the event were so surprised when they heard that at the same time people from other countries are looking at the same celestial objects as they do.

As Azhy Hasan told about the event "By all measures and scales, this event was one of the most great and wonderful events which has been done by Amateur Astronomers Association of Kurdistan on IYA2009, and sure that very special Star Party for StarPeace Project was a unforgettable event not for only the participants, but even for us as AAAK team after we sharing the glory of Peace, Friendship and Love between us after we decided to erasing the whole borders between us."

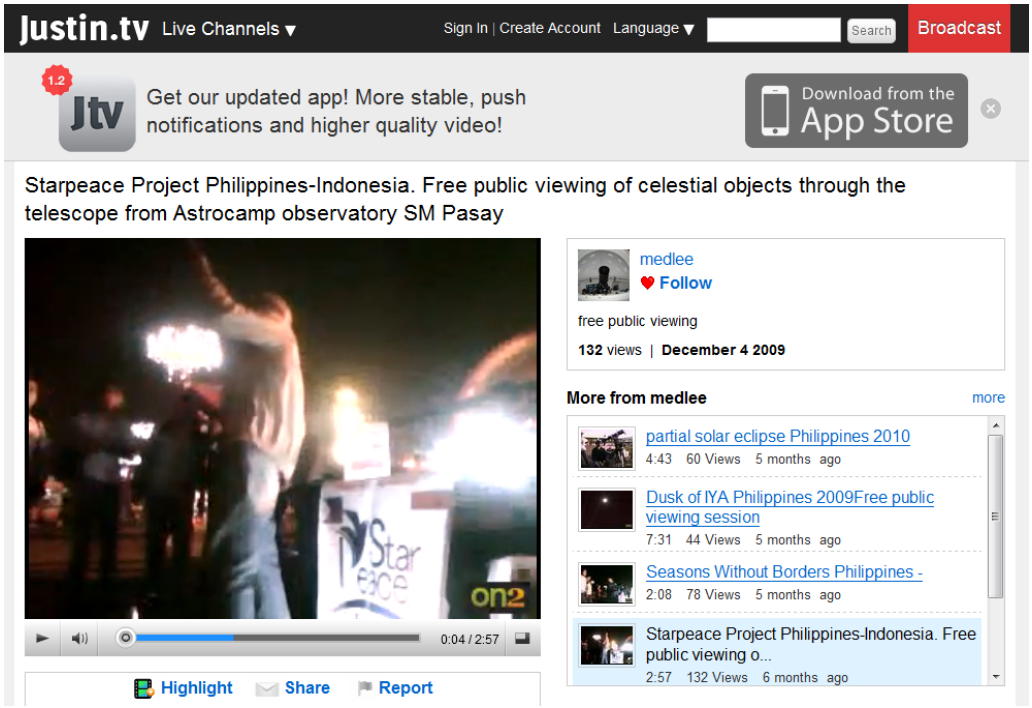
Organisers: Azerbaijan Science Academy, Amateur Astronomers Association of Kurdistan — Iraq, Sky Peace NGO — Iran, Syrian Amateur Astronomers Association — Syria, Astronomy and Astrophysics Research Center of Maragheh — Iran.

Website: www.saaa-sy.org

## Joint event between Philippines and Indonesia, 4 December 2009

The StarPeace Philippines-Indonesia started at around 7:00pm on 4 December 2009 when both countries started giving free public viewing sessions simultaneously as coordinated by Dr Armando Lee and Avivah Yamani. This is the preliminary report from the Philippines.

4 December 2009 at around 7:00pm saw the start of StarPeace Project between Philippines and Indonesia. The Philippine side was organised by Dr Armando Lee. Avivah Yamani of Indonesia and Dr Lee communicated via Twitter as they prepare for the project and used justin.tv to webcast their simultaneous event. StarPeace in the Philippines was held at two sites for two consecutive nights; namely, Astrocamp Observatory in SMBY Park in SM Mall of Asia Pasay City, and at Gen, Emilio Aguinaldo National High School.




The first night at the Astrocamp Observatory grounds was attended by 150 people who are passersby of SMBY Park in SM Mall of Asia. They were given free views of the planet Jupiter, its Galilean moons, and the waning gibbous Moon. Live webcast of the event was done at the channel www.justin.tv/medlee and a video clip was submitted to justin.tv as well. The StarPeace event at Astrocamp Observatory ended at 10:00pm that night. Dr

Armando Lee then proceeded to the Gen Emilio Aguinaldo National High School in Imus Cavite Province where some 700 students were already being viewing the waning gibbous Moon and star clusters through ten telescopes provided by Dr Lee's associates. Live webcast was done during the intermission programme prepared by the school and Dr Lee's group. The event at Imus Cavite ended at 6:00AM of the following day.

5 December 2009 saw the 2nd night of StarPeace Project. Although there was no live webcast done because of technical problems, the turn out in Astrocamp was fair at around 100 participants while at the Gen Emilio Aguinaldo National High School it was a large crowd of some 1039 students! Dr Lee tried live webcasting but problems on his wifi coverage proved too much for him to fix while he gave free viewing sessions at Astrocamp Observatory. StarPeace event in Astrocamp Observatory ended at 10:00pm with the sky turning cloudy as late evening approached; while the StarPeace in Gen Emilio Aguinaldo National High School in Imus Cavite ended at 6:00AM the following day. The sky there turned partially cloudy after 12 midnight but students were still able to see Mars and Saturn through breaks in the clouds. It was a successful overnight event there in Imus Cavite where students enjoyed the sky through the ten telescopes provided for them. Although there was no live webcast done on the second night of StarPeace from the Philippines it was nevertheless one big event that gave so many people so many reasons to be thankful and be peaceful with one another. All these for the Love of Peace and God's Creation — StarPeace.

Below is the link to the video clip from StarPeace Philippines-Indonesia as seen from Astrocamp Observatory SMBY Park, SM Mall of Asia, Pasay City, Metro Manila PHILIPPINES on December 4, 2009.
http://www.justin.tv/clip/3721457b97b90af2

Organisers: Astronomical League of the Philippines, Langitselatan — Indonesia.

Website:
www.langitselatan.com
www.astroleaguephils.org
http://www.justin.tv/clip/3721457b97b90af2

Estimated number of people who attended or were reached by this activity: 1000.

## Lessons Learned

1. It is better to start the activity with organisations who know you and trust you, so you can earn other's trust as well.

2. It is highly recommended to ask for the help of regional nodes to manage the activities in their region. Because when you are doing a global activity you face with different people, cultures, languages, etc. and if the contact person is the one who is familiar with their culture and language it will fastened the relationship

3. Like the previous item, it is recommended to design a bilingual website and social networks like Twitter, Facebook, etc.

4. Since your members are from different parts of the world and it is not possible to hold meetings in office, hold online meetings to share ideas and for brain storming.

5. In order to be more effective, you could collaborate with related projects worldwide.

## Legacy

StarPeace is a part of the "Beyond IYA2009" programme . StarPeace project was a Global Special project of IYA2009 to hold joint public star parties near the border lines of two neighbouring countries with shared border. Looking for a common point between peace and astronomy was the beginning of StarPeace.

When joining the IYA2009 as a Special Project, the StarPeace core team claimed that it would satisfy four goals of the IYA2009 goals and that StarPeace is aligned with the IYA2009 vision:

- StarPeace project will cause the astronomy groups to cooperate with their neighbour countries and this leads to make the relationship and to strengthen the relationships between both groups and also to make network of active astronomy groups in that region. (Facilitate new networks and strengthen existing ones).
- Cooperation of astronomy groups in countries with non-free land border is notable, because many of these countries are developing and cooperation between these groups and countries around them causes to strengthen power and survival of astronomy groups in developing countries. (Empower astronomical communities in developing countries).
- Besides the star party, speech and astronomy photos fair can help to improve knowledge and scientific insight of residents of both countries and prepare a durable peace between them, also. (Increase scientific awareness).
- StarPeace is a project based on the sky observation by tools and this is memorable experience for people worldwide. (Promote widespread access to new knowledge and observing experiences).
- Presently, StarPeace has 37 active astronomical clubs from 28 countries and, after holding around 50 star parties near the borders, certainly is a network of active astronomical clubs across the world to promote peace and astronomy. StarPeace also empowered astronomical communities in some developing countries.
- So IYA2009 was a beginning of StarPeace project and it will continue after 2009.

"*Wherever I Am, Let Me Be, The Sky Is Mine."* Sohrab Sepehri, Iranian Contemporary Poet.

## Special project

Philippe Kobel
(Max-Planck Institut für Sonnensystemforschung)
kobel@mps.mpg.de
www.galileo-mobile.org

Active Task Group number: 13

Number of people working on the project:

- 13 team members (Task Group)
- 3 people for the documentary (La Ventana productions + 1 external sound engineer)
- 2 drivers (only during the trip)
- 2 website-collaborators

- Full-time: 0
  Part-time: All
- Paid: Documentary team and drivers
  Volunteers: The rest

Budget:

- Mobility (vehicles, flights): 33 000 €
- Documentary: 12 000 €
- Lodging and food: 13 000 €
- Materials (t-shirts, stickers, activity handbooks, etc.): 5000 €
- Administration (visas, insurance, vaccinations, communication, etc.): 7000 €

TOTAL = 70 000 €

Sources: The trip and other preparation expenses were mainly supported by our sponsors (ESO, the Max Planck Society, Max Plank Institute for Extra-Terrestrial Physics MPE, Max Plank Institute for Solar Physics MPS, Max Plank Institute for Astrophysics MPA, the Nordic Institute for Theoretical Physics NORDITA, the Regione Molise in Italy, the Optical Society of America OSA and the Instituto de Astronomía Teórico y Experimental IATE) as well as by private donations. A lot of material was kindly donated by ESO and the IYA2009 Secretariat, like Galileoscopes, posters, stickers and these partners also helped us with the shipping and the handling of these materials. ESO and MPA lent us laptops and a beamer that were essential for the introductory talks in the schools. We also travelled with several telescopes lent to the project by the IYA2009 Secretariat.

## General Overview

### Vision

GalileoMobile is a travelling science-education project that brings astronomy closer to young people across South America. By organising hands-on activities and astronomical observations in schools and villages, we aim at fostering a will of learning through the exciting wonders of our Universe. GalileoMobile also extends its impact to a worldwide audience through the production of a documentary movie featuring the highlights of the activities and visited places. This movie wants to show the richness of the Andean cultures and cosmovisions and to be a messenger of human interaction beyond borders, of “unity under the same sky”.

## The IYA2009 experience

The team is integrated mainly with students doing their PhD in Germany but also with persons that are outside of the pure astronomical background (one Journalist and one Social investigator) but shared the objectives of the IYA2009. The team members are from several nationalities of Europe and South America.

In its first trip in the months of October and November 2009, the GalileoMobile team travelled across the high plateau of the Altiplano in the north of Chile, Bolivia, and Peru. This region was chosen for its antique astronomical heritage developed by the pre-Columbian Inca and Tiwanaku civilisations, and the clear night sky it offers which is ideal for astronomical observations. Moreover it was essential to travel in a region in which only one language, Spanish, is commonly used by a large part of its populations. The team travelled more than 7000 km in two vans carrying educational material and telescopes. It visited around 35 schools, in 20 different cities and villages, reaching close to 3000 children and more than 200 teachers, plus a substantial number of local people that were present in different events such as star parties for the community. At each location, the team carried out hands-on activities for the students to explain basic concepts of astronomy and physics. When possible, solar and night observations for the entire community were also organised. A Galileoscope was donated to each school together with other educational material to continue simple science activities in the future. The teachers were involved in all activities and learned with the students how to mount and use the Galileoscope.

## Deliverables and follow-up

GalileoMobile is also a pilot project using science education as a basis for sustainable development. To give concrete possibilities for a lasting follow-up of this project, we involved the local teachers in our activities, offered some workshops for the regional teachers (see List of Activities) and promoted the formation of teacher and student astronomy groups.

We compiled all the teaching material in a handbook called “Cartilla de Actividades GalileoMobile”, which includes the instructions for the hands-on activities and the explanation of the physical phenomena studied in each of them. The handbook will be distributed in all schools visited, encouraging them to start their own activities, and helping to make the relation with our project (or other projects such as GTTP, UNAWE, etc ) more stable because of the continuous feedback.

The “Cartilla de Actividades GalileoMobile” is also a corner stone and starting point to develop the GalileoMobile project all around the world. It will be freely available on our website (including print-friendly versions of this handbook, multimedia materials, and other resources) as well as on ESO’s website (fall 2010) and will be translated in English and German. Also, we will need to print a number of these handbooks to distribute them by post to the locations where there is no access to digital data.

To share our experience with a worldwide public and thereby provide a global character to the project, a documentary was filmed during the entire length of the trip. The movie will stimulate curiosity for natural sciences and Universe awareness, and through the interplay and personal identification with South-American children, inspire a feeling of “unity under the same sky”. The movie will also illustrate different beliefs and ways of thinking to put in evidence the richness of human culture, and interviews will be complemented by short explanations of pre-Columbian history and myths.

# Main Activities

# List of Activities

- Opening ceremony in Antofagasta University, Chile (presentation of the project in front of officials and university students followed by night-time observations)
- Visit to the Liceo Eleuterio Ramirez Molina in Calama, Chile (introductory talk followed by night-time observations)
- Visit to the Colegio adventista in Calama, Chile (introductory talk followed by night-time observations)
- Visit to the Liceo Agropecuario Likan Antai in San Pedro, Chile (introductory talk followed by night-time observations)
- Visit to the Liceo Samca Arumanti in Iquique, Chile (introductory talk and small workshop for teachers and parents)

- Visit to the Colegio metodista William Taylor in Alto Hospicio (provincia Iquique), Chile (introductory talk and small workshop for teachers and parents)
- Visit to the Liceo Técnico Profesional in Colchane, Chile (introductory talk followed by hands-on activities and solar observations)
- Visit to the Escuela D-66 in Cariquima, Chile (introductory talk followed by night-time observations)
- Visit to the Unidad Educativa Pedro Domingo Murillo in Patacamaya, Bolivia (introductory talk followed by hands-on activities and solar observations)
- Visit to the Unidad Educativa Rosario in La Paz, Bolivia (introductory talk followed by hands-on activities and solar observations)
- Visit to the Unidad Educativa Tihuanacu in Tihuanacu, Bolivia (introductory talk followed by hands-on activities and solar observations)
- Visit to the Unidad Educativa Juan Chalco in Moco Moco (Huatajata), Bolivia (introductory talk followed by hands-on activities and solar observations)
- Visit to the U.E. 6 de Junio in Copacabana, Bolivia (introductory talk followed by hands-on activities, solar observations)
- Night-time observations in Copacabana, Bolivia
- Visit to the U.E. Yumani in the Isla del Sol, Bolivia (introductory talk followed by hands-on activities, solar observations and night-time observations)
- Visit (two days) to the I.E.P. no 70718 Villa de Lago in Puno, Peru (introductory talk followed by hands-on activities, solar observations)
- Night-time observations in Puno, Peru
- Visit to the Colegio Hector Suana Colla in Isla Q'antati (Uros), Peru (introductory talk followed by hands-on activities, solar observations)
- Visit to the Institucion educativa secundaria in Anansaya, Peru (introductory talk followed by hands-on activities, solar observations)
- Workshop for teachers of the schools of the region of Marangani, Marangani, Peru (joint organization with SPACE)
- Visit to the Quenamari community (prov. Marangani), Peru (introductory talk followed by hands-on activities, solar observations and night-time observations)
- Workshop "Encuentro de Astronomia" for teachers and future teachers in the Instituto Superior de Pedagogia Gregoria Santos, Sicuani, Peru (joint organisation with SPACE)
- Visit to the Colegio Puklysunchis in Cusco, Peru (introductory talk followed by hands-on activities)
- Visit to the Institucion Educativa 50618 — Matilde Huamantica Espinoza in Patacancha, Peru (introductory talk and telescopic observations)
- Visit to the Institucion Pasa la voz in Cusco, Peru (introductory talk followed by hands-on activities)
- Visit to the Institucion Educativa Yanapanakusun in Cusco, Peru (introductory talk)
- Visit to the Escuela no 40046 José Lorenzo Cornejo Aconta in Arequipa, Peru (introductory talk followed by hands-on activities)
- Joint event with several regional schools in Tocopilla, Chile (introductory talk followed by hands-on activities)
- Closing event (for general public) in Tal Tal, Chile (poster session, presentation of project, introductory talk, night-time observations)

## Visit to the village of Colchane, north Chile

Colchane is a small Altiplano village in the very north of Chile near the Bolivian border. There, our local contact Mauricio organised a one-day school visit at the "Liceo Técnico Profesional Colchane", which particularly impacted us by the quality of our reception.

When we finally arrived at night after a long trip from the sea level (we left from Iquique) up to 3800 m, we were received with a beautiful surprise. In front of the church (where we were supposed to be hosted), all the kids were waiting for us in the freezing night around a huge fire. Mauricio had even prepared food and drinks as well as the projection of astronomy movies. Right away, the kids surrounded us and started asking questions, some ingenuous and some astonishingly deep: "From which planet are you coming from (obviously we were not looking local at all)? How large is the Universe? What is a comet (the movie was showing comets)? Is there life in the Universe?" etc. After a warm-up dance around the fire, we were ready to face the chilly wind with our C8 telescope to observe Jupiter. We also used a green laser to tour-guide the kids through the sky. The kids were totally amazed by the laser (which was our usual experience everywhere), all their heads following it like a wave. The night

finally finished by some tales-telling in the tents of the kids (astronomy tales in Spanish from UNAWE “Cuentos de estrellas”).



Weaver community of Patacancha: Preparing the kids to watch the sacred mountain (Apu) through a telescope (donation to the school).

The following day we carried out several hands-on activities in the school (e.g. secure solar observations, creating a rainbow, 3D visualisation of the Sun etc.). Among others we mention a successfully improvised drawing session to express the kids’ creativity about the Cosmos and what they learned in general.

Organisers: Mauricio Gonzales Coronado, director of the Liceo Técnico Profesional Colchane.

Estimated number of people who attended or were reached by this activity: About 70 kids.

## Visit to the Island of the Sun, Bolivia

The Island of the Sun (Isla del Sol) represented a unique place for GalileoMobile to visit, both for its rural character as well as its strong symbolic aspect. According to the legend, this island is the birthplace of Manco Capac and Mama Ocllo from where they left to Cusco and found the great Inca Empire.

The courtyard of the “Unidad Educativa Yumani” was big enough to have lots of students performing several activities simultaneously, and the children could easily commute from one activity to another. For this occasion we chose mainly activities focused on the Sun: observation of the Sun with telescopes equipped with ND filter (we had the chance to see a sunspot!), building paper sundials, visualisation of 3D posters of the Sun and experimenting with light and lenses. Also, our local contact Manuel de la Torre (who accompanied us throughout Bolivia) was holding a special session about the Andean astronomical traditions so that the students could learn about their own living traditions and heritage.

We cannot avoid mentioning an anecdote about the “Earthball” (inflatable globe donated by UNAWE) to illustrate the excitement it generated. We gave it to a kid and as soon as he grabbed it, he started running around, hitting the ball and making it floating in the air. In fewer than 20 seconds, almost all the children were running after the

ball, trying to hit it. It was a spontaneous explosion of happiness, laughs and joy. Everybody stopped looking to that cloud of children running after the ball.

The night of observation in the school was also tainted of Andean spirit. To open the night, we invited (thanks to Manuel) a healer of the “kallawaya” group (an Andean tradition of natural medicine), who offered a ceremony to ask permission to the “Alaj Pacha” (Andean realm of the skies) and to the “Pacha Mama” (“mother Earth”). The school teachers, students and several locals were present with their children. The “star party” started with a guided tour of the sky by Manuel, showing both the “Greek” constellations as well as the Andean ones and their related stories. Some of the public had never seen a telescope before and were very excited about observing the Moon, Jupiter and some stars. They were asking questions all the time and sharing their own ancestral astronomical culture, comparing names of constellations and telling stories about them.

Organisers: Prof. Manuel de la Torre (http://www.astronomiaandina.260mb.com/) and GalileoMobile.

Estimated number of people who attended or were reached by this activity: about 70 kids, 20 locals and 5 teachers.

## Visit to the floating islands of the Uros, Peru

Thanks to our local contacts Nilda Esperanza and Luz Marina Suaquita Quispe, we had the chance to visit the Q’antati community in the floating islands of the Uros (general name of their inhabitants). These islands are totally floating (only anchored) and are built out of bulrush according to an ancient Inca tradition (some Incas were used to live on bulrush boats). Although touristic ally known, the Uros find themselves in a relatively low financial state, its inhabitants often being in the inability to afford a true piece of land. They also suffer of isolation from the ground, which makes the scholar education a problematic issue. For this reason as well as the very special cultural atmosphere of this place, the Uros was an important stop for GalileoMobile.



Island of the Uros: Inside the small bulrush school of the community, we perform our introductory activity (imaginary cosmic voyage) with posters.

We gave our introductory talk (an interactive talk in the form of an imaginary voyage from our home to the Universe) in the small classroom of the Colegio HectorSuana Colla, itself made of bulrush. The atmosphere was particularly intimate, as we and the pupils were sitting together around a low table. Because there was no electricity, we had to illustrate our presentation using posters of the moon, planets, stars and galaxies (posters given by ESO) that we were lying on the table. Note that we were always carrying out a set of presentation posters along, as several places we visited had no electricity. To demonstrate the concept of day and night, we used the "Earthball" (an inflatable Earth globe donated by UNAWE) in front of the entrance door such that it would be half-lightened. As in many small places in the Altiplano, the kids are not used to have such kind of contacts with non-locals and are thus rather shy (especially in front of the cameras). Here is where our "Galileo doll" (our project mascot) came into the game. During the introductory talk, we were usually animating the Galileo doll to tell his own story in a theatre-like fashion (telling he is about 400 years old, that he first used the telescope to watch the stars and thus is the "grand-daddy of all astronomers"), which was always a success with the youngsters and proved very useful in front of shy audiences. Finally, we explained how to mount the Galileoscope and the general principles of how a telescope works.

After the presentation we followed by a one-hour hands-on activity session. We taught how to manipulate the Galileoscope on its tripod. On the classroom table students were trying to "simulate" the formation of Saturn's rings using pencils and salt, while outside students were figuring out how to join print-outs of the Moon surface to build a huge poster of the Moon. Secure solar observations were also made (projecting and using a ND filter), although the telescope was somehow unstable on the bulrush (we ourselves lost our equilibrium sometimes).

As in all school visits, we concluded by offering the Galileoscope together with a tripod, one Earthball, postcards and posters (in this case the same ones used for the presentation such as to keep a souvenir from it).

Organisers: Nilda Esperanza, Luz Marina Suaquita Quispe and GalileoMobile.

Estimated number of people who attended or were reached by this activity: About 25 kids and their teacher.

## Visit to a Weaver Community in the Inca Valley, Peru

We visited a small Andean weaver community in the Inca's "sacred valley" at about one hour drive away from Ollataytambo. This visit particularly fitted the spirit of GalileoMobile for its authentic cultural traditions perpetuating from generation to generation for hundreds of years.

Visiting the local school was also a particular experience because in this case the contact was not arranged ahead of time. But in the view the kids playing football with colourful home-made ponchos and hats, we couldn't help "knocking the door". The director and teachers warmly welcomed us and immediately brought the kids together for an impromptu astronomy talk. We then gave our introductory presentation "charla inaugural", an interactive talk in the form of an imaginary voyage from our home to the Universe (scaling up through the Moon, the Sun, the planets, the stars, galaxies etc.) Since half the classroom was purely quechua-speaking, the help of the director was crucial for translation. Whenever possible, we also probed our basics of astronomical quechua to break the ice.

The presentation closes with a video of Brent Tully (http://www.ifa.hawaii.edu/~tully/outreach/movie.html) bringing the audience into a virtual voyage until the Virgo galaxy cluster (thus summarizing in an existing way our imaginary voyage). To make it more playful, we added background music to the video (see http://www.youtube.com/watch?v=sLwY0UW8klw&feature=related) and distributed small A5 colour papers to all students such that they rolled it as a telescope and watched the movie through it. All these colourful "telescopes", ponchos and hats gave the classroom a carnival look.

Because of the partly improvised character of this school visit, we were short of time for hands-on activities and focused instead on telescopic observations of the surrounding mountains. The small telescope was thereafter donated to the school.

Organisers: GalileoMobile and Barthelemy d'Ans (president of the "Instituto peruano de astronomia", http://www.concytec.gob.pe/ipa/)

Estimated number of people who attended or were reached by this activity: About 50 students.

## Astronomy workshop for teachers in Sicuani, Peru

Especially for the venue of GalileoMobile, a three-day astronomy workshop called “Encuentros de astronomia” was organised jointly by SPACE and took place at the Instituto Superior Pedagógico “Gregoria Santos” (ISP). This workshop was dedicated both to professional teachers as well as to future teachers (students of the ISP).

Being in front of a present and future generation of teachers was the opportunity for us to speak about our project experience in order to stimulate future outreach activities. Our team also gave talks about various astrophysical topics (e.g. Sun and stars, black holes) as well as about the life of Galileo Galilei. Finally, we organised secure solar observations in the courtyard (projection and direct observation using a ND filter) and as a poster session about our own school activities in order to answer questions. Besides the GalileoMobile talks and activities, the meeting also featured talks by members of the ISP as well as by SPACE.



Astronomy workshop in Sicuani: The aula of the Instituto de Pedagogia Gregoria Santos is full of teachers curious about our activities.

Both students and teachers manifested a clear desire of learning from us and the talks generally ended in a half-an-hour question-answer session. The outdoor activities (solar and poster session) also generated a high interest and gave us the opportunity of some more personal contact with the teachers and students. We exchanged many email directions with students interested to carry out future outreach projects and possibly create amateur astronomy clubs. Finally, we were particularly touched by the quality of the welcome and closure ceremony offered by the ISP.

Because we felt like having left behind a growing potential and a motivation for learning and pursuing scientific outreach we considered this event as a success.

Note that another two-day teacher workshop was also organised jointly with SPACE in the town of Marangani.

Organisers: SPACE (Seminario Permanente de Astronomia y Ciencias Espaciales, www.concytec.gob.pe/space), the Instituto Superior Pedagógico “ Gregoria Santos” (ISP) and GalileoMobile.

Estimated number of people who attended or were reached by this activity: Around 200 students and about 100 teachers.



Alpaca breeder community of Quenamari: Our team is being introduced to the locals by Barthelemy d’Ans (our local contact in front right).



Island of the Sun: Around a wood gnomon, we teach the students how to mount a simple Sundial.

## Visit to the Quenamari community (prov Marangani), Peru

Guided by the authorities of the town of Marangani and accompanied by Maria Luisa Aguilar (IYA2009 node of Peru) and SPACE, we reached a small community of Alpaca breeders a few hours' drive away from Marangani. Because of their quasi-total isolation, scholar education beyond primary school is a serious issue. Also, the community benefits from the help of ONG's for its survival and for building houses. It is both this condition as well as the cultural tradition of breeding Alpaca's that motivated us to visit the community.

We started our introductory talk (an interactive talk in the form of an imaginary voyage from our home to the Universe) after lunchtime, when most of the breeders returned from their work. This made the talk unusual in the sense that a large part of the community was present, including both children and adults.

Because there was no electricity, we had to illustrate our presentation using posters of the moon, planets, stars and galaxies (posters given by ESO) at the same time that we were writing the key concepts of the talk on the blackboard. Note that we were always carrying out a set of presentation posters along, as several places we visited had no electricity. To demonstrate the concept of day and night, we used the "Earthball" (an inflatable Earth globe donated by UNAWE) in front of the window such that it would be half-lightened.

In such a remote place, the children were extremely quiet and shy as they were totally unused to have such contacts with non-locals. We realised quickly that only a few were speaking Spanish, so that a member of an ONG helped us to translate our words into quechua. Our "Galileo doll" (our project mascot) also helped "breaking the ice". During the introductory talk, we were usually animating the Galileo doll to tell his own story in a theatre-like fashion (telling he is about 400 years old, that he first used the telescope to watch the stars and thus is the "grand-daddy of all astronomers"), which was always a success with the youngsters and proved very useful in front of shy audiences. Finally, we explained how to mount the Galileoscope and the general principles of how a telescope works.

After the presentation we followed by a one-hour hands-on activity session. We taught how to manipulate the Galileoscope on its tripod, and outside the classroom, we organised secure solar observations (projecting and using a ND filter) as well as observation using an H-alpha telescope (lent by our local contact Barthelemy d'Ans). We also visualised 3D posters of the Sun and produced a rainbow using a mirror in a water flask.

As in all school visits, we concluded by offering the Galileoscope together with a tripod, one Earthball, postcards and posters (in this case the same ones used for the presentation such as to keep a souvenir from it).

We invited the whole community for a star party at night and we were lucky enough to have a diamond clear free of any light pollution. This made the laser-guide of the sky a successful show.

Organisers: SPACE (Seminario Permanente de Astronomia y Ciencias Espaciales, www.concytec.gob.pe/space) and GalileoMobile.

Estimated number of people who attended or were reached by this activity: About 30 local people.

## Lessons Learned

### A. Team coordination and communication

At any given time during the trip, only five team members were present "on the field" while the rest of the team was in Germany. We will refer to the first group as "travelling team" and to the second one as "base team". Note that the travelling team was not fixed: a total of 11 team members integrated the travelling team for periods varying between one week to two months, thus switching roles between the travelling team and the base team.

#### 1. Communication between the travelling team and the base team

There was an important necessity to communicate between the base and the travelling team because the former was responsible of part of the logistics and trip organisation, as well as to take decisions among the entire team. However, possibilities of communication were intermittent due to often poor internet connections, the costs of phone conversations and the difference of time zones.
We tried to cope with this issue as follows:

- Structuring the communication: one person of the base team and of the travelling team was designated as responsible to handle the communication between the two teams. In particular, the responsible of the travelling team was sending a weekly report to the base team.
- Giving priority of decision to the travelling team: When short-term decisions have to be taken, the travelling team often has the necessary "field information" and can bypass the communication with the base team in case it cannot be established.
- Cell phones: We were all the time carrying with us two cell phones with local chips that could be used (although very expensive) for inter-team communication.
- For future projects, a possible solution is to plan a part of the budget dedicated to cell phone communications between base team and travelling team.

#### 2. Communication within travelling team

Distributing the information among the travelling people was not an easy task. Although travelling together, they were most of the time occupied during school activities, shared in two cars, in internet cafes etc.
- Every evening we carried out short briefings of the next day's schedule.
- We were holding a travelling team meeting every two to three days to discuss relevant issues of the activities, logistics etc.

#### 3. Plan and assign the travelling team's tasks the simplest way

Time is flying on the road: there are many tasks to realise besides school activities and the travelling team also needs time to rest (which was hard to find). The people of the travelling team were often overwhelmed with many tasks of different nature, which made us think that the distribution of tasks should be simplified by identifying the most important and priority tasks.

For future projects, we suggest that the main tasks should be planed and distributed to responsible persons among the travelling team (optimally one main task per head) and their delegation well prepared when commutation of people occur in the travelling team.

For instance, for a travelling team of five members, five main tasks can be identified and distributed to one responsible for each as follows:

- communication: handling communication between base and travelling team.
- treasurer: managing money, keeping log of expenses.
- diffusion/outreach: organising blog and collecting blog posts of team members, organising pictures.
- field producer: itinerary and logistics, main communicator with drivers and local contacts, scouting of visited places.
- activities: organising material of activities and checking if some items need to be bought.

#### 4. Logistics "on the field"/ need for a "field producer"

One error that we committed was to give too much weight to the base team for the logistical organisation of the trip with the pretext that they could "prepare the terrain" with more anticipation than the travelling team. However, the base team was often overloaded during the trip and the distance and difficulties of communication prevented them to react when quick decisions had to be made (for instance urgent changes in the itinerary).

We think that it is good that the base team prepares the logistics of the trip in advance and serves as logistical support, but the travelling team needs one person (the field producer) to manage the road map and the logistics *in real time* in order to communicate quickly with the relevant local contacts when needed.

### B. Activities

During the day-time visits to schools, we were running different session of hands-on activities in parallel, while switching groups of students from one session to the next.

#### 1. Control the time of activity-sessions

Although some of our activities contained enough material to be made much longer (e.g. more explanation about physical concepts), we learned to keep the time of the activities session short. This allows students to stay entertained and no get tired when commuting from one session to the next. It should also be taken into account that many of our activities were carried out in open air, and the Sun can be really burning in the Altiplano.

Another issue is to control the time of the activities sessions in order to synchronize them. This can be difficult as the various activities sessions (sometimes we carried out four sessions in parallel) are dispatched in different places or classrooms. If the activities sessions are not synchronized, they end up at different times and students easily get dispersed. Again, a responsible (within the team) is definitely needed to watched out the time, synchronize the sessions and guide the students from one session to the next.

#### 2. Mounting the galileoscopes in front of the students

We quickly noted that if we spent 20 min. to mount the galileoscope in the classroom in front of ALL the students and teachers, it tremendously increased the value of the instrument that we were offering to the school. Although it was hard for most people to see in detail the different pieces and lenses, mounting the telescope strongly raised the interest of students for observing.

#### 3. Choose strategic places for observations.

It is worth telling two experiences. Once we had the opportunity to announce on local TV two nights of observations taking place on a hill (with beautiful sky) nearby Puno...but almost nobody came. Another day in Copacabana, we improvised an observing session by bringing the telescopes on the main square and attracted hundreds of people!

To reach out a large public, we strongly advice to organise the observations either in schools (for pupils, parents and friends) or on a main square of the town (if public event). It is better to prioritize ease-of-access than sky quality, as we found out that most people are in fact amazed by simple objects like the Moon and Jupiter which can be shown even with poor sky conditions.

#### 4. Work separately with the teachers

Except for the few cases where we could offer a dedicated workshop for teachers (Marangani, Sicuani), the teachers were only present to follow how we were performing the activities with the kids, mainly due to the lack of time at the schools (one day visits).

Our feedback interviews with the schools revealed, however, that dedicating separate sessions to the teachers (explaining how to use the telescope, how to incorporate our materials in their curriculum, examples of activities etc.) is crucial to give them confidence in performing follow-up astronomical activities after our leave.

This requires longer stays at the schools, as mentioned below.

## C. Trip timing and logistics

### 1. Arrive at schools with a local contact

Some rural schools can be very difficult to find, even when equipped with maps and GPS devices. Whenever possible, we recommend arriving at the schools accompanied by the local contact of the respective place, and making sure he knows where the school is located. This also ensures a smooth presentation of the team at its arrival. In case the local contact is unavailable, an alternative is to perform a careful scouting using e.g. Google Earth.

### 2. Cross custom borders with discretion

Although one should be prepared to cross borders with all the required forms, none of these forms should be shown nor anything asked unless one is really required to (even though one is carrying lots of valuable material). Bureaucracy at customs can be a very lengthy process. In our case, we carefully prepared all the necessary paperwork: VISAs (for Bolivia), complete list of team members crossing the borders (approved by ESO), description of our project by IYA2009, letter of invitation to country (signed by node/immigration of country) etc.

At the moment of crossing borders, we experienced three different scenarios. Entering to Bolivia, we passed by only showing the simplest list of material we had to answer an enquiry of the guard. Entering Chile, we were not even asked for anything. But when we wanted to declare some material at the Peruvian border and started by ourselves to show letters, we ended up caught at the border for more than one hour with high risk of not entering the country.

### 3. Make clear contract with paid collaborators

To ensure a smooth and clear collaboration with paid co-workers, we recommend writing contracts right from the beginning with clear clauses. This clarifies what people can expect from each other.

### 4. Plan free social time in schools/communities after the activities

In several occasions, we felt that we were missing some more social interaction with the local people in order to share their lives and cultures. For instance, due to our tight schedule, we were often caught without time at the end of school activities while kids were leaving in hurry to go home. In the observations, we were often overwhelmed with many people, giving explanations, controlling the queues etc. However, social interaction is very important for such an outreach project because at the same time it helps intensifying the scientific interaction and the attention of the kids.

We thus advise to dedicate spare time in the daytime activity sessions or at the beginning of the observations for social interaction with the kids and the local people (e.g. offering foods and drinks). Also, when performing activities in rural communities prone to social interaction, plan staying overnight. Optimally, the timetable should always be flexible enough to give the possibility to stay more time/stay overnight in places where particular cultural interaction occurs.

### 5. Optimise activity-to-travel time ratio

The GalileoMobile trip timetable was planned to optimise the number of schools and people reached. For this reason, we spent most of the “non-activity” days travelling, and only few to rest. This tight schedule not only resulted tiring for the team, but also contributed to the lack of social interaction previously mentioned. For these reasons we felt like the activity-to-travel time ratio should be slightly increased.

To reduce the driving hours, a simple solution when visiting rural schools is to arrange an overnight stay there instead of driving back several hours to the locality where the team is based. Also, several schools have enough students to repeat the activities with a different group of students for a second day. This allows to increase the duration of the stay at a given school/place and thereby to reduce the number of visited schools and increase the activity-to-travel time ratio.

## D. Logistics

### 1. Arrive at schools with a local contact

Some rural schools can be very difficult to find, even when equipped with maps and GPS devices. Whenever possible, we recommend arriving at the schools accompanied by the local contact of the respective place, and making sure he knows where the school is located. This also ensures a smooth presentation of the team at its arrival.

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In our case, we carefully prepared all the necessary paperwork: VISAs (for Bolivia), complete list of team members crossing the borders (approved by ESO), description of our project by the IYA2009 and a letter of invitation to country (signed by node/immigration of country) etc.

At the moment of crossing borders, we experienced three different scenarios. Entering to Bolivia, we passed by only showing the simplest list of material we had to answer an enquiry of the guard. Entering in Chile, we were not even asked for anything. But when we wanted to declare some material at the Peruvian border and started by ourselves to show letters, we ended up caught at the border for more than one hour with high risk of not entering the country.

### 3. Make clear contract with paid collaborators

To ensure a smooth and clear collaboration with paid co-workers, we recommend writing contracts right from the beginning with clear clauses. This clarifies what people can expect from each other.

## E. Trip timing

### 1. Stay longer (at least 2 days) in schools

Most of our feedback interviews with schools converge in one point: the length of our stay at the school was not long enough to give concrete means for self-sustained activities. The kids were amazed by the visit, but were left with many doubts and questions. And in most cases the teachers did not have the means nor the formation to answer those questions and organise concrete astronomy activities after our leave.

Also, staying more time would give space for more social interaction with the teachers and the pupils.

### 2. Plan free social time in schools/communities after the activities

In several occasions, we felt that we were missing some more social interaction with the local people in order to share their lives and cultures. For instance, due to our tight schedule, we were often caught without time at the end of school activities while kids were leaving in hurry to go home. In the observations, we were often overwhelmed with many people, giving explanations, controlling the queues etc.

However, social interaction is very important in such an outreach project because at the same time it helps intensifying the scientific interaction and the attention of the kids.

We thus advise to dedicate spare time in the daytime activity sessions or at the beginning of the observations for social interaction with the kids and the local people (possibly offering foods and drinks). Also, when performing activities in rural communities prone to social interaction, plan staying overnight. Optimally, the timetable should always be flexible enough to give the possibility to stay more time/stay overnight in places where particular cultural interaction occurs.

### 3. Optimize activity-to-travel time ratio

The GalileoMobile trip timetable was planned to optimize the number of schools and people reached. For this reason, we spent most of the “non-activity” days travelling, and only few to rest. This tight schedule not only resulted tiring for the team, but also contributed to the lack of social interaction previously mentioned and

hampered deeper work to prepare follow-up activities (see F). For these reasons we felt like the activity-to-travel time ratio should be slightly increased.

To reduce the driving hours, a simple solution when visiting rural schools is to arrange an overnight stay there instead of driving back several hours to the locality where the team is based. This allows to increase the duration of the stay at a given school/place and thereby to increase the activity-to-travel time ratio.

## F. Follow-Up

### 1. Register the data of all visited schools

We prepared forms to be filled out in each school in order to register the name of the director and science teacher, the number of children, number of teachers, the activities carried out and the materials that had been donated.

These data proved very useful not only to keep contact with schools, but mostly to analyze them a posteriori.

### 2. Prepare the teachers for follow-up activities

For next trips we should dedicate specific training sessions to the teachers to answer their questions (e.g. how to include some of the activities in their curriculum), train them to use the donated telescope (galileoscope) and our handbook of activities. This is essential to provide the teachers with both the knowledge and the self-confidence to organise astronomy activities and talk about astronomy in their classrooms.

### 3. Establish a contact between teachers and local promoters

Even if dedicating training session to the teachers, the latter would need a direct support to answer further doubts and develop their ideas after the leave of the team. In this view, it is crucial to establish a contact possibility between the teachers and a local contact/promoter. The latter should be willing to answer their questions by email and/or promote follow-up activities and observing sessions (especially if he is an amateur astronomer).

## G. Tips and tricks “on the road”

- Always carry an extra tank of fuel in the vehicles
- Always carry maps of the places (and if possible GPS)
- Always have some prospects of the projects (you are always susceptible to find interested people)
- Have at least two cell phones with local chips (one in each car)
- Change local money before crossing borders even if the currency is not advantageous
- Use a pre-paid credit card rather than a debit card to take out cash (the debit card has strong taxes)

# Legacy

The GalileoMobile team is now actively involved in preparing some resources that will be released during 2010 and that will be available to the community in the course of 2010, such as:

- The GalileoMobile documentary (to be released fall 2010) that will be freely available online, as well as distributed in schools and science centres worldwide.
- The “Cartilla de Actividades GalileoMobile” (ready fall 2010): a handbook with a compilation of activities related to basic astronomy designed for students of different ages. The activities are described in a simple and comprehensive language and they can be carried-out with low-cost resources. This handbook also includes a script of astronomical observations, short talks about astronomy, experiments and games. The activities are organised by subject, methodological category and level of difficulty. This handbook is an enjoyable and practical tool for teachers to awake in children curiosity about the universe, and to prepare them to explore the world around them.
- Final report: We are writing a detailed annual report of our project during IYA2009 that will be available online and will be published (in article format) in an education and public outreach journal (CAPjournal, Astronomical Education Review).

In parallel, we are maintaining contacts with the visited schools, both to carry out feedback evaluation and to encourage follow-up activities. In particular, we are planning to use these contacts to send more materials (like “you are Galileo” telescopes kindly sent by ESO and books). GalileoMobile also has the inspiration to become a sustainable project, preparing further expeditions and field work in various Latin American countries where we

developed new contacts (in Argentina, Brazil, Colombia, Chile, Mexico, Paraguay and Uruguay) as well as in schools of small European villages in order to follow the spirit of “ unity under the same sky”.

# Naming Pluto

## Special Project

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www.fatherfilms.com

Task Group Members: 60

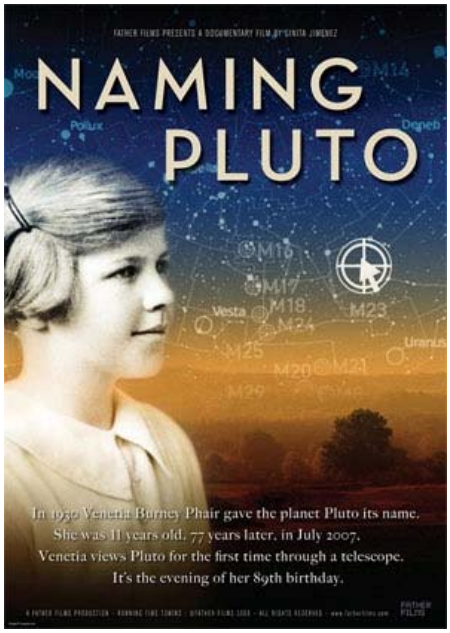
- Paid: 15-20
- Volunteers: 35-40

Number of people reached by IYA2009: 5000

Budget: 17 000[3]

Sources:

- Private funding




## General Overview

Naming Pluto completed production during the latter quarter of 2008. It suffices to say that the re-emergence of Venetia Burney Phair's extraordinary story could not have benefited more from an entire year dedicated to the promotion, exposure and stunning worldwide endorsement of Astronomy on behalf of the IAU and UNESCO. Perhaps it is also safe to say that had Father Films not documented the story of Astronomy's most influential 11year old it would have missed out on being part of one of the largest and most expansive educational initiatives to date.

Being a historical documentary, Naming Pluto's campaigns have largely been media based and this has lent itself well to both a local and global reach. All in all, Father Films applied for approximately 110 International Film and Science Festivals in its attempt to reach a global audience. We are proud, given the enormity of international filmmaking talent and news worthy stories that Naming Pluto has won the hearts of 45 Festivals in 18 countries and become a multi award winning documentary short, screening in Australia, Bangladesh, Cyprus, Switzerland, USA, UK, India, Puerto Rico, Greece, Poland, Bulgaria, Brazil, Germany, Hungary, Serbia, Spain, Armenia and Ireland. Almost half of the featured festivals were hosted by the United States of America.



Awards include, Monika Smith Award – Best Documentary Short (End of the Pier Film Festival 2009 – UK), Best Documentary Short – 2nd Place (Palm Springs ShortFest 2009 – USA), Best UK Documentary (Falstaff Film Festival 2009 – UK), Remi Jury Award (Houston WorldFest 2009 – USA), Festival Choice Award (Paso Robles Digital Film Festival 2008 — USA), Best Documentary Short (Rockport Film Festival 2009 – USA). Nominations include, Finalist – Short Documentary (Scinema 2010 – Australia), Best Short Documentary (Soho Rushes Shorts 2009 — UK), Best Short Film (Conquest Film Festival 2009 – USA).

Promotion on every possible platform has been at the heart of Naming Pluto's awareness campaign. Reviews of the film have featured in industry publications such as Astronomy Now and Universe Today and news of festival successes have featured in Oxford BBC Breakfast TV and Radio and BBC South East News. Science ambassadors such as Dr. Ian O'Neill, Dr. Christopher Riley, Dr. Allan Chapman, Dr. George Reed, Paul Sutherland and Sir Patrick Moore have all promoted Naming Pluto through word of mouth recommendation, press reviews and quotes.



Recipients of Naming Pluto extend from a school in Pakistan to the Astronomer Royal, Sir Martin Reed and those who have purchased the limited edition DVD of Naming Pluto come from all corners of the globe. Other lovers and promoters of Venetia's story include, the British Science Association, Anticipation Convention (Canada), Antimatter, Astroguyz.com, The Argus (Brighton), British Astronomical Association, Film24, the New Producers Alliance, Karl Sabbath, The Oxford Times, The Times, Screen South and the Royal Astronomical Society.

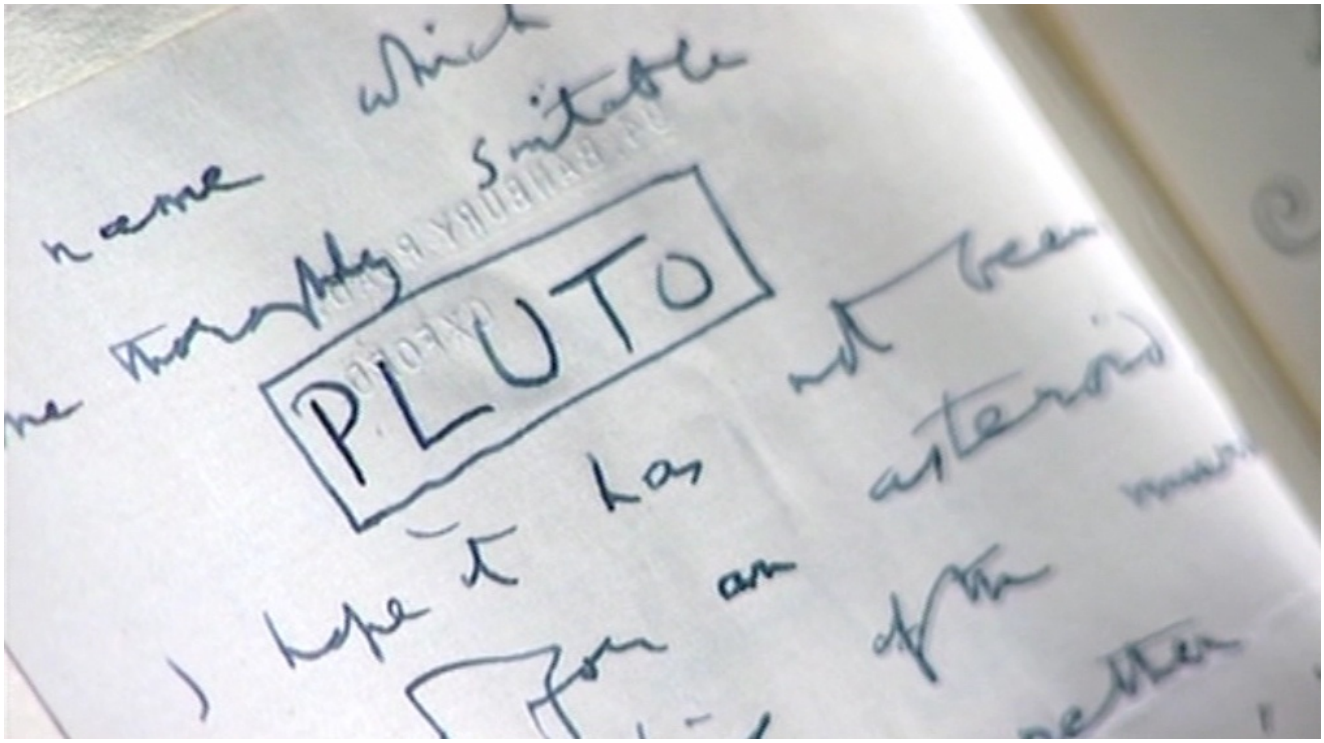
Director & Producer of Naming Pluto, Ginita Jimenez, attended Astronomy Ireland's National Day in April 2009 to give an introductory speech before screening the film and later in May 2009 at the Royal Astronomical Society, London, alongside Dr. Allan Chapman, Science Historian at Oxford University.

Naming Pluto has also screened at Wrexham Science Festival and will still be going strong in 2010 when it screens at the biggest Science Festival in Europe, the British Science Festival, with an introduction from Dr. Francisco Diego.




Aiming towards inspiring new generations of science lovers, movers and shakers, Father Films tailor made an email campaign approaching Science consultants and advisors responsible for Primary and Secondary schools across County Councils and London Boroughs in the United Kingdom. This makes for a wide spectrum of audiences, not only geographically but in its difference of age range, industry and astronomical awareness.

As a documentary, Naming Pluto has transcended geographical boundaries and introduced Venetia's story to an audience of either one, one hundred or one thousand at a time.




This report must acknowledge and thank all those who contributed in so many different ways to Naming Pluto. Our participants, crew, promoters, creative and industry journalists have faithfully and unconditionally kept up the interest, awareness and momentum. We believe that our initial objectives have been achieved and will continue wholeheartedly to share Venetia's story.

I must save the final word of thanks to Venetia herself, who passed away in April 2009 aged 90 and who, on a personal note, I shall miss very much. She was an extraordinary woman and whose modesty, intellect and charm I shall always remember. I cannot be prouder or more honoured to have made my first film a lasting document to her remarkable contribution to astronomical history.

## Main Activities

Naming Pluto features as part of the Science Museum's Cosmos and Culture exhibition, which runs from July 2009 to December 2010. Naming Pluto screened at the following Film and Science Festivals during 2008-2010.

### 2010

| | | |
|---|---|---|
| British Science Festival | UK | www.britishscienceassociation.org |
| Science Film Festival | Australia | www.scinema.com.au |
| End of the Pier Film Festival | UK | www.eotpfilmfestival.co.uk |
| Phoenix Film Festival | USA | www.phoenixfilmfestival.org |
| Vineyard Film Festival | Cyprus | www.vffestival.com |
| Byron Bay Int. Film Festival | Australia | www.bbff.com.au |
| Heart of Gold Film Festival | Australia | www.heartofgold.com.au |
| Dhaka Int. Film Festival | Bangladesh | www.dhakafilmfest.org |
| Cineglobe | Switzerland | www.cineglobe.ch/2010/ |

### 2009

| | | |
|---|---|---|
| Palm Springs Int. Short Film Festival | USA | www.psfilmfest.org |
| Atlanta Film Festival | USA | www.atlantafilmfestival.com |
| Hamptons Int. Film Festival | USA | www.hamptonsfilmfest.org |
| Soho Rushes Shorts | UK | www.sohoshorts.com |
| United Nations Assoc. Film Festival | USA | www.unaff.org |
| Los Angeles Int. Children's Festival | USA | www.lachildrensfilm.org |
| KidsFirst! Film Festival (3rd Qtr) | USA | www.kidsfirst.org |

| | | |
|---|---|---|
| Cinequest Film Festival | USA | www.cinequest.org |
| Jaipur Int. Film Festival | India | www.jiffindia.org |
| London Int. Fest of SciFi & Fantastic Film | UK | www.sci-fi-london.com |
| Worldfest Houston | USA | www.worldfest.org |
| Rincon Int. Film Festival | Puerto Rico | www.rincon.bside.com |
| Athens Int. Science Film Festival | Greece | www.caid.gr |
| Australian Science Festival | Australia | www.sciencefestival.com.au |
| Krakow Int. Film Festival — Marketplace | Poland | www.kff.com.pl |
| In the Palace Short Film Festival | Bulgaria | www.inthepalace.com |
| Fantaspoa | Brazil | www.fantaspoa.com |
| Edinburgh Fringe Festival | UK | www.cvenues.com |
| Globians Doc Festival Berlin | Germany | www.globians.com |
| CalDoc Int Film Festival | USA | www.sjiff.org |
| Sebastopol Doc Film Festival | USA | www.sebastopolfilmfestival.org |
| Imagine Science Film Festival | USA | www.imaginesciencefilms.com |
| Mostra de Ciencia e Cinema | Spain | www.cienciaecinema.org |
| Through Women's Eyes | USA | www.throughwomenseyes.com |
| Int. Scientific Film Fest, Szolnok | Hungary | www.tizamozi.hu |
| Rockport Film Festival | USA | www.rockportfilmfest.com |
| Poppy Jasper Film Festival | USA | www.poppyjasperfilmfest.org |
| Falstaff Int. Film Festival | UK | www.fiff.org.uk |
| Serbian Science Festival | Serbia | www.festivalnauke.rs |
| Kin Int Film Festival | Armenia | www.kin-festival.liza.am |
| OXDOX | UK | www.oxdox.com |

## 2008

| | | |
|---|---|---|
| LA Femme Festival | USA | www.lafemme.org |
| Paso Robles Digital Film Festival | USA | www.pasoroblesfilmfestival.com |
| Filmstock 9 | UK | www.filmstock.co.uk |
| Madurai Int. Film Festival | India | www.maduraifilmfest.blogspot.com |
| Waterford Int. Film Festival | Ireland | www.waterfordfilmfestival.com |

## Science Museum (London)

Naming Pluto has been invited by the Science Museum, London to feature in its 2 year Cosmos and Culture project. Clips of the film will be shown on the exhibition's interactive platform which will mean over 1million adults and children will have access to Venetia's extraordinary and little known story.

Organisers: London Museum.

Website: http://www.sciencemuseum.org.uk/visitmuseum/galleries/cosmos_and_culture.aspx

Estimated number of people who attended or were reached by this activity: 20 000.

Naming Pluto selected to be a part of 2010's British Science Festival
The above activity is the most recent in Naming Pluto's exposure on the world stage. We can confirm that Naming Pluto has been invited to be a part of the biggest Science festival in Europe. The British Science Festival takes place from 14 -19 September 2010 in Birmingham. More details will feature on www.fatherfilms.com and the British Science Association's website.

Organisers: British Science Association.

Website: http://www.britishscienceassociation.org/web/BritishScienceFestival/

Estimated number of people who attended or were reached by this activity: 1000.

## Palm Springs International Festival of Short Films — Shortfest

Palm Springs International Festival of Short Films — Shortfest, is the largest short film festival in the United States. Acceptance to Palm Springs Shortfest qualifies a short film to also apply for an Oscar nomination. In 2009, 2200 short films applied for entry to Palm Springs Shortfest and only 315 of those were selected for one week of short film screenings. News and press releases related to Shortfest feature in numerous high brow film industry publications both in print and online. Out of 27 awards given at the 2009 Shortfest, Naming Pluto scooped Best Documentary — 2nd Place, a remarkable accolade given the wealth and breadth of filmmaking talent presented at the festival.

Organisers: Palm Springs International Film Society.

Website: http://www.psfilmfest.org/news/detail.aspx?NID=205&year=2009

Estimated number of people who attended or were reached by this activity: 1000.

Falstaff International Film Festival
Naming Pluto was awarded Best UK Documentary at Falstaff's inaugural International Film Festival 2009.

Organisers: Falstaff International Film Festival.

Website: http://filmfestival.stratfordonavonarts.org.uk/

Estimated number of people who attended or were reached by this activity: 200.

## Universe Today article written by Dr. Ian O'Neill

At the start of 2009, Dr. Ian O'Neill wrote a shining review upon watching Naming Pluto. Dr. O'Neill is a British solar physics doctor with 10 years of physics study and research experience as well as founding and running Astroengine.com. He is also a space writer for various online publications. In featuring the review on Astroengine.com and on Universe Today, a space news and content website that has an online presence of millions around the globe, news of Venetia's story made it to corners of the world we couldn't reach on any other platform. Because of this article, people from as far and wide as Australia, South Africa and North America expressed an interest and bought their own limited edition DVD copies of Naming Pluto.

Organisers: Father Films.

Website: www.fatherfilms.com

Estimated number of people who attended or were reached by this activity: 300.

## Viral campaign for Naming Pluto — December 2009

With the help of Red Box New Media, Father Films sent a viral email to its network of friends and colleagues to spread news of Naming Pluto's limited edition DVD — in advance of the Christmas season.

Organisers: Father Films.

Website: www.fatherfilms.com

Estimated number of people who attended or were reached by this activity: 2000.

## Naming Pluto's appearance on BBC South East and BBC Oxford Breakfast TV News and Radio

In April 2009 and October 2009, Naming Pluto featured on BBC Breakfast TV News in two regions in the UK. The first, in Oxford, as it was featuring in the OXDOX film festival and Oxford was Mrs. Phair's home town when she named Pluto. The second televised appearance featured the Science Observatory in Hertsmonceux, Sussex and a short interview with the film's producer/director, Ginita Jimenez. The reason for this broadcast was that Naming Pluto was due to screen at 6 international film festivals in the month of October alone.

Organisers: BBC News South East and Ginita Jimenez.

Estimated number of people who attended or were reached by this activity: 10 000.

### Naming Pluto screens at the Royal Astronomical Society, London

During May 2009 Naming Pluto screened at the Royal Astronomical Society as a private showing to its members. We were privileged to be joined by Dr. Allan Chapman who gave a speech on the history of Pluto's naming and Ginita Jimenez, producer and director of Naming Pluto, also gave a talk. What made the evening all the more poignant was the missing presence of the film's subject, Venetia Phair. She had peacefully passed away only a few weeks earlier, aged 90. We were so grateful to have Venetia's son, Patrick present, who also gave an impromptu but very touching speech. It was a very special evening for all those who attended and for me personally, one of the most memorable and emotional moments of the year.

Organisers: Royal Astronomical Society and Father Films.

Estimated number of people who attended or were reached by this activity: 3000.

### Father Films releases Naming Pluto on DVD

In May of 2009, Father Films launched a limited edition DVD collection of Naming Pluto and printed 500 DVDs for the European and Asian regions and 500DVDs for the North American region. It also printed 500 A3 posters. As well as featuring the entire 13minute film in stereo and 5.1 surround sound, the collectible DVD also features exclusive interviews with Venetia Phair, Sir Patrick Moore and Science Historian, Dr. Allan Chapman in the form of film extras. All promotion for the DVD has been organised independently by Ginita Jimenez at Father Films, through every possible media channel, inclusive of TV and radio coverage, print and online networks, social networks, science and film industry networks and word of mouth. This is an active project which will continue until the last DVD is sold. There are no plans to reprint the film so recipients of Naming Pluto on DVD will have a unique item in their DVD collection.

Organisers: Ginita Jimenez — Father Films.

Website: www.fatherfilms.com/shop

Estimated number of people who attended or were reached by this activity: 7000.

Budget: 1800 €

### E-mail campaign to all London Boroughs and County Council Science Advisors for Primary and Secondary Schools in the United Kingdom

In an attempt to create awareness of Naming Pluto within the educational arena, Father Films designed an email campaign to approach Primary and Secondary Science Advisors and Consultants within each County Council and London Borough. Through these consultancy channels our objective was to reach school teachers and their pupils in as many schools across the UK, with the endorsement of the region's Science experts. During the activity, we sent out 'sample' DVDs to interested parties, who were then able to show Naming Pluto at their teachers' meetings and planning seminars. The feedback from the community was generally positive and constructive.

Organisers: Ginita Jimenez — Father Films.

Website: www.fatherfilms.com

Estimated number of people who attended or were reached by this activity: 100.

## Lessons Learned

- Always have a press pack ready before launching any online campaign or promotion. Stills and a trailer are powerful tools, so focus on them as they'll represent the message/story. Having these set Naming Pluto in

good stead for opening conversations with international partners and friends and taking Astronomy to new audiences.
- Approach deadlines for submissions to festivals or exhibitions at the earliest possible stage as planning and selection processes takes time and sometimes give the project a better opportunity of succeeding.
- Keep a detailed and organised database of contacts, we have found online connections the most valuable and long lasting and it's remarkable how effective they can be.
- Try to credit everyone involved, either in print as a collective or individually in a thank you email. People's guidance, thought and time all contribute to the activity's success.
- Having an online presence is paramount, especially in the form of a website. The internet provides a global marketplace. Make use of it, whether the activity is local or global.
- One faux pas we made was to launch a review on Universe Today without having the limited release DVD completely finished. There was a delay and we lost out on sales by not being able to immediately dispatch the product.
- Independent promotion and distribution of Naming Pluto has taken sterling work on behalf of a collective group of people and a lot of hard work and energy from Father Films. We loved making Naming Pluto and would like to continue its promotion, even make a longer version if funding allows.

## Legacy

If funding allows, Father Films aims to make a longer documentary for release in 2015, to celebrate the New Horizons Mission approach to Pluto. Keep checking, www.fatherfilms.com for updates.

In April 2010, Father Films collaborated with Thilina Heenatigala of Space Renaissance Education Chapter, in Sri Lanka to launch Naming X, a global online competition to honour and celebration of Venetia Burney Phair.

Naming X opened its online blogsite to find the next influential student or school group with the creative and scientific talent to suggest a suitable name for a minor planet and a reason why.

The Committee for Small Body Nomenclature (CSBN) of the International Astronomical Union, the body responsible for the naming of minor planets and comets, supported this educational initiative and will consider the winning names for the naming of minor planets.

Judges for Naming X included Canadian astronomer & comet discoverer, David Levy, Professor Ian Morison of Gresham University, who holds the oldest chair of Astronomy in the world also held by Christopher Wren and Marc W. Buie, collaborator on the New Horizons Mission to Pluto & staff scientist at Southwest Research Institute (SwRI), one of the oldest and largest independent, non-profit, applied research and development (R&D) organizations in the United States. Educators, Carolina Ödman, Julia Elizabeth Taylor, Janet Ivey-Duensing and Joan Chamberlin were also on the team.

Prizes for the winners included, a signed certificate from the judging panel, their name included in a working paper and presented formally to the CSBN of the IAU, telescope time from Bellatrix Observatory, Italy with guidance of a professional astronomer and a copy of Naming Pluto and an A3 film poster.

In June 2010 winners & runners were announced and at the moment of printing this report we will be submitting the winning names to IAU's CSBN. All detail can be found at:

Website: http://venetiaburneyphair.blogspot.com/p/competition.html

## Comments

There are many untold stories in the world of Astronomy and Venetia Phair's was one of them. Father Films is open to future projects or partnerships that celebrate the human story behind Astronomy. In the meantime it will continue with the inclusion of Naming Pluto in future activities to help keep astronomy centre stage.

## Special Project

Nikolai Vialkowitsch
info@raumprojektion.de
http://www.theeye3d.eu/

Task Group Members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview

The film, The EYE 3D — Life and Research on Cerro Paranal, stars the young scientist and ESOcast host Dr J, aka Joe Liske. In June 2009, a German film crew who specialise in making 3D movies accompanied Dr J on a trip from ESO Headquarters in Garching, Germany, to the landscapes of the Atacama Desert in the North of Chile, one of the driest sites on Earth and home to the VLT observatory.

Along with stunning views of the telescopes and clear explanations of how such a technical masterpiece functions, the movie also follows the lives of people at Paranal: astronomers, engineers, physicists and technicians, showing just how everyone's work at the VLT contributes not only to the acquisition of astonishing pictures of the Universe, but also to cutting-edge research about our cosmic origins. The movie is aimed at a broad audience, from schoolchildren to science scholars. Its extraordinary 3D technique gives viewers a real sense of being in the middle of the action, taking them on virtual tours inside the huge telescope domes or for a walk in the desert with Dr J.



Dr. J in the Atacama Desert

The film was co-financed by the film subsidy agencies of the German federal states of Baden-Württemberg and Bremen, several charitable and public organisations and ESO.

The EYE 3D, directed by Nikolai Vialkowitsch, will have its world premiere on Wednesday 28 October 2009 at the Film Festival in Biberach, Germany. It will be shown in 3D theatres across Germany from 29 October 2009 and all over Europe later this year. An international version in English language is available, and further translations in other European languages are in production

# Cassini Scientist for a Day

## Special Project

JPL/Cassini EPO Team
scientistforaday@jpl.nasa.govl
http://saturn.jpl.nasa.gov/education/scientistforaday8thedition/international/

Task Group Members:N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## General Overview

The Cassini Scientist for a Day Essay Contest is an opportunity for students around the world to learn about the Cassini mission to Saturn and to study and write about one of three of Saturn¹s most interesting science targets: Saturn and its Rings, Tethys and Saturn¹s Rings, and Titan.

Students watch videos of Cassini team members (scientists, engineers, mission planners, science planners, etc. representing both genders and a variety of ethnic backgrounds) as they introduce the contest and advocate for one of the three targets. The students work alone or in small groups to decide which target they think will yield the most interesting science results, and they conduct research and write an essay of up to 500 words justifying their selection.



Robert Mitchell and Students, Students from Shirley Avenue Elementary School in Reseda, Calif., visited NASA's Jet Propulsion Laboratory to see the image they selected. Robert T. Mitchell, Cassini programme manager, presented them with a poster of the image. The students participated in the pilot edition of "Cassini Scientist for a Day," a programme designed to expose students to the kind of decisions scientists

make routinely. They were given three equally valid choices and had to decide which observation would bring the most science. After a lively debate, they choose to image the rings.

In the process, students learn to think like scientists, and gain practice writing essays. They learn to conduct research and argue for their chosen target in much the same way that Cassini scientists do .

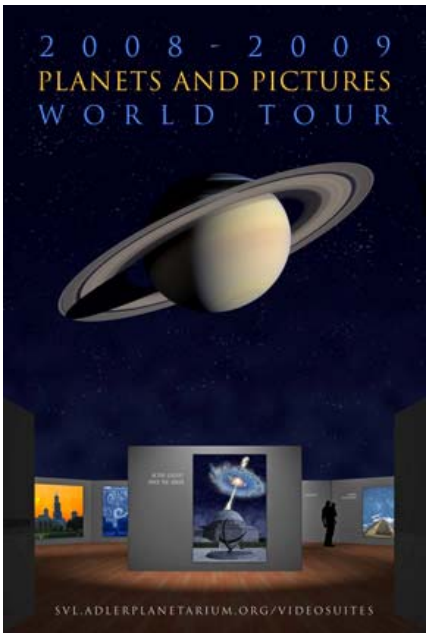
In the United States, 372 students from 20 states participated. Meet the authors whose essays were judged best in the country as reviewed by Cassini team members. Then look behind the scenes at their entries, and see what it took to come out on top.

To celebrate the 2009 International Year of Astronomy, the contest was also open to all nations and educational organizations. Each country and/or educational organization was encouraged to run the contest either following our guidelines or customizing them to fit their needs. These organizations were tasked to collect and judge the essays, and to send the winning entries to the Cassini Outreach Team. Students from 27 countries sent their entries, some in English and some in their native languages. Meet these future scientists

# Planets and Pictures World Tour

## Special Project

José Francisco Salgado
salgado@adlerplanetarium.org
http://svl.adlerplanetarium.org/videosuites/




Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## General Overview

***Gustav Holst's The Planets*** and ***Astronomical Pictures at an Exhibition*** are two suites of high-definition astronomical videos to accompany live performances of classical music works. The videos feature awe-inspiring images, historical illustrations, and visualizations produced by NASA, ESA, NCSA, and the Adler Planetarium. The suites, produced and directed by Adler Planetarium astronomer and visual artist José Francisco Salgado, follow the tempo and tone set by the music resulting in an experience where the music and visuals reinforce each other instead of competing for the viewer's attention. They are not intended to be seen as documentaries but as art pieces that aim **to inspire audiences and encourage them to learn more about our solar system and the Universe**. In May 2006 the Chicago Sinfonietta and the Adler Planetarium premiered *Gustav Holst's The Planets*, a multidisciplinary work combining science, music, art, and history with the intention of broadening people's interest in one or more of these disciplines. The positive reception by audience members and critics prompted more collaborations between the Adler and the Sinfonietta resulting in another video suite entitled *Astronomical Pictures at an Exhibition* (premiered in May 2008) and a repeat concert of *The Planets* in Chicago's Millennium Park (Aug 2008). The latter became the highest attended concert in Millennium Park with an estimated audience of 12,000 people.





These video suites were featured in the opening ceremony of the International Year of Astronomy (IYA2009) at the UNESCO Headquarters in Paris and are being shown around the world as part of IYA2009 festivities. By the end of 2009, the video suites will have been presented more than 40 times in 10 countries. Other highlights of this ***Planets and Pictures World Tour*** include collaborations with the Boston Pops, the San Francisco Symphony, the Czech National Symphony Orchestra, and the Orchestra e Coro del Teatro Regio di Torino.

The concerts and video presentations, funded by the symphony orchestras and the Adler Planetarium, often include a Q&A session or lecture by Dr. Salgado on the science behind the visuals and the creative process involved in producing the video suites.

## Planets and Pictures World Tour Highlights

- The tour is comprised of 47 presentations in 29 cities in 10 countries. A complete list of tour dates is available at: http://svl.adlerplanetarium.org/videosuites/
- The largest audiences have been in San Francisco (14,000), Chicago (12,000), and Taipei (8,000).
- There is a stereoscopic (3D) version of *Astronomical Pictures at an Exhibition* — which was presented live with the California Symphony in Walnut Creek, California. This version is currently shown daily at the Adler Planetarium under the title of *3D Universe: A Symphony*.
- Selections from *Gustav Holst's The Planets* were narrated by Buzz Aldrin, the second man to walk on the Moon, in a concert with the Boston Pops.

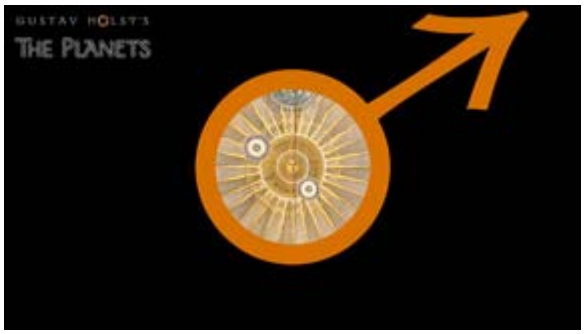
## Reviews

"Trained as a scientist, Salgado revealed an acute musical sensitivity and keen eye for pacing and editing that matched Holst's music seamlessly. His work was so effective as to arouse reverence-for his artistic eye and for the magnificence of the planets themselves." — Wednesday Journal of Oak Park and River Forest (May 2006)

"Salgado assembled everything from meticulously detailed 17th century charts and maps on aged, sepia-tinged paper to contemporary photos of impossibly round, colour-striped orbs floating against the black sky like austerely modern art objects. The images were so captivating that the music became distinctly secondary." — Chicago Sun Times (May 2006)

"The nature of the images alternated between ersatz video-game graphics and breathtakingly real satellite shots; who could have imagined that Mussorgsky's famous 1874 suite would be so ideally suited for both of them." — Chicago Sun Times (May 2008)

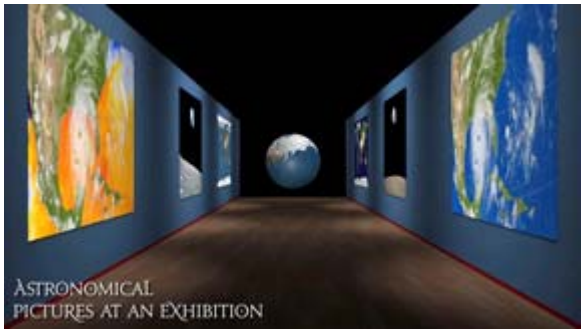
"[the] memorable accompanying video couldn't have been a more striking complement to Holst's score ...each planet got its own mini-movie that had the crowd as absorbed in a production than any other classical multimedia show in recent memory." — Chicago Sun Times (August 2008)




## The Planets Performances

| | |
|---|---|
| 11 May 06 | Chicago Sinfonietta, River Forest, IL, USA |
| 12 May 06 | Chicago Sinfonietta, Chicago, IL, US |
| 14 Oct 07 | California Symphony, Walnut Creek, CA, USA |
| 16 Oct 07 | California Symphony, Walnut Creek, CA, USA |
| 22 Aug 08 | Chicago Sinfonietta, Chicago, IL, US |
| 04 Oct 08 | Wheaton College Orchestra, Wheaton, IL, USA |
| 14 Oct 08 | Wheaton College Orchestra, Wheaton, IL, USA |
| 16 Oct 08 | Wheaton College Orchestra, Wheaton, IL, USA |
| 11 Dec 08 | Pacific Symphony, Orange County, CA, USA |
| 12 Dec 08 | Pacific Symphony, Orange County, CA, USA |

| | |
|---|---|
| 13 Dec 08 | Pacific Symphony, Orange County, CA, USA |
| 14 Dec 09 | Pacific Symphony, Orange County, CA, USA |
| 01 Mar 09 | Central Ohio Symphony, Delaware, OH, USA |
| 28 Feb 09 | Central Ohio Symphony, Delaware, OH, USA |
| 21 Mar 09 | National Taiwan University Symphony Orchestra, Taipei, Taiwan |
| 13 Jun 09 | Enrique López y Raquel Hernández, Madrid, Spain |
| 28 Jun 09 | Czech National Symphony Orchestra, Prague, CZ |
| 02 Aug 09 | Orq. Filharmònica de la U. de València, Valencia, Spain |
| 19 Sep 09 | Kingston Symphony, Kingston, Canada |
| 20 Sep 09 | Kingston Symphony, Kingston, Canada |
| 20 Sep 09 | Orchestra e Coro del Teatro Regio di Torino, Torino, Italy |
| 12 Oct 09 | Enrique López y Raquel Hernández, Fuentealbilla, Spain |
| 29 Oct 09 | Enrique López y Raquel Hernández, Albacete, Spain |
| 01 Nov 09 | Victoria Symphony, Victoria, CA |
| 02 Nov 09 | Victoria Symphony, Victoria, CA |




## Astronomical Pictures at an Exhibition Performances

| | |
|---|---|
| 11-MAY-08 | Chicago Sinfonietta, River Forest, IL, USA |
| 12-MAY-08 | Chicago Sinfonietta, Chicago, IL, USA |
| 19-FEB-09 | Orq. Sinfónica de Albacete, Cuenca, Spain |
| 03-MAY-09 | California Symphony, Walnut Creek, CA, USA |
| 05-MAY-09 | California Symphony, Walnut Creek, CA, USA |
| 02-JUL-09 | Orquesta del Palau de Música, Valencia, Spain |
| 19-SEP-09 | Kingston Symphony, Kingston, Canada |
| 20-SEP-09 | Kingston Symphony, Kingston, Canada |
| 03-OCT-09 | Orq. Sinfónica de Albacete, Manzanares, Spain |
| 10-OCT-09 | Orq. Sinfónica de Albacete, Toledo, Spain |
| 11-OCT-09 | Orq. Sinfónica de Albacete, Fuentealbilla, Spain |
| 29-OCT-09 | Orq. Sinfónica de Albacete, Albacete, Spain |
| 06-NOV-09 | Orq. Sinfónica de Albacete, Ciudad Real, Spain |
| 07-NOV-09 | Orq. Sinfónica de Albacete, Talavera de la Reina, Spain |
| 08-NOV-09 | Orq. Sinfónica de Albacete, Almansa, Spain |

## Special Project

Susanne Milde
milde@mildemarketing.de
http://www.scienceface.org/

Task Group Members:

- 

Number of people reached by IYA2009:

Budget:

Sources:

- German Max Planck Society/Max Planck Institute for Gravitational Physics (Albert Einstein Institute)
- Milde Marketing Science Communication.

## General Overview

Scienceface has created 15 science-oriented videos about black hole science that are provided on www.scienceface.org — together with further information — and on YouTube for the use of young people, teachers, and other interested non-scientists. This outreach project is designed to inform young people about scientific themes, bring them to understand that scientific research is an activity that is closely integrated into society and is done by real people. Hopefully we will interest a few of them in becoming scientists themselves.





The initial programme is about black hole science, but the production of further series is planned. Scienceface was developed in an international collaboration by German, American and British project members. The interviewees are from Germany, India and the United States. As an internet based project it is globally accessible. The translation in different languages is already being done and negotiations with potential partner organizations in India and South Africa underway. The project will continue beyond 2009.

The first series of clips has already been implemented together with the dedicated web platform. Scienceface already has a growing community of users. Young and established scientists follow Scienceface activities as well as teachers and teacher´s associations in the US, Great Britain, India and Africa.

# The Lives of Galileo

## Special Project

Fiami
info@fiami.ch
http://www.fiami.ch

Task Group Members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A




## General Overview

Everybody is familiar with the name of Galileo. But what do we know about him?

For the first time, astronomy and Galileo are presented in an historical, accessible and humoristic comic book. In 40 colour-filled pages organised into six stunning chapters, Galileo plays different roles through the ages of great astronomical discoveries: In Babylon, he learns how to write in clay and how to read the sky. In Alexandria, he measures the circumference of the Earth alongside Eratosthenes using the shade of a stick. On the Ganges, Aryabhata explains to him that the Earth rotates around a central axis. In Venice, he relives the revolutionary moment when he first peered out into the vastness of the Universe through a telescope. In Greenwich he mixes with Newton and Halley (and “his” comet). Galileo is back to show us the purpose of modern astronomy — why don’t you join the adventure and explore with him?

The comic book “The lives of Galileo” shows that history of science is first a wonderful history of share of knowledge across the earth and across centuries. Sky and astronomy has no owners, we belong to the sky and not the opposite, “The lives of Galileo” shows it in humoristic and teaching way.

“The Lives of Galileo” has been translated to 8 languages: French, English, Galician, Dutch, Finnish, Thaï, Italian and Spanish, and is distributed all over the world.

Swiss TV has also seized the opportunity of using The Lives of Galileo to educate a wide audience showing six broadcasts adapted from the comic.

fiami.ch

# THE LIVES OF GALILEO

A journey through the history of astronomy



# Task Groups

Several IYA2009 Special Task Groups have been set up to organise very specific events, actions throughout the Year as well as provide organisational support to the IYA2009 Secretariat.

# Opening Event

## Task Group

The Opening Ceremony of IYA2009 was held in Paris, on 15–16 January, 2009, under the aegis of the UN, UNESCO and the IAU. The ceremony itself featured keynote speeches, research findings, an exhibition and also social aspects.

### Programme

### Thursday, 15 January

8 a.m.– 9 a.m. Registration and open visit to the exhibitions in the Mire Hall
Morning session

9 a.m.– 10.15 a.m. — Inauguration (Jean-Michel Jarred, master of ceremony)

- Opening remarks by UNESCO Director-General, Mr. Koïchiro Matsuura
- International Year of Astronomy: Vision and Goals by Mrs Catherine Cesarsky, President, International Astronomical Union
- Remarks by Reynald Seznec, President and CEO of Thales Alenia Space
- Greetings by government ministers and important personalities

10.15 a.m.– 10.45 a.m. Coffee break

10.45 a.m.– 12 p.m. Astronomy: History and Culture
Chair: Jean Audouze

- The Skies of the World, a Multicultural Experience, Franco Pacini (Italy)
- The First Astronomers: Astronomy over Four Millennia, Juan Antonio Belmonte (Spain)
- Mayan Astronomy, Julieta Fierro (Mexico)
- Islamic Astronomy, George Saliba (USA)
- Astronomical Exploration and the Public Imagination, Baruch Blumberg (USA)

12 p.m. – 12.30 p.m. From Galileo (400 years) to Apollo (40 years)
Chair: Jean Audouze

- From Galileo to Einstein, Françoise Balibar (France)

12.30 p.m. – 2 p.m. Lunch break

Afternoon session

2 p.m.– 3 p.m. (continuation of From Galileo (400 years)…)
Chair: Tim de Zeeuw

- The New Frontier: The Exploration of the Solar System, André Brahic (France)
- Echoes of Creation: Discovery of the Big Bang Fossil Radiation, Robert Wilson (USA)

3 p.m. – 3.30 p.m. Modern Astronomy: Discoveries on our Origins

- From a “simple” beginning to our complex cosmos, Lord Martin Rees (UK)

3.30 p.m.– 4 p.m. Coffee break

4 p.m. – 5.30 p.m. (continuation of Modern Astronomy…)

Chair: Jan Palous

- A Multitude of Worlds: Extrasolar planets, Michel Mayor (Switzerland)
- IYA2009: Astronomy for Humankind, Cornerstones and Universe Awareness, Kevin Govender (South Africa)

- Video and news from the South Pole Concordia Research Station, presented by Gérard Jugie, Institut Paul Emile Victor (France)

Evening

7.30 p.m. – 9.30 p.m. Reception at the Palais de la Découverte
- Video clip of "Around the World, Around the Sky" by Robert Pansard-Besson (France)
- Film of the Adler Planetarium presented by José-Francisco Salgado (USA) with the music "The Planets" by G. Holst

## Friday, 16 January

8.30 a.m. – 9.00 a.m. Open visit to the exhibitions in the Miro Hall

Morning session
9.00 a.m. – 9.30 a.m. Video-conference with work stations

Chair: Beatriz Barbuy
- Live video-conference with astronomers in the European Very Large Telescope in Paranal, Chile
- Virtual visit of the European Southern Observatory (ESO) and imaging session using one of the 8m telescopes

9.30 a.m. – 10.30 a.m. (continuation of Modern Astronomy…)
- The Biggest Question of All: The Search for Extraterrestrial Life, André Brack (France)
- The Question of Parallel Universe, Hubert Reeves (Canada)

10.30 a.m. – 11 a.m. Coffee break

11 a.m. – 12.30 p.m. Stars: Life and Death

Chair: Gang Zhao
- Pulsars: Progress and Puzzles, Jocelyn Bell Burnell (UK)
- Beautiful Death for a Star: Planetary Nebulae, Sylvia Torres-Peimbert (Mexico)
- Cosmic Explosions: The Violent Supernovae, Ken'ichi Nomoto (Japan)

12.30 p.m. – 2 p.m. Lunch break

Afternoon session

2 p.m. – 3.30 p.m. Black holes and Space
Chair: Gopal Krishna
- Report from the Abyss: Massive Black Holes, Reinhard Genzel (Germany)
- Astronomy from Space: The Hubble and James Webb Space Telescopes, Jonathan Gardner (USA)
- Cosmic Vision, David Southwood (ESA)
- Closing remarks by Walter Erdelen, Assistant Director-General for Natural Sciences, UNESCO

3.30 p.m. –4 p.m. Coffee break

4 p.m. — 5.30 p.m. Remote observing and VLBI (3 parallel sessions)
- Remote observing in Hawaii with Canada-France-Hawaii Telescope (CFHT)
- HI-21 cm radio observation of the Milky Way with Salsa Telescope in Onsala, Sweden
- Global e-VLBI demonstration

Evening

6 p.m. — 7.30 p.m. Reception at the Foyer of Room I hosted by UNESCO

7.30 p.m. — 9.30 p.m. Cultural event

- “Sun Rings” performance by the Kronos Quartet with the participation of the UNESCO Choir

## Exhibitions

Astronomy: crossroads of science and culture
This exhibition (15 to 23 January) accompanied the launching of IYA2009 on 15 and 16 January 2009 and the International Symposium on the Role of Astronomy in Culture and Society which took place in UNESCO from 19 to 23 January 2009. It featured exhibits of different actors in the field of astronomy and space science, and works of art and heritage inspired by astronomy.

### Exhibitors

- IYA2009 Cornerstone Project: from Earth to the Universe
- National Aeronautics and Space Administration (NASA)
- European Space Agency (ESA)
- European Organization for Astronomical Research in the
- Southern Hemisphere (ESO)
- Global e-VLBI
- BAADER PLANETARIUM GMBH
- Centre national d’études spatiales (CNES)
- The World at Night (TWAN)
- Canada-France-Hawaii Telescope Corporation
- Initiative for the International Association of Dark-Sky Parks
- The Instituto de Astrofisica de Canarias
- Starlight Initiative

### Artistic exhibition

An artistic exhibition was organised within the IAU Symposium 260 “The Role of Astronomy in Society and Culture” (19-23 January), featuring sculptures, paintings, photographs, videos, from a wide variety of artists from around the world, and all inspired by astronomical phenomena.

### Publishers/Media

- Redshift
- History Channel
- Cosmotoons, Inc
- EDPsciences
- Wiley
- BEDI Thomas Libraries
- Cambridge University Press
- Imperial College Press
- Dunod

## Invited speakers

- Franco Pacini (Italy)
- Juan Antonio Belmonte (Spain)
- Julieta Fierro (Mexico)
- George Saliba (USA)
- Françoise Balibar (France)
- André Brahic (France)
- Robert W. Wilson (USA)
- Martin Rees (UK)
- Michel G. Mayor (Switzerland)
- Baruch S. Blumberg (NASA, USA)
- Kevin Govender (South Africa)
- José-Francisco Salgado (USA)

- André Brack (France)
- Hubert Reeves (France)
- Jocelyn Bell Burnell (UK)
- Silvia Torres-Peimbert (Mexico)
- Ken'ichi Nomoto (Japan)
- Reinhard Genzel (Germany)
- Jonathan P. Gardner (NASA)
- David Southwood (ESA)

## List of sponsors

- Palais de la Découverte
- Ministère de l'Enseignement
- Supérieur et de la Recherche
- INSU-CNRS (Institut National des
- Sciences de l'Univers du CNRS)
- Observatoire de Paris
- CEA (Centre Energie Atomique)
- CNES (Centre National d'Etudes Spatiales)
- ESA (European Space Agency)
- CFHT (Canada France Hawaii Telescope)
- Région Ile-de-France

## Attendees

About 900 people attended, among them eminent scientists, including Nobel Laureates, and also around 100 young students from individual countries.

More detailed information can be found at the IYA2009 Opening Ceremony Programme Book:
http://www.astronomy2009.org/static/archives/brochures/pdf/opening_ceremony_prog_book.pdf

## Videocast/ LiveBlog/Webpage

The IYA2009 Secretariat ran a LiveBlog from the Opening Ceremony. Based from the Cosmic Diary Cornerstone project website, posts were regularly written by Lee Pullen about events occurring, exhibitions, presentations, as well as less formal developments. The LiveBlog proved to be popular, and received visits from people in 132 countries. It is still available online: www.cosmicdiary.org/lee_pullen/

Number of accesses in Cosmic Diary and astronomy2009.org
The Opening Ceremony LiveBlog was active from the 13th to the 26th of January and 36 posts were written, almost in an hourly basis during the two days of the Ceremony. During this period, the Cosmic Diary received 9200 visits. The peak of visitors was on the two days of the conference: 15th (1123) and 16th (1397). The posts proved to be quite popular and received a lot of comments.

The IYA2009 official website www.astronomy2009.org also had an increase of about 2000 visitors per day during this period

## Communication Strategy

A communication strategy was designed for the YA2009 Opening Ceremony by the IYA2009 Secretariat, in partnership with the Opening Ceremony task Group and UNESCO:

### Communication task group:

- Françoise Combes (SF2A) — francoise.combes@obspm.fr
- Yolanda Berenguer (UNESCO) — Y.Berenguer@unesco.org
- Sue Williams (UNESCO) — s.williams@unesco.org
- Isabelle Le-Fournis (UNESCO) — i.le-fournis@unesco.org
- Lars Lindberg Christensen (ESO ePOD/IAU) — lars@eso.org

- Pedro Russo (IAU/ESO ePOD) — prusso@eso.org
- Mariana Barrosa (IAU/ESO ePOD) — mbarrosa@eso.org

## Press releases:

- Save the date!: http://www.astronomy2009.org/news/pressreleases/detail/iya0804/
- Press release: Invitation to the media: http://www.astronomy2009.org/news/pressreleases/detail/iya0901/
- Press release: IYA2009 Official Opening: http://www.astronomy2009.org/news/pressreleases/detail/iya0902/

## Press conference

(15 January 2009, Room II, 12:30)
Topics:

- Why is Astronomy Important?
- Why is IYA being celebrated, expectations for IYA
- IYA2009 Highlights
- Future challenges for Astronomy
- Key events on the programme

## Media interest

IYA2009 News round-up for the OC: http://www.astronomy2009.org/news/updates/136/

The Opening Ceremony was featured in the March issue of "Southern Stars", the journal of the Royal Astronomical Society of New Zealand. Seven pages were dedicated to in-depth coverage, including a selection of talks. The issue is available via the IYA2009 website:
http://www.astronomy2009.org/static/archives/documents/pdf/IYA2009_oc_southernstars.pdf

## Media attendance

- ABC Australia — Jane SHIELDS
- Air & Cosmos — Magali REBEAUD
- Ansa — Tiziana GUERRISI
- Brief Press ltd — Catalin MOSOIA
- Cafebabel.com — Jane MERY
- CBC — David COMMON
- Ciel et Espace — Philippe HENAREJOS
- Ciel et Espace — Alain CIROU
- Ciel et Espace — David FOSSE
- Ciel et Espace — Eric PIEDNOEL
- Cigale — Françoise LEMOINE
- De Standaard — Steven STROEYKENS
- Discover Science and Engineering TV — Leo ENRIGHT
- DPA — Ansgar HAASE
- El Mundo — Rubén AMON
- Eos magazine — Senne STARCKX
- EPA — Ian LANGSDON
- Espace Photos — Franck SEGUIN
- France 3 — Michel ANGLADE
- France 3 — Aurélie SAILLARD
- France 3 — Patrick HESTERS
- France TV interactive — Ange HERRERO-LUCAS
- France TV interactive — Florent LE GADEC
- Freelance — Govert SCHILLING
- Freelance — Govert SCHILLING

| | |
|---|---|
| • Freelance | Frank BECKERS |
| • Freelance | Frédéric GUÉRIN |
| • Freelance | Katarzyna CHAMBENOIT |
| • Freelance | Kenneth FOX |
| • Freelance | Marie-Françoise VILLARD |
| • Freelance | Paola ANTOLINI |
| • Freelance | Pelle NEROTH |
| • Freelance | Sotira TRIFOURKI |
| • Freelance | Thierry HANON-DEGROOTE |
| • Jiji Press | Fumihiko SUGIYAMA |
| • Journal Paris-Belgrade | Ljubomir PESKIREVIC |
| • Jutarnji list | Tanja RUDEZ |
| • L'Astronomie | D. BAUDVIN |
| • L'Astronomie | Jean-Pierre MARTIN |
| • Lavinia France audiovisuel | Jonathan BALLON |
| • Lavinia France Audiovisuel | Jorge CORDUA |
| • Lavinia France audiovisuel | Vincent BUI |
| • Le Figaro | Marc MENNESSIER |
| • Lusa | Luis GUITA |
| • Moonscoop | Andréa NEMESES |
| • Moonscoop | Delphine PHAN |
| • Moonscoop | Marie-Charlotte GARLAN |
| • National Geographic France | Céline LISON |
| • Nojum Magazine | Fariba SABET |
| • Okinawa Times | Metwally TSUKKASA |
| • Okinawa Times | Yasuko KUDAKA |
| • Pacific Palisades Post | Kala PERKINS |
| • Panerai | Emanuela BAURIAUD |
| • Panerai | Muriel NIRONI |
| • Paris-Belgrade | Ljubomir PESKIREVIC |
| • Physics World | Bel DUME |
| • Physics World | Dens MMILNE |
| • Physics World | Joao MEDEIROS |
| • Radio Egyptienne | Hazem FODA |
| • Radio Suisse Romande | Ruth SCHEPS |
| • Radio-Canada | Sophie-Andrée BLONDIN |
| • Redshift-live Media | Peter STRUBS |
| • Redshift-live Media | Raphaël STEINBACH |
| • RTP | Benjamin FARES |
| • RTP | Paulo DENTINHO |
| • Science Magazine | Maria CRUZ |
| • Sciences et Avenir | Azar KHALATBARI |
| • Sciences et Avenir | Dominique LEGLU |
| • Sciences et Avenir | Sylvie ROUAT |
| • Sciences et Vie | Mathilde FONTEZ |
| • Secrétariat IYA | Marieke BAAN |
| • SF Schweizer Fernsehen | Adrian ARNOLD |
| • SF Schweizer Fernsehen | Björn KATHÖFER |
| • SF Schweizer Fernsehen | Edi DEVIN |
| • Sky and Telescope | Joel TONER |
| • Sky and Telescope | Robert NAEYE |
| • Space News | Peter B. de SELDING |
| • TV de Bielorussie | Pavel LAUROU |
| • Xinhua | Xue Mei LI |

# Budget

## Expenses

(in Euros)

| Item | SF2A Expenses | UNESCO Exp. | IAU Exp |
|---|---|---|---|
| UNESCO rooms, staff, equipement | 11500 | | |
| Real time translations (English/French) | | 7500 | |
| 4 Coffee-breaks x 700pers (3.75e) | | 10500 | |
| Two lunches (sandwich style) 700 pers | | 23000 | |
| Invited speakers lunches (2x35x35e) | 2500 | | |
| Reception 15 January (for 500 invited guests, including students) | 21000 | | |
| SONO-Video Reception | 2000 | | |
| Reception 16 January (400) | | 17000 | |
| Invited speakers (stay for 3 nights +travel) | 20000 | | |
| Advertising: announcements, posters, brochures, press conference, etc. | | | 3000 |
| Recording in real time, and internet webcast, location of high-rate ADSL with France Telecom | 4000 | | |
| Stay expenses for 100 students (4 nights, at 25 euros per person, plus 100 euros for meals tickets & metro) | 20000 | | |
| Travel grants for students+ SPoC from developing countries | | 25000 | |
| TOTAL EXPENSES = 167 000 | 24000 | 83000 | 3000 |

## Income

(in Euros)

| Source | Requested | Obtained for SF2A |
|---|---|---|
| Ministère de l'Enseignement et de la Recherche | 20000 | 20000 |
| IAU | 10000 | 10000 |
| ESA | 10000 | 10000 |
| CNES | 10000 | 10000 |
| CEA | 10000 | 10000 |
| Obs-Paris | 5000 | 5000 |
| INSU/CNRS | 5000 | 5000 |
| Région Ile-de-France | 11000 | 11000 |
| Total income | 81000 | 81 000 |

# EU FP7

The IYA2009 has established a Special Task Group to investigate possible European Commission calls for proposals in the framework of the 7th Research and Development Framework Programme (FP7).

## Task Group

- Claus Madsen ( cmadsen@eso.org ) Chair
- Pedro Russo ( prusso@eso.org )
- Enikö Patkos ( epatkos@eso.org )
- Helen Sim ( helen.sim@csiro.au )
- Carolina Ödman ( odman@strw.leidenuniv.nl )

# Kepler

This task group celebrated the 400th anniversary of Kepler's Astronomia Nova, the cornerstone of modern astronomy, in the year of the launch of NASA's Kepler mission to seek Earth-sized extrasolar planets.

## Task Group

- Terence Mahoney (tjm@iac.es) Co-Chair
- David Koch (d.koch@nasa.gov) Co-Chair
- Alan Chapman
- Thomas Posch (posch@astro.univie.ac.at)
- Tapio Markkanen (tamapro@elisanet.fi)
- Stanislaw Bajtlik (bajtlik@camk.edu.pl)
- Rick Fienberg (rfienberg@andover.edu)
- Steve Pompea (spompea@noao.edu)
- Beatriz García (batrizgarciautn@gmail.com)
- Berthold Geck (B-W-M-P_Geck@t-online.de)
- Manfred Fischer (m.i.fischer@t-online.de)
- Andrew Fraknoi (fraknoiandrew@fhda.edu)

## Aim

Raise Kepler's public profile through in-reach (telling astronomers about Kepler), education, outreach.

## Means

Conferences, public talks, exhibitions, articles, books, radio.

## Resources

- Bibliography, museums, monuments, TV documentaries, letters, literature & arts
- Organise Special Session on Kepler at IAU GA 2009 (Rio de Janeiro).
- Investigate possibility of getting Kepler's correspondence published in English (at an affordable price).
- Investigate commemorate stamps/coins.
- Promote Kepler as Astronomy Ambassador.
- IAU GA 2009 SPS
- Title: 'Marking the 400th Anniversary of Kepler's "Astronomia Nova"'.
- Letter of Intent now listed on IAU website.
- Planned launch of NASA's Kepler Mission in Feb. 2009.
- Czech Republic: International symposium in Prague.
- Poland: International symposium in Zagan.
- Austria: Exhibitions and other activities in Linz, Vienna and Graz.
- Germany: Weil der Stadt has plans and has contacts the Kepler TG.

# Galileo

The aim of this task group was to raise Galileo Galilei's public profile through intra-community communication, formal and informal education and public outreach.

## Task Group

- Paolo Galluzzi, (Chair), Institute and Museum of the History of Science, Italy.
- Thomas Hockey, Vice-Chair, AAS Historical Astronomy Division.
- Peter Abrahams, Past President, Antique Telescope Society.
- Marvin Bolt, Director, Webster Institute for the History of Astronomy.
- Daniel Green, Harvard-Smithsonian Center for Astrophysics.
- Robert Hatch, Department of History, University of Florida.

### Exhibitions about Galileo scheduled for 2009

- Galileo's telescope. The instrument that changed the world, now in Florence, then in Beijing and Stockholm.
- Galileo, the Medici and the Age of Astronomy, April 4-September 7, at the Franklin Institute, Philadelphia.
- Galileo. Images of the Universe from Antiquity to the Telescope, March 3th-August 30th 2009, Palazzo Strozzi, Florence.
- The Telescope and the Paintbrush. New Science and New Art in the Age of Galileo, May 9th — July 20th 2009, Palazzo Giuli, Pisa.

# New Year's Eve Event

The main objective of this Special Task Group was to announce that 2009 is the International Year of Astronomy on 31 December 2008.

## Task Group

- Helen Sim (Chair) Helen.Sim@csiro.au

## Multimedia Show Advisory Committee

- Vítor Machado (Grupo Luso Pirotecnia) vmachado@lusopirotecnia.com
- Mélanie Cagnon (LusoEvents) melanie@lusoevents.com

## Results

The International Year of Astronomy 2009 literally started with a bang for residents of the Brazilian city Rio de Janeiro, as a grand fireworks display was held in honour of the year, with explosions in the shapes of stars, comets, and even planets.

# Solar Physics




Chair: Bruno Sánchez-Andrade Nuño (Max Plank / Naval Research Laboratory)
E-mail: brunosan@gmail.com
Website: http://solarastronomy2009.org/

The night sky harbours countless marvels to make any human wonder about its existence. However, during half of the time our sky is dominated by the Sun. We are all familiar with its heat and light, and that it drowns out almost every other light above. Our Sun is by far the closest star to us. The Sun-Earth relation is a key point in understanding our relationship with the Universe. It serves as a paradigm of other Universe bodies. It represents an extremely rich and practical educational resource. It is important to every society. Its brightness facilities a wide range of educational activities that can be carried out in the daytime. Therefore, the Sun is the perfect point from which to begin our journey to the Universe.

The goal of this Task Group is to help the International Year of Astronomy 2009 with solar matters. It aims to communicate the link between the Sun and the rest of the Universe, and so the place of solar science in astronomy. Our means are the suggestion, organisation and support of solar related events for IYA2009 and being the reference desk for solar matters. Our network reaches every solar field and professional observing location.

## The IYA2009 total solar eclipse

http://eclipse22jul09.wordpress.com/
Dedicated website to educate about solar eclipses, safe observations in general. The website gave also detailed information about this eclipse and links to other web resources. It also had an automated script for the people to send their pictures to the Blog. It collected 3,261 hits.

## Sun Day during 100 Hours of Astronomy

The Solar TG collaborated with 100 Hours, supporting any activity related to the Sun, and providing instructions, ideas and recommendations for safe solar observations.

## IYA2009 Philatelic Release Calendar

This calendar was maintained by the American Topical Association's Astronomy Study Unit. It is supplied in support of the IYA2009 and is hoped to function as a means of drawing attention to, and generating interest in, both astronomy and philately. As well as, the long historical association that the two fields of have shared. The hobby of philately has proven to be an excellent tool to initiate and educate enthusiasts, young and old alike.

This year promises to have a number of astronomy related items released. Especially so since the annual PostEurop EUROPA series (with its 40+ member agencies) has selected "Astronomy" as its theme.

### January 2009

#### 15 January 2009: South Korea — IYA2009 issue

Korea Post IYA2009 issue: International Year of Astronomy 2009 Commemorative Issued on 15January2009 / 2 designs (Whirlpool Galaxy M51, Planetary Nebula NGC 3132) each with a 250 won denomination / Printing Processing and Colours — Photogravure, six colours / Size of Stamp — 40mm×30mm / Perforation 13 / Sheet Composition — 4 × 4 (two stamps setenant, 230mm×147mm)
Paper — White, Unwatermarked
Designer — Jiwon MO
Printer~ Korea Minting and Security Printing Corporation




Enlarged view of one tete-beche pair of the S. Korean issue celebrating IYA2009. The left stamp depicts the Whirlpool Galaxy M51 and the right stamp depicts the Planetary Nebula NGC 3132.Spanning the two images are diagrams of constellations that are highlighted against the document or device that they originate from.




This sheet from S. Korea illustrates many aspects of philately that can be combined into a single format. The sheet is known as a souvenir sheet. It carries text and illustrations within the selvage of the sheet that provide a wealth of information such as: the sheets position on the plate that was used to print it, information about the printer, colour key to the inks used, even the IYA2009 logo and it is not unusual for there also to be serial numbers. The two groups of stamps surrounded by the selvage are oriented so as to be shifted in position from its neighbour.

19 January 2009: Greenland — EUROPA issue

Post Greenland Europa 2009 — Astronomy issue: “The theme of this year’s EUROPA-issue is astronomy. Ina Rosing has created our two beautiful stamps, which captures the very unique Greenlandic approach to astronomy. They are issued in regular whole sheets, mini sheets and in a stamp booklet as self-adhesive stamps.” courtesy Greenland Collector.




Enlarged view of the 6.25 valued issue from Greenland.




Enlarged view of the 8.00 value from Greenland.





First Day Cover of the 8.00 value with block of four stamps, special cancel and appropriate cache art.




The special cancel used for the FDCs of the Greenland issues.

### 19 January 2009: Sweden — EUROPA issue

Posten AB Europa 2009 — Astronomy issue: "Stamp book of four stamps (48 KR) with two each of two designs. Special postmark used on first day cover (with related cache art) and CTO. Also available is a collector sheet. Designs related to instrument used for X-ray research of Crab Nebula.

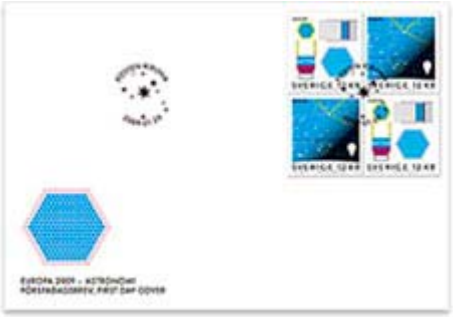


Image of a First Day Cover with the special cancel, a block of four of the stamps and cache art.




Detail of the special postmark (cancel) used for the First Day Cover (FDC.)



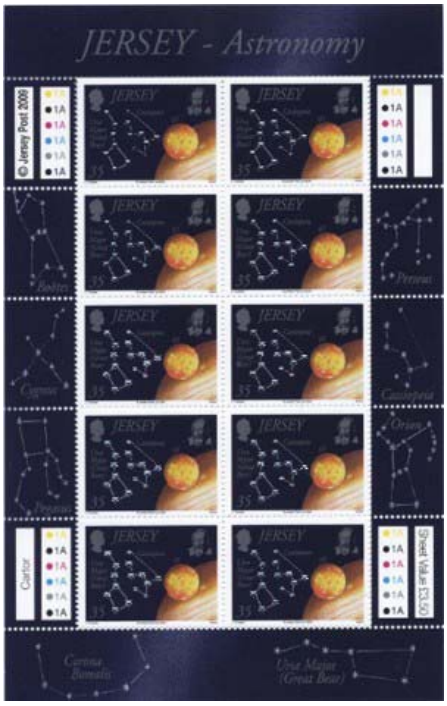

A pair of stamps showing the two designs. The left-hand design highlights the target of the mission and displays the balloon that carries the instrument aloft to escape the distortions of Earth's atmosphere. The stamp on the right features schematics of the instrument used to collect the data. Both designs celebrate the instrument which is used for X-ray research of the Crab Nebula.

## February 2009

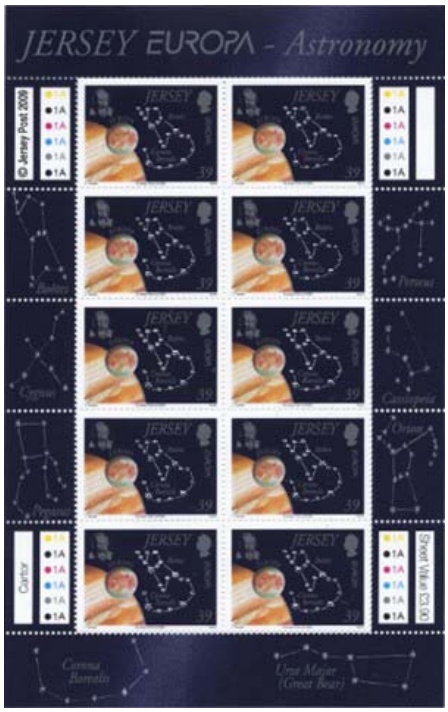
### 10 February 2009: Jersey — EUROPA issue

Jersey Post Europa 2009 — Astronomy issue: The following constellations are set to be featured — Ursa Major, Cassiopeia, Boötes, Corona Borealis, Cygnus, Pegasus, Perseus and Orion. As are Galileo, discoverer of the four

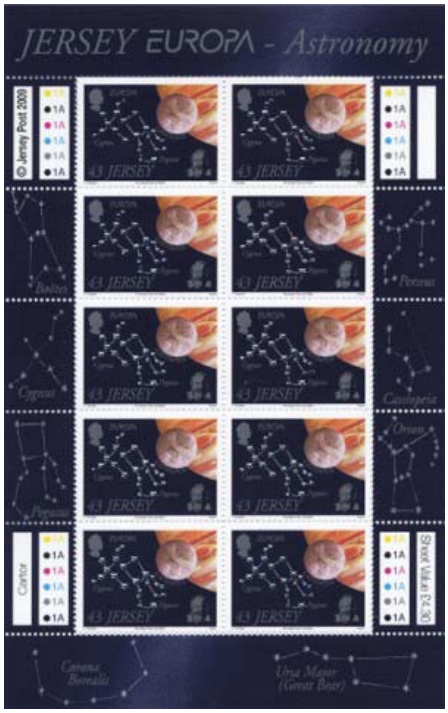
Jovian satellites — Io, Europa, Ganymede and Callisto — who will join Jupiter and those moons as a centerpiece of the four stamps. The constellation designs are to present a ‘twinkling star’ effect through a combination of embossed printing and ‘simili silver.’



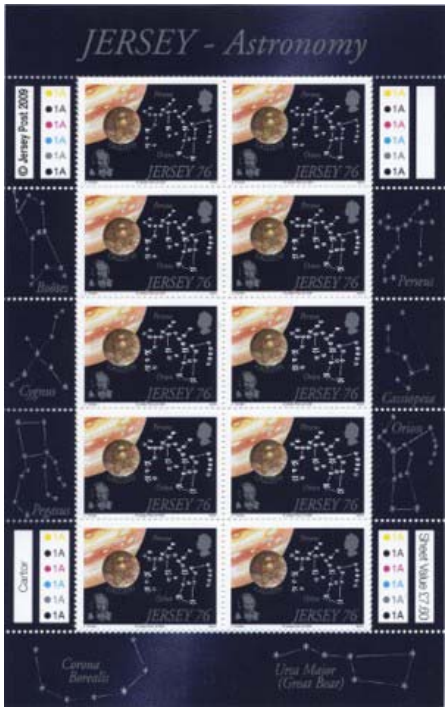
Jersey — Europa 2009 — Astronomy — 35p Sheet — Galileo, Jupiter — Io, Ursa Major & Cassiopeia



Jersey — Europa 2009 — Astronomy — 39p Sheet — Galileo, Jupiter — Europa, Boötes & Corona Borealis



Jersey — Europa 2009 — Astronomy — 43p Sheet — Galileo, Jupiter — Ganymede, Cygnus & Pegasus



Jersey — Europa 2009 — Astronomy — 76p Sheet — Galileo, Jupiter — Callisto, Perseus & Orion



First Day Cover design with a complete set of the stamps and supporting cache art.

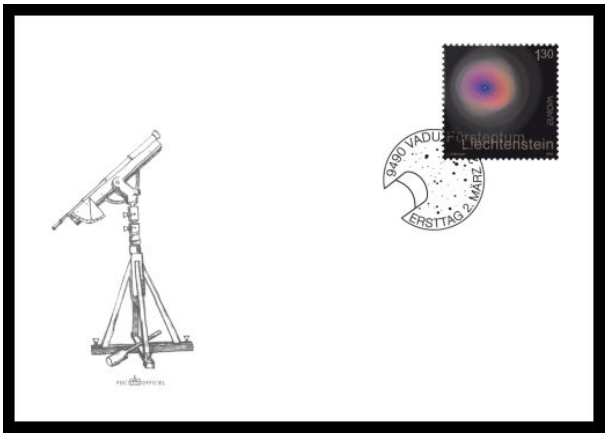


Four stamp set depicting Jupiter as the central motif of a four unit se-tenant design. Each quadrant of the design carries one arc of an image of Jupiter which when combined in the correct order, presents an overview of the gas giant. Additionally, the following constellations are featured — Ursa Major, Cassiopeia, Boötes, Corona Borealis, Cygnus, Pegasus, Perseus and Orion. Galileo, discoverer of the four Jovian satellites — Io, Europa, Ganymede and Callisto — will join Jupiter and those moons as a design feature of the four stamps. The constellation designs are to present a 'twinkling star' effect through a combination of embossed printing and 'simili silver.' The stamps sold as sheets of ten (of a single value) also carry the constellations in the selvage portion of the sheet.

## March 2009

### 02 March 2009: Liechtenstein — EUROPA issue

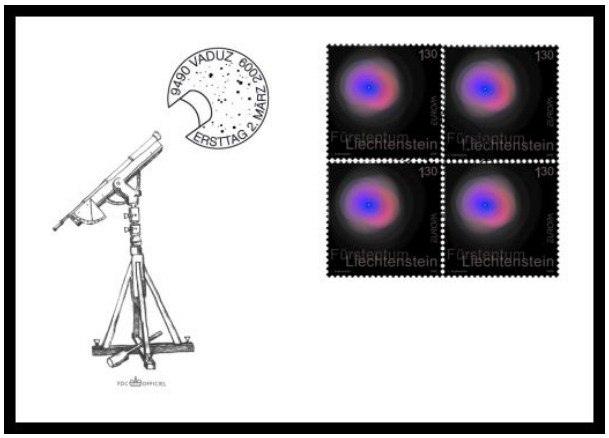
Philatelie Liechtenstein Europa 2009 — Astronomy issue: A single stamp design (face value CHF 1.30) was selected via a competition held in collaboration with the Liechtenstein School of Art. The winning design, by Leta Krähenbühl, is printed on hologram foil and depicts a stylized supernova. An important design element within the artwork is a tiny white dot at the center of the design. It represents a "White Dwarf." The culmination of the star's collapse.



First Day Cover with a single stamp, special cancel and cache art.




A single stamp design (face value CHF 1.30) was selected via a competition held in collaboration with the Liechtenstein School of Art. The winning design, by Leta Krähenbühl, is printed on hologram foil and depicts a stylized supernova. An important design element within the artwork is a tiny white dot at the center of the design. It represents a ÒWhite Dwarf.Ó The culmination of the star's collapse.




First Day Cover with a block of four of the stamps. (notice how the placement of the postmark appears to extend the illustration of the cache art.)




A "Maxi Card" depicting a region of the night sky that carries a single stamp with the special FDC postmark. This type of item has been popular with collectors in Europe for many years is gaining in popularity in other regions the world over.

22 March 2009: Uzbekistan — IYA2009 issue

UZBEKISTAN POCHTASI — IYA2009 — Astronomy issue: Two stamp designs released. The first, valued at 350 (UZS) features the Observatory of Ulugbek, Samarkand. The second, valued at 750 (UZS) features the Monument of Muhammad Taragay Ulugbek (1394-1449) in Tashkent.




Set of two stamps and one label. The 350 (UZS) value stamp features the Ulugbek Observatory in Samarqand while the 750 (UZS) value features a statue depicting the Uzbek astronomer, mathematic & statesmen Muhammad Taragay Ulugbek. The issue celebrates Ulubek's 615th anniversary. Among his accomplishments, he was the creator of a number of astronomical catalogues and tables, defining the location of thousands of heavenly bodies in the dome of the sky, which even today astound scientist's with their accuracy. The two stamps are separated by a label featuring the IYA2009 logo.




FDI postmark featuring the text "International Astronomy year" plus a line drawing portrait of the astronomer and the text "Great astronomer MUHAMMAD TARAGÕAY ULUGÕBEK" together with the date 22.03.2009 and the station "OÕZBEKISTON, SAMARQAND".

25 March 2009: Denmark — EUROPA issue

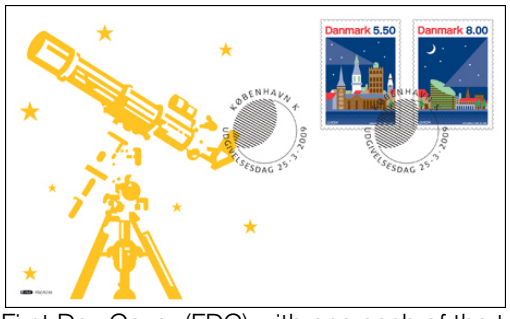
Post Danmark A/S Europa 2009 — Astronomy issue: Two stamp designs released. One valued at 5.50 DKK features the Round Tower while the second valued at 8.00 DKK features the Tycho Brahe Planetarium.




The DKK 5.50 value from the Danish set, depicting The Round Tower — one of Europe's oldest functioning observatories, the Round Tower was used solely by scientists from the University of Copenhagen, but today, on selected evenings during the winter months, amateur astronomers and casual visitors are invited to gaze at the night sky through the fine rooftop telescope. The current telescope was built by the precision engineer Jens Olsen, who also made the World Clock at Copenhagen City Hall.




The DKK 8.00 value from the Danish set, depicting the Tycho Brahe Planetarium — The Tycho Brahe Planetarium in Copenhagen was inaugurated in 1989 as the advanced centre in Denmark for the presentation of astronomy and space research.




First Day Cover (FDC) with one each of the two designs, special cancel and cache art.

## April 2009

### 02 April 2009: Canada — IYA2009 issue

Canada Post — IYA2009 issue.




Canada, two stamps (each valued at 0.54 CAD) feature an observatory set against a nebula. The left image features the Canada-France-Hawaii Telescope (CFHT) unit (located atop the summit of Mauna Kea, Hawaii) set against the Eagle Nebula. The right stamp features the National Research CouncilÕs Dominion Astrophysical Observatory (DAO) in Saanich, BC set against the Horsehead Nebula.Canada, two stamps (each valued at 0.54 CAD) feature an observatory set against a nebula. The left image features the Canada-France-Hawaii Telescope (CFHT) unit (located atop the summit of Mauna Kea, Hawaii) set against the Eagle Nebula. The right stamp features the National Research CouncilÕs Dominion Astrophysical Observatory (DAO) in Saanich, BC set against the Horsehead Nebula.




Canada, official FDC with souvenir sheet and special “2009” postmark.




Canada, montage of cover and interior of the Canada IYA stamps issued in booklet form. Included are envelope sealers that carry astronomical images.




Canada, the two stamps issues combined on a souvenir sheet with selvage art depicting the Carina Nebula (the Caterpillar).

02 April2009: Latvia — EUROPA issue
JSC "Latvian Post" — Europa 2009 — Astronomy issue




Latvia 50 LVL value depicting astronomer, telescope and galaxy.




Latvia 55 LVL value with a lot of information included. This small treasure of the printer's art (measuring only 33 x 27.5 mm) contains images of an observatory, a radio dish, five figures from Latvian astronomical history, a diagram of the solar system (out to the orbit of Jupiter) asteroid 1284 Latvia, and in the micro-printing the numerical identities of 12 other asteroids (all presumably with a Latvian connection).




Latvia FDC displaying both stamps, special FDI postmark and cache art of spiral galaxy M51 (Andromeda.) The galaxy image of the cache art would appear to be the same image as depicted on the 50 LVL value stamp.




Latvian FDI postmark depicts asteroid "1284 Latvia."

03 April 2009: Kazakhstan — EUROPA issue
Kazpost — Europa 2009 — Astronomy issue




Kazakhstan stamp number two of the set valued at 230 KZT each. This stamp features a portrait of Galileo, several telescopes, one of Galileo's drawings of the Moon; all set against a background of a photographic image of the Moon.




Kazakhstan single stamp of two stamp set, each valued at 230 KZT. This design features a telescope and a pair of figures set in a rural scene gazing at the night sky with the constellation Taurus illustrated. A nice promotion of dark sky preservation.

05 April 2009: Bosnia and Herzegovina (Croat post) — EUROPA issue
Croatian post Ltd. Mostar — Europa 2009 — Astronomy issue




Bosnia and Herzegovina (Croat post) second design, also valued at 3 BAM features illustration of solar system and a telescope in silhouette.



Bosnia and Herzegovina (Croat post) valued at 3 BAM features an illustration of a solar system.



Bosnia and Herzegovina (Croat post) FDC with both designs and special FDI cancel.



Bosnia and Herzegovina (Croat post) FDI postmark.

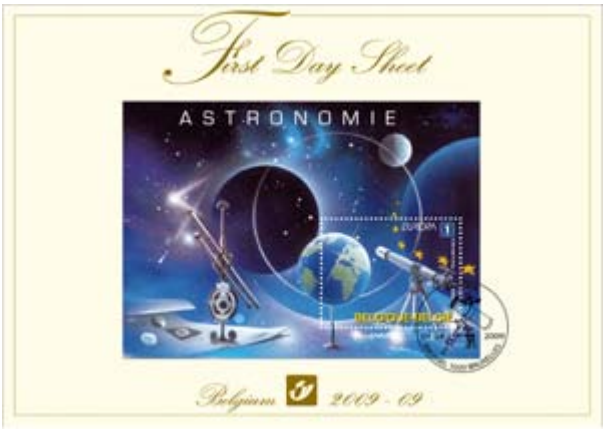
06 April 2009: Belgium — EUROPA issue
La Poste — Europa 2009 — Astronomy issue



FDC from Belgium featuring their stamp issue, special FDI postmark and appropriate cache art. You may notice that the date of the cancel is two days before the actual release date. There was a preview ceremony held at the planetarium in Brussels prior to the actual public release of the stamp.



Close-up view of the stamp from Belgium seperated from its sheet.



First Day Sheet from Belgium featuring their souvenir sheet with special postmark.



The release from Belgium in souvenir sheet form. The design features a modern telescope, a telescope of the time of Galileo, a chart for astronomical study and a globe of the Earth: all set within a fanciful illustration of the heavens.

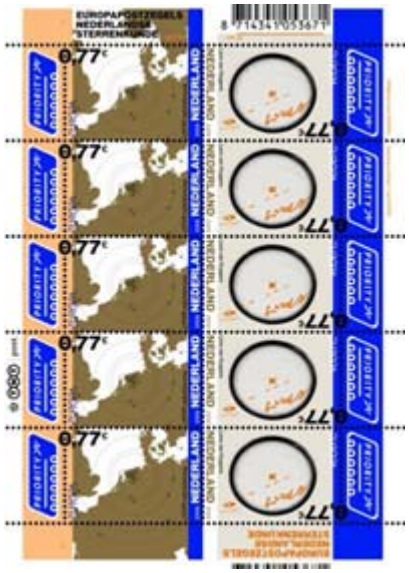
07 April 2009: Netherlands — EUROPA issue
"TNT Post" — Europa 2009 — Astronomy issue




The theme of astronomy selected by PostEurop for 2009 has been widely accepted among its member nations. This acceptance has presented an under current that appears in the form dual stamp issues that present themes of ancient astronomy and modern astronomy. The releases from the Netherlands reflect that undercurrent. This first stamp features a diagram of the LOFAR radiotelescope with some of the sensing sites located. These types of large extended arrays are gaining ground in modern astronomy as they present the ability to effectively build a very large telescope (in the order of several kilometers in size) very economically and with minimal impact on the environment. They also are being eyed by other disciplines that can "piggy-back" on the project by placing other types of remote sensors on the platforms.




This, the second stamp from the Netherland release features the ancient aspect of astronomy. It depicts the lens (currently held in the Utrecht University Museum) through which Christiaan Huygens discovered the first of Saturn's moons, Titan. (the illustration being enlarged by the lens is from Huygens' log marking the discovery made on March 25, 1655.) Huygens observations of Saturn were instrumental in the discovery of the nature of the "rings" of Saturn, which had prior to then been thought to be appendages to the gas giant.



A sheet of ten stamps (2x 5 each) of the Netherland's release.

10 April 2009: Republic of Guinea-Bissau — IYA2009 issue
Stamparija, UAB — IYA2009 — Astronomy issue




Miniature sheet features five stamps and one label. The stamps feature figures from astronomy (some or all may be depictions of Galileo) along with various instruments (globe, telescope, dividers, etc.) and numerous images of Jupiter and its moons. The sheet commemorates the IYA2009 as stated on the label.




IYA2009 commemorative souvenir sheet. Selvage art depicts Thomas Harriot (whose telscopic observations preceded those of Galileo but went unpublished until later) images of the Moon, drawings/diagrams, another navigational instrument (Harriot accompanied Sir Walter Raleigh to Virginia in 1585) a couple of satellites (Luna 1 and Luna 3) all set against a backdrop of a nebula. The inset stamp features an image of Galileo peering through his telescope with Jupiter and possibly two of its moons in the background.

12 April 2009: Isle of Man — EUROPA issue
Isle of Man Post — Europa 2009 — Astronomy issue




This set of six stamps, from the Isle of Man, commemorate the 40th anniversary of mankind's landing on the Moon. There are six values and two of the values (33p and 56p) were selected as the Isle of Man contribution to the EUROPA series and are the only two from the set that carry that logo. Seperate sheet styles were also devised (10 stamps per sheet versus 25 stamps per sheet for the other values) as well as seperate "EUROPA" FDCs. The series features numerous images (in the form of artist's paintings about and NASA photographs from ) the lunar explorations made during the "Apollo" mission years.




This FDC from the Isle of Man release features all six stamps , including the two values marked "EUROPA." It features its own FDI postmark.




The "EUROPA" FDC from the Isle of Man release. Only the two EUROPA stamps are featured and there is a separate FDI postmark as well.



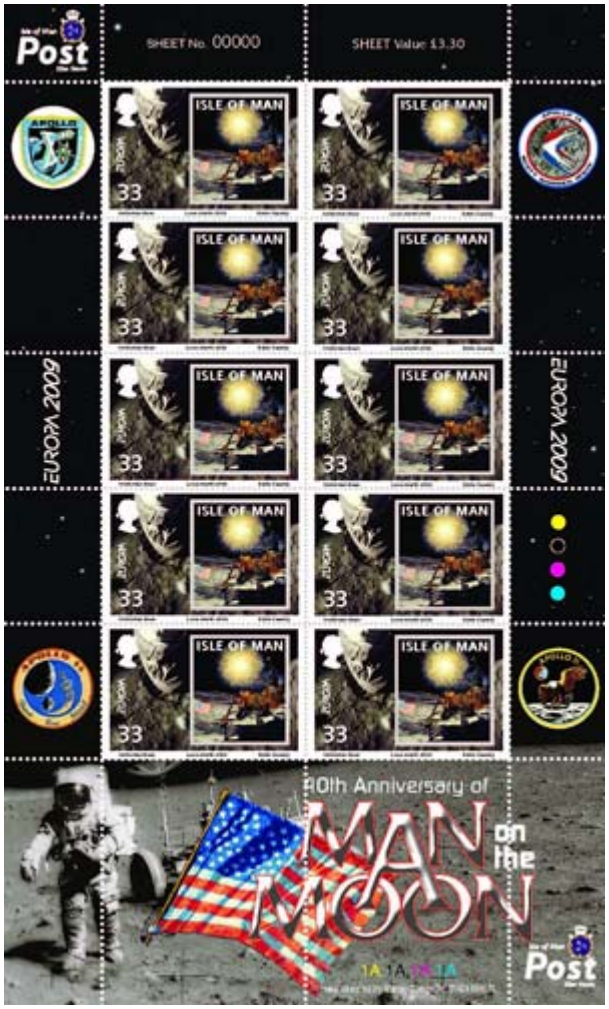
This image depicts the miniature sheet from the Isle of Man release. One might notice the lack of perforations. I am not sure whether this is a preliminary version of the sheet or if it actually exists imperforate. Viewer input welcomed.



This image depicts the miniature sheet from the Isle of Man release on a FDC.



This image depicts the Isle of Man miniature sheet (again imperforate) and with an overprint marking the 40th anniversary of the manned lunar landing.



The 33p sheet from the Isle of Man EUROPA contribution.



The 56p sheet from the Isle of Man EUROPA selections.

13 April 2009: Azerbaijan — EUROPA issue
(Azermarka Company) — Europa 2009 — Astronomy issue



Sheet of 10 stamps (of a single design) with zodiac symbols in selvage.



Booklet cover depicted two designs combined for an interesting journey across time.



Sheetlet of 8 stamps (X4 each of two designs) The stamps of the booklet are printed “tête-bêche.”



Sheet of 10 stamps (of one design) with modern space exploration items in selvage.



Illustration of astronomer Tusi.



Stamp depicting Moon and cluster of domes at the Shamakhi Astrophysical Observatory.



Souvenir sheet with single stamp valued at 1 m. depicting Galileo, a sheet of his lunar observational drawings, Earth, Moon and telescope.

15 April 2009: Belarus — EUROPA issue

(BelPost) — Europa 2009 — Astronomy issue



Booklet of Belarus issues. The booklet contains three stamps of each design as well as the two vignette images.




Cover from booklet of releases from Belarus.




FDI postmark used on issues from Belarus.




Belarus issue consists of two designs, each valued at 1000 BYR. This design features the devices of ancient astronomy and includes a telescope, dividers, an armillary sphere that overlay an illustration of the Aztec calendar. In the background are images from the zodiac.



The second Belarus design, also valued at 1000 BYR, depicts elements related to modern astronomy. Included are a spacecraft and a radio dish. But it also features images of constellations.



Belarus FDC containing both designs.

### 16 April 2009: Montenegro — EUROPA issue

Post of Montenegro — Europa 2009 — Astronomy issue



This stamp is one of four designs (2x 0.60 & 2x 0.90 ¤ in the form of one stamp design each as singles + 1 souvenir-sheet featuring two designs) issued by Montenegro. Obviously it is directed to appeal to the young (and young at heart) and I think the effort is to be applauded. We need the younger generations to continue our pursuits in both astronomy and philately and if stamps such as these stimulate young minds to follow that path — then i say well done!



A mini-sheet of 8 stamps + vignette from the 0,60 value offering by Montenegro.



This is the second design ( the 0,90 value as a single) from the Montenegro offering.



A mini-sheet of 8 stamps + vignette from the 0,90 value offering by Montenegro.



A souvenir sheet of 2 stamps with both 0,60 and 0,90 value from the offering by Montenegro. These creative stamps will surely enjoy wide appeal.

16 April 2009: The Netherlands — European Space Agency (ESA) Release



Netherlands issue depicting the Herschel telescope. Would it be possible for one with the correct skill set to determine what region of our night sky is being reflected by the mirror (provided enough information is visually presented.) The 3.5 meter diameter mirror is the largest ever produced for a space telecope.



Netherlands issue commemorating the Planck mission.



Cover of booklet within which the Herschel, Planck and solar system sheets are found.




Netherland issue depicting solar system and extended family of cosmic neighbors. It is interesting to note the "windows" through which various elements of the background design of this (and the other two sheets from the booklet) show through as if framed by the white portion of the stamp as a foreground element. As each planet is depicted in association with an obital arc, perhaps this empty arc (the ninth) is the designers lament for Pluto's loss of stature.

### 17 April 2009: Ukraine — EUROPA issue

Postage Prepayment Impressions Development Directorate of USEP "Ukrposhta" — Europa 2009 — Astronomy issue: two stamps (3.75 & 5.25 UAH) both stamps are issued in a mini-sheet of 10 stamps (5 of each) and both stamps are issued in a booklet of 2 stamps. Stamps are bigger in the booklet than in the mini-sheet!




This is a FDC from Ukraine that carries the FDI special postmark on a booklet sheet. Notice how the 3.75 value image of the telescope extends beyond the stamp into the selvage. There is also the IYA logo just above the cache art which is the same image of the aforementioned telescope but with a different background.



This image depicts a se-tenant pair from Ukraine. The two stamps (valued at 3.75 & 5.25 UAH) share a common theme in their commemoration of Galileo. The 3.75 value depicts a telescope set against a star-filled sky with constellations marked. The 5.25 value carries a portrait of Galileo along with some of his diagrams and a telescope.



FDI postmark used by Ukraine for their EUROPA series.



This is a full sheet of the Ukrainian issue. This handsome sample makes quite an impression.

### 17 April 2009: Norway — Astronomy issue

Norway Post — Astronomy issue



Norway — Astronomy related issue — Date of issue: 17April2009 / Face value: NOK 12 (A-Priority, worldwide)
This is one design out of six from the “Tourist” series. It features the “aurora” as viewed from Andøya in Nordland. The most familiar of this natural phenomena is surely the Northern Lights (Aurora Borealis). This is due to the fact that the northern region of greatest activity has a much greater density of population than the southern region where the activity must be much greater to be seen outside of Antarctica. Aurora occur when positively and negatively charged particles from the sun are trapped by the earth´s magnetic field and enter its atmosphere, where they collide with neutral gaseous particles. The gas is ionized and acquires extra energy which it then loses by emitting light. This phenomenon is strongest around the Earth’s magnetic poles. The Northern Lights are known as the Aurora Borealus while the same interaction at the south polar region is termed the Aurora Australis.

22 April 2009: Israel — IYA2009 issue

Israel Post — IYA2009 issue: Three stamps will be issued honoring the past, present and future of astronomical research.




Israel, sheet of 2.30 ILS value.




Israel, sheet of 3.80 ILS value.




Israel, sheet of 8.50 ILS value.



Israel (astronomy of the past) Jacob's Staff: The study and mapping of the heavens began before Galileo, with the Jewish people making a unique contribution in the form of ÒJacobÕs StaffÓ an ancient measurement tool for mapping stars, which was first described and in all likelihood invented by Gersonides (Rabbi Levi ben Gershon, France, 1288-1344). The staff was 1.4 meters long and notched with scale graduations along its length. Up to seven cross-pieces of varying lengths, called 'transoms', slid up and down along the main piece. By aiming one end of the transom toward a star and sliding the transom along the notched main staff until its other end lined up with another star, one could measure the angular distance between those two stars. Navigators also made use of JacobÕs Staff to measure the altitude of the North Star above the horizon in order to determine their latitude. The illustration demonstrates the use of Jacob's Staff in astronomy and navigation, by aiming the upper end of the transom to the sun or to a star and its lower end to the horizon. On the sheet margin: the Big Dipper and Little Dipper constellations and at the edge, Polaris the North Star; Earth; the Sun; a basic 'ruler' whose units (AU-astronomical units) are used to measure distances within the solar system.




Israel, (astronomy of the present) Gravitational Lensing: Over the years, telescopes have become a powerful research tool, and the largest among them are equipped with concave mirrors measuring 8-10 meters in diameter. The larger the mirror, the more light it captures, allowing the measurement of fainter astronomical bodies. Mirrors measuring 40 meters in diameter and more are planned for the future. But the universe's largest telescopes are those that exist in nature. The way in which they work was discovered by the Jewish scientist Albert Einstein, one of the most significant scientists of all time. One of his revolutionary breakthroughs in the field of physics is the General Theory of Relativity, dealing with space and time in nature. According to this theory, as light rays from a distant astronomical body pass by a massive object, the objectÕs gravitational force affects their paths and they bend. Thus, a massive body that is positioned between an observer and a distant astronomical body acts as a lens the distant body appears enlarged and may even be multiplied, as a number of images appear alongside the Òlens'. The phenomenon of light rays changing course due to gravitational force is called 'Gravitational Lensing'. Gravitational lenses may be created by regular stars or by more dense astronomical bodies such as black holes, by galaxies or even by clusters of galaxies. Nature's largest telescopes allow us to glimpse distant galaxies and perceive light that was emitted from them more than ten billion years ago. Today, the largest ground and space telescopes photograph images of extremely distant astronomical bodies after they have undergone gravitational lensing. The illustration demonstrates gravitational lensing against the Hubble space telescope. The mass of the galaxy opposite the telescope bends the space around it, diverting the paths of light rays coming from a quasar located far behind it (a huge black hole in the center of a galaxy that emits large amounts of energy), causing them to warp around the galaxy while creating images of the quasar on either side of the galaxy. On the sheet margin: Einstein's Cross (a gravitational lens with a galaxy in the center that creates four images of the quasar Q2237+030); a spiral galaxy; a basic 'ruler' whose units (pc-parsecs) are used to measure distances between stars and galaxies.



Israel, (the astronomy of the future) LISA Laser Interferometer Space Antenna : In the future, new astronomical research fields involving the examination of radiation in spectral regions that have yet to be studied will develop. One example of this is gravitational radiation. Although its existence may be derived from EinsteinÕs General Theory of Gravity, no one has been able to detect it as yet. The future LISA system, which will comprise three spacecraft arranged at the apices of an equilateral triangle and connected by laser beams, is currently being planned to detect and measure gravitational waves. Gravitational waves warp the space surrounding the spacecraft and as a result the spacecraft will move farther away from or closer toward each other. Each pair of spacecraft will be spaced five million kilometers apart. Any miniscule change of up to one millionth of a centimeter in the length of one of the sides of the huge triangle will be measured by the laser beams emanating from the spacecraft, revealing the existence of a gravitational wave. The illustration demonstrates measuring gravity waves by using laser beams from the three satellites that comprise the LISA system. Gravity waves are emitted by the bending of space when two neutron stars orbit around each other as they approach merging. On the sheet margin: A black hole surrounded by a disc of material that is being accreted and which emits bursts of particles; gas rings emitted from the egg nebula; one of the gas ‘pillars’ in the eagle nebula; a basic ‘ruler’ whose units (Mpc-megaparsecs) are used to measure large distances in the universe. Galileo Galilei’s telescope appears on the tabs. Tel-Aviv University’s Florence and George Wise Observatory, located near Mitzpe Ramon, appears on the first day cover.




Israel, IYA release special FDI postmark.

23 April 2009: Spain/Andorra — IYA2009 issue
Correos y Telégrafos, S.A — IYA2009 issue




Design of the postmark used on the Spanish Andorran FDI.




Spanish Andorra stamp (0.62 €) design is based on the IYA2009 logo.

23 April 2009: Bosnia and Herzegovina (Serb Post) — EUROPA issue
"POŠTE SRPSKE" — Europa 2009 — Astronomy issue
two stamps (1.- & 2.- BAM) both stamps are issued in two mini-sheets of 8 stamps + 1 vignette and both stamps are also issued in a booklet of 6 stamps (stamps are different in the booklet)




Bosnia and Herzegovina (Serb post) release valued at 1 BAM featuring an image of an observatory.



Bosnia and Herzegovina (Serb Post) mini-sheet containing 8 of the 1 BAM value stamp design and a central vignette of the solar system.



Bosnia and Herzegovina (Serb post) valued at 2 BAM features an image of a modern telescope set against a chart of constellations and the night sky.



Bosnia and Herzegovina (Serb Post) sheet of the 2 BAM value contains 8 stamps and a central vignette depicting an astronomical facility.



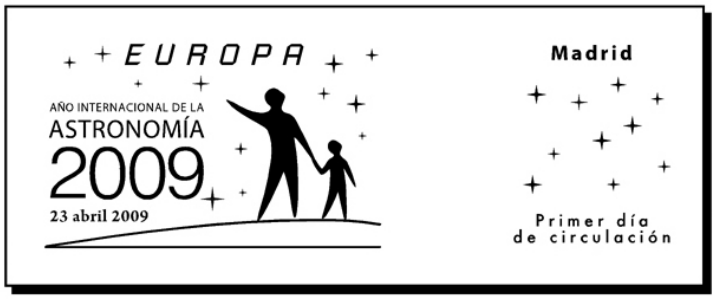
Booklet from the Bosnia and Herzegovina (Serb Post) release. The booklet contains stamps from each design and the cover promotes the encouragement of family involvement in the discovery and observation of the wonders of the universe through astronomy.

23 April 2009: Spain — EUROPA issue

Correos y Telégrafos, S.A — Europa 2009 — Astronomy issue: 1 stamp (0.62 €) The stamp depicts an artistic composition featuring an image of the Moon set against a rendering of space with a beam of light. This stamp is devoted to the International Year of Astronomy.



“Once in a blue Moon” might be an apt title for the EUROPA offering from Spain.



The IYA logo is nicely incorporated into the FDI postmark for the Spanish issue.

25 April 2009: Lithuania — EUROPA issue

PLC Lietuvos paštas — Europa 2009 — Astronomy issue: two stamps (2x 2.45 LTL) both stamps are issued mini-sheets of 10 stamps, (5x2) stamps. The margins of each sheet carry appropriate inscriptions and pictures. The issue is printed with the stamps têtê-bêche.




Lithuania has two stamps to offer. Both are valued at 2.45 LTL. The first (shown here) depicts Galileo, a telescope and one of his drawings of the Moon.




The second offering from Lithuania (seen here) depicts a telescope in the foreground, Vilnius University in the mid-ground and an image of the Sun (with sunspots) in the background. All are set against a blue field that gradiates from darker to lighter as one moves from the top of the stamp to the bottom.



FDC of the stamps from Lithuania with cache art and special FDI cancel.



This image depicts both Lituanian stamps in their respective sheet variety.

28 April 2009: Bulgaria — EUROPA issue

BULGARIAN POSTS PLC — Europa 2009 — Astronomy issue



Bulgaria, this stamp (the 0.60 BGN value) features IC 342. And if variety of format is your desire then this is the release for you. They come in singles, miniature sheets, booklets, souvenir sheets and even postcards. They also have size and perforation varieties.



Bulgaria, this stamp (the 1.50 BGN value) features galaxy M31.



Booklet form of Bulgaria offers. Contains two leaves each with three of one design + one of the other (alternating.)



Bulgaria, booklet cover.



This image shows comparison images to illustrate the size and perforation differences between the sheet and booklet forms. Sheet forms on the left and booklet forms on the right.


Bulgaria mini-sheet of 0.60 value + one vignette.


Bulgaria mini-sheet of 1.50 value + one vignette (armillary sphere.)



Bulgaria, postcard format featuring the 0.60 value and an interesting cache illustration.


Bulgaria, souvenir sheet with four stamps (2 + 2 designs) and featuring selvage art NGC 4038 and NGC 4039.

## May 2009

### 02 May 2009: Indonesia — IYA2009

Indonesia Post — IYA2009 — Astronomy issue



FDC featuring the standard 2500 (IDR) valued stamps. Cache art of Bosscha Observatory at night.



FDC featuring the souvenir sheet (3x 5000 IDR.) Cache art of Bosscha Observatory in daylight.




Full sheet of 12 stamps valued at 2500 (IDR) each. Three stamp designs, in an overall se-tenant form. Leftmost stamp features a telescope, rightmost stamp a portrait of Galileo and the center stamp carries the IYA2009 logo. The r/h and l/h stamps also carry the logo in a smaller size. Upper group of six stamps is separated from the lower group of the same number by an image of the Bosscha Observatory.



Souvenir sheet (3x 5000 IDR) carries the same stamp designs embellished with reflective additions. Note the increase in value and the small image of the Bosscha Observatory in the lower right of the sheet.

### 04 May 2009: Andorra (French Post) — Europa issue

LaPoste — Europa 2009 — Astronomy issue: one stamp (0.56 €) depicts a very colourful region of the night sky.



One stamp (0.56 €) design featuring a star field which this writer has yet to identify — your suggestions welcomed.

### 04May2009: Cyprus — EUROPA issue

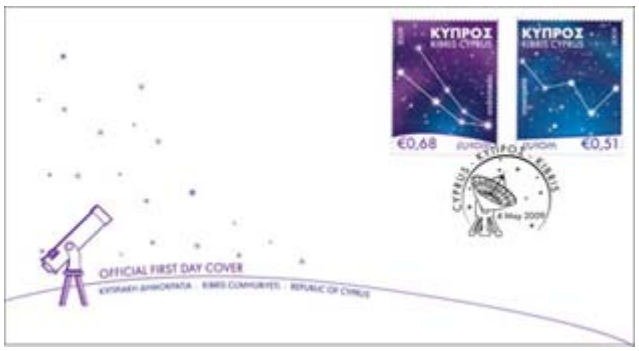
Cyprus Postal Services — Europa 2009 — Astronomy issue




Booklet front cover with a story relating the mythology regarding the two constellations featured on the stamps.




Two designs, both are constellations derived from mythology. The ¤0.51 value features Cassiopia and the € 0.68 value features Andromeda.




FDC with both Cyprus stamps with special cancel discreetly applied — cleanly struck while sufficient enough to "kill" the stamps without obliterating the designs (a preferred scenario with most philatelists) and cache art featuring a telescope and stars.




Booklet of stamps carries 8 stamps (4x 2 designs.)




Special postmark used for FDCs.

04 May 2009: France — EUROPA issue

La boutique du timbre — La Poste Timbre — Europa 2009 — Astronomy issue



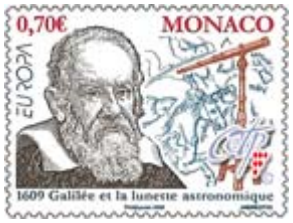

One souvenir sheet (2x 0.70 €) one stamp depicts Saturn, the Horsehead Nebula and a galaxy while the other depicts a star being transited by an exoplanet. Also depicted are an ancient telescope and an orbiting telescope with unknown planets and a moon completing the background design.

04 May 2009: Monaco — EUROPA issue

Office des Emissions de Timbres Poste de Monaco — Europa 2009 — Astronomy issue




Stamp valued at 0.56€ features Italian physicist and mathematician Francesco Maria Grimaldi (1618-1663), he was the first to describe the diffraction of light. Grimaldi drew an accurate map of the Moon whose nomenclature is still used by astronomers. The Grimaldi crater on the Moon is his namesake and is featured on the stamp (in red) on the partial map of our celestial neighbor.




Monaco stamp valued at 0,70€ whose design features a portrait of Galileo Galilei (1564-1642) and his telescope that overlay a partial celestial map depicting constellations of the zodiac. Galileo was an italian physicist and astronomer whose improvements to the telescope in 1609 and consequent astronomical observations are two of the primary foci of the IYA2009 celebration. His support for the view of a heliocentric solar system got him into trouble with supporters of geocentrism and placed under house arrest by the Roman Catholic Church.




Grimaldi FDC with special FDI cancel featuring telescope, stars and crescent moon. Cache art depicts partial globe with the location of the issuing entity marked in red.




Galileo FDC with special FDI cancel featuring telescope, stars and crescent moon. Cache art depicts partial globe with the location of the issuing entity marked in red.




Monaco, full sheet of Grimaldi stamp — one value (x10)



Monaco, full sheet of Galileo stamp — one value (x10)

### 05 May 2009: Estonia — EUROPA issue

Estonian Post Ltd. — Europa 2009 — Astronomy issue




Two stamp designs, both valued at 9.00 EEK (¤ 0.58) that celebrate the discovery of the “cell structure” by Estonian astrophysicist Jaan Einasto. The theory was presented by Jaan Einasto and his colleagues at an international symposium on astronomy in Tallinn in 1977. The theory proposed a new vision of the universe as being shaped in a regular structure of cells that could be likened to that of a honeycomb. (I am open to suggestions regarding the images presented on the two designs.)



FDC carrying a se-tenant pair of stamps, FDI postmark and cache art of a telescope with descriptive text. Note the postmark design based on the IYA2009 logo.

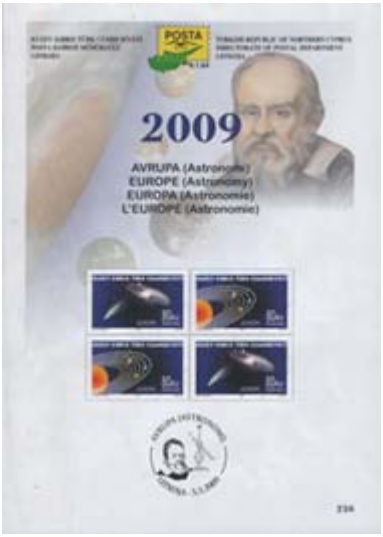



Full sheet from Esti Post of their EUROPA 2009 releases.




FDI special postmark based on IYA2009 logo

05 May 2009: Northern Cyprus (Turkish Post) — EUROPA issue
Europa 2009 — Astronomy issue: Cyprus (Turkish post)




Collector's sheet with four stamp block. Illustrated with image of Galileo, Jupiter and the four moons discovered by Galileo. Also depicted is the special FDI cancel used.




Two stamp designs (2x 0.80 YTL) one with galaxy M81(?) and a comet and the other displaying a diagram of a solar system. NOTE (taken from http://europa-stamps.blogspot.com) : "the stamps issued by the Turkish Republic of Northern Cyprus aren't recognized on an international level, not by the UPU nor by PostEurop. But as most Europa stamps collectors collect those stamps anyway, I decided to publish them on my blog, from now on, even if they aren't official stamp issues." ... they are included here for the same reasons. And to provide a visual reference of "philatelic" items available to the collector. "Authenticity" has been and remains an issue within the realm of philately.

05 May 2009: Poland — EUROPA issue
The Polish Post — Europa 2009 — Astronomy issue




EUROPE 2009: The International Year of Astronomy issue from Poland denominated at 3 PLN.




FDC with special FDI postmark and appropriate cache art.



Sheet of eight stamps. The design of the stamp is meant to represent a star that is emitting rays. In this case the star is comprised of very long sequences of digits which speaks toward “modern” astronomy and the streams of data used to represent our cosmic companions. This “digital” image overlays a field that contains numerous diagrams of constellations which speaks toward our “ancient” and early interaction with the heavens. These diagrams extend into the selvage area of the sheet to complete the overall design. Notice how the arrangement of the stamps within the sheet form a circular design element spanning the pairs. In philately this arrangement is known as “tête-bêche” and is a joined pair of stamps in which one is upside-down in relation to the other produced intentionally or accidentally.

05 May 2009: Russia — EUROPA issue
Publishing and Trading Centre “MARKA” — Europa 2009 — Astronomy issue



Russia has issued one stamp (9.- RUB) in a mini sheet of 9 stamps depicts an observatory, armillary sphere, night sky with big dipper and a comet. The mini sheet features numerous near and deep field objects in the selvage.



Russian FDC with appropriate cache art.


Russian mini sheet of 9 stamps. It depicts numerous near and deep field objects and events in the selvage including a solar eclipse, the Moon, a galaxy and nebulae.



Postmark from FDC of russian issue — depicting a telescope. Note the “dome” shape containing the telescope, reminiscent of an observatory.

05 May 2009: Serbia — EUROPA issue

PTT Communications “Srbija” — Europa 2009 — Astronomy issue:




Serbia — Europa 2009 — Astronomy issue
The 46 RDS value carries an image depicting a sculpture of “Urania” muse of astronomy. Also pictured are an ancient telescope along with an image of a star field, all of which overlay an ancient diagram of the solar system and a celestial map.




Serbia — Europa 2009 — Astronomy issue
The 50 RDS value depicts a modern radio dish and an image of the horsehead nebula (in the constellation Orion) again in a design where they are overlaying historical diagram and celestial map.



Serbia — Astronomy issue: two stamps (46.- & 50.- RSD) both stamps are issued in mini-sheets of 8 stamps + 1 vignette. Vignette differs according to images presented but both are based on IYA2009 logos.

06 May 2009: Czech Republic — EUROPA issue

Česká pošta — Europa 2009 — Astronomy issue: 400TH Anniversary of Kepler's laws




Czech Republic — Europa 2009 — Astronomy issue: 400TH Anniversary of the publication of Johannes Kepler's Astronomia Nova. The stamp depicts Kepler and one of his illustrations.




Czech Republic — mini sheet.

06 May 2009: Finland — EUROPA issue

Posti — Europa 2009 — Astronomy issue




Finland — Europa 2009 — Astronomy issue 2 x 0.80 se-tenant pair. "The pair of stamps depict a fantasy landscape of lakes and different heavenly bodies. The left-hand stamp has the Moon in the centre, with the Milky Way on the right side of the stamp. The stamp on the right bears a comet on its left side, accompanied by a [solar] eclipse. The large planet shown on the stamp is Saturn." quoted text courtesy of Posti (The Finnish Post Office Corporation).

06 May 2009: Macedonia — EUROPA issue
Macedonian Post — Europa 2009 — Astronomy issue




Macedonia — Europa 2009 — Astronomy issue: Two stamps (50.- & 100.- MKD) and one souvenir-sheet (150.- MKD) The 50 and 100 values are issued in two sheets of 9 stamps. The stamps depicted show a field of stars with some constellations marked and named, along with some stars and other celestial features. The star fields are overlaid with images taken from Macedonian folklore tradition. This image depicts the 50 MKD value.



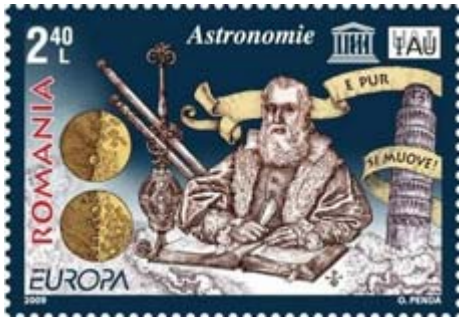

Macedonia — Europa 2009 — Astronomy issue: This image depicts the 100 MKD value.




This image depicts the 150 MKD value souvenir sheet.

06 May 2009: Romania — EUROPA issue

ROMFILATELIA — Europa 2009 — Astronomy issue




Romania — Europa 2009 — Astronomy issue: Two stamps (2.40 & 9.10 RON) with the 2.40 value (shown here) depicting illustrations of Galileo, the Moon, a telescope and the Leaning Tower of Piza. Both stamps are issued in 2 types of souvenir-sheets of 4 stamps (2 stamps of each). The position of both stamps is different in each souvenir-sheet. Both stamps are also issued as mini-sheets of 6 stamps with an illustrated margin and is numbered in red. Also available are maxi cards, FDCs and a very limited edition of engravings (signed by the artist) and accompanied by a pair of the stamps.




Romania — Europa 2009 — Astronomy issue: The 9.10 value stamp (shown here) depicts a variety of astronomical diagrams as well as a portion of a celestial map.




Romania — Europa 2009 — Astronomy issue: This image depicts the postmark used for the FDCs.

07 May 2009: Germany — EUROPA issue
Deutsche Post — Europa 2009 — Astronomy issue




Germany — Europa 2009 — Astronomy issue: one stamp (0.55 ¤) honoring the 400th anniversary of the publication of Johannes Kepler's "Astronomia Nova" that contained his first two laws of planetary motion.




One of the postmarks used on FDCs from Germany. This one carries an image of Kepler and the space telescope that bears his name.




Another of the postmarks used on FDCs from Germany. This one carries a portrait of Kepler and drawing of his lunar crater namesake.



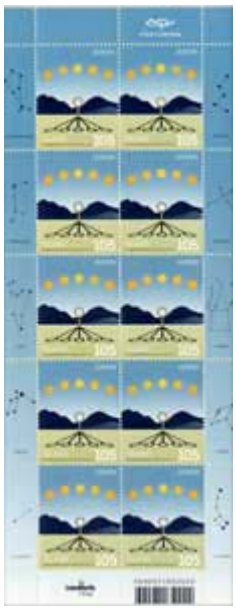

Private printing from Germany valued at 1,43 EURO depicting Johannes Kepler and a diagram of the solar system. This private issue preceded the Deutsche Post issue by several months and was issued to also commemorate the 400th anniversary of the publication of Kepler’s “Astronomia Nova.” These “customized” stamp formats have been gaining in popularity in recent years and are available through many national postal authorities websites. It opens the possibilities up for the creation of personal philatelic items that would have a very narrow run. It is not clear yet how the the mainstream philatelic community will “value” these “vanity”stamps.

07 May 2009: Iceland — EUROPA issue

Postphil Iceland — Europa 2009 — Astronomy issue




Iceland — Europa 2009 — Astronomy issue: Two stamps issued, one stamp valued at 105 ISK (pictured here) and one stamp valued at 140 ISK.



Iceland 105 value mini sheet with constellations in the selvage area

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Iceland — Europa 2009 — Astronomy issue: Two stamps issued, one stamp valued at 105 ISK and one stamp valued at 140 ISK (pictured here.)



Iceland 140 value in mini sheet form with constellations in the selvage — note the difference between the two "skies" on the stamps that tranfers to the mini sheets — one with a day sky and the other with a night sky.



FDC from Iceland that carries both stamps, cache art of a constellation (Ursa Major) and a postmark reflective of the IYA2009 logo.

07 May 2009: Italy — EUROPA issue
Poste Italiane — Europa 2009 — Astronomy issue




Italy — Europa 2009 — Astronomy issue: two designs issued. One stamp valued at € 0,60 (shown here) depicts the Italian "GALILEO" telescope facility set against a nebula, while the other valued at € 0,65 depicts the astronomical satellite "AGILE."



Italy — Europa 2009 — Astronomy issue: € 0,60 FDC.



Italy — Europa 2009 — Astronomy issue: two designs issued. One stamp valued at € 0,60 depicts the Italian "GALILEO" telescope facility, while the other valued at € 0,65 (shown here) depicts the astronomical satellite "AGILE" above the Earth.



Italy — Europa 2009 — Astronomy issue: € 0,65 FDC.



Italy — Europa 2009 — Astronomy issue: Postmark used on the FDCs for the Italian releases.

07 May 2009: Moldova — EUROPA issue
Poşta Moldovei — Europa 2009 — Astronomy issue



Moldova — Europa 2009 — Astronomy issue: The 4.20 MDL value in mini sheet of 10.



Moldova — Europa 2009 — Astronomy issue: The 4.50 MDL value in the mini sheet form.



Moldova — Europa 2009 — Astronomy issue: Cover of booklet containing 6 of the stamps (3 stamps of each). (*)Note that an unperforated version has also been issued! The cover depicts our solar system.



Moldova — Europa 2009 — Astronomy issue: two stamps (4.20 & 4.50 MDL) on page from the booklet of 6 stamps (3 stamps of each). These are the imperforate version.



Moldova — Europa 2009 — Astronomy issue: two stamps (4.20 & 4.50 MDL) on page from the booklet of 6 stamps (3 stamps of each). These are the perforated version.



Moldova — Europa 2009 — Astronomy issue: two stamps (4.20 & 4.50 MDL) the 4.20 MDL value (shown here) depicts Nicolae Donici (1874-1956) a Romanian astronomer, an image of a solar eclipse, an observatory and an astronomical diagram.



Moldova — Europa 2009 — Astronomy issue: The 4.50 MDL value (shown here) depicts Galileo Galilei (1564-1642) along with an armillary sphere and an image from space.

08 May 2009: Åland — EUROPA issue

POSTEN ÅLAND — Europa 2009 — Astronomy issue




One design featuring the Big Dipper (or Karlavagnen) formed by star-shaped perforations made through the stamp.




A sheet from the Åland release with (8) stamps seperated by a series of se-tenant labels featuring Posten Åland logo and three constellations — (from left to right) the Little Dipper, Cassiopeia and the Big Dipper. The two dippers are better known as the Plough and the Little Plough in the British Isles, while in Scandinavian the two are known by the name Karlavagnen which is derived from the even earlier Carlswæn and the historical names continue even further back and vary greatly by region.



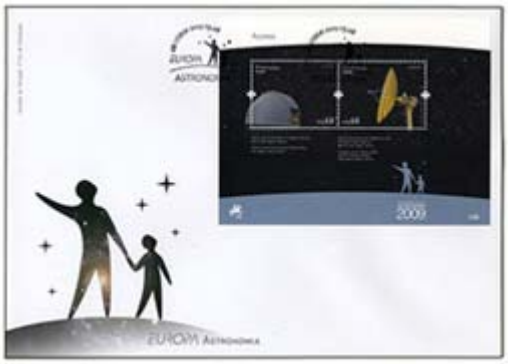

Postmark used for Aland release FDI.

08 May 2009: Azores — EUROPA issue

CTT Correios — Europa 2009 — Astronomy issue



Azores stamp valued at 0.68 EUR and featuring a radio dish.



Azores FDC with souvenir sheet.




Portugal/Azores MaxiCard with FDI cancel.




Portugal/Azores souvenir sheet with two stamp designs: one features the Ribeira Grande Astronomical Observatory and one with a radio dish, both valued at 0.68 EUR. An interesting note regarding the three Portugal issues — the souvenir sheets from Portugal, Azores and Madeira each contain a stamp that only is available on the souvenir sheet. Also of interest is the cross design incorporated in the perforations.

08 May 2009: Hungary — EUROPA issue
Magyar Posta — Europa 2009 — Astronomy issue

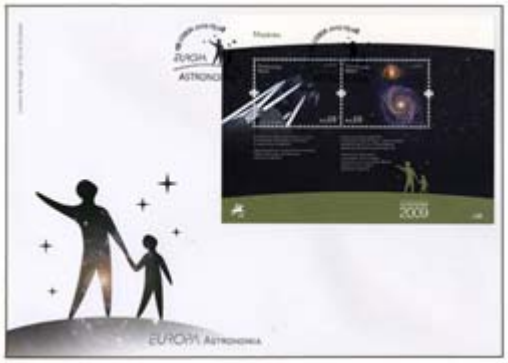



The Hungarian Post souvenir sheet and its stamps are decorated with graphic compositions. One denomination (the 100 HUF value) carries a portrait of Galileo and the spacecraft named after him. The other stamp (valued at 230 HUF) portrays the target of the “Galileo” probe, the planet Jupiter and four of its moons. In the selvage area of the sheet are featured the Galilean telescope, a radio telescope array and a background image of a region of the night sky as seen in “radio.”

08 May 2009: Madeira — EUROPA issue
CTT Correios — Europa 2009 — Astronomy issue




Madeira stamp valued at 0.68 EUR featuring a spiral galaxy M51.



Madeira FDC with souvenir sheet.



Madeira maxi card with FDI cancel.




Madeira souvenir sheet with two stamps: each valued at 0,68 EUR. One features an image of a telescope and the other spiral galaxy M51.

08 May 2009: Portugal — EUROPA issue
(CTT) — Europa 2009 — Astronomy issue



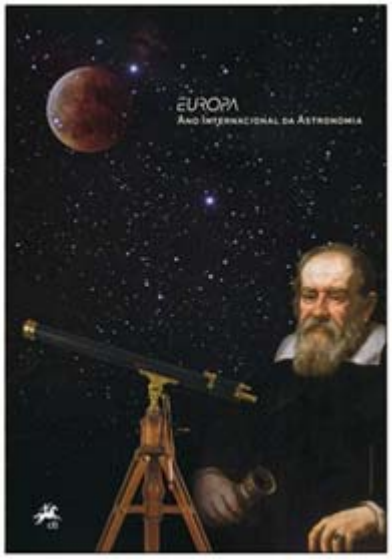

Portugal stamp valued at 0,68 EUR featuring total lunar eclipse montage.



Portugal FDC featuring each of the three designs that fall under the Portuguese postal umbrella.



Portugal FDC with souvenir sheet.



Cover of the release brochure containing infomation about the stamps as well as the stamps themselves. An interesting element is the transparency of the Moon, exposing the stars it overlays. Also featured are a telescope and portrait of Galileo.


Portugal maxi card with FDI cancel. Notice the positioning required in order for the postmark to be visible against the card's image of the Moon.



Portugal souvenir sheet with two stamps, each valued at 0,68 EUR. One design features one unit of the European Southern Observatory (ESO) “Very Large Telescope” (VLT) located in Chile — the largest in the world. The other design features mutiple views of the stages of a total lunar eclipse.

08 May 2009: San Marino — EUROPA issue
Azienda Autonoma di Stato Filatelica e Numismatica — Europa 2009 — Astronomy issue



San Marino — Europa 2009 — Astronomy issue: two stamps (0.60 & 0.65 ¤) Both stamps feature illustrations reflective of an astronomy theme. This stamp (valued at 0,60¤) celebrates a historical route which has always seen man occupied in the understanding of the motion of the planets found in the universe around us, and just as curious to understand the laws which regulate the movement and the origin of such complex beauty. From the most rudimentary of telescopes used by Galileo Galilei (represented above on the left hand side of the stamp) to our most modern and sophisticated telescopes, human intelligence has strived to supply clear answers to the many questions which, over time, have brought the planets, the sun and the other stars nearer to us. The core element of this stamp is a celestial body, the main element of interest in astronomy, a satellite, much smaller, but studied just as thoroughly by scientists, and the Earth, where the continents and the oceans can be perceived. Preceding text courtesy of San Marino AASFN.

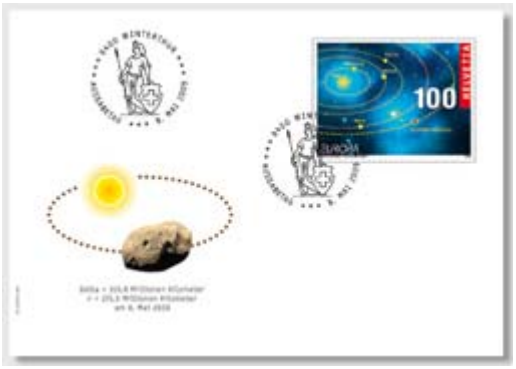


San Marino — Europa 2009 — Astronomy issue: two stamps (0.60 & 0.65 ¤) Galileo's discoveries in 1609 changed man's perception of the world and the universe: the lunar mountains revealed that another planet had geographic landforms and structures similar to those on Earth; the Milky Way is made up of stars; Jupiter has satellites like the Earth, which represented the system on a small scale, making obsolete the cosmological models used up until that time. The ¤ 0,65 stamp represents the solar system with all the planets in orbit around the sun, according to the heliocentric system hypothesized by Galileo Galilei, one of the first scientists to clash with the geocentric theory upheld by influential thinkers and illustrious theologians of the past. The twelve stars, symbol of the European flag, encircle the whole illustration and are the call for an international commitment to continue with the observation of the planets and widen the sphere of research and learning. Mount Titan, present at the bottom of the design, is perceived as the symbol of the Republic's participation and consent regarding future space exploration. Preceding text courtesy of San Marino AASFN.

08 May 2009: Switzerland — EUROPA issue
Swiss Post — Europa 2009 — Astronomy issue




Switzerland — Europa 2009 — Astronomy issue: One stamp, depicting diagram of inner solar system with Sun and orbital paths of Mercury, Venus, Earth, Mars and asteroid "Helvetia."




Switzerland — Europa 2009 — Astronomy issue: FDC featuring cache art depicting asteroid "Helvetia."




Switzerland — Europa 2009 — Astronomy issue: Maxi card.



Switzerland — Europa 2009 — Astronomy issue: mini sheet of six stamps.

09 May 2009: Croatia — EUROPA issue

Croatian post Inc. — Europa 2009 — Astronomy issue



Croatia — Europa 2009 — Astronomy issue: 2 stamps (2x 8.- HRK) in an unusual format. The stamps are joined as a single se-tenant design of a star field. Each stamp forms one half of the design. But the format is that of a round stamp.

09 May 2009: Kosovo — EUROPA issue

PTT of Kosovo — Europa 2009 — Astronomy issue



Kosovo — Europa 2009 — Astronomy issue: two stamps and one souvenir sheet depicting illustrations in celebration of the IYA2009. This stamp, valued at 1 EUR depicts the star circle logo from the flag of the European Union, a diagram of the “member” region of the globe and an adult directing the viewing session of a child.




Kosovo — Europa 2009 — Astronomy issue: two stamps and one souvenir sheet depicting illustrations in celebration of the IYA2009. This stamp, valued at 2 EUR appears to be pulled directly from the souvenir sheet with the exception of the border.




Kosovo — Europa 2009 — Astronomy issue: two stamps and one souvenir sheet depicting illustrations in celebration of the IYA2009. This souvenir sheet contains the image that was apparently pulled to create the stand alone 2 EUR stamp. However, the design on the souvenir sheet version extends into the surrounding overall design that is obviously directed toward the next generation of space explorers.

09 May 2009: Malta — EUROPA issue

Maltapost pl — Europa 2009 — Astronomy issue




Malta — Europa 2009 — Astronomy issue: 2 stamps (0.37 & 1.19 €) The stamps are printed on Maltese Crosses watermarked paper by Printex Limited and are available in sheets of ten. The Euro 0.37 stamp (pictured here) features a portrait of Galileo Galilei (1564 — 1642) by Francesco Boschi and one of Galileo's sketches of the moon set against a starry background including the constellation Orion. The stamp also commemorates the 40 year

anniversary of the first manned lunar landing by featuring the Apollo 11 lunar module “Eagle”. On 20 July 1969 Neil Armstrong was the first man to step on the moon, saying “That’s one small step for (a)man, one giant leap for mankind”. The font used (Futura) is the same as that used in the plaque which was attached to the lunar module: “Here men from the planet Earth first set foot upon the Moon, July 1969, A.D. We came in peace for all mankind”.




Malta — Europa 2009 — Astronomy issue: 2 stamps (0.37 & 1.19 €) The stamps are printed on Maltese Crosses watermarked paper by Printex Limited and are available in sheets of ten. The Euro 1.19 stamp (pictured here) shows the great telescope of William Lassell (set up in Malta between 1861 and 1865) against a background of stars showing Nebula M42, which Lassell himself observed on various occasions from Malta. This instrument, the world’s largest telescope of its kind at the time, was a Newtonian reflector. Its tube was made of an iron lattice with ribs fitted at equidistant spaces. This design was suitable to compensate and stabilise expansions due to the difference in internal and external temperatures of the telescope. To be able to operate his telescope a wooden tower with a built-in stair case was constructed adjacent to it, to give Lassell the space he needed to make his observations at any desired position. This telescope was driven by two Maltese workmen with the aid of gear wheels which had to be operated by hand. William Lassell collaborated with Albert Marth who was a professional astronomer in Ireland and amongst Lassell’s discoveries from his gigantic telescope in Sliema, are six hundred nebulae and the variable star ÔSÕ Pegasi. When Lassell returned to England in he offered his reflector telescope to other observatories but in spite of its excellent quality it was finally broken up for scrap in 1877. This marked the end of an era. Lassell died in 1880. Ten years before William Lassell had been elected president of the Royal Astronomical Society and the University of Cambridge had awarded him with the honorary LL.D. degree. Two moon craters were named after Marth and Lassell. William Lassell’s crater is found adjacent to Mare Nubium and Albert Marth’s crater is situated near the edge of Mare Humorum.

### 09 May 2009: Turkey — EUROPA issue

PTT Genel Müdürlüğü — Europa 2009 — Astronomy issue: 2 stamps (0.80 & 1.- YTL)

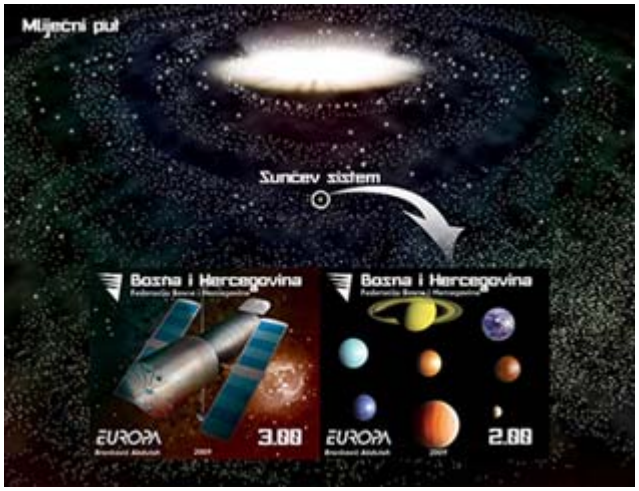
### 11 May 2009: Armenia — EUROPA issue

Haypost — Europa 2009 — Astronomy issue



Stamp from Armenia, date of Issue: 11th May 2009 — one stamp, valued at 350.- AMD. The stamp design features the Byurakan Astrophysical Observatory, founded in 1946, set against an image that appears to be some deep sky object.

11 May 2009: Bosnia and Herzegovina — EUROPA issue
JP BH POSTA — Europa 2009 — Astronomy issue



Bosnia and Herzegovina — Europa 2009 — Astronomy issue: The souvenir sheet incorporates the two stamp designs into a sheet that illustrates our Milky Way galaxy and our very small part within it.



Bosnia and Herzegovina — Europa 2009 — Astronomy issue: Two stamps and souvenir sheet. This stamp illustrates the members of our solar system.




Bosnia and Herzegovina — Europa 2009 — Astronomy issue: This stamp illustrates a space telescope (Hubble?) and a distant target for observation.

11 May 2009: Greece — EUROPA issue

Ελληνικά Ταχυδρομεία — Hellenic Post — Europa 2009 — Astronomy issue




Greece — Europa 2009 — Astronomy issue: 2 stamps (0.70 & 3.20 €) The two stamps form an se-tenant design depicting the “Aristarchos” telescope and an illustration of the dynamics of a pulsar. The telescope was named after Aristarchos of Samos, the first reported person pondering about heliocentrism, the Greek telescope with a primary mirror diameter of 2.3 m and a final focal ratio f/8 is the pride of the Institute of Astronomy and Astrophysics (IAA) of the National Observatory of Athens (NOA), being the largest one in the southeastern Europe. The telescope received “first light” on 15 September 2004.




Greece — Europa 2009 — Astronomy issue: 2 stamps (0.70 & 3.20 €) The cover of a booklet form of the Greek release depicting images of the planet Saturn. The 7.80 € price reflects the fact that the booklet contains two se-tenant pairs of the stamps inside.




Greece — Europa 2009 — Astronomy issue: 2 stamps (0.70 & 3.20 €) The “official” First Day Cover with its artwork pulled directly from the stamp design ... quite a handsome presentation.




Greece — Europa 2009 — Astronomy issue: 2 stamps (0.70 & 3.20 €) Both stamps on a FDC featuring the IYA2009 logo as the cache art. The special postmark is perhaps derived from the planet Saturn.

## 12 May 2009: Luxembourg — EUROPA issue

Post Luxembourg — Europa 2009 — Astronomy issue




Luxembourg — Europa 2009 — Astronomy issue: two stamps (0.50 & 0.70 €) Both stamps are issued in mini-sheets of 10 stamps. The two stamp designs . . . one (the 0.50 value) depicting a father and child sitting in the grass and observing the night sky, and a shooting star, while the other (the 0.70 value) will depict a portrait of Galileo (with his telescope) on an artistic background. Both stamps will have the text “year of astronomy” (in french) included as a design element. THE FOLLOWING TEXT COURTESY OF POST LUXEMBOURG: “UNESCO has proclaimed the year 2009 ‘International Year of Astronomy’. This year is the 400th anniversary of the first observations made by Galileo with the aid of a telescope. P&TLuxembourg commemorates this event by issuing 2 stamps. Astronomy, the oldest of the sciences, is also considered the ‘Queen’ of sciences. The first men who left their caves studied the sky and adapted their way of life to the motion of the sun, moon, and stars. In ancient times, entire states were organised along astronomical concepts and we know of places and objects dedicated to this science. This is the perfect time to rediscover the sky with our fellow citizens and to help make the sky more visible with reduced lighting. Constellations such as the Ursa Major and Ursa Minor, Cassiopeia, Orion as well as stars and planets such as Polaris, Sirius, Venus, Jupiter, Saturn and Mars should once again become part of our general culture. To attain this objective is the true goal of this exceptional year.”

15 May 2009: Ireland — EUROPA issue
Irish Stamps — Europa 2009 — Astronomy issue




Ireland — Europa 2009 — Astronomy issue: 2 Stamps: One valued @ 0.55c which features the Crab Nebula & the other valued @ 0.82c features an artist's impression of the jets streaming from a brown dwarf. Both stamps from this issue feature areas of astronomy of particular significance for Ireland. The 55c depicts the Crab Nebula (an object first observed in 1731 by the English astronomer, John Bevis) which was named by William Parsons, the Third Earl of Rosse, based on observations made from within Ireland at Birr Castle, Co Offaly. The Crab Nebula's ranking as the brightest and most recent supernova near our Earth, could lend credence to the claim that it is the most studied object in the night sky. The 82c stamp depicts an artist's impression of energetic jets emitting from a Brown Dwarf. Such objects are sub-stellar bodies considered not quite suns but not quite planets. Their intermediate classification is derived from the fact that their mass is less than that of a star but greater than that of the largest planets. Much research is currently underway and on Brown Dwarfs and Irish astronomers are taking a leading role.



Ireland — Europa 2009 — Astronomy issue: 2 Stamps: FDC from the Irish issue. It carries both stamps, a special postmark and cache art depicting the Dunsink Observatory.




Ireland — Europa 2009 — Astronomy issue: Postmark depicting a telescope used for the Irish releases FDCs.

15 May 2009: Morocco — IYA2009 issue
Poste Maroc — IYA2009 — Astronomy issue




Morocco — IYA2009 — Astronomy issue: An illustration depicting Galileo and three telescopes — a small optical instrument, a radio dish and space based platform.

20 May 2009: Vatican — EUROPA issue
Vatican Philatelic and Numismatic Office — Europa 2009 — Astronomy issue

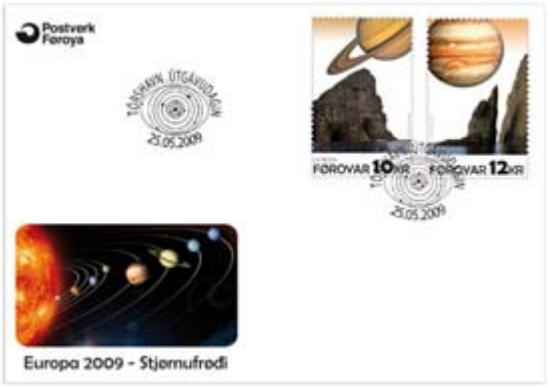



Vatican — Europa 2009 — Astronomy issue: 2 stamps ( € 0.60 — 0.65) showing two oil paintings by Donato Creti — Saturn and The Sun. The 18th century works from the Pinacoteca of the Vatican Museums are an eight-part series of small format paintings (50 x 35 cm) called “Astronomical Observations.”

25 May 2009: Faröe Islands — EUROPA issue
Postverk Føroya — Europa 2009 — Astronomy issue




Faröe Islands — Europa 2009 — Astronomy issue: 2 Stamps. Both stamps feature seascapes from the region. The 10 KR value includes the planet Saturn while the 12 KR value includes Jupiter.




Faröe Islands — Europa 2009 — Astronomy issue: FDC from Faroese issue containing the two stamps, a special postmark of a diagram of the solar system and cache art of the Sun and planets.

28 May 2009: Guernsey — EUROPA issue

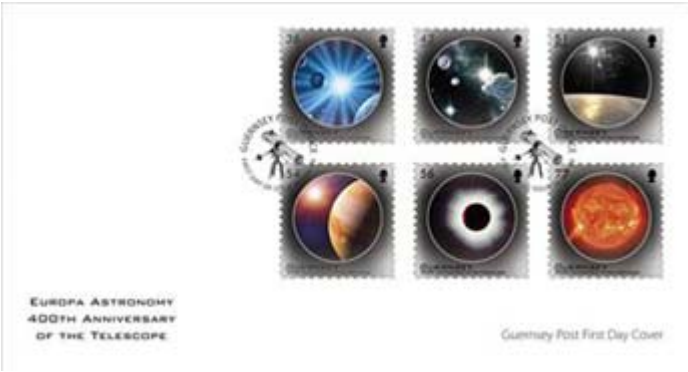
Guernsey Post Ltd. — Europa 2009 — Astronomy issue: Set of 6 stamps £3.17, FDC £3.97, Presentation Pack £3.97, Sheets of 10 £31.70




Guernsey — Europa 2009 — Astronomy issue: Set of 6* stamps, FDC, Presentation Pack and in sheets of 10 (*) only two of the six stamps in this set will carry the official EUROPA logo. The six stamps offer the collector a variety of astronomical images that include the Sun, a total solar eclipse, Jupiter and three rather mysterious images which one might develop their own interpretation.




Guernsey — Europa 2009 — Astronomy issue: Set of 6* stamps — (*) only two of the six stamps in this set will carry the official EUROPA logo. These are those two, the 43 and 51 values.




Guernsey — Europa 2009 — Astronomy issue: Set of 6 stamps on FDC with special “telescope” design postmark.



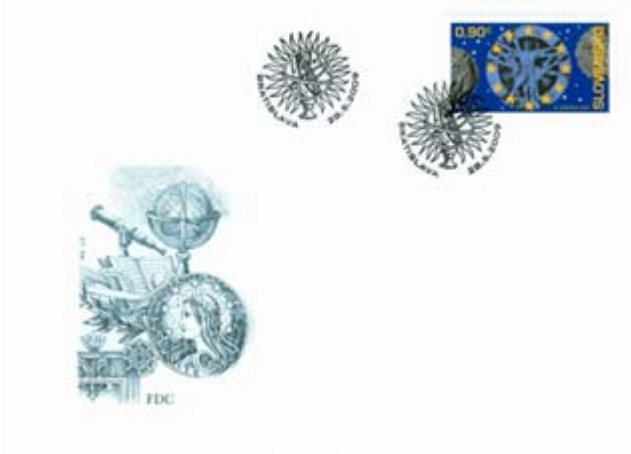

Guernsey — Europa 2009 — Astronomy issue: This cover for the Guernsey presentation pack has an image of the Pleiades.

28 May 2009: Slovakia — EUROPA issue

Slovenská Pošta (Pofis) — Europa 2009 — Astronomy issue




Slovakia — Europa 2009 — Astronomy issue: One stamp valued at 0.90 EUR depicts a semblance of Leonardo Da Vinci’s “Measure of Man” image inscribed within the star circle of the flag of the European Union. The two design elements that flank the figure on either side may be images of meteorites.




Slovakia — Europa 2009 — Astronomy issue: FDC from Slovakia issue with fanciful cache art work and a special postmark of a flaming armillary.

29 May 2009: Democratic Republic of São Tomé and Príncipe — IYA2009 issue
Stamparija, UAB — IYA2009 — Astronomy issue




Democratic Republic of São Tomé and Príncipe — IYA2009 — Astronomy issue: Miniature sheet marking the 90th anniversary of the 1919 solar eclipse expedition of Sir Arthur Stanley Eddington (1882-1944) to Principe. Composed of four stamps (2x Db 13000 + 2x Db 39000 values) Various images of Eddington set against various locales in the region. Eddington's observations of the 1919 eclipse are considered to be one the greatest moments in scientific history of the twentieth century having provided proof of Einstein's theory of general relativity, which predicted a shifting of the observed position of stars when under the influence of strong gravitational fields.




Democratic Republic of São Tomé and Príncipe — IYA2009 — Astronomy issue: Souvenir sheet marking the 90th anniversary of the 1919 solar eclipse expedition of Sir Arthur Eddington to Principe. Sheet features Moon, portrait

of Addington and map of region. Inset stamp features portrait of Addington and image of total solar eclipse. Stamp is valued at Db 100000

29 May 2009: Slovenia — EUROPA issue
http://www.posta.si/POŠTA SLOVENIJE — Europa 2009 — Astronomy issue




Discovery of the Comet C/2008 Q1 (Maticÿicÿ) in the Astronomical Observatory in Cÿrni Vrh: The Observatory at Cÿrni Vrh has been preparing a programme of discovering comets and asteroids PIKA for several years. More than 400 small objects were discovered in our solar system in the framework of this programme , as well as six supernovae. Recently there was another successful discovery. On CCD pictures which were taken in the framework of the Project PIKA on the evening of August 18th 2008 with a 60-cm telescope Cichocki in the Observatory in Cÿrni Vrh, Stanislav Maticÿicÿ found a weak object with an unusual movement. A detailed examination of the recordings made the previous night showed that this was a foggy object with central condensation. The day afterwards, on August 20th 2008, the discovery was published in the circular of the International stronomical Association. Soon it was also confirmed by other Observatories around the world.The Comet was named after the person who discovered it: C/2008 Q1 Maticÿicÿ. This is the first, and so far the only comet discovered during observations in Slovenia. The stamp stylistically shows the relative position of the Sun, Mercury, Earth, Mars and the Comet C/2008 Q1 Maticÿicÿ at the moment of its discovery. Dr. Andreja Gombo




50th anniversary of the Astronomical and Geophysical Observatory Golovec: In the year 2009, 50 years have passed since Slovenia got its first astronomical observatory in a modern sense of the word. The Astronomical and Geophysical Observatory Golovec in Ljubljana was established on the initiative of Prof. Fran Dominko. In the early stages of the Observatory the first Slovene astronomical library was established, methods of measurement of classical astronomy were introduced, the geographical position of the Observatory was determined accurately, the service of accurate time was introduced and the publication of astronomical phemerides began. The Observatory also had seismological instruments which enabled the development of seismological work in the Observatory under the direction of Prof. Dr. Vladimir Ribaricÿ. Nowadays, the astronomical part of the Observatory performs mainly only a pedagogical function due to the light pollution which is the problem of many European Observatories. It is a part of the Faculty of Mathematics and Physics in Ljubljana and numerous generations of students of astronomy, physics and mathematics have written observation Projects and Theses in it. Since 2004 it has been equipped with a modern 70-cm Vega telescope. The Observatory also has a large astronomical library. In 2009 the Observatory is open to visitors every first Wednesday in the month. Dr. Andreja Gomboc




FDC with both values. The cache art, special cancel and 0,45 value all carry the logo from the IYA2009.




Special FDI postmark incorporating the IYA2009 logo.

## June 2009

### 01 June 2009: Gibraltar — EUROPA issue

Gibraltar Stamps — Europa 2009 — Astronomy issue




Gibraltar — Europa 2009 — Astronomy issue: 4 Stamps (Copernicus, Newton, Galileo, Aristotle) of differing values totaling £2.46. Printed in sheetlets of 8 of each value. One interesting aspect of this issue is the use of actors portraying each individual to accomplish a photgraphic portrait. The Europa 2009 “Year of Astronomy” Gibraltar stamp issue marks the 400th anniversary of the first use of an astronomical telescope by Galileo Galilei and pays tribute to Aristotle, Galileo, Copernicus and Newton. The aim of the Year is to stimulate worldwide interest, especially among young people, in astronomy and science. Aristotle was a Greek philosopher who treated

astronomy in the abstract, linking it to his overall philosophical world picture. Galileo Galilei was an Italian physicist, mathematician, astronomer, and philosopher who played a major role in the Scientific Revolution. Nicolaus Copernicus's book, De revolutionibus orbium coelestium (On the Revolutions of the Celestial Spheres), is often regarded as the starting point of modern astronomy and the defining epiphany that began the Scientific Revolution. Sir Isaac Newton was an English physicist, mathematician, astronomer, natural philosopher, alchemist, and theologian and one of the most influential men in human history. In this work, Newton described universal gravitation and the three laws of motion which dominated the scientific view of the physical universe for the next three centuries, advancing the scientific revolution.



Gibraltar issue FDC.


Gibraltar issue mini sheets.



Gibraltar presentation pack.

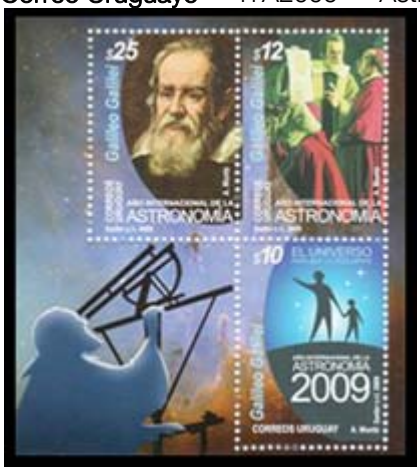
### 04 June 2009: El Salvador- IYA2009 issue

Correos de El Salvador — IYA2009 — Astronomy issue



El Salvador- IYA2009 — Astronomy issue: Four stamps issued of four designs: a telescope, an observatory, moons and Galileo.

04June2009: Uruguay — IYA2009 issue
Correo Uruguayo — IYA2009 — Astronomy issue

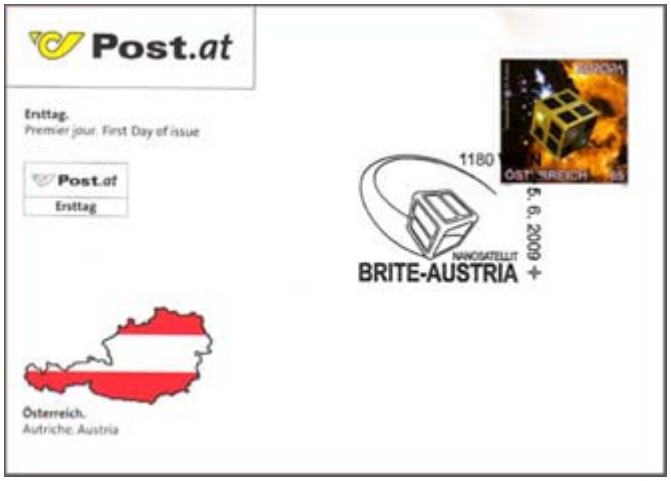


Uruguay sounvenir sheet with three stamps of three different values. The sheet design features a background image of a man looking through a telescope that overlays an image of a portion of the Eagle Nebula. The three stamps, aside from carrying different values also contain different designs. The 10 UYU value stamp carries the IYA2009 logo, shaped within a form reminicent of a planetary or lunar limb. The 12 UYU value stamp depicts a historically based image featuring Galileo among the Vatican inquisitors. The final stamp, valued at 25 UYU features a potrait of Galileo. These later two designs also share the “limb” shaping element to draw attention to main image feature of the design.

05 June 2009: Austria — EUROPA issue
Post.at — Europa 2009 — Astronomy issue



Europe 2009 — Astronomy: On the occasion of the International Year of Astronomy, the Europa 2009 commemorative also looks at this topic — or to be more precise the launch of the first Austrian nanosatellite TUGSAT-1, developed for the BRITE Austria (Bright Target Explorer) mission.

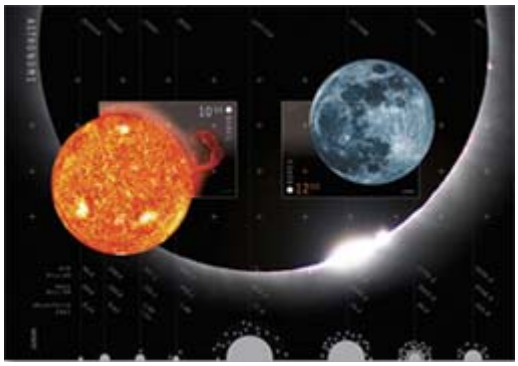


Austrian FDC with postmark depicting the BRITE nanosatellite.

12 June 2009: Norway — EUROPA issue
Norway Post — Europa 2009 — Astronomy issue



Norway — Europa 2009 — Astronomy issue: 2 motives. The 10 NOK value depicts the Sun with a large prominance arcing from its surface. The 12 NOK value depicts our Moon.



Norway — Europa 2009 — Astronomy issue: Astronomy issue in miniature sheet form (with a combined value of 22.00 NOK) carries both stamps and also features a large image of a solar eclipse in the background. The limb on the right side of the sheet depicts the “Bailey’s Beads” effect and some flares erupting from the Sun’s surface. Across the bottom of the sheet is a diagram of the planets in our solar system with a table of information regarding each, such as — their maximum and minimum distances from the Sun and the number of years it takes the planets to circle the Sun. The sheet also displays the full image of the bodies featured on the stamps. The silver ink of the text and brilliant colours of the images make for a very handsome design against the predominantly black sheet. One should make special note of the fact that actual “meteorite dust” has been sprinkled next to the country name on both stamps.

16 June 2009: Turkey — EUROPA issue
PTT Genel Müdürlüğü — Europa 2009 — Astronomy issue



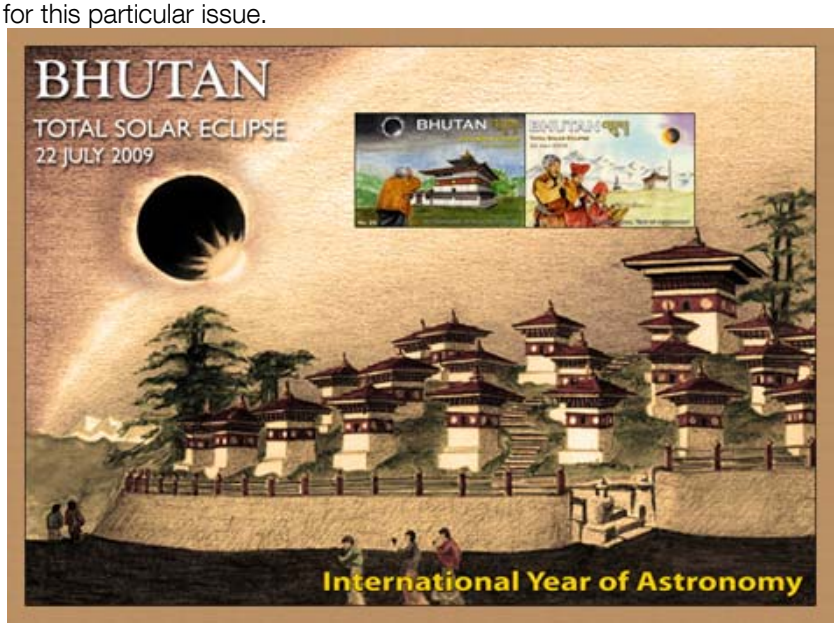



Turkey — Europa 2009 — Astronomy issue: 2 motives, one valued at 80 Kurus¸ (pictured at right,) features the Cacabey Astronomy Medresse (located in the center of Kõrs¸ehir and was built in H. 671 / C.1272-1273) set against an image of a galaxy (M 31?); while the second stamp, valued at 1 Lira (pictured at left,) depicts famous astronomer Ali Kus¸çu (1403-1474) working on a document and surrounded by images that include Earth, the Moon, Saturn, portions of a chart and some Turkish tileworks.

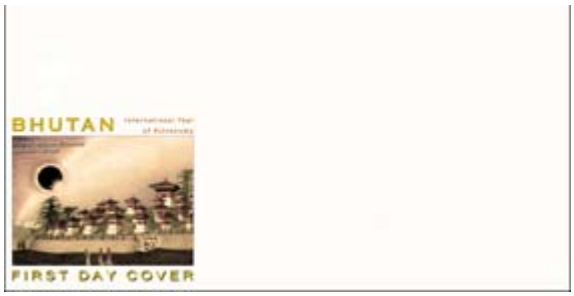
## July2009

22 July 2009: Bhutan: International Year of Astronomy — Total Solar Eclipse Stamp

We would like to acknowledge the help from Ms. Wangmo, Manager, Philatelic Bureau, Government Of Bhutan , for this particular issue.




*Bhutan: release (in minisheet format) of 22July2009 marking the longest duration total solar eclipse of the 21st century and celebrating the IYA2009.*




*A blank first day cover waiting to be used for the minisheet on the day of the eclipse.*

07 August 2009 — EUROPA issue

OPT de Nouvelle-Calédonie — IYA2009 — Astronomy issue



New Caledonia — IYA2009 — Astronomy issue: A single design was issued depicting illustarations of an astronaut, a telescope, the full Moon and the constellation known as the Southern Cross

22 August 2009 — Argentina issue



Argentina — IYA2009 — Astronomy issue: One design of a four stamp set issued by Argentina featuring various observatories located within their borders. This particular stamp design features the Astronomical Complex facilities Leoncito (CASLEO) located in the Province of San Juan.



Argentina — IYA2009 — Astronomy issue: One design of a four stamp set issued by Argentina featuring various observatories located within their borders. This particular stamp design features a view of the dome of the Félix Aguilar Astronomical Observatory located at the El Leoncito National Park, in the Province of San Juan, as well as, one of its instruments. Trails made by stars during a time-lapse exposure are also featured in the stamp design.



Argentina — IYA2009 — Astronomy issue: One design of a four stamp set issued by Argentina featuring various observatories located within their borders. This particular stamp design features a view from inside the open dome of the La Plata Astronomical Observatory located in the Province of Buenos Aires. One can see trails of stars in the sky visible through the open dome. Such trails are the result of time-lapse exposures.



Argentina — IYA2009 — Astronomy issue: One design of a four stamp set issued by Argentina featuring various observatories located within their borders. This particular stamp design features dishes of the Argentine Institute of Radio Astronomy located near Buenos Aires.




Argentina — IYA2009 — Astronomy issue: The four stamps of the set attached to the special cover and cancelled with the pictorial postmark designed for use on the first day day of issue.

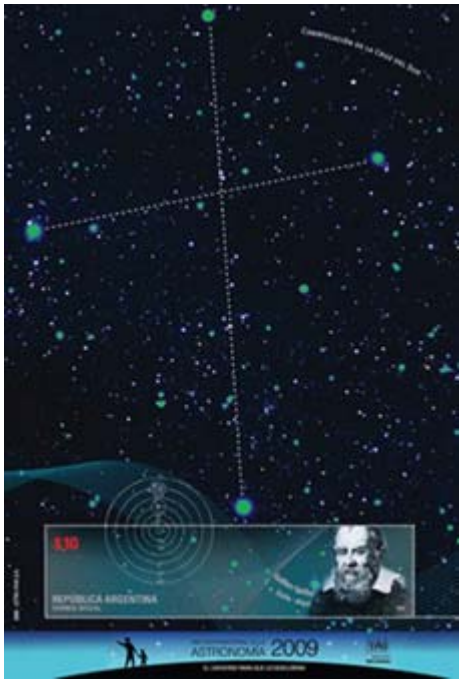



Argentina — IYA2009 — Astronomy issue: The design of first day of issue cancel used on the four stamp set issued by Argentina featuring various observatories located within their borders.

24 August 2009 — Argentina issue




Argentina — IYA2009 — Astronomy issue: One of a two design set that were issued to mark the IYA2009 specifically. This stamp bears the image of the telescope located at the Astronomical Observatory of the National University of Cordoba.



Argentina — IYA2009 — Astronomy issue: One of a two design set that were issued to mark the IYA2009 specifically. This stamp is part of a souvenir sheet and bears a likeness of Galileo. The $10 stamp also shares a diagram of the solar syatem that crosses the perforations into the field of the sheet where one sees the constellation known as the Southern Cross. The IYA2009 logo is featured at the lower portion of the sheet, below the stamp.

# Evaluation

IYA2009 is an excellent opportunity to increase public understanding and awareness of astronomy. But will they achieve their objectives? What lessons will we learn?

## Task Group

- Mariana Barrosa (IAU/IYA2009 & ESA/ESO ePOD, DE)(Co-Chair)
- Pedro Russo (IAU/IYA2009 & ESA/ESO ePOD, DE) (Co-Chair)
- Lars Lindberg Christensen (ESA/ESO ePOD & IAU/IYA2009, DE)
- Mike Simmons (Astronomers without Borders, USA)
- Robert Hill (Northern Ireland Space Office, UK)
- Steve Owens (UK IYA2009 Coordinator)
- Andrew Fraknoi (Foothill College/ASP)
- Rui Brito Fonseca (CIES-ISCTE, Portugal)

## Brief Description

All over the world, professional, amateur and enthusiast astronomers will work hard to bring to the public all sorts of activities, events, exhibitions, shows, contests, websites, observations and other ways of promoting science in general and astronomy in particular. But how well will they do in achieving their objectives? What will they really accomplish with all their time and effort? What lessons will be learnt? What was done well and what could have been done better? If you are involved in preparing these activities, this task group will hopefully help you answer some of these questions and prepare an easy and thorough evaluation of your events.

## Objectives

- To evaluate the results of IYA2009 according to the pre-established objectives, as well as the impact of the IYA2009 on the public, media, institutions and scientific community.

## Outcomes

- Evaluation Guide to SPoCs and Task Group Chairs: http://www.astronomy2009.org/resources/documents/detail/Evaluation_guide/
- IYA2009 in newspapers: Evaluation Hands-on Guide: http://www.astronomy2009.org/resources/documents/detail/codebook_evaluation/
- List of resources for evaluation: http://www.astronomy2009.org/resources/guides/
- Support and advice the different IYA2009 projects in terms of evaluation.

# New Media

This Task Group provided online astronomy experiences where people work, play and learn; creates content to expose people to astronomy; distributes content for active and passive channels and uses a diverse suite of technologies to reach people on multiple platforms and in a range of online settings.

## Task Group

Chair: Pamela Gay ( pamela@starstryder.com )

## Objectives

- Provided online astronomy experiences in the places that people work, play and learn.
- Created content that will expose people to astronomy, provide them regular content, and create special opportunities for learning.
- Distributed content for active ("pull") and passive ("push") channels and through guerrilla marketing techniques.
- Used a diverse suite of technologies to reach people on multiple platforms and in diverse online settings.

## Extrasolar Planets

This Task Group operated in an area that is both easy for the general public to understand and one of the greatest scientific adventures of the 21st century: extrasolar planets and the search for life on these planets. The Task Group is still developing an international, multilingual website: www.exoplanet2009.org.

More information: Jean Schneider ( jean.schneider@obspm.fr )

## Closing Ceremony

The IYA2009 Closing Ceremony concluded one the world's grandest science popularisation ventures, but also hailed the beginning of a new era: Beyond IYA2009. The IYA2009 legacy programme , which was launched during the IYA2009 Closing Ceremony, fosters continued cooperation and aims to sustain the enduring network, activities and innovative concepts for education and public outreach in astronomy which have been shown to be successful in IYA2009.



Several initiatives were planned in parallel with the IYA2009 Closing Ceremony, including a 4 days event (from 7 to 10 January) celebrating the exact 400 years anniversary of Galileo's groundbreaking observations of Jupiter and its moons and a magnificent exhibit with one of the original Galileo's telescope.

The International Year of Astronomy 2009 Closing Ceremony was hosted by the University of Padova, organised by INAF (National Institute for Astrophysics), IAU and UNESCO, under the High Patronage of the President of the Republic of Italy and several Italian institutions and academies, particularly the Accademia dei Lincei of which Galileo was one of the first members.

IYA2009 Closing Ceremony website: http://www.beyond2009.org/

## IYA2009 Closing Ceremony Programme

### SATURDAY, 9 JANUARY 2010

10:00-13.30 REGISTRATION

Session I. Welcome & the IYA2009

14:00-15:00 Welcome addresses:

Università di Padova Rector; Padova Mayor; W. Erdelen (UNESCO); R. Williams (IAU President); Tommaso Maccacaro (INAF President), Italian University & Research Minister *

15:00-15:30 Catherine Cesarsky: “Overview of IYA2009”

15:30-16:00 COFFEE BREAK

Session II IYA2009 in the World

16:00-16:20 Pedro Russo: “Coordinating IYA2009”

16:20-16:40 Lars Lindberg Christensen: “What Worked Best in IYA2009”

16:40-18:10 Six 15-minutes talks by SPoCs: “IYA2009 Activities & their Impact”

Dr. Claudio Moises Paulo (Mozambique); Ayman Elsayed (Egypt); Prof. Maria Cristina Pineda (Honduras) Dr. Nguyen Quynh Lan (Viet Nam); Dr. Irina Vavilova (Ukraine); Prof. Ranjeev Misra (India)

18:10-18:20 Reynald Seznec (President and CEO of Thales Alenia Space)

18:30 COCKTAIL

SUNDAY, 10 JANUARY 2010

Session III. Legacy of Galileo

9:00-9:30 Francesco Palla: “Stars & Planets of Galileo”

9:30-10:00 Paolo Rossi: “Galileo and the Development of Scientific Thought”*

10:00-10:30 George Coyne: “Galileo & the Church: Lessons Learned”

10:30-11:00 COFFEE BREAK

Session IV. Science & Society

11:00-11:30 TBD

11:30-12:00 Norio Kaifu: “Impact of Astronomy and IYA2009 on Asian Society”

12:00-12:30 George Miley: “Importance of Science Education to Society”

12:30-14:00 LUNCH

Session V. Astronomy After the IYA

14:00-14:30 Isabelle Grenier: “Astronomy at all Wavelengths”

14:30-15:00 Roberto Gilmozzi: “Large Ground-based Optical Telescopes”

15:00-15:30 Ron Ekers: “Large Radio Astronomy Projects”

15:30-16:00 COFFEE BREAK

16:00-16:30 Antonella Nota: “Future of Space Astronomy”

16:30-17:00 Robert Williams: “The IAU & Astronomy After the IYA2009”

17:05 Closure of the IYA2009

Many countries took part in different projects and several went further by issuing commemorative material to cherish IYA2009. There were books, coins, stamps, medallions and many more. The focus in this section is on the coins and numismatic issues that have been issued in commemoration of IYA2009 in general.

Compiled by: J D Prasanna Deshapriya (Sri Lanka, jdpdesh@gmail.com)

## IYA2009 Coins of Austria




The Austrian Mint in Vienna issued this coin in celebration of IYA2009. The specialty of this coin is that this is made out of silver and niobium metals. This elegant coin is valued at 25 €.

The obverse side of this coin is featured with the portrait of Galileo Galilei and his very own telescope, which he used to explore the heavens. On the same side you can find the drawings of Moon's surface by Galileo and some accounts on the development of telescope during the course of time.

The reverse side is engraved with the other side of lunar surface, which Galileo was unable to observe. It also reads "Republik Österreich" in German together with the value printed as 25 €.

The niobium pill covers the inner ring of the coin, as seen in golden yellow. It should also be mentioned that the Austrian Mint was the first to employ this modern metal (discovered in 1801) in commemorative coins, changing its colour each year.

**Here are some specifications of the Austrian IYA2009 coin.**

| | |
|---|---|
| **Alloy**: | Ring: 9 g AG 900/1000<br>Pill: 6.5 g niobium |
| **Finish**: | Special Uncirculated Quality |
| **Diameter**: | 34 mm |
| **Mintage**: | 65 000 (max) |
| **Date of Issue**: | 11 March 2009 |
| **Face Value**: | 25 € |
| **Designer**: | Herbert Wähner |

## IYA2009 Coins of Italy




The obverse of the coin (on the left) shows a representation of Liberty in profile. It is illustrated that she is looking at stylised stars. To her left, there is an astrolabe depicted, which is an instrument that had been used to predict the motions/positions of the planets and stars.

The reverse side of this Italian IYA2009 commemorative coin is much more complicated. The main feature that splits the coin in half on a diagonal is a rendition of Galileo's telescope (also featured on Austria's coin). The top motif above the telescope is another astrolabe.

Below them are several constellations. If you scrutinise you may find some of them to be Leo, Boötes, Corona Borealis, and Cygnus . The denomination of 1 €0 is engraved, along with "ASTRONOMIA ANNO INTERNAZIONALE" ("International Year of Astronomy") in Italian.

The coin is a 92.5% silver proof coin with a 34mm diameter that weighs 22 grams. It has a mintage limit of 9000 pieces.

## IYA2009 Coins of Australia

There are few sets of IYA2009-themed coins that have been issued by Australia on several occasions. The following is the first set of coins that came into Australia's account of IYA2009 numismatic collection.




Royal Australian Mint Shoots for the Stars with 2009 International Year of Astronomy Coins. The one dollar coin features an image of the famous radio telescope located in Parkes NSW, symbolic of Australia's place in international astronomy. The twenty cent coin design features three stargazers observing the night sky.

The coins were in fact issued prior to IYA2009 itself, on 7 November 2008. This numismatic collection was really a boost for IYA2009, giving it much reputation. Above, you can see the reverse sides of two coins, jointly issued by the Royal Australian Mint together with the Canberra Astronomical Society.

The $ 1 coin features C SIRO's Parkes radio telescope known as "The Dish" whereas the 20-cent illustrates three stargazers, observing the starry heavens. This resembles one of the goals of IYA2009, getting more community involved with astronomy.

Here are some other coins made of gold and silver.












http://www.royalaustralianmint.com.au/mintissue/eshop_browse.asp
These coins can be ordered online here: http://www.royalaustralianmint.com.au/mintissue/eshop_browse.asp

Some Other Links:

- http://www.perthmint.com.au/catalogue/international-year-of-astronomy-2009-1oz-silver-proof-coin.aspx
- http://mintissue.ramint.gov.au/mintissue/product.asp?code=801373

Australian Royal Mint didn't stop from this issue of $1 and $ 0, 20 coins. They went on to mint this innovative coin at the value of $5 (AUD), expanding their numismatic collection for IYA2009. This is a silver proof coin, coming along with a mintage of 10 000 pieces. This coin varies from other Australian IYA2009 coins, not only from the value, but also from the material used for this mintage; each coin has a portion of a meteorite, known to be 4000+ years old. Therefore any coin collector would love to have this coin, since this is one of a kind, having both meteorite and metallic compositions.




The obverse of this coin is rather different from the corresponding coins issued by the same Aussie Mint. The four faces, pointing at the centre of the coin immediately grab the attention of anyone. If you look with scrutiny you would find 16 well-known landmarks of the world. These icons are located near the round edge of the coin.

As far as the obverse is concerned few landmarks are identified as follows. (Please note that this information has been yielded from online resources and these are not officially confirmed to be the places mentioned below): Pyramids at Giza, Taj Mahal in India, Mt. Fuji in Japan, Sydney Opera House, A Radio Telescope (somewhere), Monuments at Easter Island, Machu Pichu in Peru, Golden Gate Bridge in San Francisco USA, Statue of Liberty in New York USA, Stonehenge in England, Tower of Pisa in Italy, Eiffel Tower in France.

On the reverse, which is page right, you will see a miniaturised portrait of Queen Elizabeth II, together with a stylised Solar System with eight planets. Additionally you can notice Earth's Moon and Pluto which can be easily recognised with the deviated orbit. There are also Queen's name and the official denomination engraved on the reverse.

The centre of the coin contains a plastic "blister pack" that has five small pieces of an iron-nickel meteorite. The original meteorite weighed over 22 kilograms and was part of a shower that fell across Argentina some 4000 years ago. Composed mainly of iron, with trace elements of nickel, cobalt and phosphorous. Tough the meteorite is not radioactive. It possesses an evenly displaced magnetic field, which is a common to many meteorite specimens. The coin is presented in official Royal Australian Mint packaging with a certificate confirming the mintage of 10 000 silver coins.

Specifications of this Meteorite/ Silver proof coin

- Type: Silver
- Finish: Proof
- Purity: .999
- Diameter: 50.20mm
- Weight: 50.00g
- Mintage: 10,000
- Face Value: 5 Dollars

Now we come across the Perth Mint, which has also contributed for the IYA2009 coins of Australia. This is the 4th different coin for IYA2009 from Australia, with a face value of $1 (AUD). Below, you can enjoy the coin the image of this coin. This is called International Year of Astronomy 2009 1oz Silver Proof Coin, and evidently the colourful obverse (page right) is characteristic of the creativity associated with Perth Mint.

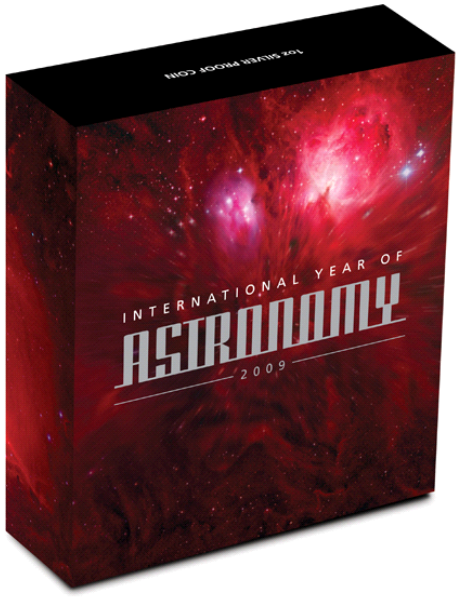



The obverse of this IYA2009 silver proof coin is designed with simplicity, featuring the Ian Rank-Broadley's effigy of Queen Elizabeth II with together with official denomination. The obverse also has a shiny surface.
On reverse you can see a big dish of a radio telescope, on which a telescope has been mounted. With the telescope are two people, a girl and a boy, observing. Yet the colourful background of the duo can be a source of astronomical data if you're careful enough to find out. In the colourful layer you will be able to make out the Orion constellation and Southern Cross with less effort. But if you go deep into the constellation of Orion, in colourful area, you can identify Orion Nebula, the Running Man Nebula, the Horsehead Nebula, and the Flame Nebula. Additionally there is the text: INTERNATIONAL YEAR OF ASTRONOMY 2009, appearing in the upper left edge of this coin. The Perth Mint's historic 'P' mintmark is also seen on the reverse side of this silver coin.

Each coin is housed in a black presentation case and is accompanied by a numbered Certificate of Authenticity.

Technical Specifications:

- Mint: Perth Mint of Australia
- Mintmark: P
- Finish/Condition: Proof
- Metal Content: .999 Pure Silver
- Minimum Gross Weight: 31.135 grams
- Diameter: 40.60 mm
- Thickness: 4 mm
- Mintage Limits: 7500
- Issue Date: 22 May 2009






## IYA2009 Coins of Malaysia

Here are the special coins issued by ANGKASA (The Malaysian National Space Agency) in cooperation with Central Bank of Malaysia. Of course, the objective of this set of coins was to make the public more aware of IYA2009 and its significance on us all.

### The elegant set of 3 coins, featuring Gold, Silver & Nordic Gold




OBVERSE




REVERSE




These three types of Malaysian coins vary only with their colour, as they have the same design on them. The obverse bears the images Langkawi National Observatory of Malaysia, whereas the reverse is occupied by the official logo of IYA2009.

The prices of the coins were as follows:

| Type | Price |
|---|---|
| Set of 3 (Single Gold, Single Silver & Nordic Gold) | RM1,450.00 |
| Set of 2 (Single Silver & Nordic Gold) | RM200.00 |
| Single Gold | RM1,200.00 |
| Single Silver | RM150.00 |
| Nordic gold | RM10.00 |

Please note: RM = Ringgit Malaysia (1 € =~4 RM)

## IYA2009 Coins of Canada




Above, you can see the both sides of the $30 Sterling Silver Coin issued by the Canadian Mint for International Year of Astronomy IYA2009.

The design features an observatory with a universe of heavenly wonders shimmering within and around the beautifully painted night sky. This coin is gorgeous with its silvery accomplishment and would be adored by any numismatist to add to their collection. The good news is that still you can order the coin from Canadian Mint.

Specifications

- Mintage : Limited to 10000 coins worldwide
- Composition: 92.5% silver, 7.5% copper
- Finish : proof (with colour on the reverse)
- Weight : 33.75 g
- Diameter : 40 mm
- Edge : serrated
- Certificate: serialized
- Face value: $30
- Artists : Colin Mayne (reverse), Susanna Blunt (obverse)

The one-year selling window for the Mint's sterling silver commemorative coin will come to a close in a few more months. It's presently not too late to order it from an online store at:

- http://www.mint.ca/store/coin/30-sterling-silver-coin-international-year-of-astronomy-2009-prod650001
- http://www.mint.ca/store/coin/piece-de-30–en-argent-sterling-annee-mondiale-de-lastronomie-2009-prod650001

## IYA2009 Coins of Germany

Below is the IYA2009 Coin issued by Germany. Besides the usual German eagle, the obverse side (page right) of the coin is simple in its design yet very important in what it represents.




It's significant that Johannes Kepler is featured in this German (Deutsch ) IYA2009 coin, as same as in IYA2009 coin of San Marino. Johannes Kepler was a then a scholar during the 17th Century. His teacher was Tycho Brahe, who has won a great reputation as an astronomer, even he was gifted with an island dedicated specially for his works, where he built an observatory called Uraniburg. It was one of the best ones in Europe. He had many scholars/ trainees, among whom was Johannes Kepler. It was Kepler who was fundamental in deciphering the laws of planetary motion, with the help of data archives of Tycho Brahe, after his demise.

This coin features Kepler in profile along with a diagram of an ellipse, illustrating the derivation of his Laws. You may also notice the trigonometric illustration in the reverse side of this German IYA2009 coin.
The coin is a silver proof. It has a face value of 10 €. There is a mintage limit of 200 000 on the proof version, which is a great news for numismatists and even anyone who's interested in IYA2009 as well. Without any doubt, they would be nice souvenirs / legacies. Apparently the mintage of other corresponding counties was low.

## IYA2009 Coins of Vatican City

These coins are from the world's smallest state, the Vatican, which has an area of 0.2 square miles. The Vatican is also joining the team of other European states which have issued coins in celebration of IYA2009.

The coin's main focus is the connection of science and faith. The coin is issued with the face value at 2 € and it has bimetallic properties much similar to the IYA2009 coin of Austria, which has Silver and Niobium.




The obverse (page right) of this coin is featured with the map of Europe inside the Ring, whereas the reverse is featured with the famous virtuoso Michelangelo, who was an Italian Renaissance painter, sculptor, architect, poet, and engineer. Along with his etched image, there is also important astronomical equipment that was used during the same era.

Specifications of Vatican IYA2009 coin

- Type: Bimetallic
- Finish: Uncirculated
- Designer: Orietta Rossi
- Engraver: Maria Carmela Colaneri
- Diameter: 25.75mm
- Weight: 8.50g
- Thickness 2.2mm
- Mintage: 106 084
- Face Value: 2 €

Moreover, the coin itself comes with an official cover, which makes it more elegant.



You can order the coins here: http://www.fleur-de-coin.com/shop/showcart.asp?id=eur15536

## IYA2009 Coins of Republic of San Marino

In fact there are two coins issued by the republic of San Marino in celebration of IYA2009. Here is the first coin.




Following is the other San Marino's IYA2009 coin featuring eminent astronomer Johannes Kepler. It is quite simple and many numismatists will surely love the simplicity of the coin.

The reverse side (page left) bears the image of Johannes Kepler, along with the issuing country, which is "REPUBLICA DI SAN MARINO", Republic of San Marino. Kepler is shown with a compass on a globe.




The obverse side (page right) of this IYA2009 coin is perhaps more interesting. It is engraved with Kepler's name (KEPLERO) along with the book he published, "New Astronomy" (or, "ASTRONOMIA NOVA"). It is made with the Sun at the centre of a system with eight planets, bringing out the idea of Kepler's key influence in developing the heliocentric model of the Solar System.

In addition you can also find the 12 signs of the Western/Greek Zodiac in the neighbourhood of the same planetary system: They can be deciphered as follows: ♈ (Aries), ♉ (Taurus), ♊ (Gemini), ♋ (Cancer), ♌ (Leo), ♍ (Virgo), ♎(Libra), ♏ (Scorpio), ♑ (Capricorn), ♒ (Aquarius), ♓ (Pisces).

The coin is different from the others in the following way that it is not influenced by its issuing nation (San Marino); rather it was struck by the Italian mint instead. (The obverse bears the large “R” mint mark as Italy’s coin does). The mintage of this IYA2009 coin is 13 400 pieces. It is characteristic with its 18-gram & 92.5% silver features (sterling silver) with a face value of 5 €.




## IYA2009 Coins of Czech Republic




The Czech National Bank put into circulation a CZK 200 coin last October (2009) in celebration of IYA2009. The Czechs kept their attention more on 400th anniversary of the derivation of Kepler’s Laws on planetary motion, by Johannes Kepler. IYA2009 is also coincident to the 400th anniversary of discovery of the telescope for stellar observation, by Galileo Galilei, back in 1609.

This very special CZK 200 alloy coin is minted in two versions composed of 900 silver pieces and 100 copper pieces, each of which are specified for normal and proof respectively. They slightly vary from their formation of surface and edges.

The small set of 100 proof-quality coins have highly polished fields with plain edges with the inscription in Czech "ČESKÁ NÁRODNÍ BANKA" which means "CZECH NATIONAL BANK".

The normal-quality coins have milled edges with following properties:

- Diameter : 31 mm
- Weight : 13 g
- Thickness : 2.3 mm
- Designer : Vojtěch Dostál

The obverse side of this IYA2009 CZK 200 coin depicts the drawing of the orbit of Mars resembling the Johannes Kepler´s famous book "Astronomia Nova". In addition the name of the state "ČESKÁ REPUBLIKA" — Czech Republic, is etched around edge of the coin. The bottom edge of the coin bears the denomination and abbreviated Czech monetary unit "200 kč" courtesy of Czech Mint, together with the logo of the Europa project, which laid the basis for the IYA2009 CZK 200 coin to be issued.

The reverse side of the coin is featured with the portrait of Johannes Kepler on the background of the illustration of the law of areas, which is the Kepler's 2nd Law of Planetary Motion. The inscription in Czech reading "KEPLEROVY ZÁKONY POHYBU PLANET", which could be translated as "Kepler's laws of planetary motion" is positioned at the right-hand edge of the coin. Along opposite edge to that are the years "1609 — 2009".

If you look more carefully with scrutiny, you'll find out the reversed letter "D" on the same side. This revered D stands for the name of Vojtěch Dostál the first designer of this Czech IYA2009 coin; this is carved near to the ear of Kepler.

Each coin comes with a blue postcard-sized catalogue card. It is dry-stamped through silver foil. There is also a text given in both Czech and English. This card is the same for the normal-quality and proof-quality coins.

## IYA2009 Coins of Ukraine

There are two impressive coins that are featured for IYA2009 from Ukraine. You will find below the first coin that was issued by Ukraine for IYA2009, on 15 June 2009.




To page left is the obverse side of this silver coin, and on the top, is the small Coat of Arms of Ukraine or the Ukrainian emblem, well-known as Tryzub. Coming downward from that, you will get the inscription ***НАЦІОНАЛЬНИЙ БАНК УКРАЇНИ***, which can be translated into English as the National Bank of Ukraine. There is also the solar neighbourhood with the Sun being engraved near the left side of the obverse. Amongst other planets and their orbits the Earth is highlighted by engraving it with a blue topaz of 0.2 carat. Interestingly the obverse has many features that attract the eye of anyone. Then you get in the middle of the coin a depiction of an armillary

sphere, which is a classical astronomical instrument, used to achieve precise details of celestial objects. Down below the coin, you get the denomination of 100 ГРИВЕНЬ (100 hryvnias), which is the face value of this silver coin.

On the reverse, first of all you can see certain symmetry when it comes to the design in as a whole, there's a certain balance in the left-hand and right-hand sides of the coin. In the upper half of the reverse, there lies the inscription "МІЖНАРОДНИЙ РІК АСТРОНОМІЇ" — International Year of Astronomy, as translated from Ukrainian. The creativity of this coin is more reflected in the Ukrainian word АСТРОНОМІЇ (equivalent to astronomy in English), as you can see its О being converted to an icon of Saturn. Towards your right, you can notice some vivid creations engraved in the coin. The great giant of the world of telescope, Galileo's circled portrait is visible near the left-hand edge of the reverse. Below that you get another circle, which depicts an icon that shows how the observations were like during 17th Century. With a symmetrical correspondence to the latter two objects, you can notice icons, representing a galaxy and a radio telescope, respectively located above and below the central word АСТРОНОМІЇ. Down below this Saturn you can see a starry sky plus a modern observatory too.

This coin has been in circulation since 14th October 2009. This elegant coin comes with following specifications:

- Denomination: 5 hryvnia (currency of Ukraine)
- Metal: Copper-Nickel
- Weight: 16.54 g
- Diameter: 35 mm
- Quality: special uncirculated
- Edge: grooved
- Mintage: 45 000
- Designers: Volodymyr Taran, Oleksandr Kharuk, Sergei Kharuk.
- Authors of models: Anatoly Demyanenko, Sviatoslav Ivanenko.




On the obverse side of this IYA2009 coin are the Small Coat of Arms of Ukraine and the semicircular inscription НАЦІОНАЛЬНИЙ БАНК УКРАЇНИ (National Bank of Ukraine) plus a composition symbolising cosmos. On the same side one can find the image of Urania (to the left side), the goddess of astronomy, one of the nine Muses in the Greek mythology, and the cosmic space together with a piece of illustration showing the motion of solar system planets. Below that are the year 2009, the year of issuance, the logo of the National Bank of Ukraine Mint and the coin face value 5 ГРИВЕНЬ (5 hryvnias) on the conventionalised scroll.

On the reverse side, is the portrait of Yurii Drohobych, a prominent Ukrainian scientist/ astronomer (to the right) with his lifetime (1450 — 1494) There under, the International Year of Astronomy 2009 logo (to the left) with the legend МІЖНАРОДНИЙ/РІК/АСТРОНОМІЇ (International/year/of astronomy); below there are depicted artefacts of cosmic space researchers.

Designer and engraver of the 100 hryvnia coin — Volodymyr Demianenko.

Designers of the 5 hryvnia coin: Volodymyr Taran, Oleksandr Kharuk, Serhii Kharuk.
Engravers of the 5 hryvnia coin: Anatolii Demianenko, Sviatoslav Ivanenko

Yurii Drohobych was a Ukrainian astronomer, scientist, philosopher and a great genius who lived in the Ukrainian city of Drohobych. During 1481-1482, he was the rector of University of Bologna. His work IUDICIUM PRONOSTICON ANNI 1483 CURRENTIS (Prognostic Estimation of the Year 1483) was the first printed book of a Ukrainian author.

## IYA2009 Medallion of Hungary

This story is bit different from others; normally you expect to read about an IYA2009 coin issued by some country. This is in fact a medallion, issued by Hungary. The Hungarian Numismatic Society took the initiative in issuing this commemorative medallion in celebration of IYA2009.

Below you can see the image of both sides of this commemorative medal, which has been issued together with a plastic capsule. The medal has a shiny lacquer surface and it's much more beautiful to see it live rather than just this image.




The obverse side of this medal (to your left) demonstrates the well-known logo of IYA2009. But there are two differences that the logo is not in usual bluish colour, this time it's brownish. The other is that the logo is etched in Hungarian. However there's an English version of the text reading International Year of Astronomy along the round edge of the medal.

The reverse is illustrated with the famous Hungarian astronomer Jeno Gothard, who passed away 100 years ago. Beside the portrait of Gothard, one of his greatest discoveries is also depicted on reverse. In 1892 he came up with the discovery that the spectra of Nova Aurigae are very similar to the spectra of planetary nebula. His drawing from his log book is replicated on this elegant IYA2009 medal.

Here are some of the properties of this IYA2009 Medallion:

- Metal: Bronze
- Diameter: 42mm (1.65")
- Weight: 37.1gramm
- Designer: Zsuzsa Csóka
- Issued: 200 Pieces

Since there are only 200 pieces that have been issued, this medallion is among the rarest of all IYA2009 souvenirs/legacies.

## Romania Commemorative Coins and Medal for IYA2009

This set of coins issued by Romania in celebration of International Year of Astronomy 2009 comes with elegant numismatic mark-up, together with a medallion issued for the same cause. This medallion is made up of silver and looks gorgeous as below.




The obverse side of this medal presents the official logo of the International Year of Astronomy 2009 and the inscription “ANUL INTERNATIONAL AL ASTRONOMIEI ROMANIA 2009” which is translated to “International Year of Astronomy 2009 Romania”.

The reverse side of this medal features in the centre a graphical composition that symbolises the Astronomical Observatory of the Romanian Academy in Bucharest, the telescope of Galileo Galilei, his portrait and the planets of the Solar System. Outside this centre arc, lies the inscription “DESCOPERA SINGUR UNIVERSUL”, meaning Universe Yours to Discover, the general theme of IYA2009.

Apart from the medal, the Romanian IYA2009 coins have been put into circulation from 28 August 2009 with a mintage of 1000 coins. They come with the face values of 1 ban, 5 bani, 10 bani and 50 bani.

- (US 1$ = 295.57 bani)
- Features of this Silver Medallion
- Composition: 800/1000 silver;
- Weight: 15.50 grams;
- Diameter: 28 mm;
- Edge: Smooth;
- Quality: proof;
- Circulation: 1000 copies.

More info: http://www.bnro.ro/home.aspx

## IYA2009 Commemorative Coins of France

France has come up with four versions of commemorative coins issued in celebration. In fact France has the most valuable of all the IYA2009 numismatic collection, which is a graceful golden coin, valued at ~1650 €. This French IYA2009 coin, issued by the Paris Mint is the first domed coin of IYA2009 collection, having convex (slightly bent upward in centre, just like a lens) and concave surfaces on obverse and reverse sides respectively.

The physical properties of the coin give the idea that the French have stuck to the facts of IYA2009 itself and the 40th anniversary of the first lunar landing by humans, embracing the legendary footage of Neil Armstrong back in 1969, which gave a dramatic boost to then space exploration.

Here is the silver version of the IYA2009 coin of France.




The obverse (page left) is depicted with the commemoration of 40th anniversary of Apollo 11, the first lunar landing. The obverse is apparently covered with a finely crafted very first footprint of Neil Armstrong. There are also the face value of 10 €, denomination, mint, the year of 2009 plus an inscription in French meaning the "40th anniversary to the first landing on the Moon", lying in the obverse.

The reverse appears quite simple, resembling a planetarium-like insight. It appears as such that the dome of the sky, complete with the stars all over the reverse. Saturn is highlighted there in the top with much bigger print. The lower edge is made creative with the astronomical symbolic forms of planets, starting with closest Moon and going through all the way to Pluto (but not in its standard symbol ♇). It's also noteworthy that Earth is missing in the queue.

As told earlier you can feel the golden coin, if you visualise the above coin made up of gold and blue gold instead, with the face value of 165 €. There are two amazing facts about this gold coin, that the coin itself weighs just 1 ounce and the other is that this beauty is marketed for a lump sum of 1650 €, 1000% of its original face value.

The above-pictured coin is minted with 10 000 pieces, where as its 163.8 gram version has a mintage of 500 pieces, and 8.45 gram gold coin being minted with 1000 pieces plus the most expensive gold and blue gold version coming up with 1000 pieces, weighing 31.104 grams.

Here are some parameters of the Silver version of 4 coins issued by Paris Mint.

- Artist: Atelier de Gravure
- Weight: 22,20 g = 0,78 oz
- Diameter: 37 mm = 1,46 inch
- Mintage: 10 000
- Metal: Silver 90%
- Quality: Proof
- Face value: 10 €

The Silver Coin




The Golden Coin




The Blue-Gold Coin




## IYA2009 Commemorative Coins of Cook Island

These coins are from Cook Island issued for the International Year of Astronomy 2009, in commemoration of the very celebration. There are 10 beautiful coins which are very picturesque and spectacular. The obverse sides of all the 10 coins are same, and the reverse sides are minted with the planets of the Solar System. Therefore, in a nutshell, it can be said that this Cook Island numismatic collection features the Solar System.

The obverse of these 10 coins features the Queen Elizabeth II, with a face value of $1. The below is the image of the obverse side of the IYA2009 coin issued by Cook Island.




The 10 reverse sides depict the Sun, eight planets of the Solar System, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and the Solar System itself in a single reverse side. Significantly the designers of these Cook Island IYA2009 coins have associated Roman and Greek mythology with coins, for each reverse side also features a portrait of corresponding god or goddess from the ancient mythology. Additionally they also have in them astrological symbols of each planetary body represented.

Here are the reverse sides and the obverse side again of IYA2009 Cook Island coins.




Here are the specifications of IYA2009 Commemorative Coins of Cook Island:

- Diameter : 40.0 mm
- Weight : 27.0 g
- Composition : Copper (Cu), silver plated with pad printing
- Mintage : 5000

In fact this Polynesian island has the largest variety of IYA2009 coins issued by a single country. These elegant IYA2009 coins of Cook Island come enclosed in an official box with certificates as follows.




## IYA2009 Commemorative Coins of Greece




The above is the commemorative coin of IYA2009, issued by Greece in 2009. Page left is the obverse side bearing the face value of 10 €. The obverse features in middle a wreath of olive leaves encircling an inscription from a book. There are also seven stars brought out in different sizes.

The reverse side of the coin represents eight noticeable stars, seven of which are quite similar to those of obverse along with an additional start which is in the centre of the coin in bright colour. In addition the title “2009 International Year of Astronomy” is engraved in Greek in the below border of reverse.

When compared to other IYA2009 coins of different countries, the Greek coin is somewhat different from the design, as it is not a perfect circle in shape, but a unique shape as seen above.

Here are some specifications of this IYA2009 coin of Greece:

- Title: International Year of Astronomy
- Grade: Proof
- Details: The International Year of Astronomy (IYA2009) is a year-long celebration of astronomy, taking place in 2009 to coincide with the 400th anniversary of the first recorded astronomical observations

with a telescope by Galileo Galilei and the publication of Johannes Kepler's Astronomia Nova in the 17th century.

- Diameter — 28.25mm
- Thickness — 1.92mm
- Weight — 9.75gr
- Composition — Silver .925 (sterling)
- Edge: Shaped edge with fine scallops
- Mintage: 5000 pieces

## IYA2009 Commemorative Coins of Portugal

Author edition inspired by IYA2009



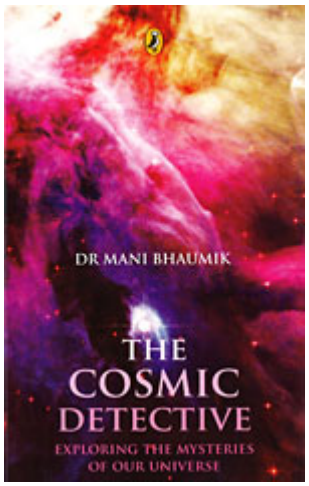

Author: José Teixeira
Title: "Southern / Northern Night"
Stainless steel, computer drawing on acrylic engraved laser, ø129x17mm constructed, self-publishing, (25 copies) 2009

# Official Products

The category of IYA2009 Official Products was intended to give commercial products which satisfied the vision of IYA2009 greater international recognition, an opportunity to link with celebrations worldwide and to use the IYA2009 global network to reach out. Official Products were selected on the prioritised criteria below:

- It should align with the IYA2009 vision;
- It should be available globally;
- It should be financially independent;
- It should be easily adaptable to other languages;
- It should be scientific accurate;
- It should demonstrate sufficient potential for successful implementation;
- It should be available during 2009;
- It should be available at significant bulk discount (min. 50%) to the IYA2009 stakeholders (national nodes, organisational nodes and organisational associates);
- It should have the IYA2009 logo clearly displayed;
- A financial contribution to the IYA2009 Secretariat is expected (min. 5000/EUR per product).

# The Cosmic Detective




## About the Book

Are you feeling a little lonely in this vast universe? Find out who your neighbours are in this spectacular and thrilling guide to the deepest mysteries of the cosmos. International best-selling author and world-renowned scientist Dr Mani Bhaumik takes young readers on a whirlwind tour into space with The Cosmic Detective. Addressing his readers as cosmic detectives, the author actively enlists his young sleuths in finding solutions to questions that have puzzled space scientists for ages. How and when did the universe begin? What are stars made of? How far away are the most distant galaxies? What is a quasar? Explore these fundamental cosmic riddles and more in this fascinating journey of discovery and wonder. Find out about nebulae and black holes, navigate the galaxies and the enormous expanses beyond, dive into the heart of neutron stars and walk on distant planets as you join the author in investigating the most bizarre aspects of the cosmos. And in the broader context of our own existence in the universe, Dr Bhaumik reveals that when we explore the cosmos, we also explore ourselves. Packed with interesting facts and dazzling colour photographs, this beautifully written primer is ideal for students and cosmic detectives of all ages.

"*The Cosmic Detective is an inspirational read. Dr. Bhaumik tackles topics with impressive scope, yet delves into them with spirit rarely seen. Marrying scientifically accurate text with accessible language is no easy task, but The Cosmic Detective is proof that it can be done.*" Dr. Catherine Cesarsky, Former President, International Astronomical Union

"*The Cosmic Detective reveals another one of Mani Bhaumik's talents: he is an outstanding science writer to complement his demonstrated scientific insight. He has the unique ability to distil from the voluminous material the essential concepts for the general public.*" Professor Walter Thirring, Former Director of the Theory Division at CERN, Geneva and Director of the Schrödinger Institute, Vienna

## More information

- http://www.cosmotoons.com/
- http://www.penguinbooksindia.com/Bookdetail.aspx?bookId=7600

## Eyes on the Skies




The International Astronomical Union's book and movie celebrating the 400th anniversary of the telescope.

The invention of the telescope has been by far the most revolutionary development in the history of astronomy. For thousands of years, astronomers had to rely on their eyes in unravelling the mysteries of the Universe. The telescope revealed an embarrassment of astronomical riches, and led to a dramatic increase of knowledge about the wider world we live in.

The Eyes on the Skies DVD movie and accompanying book explore the many facets of the telescope — the historical development, the scientific importance, the technological breakthroughs, and also the people behind this ground-breaking invention, their triumphs and failures...

The Eyes on the Skies movie is presented by Dr. J aka Dr. Joe Liske from ESO, host of the Hubblecast video podcast. The DVD runs for 60 minutes and contains subtitles in 32 languages. 440 000 copies of the DVD (standard definition and Blu-ray) have been distributed.

The Eyes on the Skies book is available in English, German, Finnish, Korean, Japanese and Chinese.

More information: http://www.eyesontheskies.org/index.php

## SkyScout — Personal Planetarium



About the size of a camcorder and weighing less than 300 grams, the SkyScout utilizes a consumer-friendly “point and shoot” GPS technology that enables stargazers to instantly identify and/or locate over 50,000 celestial objects in the sky with the press of a button and listen to commentary on the object and its history. The SkyScout also has a “locate” feature that allows users to select an object they wish to view (i.e. Mars) and the SkyScout, using illuminated arrows in the viewfinder, will point the user to the object.

More information: http://www.celestron.com/skyscout/index.php

# 400 Years of the Telescope

The 400 Years of the Telescope project is an exciting multimedia celebration of Galileo's first telescopic observations of the cosmos, and the resulting journey of discovery for humanity.
The project partners are proud to share their corner of the IYA2009

- High definition documentary, 400 Years of the Telescope, to be distributed internationally for broadcast in 2009.
- Companion full-dome and traditional planetarium program, Two Small Pieces of Glass, distributed by International Planetarium Society.
- Coordinated outreach programs with educational organizations, amateur astronomy organizations, national broadcasters and planetariums.
- Interactive website www.400years.org
- 400 Years of the Telescope companion coffee table book and DVD
- Monthly newsletter
- Series of events, online forums and activities

400 Years of the Telescope project partners include; Interstellar Studios, Southern Oregon Public Television, 'Imiloa Astronomy Center of Hawaii, Carnegie Science Center, the Astronomical Society of the Pacific, and the Institute for Learning Innovation.

Spearheaded by Interstellar Studios, with the support and guidance of 400 Years of the Telescope Advisory Board members, the project concept emerged in the fall of 2007 with the intention to support International Year of Astronomy 2009 goals. 400 Years of the Telescope Advisors and Kris Koenig, Producer / Director began to design the project to include media products that link the public with activities, in order to create awareness, harness interest, and educate the public about achievements in astronomy, and other sciences, made possible through the discovery of the telescope.

## Documentary

400 Years of the Telescope; A Journey of Science, Technology and Thought, is slated to air in the United States on PBS April 10, 2009, and available for international distribution. With comprehensive footage from the globe's major observatories and a series of interviews by an international, diverse group of professional astronomers, the documentary content follows the story of the development of telescope technology and the ensuing profound impact on humanity's view of its place within the universe. Culminating in the present day, the film illustrates how the telescope's influence continues to dominate our attempts to perceive the cosmos.

## Planetarium Program

Two Small Pieces of Glass, a 22-minute companion programme will be distributed internationally in eleven languages, via the network of the International Planetarium Society (IPS) reaching 850 planetariums worldwide. The traditional dome version will be disseminated free of charge, through the IPS December 2008 Newsletter, and the full dome version will be made available for a nominal fee upon request. The content of the programme links the professional world of astronomy to the world of the amateur astronomer, thereby supporting one of the project's overarching goals to encourage everyone to view the universe through a telescope. With stunning visualizations and realistic deep space imaging, the programme is a journey through space bound to inspire star parties and sidewalk astronomy worldwide.

## Amateur Astronomy Club Outreach Program

The 400 Years of the Telescope project is designed to lead documentary and planetarium viewers to telescope viewing opportunities across the globe. With a strong complimentary outreach effort, where amateur astronomy clubs are equipped with outreach toolkits; and partnering incentives and press kits are provided for broadcasters and planetaria, coordinated star parties and sidewalk astronomy events will be organised worldwide. Through interfacing with local astronomy clubs on site at planetaria and science centres worldwide, participants will be provided with engaging telescope and night sky viewing activities.

## Interactive Website

www.400years.org will serve as a resource, populated with rich educational content and project information for teachers, students, families, and the general public. The website will attract viewers for repeat visits with interactive puzzles; flash animation virtual views of the universe through various historical telescopes; 70 hours of complete uncut astronomer and historian interviews (searchable by keyword); stunning film stills available for wallpaper download; current news of IYA2009 happenings and scientific discoveries via the newsletter; film clips; planetarium program, and amateur astronomy club event, location and date information; and a listing of project events and workshops around the globe. The website will be hosted by PBS, and a Spanish language mirror site will be posted online.

## Book and DVD

The 400 Years of the Telescope “coffee table” book, and the documentary DVD, will leave a lasting imprint of the project, beyond the year 2009. A broad project overview, containing the highest quality film stills and fascinating excerpts from astronomer interviews, the hardcover book will be distributed internationally and online. The DVD will be available in eleven languages at a nominal price, thereby making the entire programme highly accessible to the general public and available for educational use by teachers, clubs, and organizations.

## Monthly Newsletter

The 400 Years of the Telescope project newsletter is produced in collaboration with the US Node IYA2009. It is published on a monthly basis, both in electronic and hard copy format (upon demand), and contains news from the world’s major observatories; IYA2009 announcements/articles from the IAU IYA2009 Secretariat and the National Nodes; 400 Years of the Telescope project updates; a Planetarium News column; an Astronomical Society of the Pacific informal science education column; and the IYA2009 Dark Skies Cornerstone Project column.

## Legacy

The planetarium show continues to be distributed around the world and should continue to be screened for several years to come.

The documentary will have another US primetime airing in April 2010 and domestic DVD sales and downloads continue. International distribution also continues with old Eastern bloc countries picking the film up for distribution in 2010. The film is also schedule for several international film festivals in 2010.

## Star Walk







Whether you are Star Wars or Star Trek fans, astronomy beginners or amateurs discover stars, planets, constellations and more with Star Walk. The most amazing, high quality, dynamic and realistic stargazing guide on earth. It simply makes astronomy easy for everybody.

### Features:

- Digital Compass with Star Spotter: If you have an iPhone 3GS tilt your phone and the ‘‘Star Spotter’’ function will be activated, a live representation of what you see in the sky will appear on your display and the sky will start following your movements whether you move up or down, left or right. In order to stop the function simply touch the display.
- The new version 4.2.1 features new APODs and bookmarks. There has appeared the ability to share nice astronomy pictures with your friends via Facebook and Twitter. Wiki links on iPad are now opened in the app. Compass malfunction for WiFi iPad users has been fixed
- 3D Earth View for manual selection of location
- Star Spotter Function (Digital Compass for 3GS)
- Cutting-edge graphics
- Time machine
- Moon phases
- Intuitive interface
- Night mode
- Deep sky objects (Messier)
- Meteor showers
- Wikipedia links

"*For the record, the chariman's favorite iPhone app is Vito Technology's Star Walk, a simple astronomy application that harnesses the iPhone's GPS capabilities to present an on-screen view of what stars and constellations should be visible on a clear night from your current location.*" Arik Hesseldahl, at BusinessWeek




Featured by Apple as — Best Apps of 2009
Star Walk app has won Apple Design Awards 2010!

More information: http://vitotechnology.com/star-walk.html

## FirstScope



The FirstScope is a wonderful keepsake for anyone interested in astronomy. This quality Dobsonian style telescope features a 76 mm aperture reflector optical tube. FirstScope is an ideal entry level astronomical telescope. It is very easy to observe with, the user simply navigates the night sky by moving the tube in the direction of their desired object, making the viewing experience a snap! The compact design makes it easy enough to take with you on your next outdoor adventure. The FirstScope is also stylish enough to be a decorative fixture on your bookshelf or desk.

More information: http://www.celestron.com/c3/product.php?CatID=83&ProdID=568

## BOSMA Beta



Designed for both terrestrial and astro observing, the BOSMA Beta RE 3.15” f/6.3 achromatic refractor is one of the most versatile scopes you’ll ever come across. Weighing only 3.6 lbs, it comes with two 1.25” Plossl eyepieces (10mm and 25mm), a 45° image-erecting diagonal, 8x24mm correct image finder, and a padded soft carrying case. The T2 thread on the focuser lets you use a DSLR by simply adding an optional T-ring.

# IYA2009 National Nodes



# Afghanistan

## National Node

Ahmad Shah Hakimyar (Kabul University)

Official Languages
- Dari Persian
- Pashto

Number of organising committee members: 1
- Volunteers: 1
- Paid: 0

Population: 28 150 000

Number of people reached by IYA2009: 500

Budget: Unknown €

## General Overview of IYA2009 activities in Afghanistan

I have been involved in international space-related activities for many years (SGAC, WSWA, SEDS, etc). Although I have been trying to get some type of help from either the governmental/NGOs or my own school/university, so far I have not been able to make this happen. Not only support, but nobody including my university (I've talked to the chancellor of Kabul University in person) seemed/seems to be interested in what I am doing: promoting space-astronomy in schools and general public.

Therefore, my only supporters were the IYA2009 Organising Committees, who kept sending space-related materials to my mail box. So as an ordinary student with no budget, I was not able to implement my plans for IYA2009 which I had made through 2008, all of which were limited by the lack of financial support. I also contacted the Vice-President of the Islamic Republic of Afghanistan asking if he could provide me with travel expenses to the opening ceremony of IYA2009 (he's responsible for science-related issues), because that would have attracted the media and paved the way for getting financial support from NGOs and governmental agencies, but I had no response.

Manpower was the other reason for limited activities. I was the only person running around for help to better promote IYA2009 in Afghanistan. But I couldn't find a single volunteer to work full/part time with me.
I was surprised that UNESCO didn't do anything for IYA2009 in Afghanistan, which spends millions on education in Afghanistan. I visited the head office of UNESCO-Afghanistan and asked for help, their response was saying that they do not deal with space-related topics.

## Main Activities

### IYA2009 “informal” inauguration

As the only astronomy supporter in the country since 2006 with no support from the government and Kabul University, I was only able to informally inaugurate IYA2009 via distributing the official IYA2009 magazines and some space-related posters across Kabul University and local schools.

Organisers: SPoC

Estimated number of people who attended or were reached by this activity: 200

### Using WSW to celebrate IYA2009

As I am also the National Coordinator for World Space Week (WSW). I helped celebrate WSW in Afghanistan for the 2nd time. A crowd of about 200 people attended the celebration where main focus was on IYA2009. I provided the Afghanistan Astronomy Association which we inaugurated the same day with WSW posters, IYA2009 magazines, space-related DVDs, etc., which attracted about 200 people including students/teachers and the general public.

Organisers: SPoC

Estimated number of people who attended or were reached by this activity: 200 -300

## Lessons Learned

- Don’t wait for any help from the government;
- NGOs will not help because the media will not reflect small activities, because you don’t have budget to make a remarkable big event and print high resolution posters, etc. to attract the media;
- If you are rich enough to have your own budget, just spend some of your money and make big events, star parties, etc. and help promote space and astronomy in your country;
- Then if you/your organisation gets famous enough, try to find a way to the Ministry of Education and ask them if they could include astronomy education in the school curriculum.
- If not local, seek international support, there are many who want to donate space items like used telescopes/books, etc. to developing countries. You’ve to look for those people, because they don’t live in your neighbourhood.
- Try to participate in international space-related gatherings. This will attract the media and paves the way for getting support from government/NGOs.

## Legacy

I will be trying to persuade officials to include astronomy education in primary/secondary school curriculums. I am planning to inaugurate a space society, where I will provide school students with free space-related materials/lessons/workshops. This plan still remains bound to financial support.

However, I am still an undergraduate student, I have long way to go. This is just the beginning which is always hard. I believe that one day I will be able to bring astronomy and its education to peaks in Afghanistan. Because it’s my desire and I will undertake every possible effort to make this happen. That I was able to organise the first ever space-related event in 2007 in my high school, and celebrate WSW for the first time in Afghanistan, I believe that, besides all the challenges which I am facing now, that I will make space happen in Afghanistan.

## Comments

Astronomy did not seem a priority in the majority of developed and developing world. It was considered more as fun for people. But IYA2009 showed the world how much astronomy can contribute to the world. It really made people believe that although astronomy is a fun part of science, it also helps humanity deal with serious conditions across the globe.



# Albania

## National Node

Mimoza HAFIZI (QSHA)
www.albastrofizika.org

Official Languages
- Albanian

Number of organising committee members: 4
- Volunteers: 4
- Paid: 0

Population: 3 639 453

Number of people reached by IYA2009: 500 directly, hundreds by the book, thousands by the TV

Budget: 1 500€

Sources:
- Embassy of France in Tirana
- Faculty of Natural Sciences, Tirana

## General Overview of IYA2009 activities in Albania

IYA2009 activities in Albania were organised by QSHA (Albanian Centre of Astrophysics). Prof. Mimoza Hafizi was the National Node. The organisation committee was formed by Mimoza Hafizi (professor at Tirana University), Herald Buneci (ex-student of physics), Pranvera Dhima and Onelda Bardho (students in physics branch). There were a dozen activities organised, despite a severe lack of financing. Activities were observations, expositions, conferences, publications, TV broadcasts. For the Galileoscope project , the Municipality of Tirana was involved. There was great interest by the public to participate in these activities. There were two key points of success: our 20cm telescope, and the participation of Prof. Jean Louis Basdevant from Ecole Polytechnique de Paris. We also published the book “Cosmic Detective” in Albanian language, translated voluntarily by two students: Pranvera Dhima and Onelda Bardho.

In the framework of IYA2009 we created our site www.albastrofizika.org and a group of 10 students are now maintaining it.

## Main Activities

### List of Activities

- From Galileo to us;
- Around the World with 80 Telescopes;
- Stars, Constellations, Celestial Sphere;
- Stars Night in Tirana;
- Constellations Night in Dajt;
- Milky Way and its inhabitants (2 conferences);
- Publication of the book “The Cosmic Detective”;
- Discussion about IYA2009 on two main TV channels in Albania (TV Klan and Top Channel);
- Participation with a poster presentation in XXVIIth General Assembly of IAU.

### Around the World in 80 Telescopes

During 3 April 2009, in Aleance Francaise of Tirana, from 12h to 16h we gathered around 30 people to watch the direct connection with the most powerful telescopes in the world and to give some interesting astrophysical information.

Organisers: QSHA and Aleance Francaise in Tirana.

Estimated number of people who attended or were reached by this activity: 30

### Stars Night in Tirana

On 8 June 2009, during several hours dozens of students from high school “Aleks Buda”, students of the Faculty of Natural Sciences, several members of Aleance Francaise in Tirana and also members of association “Ex-students in France” observed Saturn and the Moon. In the Building B of the Faculty of the National Sciences, two poles of interesting scientific discussion were created: in the roof, where a telescope showed Saturn’s rings; and in the hall of the third floor around an astrophoto exhibition, a gift of the Embassy of France in Tirana.

Organisers: FSHN

Estimated number of people who attended or were reached by this activity: 100

Budget: 200€

### Constellations Night in Dajt

On 11 June 2009, around 60 young people in Tirana, mostly from the physics branch of the Faculty of Natural Sciences, Tirana University, undertook several hours of excursions in Dajti Mountain for observing stars in clear portions of the night sky. With sky maps on hand and small observation instruments available, they analysed the constellations of Gemini, Ursa Major, Ursa Minor, Corona Borealis, Virgo, Scorpions, Boötes, Hercules, Draco and Lyra. The orientation in the spring sky is very simple with Arcturus, Regulus and Spica, but also with Vega, Deneb, Altair, Antares and always with Polaris.

Organisers: FSHN

Estimated number of people who attended or were reached by this activity: 60

Budget: 100€

### Milky Way and its inhabitants

On 15 and 17 October, two conferences were organised in Shkodra University and Tirana University. Prof. Jean-Louis Basdevant of Ecole Polytechnique de Paris and Prof. Mimoza Hafizi of Tirana University discussed the very interesting subject of the possibility of life in our Galaxy.

Organisers: Tirana and Shkodra University

Estimated number of people who attended or were reached by this activity: 150

Budget: 1000€



# Algeria

## National Node

Seghouani Nassim
Center of Research in Astronomy Astrophysics and Geophysics
nseghouani@yahoo.com
http://www.astronomy2009-algeria.org/

Official Languages

- Arabic
-

Number of organising committee members: N/A

Population: 34 895 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Impressions from IYA2009 in Algeria



IYA2009 planning meeting in Algeria, October 2008


الكون أمامك
فاكتشف خفاياه
THE UNIVERSE.. YOURS TO DISCOVER
السنة الدولية
International Year of Astronomy
لعلم الفلك
2009
Design: Chemseddine #OUATSI // chams7m@yahoo.fr
www.astronomy2009-algeria.org
astronomy2009algeria@yahoo.com
UNESCO
United Nations Educational, Scientific and Cultural Organization
IAU
International Astronomical Union
CRAAG
وزارة التربية الوطنية
Ministère de l'Education Nationale

To put things in context, our Association, an independent association of regional character under Algerian law, has always been very much present on the Algerian public scene ever since its inception in 1996. It was only natural for it to be mobilized for the IYA-2009, and in fact as it is widely acknowledged, it was instrumental in giving the IYA2009 in Algeria an early start. In addition to its role in structuring the National Committee for the Celebration of IYA2009 in June 2008 well ahead of the actual opening, it devoted its Seventh Salon of Popular Astronomy in October 2008, a large astronomy gathering that the Algerian Amateur Astronomy Sirius organises yearly at Constantine, to the theme of the coming astronomy year so as to give it an early kick. Many associations from all over Algeria participated to that National Astronomy Salon and wide ranging strategic discussions were held on how best to spread the (astronomy) word during the coming 2009 year.

Sirius was also very present at the grand opening in Paris in January 2009, representing proudly the Algerian amateur astronomy community. How an independent, underfunded, astronomy association could make a perceptible change on the astronomy scene in Algeria is a feast of significance and worthy of recognition and which may ultimately be inspiring to others.

The Sirius Executive Bureau met several times during 2008 and 2009 to plan for large scale astronomy activities in due respect of the celebration of IYA2009 which will provide high visibility of Astronomy in our country. We, in particular, targeted the “100 Hours of Astronomy” as our French partners, the SAF, contacted us in this respect in 2008. We also programmed a large Arab Youth Astronomy Meeting to be held in Algeria, and put on our agenda various schools and Universities for astronomy exhibitions and talks.

## Public Astronomy Sighting: for the Pleasure of the Eyes

There is no astronomy without stargazing, and there should be no public action without sharing those night visions, so was our strong convictions at Sirius. This is why we planned from early on that we should participate at all the public sighting actions that will be organised in the context of IYA-2009.

## The 100 Hours of Astronomy

The first sighting programme was incontestably the “100 Hours of Astronomy” program, one of the cornerstone programs of the year 2009. Suffice is to say that our Association won the first prize in the most coveted category of the “Most publicized 100 Hours of Astronomy registered event”. This prize is a tribute to the skills of Sirius in dealing with the various media in a most effective way, and it has been described as the most significant prize gotten by an Algerian astronomy association since the independence of Algeria in 1962!

## The Total Solar Eclipse of June 22, 2009 from China

Sirius went on planning for a National Caravan for the observing the July 22 total Solar Eclipse from China, dubbed the eclipse of the century in view of the exceptionally long duration of its totality. It included the three laureates of the scientific competition Cirta Science III as well as amateur and professional astronomers from various parts of Algeria. We were proud to have set up this caravan who enabled Algeria to be represented to this exceptional astronomical event where all the developing countries including the other Arab countries were conspicuously absents.

## The Galilean Nights

Another great public sighting programme later in the year was the Galilean Nights on the 23-24 October. Here was another opportunity to bring out our telescopes and other optical instruments and do some outreaching on public premises. Indeed, on two successive nights, a public gathering was organised on the plaza of the largest Mosque in Africa, the Emir AbdelKader Mosque at Constantine, whose location is quite suited for astronomy sighting in view of the low ambient illumination, yet convenient enough for its closeness to centre city. In addition, a rich programme of lectures and workshops was going on in parallel during these days.

## The Partial Lunar Eclipse of December 31, 2009

The last significant astronomical event of the year 2009 was certainly, as far as the Euro-African and Asian countries, the partial Lunar Eclipse of December 31, 2009. A strong media action was organised in addition to the organisation of a sighting campaign. A long string of newspapers and radios published/broadcasted the Sirius detailed communiqué on the eclipse and its circumstances while live interviews were carried out.

## Linking with the Outer World and the Mediterranean Countries

Two international astronomy meetings were organised by Sirius during the year, one in early August 2009, the Third Arab Youth Meeting on Astronomy and Space Sciences aimed at the Arab world and with the participation of 11 countries, and the other one, more Mediterranean this time, the Eight Salon in Popular Astronomy with quite few countries from Europe and the Arab world.

Those two events have drawn hundreds of participants and were open to the general public. It also featured the International exposition TWAN (The World at Night) that we borrowed from the CRAAG at Algiers where it was brought to by the Algerian SPoC. It enables the public to taste astrophotography brought to a high degree of refinement, as well as giving an international and multicultural cachet to our events, bringing home the message that Astronomy is practised under one Sky.

## Operation "Maghreb of the Peoples": Linking with the Tunisian Associations

Our association linking to two large Tunisian associations is a bright example of regional cooperation through common action. We were indeed able during 2009 to establish strong links with the two large Tunisian Astronomy Associations, namely the Tunisian Astronomical Society (SAT) and the national Association Jeunes-Science, and we involved them in all of our large activities. In return, we participated with strong delegations to their most significant 2009 gatherings.

In view of the very average relationship between our two countries at the official level, there are very little cultural exchanges between them and a lack of incentive to initiate such exchanges. In fact, there is no regular public transportation between our two countries and all the travelling has to take place through illegal although tolerated taxis unless one travels by air, an expensive mean of transportation, especially when the only route is between the two capitals Algiers and Tunis. Now from Constantine, Algiers is farther than Tunis in land distance!

Our exemplary relationship with the Tunisian astronomy associations resulted in many cross border exchanges throughout the year 2009. This crisscrossing of the common borders between our two countries will grow stronger in the future, and that is one way of breaking artificial frontiers and creating brotherly links, as well as a step in constructing a "Maghreb of the Peoples", as opposed to a "Maghreb of the governments" confronted to the hazards of their fluctuating relationships.

## The 2009 "Media Blitz": Sirius multipronged Action towards the Media:

or How to Win over the Media to the (Astronomy) Cause? Check our Special Report :The Media Blitz
Our media campaign was, in a well deserved way, described as a "media blitz": Events organised by Sirius during year 2009 were indeed shown on National TV news five times during the year (and some 15 times if counting re-broadcasting), some 50 times on National radio channels and an estimated 600 times in the various newspapers (news, interviews, communiqués…). Most of the "hits" as it were came from major operations like the "100 hours of Astronomy", the "Galilean Nights", crescent visibility for each of the start and the end of Ramadhan while the official news agency, the Algerie Press Service (APS), run bulletins from our communiqués close to 10 times. Thus, millions of people in Algeria have heard, some repeatedly, about the Astronomy events during the year, thanks to these reaching out actions.

As an example of a success we are quite proud of is the media campaign held during the "100 Hours of Astronomy" which felt during the presidential campaign here in Algeria and for which there were many restrictions on the access to the media for everything which wasn't related to the Presidential campaign. Yet we succeeded in reaching out to the public. We got indeed a first international prize for that as mentioned above.

Our action toward the radios was also significant, and although it was not as prestigious as with the "heavy media" like TV broadcasting, it enables us to routinely and on short notice inform millions of people on breaking astronomical news, thanks to the high Sirius credibility. In fact, our Association has become along the years the almost exclusive reference on Astronomy for those media. Never before perhaps did the media was so intensively used for promoting Astronomy and the IYA2009 goals.

## Introducing Astronomy to the Public and at Educational Institutions

In addition, our Association provided the public with the necessary tools to understand astronomy as a science of the Universe through many local talks given by our experienced members at Elementary, High Schools and cultural centres.

The University was not forgotten as quite few events were planned under the motto of: “Bringing the Intl. Year of Astronomy 2009 to the Campus”, the largest one being a 3-day multi-activity event held in June at the main Constantine University campus and the Emir Abdelkader University. In addition, large astronomy expositions were held in the various other campuses, most notably at the Engineering one at Chaabat Erassas, at the School of Medicine (Chalet des Pins), and at the Veterinarian School at El-Khroub.

We organised during February till April 2009 a regional competition on scientific culture, focusing on Astronomy and involving in the first stage of the selection process the best 500 students from 47 High School. The three laureates were rewarded with being part of the national scientific caravan Sirius organised to observe the total solar eclipse of July 22 from Shanghai in China. The financing of the travel was secured through a grant from the Constantine City Council (APC).

In addition Sirius travelled widely across Algeria to participate and support the other astronomy events, in Ain Beida, Algiers, Béjaia, Annaba, Oum El-Bouaghi, Skikda, El-Khroub… It also organised astronomy events in the Sahara desert region in the deep South, most notably at Djemaa (Wilaya of El Oued) , Guerara (Wilaya of Ghardaia) and Ouled Djellal (Wilaya of Biskra).

## Working with the Physics Teachers Community: “Astronomy is to physics what flour is to the baker”

Sirius organised a series of Astronomy Skill Building Workshops with the physics teachers in the Constantine Governorate. In all, some 150 High School physics teachers from various High Schools in Governorate benefited from the program. Each workshop typically consisted of a daylong special International Year of Astronomy 2009 programme, focusing on astrophysics, and where it was argued that every physic teacher is ipso facto an astronomer or should so be! The year 2009 was thus implicitly their year too. The motto was appropriately chosen: “Astronomy is to physics what flour is to the baker”. The Cosmos as it was argued the largest physical laboratory one can imagine, dwarfing all the earthly ones in the range of physical conditions reigning in it from extreme densities to most dilute ones, in temperatures, kinds of matter, and certainly in the time of the experiments! The Universe is indeed every physicist dreaming place with a bestiary of celestial objects like quasars, black holes, blazars, pulsars, with all types of matter from ordinary one in its various phases including degenerate form, plasma form, to more exotic and speculative ones like Dark matter, Dark Energy, monopoles, wimps… From the offset, the programme was meant to inject new vigour to the physics teacher community battered by a big lack of vocations as physics has become greatly unpopular with the students. The enthusiasm of the teachers at those meetings surpassed our expectations and we had to go beyond the imparted time to deal with all the inquiries.

## APODAR, the APOD’s mirror, the “Thuraya” electronic bulletin, and the “Sirius Voice” newsletter

- One important scholarly project carried out by Sirius and which saw the light during the year 2009 is APODAR, the Arabic mirror site of the famous NASA site APOD, standing for the Astronomy Picture of the Day. This site whose numbers of visitors already run in the hundreds daily from all over the Arab world and beyond, can be a tremendous pedagogical resource for teachers as well as a great source of inspiration for the lay people. It is a team of young Sirius members under a scientific supervision which do the daily translation and page making.
- Furthermore, a new communication medium has seen the light, called “Thuraya, the Sirius Mirror”. Thuraya, which is the name of the Pleiades in Arabic, has for editor is a 17 year old High School student (Hichelm Guergouri) Sirius member. The contributions are however coming from all over the Arabic world, and are under a rigorous scientific supervision. It is meant to be an electronic bulletin of news and views related to Astronomy geared in particularly to the “internauts”, and thanks to the Sirius site where it is available for downloading; it should quickly build up a sizeable readership. It further benefit from the members of the Sirius forum who are more widely distributed geographically while our Sirius members are mostly confined within Algeria and in particular in the Constantine area. It is thus an example of an action which uses the Internet ways of communication to the outmost. It may indeed be said that as it is

becoming further delocalized, Thuraya, the Sirius Mirror will become more and more a mirror of all its readers which means basically the Arabic speaking contributors!
- In addition, Sirius Voice, the Association's newsletter continued to be published, and we managed to get printed a special international issue published for the Third Arab Salon on Popular Astronomy with the participation of professional and amateur astronomers from 11 Arab and European countries!

### The Aurès Observatory Project

The Aurès Observatory project was set during 2009 on firm ground by becoming a funded national project with vital contribution of some members of the Sirius Astronomy Association. We mention most notably its President who spearheaded the efforts to have a National Observatory Project in Eastern Algeria so as to cater to the needs of the Graduate Study Programme ("Ecole Doctorale d'Astrophysique") that he is heading at Constantine Unversity, but also Prof.A.Bouldjedri from Batna Univ., a founding member of Sirius and now the head of the project. Furthermore this project was also well publicized by Sirius in the media on various circumstances.

## Lessons Learned

We would like to emphasize few strong points about the project:

- It was carried out by an NGO with spare resources, building on the experience and dedication of a small group of women and men, some are professionals but most of them are university students. The sixty or so members (2/3 of them being female by the way), all worked on a voluntary basis during their spare time and none got remunerated.
- We must also acknowledge that most of what was done couldn't have been possible without the freedom to assemble and carry out activities from our own choosing that enjoy scientific and cultural associations in our country. In particular we didn't have to report to an administrative body or seek any prior permission before carrying out any activity.
- While some part of the budget was from fund raising activities and internal resources, a good part was secured from city and state subventions. Yet the rigorous use of the tight budget was a key to success as we often were striving with extremely tight financial constraints. We believe however as a general rule that should the same activities have been carried out by a government body, the budget would have been at many fold higher for a less inspiring result. This is a tribute to the cost effectiveness of the NGO's work.
- Thanks to their early strong involvement with the project, many of our members have become well skilled in some specific activities. We mention in particular media communicators, team leaders (their involvement with the organisation of seminars…), and even science lecturers (High schools, cultural centres, and youth audience in general), in addition to specific ones like scientific theatre, mirror polishing…
- The various activities were carried out by competent members of our Association with an experience spanning many years, and under the supervision of astronomers. It also benefited greatly from the expertise of friends of the association in universities and research centres, most notably from Batna University and the CRAAG in Algiers. This allowed the activities to proceed while providing the various audiences and readership accurate, timely and relevant information. We also wish to acknowledge the excellent coordination for many of these activities with the SPoC and his role in disseminating the information.
- These activities, carried out during 2009, are the springboard for many others to come during the forthcoming years. We also believe that the success we obtained, especially in working with the media for a wide range of sky observing activities as well as in motivating the public, can be much inspiring to others provided provisions of point 2 above are secured.

## Summary

We think that our Association has done a unique job at the measure of the importance of the International Year of Astronomy 2009, in promoting the IYA2009 goals and advancing the case of public scientific knowledge. In return, we believe that the impetus provided by the IYA09 and its label helped us much in our public outreach and the receptivity of the media to our solicitations. We felt that connecting millions of Algerians to the World as it celebrated IYA through astronomy campaigns like the "100 Hours of Astronomy" and the "Galilean Nights" was a golden way to inject a hefty dose of scientific culture as it celebrated with appreciation the unity of Mankind, one under one Sky. Year 2009 ended, a new one has started, and actions initiated during that Mirabilis year will be pursued with new vigour. Of course other associations were involved in the IYA2009 in Algeria, and we did work hand to hand with them, yet we believe that our action in popularizing Astronomy was unique in its scope, elaborate means used, our wide and innovative ways of using the various media, and in its overall effectiveness.

Thanks to all the actors, Astronomy is now more than ever part of the cultural landscape in Algeria. And indeed, in the wake of the astronomy year, tens of new astronomy clubs have sprout out across Algeria. It is important now to cater for their needs so as their existence won't be ephemeral like dragon-flies.

We, at Sirius Astronomy Association, wished to use the impact of the Intl Year of Astronomy 2009 to increase the visibility of Astronomy in Algeria, improve its public image, and leave a durable legacy both at the public level and the academic one. This may look like a titanic task for a mere astronomy association, yet as we will show, using elaborate media strategy and hard dedicated work by its 60 strong core membership, we believe we succeeded in a non small way in achieving such a goal.

- We organised various public sighting campaigns, most notably the 100 Hours of Astronomy for which we got a first prize, the Galilean Nights, and the July 22 Solar eclipse from China, all well covered in the media.
- At the public level, we organised a series of talks at schools and cultural centres, as well as a series of Astronomy Skill building Workshops with physics teachers. We also run a unique regional competition in scientific culture focusing on Astronomy and involving the best 500 students from 47 High Schools.
- We organised two high profile amateur astronomy gatherings with a large international participation so as to further link with the neighbouring countries. We also set up an exemplary relationship with the Tunisian astronomy associations, which resulted in many cross border exchanges throughout the year 2009.
- The Aures Observatory project was set during 2009 on firm ground by becoming a funded national project with vital contribution of some members of the Sirius Astronomy Association. Most notably its President who spearheaded the efforts to have a National Observatory Project in Eastern Algeria so as to cater to the needs of the Graduate Study Programme that he is the head ("Ecole Doctorale d'Astrophysique" at Constantine Unversity), but also Prof.A.Bouldjedri from Batna Univ., a founding member of Sirius and now the head of the project. Furthermore, this project was also well publicized by Sirius in the media on various circumstances.
-

Never before perhaps was the various media in Algeria so intensively solicited for promoting scientific activities and the IYA2009 goals. We had communiqués, news, interviews flashed over the various media, from National TV to the leading newspapers and radio channels. It is no wonder also that our Association won the 100 Hours of Astronomy Award of the "Most publicised 100 Hour of Astronomy registered event".



# Andorra

## National Node

Joan Marc Miralles Bellera
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Govern d'Andorra
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http://astroandorra.blogspot.com/

Official Languages
- Catalan

Number of organising committee members: 3
- Volunteers: 3
- Paid: 0

Population: 88 815

Number of people reached by IYA2009: 8 000

Budget: 20 000 €

Sources:
- 60% Public
- 40% Private

## General Overview of IYA2009 activities in Andorra

The activities in my country were generally successful at the public level considering that Andorra has just 85,000 residents. We reached about 10% of the population of all ages. Support by public authorities has been very limited at the organisation level, but once events were presented to them, they gave their full support. Due to the economic environment it has been difficult to convince private sponsors, which has limited us in the scope of the events we planned at the beginning. We replaced the lack of money with imagination and dedication to reach the goals that we had. In conclusion, I am convinced that IYA2009 has increased the collective awareness about astronomy, the Universe and our place in it.

## Main Activities

### List of Activities

- School Conferences;
- Week of Mathematics and Astronomy;
- Calculation of the Earth radius using a gnomon;
- Public Observatory during 100 Hours of Astronomy;
- Star Counting event;
- Public conference about the Hubble Space Telescope;
- Hawaiian Starlight Event;
- Visit at the Sabadell Observatory;
- Participation in the Dona Astronoma Calendar;
- Commemorative Stamps Edition;
- Commemorative Poster Edition;
- Closing Event.

### School Conferences

The Andorran astronomer, Dr. Joan Marc Miralles, gave 40 conferences in schools for students between 6 and 18 years old. There were four types of conferences given, depending on the level of the audience.

Organisers: Ministeri d'Educació i Cultura and Institut d'Estudis Andorrans

Estimated number of people who attended or were reached by this activity: 1000

### Public Observatory for 100 Hours of Astronomy

On Friday 2 April 2009 we displayed six telescopes at the Plaça del Poble, Andorra la Vella, from 9pm to 3am, for public observations. We also installed a screen where astronomy movies were shown. Hot chocolate and pastries were offered to all amateur astronomers.

Organisers: CNAU, AASU, Comú d'Andorra la Vella, Govern d'Andorra

Estimated number of people who attended or were reached by this activity: 500

Budget: 500€

### Closing Event

For the Closing Event of IYA2009, we created a movie based on Hubble and other astronomical pictures using the Orgue piece "In Campo Aperto" created by Andorran musician Ignacio Ribas as musical score. The event consisted of a live rendition of the score by the composer at Sant Esteve Church Orgue together with a showing of the movie on a big screen.

Organisers: Govern d'Andorra, CNAU, GAMMA, Crèdit Andorrà, Sant Esteve Parish, Comú d'Andorra la Vella

Estimated number of people who attended or were reached by this activity: 250

Budget: 1500€

## Lessons Learned

- Private sponsorship must be planned much ahead of the start of any activity, since they close their budget much in advance.
- Public administrations were more flexible but had fewer resources available and their involvement was difficult.

## Legacy

We plan to continue with periodic astronomy-related events. We are in talks for the founding of a small public observatory that could be used by schools. We plan to bring in some of the public exhibits that were produced for IYA2009 and those we could not have due to budget restrictions.



# Angola

## National Node

Jaime Vilinga
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http://sites.google.com/site/angolaaia2009/

Official Languages

- Portuguese
-

Number of organising committee members: N/A

Population: 18 498 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### IYA2009 event with Angolan science minister

The Angolan science minister urged institutions to work with astronomers on the occasion of IYA2009.
Angolan minister of Science and Technology, Candida Teixeira, called on public and private institutions to cooperate and pay attention to the development of activities of the International Year of Astronomy 2009 due to its pedagogical interest and the re-launch of this science in the country.



# Argentina

## National Node

Diego Garcia Lambas

Official Languages

- Spanish
-

Number of organising committee members: N/A

Population: 40 134 425

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Eratosthenes 2009: an old experiment in modern times

The project “Eratosthenes 2009” was carried out last year in Argentina. More than 15000 students of about 250 schools determined the radius of the Earth using the method that Eratosthenes employed more than 2000 years ago. The result obtained was 6290 km for the mean value of the Earth’s radius, with a standard deviation of 600 Km. This project uses history, mathematics, and astronomy to create an exciting activity with accurate scientific results.



# Armenia

## National Node

Areg Mickaelian
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http://www.aras.am/Iya2009/Iya2009.htm

Official Languages
- Armenian

Number of organising committee members: 15
- Volunteers: 15
- Paid: 0

Population: 3 299 000

Number of people reached by IYA2009: 15 000

Budget: 8 000 €

Sources:
- State Committee for Science (SCS)
- Ministry of Education and Science
- Ministry of Culture
- National Academy of Sciences (NAS)
- Byurakan Astrophysical Observatory (BAO)
- Armenian Astronomical Society (ArAS)
- “Antares” Holding
- “Armenpress” News Agency

## General Overview of IYA2009 activities in Armenia

In addition to the activities listed above, the following ones may be mentioned as well: the series of biographical articles about outstanding Armenian astronomers at “Armenpress” News Agency website (altogether 20 articles during 2009), opening of the new ArAS webpage with lots of information about Armenian astronomy, as well as IYA-2009 (Feb 8), celebration of M.A.Arakelian’s 80th and Ye.Terzian’s 70th anniversaries (Mar 2, Byurakan), “Astrophoto contest” (Contest of astronomical photos) of the Armenian Institute of Tourism students led by the rector Prof. Robert Minasyan (Mar 22, Byurakan), meeting and a reception of foreign Ambassadors and representatives of international organizations (Apr 14, Byurakan), establishment of Viktor Ambartsumian International Prize in astrophysics declared by the President of Armenia (Apr 17), exhibition “Armenia: a Country of Ancient Astronomy” at the Armenian Union of Architects organised by the Armenian Institute of Toursim (Apr 18, Yerevan), meeting between astronomers and historians/archaeologists at the Armenian museum of ancient manuscripts Matenadaran and discussion on archaeoastronomy matters (May 26, Yerevan), public lectures by French-Armenian astronomers Alain Sarkissian and Georges Alecian at the YSU Department of Physics (Sep 25, Yerevan), opening of Viktor Ambartsumian’s monument in Yerevan (Dec 15, Yerevan), Armenian IYA-2009 Closing Ceremony at the Armenian National Academy of Sciences (NAS RA) and awards to astronomers and journalists (Dec 28, Yerevan). Taking all these activities, the year 2009 was indeed the most active and important for astronomy and science in Armenia. It was especially important as during the recent 2 decades the attitude to science by the public had significantly decreased. And one of the main goals of IYA-2009 (to give start for further attitude to astronomy) was very successfully achieved.

# Main Activities

## List of Activities

- IYA-2009 Opening and Closing ceremonies
- ArAS VIII Annual Meeting "Astronomy and Society"
- Third Byurakan Summer School for Yerevan State University students
- Meetings with journalists, travel agencies, Ambassadors, architects, artists
- Public lectures at the universities and schools
- Visits to Byurakan
- Concert in Byurakan

## Title ArAS VIII Annual Meeting "Astronomy and Society"

ArAS VIII annual meeting took place on July 6-8, 2009 in the Byurakan Observatory. Given that we all celebrate the International Year of Astronomy in 2009, the meeting was devoted to more general topics, including relation of astronomy and astrophysics to other fields of science and society. Astronomers, biologists, historians, archaeologists, and students participated in the sessions, altogether some 100 people. The first day (July 6) mainly was devoted to the astrophysical results. At the beginning, Areg Mickaelian, ArAS Co-President, gave a report on the ArAS 10-year activities (1999-2009). Then 11 scientific talks were given. The last session of the first day was devoted to the astronomical education, where 3 talks were given. The second day (July 7) was devoted to Astrobiology (5 talks) and Archaeoastronomy (10). Experts from biology, history, archaeology, geology, and other institutions were invited, as well as BAO fellows actively participated. The third day (July 8) session was named "Astronomy and Society" and was devoted to other general topics related to astronomy, like the role of science and astronomy in the society, public outreach, amateur astronomy, scientific tourism, and scientific journalism. Officials, representatives from fields of culture, other sciences, journalists, teachers, amateurs, and other interested people were present.

**Website:** http://www.aras.am/Meetings/arasVIIIannualmeeting.html

**Organisers:** Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

## Third Byurakan Summer School for Yerevan State University (YSU) students

The Third Byurakan Summer School for the Yerevan State University (YSU) Students was held on July 1-8, 2009 in Byurakan. The two previous schools have been held in 1995 and in 2005. Thirty-one 1st-3rd year YSU students of the Department of Physics stayed at the observatory hotel and learned astronomy, as well as had possibility to meet Byurakan researchers and see the work of the research groups. The Byurakan astronomers gave reviews on different important topics of modern astrophysics, as well as a lot of useful practical exercises, including observations. One of the important programme items was the possibility to be present at the scientific sessions of the ArAS VIII Annual Meeting. Competitions and various interesting social events were also organised, like a quiz on astronomy, a concert by the famous composer Robert Amirkhanyan, an excursion to the medieval fortress Amberd, etc. At the closing ceremony, various prizes and gifts, including books, BAO souvenirs, etc., as well as certificates of participation were given to students.

**Organisers:** Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

## Young artists' exhibition "The Universe and myself"

Young artists exhibition and contest on subject "The Universe and myself" was held on June 19, 2010 in the Byurakan Observatory. Some 300 pictures by pupils of 35 art schools from Yerevan and Armenian provinces were presented. It was the largest cultural event ever held in Byurakan. Professional artists from the Armenian Artists' Union headed by its Chair Karen Aghamyan were present and together with the astronomers participated in the jury of the contest. The preliminary selection of works was done by the Yerevan centre of fine arts headed by its director Samvel Baghdasaryan. After the final selection, First-rank diploma were awarded to pupils from Yerevan Hakob Kojoyan cultural school, Yerevan centre of fine arts, and Vanadzor.





**Organisers:** Ministry of Culture, Armenian Astronomical Society (ArAS), Byurakan Astrophysical Observatory (BAO)

## Public lectures " IYA2009 in the world and Armenia", "Astronomical telescopes" , etc.

A number of public lectures were given by the Byurakan Observatory scientists at Yerevan special physical-mathematical and secondary schools, such as Phys-Math schools after Shahinyan, "Quantum" lyceum, Anania Shirakatsi school, etc. Upper level pupils were present from the given and neighbouring schools. Main subjects were the IYA-2009, 100 Hours of Astronomy (videos from the Around the World in 80 telescopes), problems of modern astronomy, and world astronomical telescopes.

**Organisers:** Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

## Public visits to the Byurakan Astrophysical Observatory (BAO)

In 2009, many more people than ever before attended the Byurakan Observatory. This indeed was connected with the IYA-2009. Byurakan astronomers showed visitors the observatory itself, the 2.6m and smaller telescopes, Viktor Ambartsumian museum and office, told about the research carried out in Byurakan, world astronomical news, etc.



British Ambassador in Byurakan

**Organisers:** Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

## Public observations by amateur astronomers in Yerevan

Since 2009, September 18 (Viktor Ambartsumian's birthday) is announced as the official Astronomy Day in Armenia. This happened due to an application by thousands of amateur astronomers who every year (since 2004)

gather in Yerevan near the Azatutyan ave. park and organise public observations with small amateur telescopes (6-11cm size). Ruben Buniatian is one of the organisers of these events. On Sep 18, 2009, already traditionally such an event happened as well. Some 30 amateurs put their telescopes and invited people to look at Jupiter and its satellites, stars, clusters, etc.

Organisers: Armenian Amateur Astronomers Society (AAAS), Armenian Astronomical Society (ArAS)

## Meeting with journalists in Byurakan

A meeting with journalists in Byurakan was organised on Feb 28 together with Armenpress News Agency. IYA-2009 tasks and details were presented and problems of scientific journalism were discussed. The first wave of active broadcast was made by TV, radio, press, and Internet during 28 Feb — 3 Mar, some 15 publications and programmes.

Organisers: Armenpress News Agency, Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

## Meeting with representatives of travel agencies in Byurakan

A meeting with representatives of touristic companies (travel agencies) was organised on Mar 30 in Byurakan. A discussion of problems of scientific tourism in Armenia was held. Together with directors or representatives of 25 travel agencies, the rector of Armenian Institute of Tourism Robert Minasyan, Manager of the Armenian Monuments Awareness Project (AMAP) Rick Ney, and others were present. The Byurakan Observatory was regarded as one of the main touristic attractions in Armenia.

Organisers: Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

## Meetings with architects in Byurakan

A meeting between astronomers and architects was organised on 30 April in the Byurakan Observatory. 25 architects were present, including the Chair of the Armenian Union of Architects Razmik Minasyan, Director of the Armenian Design Institute Grigor Azizyan, the author of the 2.6m telescope building and other buildings in BAO Sargis Gurzadyan, famous architects Hrachya Poghosyan, Sashur Kalashian, Murad Hasratyan, and others. Astronomers presented the IYA2009, world observatories and telescopes. Architects told about their work during the construction of the observatory. A conclusion was made that such meetings between scientists and representatives of art should be organised much more often and should be made publicly.



**Organisers:** Armenian Astronomical Society (ArAS) and Byurakan Astrophysical Observatory (BAO)

### Publication of popular and promotional materials

Production/publication of cups, pens, calendars, postcards with astronomical images was organised together with Antares Holding (President Armen Martirosyan), who sponsored these efforts.

**Organisers:** Armenian Astronomical Society (ArAS), Byurakan Astrophysical Observatory (BAO), “Antares” Holding

## Lessons Learned

The work with young people who are very enthusiastic was the best. Our main problem was that we started very late with fund raising and in addition the economic crisis prevented to find enough money for more activities. On the other hand, astronomy is so popular in Armenia that even in these situations we succeeded in a number of activities.

# Australia

## National Node

Helen Sim
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http://www.astronomy2009.org.au/

Official Languages

- English
-

Number of organising committee members: N/A

Population: 22 416 683

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### The World at Night in Australia

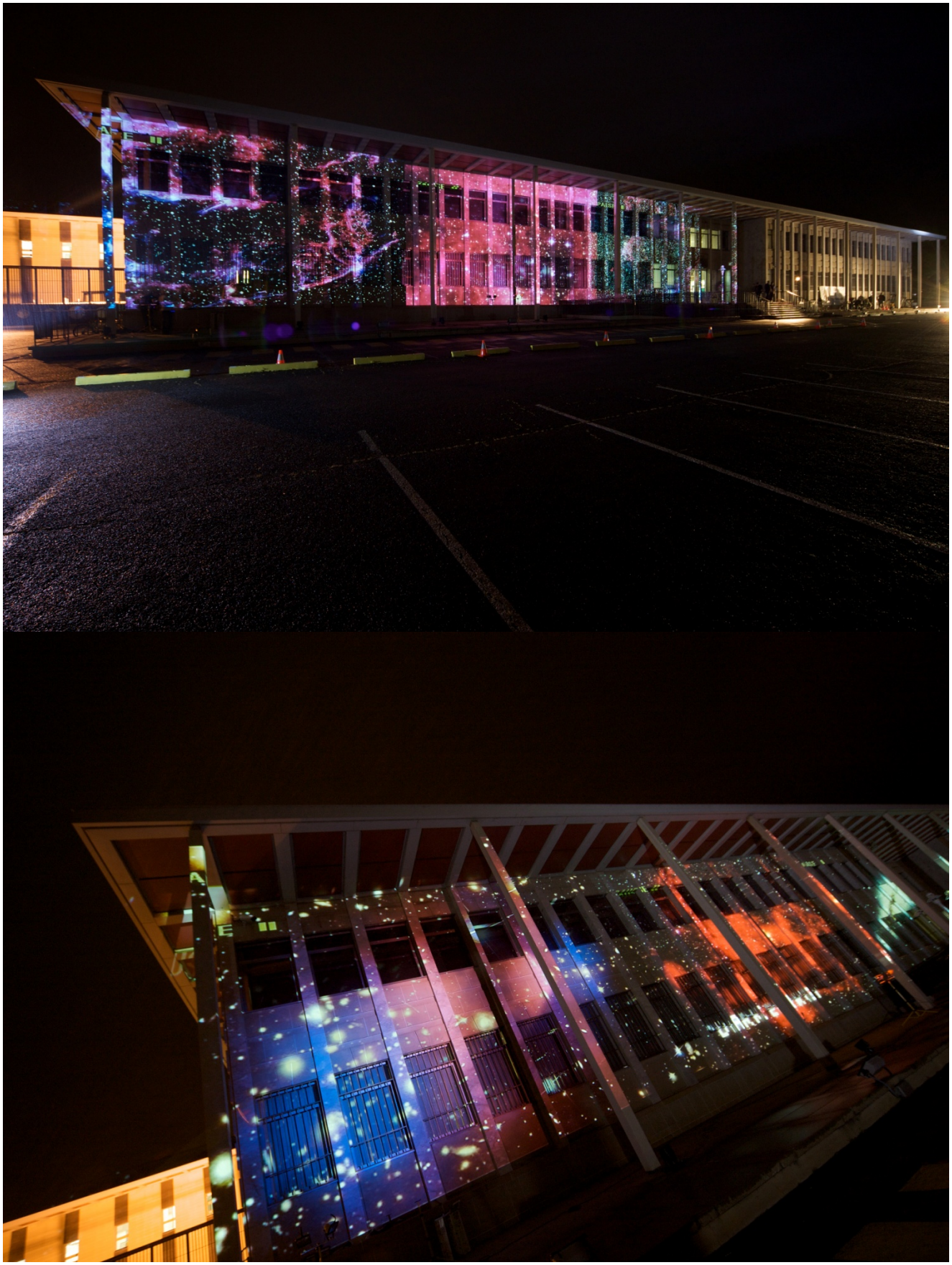


TWAN exhibition in Astrofest 2009, Western Australia's biggest public astronomy event , Curtin University, Perth, Nov. 2009.

During the IYA2009 TWAN exhibition and presentations travelled from Sydney to Perth on both sides of Australia and it continues to seek venues and related events in 2010 and beyond. More information: http://www.twanight.org/newTWAN/news_photo.asp?newsID=6050

IYA2009 Coin Launch






2009 International Year of
ASTRONOMY
The Currency Story
ONE HALF PENNY
International Year of Astronomy 2009
ONE DOLLAR
Australian Government
Royal Australian Mint
2009 International Year of
ASTRONOMY
Astronomy 2009
INTERNATIONAL YEAR OF
20
ONE DOLLAR


2009 International Year of
ASTRONOMY
Australian Government
Royal Australian Mint
STAR
PARTY
You are invited to a
An exciting launch
of the Mint's
newest products!
2009 Two Coin
Proof
Year of Astronomy


ROYAL AUSTRALIAN MINT
Astronomy 2009
NO
SMOKING
ONE
DOLLAR



## Art exhibit bridges cultures in Australia

Throughout IYA2009 Australia has witnessed an extraordinary celebration of astronomy as inspiration for art and cultural exchange. The latest success story is a project named Ilgarijiri, which means “things belonging to the sky” in the Wajarri Yamatji language of the Murchison region in Western Australia. Astronomy has a strong presence in the area, which is home to the Murchison Radio Astronomy Observatory and a potential location for the future Square Kilometre Array. Astronomy also plays a significant role in the stories and traditions of the indigenous people of Australia.

To connect these two perspectives, in March 2009 a group of indigenous artists from the Yamaji Arts collaboration based in Geraldton spent several days and nights with radio astronomers from Curtin University. They travelled through the region, sharing scientific and traditional stories about the Universe, rediscovering nature and observing the sky.





The result was a collection of more than 80 pieces of art exploring the theme of things belonging to the sky and strong connections with the landscape, which has subsequently toured Australia throughout 2009. The collection includes depictions of the Emu in the sky, the Seven Sisters and many other traditional stories, as well as astronomical images such as planets and supernova remnants.

More information is available on the Ilgarijiri blog: http://ilgarijiri.wordpress.com/

# Austria

## National Node




Thomas Posch

http://www.astronomie2009.at

Official Languages
- German

Number of organising committee members:
- Volunteers: 3
- Paid: 1 1/2

Population: 8 356 707

Number of people reached by IYA2009: approx. 1 000 000

Budget: 82 000€

Sources:
- National Science Ministry BMWF
- European Astronomical Society EAS

## General Overview of IYA2009 activities in Austria

- Number of registered events including radio and TV emissions: 747
- Number of locations of events: 155
- Estimated number of persons reached via weekly broadcasting on Astronomy on “Radio Österreich 1”: approx. 600 000
- Number of train passengers reached by Travel Information Sheets and announcements by the EuroCity Train ÖBB EC 669 “Astronomiejahr2009”: approx. 400 000
- Estimated number of persons reached by astronomy exhibitions, public stargazing, talks etc.: approx. 500 000
- Number of hits onto www.astronomie2009.at:Approx. 40 000

## Main Activities

### List of Activities:

- Fast train ÖBB EC669
- Activities for schools
- Academic talks
- Radio broadcasts
- Exhibitions and events
- Coin
- Books
- Events for children
- Further activities
- National IYA2009 Webpage

## Fast train ÖBB EC669

A fast train run by the federal state railways ÖBB has been named “ÖBB EC669 -Astronomiejahr 2009”. It connected Bregenz in the west of the country with Graz in the southeast. About 400 000 persons used this train in 2008 and 2009 and were thus informed about IYA2009 activities in Austria (via attachments to travel information sheets).




## Activities for Schools

Purchase of 100 “Solar scopes” for Austrian schools; distribution of these solarscopes by members of staff of the departments of astronomy/astrophysics at the universities of Vienna, Graz and Innsbruck; compilation of didactical material on the scientific use of solarscopes in selected schools.

Preparation of an advanced training course for teachers “Das Internationale Astronomiejahr 2009: Mögliche Aktivitäten für Lehrkräfte, Schülerinnen und Schüler” in Graz.

Establishing contacts with teachers who are actively involved in astronomy.

## Academic talks

Presentation of the Austrian contribution to the International Year of Astronomy 2009 at the JENAM 2008 meeting, September 2008.

Lecture series “Vom Big Bang zu bewohnbaren Welten” at Vienna University, winter term 2008/09.

## Radio broadcasts

Preparation and arrangement of several radio series concerning the International Year of Astronomy 2009 for the Austrian radio station “Ö1” (e.g. “Wissen aktuell”, weekly), reaching about 600 000 people.

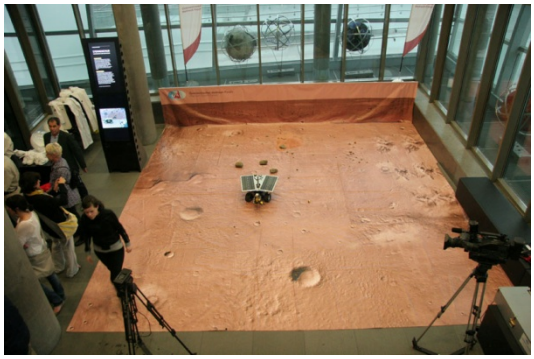
Arrangement of several special broadcastings for radio and television stations in Austria concerning the International Year of Astronomy 2009, participation in a TV-documentation with the title “Wenn die Sonne still steht — Kepler, Galilei und der Himmel”, broadcasted on 13 December 2009, at 11.05pm at ORF 2 (Austrian public television station).

## Exhibitions and events

- Opening event of the International Year of Astronomy 2009 in Austria at the assembly hall of the Austrian Academy of Sciences on 20 January 2009.
- Exhibition “Die Himmel rühmen die Herrlichkeit Gottes” in Melk Abbey, March to December 2009 (conception: Paul Beck and Georg Zotti). 400 000 visitors.
- Exhibition “Reisen bis zu den Sternen” at the Monastery Rein near Graz (conception: Sonja Draxler and Max Lippitsch).
- Both exhibitions showed historically significant books over a period of six centuries.
- “400 Jahre Fernrohr” (400 years of telescopes; Department of Astronomy, Vienna).
- “Blick zum Nachthimmel” (Wien-Energie-Haus, 2 June — 4 September 2009).
- “GLOBAL:LAB” at the MAK (Museum of Applied Arts and Contemporary Art in Vienna; 2 June — 27 September 2009; The focus was on historical astronomical exhibits of the 16th to 17th century, entitled “Die neue Sicht auf die Welt: Netzwerke der Kunst. Die Darstellung des Fremden).



- Exhibition “Sternenstaub” (stardust) and special tours at the Ars Electronica Center in Linz (7 July — 23 August 2009)
- Cosmic matter in a microscope, screening of “Die Helle Not”, a documentation of light pollution, presentation of “space suits” for children as well as presentation of a Mars robot (Space Research Institute of the Austrian Academy of Sciences), three-dimensional journey through space in the “Deep Space” (special screening room), two special talks with live video hookup to the European Southern Observatory in Chile on 6 and 20 August 2009.





- Exhibition of the rare book “Astronomia nova” (1609) of the holding of the Astronomy Library in Vienna in Taipeh (Taiwan), 10 — 13 September 2009 in the Chiang Kai-shek Memorial Hall within the exhibition “400 Years of Heaven Gazing”, attracting over 70,000 visitors. In the course of the presentation a digitized version of the book was being made that in November was used for a TV-documentation by the British television station BBC.
- Poster presentation concerning astronomical research at the Department of Astronomy in the main building of the Vienna University in September, 2009.
- Poster presentation “Explorer l’Univers” (1 December 2009 — 30 January 2010) and organisation of a lecture evening at the “Französiches Kulturinstitut (Institut français)” in Vienna on 1 December 2009. Joint signature of a bilateral agreement on a doctoral programme in astronomy at Paris Universities and the Vienna University in the course of this lecture evening.
- Preparation and opening of the special exhibition “Astronomie in Oberösterreich” (Astronomy in Upper Austria) at the Castle Museum of the Upper Austrian State Museum on 17 January 2010, in the frame of the exhibition “Technik Oberösterreich” (Technology in Upper Austria).
- Organisation of a day of the Leopold Figl Observatory commemorating its 40th anniversary on 27 September 2009 (attracting in all over 200 visitors).
- Contribution to the “Grazer Herbstmesse” focused on astronomy and space flight from 26 September to 4 October 2009.
- Contribution to the “Innsbrucker Herbstmesse” focused on cosmology from 7-11 October 2009 with over 90 000 visitors.
- “Lange Nacht der Forschung” (Long Night of Science) on 7 November 2009, attracting over 800 visitors.



Performance of the theatre play “Kepler, Galilei und das Fernrohr” by Th. Posch. Dates:

- 1 January 2009: opening event of the International Year of Astronomy 2009 at the assembly hall of the Austrian Academy of Sciences.
- 9 May 2009: at the meeting of the Kepler-Gesellschaft in Weil der Stadt.
- 7 November 2009: during the “Lange Nacht der Forschung” at the Department of Astronomy in Vienna.



## 100 Hours of Astronomy, 2-5 April 2009

Various students and tutors of the teaching staff of the astronomical and astrophysical institutions at Austrian universities participated in the 100 hours of astronomy.

On 2 April 2009 a press conference took place at the Natural History Museum in Vienna presenting the local programme and a documentation entitled “Die Helle Not” (directed by Wolfgang Schober).

On 3 April 2009, a lecture evening was held at the Department of Astronomy in Vienna, including special guided tours to the observatory. The event was focused on the presentation of the book “Helden des Himmels” by Christian Pinter, on extracts of the Webcast “Rund um die Welt mit 80 Teleskopen” (Around the world in 80 telescopes), and on observing the planet Saturn and its satellites with the 68cm (27-in) refracting telescope of the Vienna Observatory.

On 4 April 2009, as a highlight of the 100 Hours of Astronomy, a day of special promotion took place at the Maria-Theresia-Platz between the Natural History Museum and the Kunsthistorisches Museum. A number of telescopes were mounted in front of the Natural History Museum (7cm-H-alpha solar telescope, Schmidt-Cassegrain telescopes from 20 to 28cm and reflecting telescopes up to 46cm), allowing hundreds of visitors to observe various terrestrial and celestial objects. Local illumination of the various surrounding buildings was turned off in order to obtain better observing conditions.

Various other events took place in Graz, Innsbruck, Salzburg and at the Mitterschöpfl (Leopold-Figl Observatory).



## Coin

The Austrian Mint in Vienna dedicated a 25 € coin to the International Year of Astronomy 2009, showing Galileo, his telescopes, one of his drawings of the Moon and the observatory at Stift Kremsmünster on the one side and the backside of the Moon on the other side. The coin is made of silver and niobium and went on sale on 11 March. Due to this event, an article about the International Year of Astronomy 2009 was published in the journal "Münze Österreich".

## Books

Completion of the book "Das Ende der Nacht" focused on light pollution (edited by Thomas Posch et al.)
Several media events in this context, e.g. broadcast of the documentary "Die dunkle Seite des Lichts" (The dark side of light) on 29 October 2009, 8h 15 pm at ORF2 (Austrian public television station) in the series "Universum"; interview with Th. Posch on 20 November 2009, 9h 05 am at the Austrian radio station "Ö1" in the series "Kontext"; interview with the WDR (Westdeutscher Rundfunk); review in the "Frankfurter Allgemeine Zeitung (FAZ)", in "Standard" (national Austrian newspaper) and on ORF (Österreichischer Rundfunk; Austrian Broadcasting) etc.

Completion of the book on the historical instruments of the Vienna Observatory.

## Events for children

Preparation and realisation of "KinderUni 2009" (university for children) focused on astronomy.

Special commemorative event of Apollo's 40th anniversary "40 Jahre erste bemannte Mondlandung" (40 years of the first manned landing on the moon) on 7 July 2009 at the Ars Electronica Center in Linz and at the Vienna Observatory, featuring the launch of water-driven toy rockets for children ("Wer fliegt mit zum Mond?")

## Further activities

Establishment of a fully automated meteor monitoring camera on the Martinsberg (hill in Lower Austria), opening on 8 August 2009 under the supervision of Prof. Hermann Mucke.

Establishment of a sensor network to measure the brightness of the night sky under the supervision of Dr. Günther Wuchterl).

### National IYA2009 webpage

Development and supervision of the internet page www.astronomie2009.at:

- Image Gallery
- Online timetable containing astronomical events in Austria
- Collection of dates of astronomical activities at Austrian institutions
- Preparing a report and a special image gallery of the event “100 Stunden der Astronomie” (100 hours of astronomy)
- Preparing a report and a special image gallery of the open day of the Leopold Figl-Observatory for astrophysics on Mt. Mitterschöpfl
- Creation of a new subcategory “Neues aus der Forschung” (Scientific news)

2010: continuation of the internet page www.astronomie2009.at via www.astronomie2010.at

## Lessons Learned

- Joint efforts with artists were of great interest and contributed to spreading our message into new audiences.
- Combining the aesthetic appeal of astronomy with the scientific approach also led to increased interest.
- The cooperation between professional and amateur astronomers is of crucial importance in outreach projects.
- Attractive programs offered to schools and in general to young audiences proved instrumental on various occasions in IYA2009.
- In Central Europe at least, “weather-proof” programmes are needed for successful public events.
- Many people still cannot properly distinguish astronomy from astrology. More efforts are probably necessary to combat the spread of astrology and pseudo-science.

## Legacy

- More intense contacts to museums have been established.
- The contacts to the media could be significantly improved.
- Our webpage www.astronomie2009.at will be continued as www.astronomie2010.at.
- This webpage especially serves as a database of current public events and also as a news archive.
- Several books and booklets have been published as a result of IYA2009 activities (see above). Of one of them (“Das Ende der Nacht”) more than 1100 copies have been sold.
- A network of instruments and observing stations for the determination of the night sky brightness has been established and will be further enlarged.
- Dark skies awareness could be raised in a (hopefully) long-lasting way in some regions of Austria. Projects for Dark Sky Reserves will be continued.
- We got inspiring ideas from other countries on how to communicate astronomy with the public.



# Azerbaijan

## National Node

Elchin Babayev (Azerbaijan National Academy of Sciences)

www.shao.az/IYA

Official Languages
- Azerbaijani

Number of organising committee members: 6
- Volunteers: 6
- Paid: 0

Population: 9 000 000

Number of people reached by IYA2009: 1600

Budget: 10 000€

Sources:
- Azerbaijan National Academy of Sciences
- Several Universities

## General Overview of IYA2009 activities in Azerbaijan

Thanks to great efforts of SPoC-Azerbaijan Dr. E.Babayev and Dr. Ali Ajabshirizadeh from RIAAM and the practical help of Dr. Alireza Hoseinpour Sonboli, head of Islamic Azad University, Maragheh and some organisational help of Azerbaijani Astronomical Society and other officials, two large and interesting conferences took place. There were plenty of amazing ideas but financial difficulties affected the decisions. In general, IYA2009 activities were at medium level, there were few events — but well organised, public awareness was at its top level. Many young scientists and students, pupils as well as the public were involved in these activities.

## Main Activities

- First Iranian-Azerbaijani Tusi conference on astronomy, Maragha city, Iran. 23-25 May 2009;
- Second Azerbaijani-Iranian conference on astronomy, Nakhchivan city, Azerbaijan, 15-17 October 2009;
- Iranian-Azerbaijani StarPeace event near Araz River, in Julfa city located along the border between I.R. Iran and the Republic of Azerbaijan, on World Science Day, 10 November 2009;
- NOVRUZ ("New Day" of New Year) holiday celebration at vernal equinox , most respectful national holiday at equinox day of 20 March 2009 (see for NOVRUZ: http://www.bakupages.com/pages/traditions/novruz_en.php), recognised by UNESCO, wide activities in mass-media, TV, radio, interviews, public events on streets;
- Consultations on planetarium construction at Baku capital city, by AzerSun Holding, at Boulevard Area, as a part of Park Bulvar Mall (see: http://www.parkbulvar.az/project.html);
- Efforts in issuing and distribution in country and abroad of the Azerbaijani postal stamps devoted to IYA2009 (see: http://azermarka.az/en/2009.php?subaction=showfull&id=1239975998&archive=&start_from=&ucat=37& , http://azermarka.az/en/2009.php?subaction=showfull&id=1239975814&archive=&start_from=&ucat=37&) ;
- Preparation for publication: (i) the Child Astronomy Encyclopaedia in Azerbaijani; (ii) Book "Azerbaijani Astronomers"; (iii) Jubilee book "ShAO-50: achievements in astronomy for 50 years";

- Getting (through grant) 100 Galileoscopes for Azerbaijan and their distribution (followed by astronomical lectures and videos) between schools, lyceums, universities, museums, and so on;
- Solar Eclipse — VLF signal propagation international (Azerbaijan, India, Turkey, Uzbekistan) experiment on 22 July 2009;
- Yuri's Night — World Space Day celebration at the Lyceum Zangi in Baku, 12 April 2009;
- Special tutorial/informative seminars at each month within AstroSeminar functioning at the Shamakhy Astrophysical Observatory's Baku City Department on a regular basis;
- Regular articles on astronomy, space and related topics in famous newspapers in Azerbaijani and Russian (for example, see: http://www.nedelya.az/article.php?mat_id=224&id=12), scientific popular journals published in well-known periodicals like "YOL", "Elm ve Heyat" ("Science and Life"), interviews for TV and radio broadcasts, so on, particularly concentrating on IYA2009;
- Preparation "Developing astronomy globally — Astronomy Survey for Azerbaijan", completed 24 July 2009.

## First international Iranian-Azerbaijani Tusi Conference on astronomy devoted to IYA2009, Maragha Observatory's 750 years anniversary and ShAO's 50 years jubilee, 23-25 May 2009, Maragha city, I.R.Iran

International conference on astronomy covering almost all of topics and branches of astronomy, astrophysics, space physics, as well as history of astronomy and science, particularly, topics on the Maragha Observatory's 750 years anniversary and Shamakhy Astrophysical Observatory's (ShAO under the Azerbaijan National Academy of Sciences) 50 years jubilee. Three day conference activities (tens of invited, plenary, oral and poster presentations) also included: (i) visit to the 750 years old Maragha Observatory established by famous middle ages astronomer Nasiraddin Tusi, (ii) amazing deep night event of stellar constellation observations in a unique way by their real "shooting" (guns sent by gunman towards stars with light tracks) of main bright stars of constellations making them "visible" within a few seconds to remember forever, (iii) visit to historical places, unique salty lake of region — Urmiya, (iv) interviews by local TV broadcast, (v) local traditional dinners, so on. Poland was represented in the conference. Scientists from different European and Asian countries have sent their presentations but unfortunately could not take part.

Organisers: Research Institute of Astronomy and Astrophysics of Maragha (RIAAM), Islamic Azad University of Maragheh, Shamakhy Astrophysical Observatory (ShAO) under the Azerbaijan National Academy of Sciences, Azerbaijan Astronomical Society (AAS).

Website: http://www.riaam.ac.ir/events_itca.htm http://www.shao.az/IYA/conflRA/







Estimated number of people who attended or were reached by this activity: 250

Budget: 3000€

## Second Azerbaijani-Iranian International conference on astronomy, physics and mathematics Nakhchivan city, Azerbaijan, 15-17 October 2009, devoted to IYA2009

As the second conference from the Tusi conference series, this took place in exclave city of Azerbaijan with participation of scientists from Azerbaijan, Iran and Germany. All topics of astronomy as well as physics and mathematics related to astronomy were covered by plenary and oral presentations. The conference opening ceremony took place at the Nakhchivan State University and was followed by a national music and concert programme. All parallel scientific sessions of the first day were held in the auditoriums of the Nakhchivani Branch of Azerbaijan National Academy of Sciences, Nakhchivan State University and Nakhchivan Institute of Teachers. The next day's astronomy session was moved to the Batabat Astrophysical Observatory of the Nakhchivani Branch of Azerbaijan National Academy of Sciences located at an altitude of 2100 metres above sea level. Conference activities included excursions to historical places of Nakhchivan and Batabat, followed by a very special dinner on the mountains. There was a reception by the university for guests. A Conference Proceedings book was published and distributed.

Organisers: Azerbaijan Astronomical Society, Nakhchivan State University, Nakhchivani Branch of Azerbaijan National Academy of Sciences, Research Institute of Astronomy and Astrophysics of Maragha (RIAAM), Division of the Physical-mathematical and Technical Sciences of the Azerbaijan National Academy of Sciences, Nakhchivan Institute of Teachers.

Website: http://www.shao.az/IYA/









Estimated number of people who attended or were reached by this activity: 350

Budget: 2 000€

## Iranian-Azerbaijani StarPeace event near Araz River, in Julfa city located along the border between I.R. Iran and the Republic of Azerbaijan, on World Science Day, 10 November 2009

Astronomers from Iran and Azerbaijan held their StarPeace event on 10 November 2009, UNESCO declared World Science Day, on a border bridge over the Araz River located along the border between I.R. Iran and the Republic of Azerbaijan. The Iranian StarPeace team accompanied by a group of professional astronomers from Azerbaijan National Academy of Sciences located their telescopes on the border bridge near Julfa town, so tourists and merchants who were passing the bridge between two countries would stop by to observe Jupiter and celestial objects through telescopes.

Organisers: Iranian StarPeace team and Azerbaijan National Academy of Sciences.

Website: http://www.starpeace.org/En/News/52/Default.aspx



Estimated number of people who attended or were reached by this activity: 250

Budget: 200€

## Evaluation

This evaluation was carried out by SPoC-Azerbaijan Dr. E.Babayev and presented at the Azerbaijan National Academy of Sciences, Azerbaijani Astronomical Society as well as mass media. There were described achievements, problems, disadvantages, and lessons learned.

## Legacy

Certainly the Azerbaijani Organising Committee will continue these activities in the country after 2009. They in principal cover many goals of the “Beyond IYA2009” programme. Activities will be managed under patronage of Azerbaijani Astronomical Society and the newly established Science Development Foundation under the President of the Republic of Azerbaijan.

## Comments

IYA2009 activities in Azerbaijan could have been organised a lot better. We were counting on much more support, either financial or technical. However it was very useful and huge project. Sometimes overloaded information spread through e-mails. It seems to me that regional clusters work more effectively. There arises a problem if many organisations start to show their ambitions in organisational questions. For example, dates of two above-mentioned conferences were changed several times which resulted in a lower number of invited foreign guests who planned their schedule in advance.

Lack of centralised financial help / donation (except some cases, like Galileoscopes) affects mainly activities in developing countries. By the way, IYA2009 and activities in Azerbaijan reminded government officials and the public of the aliveness of astronomy in the country, which is still part of the educational programme as an independent (!) course/subject apart from many countries of the former Soviet Union.



# Bahrain

## National Node

Shawqi Al-Dallal
aldallal@batelco.com.bh

Official Languages

- Arabic

Number of organising committee members: N/A

Population: 791 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main IYA2009 activities

### Exhibition “The birth and death of stars”

An exhibition containing about 100 photographs which will be inaugurated by the King of Bahrain.

### Introductory Astronomy

Workshops for schools.

### Astronomical Lectures

Talks on topics such as the big bang, dark matter, quasars, and the new Solar System.



# Bangladesh

## National Node

F. R. Sarker
Bangladesh Astronomical Society
info@bangastrosociety.org
http://www.astronomy2009-bd.org/

Official Languages

- Bengali

Number of organising committee members: N/A

Population: 162 221 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Bangladesh

Some impressions from the IYA2009 activities in Bangladesh:






AUSTRALIA


The 16th Session of
The Asia-Pacific Regional Space Agency Forum


TOTAL SOLAR ECLIPSE
22 JULY, 2009 / TETULIA, BANGLADESH
THE UNIVERSE YOURS TO DISCOVER
ASTRONOMY
2009
BANGLADESH ASTRONOMICAL SOCIETY
www.bangladeshastronomicalsociety.org
SWAN




Prof. Koshland 2002
– ingredients and interactions among ingredients
– ability to change / adapt to changes (mutation)
– cells and organs
– energy to recycle chemicals
– ability to regenerate
– individual adaptability to changes in environment
– seclusion of chemical pathways
JST/WC-04
JST/WC-29
JST/WC-34
JST/WC-30


PORTAL TO THE UNIVERSE


YOURS TO DISCOVER
INTERNATIONAL YEAR OF
ASTRONOMY




THE UNIVERSE
YOURS TO DISCOVER
INTERNATIONAL YEAR OF
ASTRONOMY
2009
CELEBRATION OF
INTERNATIONAL YEAR OF ASTRONOMY 2009
ABDUL JABBAR ASTRONOMY WORKSHOP
(FIRST SESSION)
26 APRIL-17 MAY, 2009
ORGANISED BY
IYA2009 CELEBRATION COMMITTEE, BANGLADESH
www.astronomy2009-bd.org


THE UNIVERSE
YOURS TO DISCOVER
INTERNATIONAL YEAR OF ASTRONOMY
2009
CELEBRATION OF
INTERNATIONAL YEAR OF ASTRONOMY 2009
ABDUL JABBAR ASTRONOMY WORKSHOP
(FIRST SESSION)
26 APRIL-17 MAY, 2009
ORGANISED BY
IYA2009 CELEBRATION COMMITTEE, BANGLADESH
www.astronomy2009-bd.org




INTERNATIONAL YEAR OF ASTRONOMY 2009
ABDUL JABBAR ASTRONOMY WORKSHOP
(FIRST SESSION)
2009
Celebrate with
GUINNESS
JST/WC-17
JST/WC-33


CELEBRATION OF
100 HOURS OF ASTRONOMY
ORGANIZED BY
BANGLADESH ASTRONOMICAL SOCIETY
APRIL 2 -5, 2009 / ENAYETPUR, BANGLADESH
ASTRONOMY
2009




100 HOURS OF ASTRONOMY
2009




100 HOURS OF ASTRONOMY
INTERNATIONAL YEAR OF ASTRONOMY
BANGLADESH ASTRONOMICAL SOCIETY
Panasonic


CELEBRATION OF
100 HOURS OF ASTRONOMY
ORGANIZED BY
BANGLADESH ASTRONOMICAL SOCIETY
APRIL
09 / ENAYETPUR, BANG
ESH
THE UNIVERSE
YOURS TO DISCOVER
INTERNATIONAL YEAR OF
ASTRONOMY
2009


দিন বদলে বিশ্বাস করে
দিন বদলে বিশ্বাস করে
টেলিকম এনায়েতপুর, কেজির


445th BIRTH ANNIVERSARY OF GALILEO GALILEI
Special Guest : MD. NAZMUL HUDA KHAN, ndc
Guest of Honour : Prof. Dr. MESBAHUDDIN AHMED


International Year of Astronomy 2009
445th BIRTH ANNIVERSARY OF GALILEO GALILEI
Chief Guest : ARCHITECT YEAFES OSMAN
Special Guest : MD. NAZMUL HUDA KHAN, ndc
Guest of Honour : Prof. Dr. MESBAHUDDIN AHMED
Venue: Auditorium, NATIONAL MUSEUM OF SCIENCE & TECHNOLOGY
2009


445th BIRT
Chief Gu
In association with


BANGLADESH ASTRONOMICAL SOCIETY
CELEBRATES THE 445TH BIRTH ANNIVERSARY OF
GALILEO GALILEI
ORGANISED BY
NATIONAL MUSEUM OF SCIENCE &
DHAKA, BANGLADESH / 15 FEBRUARY,
THE UNIVERSE YOURS TO DISCOVER
INTERNATIONAL YEAR OF ASTRONOMY 2009




এ আর খান
টেলিস্কোপ
অনুসন্ধিৎসু চক্র বিজ্ঞান সংগঠন


EARTH






PREPARATORY MEETING FOR CELEBRATION OF
INTERNATIONAL YEAR OF ASTRONOMY-2009
ORGANIZED BY
IYA 2009 CELEBRATION COMMITTEE.BANGLADESH
FFEPD AUDITORIUM DHAKA/DECEMBER 19,2008


PREPARATORY MEETING FOR CELEBRATION OF
INTERNATIONAL YEAR OF ASTRONOMY-2009
ORGANIZED BY
IYA 2009 CELEBRATION COMMITTEE, BANGLADESH
FREPD AUDITORIUM DHAKA/DECEMBER 19,2008
02:47




SEMINAR ON THE 39TH ANNIVERSARY OF
LANDING ON THE MOON BY APOLLO-11
ORGANIZED BY
BANGLADESH AST ONOMICAL SOCIETY
VENUE : FREPD AUDITORIUM
20 JULY,2008


ORGANIZED BY
SH ASTRONOMICAL SOCIETY
AUDITORIUM, DHA
TE : 20 JU



# Belarus

## National Node

Alexander Mikulich
Minsk Planetarium
planetarium@belastro.net
http://www.astronomy2009.belastro.net/

Official Languages

- Belarusian
- Russian

Number of organising committee members: N/A

Population: 9 648 533

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

- Internet-competition “Children of the Galaxy” art contest
- International conference in honour of the 95 anniversary of the birth Zeldovich “Sun, stars, the Universe and the general theory of relativity, 20 – 30 April 2009.
- Annual festival of amateur astronomy: BelAstroFest.
- Regular public lectures on astronomy at the Minsk City Planetarium.
- Conducting evening sidewalk astronomy in Minsk and regional centres.
- Creation on the basis of the Minsk City Planetarium permanent exhibition of amateur astronomical photographs.
- Establishment of an amateur astronomy club in the Minsk City Planetarium.
- Organisation of activities aimed at the restoration of the Public Observatory in the Minsk City Planetarium.
- Production of an IYA2009 DVD-ROM.

Internet-competition “Children of the Galaxy” art contest



# Belgium

## National Node

Rodrigo Alvarez
Royal Observatory Belgium
rodrigo.alvarez@oma.be
http://www.iya2009.be/

Official Languages

- Dutch
- French
- German
-

Number of organising committee members: N/A

Population: 10 827 519

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Belgian national day of astronomy

30-31 January 2009
For several years now, amateur astronomers welcome the general public during this special night and together they celebrate astronomy.
Website: www.sterrenkijkdagen.be

### Astro Event — 2009

27 February - 01 March 2009
The biggest astronomy and space science fair in the Benelux.
Website: http://www.ae2009.be/

### Nacht van de Duisternis / Nuit de l'Obscurité

28 March 2009
Belgium, being one of the most light-polluted countries, has amateur astronomers especially willing to demonstrate that there are still stars in the sky.
Website: www.nuitdelobscurite.be

Impressions from the IYA2009 activities in Belgium










MAMEMO
RACONTE MOI LE CIEL !


MAMEMO
EXPLIQUE-MOI LE CIEL !


IRA
ESPRIT


INTERNATIONAAL JAAR
STERRENKUNDE 2009
HET HEELAL: SAMEN ONTDEKKEN
Kom en ontdek de wonderen van de sterrenhemel
van 22 tot 24 oktober tijdens de
Galilean
Nights
Waarnemingen - Lezingen - Tentoonstellingen - Planetariumshows
www.sterrenkunde2009.be
MET DE STEUN VAN DE FEDERALE MINISTER VAN WETENSCHAPSBELEID
Het Nieuwsblad
IAU
BELGISCH
NATIONAAL
CONTACTPUNT
.be




EARTH




EARTH




2009



# Benin

## National Node

Oscar Roméo Kiche
Club Astronomique Orion Bénin
orionbenin@yahoo.com
http://geocities.com/orionbenin/ama

Official Languages

- French
-

Number of organising committee members: N/A

Population: 8 791 832

Number of people reached by IYA2009: N/A

Budget: N/A

## Main IYA2009 activities

### Exhibit “Ciel, Miroir des Cultures”

### Conference and itinerants exhibit

6 -30 April 2009 in Cotonou, Porto-Novo, Parakou, Abomey and Savalou

### Sidewalk astronomy

4 - 30 May 2009 in Natitingou

### UNAWE Activities

Website: http://vimeo.com/9068680 and
http://www.unawe.org/site/index.php?option=com_content&view=article&id=463:story-telling-at-in-benin&catid=227:benin





# Bhutan

## National Node

Karma Wangdi
Centre for Bhutan Studies
wangdikarma@gmail.com
www.bhutanstudies.org

Official Languages

- Bhutanese
-

Number of organising committee members: N/A

-

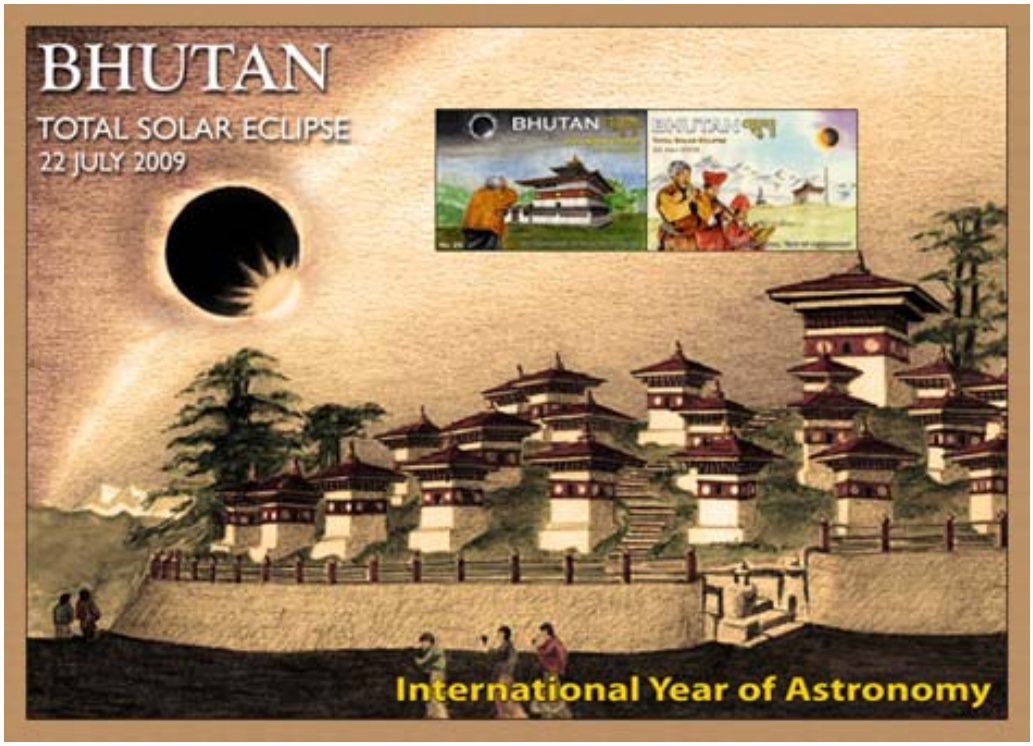
Population: 691 141

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Bhutan

### Bhutan: IYA2009 Total Solar Eclipse Stamp



# Bolivia

## National Node

Rolando Ticonageffert
Planetarium “Max Schreier”
rticona@fiumsa.edu.bo
www.astronomia2009.org.bo

Official Languages
- Spanish
- Quechua
- Aymara

Number of organising committee members: 6 — 10
- Volunteers:
- Paid:

Population: 10 907 778

Number of people reached by IYA2009: 70 000

Budget: 5000 €

Sources:
- University of san Andres (500)
- Private companies

## Main Activities

### List of Activities
- 100 Hours of Astronomy
- FETTU
- World week of Space
- National Meeting of Astronomy
- Press Publish
- Workshop on CCD Photometry and Variable Stars
- Astronomy for Everyone (Stars Parties)
- Special Events
- Public Conferences
- Television Spots

### 100 Hour of Astronomy

This activity was held in five main cities of Bolivia, according to dates provided by the International Committee. Such activities, supervised by National Committee, have been organized at Cochabamba, El Alto, Santa Cruz de la Sierra, Tarija and La Paz cities, using all equipment they could get. In every city, we have organized activities in public spaces in order to reach the greater public.




We estimate an attendance of 20000 persons.

Organisers: Asociación Boliviana de Astronomía and Planetario “Max Schreier” (La Paz), Observatorio Astronómico Nacional (Tarija), Asociación ASTROCRUZ (Santa Cruz), Asociación ICARUS (Cochabamba).

## From Earth To The Universe

Only three biggest organizations of our Country were able to hold these expositions. On Santa Cruz de la Sierra city, the ASTROCRUZ Association prepared 37 panels, exposed in several places of Santa Cruz Prefecture. The main event was at the main square of Santa Cruz city. In Tarija Prefecture, the National Astronomical Observatory (Observatorio Astronómico Nacional) carried out these expositions around several places of Tarija Prefecture as well as Tarija city. In La Paz Prefecture, The Bolivian Association of Astronomy (Asociación Boliviana de Astronomía) and Planetarium “Max Schreier” organized several expositions of 28 panels at different locations and cities around La Paz Prefecture, and La Paz and El Alto cities. Sometimes these expositions were carried out together with portable planetarium, reaching many people.



The estimated attendance is 30000 persons.

Website: http://www.astrocruz.org/FETTU2009.htm

Organisers: Asociación Boliviana de Astronomia and Planetario “Max Schreier” (La Paz), Observatorio Astronómico Nacional (Tarija), Asociación ASTROCRUZ (Santa Cruz).

## World Week of Space

This activity, currently organised by the National Astronomical Observatory, Tarija Prefecture, was hold from October 4 to October 10, with participation of local committees, under the supervision of National Committee. Main activities held were a drawing contest, related to the activity, for children, demonstrations on simple basic rockets. Both planetariums (Tarija and La Paz cities) hold public sessions and conferences related to astronautics.



We estimate an attendance of 1000 persons.

Organisers: Asociación Boliviana de Astronomía and Planetario “Max Schreier” (La Paz), Observatorio Astronómico Nacional (Tarija).

## National Meeting of Astronomy

The purpose of the meeting was focused on activities of the International Year of Astronomy. The meeting was held, from October 16 to October 19, at El Alto city of La Paz Prefecture with the participation of all groups and institutions related to Astronomy in our Country. Around 20 talks, and research reports, made by participants during the last two years, were presented. Astronomers of several institutions of Bolivia attended the meeting: ICARUS (Cochabamba), ASTROCRUZ (Santa Cruz de la Sierra), as well as members of National Observatory (Tarija).




We estimate an attendance of 100 persons.

Organisers: Asociación Boliviana de Astronomia and Planetario “Max Schreier” (La Paz), Observatorio Ronald Muyzert and Unidad Educativa Privada Boliviano-Holandés (El Alto).

## Astronomy for every one (Starparty)

In main cities of our country, all groups organized observations of astronomical objects in several squares, parks and streets of La Paz, Cochabamba, Santa Cruz, and Tarija. One of the most interesting events was held for child patients of the Children’s Hospital (Hospital del niño), with an attendance of around 200 children.



## Astronomy for everyone in Chacaltaya Mountain (5300 m.a.s.l.)

For the very first time the Planetarium “Max Schreier” carried out a star’s party at Mount Chacaltaya. We brought four telescopes (the biggest, one of 8 inches), and a portable planetarium. During three days we observed the Sun, with appropriate filters, the staff of the planetarium presented sessions with portable planetarium. Those activities were carried out at near to the former sky resort. A great number of students and general public (around 400), mainly from La Paz and El Alto cities, arrived to such place. Due to the success, we expect to hold this activity every year.




We estimate an attendance of 15000 persons.

Organisers: Observatorio Astronómico Nacional (Tarija), Asociación ASTROCRUZ (Santa Cruz), Asociación ICARUS (Cochabamba) and Planetario “Max Schreier” (La Paz).

## Press

Since April 21, all Tuesdays of the year, the Planetarium “Max Schreier” published reports dedicated to students at the National Journal “EL DIARIO” (suplemento “Nuevos Horizontes”). These reports were mainly written with topics related to the Solar System and astronomical objects.
The estimated attendance is 30000 persons

Organiser: Planetario “Max Schreier” (La Paz).

## Workshop on CCD Photometry and Variable Stars

This activity was held at the National Astronomical Observatory (Tarija), from July 17 to July 20. The Course was dictated by Dr. Jaime García, Vice-president of AVSSO and Scientific Director of Copernic Institute of Mendoza, Argentine.
The estimated attendance is 25 persons.

Organiser: Observatorio Astronómico Nacional (Tarija).



# Bosnia and Herzegovina

## National Node

Muhamed Muminovic (Astronomical Society Orion Sarajevo)

www.adorion.ba

Official Languages
- Bosnian
- Croatian
- Serbian

Number of organising committee members: 8
- Volunteers: 8
- Paid: 0

Population: 4 613 414

Number of people reached by IYA2009: 1000

Budget: 15 000 €

Sources:
- Norway donation

## General Overview of IYA2009 activities in Bosnia and Herzegovina

Having in mind the present situation in astronomy in Bosnia-Herzegovina, we are pleased that we finally started from almost zero. Our main activity “1000 Galileoscopes for 1000 schools in Bosnia-Herzegovina—One Sky for All” will be realised during this year but we don’t think that is a minus. We had bad luck with weather during a few planned public observations but we will repeat them in the coming months.



One of the lectures in Astronomical society Orion during IYA2009.



Organisers of Astronomical Day on Faculty for Physics in Sarajevo. From left to right Nedim Mujic, dr Zalkida Hadzibegovic and Muhamed Muminovic.

During IYA2009 we began reconstructing the astronomical observatory near Sarajevo, which was devastated by war. We have built it once, and we can do it again. We started with various preparatory actions, as project documentation required, clearance of terrain around the object, basic popularisation of astronomy so as many people, especially youths could join this project. For all these actions the Astronomical Society Orion included students and young people. Our plan is that conducting even the smallest sub-phase brings certain results.



Presentation of IYA2009 during winter school for physics teachers in Fojnica, BiH.

Strengthening of the Astronomical Society Orion (the only registered astronomical organisation in BiH) was one of the important goals. Using the programmes of IYA2009 we established our structure. At this moment we have more than 50 active members who will be our human resource for the future.

## Main Activities

### List of Activities

- The beginning of reconstruction of astronomical observatory in Sarajevo;
- 1000 Galileoscopes for 1000 schools in Bosnia and Herzegovina-One sky for all;
- Four days of Astronomy (100 Hours of Astronomy);
- Eyes on the Skies — 400 years of telescopic discoveries (translation into Bosnian language);
- Scientific meeting in Banjaluka “How to understand the Universe: Contribution of astronomical and physical researches”. (Organised by the Department of Physics, Faculty of Science of Republic Serpska);

- Astronomical day by the Faculty of Science in Sarajevo (organised by the Department of Physics, Faculty of Science of Sarajevo University).

### 1000 Galileoscopes for 1000 schools in Bosnia-Herzegovina—One Sky for All

The biggest event in Bosnia-Herzegovina during IYA2009 was the "1000 Galileoscopes for 1000 schools in Bosnia-Herzegovina—One Sky for All" project. With the help of the Royal Norwegian Embassy in Sarajevo, the Astronomical Society Orion (who is also the IYA2009 National Node) purchased 1000 Galileoscopes which will be distributed in primary schools randomly in Bosnia-Herzegovina. Carrying out action of this kind means a large number of schools in BiH will enrich their educational programme with astronomical content, thanks to the sponsorship.

Not having a single serious astronomical instrument, Bosnia-Herzegovina is nowadays a dark spot in Europe. Projects will help the development of astronomy which was on a high level before war. A project started in November 2009 and will be executed during the first half of 2010.



Galileo night on the observatory plateau.

We aim to address knowledge and institutional gaps in astronomy in Bosnia-Herzegovina using donated telescopes. Projects will be realised through special presentations / workshops. We will directly inform teachers about projects, so they can raise interest for practical astronomy among students. Distribution of Galileoscopes will be a very good opportunity to form a network of school teachers who will introduce astronomy in their communities and develop this natural science on the appropriate level in school conditions. By educating teachers in basic telescope techniques we will be able to increase the interest and strengthen the impact of our activities. Presentations will be organised by members of the Astronomical Society Orion and also teachers from some faculties and other educational institutions. Participants will be thoroughly informed about the future use of the Galileoscopes and we will give them all the necessary data.


Full moon over destroyed astronomical observatory Sarajevo.

During presentation / workshops we will have programmes with many elements:

- Introducing lecture about the project, aims, sustainability, founding agency and implementing agency;
- Performance of DVD “Eyes on the Skies”, official IYA2009 film about history of the telescope from Galileo to today;
- Demonstration of assembling the Galileoscope;
- Eventually, depending on weather and other local conditions, we will organise observations of some celestial objects or distant objects on the local landscape.

Organisers: Astronomical society Orion Sarajevo

Estimated number of people who attended or were reached by this activity: 120 000

Budget: 13 000 00 EUR

## Legacy

Our main activity “1000 Galileoscopes for 1000 schools in Bosnia-Herzegovina-One sky for all” will be realised in full during 2010, in frame of “Beyond IYA2009”. Also, we will have more activities during this year.

## Comments

We think that the organisation and organisers of IYA2009 put in a fantastic effort with good results. We received from you much more than we can accept. Thank you once again for your wonderful work.



# Brazil

## National Node

Augusto Damineli (IAG-USP)

www.astronomia2009.org.br

Official Languages
- Portuguese

Number of organising committee members: >11
- Volunteers: 12
- Paid: 0

Population: 192 272 890

Number of people reached by IYA2009: 2 017 927

Budget: 2 000 000 €

Sources:
- Ministry of Science and Technology

## General Overview of IYA2009 activities in Brazil

Astronomy is a new field in Brazil. Research in this field started on regular basis in 1970 and we started to have access to 1st class telescopes a few years ago. For general people, astronomy was even more distant. In recent years, scientists and amateurs started to do more outreach programmes. IYA2009 gave us the momentum we needed. Our government gave generous support and the IYA2009 International Secretariat gave us materials and international insertion. The press responded enthusiastically. Many young people will be driven to a career as astronomers over the next years. They are already asking questions about how to do it.

## Main Activities

### List of Activities

Activities done in 2009:
- XII Brazilian Olympiad of Astronomy and Astronautics;
- Exhibition “Cosmic Landscapes” and “Evolving Universe”;
- Multi event “100 Hours of Astronomy”;
- “Milky Way Marathon” ;
- “Galilean Nights”;
- “Tent of Science” associated events to the XXVII IAU GA in RJ;
- Multi-event “A Body in the Space” (Sao Paulo city);
- Three regional meetings on astronomy teaching;
- Astronomy kits (solar and stellar clocks) 25,000 copies.

Activities extended to 2010:
- Books on general astronomy (three books, 40,000 volumes);
- XIII OBA;
- Galileoscopes for public schools: 20,000 pieces;

- 
- 80 robotic telescopes and CCDs for medium level schools;
- Two regional and one national meeting on astronomy teaching.

## XII OBA — Brazilian Olympiad of Astronomy and Astronautics

This Olympiad had 450,000 students participating in 2008. The size doubled in 2009 because of IYA2009. It involved 10,303 schools and 74,555 teachers.

Organisers: João Canalle and Jaime Villas do Rocha

Website: http://www.oba.org.br/site/index.php







Estimated number of people who attended or were reached by this activity: 860,000

## “Cosmic Landscapes: from Earth to the Big Bang”

This is our version of FETTU. It was composed by 20 1-m² high quality panels printed on micro fibre. We sent 250 copies to the local Nodes who displayed them in 645 places. They were mostly displayed in public schools of 1st and 2nd level. Many of them went to places very isolated in the Amazon region, but some in high class shopping centres and public libraries as well. A panel 5m² large named “Evolving Universe” also was displayed on the side of the “Cosmic Landscapes” panels. We distributed 140,000 leaflets explaining this timeline of Universe evolution.

Organisers: Augusto Damineli

Estimated number of people who attended or were reached by this activity: 565,227

Budget: 130 350 EUR

## Evaluation

We asked to our Local Nodes to announce their activities on the website, and after that to fill an online form. We checked the numbers and interacted with them for clarifications. We had 229 active nodes in every single “state” of the country. From those, 189 submitted reports. Most of the remaining 40 nodes are small, but a few ones are large.

## Lessons Learned

Most of the power for outreach activities in astronomy relies on amateur astronomers. We expected to have 20-30 groups when starting IYA2009 activities, but soon we reached the figure of 160 clubs. They like to work without constraints, but enjoyed to do it in coordination with other groups. The coordination gave them national visibility.

## Legacy

The Local Nodes created a network named RBA (Rede Brasileira de Astronomia) to continue contact. They will offer at least two national activities every year: “The Milky Way Marathon” (dark Moon in July) and “The National Week of Science and Technology” (October). The network will coordinate observations of particular phenomena, like bright comets.

The network is linked to “Beyond IYA2009”.

## Comments

1871 people worked in the Local Nodes. If we account for the 17% of nodes who did not submit reports, this would reach ~2000 people. Those worked all year long. In some activities, like the XII OBA Olympiad, we involved ~75,000 teachers.



# Bulgaria

## National Node

Georgi Petrov

http://www.astro.bas.bg/astronomy09/

Official Languages
- Bulgarian

Number of organising committee members: 6-10
- Volunteers: 6-10
- Paid: 0

Population: 7 560 000

Number of people reached by IYA2009: 14 000

Budget: 20 000 €

Sources:
- European project “Star night”
- UNESCO
- Opticon
- Institute of astronomy, BAS
- NASA project
- Local municipalities funds
- Donations

## Main Activities

### List of Activities

- Official open ceremony of the International Year of Astronomy 2009 in Sofia and Shumen;
- Exhibitions dedicated to IYA2009;
- Scientific conference of the Bulgarian astronomical society;
- International astronomical observational school;
- Second regional practical school on spectroscopy;
- Summer astronomical school “Beli brezi”;
- 35th national astronomical conference;
- Participation of Bulgarian teachers in the First European conference for qualification of schoolteachers — CERN;
- National astronomical Olympiad;
- Several national competitions: “Sensations for astronomy”, “Star hunters”,
- “Cosmically painting” etc.;
- Astroparties “Baycal” and “Stone beach sky”;
- Night astroshow “Sky for all”;
- Astronautic day;
- “We and the International year of astronomy” celebration.

## Opening ceremony of the International Year of Astronomy 2009 in Bulgaria

The Institute of Astronomy and Bulgarian Astronomical Society organised the official opening ceremony of the International Year of Astronomy 2009. It was held on 23 January 2009 in the main hall of the Bulgarian Academy of Sciences where many citizens, scientists, students, journalist etc. took part. An exhibition with many remarkable astronomical images was established at the entrance hall of the BAS. There have been also a lot of pictures from amateur astronomers from astronomical observatories all over the country. Many books, publications and Bulgarian astronomical journals have been presented too.

Organisers: Institute of Astronomy, Bulgarian astronomical association, Peoples astronomical observatories.

Website: http://www.bas.bg/ — video archive (in BG)









Estimated number of people who attended or were reached by this activity: 300 — 500

Budget: 200 — 300 Euros

## Bulgarian version of the exhibition from Earth to the Universe

Remarkable images of astronomical objects have been accompanied by posters concerning many interesting astronomical events. After Sofia, the exhibition was presented in Rouse, Smolyan, and other Bulgarian cities.

Organisers: Institute of astronomy, BAS

Website: http://www.astro.bas.bg/astronomy09/




Estimated number of people who attended or were reached by this activity: Many hundreds

Budget: 1000 Euros

## Ancient astronomical equipment exhibition

Several exhibitions of ancient astronomical equipments, posters, catalogues, atlases, astronomical images and photos have been realised in Shumen, Haskovo, Sofia etc.

Organisers:
National polytechnic museum, University of Shumen, People astronomical observatories.

Estimated number of people who attended or were reached by this activity: 800

Budget: 250 Euros

## International school Rozhen 2009

School teachers and young students from Greece, Macedonia etc. took part in the international school. Observations with Schmidt and 60-cm Cassegrain telescopes, first reduction steps, basic knowledge of the Universe etc. have been part of activities of this annual event.

Organisers: Institute of Astronomy, BAS, Innovative teachers' organisation

Website: http://www.innovativeteachersbg.org/

Estimated number of people who attended or were reached by this activity: 50

Budget: 100 Euros

## XXXVth national astronomical conference — Varna

At the end of June, 2009 ca. 100 participants from all over the country took a part in the 35th annual astronomical conference. Ca. 40 reports and 5 posters have been presented. Amongst the organisers was the Information Centre of the US Embassy. Minister N. Vassilev was a special guest of the conference.

Organisers: People astronomical observatory — Varna

Website: http://astro-varna.com

Estimated number of people who attended or were reached by this activity: 100

Budget: 1000 Euros

## National competition "Sensation for the Universe"

Ending June 2009, the two-division national competition "Sensation for the Universe" was held in Shumen. First division: sci-fi novels, essays, poetry etc. Second division: pictures, cosmic models, design etc. There were three groups of participants divided by age: under 14, 14 to 19, and above 19. Winners were decided by the special jury and rewarded by the Mayor of Shumen.

Organisers: Municipality of Shumen, University of Shumen, Regional library and Unified children complex — Shumen

Website: http://astro.shu-bg.net/

Estimated number of people who attended or were reached by this activity: 200

Budget: 1000 Euros

## Star Night 2009

A lot of events in Sofia, Shumen, Haskovo, Varna, Silistra, Yambol, Smolyan etc. were organised during the International Star Night. Tremendous interests of many people, different discussions, exhibitions, public lectures, astronomical movies etc. have been presented.

Organisers: Institute of Astronomy, Universities in Sofia and Shumen, astronomical observatories

Estimated number of people who attended or were reached by this activity: 10 000

Budget: 8 000 Euros

## Participation in the Regional astronomical meeting, Belgrad 2009

From 28 to 30 September 2009, an annual regional astronomical meeting was held in Belgrade, Serbia. Ca. 20 Bulgarian astronomers took a part with invited reports, posters etc. Partially supported by UNESCO and project SmartNet of the National Science Fund.

Organisers: Astronomical observatory — Belgrade

Estimated number of people who attended or were reached by this activity: 20 Bulgarian professional astronomers

Budget: 1500 Euros

## Astroparties

Several astroparties, including “Baycal” and “Stone beach”, night astroshows, day of astronautics and many events under the Galileoscope initiative carried out during IYA2009.

Organisers: Astronomical observatories, local municipalities

Estimated number of people who attended or were reached by this activity: 2000

Budget: 1000 Euros

## Second regional spectroscopy conference

From 5 to 11 October 2009 the second regional practical school on spectroscopy was held in the National Astronomical Observatory — Rozhen. Ca. 50 professional astronomers, PhD students and students from seven countries took part in lectures, observations, astronomical reduction data etc.

Organisers: Institute of Astronomy, SREAC

Estimated number of people who attended or were reached by this activity: 50

Budget: 10 000 Euros



# Cameroon

## National Node

Donatien Njomo
University of Yaounde I
dnjomo@usa.net

Official Languages

- French
- English
-

Number of organising committee members: N/A

Population: 18 879 301

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Cameroon

Information not available.

# Canada

## National Node

James E. Hesser (National Research Council Canada)

www.astronomy2009.ca/

Official Languages
- French
- English

Number of organising committee members: 6-10
- Volunteers: 6
- Paid: 1

Population: 34 043 000

Number of people reached by IYA2009: 2 000 000

Budget: 350 000 €

Sources:
- Partner membership (CASCA, FAAQ, RASC) fundraising
- Trottier Family Foundation
- Canadian Space Agency (CSA)
- National Research Council (NRC)
- Proposals to Natural Sciences and Engineering Research Council (NSERC)
- University of Calgary
- Lumec
- The vast majority of IYA support was in-kind through volunteer hours

## General Overview of IYA2009 activities in Canada

Canadian preparations began in late 2005 by the partnership of the Canadian Astronomical Society (CASCA), Fédération des astronomes amateurs du Québec (FAAQ), and the Royal Astronomical Society of Canada (RASC), collectively representing 210 years of EPO experience.

Our vision, “To offer an engaging astronomy experience to every person in Canada, and to cultivate partnerships that sustain public interest in astronomy,” was accompanied by the ambitious goal that at least 1,000,000 persons would experience an engaging astronomy activity or Galileo Moment (GM). The key partners, collaborators and volunteers throughout the land (see the map), provided more than 3600 diverse events delivering 1,931,439 reported GMs, exceeding our most ambitious expectations.

Those events included looking at the sky with the naked eye, binoculars or through a telescope; interactions with schools; exhibits of stunning Canadian astronomical images; collaborations with musical groups, theatres and artists; and many more. IYA2009 was blessed with thousands of enthusiastic volunteers and collaborators in the form of amateur and professional astronomers, graduate students, educators, members of the arts communities and parks systems, the media, and countless others. Event planners were encouraged to consider how to leave an impact that would last well beyond 2009, which they took to heart. The larger legacy initiatives include projects in formal and informal education, Dark Sky Preserves, with underserved youth and Aboriginal communities, and more.

## IYA2009 in Canada — By the Numbers

- Reported Galileo Moments: 1,931,439
- Reported Events held: 3589
- Event liaison count (midyear): 324
- Names to be launched into space on NEOSSAT: 10 955
- Promotional posters printed: 10,000 English / 3500 French
- Astronomy trading cards printed: 700,000 (100,000 each of seven types)
- Mary Lou's New Telescope books printed: 16,000 English / 7000 French
- Star Finders printed (1st print run): 70,000 English / 20,000 French
- Star Finders printed (2nd print run): 123,000 English / 52,000 French
- Sidewalk Astronomer Booklet printed: 24,000 English
- Canada Post IYA2009 stamps printed: 6 million (300,000 souvenir sheets)
- Royal Canadian Mint IYA2009 silver coins made: 10,000
- Dark Sky Preserves designated: 4
- "Galileo Live!" planetarium shows delivered: 579
- CASCA-organised national Galileo Lectures: 22
- FAAQ-organised Galileo Lectures in Québec: 23
- CAP-CASCA astronomy-focused lectures: 31
- CSA astronomy themed workshops: 31

# Main Activities

### List of Activities

Rather than listing all 3600, let me say they could be loosely grouped in four categories:

- Reconnecting with the sky;
- Reaching new audiences;
- Sharing Canada's astronomical research successes;
- Improving educational tools and opportunities.

## Galileo Moments and Bilingual Website

One of the most useful and innovative tools of IYA2009 in Canada was the Galileo Moment (GM). It was simultaneously a way of defining the goals of IYA2009, a template for event organisers to understand the possibilities and parameters of IYA2009, and a tool for measurement and evaluation. As the GM counter on our web site steadily increased as IYA2009 progressed, it inspired participation, too.

Essentially, a GM was "an engaging astronomy experience" during IYA2009: looking through a telescope for the first time, attending a concert or art exhibit that entertained and educated about astronomy, being in the audience at a lecture, school visit or planetarium show, and so on. GM events were designed to make a complex science real and accessible by reminding people of the child-like wonder that looking at the skies inspires. A total of 3589 registered events were organised by well over 250 individuals, groups or coalitions of groups. Event organisers registered their event's GMs on the Canadian IYA2009 website.

The Executive Committee originally set a goal that 1,000,000 Canadians would experience a GM during 2009. That goal was formally surpassed on October 27, with two months to go! The GM counter registered 1,931,439 at the end of IYA2009. Due to the outstanding efforts of event organisers throughout Canada, most of them volunteers, our initial goal was nearly doubled! And the GM count does not include the millions of Canadians who were exposed to astronomy through diverse media events.

The official bilingual website, www.astronomy2009.ca, was designed on the Joomla! content-management platform, and was maintained through the generosity of the Planétarium de Montréal and hosted by the Université de Montréal. Our policy was to publish all content in English and French simultaneously.

Organisers: Marc Jobin, Andrew Woodsworth, Kim Breland

Website: www.astronomy2009.ca



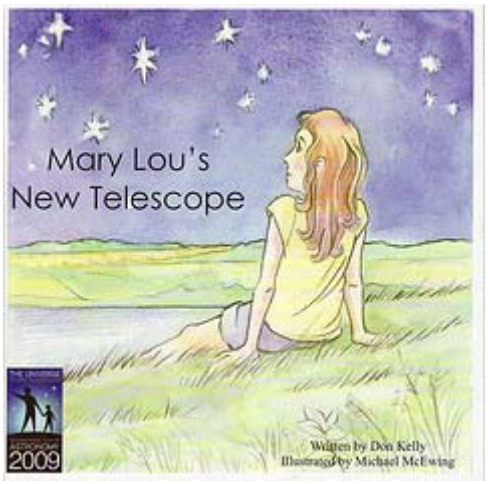

Estimated number of people who attended or were reached by this activity: 48,000 visits (33,000 unique visitors from nearly every country on Earth)

## Bilingual Education and Public Outreach Materials

The beautiful and extremely popular EPO materials — Astronomy Trading Cards, Mary Lou's New Telescope, and Star Finders — were a true success for IYA2009 in Canada. The materials were developed through an RASC funding competition open to any of their Centres and members. The winning projects were further developed into a series of high-quality, bilingual resources. The translation was done by FAAQ volunteers. About $100,000 was invested from various funding sources to allow these materials to be distributed for free at IYA2009 events. EPO materials were available free of charge to IYA2009 partners (RASC Centres, FAAQ Clubs, University/CASCA Liaisons, Science Centres) who registered activities on the Events Database.

The Star Finder (or planisphere) allows users to see the patterns of the stars visible at any date and time. It was developed by a team that added features and information to a version from the National Research Council's Canadian Skies poster (http://www.nrc-cnrc.gc.ca/images/education/cdnsky1_e.jpg). The companion website, www.star-finder.ca, shows how easy it is to use, and provides additional interesting information. The Star Finders will provide years of educational entertainment to all who received them.




Mary Lou's New Telescope: This full-colour children's book is aimed at making young people aware of the problems caused by light pollution. For more information see www.rasc.ca/mlnt.

Astro Cards: Seven beautiful cards modelled after hockey trading cards show full-colour images (most taken by Canadians) of the Sun, the Moon, Jupiter, Saturn, a star cluster, an emission nebula and a galaxy, with educational text in both languages. The Astro Cards can be viewed at: http://www.rasc.ca/astro-card Anyone who received an Astro Card could visit our website and register their name to be sent into space on a Canadian Space Agency mission in 2010; 10 955 people did so.

Promotional Posters: These eye-catching full-colour 11" x 17" posters were designed to facilitate promotion of local IYA2009 events in either French or English. They had a blank space to customise with information about local events, and were available for download from the website. Limited numbers were printed and distributed to RASC centres and FAAQ clubs.

Sidewalk Astronomer booklet: This black and white, English booklet designed for distribution at viewing events contains basic viewing and astronomy tips with contact information for all RASC Centres. Geared to younger children as an entry to astronomy, the eight-page booklet listed simple observations and a viewing log that a novice could fill out and send to the RASC for verification. A certificate would then be sent to the participant. The booklet can be downloaded at www.rasc.ca/sidewalkastronomer

Organisers: RASC: Brian Battersby, Ted Dunphy, Paul Gray, Kim Hay, Marc Keelan-Bishop, Don Kelly, Remi Lacasse (FAAQ), Lise Lacasse (FAAQ), Dave Lane, Damien Lemay (FAAQ), Ron Macnaughton, Chris Weadick, and Jennifer West.

Website: www.star-finder.ca / www.rasc.ca/mlnt / http://www.rasc.ca/astro-card / ww.rasc.ca/sidewalkastronomer

Estimated number of people who attended or were reached by this activity: Perhaps 150,000 during IYA2009 but each product has a long-lived multiplier effect

Budget: 100€ for printing and distribution

## National Lecture Series

The Galileo Lecture Series (GLS) was organised and funded by CASCA. It enabled communities large and small to bring top researchers (who are also excellent public speakers) from Canadian institutions to present their outstanding science in an engaging way. The two goals of GLS were to introduce the excitement and reach of modern astrophysics to non-traditional audiences, and to provide a legacy for the hosts and the greater community. Two widely advertised competitions for communities to apply to enjoy GLS lecturers were held by CASCA, resulting in 22 official GLS events. The venues ranged from established urban science centres to high-schools in the arctic. Many GLS lecturers voluntarily gave additional talks in other venue and/or communities based upon their GLS presentations.

FAAQ Lectures: The FAAQ organised an independent Série de Conférences Galilée in which nine French-speaking astronomers presented 23 public lectures throughout Québec during 2009 (see http://www.faaq.org/2009/conferences.htm).

CAP-CASCA Lectures: CASCA partnered with the Canadian Association of Physicists (CAP) to provide a special joint lecture tour, with a focus on astronomy, for undergraduate students. By pooling the resources of the two societies, they were able to expand on the highly successful annual CAP undergraduate lecture tour and bring the excitement of modern astrophysics to students and faculty at 31 colleges and universities.

Organisers: CAP, CASCA, FAAQ



Estimated number of people who attended or were reached by this activity: 12 000

## Canadian Astronomy Image Collection

Canadian astronomers, both professional and amateur, produce a wealth of superb images that we wished to share with Canadians, who primarily see images from international sources. A national group of astronomers and visual artists set out to solicit and select the best Canadian images. These were made available for use without cost for educational purposes during IYA2009 and access continues for Beyond IYA2009 activities. The image gallery can be seen at http://www.galaxydynamics.org/IYA2009.



Credit: Alan Dyer

Organisers: Michael Bietenholz (curatorial team Chair; astronomer, York University, ON); John Dubinski (astronomer, University of Toronto, ON); Rémi Lacasse (amateur astronomer, IYA2009 Executive Committee, QC); Robin Kingsburgh (lecturer, artist, astronomer, Ontario College of Art and Design, York University, ON); Jay Anderson (editor Journal of the Royal Astronomical Society of Canada, MB); Jonathan Dursi (astronomer, Canadian Institute of Theoretical Astrophysics, ON); Reva Stone (artist, curator, Winnipeg, MB); Yuichi Takasaka (photographer; BC)

Website: www.galaxydynamics.org/IYA2009

## Sidewalk astronomy and other Galileo Moment opportunities

One of the most enduring methods of engaging the public is to go to where they are and offer them a chance to look through a telescope. Many Canadians had never had a chance to do this before, and the “ah ha!” moment of wonder and delight that ensued opened the door to astronomy for many. During IYA2009 members of the RASC and FAAQ doubled their usual number of viewing events and school visits. Independent clubs also put on many similar events. They set up their telescopes outside lectures and cultural events to enhance the experience for attendees. “Star busking” groups of “guerrilla astronomers” spontaneously set up at busy downtown locations, shopping malls, etc., whenever conditions were good. Viewing sometimes complemented a larger event like a concert or lecture. Galileo Moments at viewing events were hard earned by tireless, enthusiastic volunteers to whom IYA2009’s success owes so much.

In several cities, (e.g., Victoria, Calgary, Toronto, Kingston, Montréal, and Halifax), a coalition was created to pool resources and support each other when putting on IYA2009 events. Coalitions included professional and amateur astronomers, academics, science centres and/or planetarium staff. In smaller centres throughout Canada, a single person sometimes took on IYA2009 for their area, reaching out to schools and the broader community with great effect.



Observatories on university and college campuses frequently opened their doors for open houses across the country, allowing the public to look through bigger telescopes. Independent of the Galileo Lecture Series, Canadian professional astronomers gave many lectures throughout Canada, while encouraging their graduate students to engage the public, often in very ingenious ways.

Organisers: RASC, FAAQ, independent astronomy clubs; universities, colleges; science centres; etc.

Website: http://www.astronomycalgary.com/ and http://www.astronomynovascotia.ca/

Estimated number of people who attended or were reached by this activity: hundreds of thousands

## Outreach to Aboriginal Youth and to Underserved Youth broadly

Our early desire to feature Canadian Aboriginal, Métis and Inuit understanding of astronomy alongside modern science received inspiration and guidance from innovative work in biology and ecology in the Integrative Science programme of Cape Breton University (CBU) and their associated Mi'kmaq College Institute. The vision commences with bringing Elders and youth together to share night sky stories, as demonstrated by Mi'kmaq Elders and CBU through their Muin video premiered at the IYA2009 media launch on 8 January 2009, hosted by the Canada Science and Technology Museum (Ottawa). The Mi'kmaq legend of Muin and the Seven Bird Hunters was broadcast to school children over the Aboriginal Educational Television Network. This beautiful animation of the traditional story was brought to life through the loving efforts of Elders and a Cape Breton University artist who worked throughout 2008 to prepare its release on our website in the first days of 2009. This presentation symbolises the richness and insight that comes from "two-eyed seeing," the simultaneous awareness of both western science and traditional knowledge. It has been shown in many First Nations venues throughout Canada since the IYA2009 launch, both to share the Mi'kmaq approach and to encourage others from coast to coast to coast to follow suit. It may be downloaded from our archive, www.IYA2009.astrosci.ca, or from Cape Breton University, http://msit.capebretonu.ca/; a copy was provided to all CAP2010 participants, as well.

We further hope to encourage and support Aboriginal communities to act to preserve areas that currently have little or no light pollution, and to promote these "dark sky" areas as an accessible cultural and scientific resource

for community youth. This theme reinforces that Aboriginal peoples view the sky in a relationship of reciprocity with the Earth. Finally, following research into effective ways of helping Aboriginal youth succeed in the education system, we seek to create visual educational pathways for Aboriginal children and youth who wish to pursue dreams to become scientists. They will show how and why one must proceed from one educational context to another as one pursues a science education, understanding that these paths should respect and include both mainstream and Indigenous knowledge. A number of other outcomes bode well for our quest for a long-term educational partnership through astronomy with Canada's Aboriginal peoples:

- Aboriginal educators at the Manitoba First Nations Education Resource Centre created a First Nations IYA2009 calendar based (predominantly) upon Cree knowledge that they shared with some 57 First Nations schools and their 10,000 students. See: http://www.mfnerc.org/images/stories/FirstNationsJournal/Volume2/008_buck.pdf
- Under the auspices of the National Association of Friendship Centres, a Nova Scotia television producer teamed video camera technology and Aboriginal Youth so they could gather night sky stories from Elders across Canada to appear on the website : http://www.storiesofthenightsky.ca/.
- The Calgary IYA2009 partnership formed a collaboration with the new Blackfoot Crossing Historical Park for night sky viewing and Siksika Nation story telling. Authentic native sky lore is now incorporated into TELUS World of Science programmes and two "Siksika Skies" nights are planned in 2010 at the Park with additional activities at the Rothney Astrophysical Observatory.
- Astronomy North and the CSA initiated The Legendary Sky Project honouring the skies over the Northwest Territories, and announced AuroraMAX, a new virtual observatory that will broadcast the Northern Lights live and in colour, on the CSA's website, along with a range of outreach tools to help teach the science of the aurora.

It's relatively easy to do EPO in schools, science centres, libraries and other places where one finds youths who are already in the educational system. But there are many who do not have access to resources, and who are not reached by regular educational channels — for example, inner-city or remote rural youth, those in hospitals and institutions, those who are new to Canada and don't speak either official language, Aboriginal youths, and so on. The Underserved Youth Project aims to reach out to these young people who are invisible to the usual EPO approaches.

A three-year PromoScience grant from NSERC awarded in 2009 is enabling us to focus on Beyond IYA2009 legacies for underserved youth. In particular, we've hired a part-time, bi-lingual coordinator experienced in both informal and formal astronomy education.

Organisers: Cheryl Bartlett; Mi'kmaq Elders Albert, Murdena and Lillian Marshall; Sana Kavanagh, Prune Harris (all of Cape Breton, NS)

Website:

- www.IYA2009.astrosci.ca
- http://msit.capebretonu.ca
- http://www.mfnerc.org/images/stories/FirstNationsJournal/Volume2/008_buck.pdf;

## Postal stamps and commemorative coin

Drawing on the wealth of spectacular Canadian astronomical images, artists at Canada Post designed two lovely stamps depicting observatories important to the development of modern astronomy in Canada. Six million stamps and 300,000 souvenir sheets were printed. Supporting material relied on gorgeous images from the Canada-France-Hawaii Telescope. The stamps were officially unveiled during 100 Hours of Astronomy when school children sent mail to observatories around the world using the stamps.

The Royal Canadian Mint's stunning sterling silver $30 IYA2009 commemorative coin was issued in July. The Mint held launching events for the 10,000 coins at TELUS World of Science (Edmonton) and Griffith Observatory (Los Angeles) in early August.

Organisers: Jim Hesser, John Percy, Jayanne English

Websites:
http://www.canadapost.ca/cpo/mc/personal/collecting/stamps/2009/2009_apr_astronomy.jsf;
http://www.mint.ca/store/coin/30-sterling-silver-coin-international-year-of-astronomy-2009-prod650001







Estimated number of people who attended or were reached by this activity: millions

## Communicating astronomy through theatre

IYA2009 in Canada was enriched and made more widely accessible by embracing new ways of presenting science to the general public. Galileo Live!, the first live planetarium show to be co-produced by planetaria across Canada, was experienced by 32,814 people attending 579 presentations during its 10-month run. Galileo Live! successfully proved that a planetarium programme can combine both science and the arts, and be funded and staged nationally. In addition to this major new, highly successful, experiment, IYA2009 stimulated diverse activities of more traditional approaches at Canadian planetaria and science centres that were well received (e.g., >60,000 attended Ontario Science Centre planetarium presentations).



A new, full-length play, The Moons of Jupiter, by a University of Victoria playwright, portrayed the family dynamics between Galileo and his children, particularly two daughters secluded in a Convent in Florence, and drew parallels between the family dynamics and Galileo's scientific work.

Organisers: Galileo Live: Alan Dyer, Pierre Chastenay, Scott Young; The Moons of Jupiter: Jennifer Wise

Website:
http://www.calgaryscience.ca/exhibits/dome_details.php?FilmID=694;
http://www.planetarium.montreal.qc.ca/Affiche/Spectacles/galilee_a.html;

Estimated number of people who attended or were reached by this activity: 93,000

## Cool Cosmos and Embedded Universe

This public transit information campaign from the University of Toronto's Dunlap Institute created quite a buzz in Canada's two largest cities. Each "ad" in the series of five showed an intriguing image with a catchy tag line that piqued viewers' curiosity. CoolCosmos' unconventional approach was aimed at the vast majority of people for whom the science of astronomy doesn't enter daily life, reminding them about our cosmic connections. 3000 ads were displayed, many for months, on Toronto's public transit vehicles, which provide over 35 million rides each month. It is estimated that at least several hundred thousand riders actively engaged with the ads, 50,000 bookmarks with the same designs were distributed, and the website had nearly 100,000 hits. A French version, with large display ads, was mounted at five busy metro stations in Montreal, in collaboration with Centre de Recherche en Astrophysique du Québec.







A professional-quality blog by a distinguished science journalist, "Embedded Universe, Reports from a journalist working among astronomers", with associated podcasts, "The Universe in Mind", was also launched through the Dunlap Institute as part of their IYA2009 contributions. These efforts continue as we transition to Beyond IYA2009 and are available at http://www.di.utoronto.ca/journalist/.

Organisers: Cool Cosmos: Ray Jayawardhana; Embedded Universe: Ivan Semeniuk

Website: http://www.di.utoronto.ca/

Estimated number of people who attended or were reached by this activity: hundreds of thousands

## Support for formal education

Astronomy is part of the curriculum in elementary and secondary schools in most parts of Canada, and millions of school children are exposed to astronomy in this way. But few teachers have any background in astronomy or in teaching it. A focus of Canadian IYA2009 was to support teachers in 2009 and well beyond. CASCA maintained its education website www.cascaeducation.ca and held a teachers' workshop at its annual conference. IYA2009 volunteers delivered hundreds of in-school and after-school programmes, and RASC updated and reprinted its

“SkyWays” guide for teachers (a copy was given to every school in Alberta). CSA held 31 astronomy-themed workshops (on-site, off-site, and tele-learning) for students and teachers that reached 5778 participants, while NRC expanded its national Marsville tele-learning programme . Both augmented their extensive online resources and contributions to National S&T Week success. Science centres and planetariums—a major source of support for teachers and students across the country—redoubled their efforts. And teachers attended and benefitted from many of the IYA2009 events across Canada, thus multiplying the impact of IYA2009 on formal education.

In support of the IYA2009 global Cornerstone project “Galileo Teacher Training Program”, teachers’ summer institutes were held at Saint Mary’s University in Halifax and at the University of Toronto. In Ontario, the secondary school science curriculum was revised for 2009, with an experienced astronomer educator playing a major role. At the 2009 Science Teachers Association of Ontario and of the Association pour l’enseignement de la science et de la technologie au Québec IYA2009 was featured, resulting in an unusually large number of sessions on astronomy and space. As well, IYA2009 collaborators distributed educational materials. These teacher training efforts will continue and intensify during the Beyond IYA2009 years.

The National Research Council updated their popular Canadian Skies poster, with its activities for teachers and students. Throughout Canada, at teachers’ conferences, in schools, and at public events NRC distributed 11,441 posters (twice as many as during 2008), experienced a 30% increased in web hits, and distributed 1100 RASC-FAAQ Star Finders.

The Canadian Space Agency produced a new bilingual educational poster, Secrets of the Night Sky, to commemorate IYA2009. In addition, Canadian astronauts Julie Payette and Robert Thirsk promoted IYA2009 during their visits to the International Space Station; from the ISS Dr. Thirsk prepared a video inviting people of Earth to participate in IYA2009 activities (http://www.youtube.com/watch?v=CiJfyevRjj8&feature=related). By emphasising Canada’s contributions to space astronomy missions, the poster nicely complements NRC’s poster. Since distribution began in June, students, teachers and the public received 6300 copies. Together these posters are reaching hundreds of thousands of young Canadians, providing another strong IYA2009 legacy.

Organisers: John Percy, Heather Theijsmeijer, Ruth Ann Chicoine, Margaret Kennedy, Rob Thacker

Website:
www.cascaeducation.ca; http://www.rasc.ca/education/teachers/index.shtml
http://www.youtube.com/watch?v=CiJfyevRjj8&feature=relate

Estimated number of people who attended or were reached by this activity: Posters, etc. 50,000 during IYA2009 with on-going high-leverage impact through teachers and re-use of distributed materials; no way to measure impact of astronaut activities but they are surely very high.

## Heavenly Arts and Entertainment

A striking feature of IYA2009 in Canada was the number of events bringing astronomy to a much broader public—both children and adults—through music, art, imagery and theatre. Many musical groups and orchestras in Canada presented programmes during the year touching upon astronomy and its history. Canadian physicist Diane Nalini, a talented jazz vocalist, issued her fourth CD whose songs all invoke astronomical imagery. Holst’s perennial favourite, The Planets, was heard on stages throughout Canada, creating opportunities for informal astronomy education. The University of Toronto’s Opera School produced Haydn’s Il Mondo della Luna. The Victoria Symphony’s educational programme , Music of the Spheres, integrated astronomy with lively astronomy-themed music appealing to kids; it was presented both on Vancouver Island and in Toronto to more than 27,000 students. Canada’s world renowned Tafelmusik Baroque Orchestra created The Galileo Project, an imaginative programme celebrating IYA2009 through music, stunning images, choreography, and theatrical narration. An exemplary illustration of the deep historical, societal, scientific, and aesthetic dimensions of astronomy, Galileo Project performances are continuing well beyond 2009 in other countries and languages. A video recording will soon be freely available to accompany the audio available on CBC radio archives. Both the Victoria and Tafelmusik orchestras created Teachers’ Guides that integrated astronomy and music in a curriculum-appropriate and engaging manner for young people.

Many national or regional hosts prepared radio programmes broadcast by Radio Canada (RCI, French) and CBC (English) linking IYA2009 with broader cultural themes, in addition to excellent local and national spots focused on

upcoming IYA2009 events. At the beginning of the year the CBC's national English science correspondent, Bob McDonald, highlighted IYA2009 on The National (the prime news broadcast), and The Sunday Edition interviewed physicist and chanteuse Diane Nalini about IYA2009. On 26 March the Esprit Orchestra broadcast a world premiere of Big Bang, a work commissioned by CBC from Andrew Staniland. Throughout the year RCI's Annees Lumiere featured Québec professional and amateur astronomers discussing IYA2009 and astronomy activities in the province. In October award winning science journalist Dan Falk's two-hour examination of Galileo's impact, Looking Up, was featured on CBC, while throughout the summer another science journalist, Andrew Fazekas, was featured weekly on national radio during the Wednesday afternoon commute across Canada. Archives ensure continued access to many of the national programmes.

Website:
Nalini: http://www.kissmelikethat.com/
Victoria Symphony Teachers' Guides: http://IYA2009.astrosci.ca
Tafelmusik Teachers' Guides: http://www.tafelmusik.org/education/teacherstudy.htm

Estimated number of people who attended or were reached by this activity: Victoria Symphony & Taflemusik concerts: 43,000; no way of ascertaining audiences for the various radio and TV elements.

## Astronomical Exhibitions

In the spirit of the international FETTU Cornerstone, successful exhibitions of many different scales were created throughout Canada during IYA2009 by organisations that included science centres, art galleries, libraries and shopping malls. Science centres mounted major exhibitions employing large-format printed images that generated opportunities for Canadians of all ages to engage their minds in fun way. For example, Toronto's Ontario Science Centre helped launch IYA2009 in Canada on 10 January 2009 with a major exhibition featuring images from the Canadian Astronomy Image Collection that attracted 1500 that day. Québec City's Museum of Civilization hosted an extremely popular exhibition, Extraterrestrials. What if?, that attracted >422,000 during its seven-month run. An exhibition, "L'Astronomie et les Hommes," was made available by the FAAQ during IYA2009. The response was excellent and, as a result, the display travelled to 21 different cities during the year. It will continue to be available during 2010. In Victoria three FETTU exhibits used wide-screen LCD monitors provided by Sony Style, which allowed a larger number of the beautiful images to be exhibited at two major shopping centres and the Airport, while bypassing the printing costs.



The Magic of Lanterns: Traditional Chinese Astronomy;, in collaboration with the Planetarium and Montréal's Botanical Gardens, created a unique IYA2009 event that drew large crowds from 11 September through 1 November. Lanterns inspired by classic images from Chinese astronomy and instruments from the Beijing Ancient Observatory allowed visitors to explore the mythological and scientific dimensions of traditional Chinese astronomy and how it compares with Western science. Every Thursday evening FAAQ members provided telescopic viewing opportunities.



Estimated number of people who attended or were reached by this activity: 500,000

### Dark Sky Preserves

RASC volunteers with the support and cooperation of Parks Canada were hard at work well before IYA2009 preparing guidelines for creation of Dark Sky Preserves (in areas remote from urban centres, including national or provincial parks) and Urban Sky Parks (with diminished, astronomy-favourable lighting for enhanced enjoyment). The goal of Dark Sky Preserves is to promote the reduction in light pollution, demonstrate night-time lighting practices, improve the nocturnal environment of wildlife, protect and expand dark observing sites for astronomy, and provide accessible locations for the general public to experience the naturally dark night sky.

Those multi-year preparations resulted in four new Dark Sky Preserves being added in 2009 to the seven previously recognised ones:

- Kouchibouguac National Park Dark Sky Preserve, NB;
- Bruce Peninsula National Park and Five Fathoms National Marine Park Dark Sky Preserve, ON;
- Mt. Carleton Provincial Park Dark Sky Preserve, NB;
- Grasslands National Park Dark Sky Preserve, SK.

FAAQ members also worked hard in the year leading up to IYA2009 to prepare for dark skies promotion and education. During IYA2009 the FAAQ pioneered free workshops, one each in Montréal and Québec City, to present outdoor lighting regulations that Québec municipalities could implement and the rationale for doing so. Letters of invitation were sent through professional associations (landscape architects, town planners, engineers, etc.) Attendance was significantly greater than expected. Employees of different municipalities are already requesting at least two more workshops in 2010.
Efforts to increase dark skies preserves are a focus of Beyond IYA2009 activities in Canada by both the RASC and FAAQ.
In addition to Mary Lou's New Telescope (mentioned previously under new educational materials), a set of nine informative, light pollution information cards were created by Victoria's RASC Centre for education at public events and made widely available (see http://victoria.rasc.ca/LPA/Default.htm).

Organisers: RASC, FAAQ light pollution abatement committees.

Website:
http://www.rasc.ca/light/
http://victoria.rasc.ca/LPA/Default.htm
http://www.faaq.org/menucielnoir/cielnoir.htm

### Reconnecting With the Sky

A high percentage of the GMs arose from the efforts of amateur astronomers, university and community observatories, and students to go all-out to offer Canadians opportunities to see celestial objects through a telescope. The contributions of Canadian amateur astronomers in providing opportunities for members of the public to have an enjoyable astronomy observing experience were exceptional. These opportunities began in the middle of a Canadian winter, and ended with the New Year's Eve "Blue Moon", also in mid winter. In acts of "guerrilla astronomy" many took their telescopes to the people, in shopping mall parking lots, downtown sidewalks, and so on. They provided viewing activities at concerts, plays, planetarium shows, in parks throughout Canada, and many more locations. The bilingual Astronomy Trading Cards and Star Finders (described earlier) distributed for free at these events were designed to pique the recipient's interest, leading them to continue to learn about the splendours of the Universe. Astro Card information also allowed people to register their name to be launched in 2010 aboard the Canadian Space Agency's NEOSSAT.

Organisers: hundreds throughout Canada.
Estimated number of people who attended or were reached by this activity: tens of thousands

## Evaluation

- In August we sent a nine-question IYA2009 Mid-Year Survey to 324 liaisons to gauge how those most intimately involved judged it was going and what mid-course corrections might be needed. The 39% response rate is indicative of a high level of interest and ownership, particularly since the survey fell during the late summer when many respondents were away from work and work e-mail. The responses showed

that the people creating IYA2009 events and programmes were generally satisfied and did not offer suggestions for major changes during the remaining months.
- Very positive feedback received in Jan-Feb 2010 as we prepared our national report which provided the material reported in this submission to the IAU IYA2009 Secretariat.

## Lessons Learned

### Accessing electronic audiences

Our volunteers designed, implemented and maintained an attractive bi-lingual website that provided the envisioned functionality and received 48,000 visits (33,000 unique visitors) from nearly every country on Earth. Experience showed that the public didn't use the national website's database to find IYA2009 events or news as much as we had anticipated. However, local clubs, media, and websites proved to be effective at providing information about IYA2009 activities in their areas, and from May onwards we shared national news and perspectives of upcoming IYA2009 programmes via the liaisons network on a weekly basis using the IAU IYA2009 Secretariat's updates as a basis. However, creation of the national events database on our website was remarkably worthwhile. The Galileo Moment counter measuring the cumulative event attendance proved a simple yet exceptional way to communicate IYA2009's cumulative success as the year progressed.

Lessons:
- Build in a way to measure impact in concrete numbers and implement it from the first day;
- Use software that provides statistics quickly and easily;
- Decide in advance what granularity (level of reporting detail, e.g., weekly, monthly, quarterly) you need and build appropriate information-collecting tools / forms;
- Use a real-time counter / thermometer / etc. to show the building momentum and success;
- Make the process user-friendly and the software compatible with all browsers;
- Build in a way for reminders to be sent automatically every month to contributors whose information is incomplete;
- Ensure that key people have access to the newest statistics whenever they want them.

We ensured that all articles and updates were published simultaneously in both English and French. The translations placed a lot of work on our Québecois volunteers, particularly the two FAAQ members of the EC. They always managed to respond promptly, but it sometimes meant doing large amounts of text on short notice. Lesson: for a bilingual website, ensure that:
- ALL content is translated — ideally by professional translators whose text is then checked by "native-speaking" volunteers;
- Content in both languages is published simultaneously;
- Articles are planned and written far enough in advance to avoid placing an undue burden on the translators.

During planning stages our Executive Committee and Advisory Board recognised the importance of new media for communication, e.g., blogs, social networking sites, twitter, etc. An IYA2009 Facebook group was started, but languished from lack of attention (it needed an enthusiastic champion). Initial graduate student enthusiasm for IYA2009 blogs unfortunately fared a similar fate. Lesson: large events, especially ones that cover large amounts of geography and/or time, need a committed lead who understands the potentials for new technologies like social networking tools, and who maintains presence and content throughout the duration.

Along with our national IYA2009 website, we also established list servers for relevant groups which represent a legacy for Beyond IYA2009 communications. We used these to distribute a weekly update to our various liaisons describing upcoming Canadian activities, as well as international IYA2009 activity news provided by the IAU IYA2009 Secretariat.

### Communications

Given the requirement that we gave ourselves to communicate nationally in both official languages, it would have been more effective and efficient to have a fully bilingual programme manager and SPoC. Within our constraints, achieving these goals proved to be unrealistic, and we are grateful for the volunteers who ably assisted with

translations. Nonetheless, planning future activities of this scale where communicating in both official languages is essential, we would stress the importance of a bilingual programme manager.

### School Astronomy Kit

Our 2007 vision of the Astronomy Kit was for a single, engaging, dynamic resource, conforming to curricula throughout Canada that would help teachers with a subject that often daunts them. A team of volunteers spent many hours developing concepts and consulting with teachers, who indicated a preference for a physical kit accompanied by web resources. We came to realise that a physical kit was beyond our volunteers' capacity. In hindsight two requirements appear to have been necessary to pull this ambitious goal off: a) a champion with broad experience in developing such material and time to focus on it, and b) a realistic business model and budget, such as might have come from partnering with a company early in the development process.

### Galileoscope

We had hoped to facilitate at the national level in Canada the purchase and distribution of the international Galileoscope (https://www.galileoscope.org/gs/) Cornerstone project for, e.g., use in the Astronomy Kit or large-scale spring-summer outreach. Aspects of the adopted business model, delivery delays (it was mid year before the first orders started to arrive) and customer service meant that few organisations felt able to place orders. Nonetheless, the Galileoscopes that made it to Canada during IYA2009 were well received and their quality and strong EPO potential likely will result in many more being ordered for Beyond IYA2009 activities.

### Coordination vs. Control

We determined early in the process that in a country as large as Canada with two languages and six time zones that a national committee cannot control what will take place. The best we could hope for would be to build a coalition to deliver IYA2009 at the local level (but let them do it their own way without interference). We could also motivate participation, attempt to coordinate activities, provide good communication links and updates, and to do things that work well on a large scale (e.g., develop and distribute materials). This model proved to be extremely successful.

### National Media Impact

We were not successful in gaining any significant attention from the national media. Several press releases were sent out to mark national scale events, but these were largely ignored. Thankfully, by most accounts the media provided excellent coverage at the local level. Moreover, individual journalists, including several associated with national networks, contributed excellent, well received IYA2009-related programs throughout 2009.

## Legacy

The three partner organisations are committed to continuing the enhanced EPO activities with emphasis on:

- The creation of dark sky preserves;
- Increased support for formal education;
- Focus on underserved youth (with the support of a part-time coordinator hired using NSERC funds secured using IYA2009 experiences through August 2008);
- Canadian Aboriginal legacy projects; a special focus of the underserved youth activities.

## Comments

The regular, excellent communications from the IAU IYA2009 Secretariat, accompanied by support such as national versions of the adopted logos and the outstanding two-minute IYA2009 video, were extremely helpful to me. In May we reshaped our communications with our networks of liaisons to use the international weekly e-newsletter as the base which we augmented with Canadian specific news. Fast, helpful responses to enquiries by the Secretariat made this SPoC's job easier and were greatly appreciated.



# Cape Verde

## National Node

Ivanilda Maria dos Santos Caral
Universidade de Cabo Verde
ivaneidy@hotmail.com

Official Languages

- Portuguese
-

Number of organising committee members: N/A

-

Population: 516 733

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Astronomy in Cape Verde

16 — 24 February
The idea of this project was to transmit the know ledge of astronomy to the people of Cape Verde, by creating an Astronomy Centre in this country. More information: http://astrocv.nfist.pt

### Galileo Teacher Training Programme

Participation in the 1st GTTP for Portuguese Speaking African Countries
More information: http://www.astronomy2009.org/news/updates/881/



# Chile

## National Node

Patricio Rojo (Univesity of Chile)

www.astronomia2009.cl

Official Languages
- Spanish

Number of organising committee members: >11
- Volunteers: >11
- Paid: 0

Population: 17 031 873

Number of people reached by IYA2009: 400 000

Budget: 100 000 €

Sources:
- Observatories outreach budget
- Grants awarded from astronomy funds

## General Overview of IYA2009 activities in Chile

The celebration of IYA2009 in Chile was considered a total success. We reached more people than ever before. Many cities or towns that have never had an astronomy event were able to enjoy the Universe first-hand. Also, we had good media coverage. The website was constantly updated and had thousands of visitors.

## Main Activities

### List of Activities

- Astronomy talks (in more than 20 cities and towns);
- Astronomy fairs (about five in different cities, including Easter Island);
- FETTU exhibitions;
- Teacher training;
- Artistic opening and closing ceremonies;
- Galilean Nights;
- 100 Hours of Astronomy;
- National high-school student congress;
- Astronomy Olympiad;
- Star parties.

## Artistic Opening

More than 1000 persons enjoyed the IYA2009 grand opening ceremony in Chile at the premises of Planetario USACH. An artistic show open to the community as well as the first exhibition of FETTU marvelled the assistants.

Organisers: Planetario USACH

Website: http://www.astronomia2009.cl/noticias/1-destacados/113-aia-2009-chile

Estimated number of people who attended or were reached by this activity: 1500

Budget: 30,000

## 100 Hours of Astronomy

Chile joined the international celebration of 100 Hours of Astronomy by holding a four-day event in the Scuola Italiana of Santiago. Several talks by astronomers, the “Around the World in 80 Telescopes” webcast, and the FETTU exhibition were part of this activity.

Organisers: Sergio Cabezon (NRAO)

Website: http://www.astronomia2009.cl/noticias/1-destacados/114-evento-aia2009







Estimated number of people who attended or were reached by this activity: 1000

Budget: 2000€

### Talks “Puro Cielo” by Astronomers through the Country

In all 15 regions of Chile, both in big cities and small towns, astronomers gave outreach talks to the general public and students.

Organisers: Nikolaus Vogt (UV) with EXPLORA/Conicyt

Website: http://www.explora.cl/nuevo/nacional/noticias_ver.php?id=2174





Estimated number of people who attended or were reached by this activity: 11,000

Budget: 20 000

### From Earth to the Universe exhibitions

Three sets of roughly 40, 30, and 20 images visited several cities in Chile marvelling people as they passed by in their daily routine.

Organisers: Patricio Rojo, Eliette Angel (OAN), William Garnier (ALMA)

Website: http://www.astronomia2009.cl/noticias/1-destacados/137-muestra-fettu



Estimated number of people who attended or were reached by this activity: 110 000

Budget: 20 000€

### Astronomy on Easter Island

During one week and for the first time on the island, Gemini South observatory organised an astronomy fair on Easter Island. A workshop, star parties, and astronomers’ talks were part of the activities.

Organisers: Maria Antonieta Garcia

Website: http://www.astronomia2009.cl/noticias/1-destacados/163-observatorio-gemini

Estimated number of people who attended or were reached by this activity: 3000

## Astronomy Olympiad

For two days, high- and mid-school students participated in the first Chilean Olympiad of Astronomy. Talks by astronomers and workshops were also present in the competition. The winners of the high-school category participated in the first Regional Olympiad of Astronomy in Rio de Janeiro, Brazil.

Organisers: Olga Hernandez (U Talca), Andreas Reisenegger (SOCHIAS)

Website: http://www.astronomia2009.cl/noticias/1-destacados/168-olimpiadas-escolares

Estimated number of people who attended or were reached by this activity: 100

## International Amateur Congress

During three days amateur astronomers participated in workshops, talks, and discussions about astronomy. Each participant received a Galileoscope.

Organisers: David Orellana, Hugo Ochoa (CADIAS)

Website: http://www.astronomia2009.cl/noticias/1-destacados/206-la-serena




Estimated number of people who attended or were reached by this activity: 100

## School Congress

Almost 100 students from elementary, middle, and high schools participated during three days in this congress by presenting their own projects.

Organisers: David Orellana, Hugo Ochoa (CADIAS)

Website: http://www.astronomia2009.cl/noticias/1-destacados/204-la-serena





Estimated number of people who attended or were reached by this activity: 150

### Closing Ceremony

With a magnificent concert by the symphonic orchestra and an open doors event with an astronomy fair and night observations, the Observatorio Astronomico Nacional closed IYA2009 in Chile.

Organisers: Patricio Rojo, Natalie Huerta (OAN)

Website: http://www.astronomia2009.cl/noticias/1-destacados/215-aia-2009

Estimated number of people who attended or were reached by this activity: 1500

## Legacy

The links and interactions between the people in the node are considered a very powerful method of obtaining a better synergy of events in the future. We do plan to continue this interaction and probably organised coordinated events. We need also to discuss some topics like the future of the webpage.



# China — Macau

## National Node

Albert Wu
Macau Amateur Astronomical Society
maas_1983@yahoo.com.hk

Official Languages

- Chinese
- Portuguese
-

Number of organising committee members: N/A

-

Population: 542,200

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Macau

The IYA2009 activities in Macau were organised by the Macao Amateur Astronomical Society

More information: http://www.facebook.com/pages/Macao-Amateur-Astronomical-Society/118877139353?v=wall

### Hong Kong — Macau mutual visit

Hong Kong and Macau is close neighbour, and we take IYA as a good opportunity to organize mutual visit. On Feb 28, 2009, Hong Kong send Mr. Sze-leung Cheung to Macau to give a public lecture for Macau; on May 30, 2009, IYA Hong Kong node travelled to Macau to participate the Macau node IYA opening and sidewalk event; on Nov 28, 2009, Macau node visited Hong Kong, and participate the sidewalk event. An original scheduled students visit was cancelled due to the outbreak of H1N1 virus

Organisers: IYA2009 Hong Kong League, IYA2009 Macau node



# China — Nanjing

## National Node

Jin Zhu
Chinese Astronomical Society / Beijing Planetarium
jinzhu@bjp.org.cn
http://www.astronomy2009.org.cn/

Official Languages
- Standard Mandarin

Number of organising committee members: 20
- Volunteers: 20
- Paid: 0

Population: 1 338 612 968

Number of people reached by IYA2009: 10 000 000

Budget: 200 000€

Sources:
- Chinese Associations for Science and Technology
- National Natural Science Foundation of China
- Beijing Associations for Science and Technology
- Beijing Municipal Science & Technology Committee
- Chinese Academy of Sciences
- National Astronomical Observatories, Chinese Academy of Sciences
- Beijing Planetarium
- Carl Zeiss Far East Co., Ltd
- Microsoft Research Asia
- Hangzhou Astronomy Science & Technology Co., Ltd
- Suzhou Xinda Optical Science & Technology Co., Ltd
- Guangzhou Bosma Ind. Co., Ltd
- Kunming Jinghua Optical Co., Ltd

## General Overview of IYA2009 activities in China — Nanjing

The IYA2009 was a great opportunity for astronomy education in mainland China. Many activities were taken during the year by different organizations and individual amateur astronomers and affected millions of people. It's a great pity that the worldwide financial crisis and the H1N1 influenza had some bad influence on our preparation of the 2009 IYA activities.

## Main Activities

- 100 Hours of Astronomy
- Exhibition: From Earth to the Universe
- Local IYA Opening Ceremony (Jan. 10)
- IYA Celebration Conference (Apr. 26)
- Symposium on Astronomy Education and Popularization (Dec. 24-26)
- Multi-site Federated Live Broadcast of Solar Eclipse on July 22
- Astronomy Festival (Aug. 21-27, 2009)

- Telescope Amnesty Programme — Show the Sky to people (Sidewalk Observations during the whole year)
- Universe Awareness: Star is My Good Friend (June-August)
- Drama by Children: “Colourful Planets”
- Training of Middle/Primery School Teachers
- Competitions on Astronomy Photograph and Essay
- Dark Awareness: Turn-off the Light, Looking For Stars
- Press Conference on Astronomy
- Star Party of “Amateur Astronomer” Magazine
- Astronomy Lectures

### Local IYA Opening Ceremony: 10 January 2010

The Chinese Mainland IYA2009 opening ceremony was held on Jan.10, Feb in BJP. Many leaders and specialists appeared the meeting. They were the secretary of China Association for Science and Technology Prof. Changgen Feng, the academician of Chinese Academy of Sciences Mr. Enge Wang, Mr. Jiansheng Chen, Mr. Ziyuan Ouyang, Mr. Cheng Fang, Mr. Tan Lu, the academician of Chinese Academy of Engineering Mr. Junhua Pan, the deputy director of Dept. Mathemetics Science of Chinese National Natural Science Foundation Prof. Peiwen Ji, the director of Chinese Astronomical Society Mr. Gang Zhao, etc. Also some specialists and scholars of astronomy, museum science and the associations representatives of capital colleges attended the meeting with reporters of domestic main media. The number of persons present was about 180.

There were about 30 media reported the activity: CCTV, BTV, and the website of people.com.cn, chinese.com, sina.com.cn, 163.com, Hong Kong tai kung pao, Beijing evening news, popular science news, science and tech daily, tech daily. Sina.com broadcasted the complete activity with photos and words live.

Organisers: Chinese Astronomical Society and Beijing Planetarium

## Lessons Learned

Amateur astronomers showed great interest and were very helpful on performing sidewalk astronomy. It’s always useful and important to organise some kind of activities in wider range, providing designed posters freely. A fulltime person would be very important in such case. It is also very important to setup an easily-accessed network and find some ways to encourage the organisers and individual to register their activities.

# China — Taipei

## National Node

Wei-Hsin Sun
Institute of Astrophysics / National Taiwan University
sun@phys.ntu.edu.tw
http://www.astronomy2009.tw/

Official Languages

- Mandarin
-

Number of organising committee members: N/A

-

Population: 23 046 177

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Opening Ceremony of IYA2009 in Taiwan

18 January 2009
The IYA2009 Opening Ceremony in Taiwan took place in the Taipei Astronomical Museum right after the global Opening Ceremony in Paris.

### "Waking up the Spring" (Spring Equinox Activity)

21 March 2009
This activity, including stage performance of drama with dance and music depicting the life of Galileo, and a concert of Gustav Holst's The Planets with visually appealing images by Dr. Salgado, was held in the Main Square of the Chiang Kai-Shek Memorial.

### "Four Hundred Years of Heaven Gazing" Special Exhibition

8 August - 13 September 2009
"Four Hundred Years of Heaven Gazing", a special exhibition devoted to the introduction of astronomy, its relationship with other fields of science, art, and culture, and its influence on the society as well, was held in Chiang Kai-Shek Memorial Hall.


「全球天文年閉幕活動」
2009全球天文年
2009.12.19 六 7:30-10:00PM
[冬至回顧大型戶外活動]
今夜星光燦爛
地點：中正紀念堂民主大道
[上半場] 「站在巨人的肩膀上」音樂會
[下半場] 「守著星子的人」舞台劇
DELTA


50周年
400 YEARS OF HEAVEN GAZING
2009
全球天文年
2009
[仰觀蒼穹四百年]特展
奇妙的宇宙・瑰麗的星空
星星小學堂

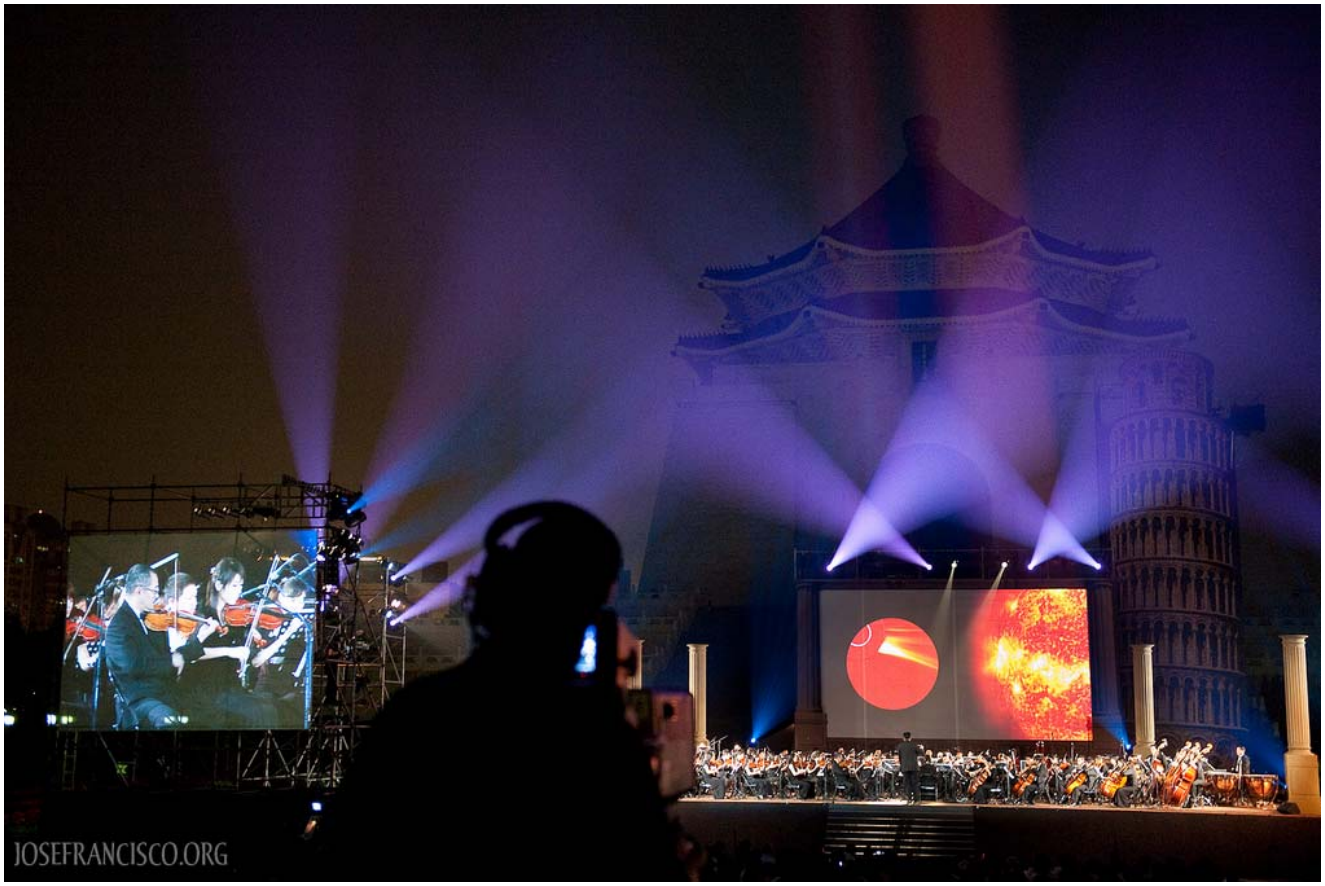

A shaking of our Universe
was just about to occur










JOSEFRANCISCO.ORG


春分
星空之旅
2009全球天文年
地點 — 中正紀念堂 民主大道
時間 — 2009年3月21日(六)
7:30PM~9:30PM
表演 — 人聲樂團揭開序幕「站在巨人的肩膀上」
— 星空下的樂音「行星組曲」
— 多媒體舞台劇「仰觀重習四百年 - 伽利略的一生」
重現伽利略使用望遠鏡仰望星空的創舉
重現四百年前比薩斜塔上壯觀的落體實驗
重現伽利略遭受宗教法庭審判的恐怖過程
DELTA

# Colombia

## National Node

Jose Velez (Colombian Astronomical Network)

www.eafit.edu.co/astrocol

Official Languages
- Spanish

Number of organising committee members: >11
- Volunteers: >11
- Paid: 0

Population: 45 273 925

Number of people reached by IYA2009: 1 000 000

Budget: Unknown €

Sources:
- Every organisation as member of the Colombian Astronomical Network, raised its own economical resources for each activity.

## General Overview of IYA2009 activities in Colombia

IYA2009 allowed us in Colombia to make an inventory of astronomers, assets, institutions, astronomical planetaria and observatories, and raises the need to support further research by urgent installation of a large telescope in one of our summits, taking into account a privileged position of Colombia to be 4 degrees north of Ecuador. It allowed us also to confirm the high academic standards of our astronomers and to see the efforts of all groups and organisations, which without resources, make important educational tasks. Finally it gave international projection to our organisation.

## Main Activities

### List of Activities

- Inaugural IYA2009 activity at Planetario de Bogota;
- 13th Villa de Leyva Astronomical Festival (Festival de Astronomia de Villa de Leyva);
- Moon Festival at Chia (Festival de La Luna en Chia);
- 100 Hours of Astronomy in many cities in Colombia;
- Star party at Tatacoa desert;
- Preserving night sky watching and measuring darkness and teleconference with Connie Walker at Bogota Planetarium;
- Installation of Colombian GTTP;
- Festival in the astronomical sky plains;
- 10th National Astronomy Meeting.

## Inaugural IYA2009 activity at Planetario de Bogota

On 18 January we held the inaugural IYA2009 activity at “Planetario de Bogota”. In attendance was Dr. Gerolamo Schiavoni, Italian ambassador to Colombia. Italy was nominated as honour invitee country. Also present was Bogotá’s city hall mayor, 100 astronomers and 400 invitees.

Organisers: Colombian Astronomical Network (RAC).

Website: www.eafit.edu.co/astrocol




Estimated number of people who attended or were reached by this activity: 420

## 13th Villa de Leyva Astronomical Festival (Festival de Astronomia de Villa De Leyva)

This is the biggest astronomy divulgation event in Latin America, attended by more than 50 astronomers and 3500 people of different ages. We observed the Sun with h-alpha telescopes during the day and night watching with 30 0r 40 telescopes, two mobile planetariums, simultaneous lectures , and educational children’s workshops during three whole days.

Organisers: Asociacion de Astronomos Autodidactas de Colombia — ASASAC.

Website: www.astroasasac.com










Estimated number of people who attended or were reached by this activity: 3500

Budget: 1500€

## Moon Festival at Chia (Festival de La Luna en Chia)

Chia (tse-a), is a town near Bogotá dc, Colombian capital, and is named after the muisca´s (Colombian Indian tribe) moon name, met: 30 astronomers and 3000 people admired and photographed the full Moon.

Organisers: Andes University at Bogota Ex — A Limn Chapter.






Estimated number of people who attended or were reached by this activity: 3000

### 100 Hours of Astronomy in many cities in Colombia

In every planetarium in Colombia (19) this activity was held in April and October as programmed by the IYA2009 Secretariat.

Organisers: In every planetarium in Colombia.

## Star party at Tatacoa desert

The beautiful and very warm desert of La Tatacoa is located in the centre of Colombia, south west from Bogotá, city capital, and has a small but beautiful observatory with a 16-inch Meade telescope where 300 people camped to watch the sky during three nights.

Organisers: Xavier Fernando Rua — La Patacos Deserta Observadora Director.




Estimated number of people who attended or were reached by this activity: 300

## Preserving night sky watching and measuring darkness and teleconference with Connie Walker at Bogota

The activity was made especially in Bogotá planetarium with several conferences and workshops for the public, followed by visits to different locations of the city to take some measurements, and ending with a video conference with Connie Walker, the project coordinator.

Organisers: Bogotá planetarium.

Website: www.planetariodebogota.gov.co

## Colombian Galileo Teacher Training Program

Installation of GTTP under the coordination of San Buenaventura University in the city of Medellin for the whole country and meeting of the directors in Colombia with the coordinators at the Complutense University of Madrid (Spain); 3000 teachers were selected.

Organisers: Universidad San Buenaventura-Seed Medellin.

Estimated number of people who attended or were reached by this activity: 3000

### Festival in the astronomical sky plains

The oriental Colombian lands have a great plain which is home to a beautiful hotel with all camping facilities and sponsored by a private company. Here 200 astronomers met to observe and photograph the sky. There was public participation to a lesser extent due to the remoteness of the great cities.

Organisers: Family Compensation Fund (CAFAM).

Website: www.cafamcom.co

Estimated number of people who attended or were reached by this activity: 300

### 10th National Astronomy Meeting

This astronomical event is the most important congress of all astronomers affiliated to the RAC with the participation of students of sciences such as physics, mathematics and astronomy, where we had also the biggest sample of astrophotography for the project “From Earth To The Universe”, for three days at the Cafe Convention Center in Bogota.

Organisers: Colombian Astronomical Network-RAC.

Estimated number of people who attended or were reached by this activity: 500

## Lessons Learned

- Good: the academic and work capacity of our astronomers.
- Bad: lack of resources, indifference, and lack of political will of our leaders and finally the lack of technology to develop investigations.

## Legacy

Colombia has always had a tradition of ongoing activities in astronomy through all entities. No doubt this will not only survive but will be increased from IYA2009 due to the union and cooperation between our astronomers. Next February we shall have the 13th Astronomy festival of Villa de Levy, Latin America’s biggest star meeting.



# Republic of Congo

## National Node

Nzikou Mamboukou Michel
African Institute for Mathematical Sciences
nzikoumichel@yahoo.fr

Official Languages
- French

Number of organising committee members: N/A

Population: 3 686 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in the Republic of Congo

Information not available.



# Costa Rica

## National Node

Rodrigo Alvarado Marín
Escuela de Física, Facultad de Ciencias
realvara@hotmail.com
http://www.astro2009.planetario.ucr.ac.cr/

Official Languages
- Spanish

Number of organising committee members: N/A
- Volunteers:
- Paid:

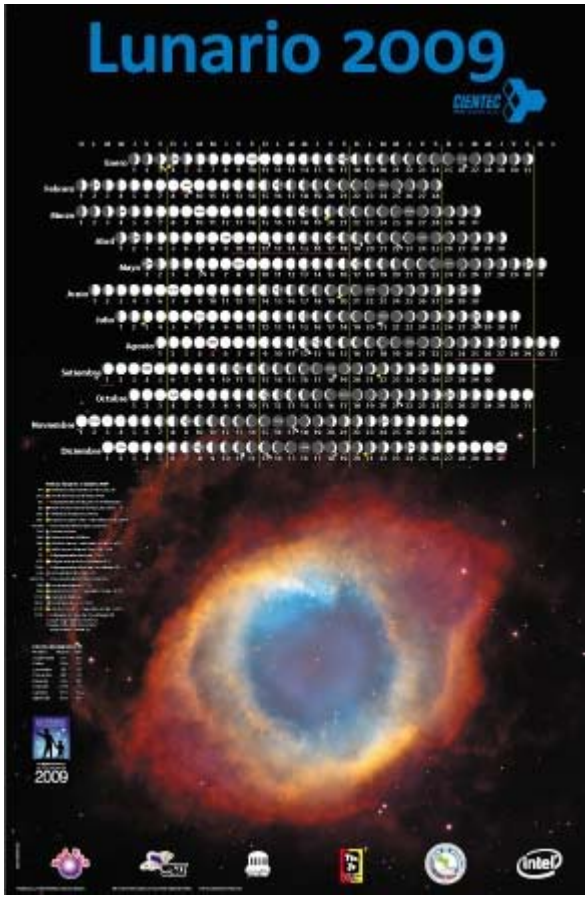
Population: 4 253 897

Number of people reached by IYA2009: N/A

Budget: N/A €

## Main Activities

Lunar Calendar 2009, dedicated to the International Year of Astronomy 2009.




Number of people reached: 4.000

Budget: $2.400

Lunar Calendar 2009 in 2 parts, dedicated to the International Year of Astronomy. in Cereal Boxes to be distributed in four countries: Nicaragua, Costa Rica, Panamá and Dominican Republic.






Number of people reached: Tens of thousands.

Budget: $1000

## I Congreso International de Astronomía-Liberia 2009

Liberia, Guanacaste, Costa Rica
January 18, 19 & 20, 2009. Sede de Guanacaste, Universidad de Costa Rica.
Website: http://www.cientec.or.cr/astronomia/IConAstro.html









Number of people reached: 400

Budget: $3000

## Astronomy in the Park

Conferences offered: Gallileo and the Moon, Women astronomers, Saturn rings, Observing the sky with binoculars. Three Public Parks and 5 schools visited from January to April.



Number of people reached: 950

Organiser: CIENTEC

Website: http://www.cientec.or.cr/astronomia/astroparque/index.html

Budget: $3000

## Field trip and deep sky astronomical course in Palo Verde, Guanacaste.

February, 2009.
Organiser: CIENTEC



Number of people reached: 12

Budget: $1000

## Course for teachers. Science and Math in Astronomy by Lori Lambertson, Exploratorium.

15 and 16 May 2009



Number of people reached: 50 teachers.

More information: http://www.flickr.com/photos/cientec/sets/72157618261851892/

Budget: $2000

### Astronomy Strand during the XI Science Teacher Conference



A Canadian astronomer was invited as main speaker.

Number of people reached: 400 teachers.

Budget: $1500

### Sidewalk Telescopes every first Tuesday of each month

Organiser: ACODEA

Website: http://acodea.org/

Number of people reached: 300

Budget: $500

### Five Astronomy talks for general public

Organiser: ACODEA

Website: http://acodea.org/

Number of people reached: 150

## Moon Memories International programme and web site

A programme led by Conciencianew.com/ Hispanic Science Newswire Service, RedPop and CIENTEC with the participation of Chile, Canada, United States, Costa Rica and Mexico.

Website: http://memoriaslunares-moonmemories.blogspot.com/
Number of people reached: Thousands

Budget: $500

## Stellar Bingo

A bingo game designed by CIENTEC was distributed printed on the back cover of Jack's cereal boxes and distributed in four countries: Nicaragua, Costa Rica, Panamá and the Dominican Republic. The boards and cards can be downloaded in digital format through the Internet:




Website: http://www.cientec.or.cr/mhonarc/boletincientec/doc/msg00804.shtml
Number of people reached: Tens of thousands.

Budget: $3000

## Astronomy Group

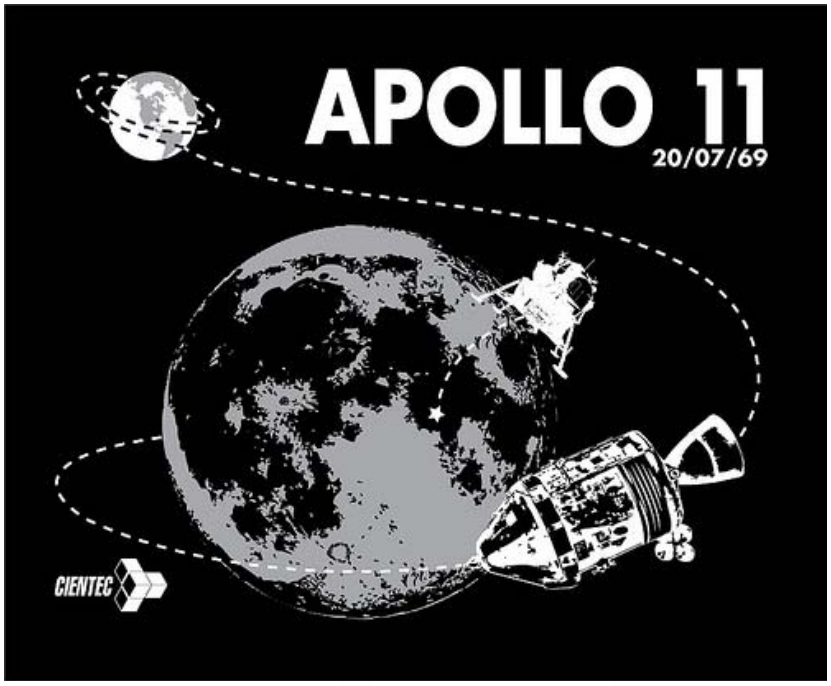
A new astronomy group was founded in the Instituto Tecnológico de Costa Rica,led by Juan José Pineda, this group has organised monthly talks, observing sessions and field trips.

## Blog dedicated to astronomy

Astronomía 10° Norte, by José Alberto Villalobos
This blog has informed about the different programs and resources available during the year. It has also disseminated information to foster observation of astronomical phenomena during the period.
Website: http://cienteccrastro.blogspot.com/

## Memorabilia

We designed and distributed 3 different T-Shirts during this year. Two were dedicated to the International Year and one was dedicated to the 40th Anniversary of the Moon Landing.







Articles published in newspaper La Nación
Astronomía en el 2009 (Jan. 13, 2009) (http://www.nacion.com/ln_ee/2009/enero/13/opinion1837669.html
En el ojo izquierdo de un conejo (July 21, 2009 http://www.nacion.com/ln_ee/2009/julio/22/opinion2034357.html)
Printed circulation: 120.000

# Côte d'Ivoire

## National Node

Alexandre Tano Kan Koffi (IVOIR'ASTRO)

www.ivoirastro.com

Official Languages
- French

Number of organising committee members: 6
- Volunteers: 6
- Paid: 0

Population: 20 617 068

Number of people reached by IYA2009: 5 000

Budget: 6 200 €

Sources:
- Local sponsors
- Donation of associated organizations

## General Overview of IYA2009 activities in Côte d'Ivoire

IYA2009 has been a great success in Côte d'Ivoire. The practice of astronomy did not exist formally in Côte d'Ivoire. This year has allowed thousands of Ivoirians and especially students through the activities of the National Node of Côte d'Ivoire to explore the wonders of astronomy

## Main Activities

### List of Activities

- Astronomical workshop for teachers and students in Abidjan;
- "Astroclasse" programme ;
- Astronomy exhibition in Daoukro;
- Galilean Nights;
- Astronomy Week of Cocody.

### Astronomical workshop for teachers and students in Abidjan

Date: 7-8 March 2009
This was the first workshop of this kind in Côte d'Ivoire. The event was organised by IVOIR'ASTRO, which serves as National Node of Côte d'Ivoire for IYA2009. The workshop held on the campus of the University of Cocody in Abidjan.
Topics ranged from basic astronomy such as locating planets on the sky to more advanced topics such as imaging and image analysis with webcams and operation of remotely controlled educational telescopes. The participants were teachers and students of secondary schools of Abidjan. The programme included observations via Galileoscopes. These were given to participants.

Organisers: IVOIR'ASTRO

Estimated number of people who attended or were reached by this activity: 320

Budget: 1500 €

### "Astroclasse" Programme

"Astroclasse" was IVOIR'ASTRO's main programme for popularising astronomy in Ivoirian secondary schools. This programme began in May 2009 and ended in December 2009. "Astroclasse" featured an astronomy competition for schoolchildren. More than 17 secondary schools were involved in "Astroclasse".

Organisers: IVOIR'ASTRO

Budget: 1600 €

## Evaluation

A study conducted during IYA2009 has revealed a significant increase in the number of amateur astronomers. Thus, many astronomy clubs were created during the International Year of Astronomy 2009 in Côte d'Ivoire. Before 2009, there was only one astronomy club in Côte d'Ivoire: IVOIR'ASTRO.

## Lessons Learned

- It is preferable to include secondary schools in order to promote activities;
- Don't always rely on sponsors; try to self-finance projects;
- Use local materials for activities.

## Legacy

IVOIR'ASTRO is involved in many projects which will take place in 2010 and beyond. As an example, the Human Orrery Project, the Astro Book Drive , Astronomers Without Borders Global Astronomy Month... Many of these are part of "Beyond IYA2009" activities.

## Comments

One thing which stands out is that this year has enabled underdeveloped countries like Côte d'Ivoire to be in the same forum with all other countries. The most important thing for us was to learn and share with the astronomical communities of other countries.

With the help of organizations like EURASTRO, especially Jean-Luc Dighaye, IVOIR'ASTRO received astronomical materials to organise several activities in Côte d'Ivoire.



# Croatia

## National Node

Slobodan Danko Bosanac
Ruder Boskovic Institute
bosanac@irb.hr
http://www.astronomija2009.org/

Official Languages

- Croatian
-

Number of organising committee members: N/A

-

Population: 4 489 409

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### List of Activities

- “Popular lectures in Baranja”
- Croatian History of Astronomy
- Astronomy in the footsteps of Croatian writers
- “100 hours of Astronomy”
- SSHFD-astro2009
- Public perceptions of astronomy, “star party”, an exhibition of astrophotography
- Solar System Models
- Project: “Starry Night Park — Lastovo”
- Travelling exhibition: “The most beautiful pictures of the Universe”
- Galileo Galilei — His Life and Work
- The artistic vision of the universe from the early space era
- Astronomy in school place
- Popularisation of astronomy in schools
- Lectures five top scientists

Impressions from the IYA2009 activities in Crotia








Zagrebačka banka


STUDENTI
SVEMIRU!





# Cuba

## National Node

Oscar Álvarez Pomares (Ministerio de Ciencia Tecnología y Medio Ambiente — CITMA)

Official Languages

- Spanish

Number of organising committee members: 0

- Volunteers: 0
- Paid: 0

Population: 11 451 652

Number of people reached by IYA2009: 2500, plus TV audiences

Budget: Unknown €

## General Overview of IYA2009 activities in Cuba

In Cuba there is no curricular teaching of astronomy. Many years ago, for various reasons, astronomical devices became impossible to find, which is a real handicap against efforts to enhance popular culture on that subject. Research in astronomy is a minority activity and the works of proper science communication and outreach is very discrete from the institutional point of view. Amateur astronomers are not properly integrated to social or research projects, and their tremendous potential is not used. Adding the difficulties inherent to economic crisis and the current American blockade, it prefigures a difficult framework to organise activities for IYA2009 inside the country or even communicate with the international community. Even so, it was possible to use efforts and funds to conclude the main work related with astronomy and to open the new planetarium in the centre of Old Havana. A very exiguous team of unofficial collaborators was involved, and that intensive final effort was the main reason to diminish the number of public activities on the second half of the year.

## Main Activities

### List of Activities

- Works to open Planetarium of Havana, 21 December 2009, Historical Center of Havana City;
- 100 Hours of Astronomy… and counting, April weekends;
- Celebration of Galileo Galilei's 445th Birthday, Palace of Lyric Art, Havana City, February, 13th / International Book Fair of Havana, 15 February;
- Journey of Scientific Culture, 15-17 April, National Capitol, Havana City;
- National Encounter of Amateur Astronomers, 25-26 April, Caibarién;
- Inflatable planetarium at Festival of Science and Technology for Children, 18 July, Metropolitan Park of Havana;
- Extraterrestrial Space and its Pacific Use. World Space Week, 8 October, National Capital, Havana City;
- Workshop for IYA2009, 20 November, Students' House, University of Havana;
- Broadcasting of several programmes dedicated to IYA2009 on national television;
- Café astronómico, periodical activity at Central University of Las Villas;
- More 100 Hours of Astronomy, celebrating the 85th Birthday of Cuban naturalist Antonio Núñez Jiménez, 18-19 April, Parque Lenin, Havana City;

- Festival of Videogames, 31 July, Central Palace of Computing, Havana City;
- Science Festival, 7 February, Cadena Square, University of Havana, Havana City.

## Works to open Planetarium of Havana, 21 December 2009

The second half of the year has been almost entirely dedicated by the organisers of IYA2009 celebrations to finish the Project of the Planetarium of Havana, a place where astronomy will be the motor to popularise interest in science as an important expression of human culture, where science people, students, amateurs and the general public may share and enjoy discovering the Universe.

Organisers: Oscar Alvarez Pomares (Astronomy Project Leader, CITMA), with collaboration Alejandro Jiménez (ProAstronomía-National Museum of Natural History, CITMA). Project is supported by Office of Historian of Havana City and Office of Aid for Development of Japan.

Estimated number of people who attended or were reached by this activity: 500 (public opening was 20 January 2010).

### 100 Hours of Astronomy… and counting, April weekends

Coincidently, in Cuba, 4 April is a national date dedicated to the youngest people, which are our main public. Given that there are very few collaborators and amateurs and having a reduced amount of instruments, it was impossible to carry out a simultaneous national astronomical celebration. To preserve the spirit of 100 Hours of Astronomy, we decided to coordinate a marathon sequence of activities during the whole month, at several places, where we could be in contact with the most children and young people, such as schools, universities and a camp of Explorer Pioneers (equivalent to Boy Scouts). There, we gave talks about the night sky, the invention and use of telescopes, and the meaning of IYA2009. After the international closure of 100 HA activities, we still had encounters with amateur astronomers and students of astronomy workshops, some of them under better astronomical conditions, near to the Province of Pinar del Río and far from light polluted city of Havana. on 18-19 April we celebrated the birthday of the most important naturalist of 20th Century in Cuba, participating in a massive camping trip with 150 children and 50 instructors from every municipality of Havana City. This was an excellent opportunity to talk about IYA2009 celebrations and to show a parade of planets: Mercury at dusk, Saturn in Leo all early night, and Jupiter in conjunction with the Moon, Venus, and Mars at dawn. Sessions were oriented to promote the contest The Sky: Yours to Discover.

Organisers: Alejandro Jiménez and Fernando Porrero (ProAstronomía-National Museum of Natural History), with the support of amateur astronomers, ISPJAE, Office of Historian of City, and Explorer Pioneers.

Estimated number of people who attended or were reached by this activity: 1000

### Celebration of Galileo Galilei's 445th Birthday, 13-15 February, Palace of Lyric Art and International Book Fair of Havana

We chose to celebrate that date by establishing a bridge between art and science, so divorced in our days. Coincidently, this date occurs on the International Book Fair of Havana (FILH), a huge event around culture and books. Having such a good opportunity to be in touch with people, we decided to prepare a concert with the music that Galileo could have listened to, at the Palace of Lyric Art. On Sunday 15 at FILH, into the colonial fortress La Cabaña, thanks to the invitation of Gente Nueva Publishing House, we shared with hundreds of visitors the emotion that Galileo could have felt 400 years ago, when he observed the sky with a telescope. A cloudy sky made it only possible to show Venus' phases, but we talked about the importance of that finding to justify the heliocentric theories of Copernicus.

Organisers: Alejandro Jiménez (ProAstronomía-Natural History Museum), Orley Cruz (Cosmos Group), Dra. Mivian Ruiz (Dean of Music Faculty, University of Arts), Veronica del Puerto (Student from University of Arts) and Flor Nodal (Gente Nueva Publishing House).

Estimated number of people who attended or were reached by this activity: 700

## Journey of Scientific Culture, 15-17 April, National Capitol, Havana City

Every year, scientists and professors meet to share impressions on topics related with scientific culture. This opportunity had a special moment dedicated to IYA2009, with talks from different specialists about Galileo, Kepler, the project of the new planetarium, and experiences of astronomy popularisation in Cuba and Venezuela. Also, the donation of two inflatable planetariums by astronomers of Venezuela was announced. The meeting closed with a Café Scientifique, where students from a Vocational School of Exact Sciences were invited to ask questions to scientists and share comments about science, Darwin and evolution, astronomy, and the origin of life.

Organisers: Lilliam Álvarez (Direction of Sciences, CITMA).

Estimated number of people who attended or were reached by this activity: 30

## National Encounter of Amateur Astronomers, 25-26 April, Caibarién

For more than a decade amateur astronomers in Cuba have travelled two times each year to meet in two different cities of the country, to share their knowledge, achievements in telescope making or public communication, discuss organisation, and perform public observations. Professionals are always invited. The first encounter on the year was in the city of Caibarién, but, sadly, because of lacking local official support and many other material problems, it was impossible to perform the second encounter of the year at the Natural History Museum of Sancti Spiritus.

Organisers: César Lugones, Isbel González and collaborators.

Estimated number of people who attended or were reached by this activity: 300

## Inflatable Planetarium at 2nd Festival of Science and Technology for Children, July, 18th, Metropolitan Park of Havana

The first opportunity to show to the public of the capital the use of one of the inflatable planetariums recently donated by the Center for Research in Astronomy (CIDA, Venezuela) now temporally installed in the City of Pinar del Rio. Once again, specialists and professors from different universities and research centres meet to demonstrate curious experiments and games based on science.

Organisers: Lilliam Álvarez (Direction of Science, CITMA), Hypatia Regalado (National Direction of Young Clubes of Computing) and Vilma (Young Club of Computing of Pinar del Río), Elizabeth (Metropolitan Park of Havana), and Alejandro Jiménez (ProAstronomía-National Museum of Natural History).

Estimated number of people who attended or were reached by this activity: 700

## Workshop Extraterrestrial Space and its Pacific Use. World Space Week, 8 October, National Capitol, Havana City

As with every WSW, the Institute of Geophysics and Astronomy organised an encounter, whose main objectives were:

- Propitiate exchange of experiences and unify efforts to improve use of spatial applications in Cuba;
- Learn about the work realised by the institutions of the country and to promote its integration.

This year, amateurs and professionals were equally invited.

Organisers: Institute of Geophysics and Astronomy.

Estimated number of people who attended or were reached by this activity: 50

### Workshop for the International Year of Astronomy, 20 November, Students' House, University of Havana

An encounter to celebrate IYA2009, dedicated to the figure of Felix Varela y Morales, who introduced scientific education in Cuba in XIX Century. The works and life of Galileo Galilei, the history of astronomy in Cuba, and the relationship between astronomy and environmental problems were also topics covered by the programme .

Organisers: Edwin Pedrero (Chair of Scientific Culture , University of Havana) and Mónica de la Guardia Durán (Project of Astronomic Observatory , University of Havana), with the participation of specialists from other related institutions and a representative of Brazil.

Estimated number of people who attended or were reached by this activity: 25

### Broadcasting of several programmes dedicated to IYA2009 on national television

This year, Cuban television prepared more than 20 programmes dedicated to IYA2009, such as Astronomía, a special programme with eight documentaries, featuring Cuban specialists, which aired from July to October. Some other very well known programmes were dedicated during the year to that subject, such as Fotogramas and Antena, both weekly reviews about science, with some issues on astronomy and the history of telescope, and the popular programme Pasaje a los desconocido with interesting materials, interviews and debates.

Organisers: Rafael Haya, Mara Roque, Reynaldo Taladrid, with the support of Institute of Geophysics and Astronomy, and other specialists from different institutions, as Dr. Oscar Álvarez, Alejandro Jiménez, and Dr. Rolando Cárdenas

Estimated number of people who attended or were reached by this activity: 2-3 millions

### Café astronómico, monthly encounter at Central University of Las Villas

Every second Wednesday of each month, at 8:30 p. m. at the Central University of Las Villas, professors, students and neighbours from the community close to campus meet together to talk about astronomy, comment on videos, or perform telescopic observations.

Organisers: Rolando Cárdenas, with the help of Cosmology and Gravitation Group staff and the support of the Faculty of Physics, Mathematics and Computing of Central University of Las Villas.

Estimated number of people who attended or were reached by this activity: 100

## Lessons Learned

- Interest in astronomy is always infinite and permanent, so it must be used to approximate sciences (mainly natural and exact science) to people. Astronomy, as one of the most ancient sciences of humankind, may be used as a valid pretext to talk not only about physics or mathematics, but also history, mythology, literature, conservationism, philosophy, scepticism, etc.
- There are very attractive and simple experiences that we are learned, that may be used to motivate public, especially children, into astronomy. Some of them can be performed during the day or with a cloudy sky. Only more people ready to replicate them is required. It is even possible to perform competitive activities in search of excellence (such as a Messier Marathon).
- It is necessary to prepare more people to communicate astronomy. Formative programmes as GTTP may become very helpful to teach professors of natural sciences. Selecting them from instructors of Explorers Pioneers (like Boy Scouts, worldwide) may be a way to start. To recognise the problem of local light pollution during star counts may be a very valid and formative way to develop citizen conscience, love for nature, fight against climate change, and recognise the integrated role of school and family in formation of future generations.
- It is emergent to develop some effort to build commercialised telescopes or binoculars that may be used in schools. Any help will be welcome.
- It is necessary to involve authorities and to put existent resources at the service of the popularisation of astronomy, as the new inflatable planetariums, little telescopes (maybe Galileoscopes?), some exhibitions

(maybe some dismounted from FETTU) to extend this effort to the whole country, local transport, etc. Local amateurs will be very helpful.
- There is enormous potential in youth to be used, and there are sectors that may easily be developed using the same resources already exist in our universities. Let's say, for instance, to develop virtual communities about astronomy or astronautics on the web, or fans of software as Celestia or Stellarium, that may enjoy and, at the same time, provide a valid way to get close to astronomy and formative open source initiatives. Organising future contests of 3D design and programming may be productive.
- To know experiences from specialists from other countries concerning to solutions and advices about how to circumvent the same problems that we have, has proved to be very useful in our difficult conditions.
- There is almost no possibility to count now with inner sources for funding. It is necessary to find external sources for development projects. International help here is welcome again.

## Legacy

We believe that the most important legacy to the future must be to have left many successful projects open and working. Surely, other countries, as mine, now will use those previous experiences to get involved with new projects, maybe because they couldn't do it in 2009. Having less pressure and the security to count on new friends and collaborators worldwide who are ready to share their findings and discuss their already identified problems in socialising astronomy. Thanks to them, in Cuba now we are now planning to participate in the Galileo Training Teacher Project (a much needed help), Galileoscope, Eratóstenes experiment, Dark Skies Awareness, GLOBE at Night, and maybe others, as part of our "Beyond 2009" programme .

## Comments

We wish to thank the effort of so many people around the world who helped with this long and complex journey, and we are very happy with the decision — which may be the most important tribute of this celebration to science — to keep the most of the projects alive, after finishing IYA2009. In future years, we hope to see the actual harvest of the hard work that every country performed so well. It was a very wise decision to dedicate the past year not to scientists but to the people who need to know what science is about. But we are not living in the world that everybody dreams and needs, and many people do not have the same possibilities to access the wonderful information that exists, so we have two main observations:

- It is necessary to collaborate to internationalise more and more information in different languages, mainly resources that are intended to be in the hands of common people. English may be the idiom to be used between scientists and communicators, to share our organisational guidelines or final reports, but we have to produce more materials in vernacular languages if we want to reach a wider public, that includes children and minorities. Even Spanish, which means more than a complete continent, was very poorly represented on the web on IYA2009 sites of Cornerstone projects, for instance. Maybe many people, as me, would want to help, but sometimes we have no material conditions to do it. Help us to help!
- And finally, remember that too much of what is organised could only supported by top technologies. If we establish every worldwide discussion or the possibility to share our experiences require to become a participant of an internet forum or via chat on Skype (something very natural for most of us); if we also think that everybody can download wonderful materials and even print them; we are leaving out many people that maybe have no access to full speed internet, e-mail services, forums, Skype, downloads, printers, computers, knowledge on informatics or even electricity. Our world still has enormous breaches and they have to be considered to make the ancient science of astronomy (science at last!) accessible as everybody deserves. Fortunately, on this journey we have seen examples of initiatives so well designed that they may overcome this issue.



# Cyprus

## National Node

Marios Iordanou
Cyprus Astronomical Society

Official Languages

- Greek
- Turkish
-

Number of organising committee members: N/A

Population: 870 000

Number of people reached by IYA2009: N/A

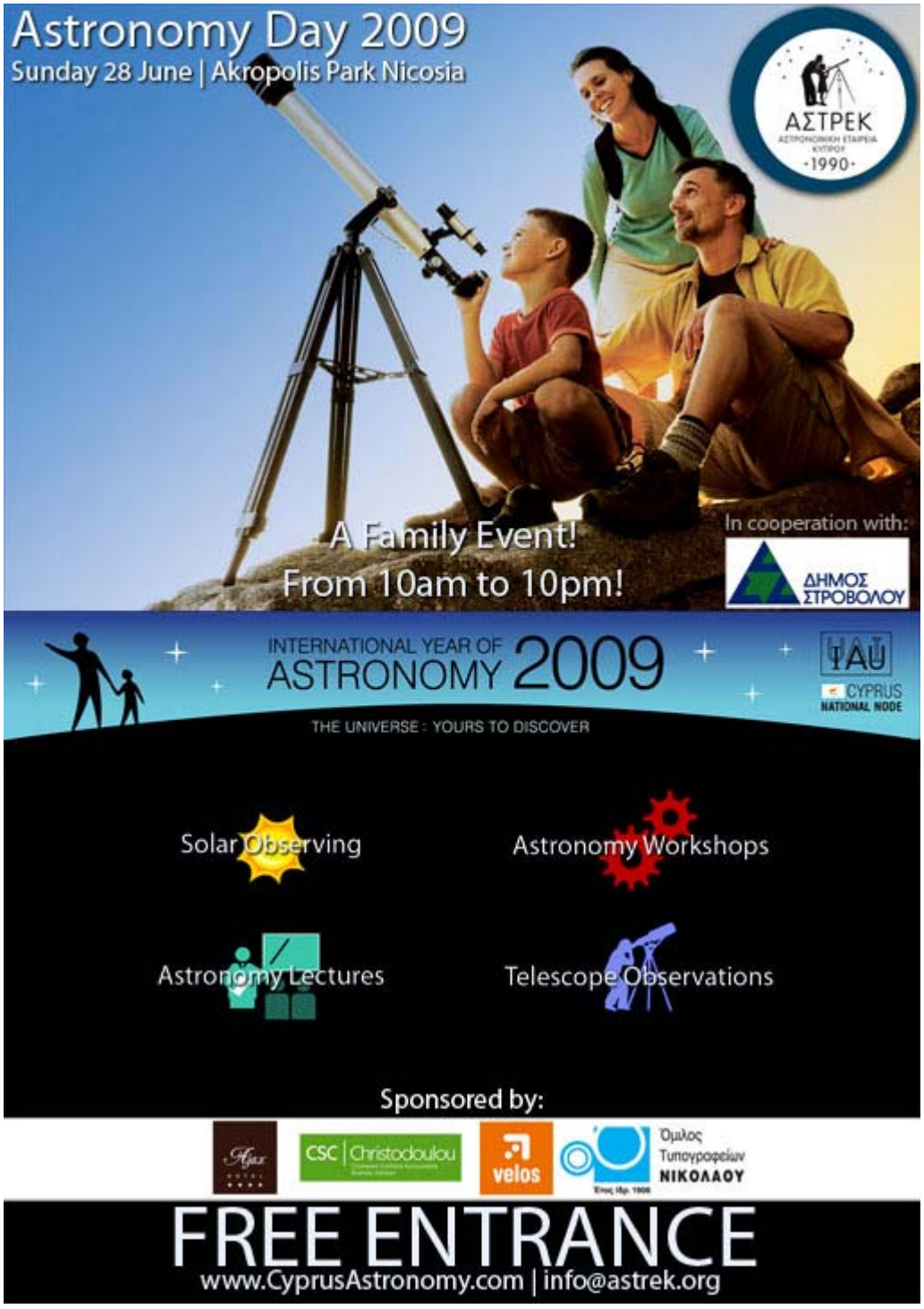
Budget: N/A

## Main Activities

The IYA2009 activities in Cyprus were organised by the Cyprus Astronomical Society

### Astronomy Day 28 June 2009

Under the umbrella of the International Year of Astronomy 2009, the Cyprus Astronomical Society with the co-operation of the Strovolos Municipality organised the “Astronomy Day 2009”! This event, the first of its kind in Cyprus, had the ambition to become a regular occurrence and to inspire people to step into the magnificent world of Astronomy! Location: Acropolis Park Nicosia.




Event activities included:

- Solar observing through special SAFE telescopes
- Astrophotography exhibitions from C.A.S. members as well as the world famous Anthony Ayiomamitis
- Workshops and lectures regarding various subjects of Astronomy and Astrophysics
- Night time telescope observing of the Moon and planets

# Czech Republic

## National Node

Bruno Jungwiert (Astronomical Institute of the Academy of Sciences of the Czech Republic)

www.astronomie2009.cz

Official Languages
- Czech

Number of organising committee members: 8
- Volunteers: 8
- Paid: 0

Population: 10 506 813

Number of people reached by IYA2009: 600 000

Budget: 100 000€

## General Overview of IYA2009 activities in Czech Republic

Many national activities oriented towards large public. Important contributions to global IYA2009 activities / IYA2009 legacy: IYA2009 opening ceremony for the European Union; Kepler's Heritage international conference and Kepler's Museum to celebrate 400 years of Kepler's Astronomia Nova; Bolides and Meteorite Falls international conference / exhibition to celebrate the 50th anniversary of the Příbram meteorite fall; Czech-Polish Jizera Dark-Sky Park.

## Main Activities

### List of Activities

- New Year's Day observations of the Sun (Kleť, Ondřejov, Rokycany, Slaný, Úpice), 1 January;
- IYA2009 Opening Press Conference at the Academy of Sciences of the Czech Republic, 5 January;
- IYA2009 Opening Day, Prague, Old Town Square, 7 January;
- IYA2009 Opening Ceremony for the European Union, Prague, Old Town Square, 7 January;
- Opening of the Exhibition "Universe — Yours to Discover", Prague, National Theater, 7 January;
- Exhibition "Universe — Yours to Discover", Prague, Brno, Ostrava, Košice, 7 January — 31 October;
- "100 hours of astronomy" (Karlovy Vary, Kleť, Litomyšl, Ondřejov, Úpice), 2-5 April;
- Emission of stamp "Johannes Kepler — Astronomia Nova 1609" by the Czech Post Office, 6 May;
- "Bolides and Meteorite Falls", international conference, Prague, 10-15 May;
- "Bolides and Meteorite Falls", public exhibition, Prague, 11-22 May;
- "Binaries — Key to the Comprehension of the Universe", international conf., Brno, 6-12 June;
- "Kepler's Heritage in the Space Age", international conference, Prague, 24-27 August;
- Opening of the new Kepler's Museum in Prague, 25 August;
- Astronomical Festival, Brno, 10-13 September;
- Galilean Nights, 22-24 September;
- Commemorative silver coin "Kepler's Laws of Planetary Motion" emitted by the Czech National Bank, 21 October;
- Opening of the Czech-Polish Jizera Dark-Sky Park, Jizera Mountains, 4 November;
- Commemorative gold/silver medal "Galileo — International Year of Astronomy 2009" emitted by the Czech Mint, 9 November;

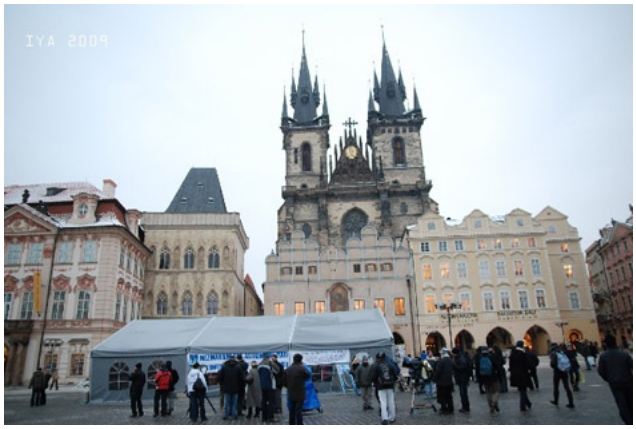
- IYA2009 on Radio Blaník, radio broadcasting, 24 November — 23 December;
- IYA2009 Closing Ceremony, National Library of the Czech Republic, Prague, 21 December;
- "Last 24 hours of IYA2009", internet broadcasting from the Observatory and Planetarium in Ostrava, 31 December;
- Literary competition "The Universe of my youth", throughout 2009;
- Photography competition "Let's shine to our road ... not to stars", throughout 2009;
- Photography competition "Czech astrophotography of the month", throughout 2009;
- Astronomy Olympiad, throughout 2009;
- National IYA2009 webpage www.astronomie2009.cz, throughout 2009;
- IYA2009 Closing Press Conference at the Academy of Sciences of the Czech Republic, 11 January 2010.

## IYA2009 Opening day in the Prague historical downtown (7 January)

All-day IYA2009 opening event for the public and professional astronomers. Highlights: 1) All-day observations of the Sun at the Prague's Old Town Square with amateur telescopes; 2) All-day exhibition of large-format astronomical photos in an astronomical tent at the Prague's Old Town Square; 3) IYA2009 Opening Ceremony for the Czech Republic and European Union under the Prague's Astronomical Clock at the Old Town Square; addresses given by: C. Cesarsky (IAU President), J. Potočnik (EU Commissioner for Research), V. Pačes (President of the Academy of Sciences of the Czech Republic) and a representative of the Czech Government 4) Opening of the exterior exhibition "Universe — Yours to Discover" at the National Theatre Piazzeta; addresses by C. Cesarsky (IAU President), V. Pačes (President of the Academy of Sciences of the Czech Republic) and O. Černý (Director of the National Theatre).

Organisers: Czech National Committee for IYA2009, Academy of Sciences of the Czech Republic, Astronomical Institute of the Academy of Sciences of the Czech Republic, Czech Astronomical Society, Prague City Hall, National Theatre, European Commission, International Astronomical Union.

Website:
http://www.astronomie2009.cz/cz/fotogalerie/slavnostni-zahajeni-mezinarodniho-roku-astronomie-2009-v-evropske-unii/1.html
http://www.astronomie2009.cz/cz/pro-media/slavnostni-zahajeni.html
http://www.astronomie2009.cz/cz/fotogalerie/zahajeni-vystavy-vesmir--dobrodruzstvi-objevu-/2.html












Estimated number of people who attended or were reached by this activity: 2000

Budget: 9600€

## Exhibition “Universe — Yours to Discover” (January-September)

Itinerant exterior exhibition of 48 large (2x2m) astronomical photos (Solar system, stars, nebulae, galaxies...) with accompanying texts in Czech and English; Authors: G. Tenorio-Tagle (INAOE, Mexico), E. Pérez (IAA, Spain), J. Palouš (Astr. Inst. ASCR, Prague); Locations: Prague (7 January — 31 March), Brno (2 April — 16 June), Ostrava (23 June — 31 August), Košice (Slovakia, 4-30 September).

Organisers: Academy of Sciences of the Czech Republic, Astronomical Institute of the Academy of Sciences of the Czech Republic, Prague City Hall, National Theatre, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico), Instituto de Astrofísica de Andalucía (Spain), Observatory and Planetarium of M. Kopernik in Brno, Observatory and Planetarium of J. Palisa in Ostrava, Ostrava Museum, City District of Ostrava and Přívoz.

Website: http://www.astro.cz/







Estimated number of people who attended or were reached by this activity: 550,000

Budget: 50,000€

## 100 hours of astronomy (2-5 April)

Four days and nights of astronomy for the public (exhibitions, observations, talks) within the framework of the global IYA2009 Cornerstone project.

Organisers: Czech National Committee for IYA2009, Astronomical Institute of the Academy of Sciences of the Czech Republic, Czech Astronomical Society, Association of Observatories and Planetaria.

Website: http://www.astronomie2009.cz/cz/klicove-projekty/100-hodin-astronomie/akce-100-hodin.html






Estimated number of people who attended or were reached by this activity: 4000

Budget: 900€

## Bolides and Meteorite Falls

1) International conference on the occasion of the 50th anniversary of the Příbram meteorite fall, and of the 80th birthday of Zdeněk Ceplecha (Prague, 10-15 May);

2) Public exhibition on the occasion of the 50th anniversary of the Příbram meteorite fall (Prague, 11-22 May)

Organisers:
Conference: Astronomical Institute of the Academy of Sciences of the Czech Republic.
Exhibition: Astronomical Institute of the Academy of Sciences of the Czech Republic, Academy of Sciences of the Czech Republic, Museum of Vysočina in Jihlava.

Website: http://www.bolides09.com/




Estimated number of people who attended or were reached by this activity: conference: 62; exhibition: 1500

Budget: exhibition 450€

## Binaries — Key to the Comprehension of the Universe

International conference on binary stars (Brno, 8-12 June)

Organisers: Dept. of Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University, Brno, Czech Republic Astronomical Institute, Charles University, Prague, Czech Republic Astronomical Institute, Academy of Sciences of the Czech Republic, Ondřejov, Czech Republic Astronomical Institute of Slovak Academy of Sciences, Tatranská Lomnica, Slovakia.

Website: http://astro.physics.muni.cz/binkey/



Estimated number of people who attended or were reached by this activity: 150

Budget: 200€

## Kepler's Heritage in the Space Age

International conference on the occasion of the 400th anniversary of Kepler's Astronomia Nova, Prague, 24-27 August.

Organisers: National Technical Museum in Prague, Astronomical Institute of the Academy of Sciences of the Czech Republic, Czech Astronomical Society.

Website: http://www2.ntm.cz/projekty/kepler2009/index.php

Estimated number of people who attended or were reached by this activity: 100

Budget: 3500€

## Kepler's Museum in Prague

The new Kepler's Museum in the Prague historical downtown, in a house in which Johannes Kepler lived during the last five years of his Prague stay (1607-1612) and where he prepared his Astronomia Nova. The Museum was founded during IYA2009 under the auspices of the Prague Mayor, and thanks to the generosity of the owner of the museum's premises, Mrs. Jitka Steinwaldová, the professional and organisational support of the Czech Astronomic Society, and the financial support of the Prague City Hall and the ProVás Agency.

Organisers: Czech Astronomical Society, ProVás Agency, Prague City Hall, Ms. Jitka Steinwaldová.

Website: http://www.keplerovomuzeum.cz/en/



Estimated number of people who attended or were reached by this activity: opening ceremony: 300; throughout the year: 4000

Budget: 21,000€

## Astronomical Festival in Brno (10-13 September)

A four-day national meeting of amateur and professional astronomers, manufacturers and importers of astronomical technologies (talks, exhibitions).

Organisers: Observatory and Planetarium of M. Kopernik, Brno, Dept. of Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University, Brno, Association of Observatories and Planetaria.

Website: http://www.astro.cz/clanek/3827

Estimated number of people who attended or were reached by this activity: 250

Budget: 4000€

### Jizera Dark-Sky Park

Dark-sky park in Jizera Mountains extending across the Czech-Polish frontier. Bilateral Czech-Polish project, realised as a part of the IYA2009 activities.

Organisers:

Czech side: Astronomical Institute of the Academy of Sciences of the Czech Republic Protected Landscape Area Jizerské hory Liberec Regional Directorate of Czech Republic Forests.

Polish side: Astronomical Institute of the University of Wrocław Polish State Forests, Forestry Commission Świeradów Polish State Forests, Forestry Commission Szklarska Poręba.

Website: http://www.izera-darksky.eu/

Estimated number of people who attended or were reached by this activity: 5000

Budget: 6100€

### Commemorative IYA2009 stamp, coin and medal

- Commemorative stamp “Johannes Kepler — Astronomia Nova 1609 — International Year of Astronomy 2009”, emitted by the Czech Post Office, May 2009;
- Commemorative silver coin “Kepler´s Laws of Planetary Motion”, emitted by the Czech National Bank, October 2009;
- Commemorative gold/silver medal “Galileo Galilei — International Year of Astronomy 2009, emitted by Ms. Alena Šimková in collaboration with the Czech National Committee for IYA2009;

Organisers: 1) Czech Post Office 2) Czech National Bank 3) Czech National Committee for IYA2009, and Ms. Alena Šimková.

Website:

- http://www.astronomie2009.cz/cz/pro-media/postovni-znamka.html
- http://www.cnb.cz/en/banknotes_coins/numismatics/silver_coins/2009/psm_kepler.html
- http://www.numismatikus.cz/

## Legacy

The Czech organising committee for IYA2009 formally ceased its activities by the end of January 2010. The education and public outreach activities in astronomy will continue beyond 2009, their main organisers will be the Czech Astronomical Society and the Association of Observatories and Planetaria.

# Denmark

## National Node

Kristian Pedersen (Instrument Center for Danish Astrophysics)
kp@dark-cosmology.dk
www.astronomi2009.dk

Official Languages
- Danish

Number of organising committee members: 6-10
- Volunteers: 9
- Paid: 1

Population: 5 534 738

Number of people reached by IYA2009: 200 000

Budget: 150 000 €

Sources:
- Instrument Center for Danish Astrophysics (10 000 €)
- Public and private foundations (140 000 €)

## General Overview of IYA2009 activities in Denmark

The national coordinator was appointed early 2007 and an IYA2009 kick-off meeting for the astronomy community at large in Denmark was held in the spring of 2007. A national committee was established during summer 2007 with representatives from a wide range of "actors" within Danish astronomy. The national centre without walls, Instrument Center for Danish Astronomy (IDA, www.astrofysik.dk), hosted the IYA2009 activities in Denmark and supported the activities by allocating 10% of the national coordinators time 2008-2009 to IYA2009 activities as well as funding for setting up a national web site and supporting national meetings. Crown Prince Frederik of Denmark kindly agreed to be protector for IYA2009 in Denmark.

It was readily agreed upon in the national committee that, given the prospects for attracting funding and volunteer man-power in Denmark, the committee should focus efforts and resources on rather few national scale activities, but also support / encourage / coordinate local activities. It was also agreed that most activities should aim at people who would not actively engage in astronomy, but who would do so if given a small push. Working groups within the most obvious areas were established (primary school, high school, astronomy clubs) and they initiated and coordinated activities within their area.

A national call for suggestions for major IYA2009 national activities was issued to the astronomical community in Denmark in 2008. 20 proposals were submitted and the national committee selected five of these as top priority and a further seven proposals as second priority, but worth pursuing if funding could be attracted. Funding applications to public and private foundations were issued by the national coordinator on behalf of the national committee. In total about 140 000 € was granted to IYA2009 activities in Denmark.
We successfully launched and organised major activities aiming at the general public (mobile exhibition, exhibition at The Royal Rosenborg Castle, popular astronomy leaflet, local astronomy club events, film: The Moving Earth) as well as an activity in primary schools (Galieloscopes: "Børn af Galileo") and an activity in high schools (book: "Dansk astronomi i kikkerten"). Given the modest basic funding by IDA and the limited funds raised on top of this, the impact of the IYA2009 efforts exceeds what can be expected. This is mainly due to the many volunteers

investing a lot of time in the activities. Several of the activities will have long lasting effects, which cannot yet be evaluated.

### List of Activities

- Web portal: National IYA2009 web site with astronomy picture of the day, calendar with events during IYA2009, etc.
- Exhibition: “Hvor er jeg?”, exhibition about measuring time, featuring historic astronomical clocks at The Royal Rosenborg Castle.
- Galileoscopes: “Børn af Galileo”, building Galieloscopes in primary school classes.
- Local astronomy club events.
- Popular leaflet on astronomy: “Astronomisk Guide” on astronomy in Denmark and astronomy in general, printed in 100 000 copies and distributed to schools, high schools and libraries.
- Book: “Dansk astronomi i kikkerten” with contributions from 14 Danish astronomy researchers about their research — in historical and international perspective.
- Mobile exhibition: Danish version of FETTU with 40 posters of fascinating astronomy pictures.
- Film: The Moving Earth — about the emergence of the modern view of the world.

## Main Activities

### National web portal

A national web site was established with astronomy picture of the day, calendar of activities, contact points, web links, etc. This was the virtual focal point of the activities in Denmark.

Organisers: Kristian Pedersen.

Website: www.astronomi2009.dk

Estimated number of people who attended or were reached by this activity: About 100 unique hits per day — averaged over the whole year 2009.

Budget: 10 000 €

### Exhibition: “Hvor er jeg?”, exhibition about measuring time at The Royal Rosenborg Castle

An exhibition about measuring time featuring historic astronomical clocks, mainly from the Øster Vold Observatory, Copenhagen. The exhibition was opened by Crown Prince Frederik of Denmark and was open to the public for three months.

Organisers: The Royal Rosenborg Castle and astronomy consultants (Anja C. Andersen, Henning E. Jørgensen, the Dean of Faculty of Science, University of Copenhagen).

Website: www.rosenborgslot.dk

Estimated number of people who attended or were reached by this activity: Not known, but The Royal Castle of Rosenborg, home to the Danish Crown Jewels, is visited every day by hundreds of people during the winter season and many of these also visited this exhibition. Hence a qualified guess is around 1000 people per week — or 10 000 people for the duration of the exhibition.

Budget: The staff at The Royal Castle of Rosenborg set up the exhibition and funded it out of their regular budget for exhibitions, so it is difficult to give a budget for this exhibition. My guess is around 30 000 € in direct expenses for setting up the exhibition.

## Galileoscopes: “Børn af Galileo”




This is the Danish version of building Galileoscopes. 1450 Galileoscopes were purchased through the IYA2009 vendor and two class sets with instructions (2 x 20 Galileoscopes) were distributed to each of the regional educational centres in Denmark. These centres then lent the class sets to the local schools and gave one day courses for teachers on how to include Galileoscope activities in the school curriculum.

Organisers: Carsten Andersen (Bellahøj Skole), Erland Andersen (Naturlærerforeningen) and Mikael Svalgaard (NKT Photonics A/S).

Website: www.boernafgalileo.dk

Estimated number of people who attended or were reached by this activity: We did not receive the Galileoscopes until the beginning of 2010, but in 2008-2009 1100 school children were involved in a smaller pilot project. I estimate that each Galileoscope will be used by at least three school kids per year so this amounts to at least 5000 school children per year. On top of this, at the end of the Galileoscope class project, the class typically hosts a stargazing event where family and other classes at the school are invited. These events typically results in a turn-out of approximately 100 family members or school children from other classes turning up. Hence, I estimate that in total around 10 000 people per year attend activities relating to “Børn af Galileo”. This will continue at least for the next few years.

Budget: 14 000 € for launching this as a national project (buying the Galileoscopes). Approximately 10 000 € was used on the pilot project and for the purchase of a big telescope for the stargazing events.

## Local astronomy club events

During IYA2009 approximately 20 astronomy clubs throughout Denmark organised more street side events than they usually do. It was attempted to coordinate events across Denmark, but this proved very difficult so in reality each club organised its own events and notified the local press, as well as posted it on the national IYA2009 website.

Organisers: Local astronomy clubs.

Website: http://astronomisk.dk/?Astronomiske_foreninger

Estimated number of people who attended or were reached by this activity: Due to the lack of coordination between clubs it is virtually impossible to come up with a credible guess at the number of people reached. The clubs also vary in size — between 10 and 250 members. However, each club typically attracts between 10 and 100 people for their events and, on average, each club organised one bigger event during IYA2009 — so probably around 1000 people attended the “extra” IYA2009 events.

Budget: No “extra” funding was granted to this activity.

**Popular leaflet: “Astronomisk Guide”**A 60-page popular leaflet on astronomy in general, and Danish amateur and professional astronomy in particular, was printed in 100 000 copies. These were distributed to public schools, high schools, libraries and astronomy clubs for further distribution.

Organisers: Astronomisk Selskab, Anja C. Andersen and Kristian Pedersen.

Website: http://astronomisk.dk/?ASTRONOMISK_GUIDE

Estimated number of people who attended or were reached by this activity: 70 000 copies have been distributed so far — the rest will be distributed at astronomy events over the next year.

Budget: 45 000 €

## Book: “Dansk astronomi i kikkerten”




A book on contemporary Danish astronomy with chapters written by Danish astronomy researchers on their research in historic and international perspective. Each chapter is self-contained and altogether the book covers most of the main astronomy research fields. The book is aiming at high school students and teachers as well as anyone interested in astronomy. Funding was obtained to print and distribute the book to the 1200 physics / astronomy teachers in Danish high schools. As a spin-off, editor of the book, Lone Bruun, started her own publishing company, focusing on high-quality science books.

Organisers: Lone Bruun and Kristian Pedersen.

Website: http://forlagetepsilon.dk/?page=84

Estimated number of people who attended or were reached by this activity: Typically around 1000 copies of books like this are sold in book stores, so in total around 2500 people will get a copy. If each book is read by two people, this involves about 5000 people.

Budget: 30 000 € for printing and distributing copies of the book to physics/astronomy high school teachers.

## Film: The Moving Earth



This film is a documentary on the emergence of our world view in Renaissance Europe and combines interviews with world-leading science history experts with acting sequences and animations bringing history to life. The film has won several international film prizes and can be purchased on DVD. An accompanying book in Danish aiming at high school level has been issued as well. There is a Danish, as well as an English, version of the film.

The film was in the planning already before the Danish IYA09 activities got going. However, Danish Doc and the Danish National Coordinator joined forces to the benefit of the film as well as the Danish IYA2009 activities. Hence, the IYA2009 organisation probably catalyzed the fundraising for the film and the opening event of IYA2009 in Denmark at The Royal Library, “The Black Diamond”, featured the first show of the film as the main event. Out of the 500 people attending the opening about half of those clearly showed up mainly because of the film premiere and as such broadened the attention to IYA2009 in Denmark.

Organisers: Lars Becker-Larsen and Danish Doc.

Website: http://danishdoc.dk/movingearth_uk.html

Estimated number of people who attended or were reached by this activity: The film toured Denmark in 2009 and was seen by some 10 000 people.

Budget: The total budget of the film was about 500 000 €. This was all secured by the production company Danish Doc, mainly through funding applications — some of which included recommendation letters from national coordinator Kristian Pedersen. Since the film was in the planning before IYA2009 and it did not receive direct funding through the Danish IYA2009 organisation, it is not counted in the Danish IYA2009 budget.

### Mobile exhibition: “Universet — din oplevelse”




This is the Danish version of FETTU. Already before we got to know about FETTU we started planning a mobile exhibition with fascinating astronomy pictures in Denmark, i.e. basically the FETTU concept. However, we strongly benefitted from the many available hi-res images from the FETTU when we selected the final 40 images, which were presented on 20 stands with a few lines of explanatory text. The exhibition toured Denmark April 2009 — February 2010 (see the web site for list of locations (http://astronomi2009.dk/udstilling/plan) and will be placed permanently at one of the science centres in Denmark. A copy of the exhibition was bought by the city of Copenhagen for touring the schools of the city. We obtained funding for producing the exhibition and an accompanying leaflet in 10 000 copies. Expenses for transporting, setting up and taking down the exhibition were covered by the host at each location at a unit price of 2000 €.

Organisers: Lone Bruun and Kristian Pedersen.

Website: http://astronomi2009.dk/udstilling/universet-din-oplevelse

Estimated number of people who attended or were reached by this activity: About 100 000, including the schools of Copenhagen.

Budget: 30 000 € for producing the exhibition and an accompanying leaflet in 10 000 copies.

## Lessons Learned

Start early: It takes time to identify and involve the relevant people in the activities as well as raising money. We started out with the first meetings in the spring of 2007 and this was appropriate.

Establish a base: For things to get moving it is crucial that a core team around the national coordinator is set up as early as possible. Some basic funding for meetings, setting up web site is also key to success.

Ambition level: Once the main “actors” have been identified, consensus about the level of ambitions should be reached in order to ensure that the actors are working towards common goals.

Professionalise: We are all communicators and organisers at some level, but if the activities are to be realised — and in an optimal way — professional editors, exhibition organisers, IT specialists, etc. must be hired to run the key activities. Volunteers can then help out and contribute to the major part of the hard work, but the key organisation and development should be done by professionals in order to ensure success.

Funding: A lot can be done by volunteers, but the larger and innovative activities don’t happen unless adequate funding is in place (in particular because of the previous point on professionalism). My estimate is that, for a country like Denmark and an event like IYA2009, at least one euro per capita is required to catch the attention of the media and make a long term impact.

## Legacy

No coordinated effort is planned, but several of the activities will continue beyond IYA2009 and several activities have spawned new collaborations and links between people. This will likely result in new activities, which would not have happened otherwise. In particular two larger projects are in the planning/fundraising phase:

The Space Mystery: a massive entertaining web-based edu-game aiming at high school students. The concept is similar to the Climate Mystery, which was launched up to the COP15 summit in Copenhagen December 2009. Being produced by the Danish company Congin, which built the Climate Mystery, and partnership with ESA, Microsoft, European Schoolnet, eTwining, Niels Bohr Institute and others, the Space Mystery has already secured a broad platform and some seed money from the Danish Film Institute.

“Galileis Verden”: An astronomy learning and exploratory web site for 5-7 year-old kids. Using visual tools, games and stories the site is aiming at activating the kids at, as well as away from, the computer. Galileo is the main character who personalises the activities and guides the kids through the site.



# Democratic People's Republic of Korea

## National Node

Jong Sok
Pyongyang Astronomical Observatory
pptayang@co.chesin.com

Official Languages

- Korean
-

Number of organising committee members: N/A

Population: 24 051 218

Number of people reached by IYA2009: N/A

Budget: N/A




## General Overview of IYA2009 activities in the Democratic People's Republic of Korea

Information not available.



# Dominican Republic

## National Node

Samuel Dominguez Jimenez
Club Astronomico de Santiago Inc
Samueld71@hotmail.com

Official Languages

- Spanish
-

Number of organising committee members: N/A

-

Population: 10 090 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Dominican Republic

Some impressions from the IYA2009 Activities in Dominican Republic




Sala de conferencias
Dr. Carlos Dobal


SOCIEDAD ASTRONOMICA
DE SANTIAGO, R.D. INC.
FUNDADA 5 DE MAYO DEL 1993



# East Timor

## National Node

Paulo Alves Cabral S.Pd
Universidade Nacional Timor Lorosae
alvesrogo@yahoo.com

Official Languages

- Tetum
- Portuguese

Number of organising committee members: N/A

-

Population: 1 134 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in East Timor

Information not available



# Ecuador

## National Node

Ericson Lopez Izurieta
Observatorio Astronomico de Quito
ericsonl02@yahoo.com
http://oaq.epn.edu.ec/IYA_2009/index.html

Official Languages

- Spanish
-

Number of organising committee members: N/A

Population: 14 790 608

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Ecuador

Information not available

# Egypt

## National Node

Ayman Elsayed
(Deputy Director, Planetarium Science Center, Bibliotheca Alexandrina)
ayman.elsayed@bibalex.org

http://www.bibalex.org/psc/Home/iya.aspx?lang=en

Official Languages
- Arabic

Number of organising committee members: 6
- Volunteers: 6
- Paid:

Population: 77 420 000

Number of people reached by IYA2009: 4000

Budget: 15 000€

## General Overview of IYA2009 activities in Egypt

The New Library of Alexandria is much more than a library. Its main building contains a library that holds millions of books, four museums: (Antiquities, Sciences and Manuscripts, El-Sadat), seven research and documentation institutes, a Planetarium and much more… The Library receives over than 1 200 000 visitors and over 700 events per year.

The Planetarium Science Center (PSC) is an affiliate centre of the Bibliotheca Alexandrina. It contains three different parts: History of Science Museum, ALEXploratorium, and Planetarium. The PSC is reinforcing its unique role in the cultivation of creative citizens interested in science and technology by embarking on a major transformation — one that will address a changing world and build on a prominent history.
In Addition, the PSC organises international events as the following:

- Einstein 2005
- Solar eclipse 2006
- International Year of Astronomy 2009

## Main Activities

- Astronomy Olympiad
- Earth Hour
- Space Technology Programme
- Universe Awareness Programme
- Zoom Earth Programme
- 100 Hours of Astronomy
- International Day of Astronomy
- Eratosthenes Festivity
- Workshops
- Observation Camps
- “Heavenly Pages” Exhibition

- Arab Astronomers
- She is an Astronomer “Saint Catherine Camp”
- “From Earth to the Universe” Exhibition

## Astronomy Olympiad: 1 February – 28 March

It is a sort of competition targeting school students, from 10 to 13 years of age targeting basics of astronomy. We covered 12 teams from schools in Alexandria. In addition, the winners participated in the international Expo-Sciences 2009 in Tunisia. We invited Dr. Robert Williams; Former Director of Hubble Space Telescope Science Institute and Dr. Jeffrey Hoffman; NASA astronaut to give two interesting lectures for the students.

## Earth Hour: 28 March

Earth Hour was not about countries, but about our planet. VOTE EARTH was a global call to action for every individual, every business, and every community. It is a call to stand up and take control over the future of our planet. Over 74 countries and territories had pledged their support to VOTE EARTH during Earth Hour 2009.

## Space Technology Program: February – August

In collaboration with the National Authority of Remote Sensing and Space Science “NARSS”, the “Space Technology” programme was developed to simplify concepts of satellite components and applications, as well as image processing. The programme achieves its goal through multiple activities: lectures, hands on activities, software, field trips, and research.

## Universe Awareness Programme : February – December



UNAWE is a significant programme to promote astronomy concepts among school children in Alexandria. UNAWE distribute “Universe Awareness” kits that contain interactive activities for students from 10 to 15 years of age, at under-privileged schools. The students have the chance to get to know more information about the Solar System, planets, galaxies and constellations. On a weekly basis, visits by the PSC animators were organised to one of the schools to brief them about the related activities.

## Zoom Earth Programme : February – December

“Zoom Earth” programme is concerned with observations of Earth from space by means of satellites. Satellites capture images that differ according to the type of light waves reflected by different elements on Earth, using very sensitive equipment to visible and invisible light. By analysing the images provided by the satellites, professionals get the information they need to better monitor and study Earth.

## 100 Hours of Astronomy: 5 April

100 Hours of Astronomy was a global event, which was held on 2-5 April 2009. It was an event where visitors got the chance to discover the Universe through a number of free public activities taking place all around the world. The event in Egypt included sky observation, a lecture by a resident astronomer, Mr. Ayman Ibrahim, about the Moon and Galileo, as well as a workshop about sundials.

## International Day of Astronomy: 7 May

PSC has celebrated an International Day of Astronomy, where specialists conducted a number of astronomical interactive games, as well as a exhibition " Astronomy, a Photographic Experience" and lecture given by Dr. Fathi Saleh, Director of the Center of Documentation of Cultural and Natural Heritage (CULTNAT), to fulfil the international purpose of the event and to answer the students questions. At the end of the event, practical astronomical observations have been conducted at the BA Plaza.

## Eratosthenes Festivity: 21 June



Eratosthenes festivity is an annual event that takes place on 21 June, and includes a series of activities: lecture presents Eratosthenes history and his methodology in measuring the circumference of the Erath from 2000 years ago, measurement on the library Plaza and a Videoconference between the Alexandria, Aswan and other countries students to exchange the results. In 2009, 600 students participated from schools and Alexandria, and Argentina and USA participated for the first time.

## Workshops: 21 June

These workshops aim to educate the students and raise their awareness about space, astronomy, and the planets.

Stars workshop: A star is a massive, mysterious luminous ball of plasma that is held together by its own gravity. The nearest star to Earth is the Sun, which is the source of most of the energy on Earth. Other stars are visible in the night sky when they are not outshone by the Sun. In this workshop, students will discover the names of the stars, their characteristics and classifications, in addition to many other interesting facts.

Solar Systems workshop: Our Solar System consists of the Sun and the celestial objects bound to it by gravity. For thousands of years, humanity did not recognise the existence of the Solar System. They believed the Earth to be at the centre of the Universe, and categorically different from other objects that moved in space. Nicolas Copernicus was the first to develop a mathematically predictive heliocentric system. Then, his successors developed an understanding of physics that led to the gradual acceptance of the idea that the Earth moves around the Sun, and that the planets are governed by the same physical laws that govern the Earth. This workshop is about the different planets of the Solar System.

Astronomy workshop: Astronomy is one of the oldest sciences. It is the scientific study of celestial bodies and phenomena. It is concerned with the evolution, physics, chemistry, meteorology, and motion of celestial objects, as well as the formation and development of the universe. In this classic workshop, students learn more about the Solar System through a variety of fun experiments, including the making of a solar system model and the construction of a rocket!

## Observation Camps: June – August



"Discover your environment" is a programme of specialised camps for students. The challenge is to manage and provide a constructive method to make students interact and be in harmony with their environment. The students were visiting Saint Catherine, Siwa, Ras Mohamed protectorates. They learn how to get surround to the environment and cultural diversity. In addition, they attend night observations, and they learn the scientific problem solving, and team work.

## "Heavenly Pages" Exhibition : 22 June – 21 July

The 17th annual meeting of the European Society for Astronomy in Culture (SEAC) was held at the Library of Alexandria. The meeting's concern was to demonstrate the chronological evolution of astronomy throughout history and the rising and falling of different civilisations. SEAC 2009 has chosen the BA as located on the Mediterranean coast at the meeting point of Eastern and Western civilisation.

## Arab Astronomers: 6 December

The Planetarium Science Center (PSC) is organizing the "Arab Astronomers week" that will start from 6 to 10 December to revive the glory of Arab astronomers among youth through research and discovery work. This week will include a series of hands-on activities, lectures and shows concerning this theme. This event will be presented to the children from preparatory schools as well as individuals to highlight the importance of Arab contributions in the Astronomy fields, through their tools and methods used to develop this field. The History of Science Museum will host an exhibition, "Arab Astronomers", on 2 December 2009 about astronomical tools from all over the world. The exhibition is open to the public, and is expected to help competitors with their research and raise the public awareness at large.

## She is an Astronomer "Saint Catherine Camp": 11–15 December

The aim of the camp is to develop the female students thinking skills and to encourage females to pursue astronomy professionally. These values are the cornerstone of building Egyptian future women astronomers and leaders. Over and above the astronomical activities, girls will discover history of Saint Catherine through a number of organised home visits, camp participants will learn about its history, traditions and culture.

## "From Earth to the Universe" Exhibition: 5 October – 1 November



From Earth to the Universe (FETTU) is a collection of astronomical images that will showcase the most dramatic views of our Universe. The images represent the incredible variety of astronomical objects that are known to exist — planets, comets, stars, nebulae, galaxies and the clusters in which they congregate — and will be exhibited in numerous locations throughout the world in 2009. These exhibits, held in public parks, airports, art centres and at other unique sites, will bring the wonders of the Universe right to you. Over 30 countries are scheduled to host a FETTU exhibit. The images in “From Earth to the Universe” are a sample of the wide range of objects in the Universe. The diversity in size and shape and more between these objects is amazing.

## Lessons Learned

Always work internationally.

## Comments

Very successful event.



# El Salvador

## National Node

Américo Mejía
Facultad de Ciencias Naturales y Matemáticas
jheliasd@yahoo.es

Official Languages

- Spanish
-

Number of organising committee members: N/A

Population: 28 150 000

Number of people reached by IYA2009: 6 134 000

Budget: N/A

## Main Activities

### Astronomy course: “Curso Libre de Astronomía”

November 2009
Escuela de Fisica, Facultad de Ciencias Naturales y Matemática
Website: http://debian.ues.edu.sv/node/243



# Eritrea

## National Node

Baskaran Ramadoss
Geography teacher
baskaran5002@yahoo.co.in

Official Languages

- Tigrinya
- Arabic
- English
-

Number of organising committee members: N/A

Population: 28 150 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Eritrea

Information not available.

# Estonia

## National Node

Kalju Annuk (Tartu Observatory)

www.astronomy2009.ee

Official Languages
- Estonian

Number of organising committee members: 0
- Volunteers: 0
- Paid: 0

Population: 1 340 021

Number of people reached by IYA2009: 265 000

Budget: 2000€

Sources:
- Estonian Ministry of Education and Research

## Main Activities

### List of Activities

- Public observation nights;
- Competition of drawing for school children;
- Competition of computer drawing;
- FETTU exhibition;
- New webpage “Gateway to Estonian astronomy”;
- Convention of Estonian professional and amateur astronomers;
- Popular presentations in media and for wide public.

### Public observation nights

Public observation nights were one of the main activities in the frame of IYA2009 in Estonia. We planned and organised more than 40 public nights during the last year. Mainly, the observation nights took place at Tartu Observatory in Toravere, at Tartu Old Observatory in Tartu and in Tallinn (actronomical Club “Ridamus”). We also organised several public observations at different places in Estonia using the small Meade telescopes. Such public nights were in Valga, Viljandi, Sindi, Rakvere, Türi, and Otepää. Unfortunately, the weather last year was very bad for the observations. In many cases the sky was totally or partially cloudy. In these cases the virtual planetarium programme “Starry Night” was demonstrated.

Organisers: Tartu Observatory, Astronomical Club at Tartu Old Observatory, Astronomical Club “Ridamus”, Science Center AHHAA.

Estimated number of people who attended or were reached by this activity: 3000

## Competition of drawing for school children

In spring 2009 we organised a competition of drawing for school children. All participants were divided into three groups: 1-4 class, 5-9 class, and 10-12 class. The deadline was 10 May and more than 200 very nice and interesting pictures came in. The topic was free — we accepted all pictures connected with astronomy, space or sky. There were many pictures about stars, planets, the Moon, rockets, astronauts, etc. All winners received prizes like Galileoscopes, astronomical books, planispheres, etc. For the fantasy and originally some special prizes were also given out.

Organisers: Tartu Observatory

Estimated number of people who attended or were reached by this activity: 250

Budget: 500

## Competition of computer drawing

In autumn 2009 there was another competition, this time of computer drawing. There were nine astronomical topics:
1. Planets around a far star;
2. Comets as tail stars;
3. Working astronomer;
4. Future telescopes;
5. How stars are born;
6. Impact of galaxies;
7. Big Bang and Black Holes;
8. First Estonian in space;
9. First man on Mars.

Altogether 5225 images were presented for the competition. The most popular topic was “Planets around a far star”; there were 1817 images about this topic. All participants were divided into four groups: younger than 10 years, 11-13 years, 14-18 years and older than 18 years. The youngest was 6 years old and the eldest was 65 years old. Winners of all groups received prizes and diplomas. 24 of the best images were selected for printing and some exhibitions were organised.

Organisers: Tartu Observatory; Estonian Educational and Research Network

Website: http://joonistaja.eenet.ee/konkurss/



Estimated number of people who attended or were reached by this activity: 6000

Budget: 500

## FETTU exhibition

We selected 24 pictures from the FETTU collection. All these pictures were printed with the Canon image PROGRAF iPF8000 printer of Tartu Observatory. The picture format was 100x70 cm and all pictures were framed. Captions were translated into Estonian and printed on the bottom part of pictures. The exhibition was demonstrated in several places during the year of 2009:

- In February — Tartu University Library (Tartu);
- In March — main building of Tallinn University (Tallinn);
- In April — Central Shopping Mall of Tartu (Tartu);
- In June — National Library of Estonia (Tallinn);
- In July and August — SPA Estonia (Pärnu);
- In September — University of Tartu Narva College (Narva);
- In October and November — Museum of Võru County (Võru);
- In November and December — Estonian Library Museum (Tartu).

The exhibition was so popular that we continue its demonstration also in this year.

Organisers: Tartu Observatory

Estimated number of people who attended or were reached by this activity: 50000

Budget: 1000

## New webpage “Gateway to Estonian astronomy”

This new webpage brings together the most important information about Estonian astronomy. It publishes astronomy news collected from other webpages and lists. All upcoming events are given in the calendar. Every week you can see a new astronomy picture related to Estonia. One important task is a discussion forum for astronomy enthusiasts.

Organisers: Taavi Tuvikene

Website: http://www.astronoomia.ee

Estimated number of people who attended or were reached by this activity: 5000

## Convention of Estonian professional and amateur astronomers

It is already a tradition that every year in August professional and amateur astronomers meet together. In 2009 the convention took place on 12-16 August at Tartu Observatory, in Toravere. It attracted more than 100 participants and was devoted mainly to the topic “400 years of telescopes and 200 years of astronomical research in Estonia”. There were several lectures about telescopes and observing techniques as well some practical observing tasks. One planned action was observing the Perseid meteor shower and counting meteors. Unfortunately the weather was bad nearly every night and was only clear for a few hours.

Organisers: Estonian Astronomical Society and Tartu Observatory

Estimated number of people who attended or were reached by this activity: 100

## Popular presentations in media and for wide public

There were several interviews and presentations for Estonian Radio and TV. Professional and amateur astronomers talked about aspects of astronomy and space in the radio programme “Huvitaja” (be interested). These talks took place about one or two times in the month. Every second month there was a longer programme (about one hour) dedicated to astronomy. At most one long article was published in every number of our most popular scientific journal “Horisont”. Several seminars and workshops were organised where the main topic was astronomy and space.

Organisers: Estonian Radio and TV, popular scientific journal “Horisont”

Estimated number of people who attended or were reached by this activity: 200 000



# Ethiopia

## National Node

Sultan Mohammed
sultan15021@yahoo.com

Official Languages

- Amharic
-

Number of organising committee members: N/A

Population: 79 221 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Ethiopia

Information not available



# Fiji

## National Node

Richard Broadbridge
rbroadbridge@stockwell.com.fj
http://www.stockwell.com.fj/

Official Languages

- English
- Bau Fijian
- Hindi
-

Number of organising committee members: N/A

Population: 849 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Fiji

Information not available.

# Finland

## National Node

Tapio Markkanen (Ursa Astronomical Association)
www.astronomy2009.fi

Official Languages
- Finnish
- Swedish

Number of organising committee members: >11
- Volunteers: 15
- Paid: 0

Population: 5 359 538

Number of people reached by IYA2009: 100 000

Budget: 30 000 €

Sources:
- Foundations
- Ursa Astronomical Association

## General Overview of IYA2009 activities in Finland

IYA2009 was a tremendous outreach effort among the general public, schools and young people through special events (see item four), and many other activities through public lectures, press and other media (daily papers, weeklies, general and special journals, single spot programmes and series of interview broadcasts in public radio and TV). Astronomy has always been held in high esteem in Finland. Popularising astronomy has been an ongoing enterprise for more than a century. IYA2009 made a great contribution to that effort. Its impact and experiences will be used as efficiently as possible during the years to come.

Estimated number of people who attended or were reached by this activity: 15 000, plus 25 000 through on-line internet, plus live radio and TV broadcasts.

## Main Activities

### A pair of stamps

The Finnish Post Office published a 2 x 0.70 Euro stamp set with a motif of the night sky and Universe as a Europa stamp. It was designed by Mr. Johannes Nieminen, a graphic designer. The stamp was released 6 May 2009 when the Council of Europe Session was inaugurated.

Organisers: The Finnish Post Office Corp. and Ursa.

### An astronomy exercise book for teachers (in Finnish)

A collection of interesting do-it-yourself astronomical projects for school teachers and young people was prepared by Maija Aksela, Irma Hannula and Irene Hietala. The book is in electronic form and free for all on the internet. An English version is in preparation. It will soon be available for free on the internet.

Organisers: The LUMA (Centre for Science and Math Teaching) of the University of Helsinki and MAOL, the Union of mathematics and Science Teachers.

Website: http://www.helsinki.fi/luma/liitteet/tahtitiede.pdf

Estimated number of people who attended or were reached by this activity: Thousands.

## Books on astronomy

Astronomy popular books were published by the Ursa Astronomical Association:

Tähtinen Leena, Flynn Chris, Valtaoja Esko, Universumi tietokoneessa (The Universe in the computer).
Palviainen Asko, Oja Heikki, Maailmankaikkeus 2009-2010 (Universe 2009-2010. A Yearbook).
Karttunen, Hannu; Manner, Olli; Mäkelä, Veikko; Suhonen, Matti (editors), Tähdet 2010. (Astronomical handbook for 2010).
Fiami Tagada Sarl, Galilein elämät (Les vies de Galilee), transl. Kaisa Heinlahti and Tuukka Perhoniemi.
Markkanen Tapio, Paratiisista katsoen. Tähtitaivaan karttojen historiaa (The View from Paradise. The History of the Maps of the Heavens). Also a guide to the exhibition with the same name.
Lehti Raimo, Sfairopoiia. (History of the spherical and circular mechanisms in the antiquity).
Christensen, Lars L., Fosbury, Robert, Hurt, Robert, Kätketty Maailmankaikkeus (The Hidden Universe).

Organisers: Ursa Association.

Estimated number of people who attended or were reached by this activity: Thousands of copies sold.

## Universumin näkymiä (Views of the Universe — From Earth to the Universe)

The IYA2009 photo exhibition was arranged at five places in Finland with its extent adapted to the circumstances. 28 pictures were selected and provided with explanatory texts in Finnish and Swedish. One example was Helsinki where the exhibition was displayed from 11 December 2009 to 4 January 2010 at the Central Bus and Metro station Kamppi, passed by more than 50,000 people each day.

Organisers: Mr. Walter Rydman, Ursa, local astronomy societies, museums, libraries, education and culture units of the city administrations.

Budget: 1000

## Solar System at the Helsinki metro

The Helsinki metro line was used as a scaled model of the Solar System. At the Metro Station of the main railway station, a picture of Sun — four metres in diameter, was glued on the floor of the main hall. Basic information could be read when walking over it. During one week, about 500,000 people could read about the Sun and the Solar System. Astronomy students of the University of Helsinki helped in making beautiful models of the planets displayed at one of the metro stations.

Organisers: Mr. Markku Sarimaa, Ursa, astronomy students of the Univ. Helsinki, and City of Helsinki.

Website: http://www.ursa.fi/wiki/IYA/Metroaurinkokunta

Estimated number of people who attended or were reached by this activity: 50,000.

## Galileo Symposium

A symposium (13-15 November 2009 in Helsinki) on Galileo was organised by 10 educational and cultural organisations, including Ursa. The development of the world conception was presented and discussed at many workshops, lecture sessions and events. A special guest star, Jon Jenkins, SETI Institute, talked about space research and international cooperation. A play about Galileo was produced by teachers and pupils and presented by the pupils' drama club. One session was about the interaction of arts and science: four prominent Finnish artists internationally renowned, Lauri Anttila (sculpture and environmental art), Jyrki Siukonen (visual arts and architecture), Olli Jalonen (literature, esp. novel) and Kari Rydman (composing, symphony) told about the role of the Universe in their artistic creation. It was convincingly shown that C. P. Snow was wrong (see Markkanen, C.P. Snow was wrong. CAPjournal, issue 9, 2010 in preparation).

Organisers: Ursa and nine other pedagogical and cultural organizations.

Website:
http://home.brotherus.net:8080/pages/viewpage.action?pageId=21266742
http://www.ursa.fi/wiki/IYA/GalileiSymposio

Estimated number of people who attended or were reached by this activity: 250

## SciFest 14 – 17 April 2009 Joensuu, Finland

SciFest is an annual event for science, environment and technology education promotion. An international network brings pupils and teachers together for hands-on activities and learning on a special theme. In 2009 it was the Universe, stars, and attitudes. Harrison Hagan Schmitt, a US astronaut, was present and talked about space exploration. Teachers and young people of more than 30 nations participated actively.

Organisers: Professor Erkki Sutinen. Dr. Pauliina Korhonen and Dr. Pertti Pääkkönen and a team of the University of Joensuu, Finland.

Estimated number of people who attended or were reached by this activity: Pupils and teachers of more than 30 countries participated.

## Exhibition From the knee of Väinämöinen to the heavens, Joensuu, 8 October 2009 – 14 March 2010

The exhibition was about the Universe for the general public and especially for children (a special day for children). A connection was created between modern research (methods and results) and ancient folklore (folklore studies are a speciality of the University of Joensuu and the museum). E.g. a visitor could peek at Jupiter through a modern telescope of the same size as that of Galileo, and a replica of Galileo's telescope especially built by Pertti Pääkkönen.

Organisers: Astronomical Society Seulaset (Pleaides) of Northern Carelia, Joensuu, the Museum of Northern Carelia, and the University of Joensuu (Department of Physics), Dr. Pertti Pääkkönen, Univ. of Joensuu.

Website:
http://www.jns.fi/Resource.phx/sivut/sivut-museot/pohjoiskarjalanmuseo/nayttelyt/nayttelyt.htx

## The View from Paradise, an exhibition of the maps of the Heavens at the National Library, Helsinki 11 November – 30 April 2010

The exhibition tells about the history of star maps and visualisation of the skies over millennia. The 60 exhibits are astronomical books, atlases and maps form the 15th Century to modern times plus a dozen old astronomical instruments. The text links the subject to general culture, arts, architecture, everyday life and history. Open Mo-Fri 9:00-20:00 Sa 9:00-15:00, Su closed. Entrance free. A lavishly illustrated book with the same title is for sale.

Organisers: The Finnish National Library and Ursa Association.

Website:
http://www.kansalliskirjasto.fi/kulttuuritoiminta/tapahtumat/1254207028911.html

Estimated number of people who attended or were reached by this activity: Thousands so far.

Budget: 5000

## A Nordic astronomy competition for upper secondary school students

With the organisational support of the teachers, young people competed for a first prize, i.e. participating in observations at the Nordic Optical Telescope on La Palma, Canary Islands as a member of an observing team of professional astronomers. The winner of each of the five countries (Denmark, Finland, Island, Norway and Sweden)

will go to La Palma in late 2010. The project was organised and mainly financed by astronomy departments of the universities in the Nordic countries. Coordinator in Finland Dr. Thomas Hackman, e-mail: thomas.hackman@helsinki.fi

## Lessons Learned

The activities and events are almost totally based on contributions of mainly unpaid voluntaries, amateur (in the true sense of the word: lover) and professional astronomers alike. Many things fail, many become a success, no-one can predict which. One must be prepared for that. A lot of flexibility is necessary, mental support, encouragement and gentle coaching to the actors is most important. Some money is needed but it does not replace great enthusiasm.
For the next time recorded history may be useful but another IYA would be different because IYA2009 is still going on.

## Legacy

Certainly yes, work in progress. The activities can be regarded as part of Beyond IYA2009 because it is naturally part of it.

# France

## National Node

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http://www.astronomy2009.fr/

Official Languages

- French
-

Number of organising committee members: 20, all volunteers

Population: 65 447 374

Number of people reached by IYA2009: 1 500 000

Budget: 100 000 € (plus budgets allocated to specific projects)

## General Overview of IYA2009 activities in France

A remarkable feature of IYA2009 in France, i.e. AMA09 (Année Mondiale de l'Astronomie) has been the great participation of different agents, such as academic institutions, observatories, amateur associations, science museums, theatres, concert halls and, last but not the least, numerous schools. A huge mobilization was noticed in the southern regions of our country where the weather conditions are quite favourable to observations, as well as in all other regions.

The main task of the organizing committee, consisting of professional astronomers providing voluntary help for AMA09, has been to trigger the proposal of projects and ensure their coherence, visibility and coordination. More than 200 series of events were developed, with more than 150 reports already available on the website. The national website (www.astronomy2009.fr) indeed opened early in 2008, to build a neutral hub providing information about all activities in France and links with foreign activities. It had about 30000 visitors and 50000 pages visited per month.

## Main activities

France contributed significantly to cornerstone projects and developed other projects. Emphasis was towards observational projects coupled with various astronomical animations, towards young public (our future), and towards disable persons (too often left aside).

### International opening ceremony and other international events

The year began with the international Opening Ceremony, which launched IYA2009 at UNESCO in Paris (15-16 January 2009). More than 100 countries were represented in a gathering of about 1000 people, including 150 students. Astronomy was celebrated through historical, cultural and contemporary science approaches. The international opening ceremony meeting was also the kick-off for the start of activities in France.





Other international events under the auspices of AMA09 took place in France, e.g. the IAU symposium 260, devoted to “The role of Astronomy in society and culture” (UNESCO, Paris, 19-23 January 2009), the colloquia on “The Moon and the Sun during the 17th century” (Versailles, respectively 28-30 May and 15-17 October), the conferences on the “Invisible Universe” (UNESCO, Paris, 29 June-10 July), the workshop on “One century of Mars observations” (Meudon, 17-20 September) and the Symposium on “The contribution of space to astronomy” (UNESCO, Paris 14-15 January 2010).

## 100 Hours of Astronomy, “100 heures d’astronomie”, 2-5 April 2009

French amateur astronomers efficiently coordinated (under the auspices of SAF, societe astronomique de France) observations and related astronomical activities for 100 Hours of Astronomy. The estimated number of people reached by this event is about 70000 attendees, plus 1500 amateur and professional astronomers who provided help and explanations in 50 observing sites.




The sites, located either in main cities or in remote areas, all over France including overseas, offered night (and often day) activities including star parties with observations (Sun, Moon, planets, deep sky) in the visible and radio ranges, talks, exhibitions, workshops, etc. In Toulouse urban area, including place du Capitole in the city centre

(where city lights were turned-off) and Cite de l'espace, the event "Ciel en fÍte" was the second most important gathering in the world. In Paris, the event "Rallye parisien" took place on different sites almost aligned on Paris meridian, opened respectively at UPMC (Universite Pierre et Marie Curie), Cite des sciences et de l'industrie and Palais de la decouverte, AFA-Parc Monsouris, and Observatoire de Paris.

## Galilean Nights, "Nuits galiléennes", 22 – 25 October 2009

Following the success of the 100 heures d'astronomie, an other series of astronomy events was proposed in France and accepted as an international cornerstone for late October 2009. The purpose was to allow observations of the night sky and of the Moon near its first quarter about 6 months after the 2-5 April; besides, Jupiter and its satellites were nicely observable by then. Although the weather conditions were possibly less favourable than in April, the event allowed the opening of about 100 observing sites, mostly in cities for sidewalk observations of the Sun, the Moon, Jupiter and its Galilean satellites. Besides, a special project of observations of the giant planet near its equinox, together with mutual events of its satellites, was developed and coordinated by Observatoire de Paris all over the world through an international task group (see e.g. www.imcce.fr/fr/observateur/campagnes_obs/phemu09/).

## Dark Skies Awareness, "Sensibilisation au ciel nocturne"

Dark Skies Awareness was highlighted in France with the help of various organizations, including ANPCEN (Association nationale pour la protection du ciel et de l'environnement nocturnes).
On 11 June 2009, the first international reserve in Europe around the Pic-du-Midi observatory in PyrÈnèes, was launched. On 24 October, the first "Jour de la nuit" took place, with about 120 events in favor of the protection of the night environment. All over the year, numerous observations provided evidence for light pollution in the night sky for the general public

## Developing Astronomy Globally, "Développement global"

Various events took place in French overseas regions (e.g. Guyane franÁaise, Martinique, Rèunion island) and territories (e.g. Mayotte, French Polynesia), including areas where astronomy was not yet developed. Quite a few of them were in conjunction with the international 100 hours of astronomy and Galilean nights, and dedicated websites were opened (see e.g. webtice.ac-guyane.fr/astro/, www.ama972.org, www.ilereunion.com/observatoire-makes/ama09.htm)

## Galileoscopes

The Galileoscope documents, i.e. assembly instructions and observing guide, have been translated in French (see ama09.univ-rennes1.fr/galscope-css.html). A series has been granted for disadvantaged pupils.

## Cosmic diary, She is an Astronomer

The same female astronomer was present on the Cosmic diary blog and on the She is an astronomer cornerstone. As far as the latter topic is concerned, emphasis was put on information of interest for professional and amateur astronomers. Besides, a 2010 calendar, emphasizing French female astronomers of the past, "Astronomes franÁaises, du siËcle des lumiËres ‡ l'Ëre spatiale", was published (available on lerma7.obspm.fr/IYA09/doc/Calendrier-Ast-Femmes.pdf)

## "Nuits des Étoiles", Starry nights and other star parties

The "Nuits des Ètoiles", which have been taking place in France for 20 years, were specially important in 2009, in conjunction with AMA09 and with the 40th anniversary of Apollo 11. Under the auspices of AFA (association franÁaise d'astronomie), events took place from 24 to 26 July 2009, in many countryside observing sites. Besides, dedicated star parties took place during the summer holidays in various French regions, including overseas.

## "100 grandes conferences", 100 major lectures

One hundred lectures, oriented towards a general public and tentatively distributed all over French major cities, took place in our country from January to December 2009. They were given by professional astronomers and covered various domains of astronomy. They actually represented only the tip of the iceberg, since a huge number of other lectures for a general public were given in e.g. observatories and universities all over the year.

## Astronomical Exhibitions

Numerous exhibitions took place, including “Le grand rècit de l’Univers” and “Objectifs Terre”, two now permanent exhibitions at Universcience, Citè des sciences et de l’industrie in Paris. Many dedicated exhibitions were organized in Paris, e.g. “Citoyens du ciel” (Sènat, January 2009), “Voyage au centre de la galaxie” (Palais de la dècouverte, February-April, and Le Bourget, musèe de l’air et de l’espace, May-June), “Meteorites et asteroids” (UPMC-Jussieu, April-December), “Explorer l’univers invisible” (UNESCO, June-July), “Cosmos” (Palais de la dècouverte, June-November), “Les mystËres de l’univers” (Trocadèro, October 2009), “Le systËme solaire revisitè (Citè des sciences et de l’industrie, October-December). Numerous exhibitions also took place all over the country, e.g. “Ambiances planètaires” (Dijon), “Autres Terres, autres Lunes” (Saint-Michel l’observatoire), “Grands instruments astronomiques au sol et dans l’espace” (Lyon and Vaux-en-Velin) “La Terre vue de l’espace” (Triel), “L’Homme prèhistorique et les ètoiles” (Maule), just to mention a few of them.







The most important exhibitions, in terms of people reached, were certainly those, with huge high-definition images of the sky, which took place in Paris public transportation sites, i.e. “L’univers dans le RER” (June-December) at the regional subway station Luxembourg and “Vous avez dit Univers?” (December 2009-January 2010) along a 135 meters long moving walkway at mètro Montparnasse. Although it is impossible to know how many people really watched them, it is obvious that millions could get a look at them.

## Planetariums

AMA09 related activities took place, with new animations and new programmes devoted to, e.g., ALMA (“La quÍte de nos origines cosmiques”, under the auspices of APFL, association des planetariums de langue franÁaise) or to lunar exploration. It is also of interest to mention that itinerant planetariums (including digital technologies) were successfully developed in various areas.

## Projects oriented towards a young public

Special efforts were devoted towards the young public, with numerous projects offered through elementary schools, junior high schools, high schools, universities, as well as through associations and clubs. The Hands-On Universe project, “Bringing frontline interactive astronomy to the classroom”, was awarded the silver medal by the European commission. Observations, talks, astronomy kits, planetary paths, games, experiments, exhibitions — including free downloadable experiments (see e.g. expoplanetes.ipsl.jussieu.fr) and travelling exhibitions were specially developed.





## Projects oriented towards disabled persons

Special efforts were made, all over France, towards disabled persons. Amongst many significant projects, some major lectures were translated in French sign language, an astronomical encyclopaedia was published in sign language, astronomy documents were translated in Braille, astronomical talks and interviews were broadcasted in hospitals, specially for young patients, and the accessibility of some observing sites was improved (see e.g. www.desetoilespourtous.fr)






## Miscellaneous Events

Special astronomical events took place, in conjunction with the European Heritage days on 19-20 September 2009. Also, numerous astronomical activities were presented during the annual French "FÍte de la Science" from 16-22 November, devoted in 2009 to Astronomy and to Darwin.

Two stamps were issued (3 May 2009, European Parliament) within the Europa series. The first one presents Saturn, with a nebula and a galaxy in the background; the second one presents an exoplanet with its star. Also visible on the commemorative sheet are astronomical instruments, from Galileo telescope to Corot spacecraft. Finally, an impressive variety of plays and concerts devoted to astronomy appeared throughout the year. Besides, numerous high quality books (for children and for general public), including a series of astronomy books providing a panorama of astronomy in 2009 and a book awarded by MESR (ministËre de l'enseignement supèrieur et de la recherche), DVDs and movies celebrating astronomy, were published.

# Lessons Learned and Legacy

The cooperation between amateur and professional astronomers, all of them being happy to communicate with small groups of people, was a significant result of AMA09. It was recognized that the general public, not yet

familiar with astronomy, appreciates observations in the cities, coupled with various animations, with tentatively some city lights turned off.Although commercial sponsors were hardly available with the economic crisis, the support from national and local institutions allowed many events to take place.  All the AMA09 activities have not disappeared at the end of 2009. A portal for astronomy for the general public has been developed (porteauxetoiles.fr). Already, professional-amateur collaborations are growing and sustainable outreach projects are on track.

# Gabon

## National Node

Patrice M. OKOUMA (NOMMO ASTRONOMIA)

http://ama09gabon.weebly.com/

Official Languages
- French

Number of organising committee members: 3
- Volunteers: 3
- Paid: 0

Population: 1 475 000

Number of people reached by IYA2009: 400

Budget: 2500 €

Sources:
- DAG Grant
- Local and personal funds

## General Overview of IYA2009 activities in Gabon

Astronomy as a powerful tool for science awareness is a known fact all over the world. We planned to tap on that in keeping in line with the theme for Africa, namely Astronomy for Education. Education in its broader sense. Also of interest is the fact that African pre-history exhibits strong ties between the African continent and the heavens. From Pharaonic Egypt to Dogon cosmology with a continuity today observable in Gabon.

In Gabon, a flexible National Steering Committee was set up. The driving force was NOMMO ASTRONOMIA, the (legalised) Association for Astronomy & Space Sciences in Gabon. The field of astronomy is new. Few institutions and individuals are involved at the professional level. The subject is introduced at two levels of entrance in high schools curricula. No Astronomy course/module is formally offered at university level.

At High school level, astronomy & space science related concepts are taught:
- at first year level in High School (embedded in Geography);
- at third year level in High School (The Solar System);
- Final Year of High school as an illustration of a chapter about Newton Laws.

At the Higher Education level, an introductory module is offered to those being trained as future Science Teachers at the (unique) Teacher Training School of Gabon. No standalone module is yet given at university level.

Of interest is the existence in Gabon of a ground station — NKOLTANG — particularly effective in the European Space Agency satellite launch programme . It is used in the follow up of Ariane rockets launches from Kourou in French Guyana. One future plan is to take full advantage of the involvement of Gabon in the European space programme .

The National Steering Committee is still growing up with new stakeholders joining up as time goes by. The core is composed as follows:

- Dr. Medard MOUELE is one central node to the local community of scholars involved in Humanities as well as to different government and non-government organisations. Dr. MOUELE is also Secretary General of NOMMO ASTRONOMIA

- Mr Fernand LEPOKO is a Profesional in the local Media & Film industry. Mr. LEPOKO is treasury of NOMMO ASTRONOMIA.
- Mr. Patrice OKOUMA* is Head of NOMMO ASTRONOMIA and Single Point of Contact for Gabon for IYA2009. He is one central node to the local educational community as well as to different government and non-government institutions both locally and internationally.

Firm institutional involvement is also on the increase.

Given a non-optimal level of resources, in 2009, some seed activities and initiatives were carried by the National Node under the driving power of NOMMO ASTRONOMIA, the association for Astronomy & Space Sciences in Gabon. The core of these was an exhibition titled “Of Astronomy and Sciences” transformed early into a mobile exhibition targeting some of the learning centres of Libreville, capital of Gabon.

Funding and donations for “Of Astronomy and Sciences” came mostly from a seed grant from Developing Astronomy Globally cornerstone (DAG) project, 1 donation from a long term Germany based partner and local/own support . The steering committee is also leading an effort to gather and consolidate all astronomy resources in Gabon which will lead to a database of materials available to any local institution or individual who wants to use them in collaboration with NOMMO ASTRONOMIA.

The main goal of setting up decisive networks of actors in decisive educational sites and at decisive levels of societal actions was attained at a 70% level of satisfaction.

## Main Activities

### List of Activities

- Mini-exhibitions;
- Multimedia sessions;
- Public lectures;
- Network building sessions;
- Stargazing.

### Mobile Exhibition

A set of 2*16 posters were displayed in a suitable venue at each of the site visited. The posters are of A1 format and about the main celestial bodies of the Solar System. The whole exhibition consisted of a set of 16 images and 16 accompanying texts. The main intention was to instil basic facts about our neighbourhood. The main manpower to lead through the whole set was provided by NOMMO ASTRONOMIA, the Association for Astronomy & Space Sciences in Gabon.

This exhibition was designed as a mobile one. With a projector, a laptop and a telescope as additional support, it was realistically possible to cover some of the most basic notions. We felt a strong demand for similar materials to be distributed in schools.

Organisers: National node and NOMMO ASTRONOMIA.

Estimated number of people who attended or were reached by this activity: 150.





## Multimedia session

We have a large collection of CDs and DVDs containing a large variety of materials about astronomy, space sciences / technology and space exploration. Using a projector, a laptop and a white screen in a suitable venue, we went through the most inspiring of them with a minimum amount of clarification when needed. Copies of all these materials were made and distributed to leadership relays in each of the sites visited. The projector proved to be a fantastic tool when it came to reach a large public at a low cost.

Most of the materials shown were from a large collection of CDs and DVDs donated to us by the Developing Astronomy Globally Cornerstone project. Coupling these multimedia sessions with carefully crafted oral presentation proved to be very effective.

Organisers: National node and NOMMO ASTRONOMIA.





Estimated number of people who attended or were reached by this activity: 400.

Budget: 660 €

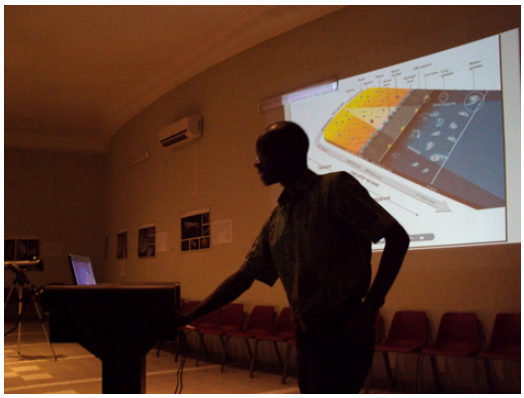
## Public Lectures

The leading theme was “The New Cosmos, Space and its Exploration”. Taking into account the level of the attending audience, the main aim was to go through some of the most basic questions and concepts of astronomy and space sciences. The emphasis was put on interactivity, hence the large amount of time devoted to the Q & A session. PowerPoint style presentations were preferred. Each talk was given in the same venue as the one were the posters were on display, offering a stronger visual continuity to the whole presentation. Also on display was the telescope most often used for the stargazing sessions.

This public lecture was repeated in different sites where we were given the opportunity to settle down our mobile exhibition, all of the sites being centres of learning.

Organisers: National node and NOMMO ASTRONOMIA.





Estimated number of people who attended or were reached by this activity: 400.

Budget: 660 €

## Network building

Here the emphasis was making sure that in each site visited a network for the continuation of the work was set up. Because most of them were learning centres, a significant attention was paid on building up networks of teachers in each sites as well as making sure that a club of astronomy is initialised under the direct mentorship of one of the teachers.

In addition to the ones already existing :

- Two new clubs of astronomy were launched in two of the best resourced high schools in Libreville (Gabon)
- Two networks of teachers were also made operational in each of the two high schools mentioned above.

Of significant importance is the fact that at high school level, astronomy & space science related concepts are taught:

- at first year level in High School (embedded in Geography);
- at third year level in High School (The Solar System);
- Final Year of High school as an illustration of a chapter about Newton Laws.

At the Higher Education level, an introductory module is offered to those being trained as future science teachers at the (unique) Teacher Training School of Gabon. No standalone module is yet given at university level.

It was therefore imperative for us to strengthen our presence at school levels through networks of teachers able to relay and continue the actions.

Organisers: National node and NOMMO ASTRONOMIA.



Estimated number of people who attended or were reached by this activity: 20.

### Stargazing

Probably the activity having drawn the strongest response from those who attended. Using Stellarium as a target selection tool, we managed to observe the Moon in its full glory, Mars, and tentatively Saturn. Observing the Moon proved to be a very exciting moment for all of us. With more telescopes of various capacities, our reach would be substantially expanded. Hence the ongoing plan for the acquisition of an astronomical observatory as well decent planetarium (mobile ones being, in the beginning, the best choice).

Organisers: National node and NOMMO ASTRONOMIA.

Estimated number of people who attended or were reached by this activity: 50.

Budget: 600 €

## Lessons Learned

Inspiring posters + projector + laptop + relevant CDs / DVS s + an entry level telescope are very good companions for properly starting to build up a continuous layer of interest. A telescope can eventually come in at a later stage but if the four first above cited elements are already in, the work is heavily facilitated. Visuals are so important!

Begin with kids as they will spontaneously be your best Ambassadors. Ambitious high schools are usually some of the best places to start the journey.

In Africa, we found useful to have at least an Association / NGO already set up so that the amount of effort does not simply vanishes in the air once the “Big Bang” is over

Make sure, in Africa, that you properly connect your presentations of astronomy & space sciences with concrete job possibilities in the country. It seems to be a serious concern for those mature enough to physically grasp the full meaning of economic needs. The much younger generation proves to be particularly responsive when it comes to the “wow” factor of astronomy, hence the need to start with them.

## Legacy

As far as we can see, the main achievement for the International year of Astronomy 2009 in Gabon for us was the signing of a strong partnership between NOMMO ASTRONOMIA and the most ambitious Learning Centre in Libreville. The partnership will see both entities share resources and manpower in promoting astronomy, space sciences , new technologies of information and communication for the 10 coming years in Gabon. By being one of the best resourced learning centres in Libreville (capital of Gabon), it will provide NOMMO ASTRONOMIA and the whole national node with the ideal focal point for organising any suitable event from teacher training workshops to large scale stargazing nights and conferences for a large and wide public.

Gabon is at the core of the second largest pristine tropical rainforest ecosystem in the world, the “Basin of the Congo”, the second lung of our unique planet. One of the aims of the recently launched Gabonese Space Programme is to set up a regional centre for satellite data acquisition and analysis with the aim to monitor the evolution of the entire “Bassin du Congo”. A core vision for us is therefore to explore all the possibilities to systematically couple astronomy & space science promotion with initiatives related to the preservation of our unique planet.  Yes, astronomy & space science can save our unique planet and it’s fun! Please share with us your thoughts about astronomy & space science for the ecological renaissance of the world on our blog at http://ama09gabon.weebly.com/blog.html

## Comments

The principle of seed funding for some parts of the world was very well thought. The production of Galileoscopes needs to be maintained, with more fluent and optimal delivery mechanisms.



# Germany

## National Node

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Official Languages
- German

Number of organising committee members: 6-10
- Volunteers: 3
- Paid: 6

Population: 81 757 600

Number of people reached by IYA2009: 2 000 000

Budget: 10 000 €

Sources:
- Donations.

## General Overview of IYA2009 activities in Germany

In Germany the activities for the IYA2009 were initiated by some amateur astronomers, who participated in the first international meetings while the professional astronomers had reacted in the beginning very slowly. Nevertheless at the end, we had a very good cooperation between amateur astronomers and members of the institutes.

The “idea” of the SPoC and then the organising committee was not to centrally direct activities. The time schedule was too short, but mostly the national budget was too small to install centrally organised activities. Therefore it was most important in 2008 to find a lot of people, planning events for the IYA2009 by their own. The large number of activities in Germany demonstrated that we were successful with this strategy.

In Germany the celebration of the IYA2009 was not only based on G. Galilei but also based on J. Kepler, who published in 1609 the first two laws of his laws. In Baden Württemberg the Kepler Gesellschaft celebrated the contribution of Kepler with a detailed programme of culture and science.

During the IYA2009 at least two exhibitions were visited by a lot of people. The exhibition “The moon” in the Wallraf Richartz museum was afterwards also shown in Washington. The exhibition in the Gasometer of Oberhausen “Sternstunden” was meanwhile visited by more than 500.000 people and is prolonged until end of 2010.

The activities with respect to special disciplines were variegated. As an example I will briefly report on our activities in relation of astronomy with music. It is obvious, that during such an year music by Holst (The Planets) was given at several places. In addition, we rediscovered the music by Herschel (unknown sonatas, symphonies and pieces for organ) and other interesting composers like U. Sissak. Moreover, people enjoyed astronomical explanations and pictures as a part of classical concerts. Children were composing modern music peaces developed by their work with astronomical ideas. A modern composer “Markus Schmickler” and an artist “Carsten Goertz” tried to transform astronomical data in an objective manner directly to music and images and gave an event in the Bundeskunsthalle in Bonn. As it was with respect to music we also had similar interdisciplinary events with theatre and art.

For the schools many activities took place, there were two competitions one for teachers and one for classes. In the competition for the teachers, organised by Science on Stage Germany nearly hundred of teachers participated.

Regional newspaper, radio stations etc. have contributed with many reports to the IYA2009, however it was disappointing that the politicians and the main television stations were only poorly interested. It should also be mentioned that the BMBF (German Federal Ministry of Research and Technology) did not support the global activities of the IYA2009 but initiated a “year of energy”, although they were informed since the end of 2007.
The IYA2009 in Germany was clearly the year of amateur astronomers, who participated in many activities, offered public observations in the 100 Hours of Astronomy and during other times. They were extremely motivated and were extremely valuable to realise the IYA2009 in Germany.

## Main Activities

### Nationale Auftaktveranstaltung (Kick-off Germany) in Berlin, 20 January 2009



The national Kick -off meeting in the “Museum für Kommunikation” in Berlin was the start of all activities in Germany. There was a broad variety from talks, school presentations, readings, music and interviews with astronomers, amateur astronomers, astronauts, politicians, pupils, teachers. The fascinating result was that contributions came from all institutions and groups of the society involved in astronomy. At the same time the exhibition “The European Window on the Universe” was started.

Organisers: Astrophysikalisches Institut Potsdam, Dr. G. Schönherr and collaborators.

Website: http://www1.astronomie2009.de/aktivitaeten/jahresueberblick/20.01.2009-auftaktveranstaltung

Estimated number of people who attended or were reached by this activity: 400 persons in the museum / hundreds more by internet stream.

### Festakt zum Start der Kepler-Aktivitätn Kepler Gesellschaft

Ceremony for the beginning of activities related to Johannes Kepler) in Stuttgart on 20 March 2009. “400 Jahre neuzeitliche Astronomie- 1609: Keplers „Astronomia Nova” und Galileis erste Fernrohrbeobachtungen”. The “Kepler-Gesellschaft” in Germany has celebrated 400 years “Astronomia Nova”, the famous book of Kepler with two of his famous laws. The Kepler Gesellschaft organised exhibitions, lessons, talks, theatre spectacles with respect to Kepler.

Organisers: Deutsche Kepler Gesellschaft e.V.

Website: http://www.keplerjahr-iya2009.de/

Estimated number of people who attended or were reached by this activity: 550 (ceremony), several tens of thousands for the complete programme .

Sternstunden — Wunder des Sonnensystems (Exhibition in an industrial monument) in Oberhausen starting 2 April 2009, Scientific exhibition “The largest moon on earth”.



In an industrial monument a 25 metre model of the Moon based on scientific data was established and installed. The monument was an old gas holder. On two additional floors of the gasometer exhibitions with models of Solar System bodies, of astronomical images and historical instruments is presented. Due to the large success the exhibition was prolonged until end of 2010.

Organisers: Gasometer Oberhausen.

Website: http://www.gasometer.de/de_DE/index.php

Estimated number of people who attended or were reached by this activity: more than 500. 00 (this exhibition is the most successful activity during the IYA2009 in Germany with respect to the numbers of visitors).

## “Astronomietag 2009” and 100 Hours of Astronomy in Germany

The VdS is organises each day each year when astronomical observations and events are offered by amateur astronomers for the public at many places in Germany. In 2009 the VdS changed their “normal” date, which is usually in September to the begin of April, in order to participate in the IYA2009 project “100 Hours of Astronomy”.

Organisers: Vereinigung der Sternfreunde in Deutschland (VdS).

Website: http://www.vds-astro.de/index.php?id=208

## The begin of the planetarium show “Augen im All — Vorstoß ins unsichtbare Universum” on 7 May 2009

A new show for planetaria was started in several planetaria in Germany. The show was developed as a public outreach project between planetaria and ESA dedicated to the satellites “Herschel” and “Planck”. In Germany the show was presented in 25 planetaria.

Organisers: German planetaria in connection with planetaria in Europe.

Website: http://www1.astronomie2009.de/aktivitaeten/jahresueberblick/07.05.-auftakt-zur-planetariumshow

Estimated number of people who attended or were reached by this activity: 200 000 (maybe more — very rough guess).

### Sternenfest und Sternenzelt in Bonn, 25 - 27 June 2009



In a very prominent place in Bonn, the Münsterplatz, a tent with astronomical experiments was installed for three days. The tent was open for public, but also visited by school classes. Hands-on experiments, telescopes and other astronomical illustrations invited the visitors to experience astronomy. Amateur astronomers as well as professional institutions demonstrated the broad variety of astronomy. On the last day on a stage near the tent were a mixture of music, talks, and a show for kids was presented (and organised) by Paul Hombach, amateur astronomer, artist and musician.

Organisers: University of Bonn, Deutsches Museum Bonn, Stadt Bonn with support of the Telekom Stiftung and Paul Hombach (amateur astronomer — initiator and main organiser).

Website: http://www3.uni-bonn.de/die-universitaet/events-und-veranstaltungen/sternenzelt/sternenfest

Estimated number of people who attended or were reached by this activity: 20 000.

### “Highlights der Physik” in Köln with title “Adresse Milchstraße” (“Adress Milky Way”), 21 - 25 September 2009

A science festival with highlight show, hands-on experiments, talks for pupils, competition for students, life experiments and shows on astronomical topics was presented in the Gürzenich in Köln during four days in September 2009.

Organisers: Bundesministerium für Bildung und Forschung (BMBF), Deutsche Physikalische Gesellschaft e. V. (DPG), Universität zu Köln und des Leibniz-Instituts für Festkörper- und Werkstoffforschung Dresden (IFW Dresden). Leitung: Dr. Axel Carl, Duisburg, Prof. Dr. Eberhard Wassermann, Mühlheim.

Website: http://www.physik-highlights.de/

Estimated number of people who attended or were reached by this activity: 17 000.

## Tagung der Astronomischen Gesellschaft (Annual Fall Meeting and 82nd General Assembly Deciphering the Universe through Spectroscopy) 21 - 25 September 2009 in Potsdam



*Photo by Rainer Arlt.*

Annual meeting of astronomers in Germany.

Organisers: Astrophysikalisches Institut Potsdam and University of Potsdam.

Website: http://www.aip.de/AG2009/

Estimated number of people who attended or were reached by this activity: 300.

### Lessons Learned

The cooperation between amateur astronomers and professionals was one of the main results obtained by the IYA2009. A second point is that the amateurs during a lot of public activities learned that the public is interested in looking through telescopes. For the future they are much more motivated to show people the moon, planets and the stars with their telescopes.

During the IYA2009 “normal” astronomical activities like planetarium shows, public talks etc. were not much more visited than in other years. However, the unusual combinations of astronomy with theatre, art, music and religion were very successful. During the IYA2009 we learned that interdisciplinary events with astronomy have widened our view of astronomy. My personal impression is that bringing astronomy to unusual places is one of the most successful activities, which is also very important for the future of public outreach.

For the organisation of events we learned, that it is important to look for local relations like jubilees etc. to motivate official people in participation of the planning of astronomical events. In Bonn we celebrated last year 150 years of Bonner Durchmusterung. In Bamberg the people celebrated within the IYA2009 120 years Bamberg observatory. Both jubilees “opened the door” to the responsible persons of the governments in the cities.

Children in schools are extremely interested in and motivated for astronomy, however the German school system does not give much space for such activities.

### Legacy

The activities of the organising committee was based on a partly time release and voluntary work. Each of the members is now going back to his own activities. Nevertheless, astronomy in Germany is going to be unified in a new manner. The AG (Astronomische Gesellschaft) and the RAT Deutscher Sternwarten have started to be unified in a couple of years. I think that we all will take care, that the amateurs in Germany will be incorporated to a more general view of astronomy in Germany.

Of course we all will continue our work in public outreach. We have now a tremendous pile of new experiences with communication of astronomy to the public and I think we are all eager to follow these new ideas.



# Ghana

## National Node

Jacob Ashong (Ghana Science Project)

www.iya2009-Ghana.com

Official Languages
- Twi
- English

Number of organising committee members: 6-10
- Volunteers: 6-10
- Paid: 0

Population: 23 837 000

Number of people reached by IYA2009: 3000

Budget: 5000€

Sources:
- Own budget
- Teaching/tutorials
- Entrance fees for the planetarium shows

## General Overview of IYA2009 activities in Ghana

As a result of the interest generated in Ghana, there is now a demand for astronomy courses, which are currently not available. We intend to start distance learning basic astronomy courses and are in discussion with the universities to introduce astronomy to the physics courses, in the hope that we can get funding.

## Main Activities

### List of Activities

- Planetarium Opening Event;
- School visits to the Planetarium on weekdays;
- Work Groups and Families visits to Planetarium;
- Physics Students visits to the Planetarium;
- Domecasts;
- Galilean Nights Telescope viewings;
- Radio Broadcast;
- Three Newspaper Articles;
- Magazine Article;
- You-Tube Video Interview;
- Astronomy Club Meetings;
- Tele-conference with Physics Students and Professors;
- Presentation to Business Networkers Group;
- Twinning with Adler Planetarium;
- Procurement of Galileoscopes for schools, Galileoscopes donated by Adler, plus some purchased.

## Grand Opening of the Ghana Planetarium

The Planetarium was formally opened by the British High Commissioner to Ghana, His Excellency Dr Nicholas Westcott, with the attendance of the French Ambassador, His Excellency Mr Francis Hurtut, the Director of the British Council, Mr Moses Anibaba, Retired Professor Borte-Doku, now a Chief for the Nungua area of Accra, with his entourage, all dressed in traditional Ghanaian costumes, and David Weinrich from Minnesota University Planetarium at Moorhead. Dave Weinrich was the person who was instrumental in making the project possible together with Dr Jacob Ashong, and at the grand opening in January Dave spoke to the assembled audience about how the planetarium was built and the donations that were procured for the project from America and Sweden as a result of his efforts: in particular a refurbished MediaGlobe Projector, Uniview Software, a special laptop, and an astronomy club donation. Dave, a Planetarium Educator himself, and a past Peace Corps Volunteer in West Africa, stressed the importance and value of communicating astronomy to the public, particularly here in Ghana where there are no planetariums or science museums and no astronomy course in the local universities.

Organisers:
Dr Jacob and Mrs Jane Ashong, assisted by David Weinrich, with assistance from Valen Tetteh (cutting the tape), Papa Nii Amartey (IT assistant), Stanley Aquaye (projector technician), Charity Ankrah (decorations), Frances Ling (volunteer presenter), Peter Sitch (volunteer presenter), Mike Puplampu (photography), William Tackie (printing), Jonathan Ashong (sound system), Martin Egblewogbe (President of Physics Students Association) and staff of Quality Distance Learning.

Website: www.ghanascienceproject.net







Estimated number of people who attended or were reached by this activity: 120

Budget: We used our own resources.

## IYA2009 Celebration, 30 May

Domecast and telescope viewing.

Organisers: Dr Jacob and Mrs Jane Ashong, PapaNii Amartey, Trudi Addo, and staff of Quality Distance Learning.

Estimated number of people who attended or were reached by this activity: 65

## Galilean Nights, 24 October

Part of the global “Galilean Nights” project for IYA2009. Astronomy film shows, planetarium shows, telescope viewing.

Organisers: Dr Jacob Ashong, Sarah Abotsi-Masters, Emmanuel Yeboah, PapaNii Amartey.

Estimated number of people who attended or were reached by this activity: 150

## School visits to the Planetarium

Children saw digital planetarium shows and completed activity sheets relating to astronomy. The children’s activity sheets were prepared by volunteer Laura Youngson, a Master’s level physics graduate who came to Ghana from the UK for six weeks just before the start of the year to help with all aspects of the project. The astronomy posters on display in the summer hut were explained by Dr Ashong and children were given tasks to complete with the aid of information on the posters and what they recalled from the planetarium shows. Dr Ashong explained some

astronomy basics and encouraged classes to set up their own astronomy clubs in their schools. Two more Master's level physics and astrophysics graduate volunteers from the UK, Frances Ling and Peter Sitch, presented shows and taught astronomy to children and students whose ages ranged from 4 to 19, between January and March. We also hosted visits by mixed-age, mixed-ability groups from two Special Needs Schools. During the year, astronomy fact sheets and new posters were printed for schools in addition to the purchased ones on display.

Organisers: Dr Jacob Ashong, Jane Ashong, Laura Youngson, Frances Ling, Peter Sitch, PapaNii Amartey, Wendy Attah, Adwoa Afi Odame-Darkwa.








Budget: 900€

### YouTube Video on Ghana Science Project — Interview with Dr Ashong — before IYA2009

Website: http://www.youtube.com/watch?v=FmKcOzTc_Bg

### Ghana Astronomy and Observation Association (GAOA)

The club was set up by Ghana Science Project at the planetarium in Accra and met fortnightly during 2009. Activities included PowerPoint presentations by club members, viewing astronomy DVDs, online videos, discussions, and planetarium shows. Topics included the Sun, Moon, Mars, structure and formation of the Solar System, galaxies, size of the Universe, etc.

Organisers: Dr Jacob Ashong, Jane Ashong, Sarah Abotsi-Masters.

Website: www.astroclubghana.com

Estimated number of people who attended or were reached by this activity: 5-20 per meeting.

### Interview on national radio on a science programme

Sarah Abotsi-Masters, Secretary of the Ghana Astronomy and Observation Association (GAOA), represented the Ghana Planetarium and was interviewed on a national radio science programme . She spoke about IYA2009, the planetarium, and how the study of astronomy and related sciences can aid Ghana's development.

Organisers: Sarah Abotsi-Masters, Dr Jacob Ashong.

Estimated number of people who attended or were reached by this activity: Unknown.

### Weekends in November

Follow-on from the "Galilean Nights" project for IYA2009, Saturday evenings 31 October, then 7, 14, 21 and 28 November at the Ghana Planetarium. Astronomy film shows, planetarium shows, Domecast, telescope viewing.

Organisers: Dr Jacob Ashong, Sarah Abotsi-Masters, Emmanuel Yeboah, PapaNii Amartey.

Estimated number of people who attended or were reached by this activity: 75

### Teleconference on astronomy

Teleconference with renowned Professor of Mathematics, Professor Francis K. Allotey and members of the Physics Students' Association of the universities in Ghana attending a conference in Kumasi.

Organisers: Dr Jacob Ashong, Professor Borte-Doku, Professor F.K. Allotey and Mrs Jane Ashong.

Estimated number of people who attended or were reached by this activity: 300

### Half-page newspaper articles

Three articles in the "Ghanaian Times" a national daily newspaper, with photographs of the Ghana Planetarium, following interviews with journalist Mr Godwin Yirenchi and Dr and Mrs Jacob Ashong, emphasising the importance and value of learning about astronomy.

Organisers: Dr Jacob Ashong, Mrs Jane Ashong, Mr Godwin Yirenchi.

## Lessons Learned

Next time we would like to organise large digital screens in city centres and community halls in towns and village halls. If doing it again we would suggest that Galileoscopes should be despatched at the beginning of the year or earlier, as we had to wait quite a long time for them and it was sometimes difficult to get information about when they were expected to arrive.

## Legacy

We are organising a travelling planetarium and video projector shows. Planetarium show bookings for schools and the public will continue at the planetarium in Accra with domecasts and occasional special events, as well as telescope viewing nights and astronomy club meetings.

## Comments

We think there should have been some small funding for the National Nodes. Beyond 2009 we'd like to cover more of the country and involve the rest of West Africa.

# Greece

## National Node

Christos Goudis
National Observatory of Athens
contact@astronomy2009.gr
http://www.astronomy2009.gr/

Official Languages
- Greek
-

Number of organising committee members: N/A

Population: 11 306 183

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### IYA2009 Activities of Greece's Hellenic Amateur Astronomy Association




During 2009 the Hellenic Amateur Astronomy Association (HAAA) organised a series of events dedicated to the International Year of Astronomy 2009. The main goal was to the spread to the public of Greece the meaning of observational amateur astronomy and the methods used, according to the constitution of the HAAA. The following were some of the most important events:

### Chios Island — "Star Celebration"

The Prefecture of Chios island organised a celebration addressed mostly to the students of elementary school named "Star Celebration". The event was scheduled for the 23rd of December 2008 at 20:00 local time and the HAAA was responsible to present a talk and provide telescopes for observation. Despite the bad weather the experience excited our young friends as it was their first contact with astronomy.

### Haidari city of Attiki — "100 Hours of Astronomy"

In collaboration with the Cultural Center or Municipality of Haidari city of Attiki the HAAA organised a four-day educational event called "100 Hours of Astronomy", from Thursday the 2nd of April until Sunday the 5th. The event was part of the international call for organising such events around the globe in order to give a chance to the public to experience contact with the Universe.

### Piraeus City — "A Travel through the Universe"

A major event, open to the public, was held at the "Apollon" Building of Municipality of Piraeus city on the 9th of May 2009. That was a collaboration of the HAAA and the Trekking Club of Piraeus (Odoiporikos Syllogos Peiraia) who celebrated 80 years of activities.

### Gymno village of Argolida — "Young Astronomers"

That event was successfully realised on Thursday the 28th of May 2009, in the yard of the village's elementary school, along with a talk and observation of the sky through telescopes.

### Paros island — "A Travel through the Universe"

HAAA in collaboration with the Public Library of Paros Island organised an event on the 30th of May 2009. The event took place in the Library's yard and included a conversation about astronomy, an exhibition of astronomical images, astronomical content video-projections and a public observation of the sky through HAAA's telescopes.

### Keratea city of Attiki — "Introduction to Observational Astronomy"

After an invitation from the Cultural Association of Keratea City "Hrisi Tomi", along with the support of the Municipality of Keratea city of Attiki, HAAA organised an event at Ovriokastro village on Saturday the 13th of June. The event included a talk, a practical lesson on uranography (or celestial cartography, and observation of the sky.

### Melissia city of Attiki — "3rd Youth Festival of Melissia City"

The local office of UNESCO invited us to participate in the 3rd Youth Festival of Melissia City which was held the weekend 19-20 of June, 2009. HAAA organised a stand with astrophotography exhibition, magazines and HAAA's telescopes.

### Anavra village of Fthiotida — "3rd Panhellenic Meeting of Amateur Astronomers"

According to the decision of the Panhellenic Convention of the Boards of all the Associations in Alexandroupolis City in 2008, HAAA took over the organisation of the 3rd Panhellenic Meeting of Amateur Astronomers (PMAA) for the year 2009. The meeting was successfully realised on the 26th, 27th and 28th of June 2009 at the Mountain Retreat of Trekking Club of Piraeus at the Anavra village of Fthiotida, including talks, workshops, conversations and observations. It is also important to note the presence of professional astronomers at the meeting.

### Voula city of Attiki — "Introduction to Astronomy & Astrophotography"

The photography department of Municipality of Voula city and HAAA organised
talks to amateur photographers of Municipalities of Voula and Glyfada cities, on Wednesday the 16th of December 2009. These activities aimed to introduce the participants in astronomy and the night sky, along with the explanation of the methods used in the photography of celestial bodies and astronomical events. There will, also, be a practical of activities for hands-on experience in astrophotography realised during 2010.

## Legacy

The events that are presented above concern only the HAAA's contribution to celebrate the International Year of Astronomy 2009. Moreover, HAAA's activities are not limited in 2009 only, but there are constantly held since the establishment of the association in 2003 and will continue, of course, in the future. In addition to these kind of activities, the members of the association contact every day through internet or/and by phone, along with regular meetings that are held inside the cities and outside for observations. One of the main targets of HAAA is to spread to the Greek public the mentality and the methods of observational amateur astronomy, according to the

standards of similar associations outside Greece, in order to produce finally scientifically useful results for astronomy. More on these can be found in HAAA's site at http://www.hellas-astro.gr/ (mostly in Greek).

An important contributor and supporter to HAAA's activities is the Trekking Club of Piraeus (Odoiporikos Syllogos Peiraia), who offer their offices and their mountain retreat at the mount Kallidromo (Anavra village of Fthiotida) for meetings and observations.

Last but not least, all our actions are performed in such a way to fulfil our dream that every Greek citizen will notice how astronomy affects his/her everyday life and will understand how the scientific knowledge can contribute to a balanced and peaceful society.



# Grenada

## National Node

Eugene Gittens
Grenada National Commission for UNESCO
unescogrenada@gmail.com

Official Languages

- English
- Patois

Number of organising committee members: N/A

Population: 110 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Grenada

Some impressions from the IYA2009 activities in Grenada:









# Guatemala

## National Node

Edgar Anibal Cifuentes Anléu
Universidad de San Carlos de Guatemala

http://astronomia.org.gt/

Official Languages
- Spanish
- 22 indigenous languages

Number of organising committee members: 4
- Volunteers: 4
- Paid: 0

Population: 13 276 517

Number of people reached by IYA2009: 7 000

Budget: Unknown €

## General Overview of IYA2009 activities in Guatemala

In our country the interest in science, and especially astronomy, is poor. Private sponsors were not interested in these kinds of activities so we were not able to obtain financial support for our activities. We could only count on the efforts of a group of professors and students from two universities and a little group of out of them. We tried to involve amateur astronomers in the activities but they refused. Another failed activity was the organisation of the local chapter of the Galileo Teacher Training Programme but perhaps we will do it this year. But we are happy with the final results and hope to continue with more activities this year.

## Main Activities

### List of Activities

- Activities in cooperation with Istituto Italiano di Cultura ;
- UNAWE conferences and observations ;
- 100 Horas de Astronomía;
- Semana Nacional de Ciencia, Tecnología e Innovación;
- Noches de Galileo;
- Converciencia 2009;
- Conferencias de astronomía en la URL;
- Course: Galaxy Formation and Internal Structure;
- The Hour of the Planet and AIA 2009;
- Desafío de Lava ;
- Acampada Arqueoastronomica.

### Activities in cooperation with Istituto Italiano de Cultura

The Inaugural conference and an additional series of conferences with Italian and Guatemalan speakers was held in cooperation with the Istituto Italiano de Cultura in Guatemala throughout the year. The conferences were given

by Eduardo Rubio from Astronomical Institute of the Amsterdam University, Laura Canuto from United Nations, Edgar Cifuentes, Beatríz Cosenza from Universidad Rafael Landivar, María E. Cabrera from Universidad de Madrid, Vittorio Canuto from Columbia University, Ricardo Contreras from Universidad de San Carlos, Nicola Napolitano from National Institute of Astronomy in Naples Italy.

Organisers: Erica Berra, Matteo Cattaneo and Edgar Cifuentes.

Website: www.iicguatemala.esteri.it/

Estimated number of people who attended or were reached by this activity: 400

## UNAWE Conferences and observations

A series of 12 conferences for the public and young people, delivered by professors and physics students in Centro Cultural Metropolitano. In addition to the conferences, there were a series of astronomical observations with portable telescopes with the public.



Organisers: José Tobar, Juan Tobar and other physics students.

Website: http://astronomia.org.gt/unawe

Estimated number of people who attended or were reached by this activity: 800

## 100 Horas de Astronomía

This was the central participation of the National Node in this worldwide activity. It took place at Christopher Clavius Observatory in Universidad Rafael Landivar of Guatemala. It consisted of an inaugural conference, a

cultural event and observation with the major telescope and additional portable telescopes. The observations were conducted by Universidad Rafael Landivar and Universidad de San Carlos students.

Organisers: Pedro Melini and Mercedes Wyss.

Estimated number of people who attended or were reached by this activity: 300

## Semana Nacional de Ciencia, Tecnología e Innovación

During a week there were a series of conferences and expositions to motivate high-school students to study science. Opening Conference by Armando Arellano from Instituto de Astronomía, UNAM México. And four conferences by Beatriz Cosenza and Mercedes Wyss from Universidad Rafael Landivar, by Edgar Cifuentes and by Adrían Urrejola, an amateur astronomer. We mounted a stand with astronomical photographs, commercial and hand-made telescopes and virtual planetaria to motivate the students.



Organisers: Consejo Nacional de Ciencia y Tecnología de Guatemala and the National Node.

Estimated number of people who attended or were reached by this activity: 2000

## Noches de Galileo

In the Aula Virtual of Facultad de Ingeniería de la Universidad de San Carlos and in the Astronomical Observatory of Universidad Landivar were delivered a series of conferences, astronomical observations, workshops of astronomical charts and other activities.

Organisers: Students of both universities.

Estimated number of people who attended or were reached by this activity: 250

## Converciencia 2009

Converciencia is an annual Symposium organised by Consejo Nacional de Ciencia y Tecnología de Guatemala, with Guatemalan scientists working abroad, this year they invited two astronomers, Eduardo Rubio from University of Amsterdam and Enrique Pazos from University of Maryland. Besides the astronomers they invited the physicist Fernando Quevedo of Cambridge University who works in cosmology. The conferences were given in Aula Virtual of Facultad de Ingeniería de la Universidad de San Carlos and there were a series of round tables, conferences and other activities in other places.



Organisers: Consejo Nacional de Ciencia y Tecnología de Guatemala and Edgar Cifuentes.

Website: http://www.concyt.gob.gt

Estimated number of people who attended or were reached by this activity: 3000

### Conferencias de astronomía en la URL

Two conferences in the Universidad Rafael Landivar by Gustavo Ponce, a Guatemalan astronomer who work in Universidad Nacional Autónoma de Honduras.

Organisers: Beatriz Cosenza y Federico Salazar.

Estimated number of people who attended or were reached by this activity: 45

### Course: Galaxy Formation and Internal Structure

Course for physics students to motivate them choose astronomy for postgraduate studies.



Organisers: Edgar Cifuentes and Istituto Italiano de Cultura.

Website: www.iicguatemala.esteri.it/

Estimated number of people who attended or were reached by this activity: 25

## The Hour of the Planet and AIA 2009

In coordination with the worldwide campaign the Hour of the Planet, taking advantage of the electric light shutdown across the city we organised an astronomical observation directed to the public in a hippodrome.

Organisers: Mercedes Wyss.

Estimated number of people who attended or were reached by this activity: 150

## Desafío e Lava

A 15 km run across the active Pacaya volcano, preceded by an astronomical observation the night before in a camping site in the volcano.

Organisers: Jorge Loma and Cumbres Mountain Club.

Estimated number of people who attended or were reached by this activity: 150

## Lessons Learned

Try to involve more people in the organisation and begin earlier. Try to obtain financial support for the activities. Try to utilise people dedicated to the activity.

## Legacy

We will continue with activities.



# Guinea-Bissau

## National Node

Official Languages

- Portuguese
-

Number of organising committee members: N/A

Population: 1 647 000

Number of people reached by IYA2009:

Budget: €

## General Overview of IYA2009 activities in Guinea-Bissau

Information not available.



# Honduras

## National Node




María Cristina Pineda de Carías (Space Science Faculty of the National Autonomous University of Honduras)

http://www.astronomia2009.hn

Official Languages
- Spanish

Number of organising committee members: 1-5
- Volunteers: 4
- Paid: 0

Population: 7 810 848

Number of people reached by IYA2009: 350 000

Budget: N/A

Sources:
- Personal contributions
- Special budget for some individual activities.

## General Overview of IYA2009 activities in Honduras

2009, the International Year of Astronomy will be a year to be remembered in Honduras for several reasons.
It gave to Honduran astronomers:
- The real opportunity to interact with astronomers worldwide and to present and measure what we can do in this type of big celebration;
- The opportunity to communicate, to all ages people, the excitement of astronomy;
- Opportunities to show the sky wonders one can discover when observing with a telescope;
- The opportunity to revise innovative ways to communicate science with the public;
- A solid cornerstone to continue working beyond, with international proven standards to developed astronomy for Humankind.
- Demand from national astronomers:
- To follow international rules and good practices;
- Not to be isolated in the development of their work;
- Share and develop activities, further to their astronomical or professional jobs, to satisfy young people's curiosity;
- To be updated in new observational techniques but also to revise astronomy history and impact;
- To contribute to revise educational school programmes to introduce astronomy activities in creative ways;
- To learn how important is to use communication media to convey science to the public.
- Gave to the university and educational community:
- The opportunity to revise how developed the field of astronomy and astrophysics currently is;
- To recognise the need to include space science as a new faculty of the main Honduras University;
- To open a formal avenue to publish a journal in space science, with original contributions in astronomy and astrophysics, at a national and international level;
- The opportunity to evaluate and see results of science projects and small equipment construction such as telescopes;
- The opportunity to realise how scientific knowledge may be introduced in early ages in funny manners;
- To strengthen links between elementary and high schools with the Central America Suyapa Astronomical Observatory.

- Gave to Honduran citizens, especially young people:
- The opportunity to see their country in a big worldwide celebration;
- The opportunity to make contact with people in different parts of the world;
- To recognise how important it is to have an astronomical observatory in Honduras;
- To be engaged in building, using and acquiring astronomical equipment to open their minds and horizons;
- To update their knowledge of the Universe, and to learn more about how science is done;
- The option to consider that astronomy and space science are important careers to be chosen in Honduras.
- Gave to the news and media communicators:
- An authentic real source to attract the public's attention, and to keep alert what astronomers around the world are doing;
- To include astronomy news more often in radio and television programmes, and newspaper sections and national astronomers interviews.

## Main Activities

### List of Activities

- International Astronomical Year 2009: Opening Ceremony. Paris;
- Astronomy for Everybody: Opening Ceremony. Honduras;
- Astronomy for Everybody: Visits to the Astronomical Observatory;
- Astronomy for Everybody: Astronomical Nights;
- Astronomy for Everybody: Exhibition "Exploring The Universe";
- Astronomy for Everybody: Astronomical Ephemeris;
- Astronomy for Everybody: Special Events;
- Astronomical Conferences;
- The Universe, yours to discover;
- First Central America School for Young Astronomers (2010);
- Telescopes for Everybody;
- Star Parties;
- Astronomical Projects for Science Fairs;
- Astronomy Classrooms;
- Astronomical Activities for Young University Students;
- Astronomical / Archaeoastronomical Games;
- Space Science Journal. Spring Volume. Autumn Volume: History of Astronomy in Honduras;
- Closing Ceremony. Padua;
- Closing Ceremony. Honduras.

### The International Year of Astronomy 2009: Opening Ceremony

For the IYA2009 Opening Ceremony, SPoCs and one student of each country were invited. In Honduras, this invitation opened a contest among 300 Introduction to Astronomy students of the National Autonomous University. First, the best student in each one of the nine sections offered in the last academic period of 2008 were chosen. Then, the best one of these nine students was selected. As a result, Nancy Moncada, a first year Chemistry Engineering student was selected.

At the Central America Suyapa Astronomical Observatory she was trained further to take advantage of her trip to Paris and all the activities prepared for foreign students there. Before and after attending to the Opening Ceremony in Paris, for about three months, she was on the news, radio, television, and papers. For Nancy this was her first trip abroad and her first big international conference. Her testimony motivated thousands of young people in Honduras to discover the Universe, to learn more and to follow the 2009 big astronomical celebration.

Organisers: Maria Cristina Pineda de Carias (HONDURAS SPoC); AN111 Introduction to Astronomy Teachers.







Estimated number of people who attended or were reached by this activity: 50,000

Budget: 1500€

## Astronomy for Everybody: Visits to the Astronomical Observatory

This was the number one highlight activity for 2009 IYA in Honduras. It consists of astronomical lectures, practical activities, astronomical observations, sky stories and games for kids, all prepared and developed at the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras (CASAO/NAUH). Because the Honduran Science and Technology Council (COHCIT) sponsored IYA2009, invitations for Elementary and High Schools to visit the Astronomical Observatory were well advertised by different media. Just in the first semester of 2009 we received 2248 visitors, an amount that represents the highest score received individually in the last eight years.

With great satisfaction we can say that during the first semester of 2009 several thousands of people, school teachers, elementary and high schools students and their families, college students, were following astronomical events and activities worldwide prepared for IYA2009.

Organisers: Martha Talavera, Jesús Umanzor, Yvelice Castillo, Dalton Melara.

Website: http://oacs-unah.edu.hn/astro/index.php?option=com_content&view=article&id=3&Itemid=10

Estimated number of people who attended or were reached by this activity: 60,000

Budget: Resources of the Central America Suyapa Astronomical Observatory.

## Telescopes for Everybody

To follow Galileo's steps, and also the Galileoscope IYA2009 Cornerstone project, the Master in Astronomy and Astrophysics students of the National Autonomous University of Honduras designed this project. In Honduras it is not easy to buy a telescope. Only two or three stores sell them, and you need to have at least 180 Euros to buy one.
The main objective of this project was to reach the highest number of people observing the sky through a telescope. For this purpose four types of activities were prepared: 1) Remote use of a radio telescopes such as SALSA in Sweden; 2) A travelling telescope to visit schools and small towns for students to observe the Moon or Jupiter; 3) Attaching a CCD camera to a telescope for taking Saturn or Lulin Comet images; 4) And building a small and cheap telescope.

To build a small refractor telescope each graduate student had to develop his own project. Once they finished their telescope, they had to test if it works. Results were presented in a poster paper exhibition presented at the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras. Then, graduate students organised workshops to train more students to build more telescopes. About 300 undergraduate students were involved in building 42 more telescopes. Students of several Elementary and High schools enjoyed building their own telescope and discovering the Moon, Jupiter, and the stars.

Organisers: María Cristina Pineda de Carias, Jacky Saadeh, Edward Milla, Roberto Schongarth, Ricardo Pastrana, Deborah Hernández, Antonino Galo, Alfredo Gomez, Yvelice Castillo, Introduction to Astronomy Students of the National Autonomous University of Honduras.

Website: http://www.astronomia2009.hn/proy/4/






Estimated number of people who attended or were reached by this activity: 5000

Budget: 500€

## SPACE SCIENCE, a new Scientific Journal

A policy of the Space Science Faculty of the National Autonomous University of Honduras is to support scientific research. In this Faculty, all staff members participate in research projects. Also, all graduate students have to develop a research project. The Scientific Research Direction of the National Autonomous University of Honduras supervises these projects, ensuring they follow general rules.

To present to the national and international scientific community, original contributions, invited reviews, conference proceedings and opinions, a new scientific journal in Space Science begun in 2009 the International Year of Astronomy in the National Autonomous University of Honduras. SPACE SCIENCE is a journal published in two volumes per year, one in spring, the other in autumn. All papers published in the journal are subjected to peer-reviewing.

The Spring Volume of SPACE SCIENCE included original research papers with emphasis on astronomy and astrophysics, geographical information science and technologies and archaeoastronomy, and an introduction to Galileo Galilei's life. The Autumn Volume of SPACE SCIENCE was completely devoted to the history of astronomy in Honduras. It included a compilation of the last 20 years of achievements of central American astronomy in Honduras.

Organisers: Maria Cristina Pineda de Carias, the Staff of the Departments of the Space Science Faculty, and the Scientific Research Direction of the National Autonomous University of Honduras.

Website: http://www.astronomia2009.hn/proy/10/




Estimated number of people who attended or were reached by this activity: 1000

Budget: 6000€

## Astronomy for Everybody: Astronomical Nights

Every Friday of the 2009 Academic Year, between 18:00 to 20:00 hours, the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras received all age groups of 15 up to 100 visitors. During the first hour, lectures for all type of public were presented: the Solar System and space missions, the Galaxy and the nearest stars, their properties and different stages of their life; distant galaxies and their history. Astronomical observations of visible Solar System objects, bright stars and deep sky objects were performed during the second hour.
The goal of this activity was to share with the highest number of general public people, astronomical knowledge and opportunities to observe the night sky objects.

Conferences about a variety of astronomical topics, presentations of real sky images taken in Earth and space observatories, plus one hour sky observations of the brightest objects of the night such as the Moon, Venus, Mars, Jupiter and its moons, Saturn and its moons, nebulae, galaxies, and learning to read sky charts, were among the activities developed.

Astronomical Nights were developed in different parts of Tegucigalpa, and in different cities of Honduras, as required.

Organisers: Yvelice Castillo, José Jacobo Gámez, Dalton Melara.

Website: http://oacs-unah.edu.hn/astro/index.php?option=com_content&view=article&id=4&Itemid=11



Estimated number of people who attended or were reached by this activity: 50,000

Budget: Resources of the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras.

## Astronomy for Everybody: Special Events

The purpose of this activity was to promote new knowledge and observing experiences, especially related to the observations of astronomical events visible from Honduras. Astronomical Ephemeris and bulletins to observe astronomical events of general public interest, such as the Moon eclipse, Comet Lulin, zenith Sun passage for different cities of Honduras, were prepared.

Communications collaborated to advertise public observations at the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras. People of all ages, but mainly young people, attend these public events. A calendar of special events, astronomical ephemeris, atmospheric conditions description, and observation sessions to use small telescope for the benefit of all level students under conduction of astronomers, were among the activities.

Organisers: Jacky Saadeh, Dalton Melara, Carlos Luis Barahona, Alfredo Gomez, Staff of AN111 Introduction to Astronomy signature of the National Autonomous University of Honduras.



Estimated number of people who attended or were reached by this activity: 5000

Budget: Resources of the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras.

## Astronomy Classrooms

Within the frame of the Education in Astronomy Project of the Central America Suyapa Astronomical Observatory, these activities were designed to train teachers and interested high school or university students in special topics of astronomy, with multiplicative purposes. Theoretical concepts and practical activities were considered. Materials prepared by Dr. Rosa Ross from Spain were used as references and starting point.

Several small groups of teachers and students from public educational centres were trained. Talks illustrated with PowerPoint presentations, images, animations and videos were presented to cover topics about: Earth motions, Solar System, origins of the Universe, constellations. These topics were selected in advance from official Elementary and High Schools Natural Sciences and Social Studies programmes. Quadrants, planispheres, and other materials were constructed by participants. At the end each participant received a diploma.

Organisers: Yvelice Castillo and Jacobo Gamez.

Website: http://www.astronomia2009.hn/proy/5/






Estimated number of people who attended or were reached by this activity: 3000

Budget: 50€

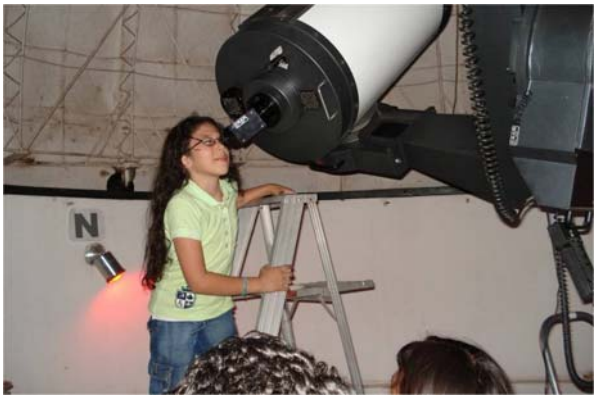
## Star Parties

This project consisted of the development of astronomical observations as public activities with the participation of children and adults, at local, regional and national level. The project included activities within the frame of the 100 Hours of Astronomy, Around the World in 80 Telescopes, and The Galileo Astronomical Observation, Cornerstone project of IYA2009.

Links via a web page, posters, programmes and sky maps were prepared. Astronomical observations were developed in different cities of the country, in different schools, in different types of installations such as parking lots and games fields. All of these observations were conducted by professional astronomers of the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras. Media communications broadly covered these activities.

Organisers: Jesús Umanzor, Staff and students of the Astronomy and Astrophysics Department of the Space Science Faculty.

Website: http://www.astronomia2009.hn/proy/7/



Estimated number of people who attended or were reached by this activity: 60,000

Budget: Resources of the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras.

## Astronomical and Archaeoastronomical Games

In collaboration with Introduction to Astronomy (AN111) and Introduction to Archaeoastronomy (AQA111), students of the National Autonomous University of Honduras developed this project. It consists of several astronomical games such as astronomical bingo, constelatrivia, astronomical puzzles and astropoly; and of archeoastronomical children's tales, puzzles and letter soup game. A web page to present the games was available. The objective of this project was to present astronomical knowledge to Honduran and worldwide children. Also, to strengthen archaeoastronomical knowledge acquired by children and young students by practical activities and games.

Games were designed by staff of the Astronomy and Astrophysics Department and the Archaeoastronomy Department of the Space Science Faculty of the National Autonomous University of Honduras. Several hundred Honduras children enjoyed these games.

Organisers: Maria de Jesus Quiroz, Cristina Argueta.

Website: http://www.astronomia2009.hn/proy/9/juegos.html
http://www.astronomia2009.hn/proy/9/juegosarqueo.html




Estimated number of people who attended or were reached by this activity: 3000

Budget: Resources of the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras, personal and student contributions.

## Astronomical Projects for Science Fairs

To help Elementary and High School students to choose a project to participate in science fairs this project was designed at the Central America Suyapa Astronomical Observatory. Science fairs are organised every year for the Science and Technology Council of Honduras, at local, regional and national levels. In 2009 the purpose was to include astronomical projects, to promote the International Astronomical Year goals.

The project was developed via a web page with all kinds of instructions and recommendations, and was advertised on television. Projects such as the construction of planispheres to observe the Honduran sky, construction of refractor and reflector telescopes, construction of Solar System, star evolutions and space exploration models were suggested. Also, assistance was given to each student who attended to the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras asking for guidance.

Organisers: Martha Lorena Talavera Briones, with the collaboration of the Science and Technology Council, and Funny Science Project.

Website: http://www.astronomia2009.hn/proy/8/

Estimated number of people who attended or were reached by this activity: 3000

Budget: Personal contributions and resources of the Central America Suyapa Astronomical Observatory of the National Autonomous University of Honduras.

## Space Science Faculty

For its first 162 years, the National Autonomous University of Honduras was organised in six Faculties, one General Studies Centre and eight Regional University Centres. In 1997, when the National University reached its 150th Anniversary, the Central America Suyapa Astronomical Observatory was opened. 10 years later the organisational structure of the National University was reformed, and as a consequence, there were nine Faculties and nine Regional Centres.

But with this reform a problem arose: there was no clear academic location for the Central America Suyapa Astronomical Observatory where astronomy and astrophysics, remote sensing and archaeoastronomy were fields developed by its staff. This opened a University Council discussion that ended in April 2009 with the creation of the Space Science Faculty. This was a big mark for Space Science in Honduras, especially after being part of the

international group responsible for the United Nations and the European Space Agency Series of Workshops on Basic Space Science.

The University Council of the National Autonomous University of Honduras approved the creation of the Space Science Faculty in recognition of the functioning of the Central America Suyapa Astronomical Observatory. And that was a resolution of immediate execution. Now at the Space Science Faculty we have to organise the School of Astronomy and Astrophysics where the Department of Astronomy and Astrophysics and the Regional Master Programme in Astronomy and Astrophysics are part of it.

Organisers: Staff and Students Central America Suyapa Astronomical Observatory (CASAO).

Estimated number of people who attended or were reached by this activity: 15,000

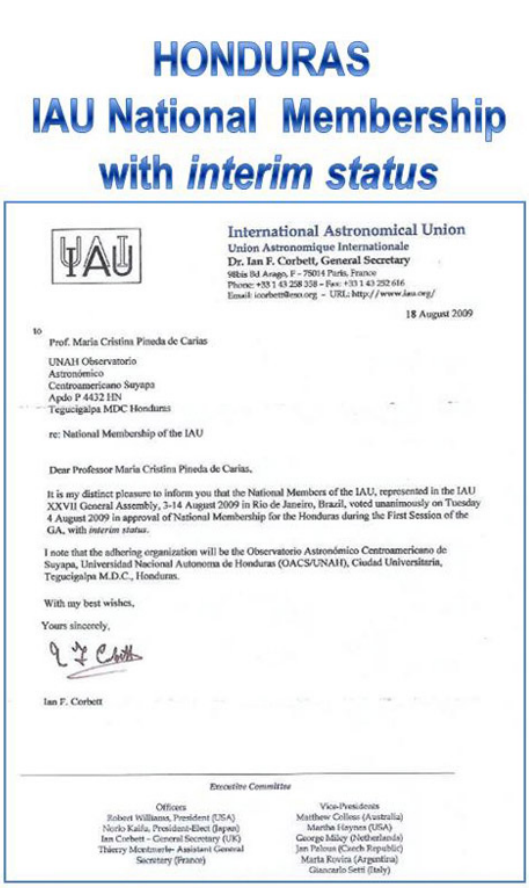
## IAU Membership

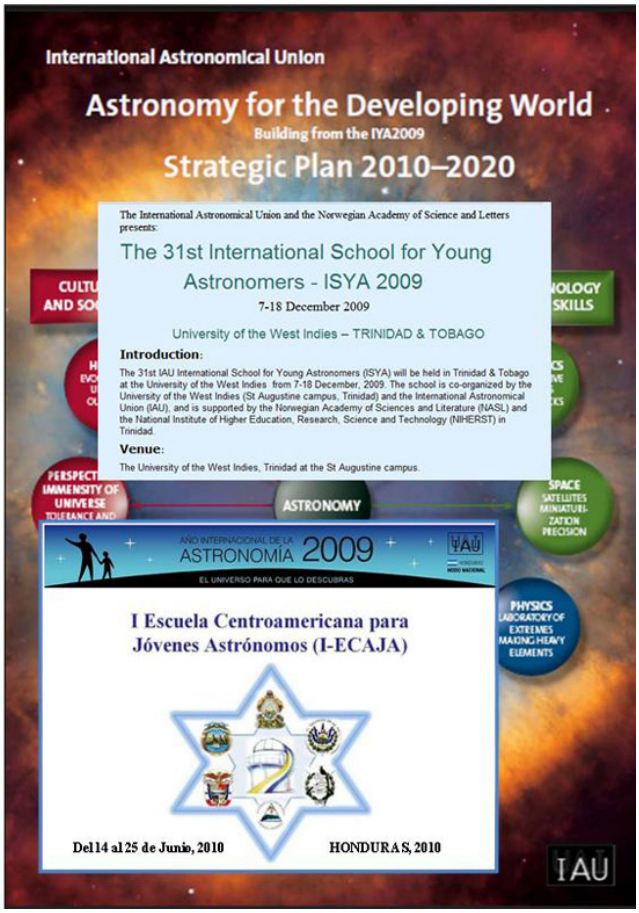
A desire of the Central America national universities has been to develop astronomy and astrophysics as academic fields. Because the development of astronomy with the permanent international cooperation is the IAU goal, joint effort of the six countries of Honduras, Guatemala, El Salvador, Nicaragua, Costa Rica and Panama were oriented to be part of this Union.

In 2006, a formal application endorsed by the Science and Technology Ministers of each country was presented to the IAU General Secretariat. But Rules and By Laws of the IAU accept only National Membership. Therefore, at the 2009 Rio de Janeiro General Assembly, three of the six Central America countries were accepted as Members of the IAU with interim status. One of these countries was Honduras.

Being part of the IAU means having a real possibility to interact with worldwide astronomers, and satisfy the desire of contributing to develop astronomy in all forms. For example, with the IAU collaboration, nine Hondurans were able to attend to the 2009 31st International School for Young Astronomers. Also, with the TAD-IAU Commission 46 collaboration we are organising the 1st Central America School for Young Astronomers to be developed in Honduras this year. We are sure that more national, regional and international activities will come, specially having the Astronomy for the Developing World Strategic Plan 2010-2020 as a background.

Organisers: Maria Cristina Pineda de Carias, Central America Astronomers Assembly, Honduras Astronomical Committee.




Estimated number of people who attended or were reached by this activity: 10,000

Budget: 7000€

## Evaluation

Most Honduran astronomers work at the Astronomy and Astrophysics Department of the Space Science Faculty. Here they have to auto evaluate their academic work and to present results to the university authorities. Some of the IYA2009 projects were registered at the Outreach Direction of the National Autonomous University of Honduras, where reports and results should be presented and evaluated. Individual reports were prepared and presented by astronomers to the Honduras Astronomical Committee. This Final Report has been prepared by using all the information collected from document given by Honduran astronomers.

## Lessons Learned

Do not hesitate to be involved. It represents an enormous challenge that demands lot of efforts, coordination of several people and activities, use of technologies and sometimes resources you do not have. But it is highly rewarding when you see happiness, wonder, and satisfaction in young people's faces, your country along with others participating in a worldwide enterprise, that no matter how hard you work always there is someone who works even harder, willing to help you and more people to reach the best.

## Comments

It is not easy to do science in developing countries. To find arguments, resources, people, conditions, support for it. But when the entire world is involved in a huge activity like IYA2009, and it is possible to see how different groups work in different parts of the world, all difficulties seem to begin to vanish.



# Hong-Kong

## National Node

Kam-cheung Leung
International Year of Astronomy 2009 Hong Kong League
kcleung@hkas.org.hk
http://www.astronomy2009.hk/

Official Languages

- Chinese
- English
-

Number of organising committee members: 11

Population: 7 055 071

Number of people reached by IYA2009: 1 000 000

Budget: 70 000€

Souces: Educational Fund

## Overview of IYA2009 Activities in Hong Kong

Hong Kong is well known as the “Pearl of the Orient” because of its light pollution, and it is a fact that people living in the city was used to the sky with very few stars. During the IYA2009, we focus our effort on the Dark sky protection campaign in a series of activities and conduct a number of sidewalk events in different area in order to arouse the public awareness in astronomy.

Among 7 million populations, we have 5 existing public astronomy societies, secondary and university astronomy clubs, the Hong Kong Space Museum and the Ho Koon Astronomical Centre to conduct routine astronomy program. The IYA2009 Hong Kong League was formed and supported from various organization to make IYA2009 happened in Hong Kong.

The funding and resources for working out the IYA project was very limited, major source of funding and human resources was come from Sik Sik Yuen, the organizer of Ho Koon Nature Education cum Astronomical Centre, and most workers for IYA are voluntary local amateurs from different public astronomy societies. However, we successfully organized 70 large and small activities in the year, about 1 per week, brought astronomy to the people who didn’t get into it before, and we successfully drew the attention of the public and the government on the light pollution issues, and ongoing discussion on light pollution legislation will be taken place in the future.

It was the first time ever that Hong Kong has organized so many large scale astronomy activities, in terms of scale, participants, frequencies and public impact. After IYA2009, we wish the traditions and legacy of IYA2009 can continue to impact the public.

## Main Activities

### List of Activities

- Face to face meeting with the Astronomers
- Film Show
- Opening Ceremony
- Astronomy Sidewalk

- 18 district sidewalk
- 100 Hours of Astronomy
- IYA2009 Special Lecture Series
- “Dim-it” Light off campaign
- Solar System model making competition
- July 7th Stargazing Festival
- The World at Night Exhibition
- Drawing Competition
- Worldwide star count
- “Starlight — tour”
- Closing Star Party
- Galilean Night
- Galileoscope Workshop
- “Using Computized Telescope” teacher training workshops
- Secondary Schools Talks
- Solar Eclipse Observations
- Dark Sky Declaration
- Radio Program
- Hong Kong — Macau mutual visit

## IYA2009 Hong Kong node Opening Ceremony

The opening ceremony of the IYA2009 Hong Kong node was held on Feb 7, 2009 at the Avenue of Stars in front of the harbor. After the ceremony, a sidewalk astronomy event was held at the same venue, and there were around 100 telescopes displayed and more than 10000 local people and tourist have looked at the sky.

It was the first time that all the 5 amateur astronomy societies joined together, with the support from the universities, Hong Kong Space Museum, Ho Koon Astronomical Centre and participation from schools, sponsorship from different parties to make this event happen.




二零零九國際天文年
International Year of Astronomy 2009
你的宇宙 由你發現
The Universe Yours to Discover
2009
國際天文年
IYA2009
NATIONAL GEOGRAPHIC CHANNEL
Starrix
星空文化館
Cosmoers
S.O.H.K.
International Year of Astronomy 2009
Hong Kong League


Large Telescope Zone
大鏡區




The International Year of Astronomy was inaugurated by our officiating guest, Prof. Kenneth Yeung (Pro-Vice-Chancellor, CUHK) and Mr. LEE Yiu-fai (Chairman, Sik Sik Yuen). And during the ceremony, a pre-recorded speech by Mr. Joseph Liu, the Father of Hong Kong Astronomy was also broadcasted to encourage the young generation.

After the ceremony, a sidewalk event composed around 100 telescopes was held, and it was the largest sidewalk event ever happen in Hong Kong.

## "Dim It" — Light off Campaign

Dim-it" campaign was a large scale light off campaign took place in Hong Kong, in was started in 2008, while the second campaign in 2009 resulted in 3500 buildings turned off their exterior lighting for 2 hours together. At the same time, a large scale side walk activity was held and over 30000 people participated, to count down for the light off event and also used the telescopes to look at the sky.



Hong-Kong: Before and after light off campaign.

“Dark Sky Awareness” was one of the major focuses of the IYA2009 activities in Hong Kong, and “Dim-it” is the highlight and milestone among all the activities. On June 21, 2009, over 30000 people gathered along the Victoria harbor of Hong Kong and witnessed the event, peoples queued up for a look at the telescopes, and they signed up for the “Dark Sky Declaration” erected at the venue to urge for a better light controlled living environment.

The activity was highly attracted the media attention, and it was the headline news on the day and a number of newspaper editorial was written for light pollution. 575 cooperates has signed the “Dim It Charter’ and agreed to switch off their exterior lighting before 11pm.

Organisers: Friends of Earth (Hong Kong), IYA2009 Hong Kong League

Website: http://www.foe.org.hk/dimit09/

Estimated number of people reached: direct contact: 30 000; indirect contact: 1 000 000

## 18 District SideWalk

Hong Kong is a small but densely populated city, and it is divided into 18 administrative regions. In order to let astronomy penetrate into more social groups, the “18 district sidewalk” was organized and put the emphasis to more distant districts. Apart from some large scale sidewalk activities organized in align with the opening ceremony, “Dim-It” event. Some additional sidewalks were organized to match the mid-autumn Moon festival, National day. Other sidewalk activities were taken place in Sham Shui Po, Tuen Mun (during 100HA), Tai Po, Eastern District, Yuen Long, Tsuen Wan, Wong Tai Sin. In the activities, we met a lot of kids, disadvantaged people, minorities groups and they show strong interest in astronomy since the sidewalk




## 100 Hours of Astronomy

The “100 Hours of astronomy” activities in Hong Kong was composed of 19 activities, local, global or web events. Some highlights are the full house event in University of Science and Technology Lecture of “Stardust and origin of Life” by local famous astronomer Prof. Sun Kwok, Tuen Mum sidewalk activity, stargazing camps and the beginning of IYA special lectures.




100小時
天文馬拉松
4月2日-5日
USTREAM
EARTH

## Star Light Tour

“Star-Light-Tour” was one of the Hong Kong Dark Sky Awareness program. The activity was held on Jun 20, 2009 and re-run on Dec 13, 2009. Its aim was to let the participants to understand the impact of light pollution. Therefore it was a Star(-gazing) Light(-pollution) tour.




In Hong Kong, as people were used to live under a light polluted sky, most of them don’t know what a starry night is. Therefore, we organized the tour start from the heavily light polluted area (with almost no stars can be seen) and then next to less light polluted area. This allows participants to contrast the difference among the sites and have a real experience of the impact of the light pollution. A large scale star party will take place in the newly established astronomy park.

Organisers: IYA2009 Hong Kong League, Friends of Earth (Hong Kong)

## Galileoscope Workshop

Many people were interested in the galileoscope and the Chinese University of Hong Kong organized a number of workshops at schools and in the University for students, teachers and public. Very positive responses were received from the public.








Organisers: Department of Physics, The Chinese University of Hong Kong

Website: http://www.phy.cuhk.edu.hk/astroworld/IYA2009/Galileoscope/Galileoscope.html

## IYA2009 Monthly Special Lectures

Special IYA2009 lectures were organized monthly to draw public attention. The topics and speakers were carefully selected.

Organisers: IYA2009 Hong Kong League, Hong Kong Space Museum

## Drawing Competition

An astronomy drawing competition was held to arouse the interest of astronomy among young children. The participants range from age 6 to 12, they were divided into 3 groups, with 3 different topics. Over 1500 applications were received. The prize giving ceremony was presented together with a sidewalk event.

## Hong Kong — Macau mutual visit

Hong Kong and Macau are close neighbour, and we take IYA as a good opportunity to organize mutual visit. On Feb 28, 2009, Hong Kong send Mr. Sze-leung Cheung to Macau to give a public lecture for Macau; on May 30, 2009, IYA Hong Kong node travelled to Macau to participate the Macau node IYA opening and sidewalk event; on Nov 28, 2009, Macau node visited Hong Kong, and participate the sidewalk event. An original scheduled students visit was cancelled due to the outbreak of H1N1 virus




2009國際天文年澳門分區開幕式暨路邊天文活動

2009年5月

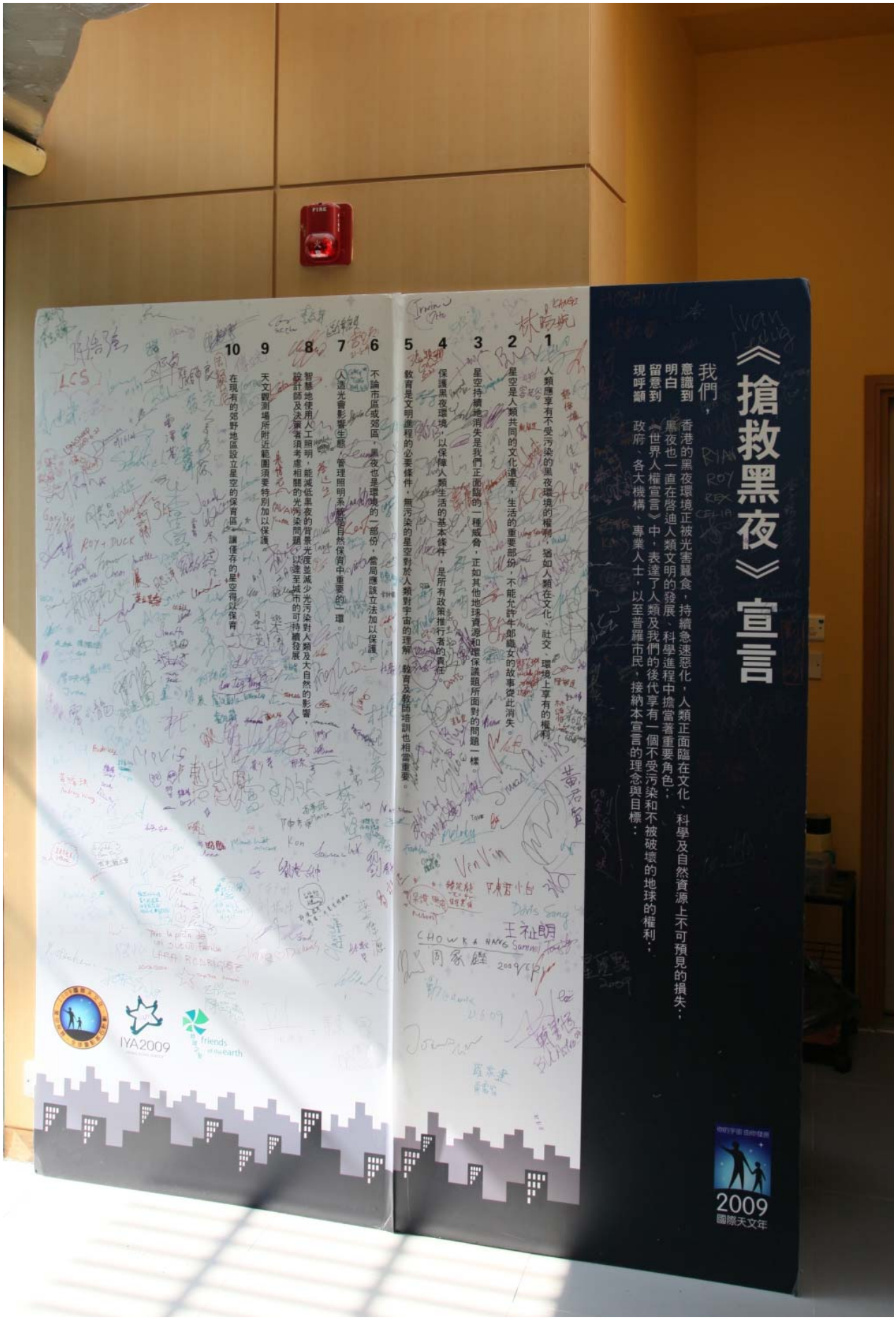


Organisers: IYA2009 Hong Kong League, IYA2009 Macau node

## Closing Star Party

The IYA2009 Hong Kong closing ceremony was held as a star party event on Dec 19, 2009. The party was composed of special seminars, portable planetarium session, solar observation and of course stargazing. People enjoyed the starry night, and the star party marked the ending of this meaningful and successful year of events.




《搶救黑夜》宣言
我們，
意識到
香港的黑夜環境正被光害蠶食，持續急速惡化，人類正面臨在文化、科學及自然資源上不可預見的損失；
明白
黑夜也一直在啓迪人類文明的發展、科學進程中擔當著重要角色；
留意到
《世界人權宣言》中，表達了人類及我們的後代享有一個不受污染和不被破壞的地球的權利；
現呼籲
政府、各大機構、專業人士，以至普羅市民，接納本宣言的理念與目標：
1 人類應享有不受污染的黑夜環境的權利，猶如人類在文化、社交、環境上享有的權利。
2 星空是人類共同的文化遺產，生活的重要部份，不能允許牛郎織女的故事從此消失。
3 星空持續地消失是我們正面臨的一種威脅，正如其他地球資源和環保議題所面對的問題一樣。
4 保護黑夜環境，以保障人類生活的基本條件，是所有政策推行者的責任。
5 教育是文明進程的必要條件，無污染的星空對於人類對宇宙的理解，教育及教師培訓也相當重要。
6 不論市區或郊區，黑夜也是環境的一部份，當局應該立法加以保護。
7 人造光會影響生態，管理照明系統是自然保育中重要的一環。
8 智慧地使用人工照明，能減低黑夜的背景光度並減少光污染對人類及大自然的影響，設計師及決策者須考慮相關的光污染問題，以達至城市的可持續發展。
9 天文觀測場所附近範圍須要特別加以保護。
10 在現有的郊野地區設立星空的保育區，讓僅存的星空得以保育。
IYA2009
friends of the earth
2009
國際天文年

# Hungary




## National Node

Katalin Olah (Konkoly Observatory)

http://www.csillagaszat2009.elte.hu/
http://www.csillagaszat2009.hu/

Official Languages
- Hungarian

Number of organising committee members: 6-10
- Volunteers: 6-10
- Paid: 0

Population: 10 020 000

Number of people reached by IYA2009: 62 000 from the listed activities, much more otherwise, e.g. in schools.

Budget: 41 000 €

Sources:
- Mostly local counties and civil organisations

## General Overview of IYA2009 activities in Hungary

A huge number of volunteers helped in the activities. They had a very wide range: from radio programmes (lectures about music and astronomy, light pollution, etc.) to astronomical competitions in big schools of towns and in tiny village schools. Sidewalk astronomy events were organised. A lot of events remain unknown for us, but I am sure they had their impact. Except some radio stations and internet journals, the media neglected IYA2009 in Hungary. The state offices did not show interest. The funds came mostly from local sources, and cannot be truly estimated.

## Main Activities

### Sky is the limit

In the International Year of Astronomy 2009 Konkoly Observatory offered a unique opportunity to young enthusiasts of the starry sky. High-school students were invited for the first time to apply for one hour of telescope time to record their favourite celestial object with the 60/90/180 cm Schmidt telescope and CCD-camera located in Piszkesteto Mountain Station. This is one of Hungary's largest telescopes.

From the submitted several applications the best projects were:

- 1st prize M57 (Ring Nebula) Premontrei Rendi Szent Norbert Gimnázium, Szombathely.
- 2nd prize IC5070 (Pelican Nebula) Radnóti Miklós / ELTE Apáczai Csere János Gyakorló / László Gyula Gimnázium, Budapest.
- 3rd prize M57 (Ring Nebula) Vörösmarty Mihály Ének-zenei Nyelvi Általános Iskola és Gimnázium, Budapest.

The best images were widely disseminated on the internet and popular science magazines. Our goals with this initiative were to:
- widen mathematical, physical and astronomical literacy;
- attract young talents to natural sciences and technology;

- allow students to use real astronomical instruments;
- teach them the basics of image processing and astronomical data evaluation;
- repeat the “Galileo experience” but this time using modern instruments.

Organisers: Róbert Szabó, Konkoly Osbervatory.

Website: http://www.konkoly.hu/iya2009/eredm_kepek.html

Estimated number of people who attended or were reached by this activity: 40

## From Earth — Beyond Earth: From Galilei to the space telescopes

The Hungarian Museum of Science, Technology and Transport joined the International Year of Astronomy 2009 with an interactive exhibition. As objects of the exhibition, among others, we presented the evolution of different telescopes and other instruments used in astronomical observations. With very special care we reviewed those instruments and results which were developed, designed and used by Hungarians.

During the exhibition we called the attention to our visitors, who otherwise meet with astronomy only occasionally in prominent events, to the importance of astronomy and to its role both in the scientific and cultural life, through instruments, demonstration tools and other articles which offered useful knowledge. The exhibition helped to better understand the scientific discoveries and inventions which have direct influence on our everyday life.

Apart from exhibiting instruments, we displayed animations, compilations, programs in computer screens which spectacularly complemented our static assembly of objects. The original pieces were supplemented by a scaled model of the Solar System, the visitors could study two kinds of meteorites and Moon dust sample. Connected to the exhibition we initiated the visitors in a better, “manual” understanding of the exciting things in astronomy through a museum-pedagogical booklet.



View of the exhibition.



Black hole simulator

Organisers: Hungarian Museum of Science, Technology and Transport Konkoly Observatory of the Hungarian Academy of Sciences, TIT Budapest Planetarium, Museum of Ethnography, Hungarian Natural History Museum.

Estimated number of people who attended or were reached by this activity: 35,000

## Designation of the Zselic Starry Sky Park, and related events

The Zselic Landscape Protection area was announced as one of Europe's first International Dark Sky Park (IDSPark). The Zselic region which is located in the Southwest part of Hungary, is one of the best locations for dark skies in Hungary. The area of the protected park is 9046 hectares, and its major part is woodland. The Zselic Starry Sky Park has excellent night skies. On clear nights the quality of the sky is better than 21.3 magnitudes per square arcsecond. The Milky Way, the Zodiacal light and other faint phenomena are easily visible by naked eye on a clear night.

The Zselic Starry Sky Park at the Zselic Landscape Protection Area began as a project between the Duna-Drava National Park Directorate and the Hungarian Astronomical Association in 2006, which provided for the formation of a conservation area of the night sky in the Directorate's management plan where the Hungarian Astronomical Association would perform sky quality measurements and educational activities. The project was finalised during the International Year of Astronomy 2009, and the International Dark-Sky Association announced officially the designation of the Zselic IDSPArk on 15 November. During the International Year of Astronomy 2009 star hunting hikes were organised at the Zselic region every month.



Night sky and tour participants in the Zselic Starry Sky Park

Members of the national park management, nature friends, hikers, and amateur astronomers have been working together to exploit the possibilities of the natural capabilities of the Zselic region. The public at large has joined their enjoyment of the nocturnal Zselic. Since they had started to organise night-time hikes in the Landscape Protection Area, the number of participants has been increasing beyond the preliminary expectations. The record was 160 visitors, walking without torchlight in the dark forest. It clearly indicates that the concept of a Dark Sky Park has a great importance for public outreach and tourism, too. The Starry Sky Park has been having a good press coverage from popular tabloid to magazines of high standards. Central Hungarian radio and television stations have reported on the values of the Zselic region, our work and the star watching walks we organised. A significant fraction of Hungary's population have encountered the news on the formation of the Starry Sky Park.

The IDSParks was part of the IYA2009 Dark Skies Awareness Cornerstone project.

Organisers: Zoltán Kolláth (Hungarian Astronomical Association), Zoltán Szegvári (Duna-Dráva National Park Directorate).

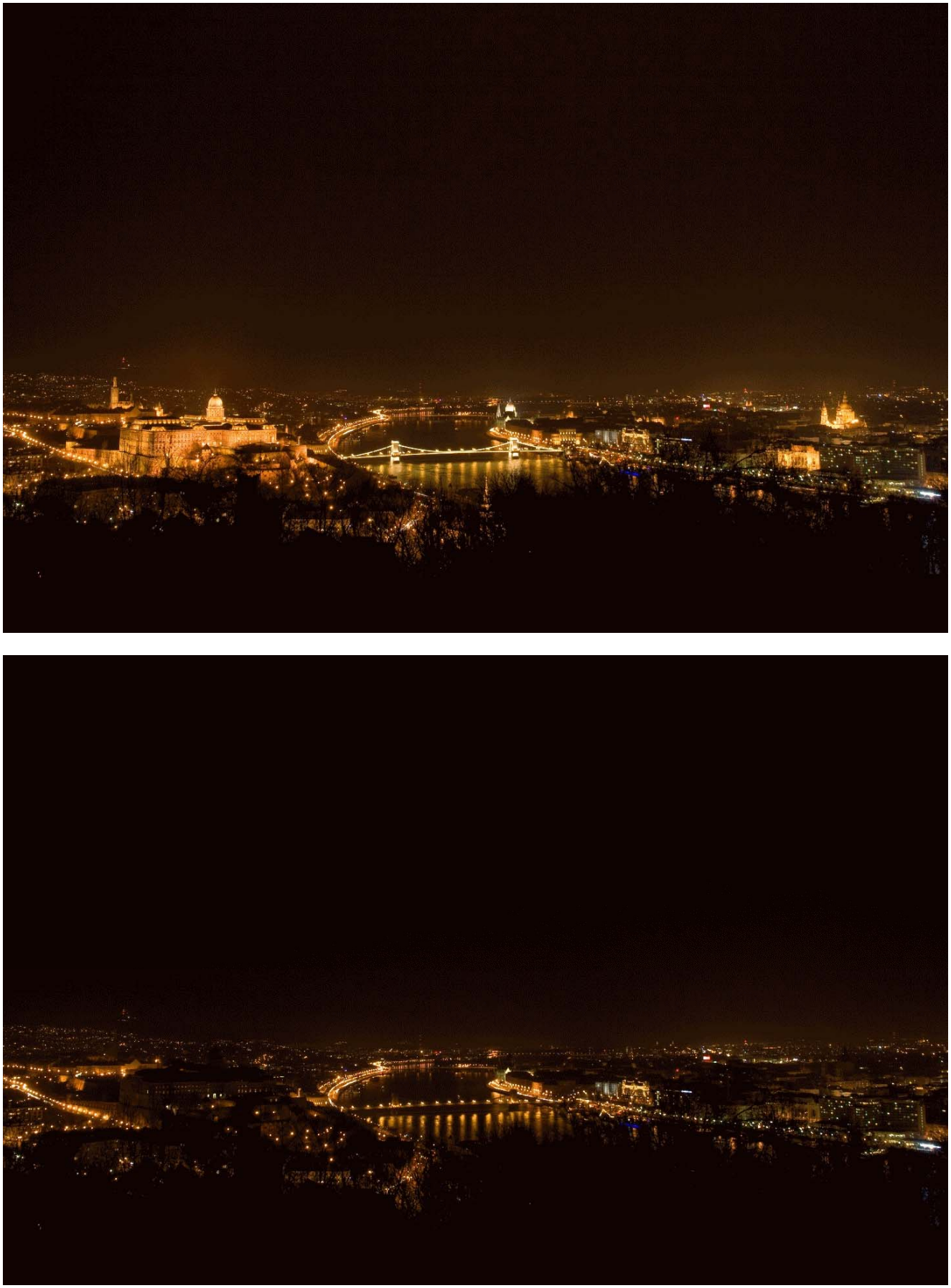
Website: http://www.astro-zselic.hu/

Estimated number of people who attended or were reached by this activity: 800 people on tours — at least tens of thousands through the media.

## 3rd Hungarian Conference on Light Pollution

We organised the third Hungarian light pollution conference with the title "Light pollution, Astronomy and Life". It was held in the main building of the Hungarian Academy of Sciences, on Monday 9 November. The main patrons of the meeting were the Minister of Environment and Water, and the President of the Hungarian Academy of Sciences. There were talks on the following topics:

- Astronomical light pollution and visibility on roads;
- Obtrusive light and economical road lighting;
- Light pollution by public lighting;
- The effect of architectural light on bat communities;
- Light trapping of insects in the presence of light pollution;
- Obtrusive light and conservation;
- Measuring light pollution;
- On the medical effects of obtrusive light;
- Light pollution and astronomical observatories.



Budapest before and after lights off

The conference was opened by the state secretary of the Ministry of Environment and Water, and by the vice-president of the Hungarian Academy of Sciences. The meeting had been co-organised by IDA Hungary, the Hungarian Academy of Sciences and the Lighting Society of Hungary. The meeting was finished with a Declaration on Light Pollution together with a news release. The meeting was part of the programmes of "The Festivity of Science", organised by the Hungarian Academy of Sciences.

Organisers: Zoltán Kolláth (Hungarian Astronomical Association), János Nagy (Lighting Society of Hungary), István Gyarmathy (Hortobágy Natinal Park).

Website: http://fenyszennyezes.csillagaszat.hu/

Estimated number of people who attended or were reached by this activity: 70

Budget: 5000€

## The World At Night exhibition in the Hungarian National Museum

The International Year of Astronomy 2009 programme among those that received the greatest publicity took place in the Hungarian National Museum: a great number of visitors could admire the astronomical landscapes of the photographers of "The World At Night" between 16 — 31 October 2009. The programme was presented with broad publicity of the press, the Hungarian Astronomical Association, National Geographic, Origo — the top internet news portal of Hungary, and TV2 — the top Hungarian commercial TV channel — had covered it directly. (Please see the links given below.)

50 pictures were exhibited, and within the confines of project the organisers' aim was to represent an overview of the TWAN photographer's artwork. Each of the photographers brought their own homeland's (Greece, France, Spain, Japan, USA, Australia, Sweden, Hungary, Germany, Korea, Finland, Iran, Canada, Turkey, Russia ) landscapes, cultural heritage and their personal style of photography. We could have a view of the Milky Way above the national parks in the USA, the composition of Iranian, Turkish landscapes with the constellations, the greatest observatories of the world with the background of the starry sky, the constellations of the Southern hemisphere, the night view of the UNESCO World Heritage sites, and — with the help of the Hungarian TWAN member Tamas Ladanyi — the visitors could also watch the beloved landscapes of their homeland with the well-known stars above.



Impression from TWAN Exhibition

After the highly appreciated debut of TWAN in the National Museum the project had travelled to the Rippl-Ronai Museum at Kaposvar, and in 2010 the exhibition was invited to other Hungarian cities too. This success encourages us to adopt the thoughts of Gyorgy Kulin, the founding father of Hungarian amateur astronomy, which are in tune with the TWAN slogan: "One people, one sky!"

Organisers: Tamas Ladanyi — representing TWAN in Hungary, Attila Mizser — the Secretary General of the Hungarian Astronomical Association.

Website: www.twan.mcse.hu

Estimated number of people who attended or were reached by this activity: 3000 (during two weeks), 860,000 (number of TV watchers on TV2)

Budget: 3700€

## National Astronomical Competition for Elementary and Secondary Schools (in three categories for different ages — longer project, 17 November-9 May 2009)

This was an IYA2009 memorial competition on astronomy, available for several different ages of young pupils in all Hungarian areas in Europe. The main category was named by “Galilei” — this was opened for 14-18 year old high-school students. The “Kepler” category was opened for 10-13 year old pupils. Each category started with 3-3 internet-based rounds, with solvable astronomical problems, quiz, some observational and computational exercises, and some special tasks, which sometimes needed not only knowledge on astronomy, but skilfulness and inventiveness, too. The “public decisive rounds” were in two different venues and dates: 24-25 April 2009, Kecskemét (in the Municipal Library) — for the elder students and 9 May, Tata (in the City Hall) for the younger. After the exciting struggle, broadcasted on internet-TV, the best four teams could receive the most valuable awards: telescopes, digital cameras, astronomical tools, free participation on the largest Astronomical Camps. However, each participant could receive further astronomical presents: books, astronomical journals, painted T-shirts, etc. For the youngest children we organised a contest of thematic drawings, of which topics were — of course — 400 years of the telescope, and astronomy. The best three also received some valuable awards, the announcement of their results and the awarding were at the time of the public finish of “Kepler” category.

Organisers: Szeged University Observatory, BKMÖ Baja Astronomical Observatory, Hungarian Astronomical Association, Tata City Local Government, TIT Komárom-Esztergom County Association.

Website: http://www.bajaobs.hu/galilei/index.php
http://www.bajaobs.hu/kepler/index.php

Estimated number of people who attended or were reached by this activity:

- Galilei category; 3 introductory online rounds about 250 persons
- Galilei category; Public finishing round: about 60 persons
- Kepler category; 3 introductory online rounds about 320 persons
- Kepler category; Public finishing round: about 80 persons
- “400 years of the telescope” category: about 120 persons

Budget: 7500€

## “3D Universe” — an exhibition of anaglyph astronomical images (all year, at many towns, started at Baja Observatory 15-29 January)

The first Hungarian exhibition showing some of the most interesting astronomical 3D anaglyph images, also in printed version (limited number of pictures in frames and under glass) and a connected anaglyph presentation and movie of Dr. Kollath: “Stellar Music — a 3D travel in space and time” . Both the framed pictures and the projection materials were distributed around the whole country during IYA2009, at no cost. 50 anaglyph goggles were also attached to the travelling material. It was a great success, many exhibition venues called us to present a scientific lecture connected to the exhibition as well.

Organisers: Baja Observatory Foundation, Baja.

Estimated number of people who attended or were reached by this activity: 6000 visitors during the year, summed up for all sites.

Budget: 1000€

## “Astronomical books of 2000 years” — an exhibition (Library of Archbishopric palace, Kalocsa, 21 March 2009-16 January 2010)

A unique exhibition of the oldest and most famous astronomical books of the last 2000 years, owned by the Library of the Archbishopric Palace, Kalocsa (Southern Hungary). Visitors could have a look of some opened pages of ancient hand-written, painted codexes, philosophical and astronomical books, from Ptolemy through Brahe, Kepler, Galilei to Newton, Kant, etc. The old library surrounding and the historical Archbishopric Palace Building as well as the exhibited instruments of the 19th Century local astronomers (Haynald Observatory) served a special background to this valuable exhibition. The exhibition was open all year for visitor groups. During the opening

ceremony (20 March 2009) there was a public lecture day with several astronomical presentations delivered by scientists.

Organisers: Episcopal Palace, Kalocsa.

Website: http://konyvtar.asztrik.hu/?q=en

Estimated number of people who attended or were reached by this activity: 12,000

Budget: 3000€

## Summer Astronomical Camp for High School Students (Baja Astronomical Observatory, 29 June-6 July 2009)

This is a traditional one-week long annual astro-camp of Baja Observatory, organised permanently since 1995, for Hungarian high school students. The main aim is not only purely teaching them the main observational techniques, and delivering the latest astronomical results with background explanations, but also making them available to do their own observations through large telescopes as well as naked eyes (like meteor watching). Daylight and night-time practical orientation techniques, excursions, water and air pressure rocket building and launch contest, closing astro-quiz with valuable presents.




Organisers: BKMÖ Baja Astronomical Observatory.

Website: http://www.bajaobs.hu/

Estimated number of people who attended or were reached by this activity: 15

Budget: 7500€

## Celestial Nights at the “Promenade Festival” (Mobil Planetarium and Telescope Shows, Pécs, 13-21 June 2009)

Celebrating IYA2009, the Cultural Center of Pécs city decided to hold combined digital mobile planetarium and telescope demonstration shows. Each night there were two planetarium shows under the geodetic dome made by Corvus Astronomical Association (Gabcikovo, Slovakia) and a connected telescope show, presented by the Pecs Group of Hungarian Astronomical Association and the Baja Observatory Foundation. Half of the planetarium shows were presented by the astronomers of Pecs University, the other half by the owner of this mobile digital planetarium: Sandor Nagy. As well as visitors to the planetarium shows, many more people joined the telescope demonstration. Many people could watch the most interesting objects in the night sky, like M13.

Organisers: Cultural Center of Pécs (Southern Hungary), Pécs Local Group of the Hungarian Astronomical Association, Baja Observatory Foundation.

Website: http://pecsikult.hu/hu/setater

Estimated number of people who attended or were reached by this activity: 500

Budget: 4000€

**“400 years — 400 participants” (National Summer Astro-camp 19-22 August 2009)**
Special “memorial” astrocamp celebrating 400 years of the telescope and telescope-making, for all people interested in astronomy. This is a long-lasting tradition of annual astro-camps in Hungary. Generally, the number of participants is between 200-300. The aim for IYA2009 was to achieve 400 participants. The programme of the anniversary astrocamp consisted — as usual — of several slide presentations on the latest news in astronomy, scientific results of Hungarian astronomers, latest advances in observational techniques, practical advice for advanced amateur astronomers, educational support, adventures of Hungarian astronomers in the world, etc. Each clear day and night joint observations of almost all kinds of celestial objects, with any kind of astronomical instruments of the participants, from the smallest binoculars up to the 40-50 cm diameter Newtonians and SC telescopes, using naked eyes, CMOS webcams, digital photo machines and cooled professional CCD cameras. “EXPO” of home-made telescopes. Some social events, like mini-concerts of country singers, and Hungarian traditional ethnic music presented by musician amateur astronomers! The very special event this year was an open mirror-making workshop activity, where many interested attendants could make their own blank glass disks, with the help of experienced mirror-makers during the days of the camp.


Telescopes in the summer camp “400 years — 400 participants”



Telescope model in the summer camp “400 years — 400 participants”

Organisers: Hungarian Astronomical Association.

Website: www.mcse.hu

Estimated number of people who attended or were reached by this activity: 380

Budget: 8200€

## “Late Star Falling” (Bácsborsod, 10 September 2009)

A humanitarian astronomy day for many old and handicapped people at Southern Hungary. There was a picturesque astronomy lecture (about sundials, and the research history of the Moon), an opening ceremony of an astronomical exhibition, and a half-day long contest for many astronomy enthusiasts for old and handicapped people of not only the local institute, but two other similar ones of this region. It was a very successful and playful contest, with many interesting tasks. Three astronomers and one librarian of our observatory supported these programmes.



Handicapped participants in the “Late Star Falling” programme .

Organisers: BKMÖ Astronomical Observatory and Astronomical Joint Department of Pécs University (Baja), BKMÖ “Autumn Sunshine” House of Old and Handicapped People (Bácsborsod).

Estimated number of people who attended or were reached by this activity: 150

Budget: 500€

## “Open sky” (Open demonstration night at Baja Observatory, 15 August 2009)

Public event at Baja Observatory

Organisers: BKMÖ Astronomical Observatory, Baja

Website: http://www.bajaobs.hu/

Estimated number of people who attended or were reached by this activity: 280

Budget: 1000€

### "Researchers' Night" (EU-coordinated traditional science day, 25 September 2009)

This is a Europe Union-coordinated initiative. During this early-autumn night many research sites are opening their doors to the interested people, and show them what they are working for, and presenting how interesting and exciting are the science — and of course, show their own or other Hungarian groups' results. The Baja astronomers joined to this initiative already in 2008, but organised a larger celebrating event in the year of astronomy. There was a celebration of lady astronomers (under the "She is an Astronomer" Cornerstone project), and an opening ceremony of the picture exhibition of the paintings of an astronomer: Dr. Kathrien Kolenberg, Belgium-Austria. The scientific programme was the invited lecture of Dr. Kolenberg under the title "Stellar Music and the Galactic Internet" presented in the English language. There was an online remote observation experiment from the venue of the programme .

Organisers: globally: National Office for Research and Technology, Budapest; locally: BKMÖ Astronomical Observatory, Baja.

Website: http://www.kutatokejszakaja.hu/

Estimated number of people who attended or were reached by this activity: 80

Budget: 1000€

### Astronomy in Music — A series in Bartók Radio Budapest

Four one-hour programmes were edited by Márta Papp (musicologist) and András Ludmány (solar physicist) about the astronomy-music connections. The titles:

- The Kepler-opera of Hindemith: The Harmony of the World;
- Celestial phenomena in music;
- Astronomers in music;
- Cosmic visions in music.

Organisers: Bartók Radio Budapest.

Estimated number of people who attended or were reached by this activity: Listeners of classic music in Hungary, the number cannot be estimated.

### Public Outreach activities in the Heliophysical Observatory, Debrecen & Popular stargazing programmes in Hajdú-Bihar county

a. The Heliophysical Observatory compiled an exhibition from historical astronomical instruments, observations, images and documents, as well as several posters and images for the visitors of the institute. Introductory talks were held with video projections to all of them.

b. Introductory stargazing events to the public at various sites around Debrecen with portable telescopes and brief explanations in the English language. There was an online remote observation experiment from the venue of the programme .

Organisers: a. Heliophysical Observatory, Debrecen; b. MAGNITUDO Astronomical Association, Debrecen.

Website: a. http://fenyi.solarobs.unideb.hu/
b. http://macsed.csillagaszat.hu/

Estimated number of people who attended or were reached by this activity: 14 groups, more than 350 guests in the Heliophysical Observatory (about 3000 people).

Budget: 1000€

## The heritage of Galilei

A series of public lectures at the Hungarian Academy of Sciences:

- 400 hundred years of the telescope: Lajos Balazs;
- New results of the STEREO space observatories: Károly Kecskemety;
- The results of the COROT space telescope: Margit Paparo;
- Where the stars are born : Maria Kun;
- Where the planets are born: Péter Ábrahám;
- The secrets of the primordial small celestial bodies: Imre Tóth.

Organisers: Committee of Astronomy and Space Physics, Department of Physics, Hungarian Academy of Sciences.

Estimated number of people who attended or were reached by this activity: 50

## Every road lead s to the stars — series of public lectures in the Hungarian Museum of Science, Technology and Transport

The lectures showed the connections between astronomy and various other sciences and arts.

- Geodesy and astronomy: József Ádám;
- Chemistry and astronomy: Gábor Pálinkás;
- Archaeology and astronomy: Katalin Barlai;
- Spaceflight and astronomy: Attila Szabó;
- Particle physics and astronomy: András Patkós;
- Life and astronomy: Tamás Simon;
- Music and astronomy: Zoltán Kolláth, Jenő Keuler;
- Astronomy in the works of James Joyce: Judit Nenyei;
- Science fiction and astronomy: Endre Zsoldos.

Organisers: Committee of Astronomy and Space Physics, Department of Physics, Hungarian Academy of Sciences, Museum of Science, Technology and Transport.

Estimated number of people who attended or were reached by this activity: 50

## Publishing a special issue of the popular magazine Termeszet Vilaga (World of Nature)

A 96 page special issue of the journal Termeszet Vilaga ('World of Nature') was published on the occasion of IYA2009 in October 2009. The renowned Hungarian monthly has been published since 1869. The special issue entitled Feltarul a Vilagegyetem ('Universe Revealed') commemorates the 400th anniversary of Galileo's epoch making discoveries. The issue contains 26 popular articles, each one belonging to one of the following topics: Galileo and his legacy; history of telescopic astronomical observations and astronomical telescopes; our current view of the Solar System, the Milky Way Galaxy, and the Universe; recent and future astronomical instruments; social aspects of astronomy. The authors of the individual papers represent all generations of Hungarian astronomers. Each page contains a colour figure.

Organisers: Laszlo Szabados DSc, editor.

Website: http://www.termeszetvilaga.hu

Estimated number of people who attended or were reached by this activity: 5000

Budget: Supported by the Hungarian Space Office, the Hungarian National Administration of Research & Technology, and OTKA.

### Thematic collection of articles published in Magyar Tudomany (Hungarian Science)

The thematic collection of articles entitled International Year of Astronomy consists of six papers popularising mostly the latest achievements of space- and ground-based astronomy. The monthly periodical Magyar Tudomany ("Hungarian Science") is the official journal of the Hungarian Academy of Sciences published since 1840. The readership of this article collection embraces researchers dealing with various disciplines in the fields of sciences and humanities. The titles of the individual papers are as follows: Enchanting World of the Cool Universe; Astrobiology — Modern Synthesis between Natural Sciences; Sky Surveys in Service for Revealing the Universe; By the Time the Sun Grows Old; Will Astronomy Become Space- and/or Ground-Based?; Might There Be an International Year of Astronomy in a Century, Too? The authors of the papers are internationally known Hungarian astronomers.

Organisers: Laszlo Szabados DSc, editor.

Website: http://www.matud.iif.hu/2009/09okt/Tartalom.htm

Estimated number of people who attended or were reached by this activity: 5000

Budget: Published by the Hungarian Academy of Sciences.

## Lessons Learned

Volunteer work was the key element in the success of IYA2009 in Hungary.

## Legacy

Some of the activities will be part of Beyond IYA2009, but some not. Hungary has a very strong Astronomical Association which took most of the organisation work in IYA2009. This organisation's president will represent Hungary in the future, in Beyond IYA2009.

## Comments

The most important element during IYA2009, in my opinion, was the enormous amount of volunteer work. Without those people whose names are (and will not be) known, the programmes would not have worked, and would not have reached so many people. Among those are schoolteachers, local county people, astronomers both professionals and amateurs, and just common workers helping the organisation of the sites, etc. I have no idea how to thank them all for what they did for astronomy.



# Iceland

## National Node

Einar H. Gudmundsson
Science Institute / University of Iceland

Official Languages

- Icelandic
-

Number of organising committee members: N/A

Population: 317 593

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Wonders of the Universe

Spring 2009
Lectures on modern astronomy for the general public by professional scientists.

### Stargazing for the general public

All year 2009
Starparties run by amateur astronomers and professionals.

### Astronomy outreach in schools

Spring and Autumn 2009
Astronomical instruction for teachers and pupils in elementary and secondary schools.



# India

## National Node

Ranjeev Misra (Inter-University Center for Astronomy & Astrophysics)

http://www.iucaa.ernet.in/~iya09ind

Official Languages
- Hindi
- English

Number of organising committee members: >11
- Volunteers: >11
- Paid: 0

Population: 1 178 647 000

Number of people reached by IYA2009: 710 244 200

Budget: Unknown €

Sources:
- Government Institutions
- Universities
- Associations and individuals

India is a diverse country, with many state languages. The international IYA2009 logo was used effectively by all organisations and its use emphasised the international nature of the events.

## General Overview of IYA2009 activities in India

The challenges of having IYA2009 activities in a vast country like India, with varied languages and socio-economic standards, were met effectively by scientists, planetaria, media, science popularisation organisations, amateur groups as well as individuals. They organised a large number of public talks, exhibitions, film shows, workshops, star parties and produced resource materials. Indian astronomers proudly showcased the state of art astronomical facilities of the country at the 60th Republic Day parade in a tableau designed by the Indian Institute of Astronomy (IIA) for the Dept. of Science and Technology. The total solar eclipse on 22 July was effectively utilised to promote awareness among the common people. There was enthusiastic participation in India for internationally coordinated events like the “Galilean Nights”, “Around the World in 80 Telescopes”, “100 Hours of Astronomy” etc. IUCAA as the National Node maintained the official website which allowed many programmes to be inspired and showcased. The Indian Space Research Organisation supported IYA2009 by being an organisational associate and by arranging several IYA2009 activities. Vigyan Prasar developed 52 radio episodes in 19 languages and a 26 episode TV programme which were broadcast by the All India Radio and the National Television. A large number of resource materials like films, books and multi-lingual posters were created for IYA2009 by various organisations. IIA designed and distributed a cheap easy to use telescope while an informative IYA2009 diary was designed and distributed by IUCAA. Across the country, IUCAA and other organisations conducted workshops where students learnt to make their own telescopes and simple spectroscopes (e.g. using discarded CDs) etc. Several other workshops were held to train a number of teachers and science popularisers to effectively promote astronomy in their locality. Thus despite all the challenges, IYA2009 was celebrated enthusiastically and India is well poised for the further enhancement of astronomy and science awareness in the future.

## Main Activities

### List of Activities

- Republic Day Tableau;
- Radio Programmes on Astronomy;
- Astronomy at the roadside & more;
- My First Telescope (Galileoscope G++);
- Astronomy on Camel Cart;
- Tanmaye's Amazing Space;
- Science in Action;
- Festival of Science;
- Grahan '09;
- Sidewalk Astronomy Nights.

### Republic Day Tableau

Indian astronomers proudly showcased their feats on 26 January 2009, at India's 60th Republic Day parade in a grand tableau designed by the Indian Institute of Astrophysics (IIA) for the Department of Science and Technology. This was telecast by the national and other television channels across the country to almost a billion of the Indian population. Three radio dishes of the Giant Meterwave Radio Telescope and a model of 2.34 metre Vainu Bappu Observatory of the IIA — the largest telescope in this part of the world, were part of it. It also showed pictures of other observatories in India and astronomical objects taken using these telescopes on side panes. Some pictures were displayed on the giant screen depicting Virtual Observatory, India.

Organisers: Indian Institute of Astrophysics (IIA) for the Department of Science and Technology.

Website: http://www.iiap.res.in/iya09/tableau.html




Estimated number of people who attended or were reached by this activity: 700,000,000

## Radio programmes on astronomy

Vigyan Prasar, a government organisation, engaged in the popularisation of science at national level by producing a 52 episode radio serial on astronomy named “Beyond Stars”. Keeping the average non-specialist audience in mind, the attempt was to develop the subject matter in a logical sequence that could bring out the excitement of making new discoveries and relating them to the gradual understanding of the nature of the Universe. The serial, broadcasted weekly in 19 Indian vernacular languages, was not designed to be an exercise in pedagogy, but as a popular account of the development of astronomy as a scientific discipline and its impact on our understanding of the cosmos. Vividh Bharati — the premier entertainment channel of the All India Radio also broadcasted an Astronomy Magazine (in Hindi, the national language of India), as part of its programme called “Youth Express”. The radio magazine deals with various aspects of astronomy — from sky events to astronomy in India, inspiring the young to take up this subject.

Organisers: Vigyan Prasar, Vividh Bharati (All India Radio).

Website: http://www.vigyanprasar.gov.in/Planetearth/iyaradio/

Estimated number of people who attended or were reached by this activity: 10,000,000

## Astronomy at the roadside and more

Nine groups of activities were carried through, in as many regions and with as many children as possible (resources permitting). The structure of these activities had been made in such a manner that they began with simple naked eye observations, moving onto views and measurements through moderate aperture telescopes, onto a virtual experience of modern day multiwavelength studies and finally a glimpse of the latest excitements in related areas of explorations. They ensured that a large number of children from all over India got a chance to view through a reasonable telescope, and appreciate the craters on the Moon, the Galilean moons of Jupiter, the rings of Saturn, and the phases of Venus.

Organisers: Nehru Planetarium, New Delhi.

Website: http://nehruplanetarium.org/taarewiki/pmwiki.php?n=Site.KhagolMela

Estimated number of people who attended or were reached by this activity: 5000

## My First Telescope (Galileoscope G++)

The Inter-University Centre for Astronomy and Astrophysics (IUCAA) in collaboration with many universities, conducted two-day astronomy workshops for school students and teachers at various places all over the country. The primary aim was to excite people through a small telescope that they can make themselves with local resources and at a low cost. The project was called “My First Telescope” and the telescopes were nicknamed Galileoscope++. Except for the optics, these telescopes were all built from plumbing hardware from the local market. These 3” refractors had two components added to the telescope made by Galileo — an achromatic lens and 45 degree flat mirror, hence the “G++”. In a few hours, groups of students made these telescopes with support from their respective schools or science clubs towards the cost of the instrument. Lessons in actual skywatching with sky-maps were also given and the telescopes were tested the same evening with a sky-watching session. A simple spectroscope that uses waste CDs/DVDs was also designed and publicised freely to complement the use of the telescopes.

Organisers: The Inter-University Centre for Astronomy and Astrophysics.

Website: http://www.iucaa.ernet.in/~iya09ind/mft/







Estimated number of people who attended or were reached by this activity: 15,000

Budget: 5000€

## Astronomy on Camel Cart and other activities

Manthan Educational Programme Society developed a mobile camel cart exhibition on astronomy which is travelling urban and rural areas of Ahmedabad, Gujarat, India. This was for the 100 Hours of Astronomy Cornerstone project. Two other mobile exhibits benefited tribal and urban and rural folks in Rajpipla and Vadodra. An interactive radio session on astronomy with All India Radio for students and the community was also arranged. A special traditional puppet show on superstition related to astronomy was showcased. Moreover, Manthan was the coordinating agency for the Galileo Teacher Training Programme in India and South East Asia.

Organisers: Manthan Educational Programme Society.

Website: http://www.manthanindia.org/index.htm




SOLAR ECLIPSE
STARS


SOLAR ECLIPSE




Estimated number of people who attended or were reached by this activity: 150,000

Budget: 200€

## Tanmaye's Amazing Space

A number of activities were carried out by Tanmaye Vyas and his group. Special mention of observations of crescent Venus and astronomy slide show for the children at "Observations Home" a place for children have either committed some crime or beggars who were caught by police from cross roads.

Organisers: Tanmaye Vyas.

Website: http://tanmayevyas.blogspot.com/






Estimated number of people who attended or were reached by this activity: 5000

## Science in Action

An exhibition of models pertaining to astronomy were displayed during 23 — 25 January 2009. More than 70 schools with about 200 students each visited and wondered at the marvel of astronomy.

Organisers: Bangalore Association for Science Education.

Website: http://www.taralaya.org/




Estimated number of people who attended or were reached by this activity: 14,000

## Festival of Science

The opportunity of IYA2009 and Birth Bicentenary of Charles Darwin was utilised by the Kerala Sastra Sahitya Parishad (KSSP), an organisation involved in science communication at the grassroot level for the last 47 years, to launch a massive campaign in South India. This involved taking telescopes to hundreds of villages, conducting thousands of classes, poster exhibitions, mobile science exhibitions, training 600 teachers, production of 23 books, 2 videos, 20 PowerPoint presentations, simple telescope making kits, staging a play on the Life of Galileo at 180 places and conducting the “Festivals of Science” in 7620 Schools in 635 Panchayats in the state of Kerala.

Organisers: Kerala Sastra Sahitya Parishad (KSSP).

Website: http://www.kssp.in/

Estimated number of people who attended or were reached by this activity: 632,000

Budget: 6500€

## Grahan ‘09

A mega project with six different projects to observe, record and popularise the Total Solar Eclipse on 22 July 2009. This included technical support for the first eclipse observing commercial flight in India.

Organisers: S.P.A.C.E. (Science Popularisation Association of Communicators and Educators).

Website: http://space-india.org/solar_eclipse_workshop_2009.aspx

Estimated number of people who attended or were reached by this activity: 50,000

## Sidewalk Astronomy Nights

As an extension of the International Year of Astronomy 2009 Cornerstone project Galilean Nights, the Bangalore Astronomical Society (BAS) organised a 30-night nonstop sidewalk astronomy event held at various places in Bangalore during the month of October. The volunteers of BAS set the telescopes on the streets in most areas of Bangalore, pointing the wonders that Galileo observed 400 years ago. Spread over 30 nights, BAS volunteers shared their knowledge and enthusiasm for space by encouraging more than 10 200 people look through a telescope. Their gift of time and sharing of telescopes reduced costs and increased efficiency a lot.

Organisers: Bangalore Astronomical Society.

Estimated number of people who attended or were reached by this activity: 10 200

## Lessons Learned

The best practice learnt during the past year was to provide freedom to local organisations to implement their programmes in the manner best suited to their environment. Yet, such diverse programmes were highlighted and given visibility by being recognised as IYA2009 activities. This was done by encouraging small and big enterprises to inform the National Node of all the activities they did irrespective of the size and nature.

The organisational structure of setting up a working group consisting of respected professionals from different institutions was not only useful in providing new inputs, but more importantly it gave legitimacy and transparency to the activities of the National Node.

What was missed in the programme was a complementary management and administrative structure consisting of dedicated full-time personnel. They would have provided crucial managerial support and created catalytic links between various small organisations across the country.

Although IYA2009 activities got wide coverage by the media, early involvement and rapport with national level media could have increased IYA2009 visibility.

The IYA2009 National Node was designed as a non-funded venture, which was adequate for the role that it played. However, a funded programme with early planning and with road-maps for execution would have been useful for implementation of ambitious programmes.

## Legacy

There were a sizable number of organisations and associations which promoted science in India even before 2009. IYA2009 provided them with a platform to promote astronomy and the response they received has strengthened their resolve. Moreover, a number of new amateur astronomy clubs have been established in the country. Academic and research institutes and university departments are now more aware of the importance of public outreach and many of them have started long term programmes. The large volume of resource materials produced (especially the TV/Radio programmes, multi-lingual literature) would serve to promote astronomy for a long time. The present National Node organisation would be inadequate to address these long-term issues and will perhaps need to be reconstituted with full-time members who will provide better management support to the various associations.

## Comments

Beyond IYA2009, the momentum gained during the year needs to be consolidated and there needs to be more concentrated efforts to promote astronomy in a diverse country like India. This should be achieved by having a permanent, full-time representative of the IAU office, with an advisory council as well as an efficient managerial structure. The office should take into account the local diversities and implement it own programmes as well as encourage, recognise and provide managerial support to activities done by institutions, amateur groups and individuals.

# Indonesia

## National Node

Taufiq Hidayat (Bosscha Observatory and Astronomy Research division, ITB)

http:/bosscha.itb.ac.id/iya2009

Official Languages
- Indonesian

Number of organising committee members: 5
- Volunteers: 5
- Paid: 0

Population: 229 965 000

Number of people reached by IYA2009: 100 000+

Budget: 15 000€

Sources:
- Volunteers
- Private sponsors
- Government

## Main Activities

List of Activities
- Dawn of IYA2009 (Jakarta and Bandung)
- Cosmic Diary
- IYA2009 Opening Ceremony
- Annular Solar Eclipse in Lampung, Jakarta, Anyer, Carita (01/26/09)
- Partial Moon Eclipse
- Beauty Without Border
- 100 Hours of Astronomy
- SUNday as part of 100HA
- Launched of IYA2009 Indonesia Stamps
- Launched of Indonesia Mobile Observatory /IMO
- Training for Astronomy Olympiads
- Romantic Music at Kerkhoven
- Seminar at Italian Embassy
- 2012 Talk Show by HIMASTRON
- Bobo Science Fair
- Total Solar Eclipse at Shanghai via internet
- 1st Bandung International Summer School of Astronomy
- National Science Olympiads in Jakarta
- Science Camp 2009 by FOSCA
- Lunar Crescent Observation
- Lunar Crescent Observation
- Romantic Music at Kerkhoven Part 2
- World Space Week
- Galilean Nights
- Conference of The Indonesia Astronomy & Astrophysics
- Solar Telescope Launch

- World Science Day by Science Club/FOSCA/HAAJ/UNESCO
- Space Essay Competition by LAPAN
- World Space Week celebration and festival in Madania
- Telescope workshop for teacher

### Annular Solar Eclipse in Lampung, Jakarta, Anyer, Carita (26 January 2009)

Observations of annular solar eclipse and broadcast through the internet.

Organisers: Bosscha Observatory, UNAWE Indonesia, Himastron ITB, LangitSelatan.com, HAAJ.

Estimated number of people who attended or were reached by this activity: 2000

Budget: 3000€

### Open House for Spaceweek

Space exposition, solar observations and planetarium demonstration.

Organisers: Bosscha Observatory.

Estimated number of people who attended or were reached by this activity: 15,000

Budget: 1500€

### Teacher Training Programme

Utilisation of small telescope for teachers, training for Olympiad trainers.

Organisers: ITB.

Estimated number of people who attended or were reached by this activity: 100

### Space Essay Competition by LAPAN

Essay competition, observations, workshop for teachers, visit to the facilities.

Organisers: LAPAN.



# Iran

## National Node

Jamshid Ghanbari
Astronomical Society of Iran
ghanbari@ferdowsi.um.ac.ir
http://www.astronomy.ir/

Official Languages

- Persian

Number of organising committee members: N/A

Population: 74 196 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Iran

International Year of Astronomy 2009 was a great opportunity to bring astronomy and science to the people. Iran welcomed this event by joining the initiative in 2008 and many activities planned by professionals, Amateurs, Media and science centres in Iran for 2009. The president of Astronomical Society of Iran (ASI), Dr. Jamshid Ghanbari was nominated as the Iran National Node for IYA2009 project and ASI played the role of the events coordinator. Many of the following events were held by private science centres and individual groups. But some of professional and amateur events were directly organised by ASI and ASIAC (Astronomical Society of Iran- Amateur Committee).








## Main Activities

### List of Events

- 2nd international SUFI observing competition: On September 2008 and in welcoming the IYA, the 2nd Sufi observing Competition held in Sistan & Balouchestan province, south-east of Iran. During the event some of the best Iranian amateur astronomers and guests from Kurdistan province of Iraq joined together in a telescopic deep sky observing competition. The event is held every year in the memorial of Azufi (Abd-al – Rahman Sufi Razi), a pioneer Persian astronomer and author of the Book of Fixed Stars. In the night of competition the observers should locate a list of objects by their optical equipment and the effort will be judged and guided by an official group of experienced observers and astronomy educators. More info: http://en.wikipedia.org/wiki/Sufi_Observing_Competition







- Monthly Astronomy Meetings: Local astronomical clubs organise monthly public astronomy meetings in Tehran and 11 other cities in Iran. Tehran monthly meeting (www.tehranclub.ir) is directed organised by ASIAC.
- The meetings are gathering of amateur astronomers, educators and professionals who are engaged with our reach activities, as well as general astronomy enthusiasts.
- During the IYA2009 all these nation-wide monthly meetings focused on the IYA2009 goals and the theme.
- In late Jan. 2009, The Institute for Advanced Studies in Basic Sciences (IASBS) in Zanjan was the organizing host for an important 4-day conference related to IYA2009, entitled Astronomy: before and

after Galileo. Some of the invited guest speakers were Prof. Paolo Galuzzi, Director of the Institute and Museum of History of Science in Florence, Dr. Tofigh Heidarzadeh, a history of astronomy researcher at the University of California in Riverside, Dr. Elahe Kheirandish from Harvard University, Dr. Tiziana Bascelli from the University of Padova.

- In October 2009 Iran was the host of the International Olympiad on Astronomy and Astrophysics, bringing together students and astronomers from about 20 countries during the International Year of Astronomy.
- The 13th Research Gathering of Astronomy – Annual ISA Conference – held in Zanjan Higher Education Center with focus on the IYA.
- University of Shiraz hosted a national gathering on Astrophysics and Cosmology in May 2009.
- University of Chamran (Ahvaz) hosted a national gathering on Astronomy & Astrophysics in December 2009.
- Sundials Festival held in all around the Iran
- Research Institute for Astronomy and Astrophysics of Maragha hosted an advanced workshop of astrophysics, as well an international gathering of astronomy in a joint collaboration with ASI and the University of Tabriz.
- The 3rd Sufi Observing Competition held in August 2009 in the World heritage site of Pasargad in southern Iran, bringing together about 120 of the best amateur astronomers in Iran.
- Iranian National Observatory project held a conference in Qom, on the issue of Light Pollution. The city of Qom is one of the affecting light sources on the selected site for the Iran National Observatory (a 3-meter class robotic telescope which receives first light in 2014).
- ASIAC held the 9th National Messier Marathon in Khorasan Province in the eastern Iran, bringing together about 80 of the best amateur astronomers from around the country.
- More than 60 astronomy groups and public centres held over 100 events for Astronomy Day and Week during the IYA2009.
- The 1st phase of National Observing Camps started with hosting the 9th Iran Messier Marathon in Se-Ghaleh desert and continued to receive amateur astronomy groups from eastern Iran.
- The Space Day ceremonies held by active amateur astronomy groups around the country.
-





## IYA2009 in Amir Kabir University of Technology

An IYA2009 seminar was held in Amir Kabir University of Technology. The seminar included astronomy presentations, an Introduction to Astronomy, sky observations and “From Earth to the Universe” photo gallery. One of the most interesting parts of this seminar was “From Earth to the Universe” photo gallery in which 25 photos of this collection were selected. After this seminar the gallery remained in the faculty of physics of Amir Kabir University of Technology for one week and was visited by students, faculty members and other guests. This programme was administered by Association of Science of Physics Astronomy group.

“From Earth to the Universe” photo gallery has been established incessantly in Physics Department at Amirkabir University of Technology (Tehran Polytechnique). 25 selected photos from this collection have been installed in corridors of the department since October2009. With collaboration of Astronomy branch of Scientific Association of the department, this gallery would last for at least one year. The gallery is the first permanent FETTU Exhibition in Iran.

## Collaborations with Global IYA2009 Projects:

- Star Peace project was established in 2008 by a group of Iranian amateur astronomers. In early 2009 the project was designated by IAU and UNESCO as one of the special projects of the IYA.
- Star Peace goal is to hold joint observations in 2 sides of boundaries of countries to show the borderless sky and to make friendship between nations under the starry sky.
- Star Peace managed to coordinate event in about 30 countries and many of the project programs inside Iran was in collaboration with ASIAC. Star Peace continues activities during 2010.
- 100 hours of Astronomy and Galilean nights were organised by their National Nodes in more than 65 cities of the country.
- FETTU Project: Star Peace project team held about a dozen FETTU exhibitions and accompanied public observing nights in various locations of Iran during IYA2009. Some of the highlights include an exhibition in Iran’s parliament for the major politicians, as well as exhibitions in the Island of Qeshm in the Persian Gulf, and exhibition and public events in remote and undeveloped areas in the southeastern corner of Iran.
- TWAN: The World At Night is an initiative of Iranian science journalist and astronomy popularized Babak A. Tafreshi that founded as in international project in association with Astronomers Without Borders and also designated the first special project of the IYA. TWAN has exhibited and organised event in about 30 countries and the first major exhibition in Iran was organised in March 2010 in Zanjan and announced as

the ending event of IYA2009 in the country. The program, which was the first major TWAN event in the Middle East, included a 3-day workshop and presentations on night sky photography and photo processing with 5 invited lecturers from TWAN team including Gernot Meiser (Germany) and Tunc Tezel (Turkey).

- In Feb. 2010 a travelling exhibition of TWAN photos started in Sistan & Baluchestan in southeastern Iran (brooding Pakistan and Afghanistan) and will continue throughout 2010. Another travelling TWAN exhibition started in April 2010 in Tehran on occasion of astronomy week and continues in Neishabur, Mashhad, and several other cities of Iran during 2010.
- ASI founded 3 special committees for IYA including, Astronomy Education, Astronomy in undeveloped areas of Iran and increasing scientific awareness in Amateur activities. These committees are hoped to start operation in 2010.
- ASI / ASIAC in association with Nojum magazine distributed special astronomy outreach packages for 15 astronomy groups in undeveloped areas.
- A joint exhibition of FETTU and TWAN images held in UNESSCO office in Tehran.
- Iran Parliament held a joint exhibition of FETTU and TWAN images with association of ASI and Star Peace project. This 2 days exhibit was opened by Ali Larijani, the Parliament chairman.
- On Jan 1st 2009, Dr. Sadegh Vaezzadeh, Iran President advisor on Science and Technology announced a massage to congratulating International Astronomy Year.
- Dawn Project: O the 1st day of IYA2009, many groups of amateur astronomers joined the programme to make public observation of the sun.



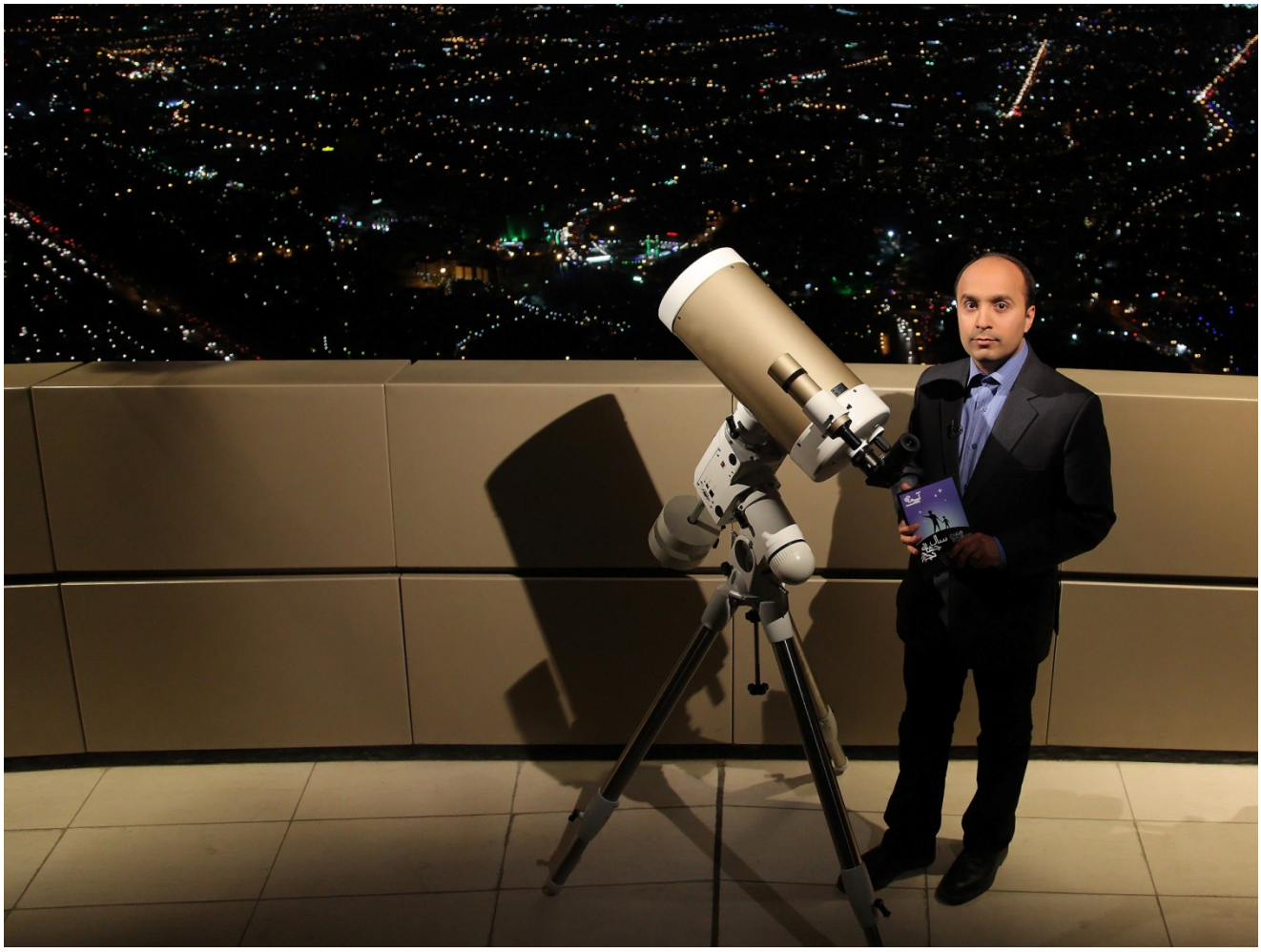

- Pro Yousef Sobouti, one of the most distinguished Iranian astronomers, speaks at the opening ceremony for The World at Night workshop and exhibition in Zanjan, Iran (March 2010); the first major TWAN event in the Middle East.




## Media

Iranian mass media covered IYA2009 events in the country while some of them had even special routine programs for it:

- Asemane Shab (Night Sky): This weekly Live TV show, dedicated to popular astronomy and sky gazing, is on air since 2001. During the half-hour live programme that is broadcasting by IRIB 4 (channel 4 of Iranian State TV), Siavash Safarianpour, Host and producer of show discusses the astronomical and space news and events of Iran and other parts of the world with a team of astronomers and science journalists. During the IYA2009, the show focused on IYA projects and covered all news and events of this year and presented special reports from the opening ceremony and several other special events. During the IYA2009, an especial monthly edition of this show was a live one- hour Q&A talk show with a panel of amateur and professional astronomers responding to questions by the attended public audience.
- Nojum Magazine: The Iranian astronomy magazine, Nojum (astronomy in Persian) is a monthly popular publication since 1990. In all issues of 2009 Nojum displayed the logo of IYA on the cover and published one or more pages in each issue about IYA and its various projects. Nojum also published a special edition dedicated to the IYA for Jan. 2009 with the IYA logo featured as the cover. There was more IYA coverage on Nojum website (www.nojumnews.com).
- Daily Newspapers: Many Iranian daily newspapers covered the news of IYA in some levels. The highlight of them was Jam-e-Jam, the bestselling daily newspaper of Iran. The newspaper published a free 16 pages special issue on January 1st, 2009 about IYA2009. Including columns, interview, guides and articles from astronomers and astronauts. This special issue also included an exclusive interview with Pedro Russo, the coordinator of IYA2009 and columns by IYA project coordinators Mike Simmons and Babak Tafreshi.



On-line Coverage:

- National IYA portal: during the IYA, ASI launched www.astronomy.ir to better reflect all IYA-related activities and events in association with ASIAC. The website produced materials for groups and individuals who were interested in getting involved with IYA programs and presented guidelines for holding events. Also it was broadcasting news and reports of events and tried to make connection between people and groups.
- Some of the sources published on the official website of IYA2009 were translated into Persian and published on astronomy2009.org for all Persian speaking audience. These materials included posters, Logos, and Power point presentations.
- Many Iranians astronomy and popular science websites covered IYA related stories in some level, including Parssky.com, Nojumnews.com, Asiac.ir, Asi.ir, IYA2009.ir, astronomy2009.ir, and nightsky.ir. Also online news agencies such as ISNA.ir, Mehrnews.com covered some of the events.
-

3rd IOAA

International Olympiad on Astronomy and Astrophysics

Tehran, Iran, Oct. 17-26, 2009

سومین المپیاد جهانی نجوم و اخترفیزیک

تهران- ایران- ۲۵ مهر تا ۴ آبان ۱۳۸۸



# Iraq

## National Node

Rojgar (Astronomers Without Borders)

www.kurdastro.org

Official Languages
- Arabic
- Kurdish

Number of organising committee members: 8
- Volunteers: 8
- Paid: 0

Population: 31 234 000

Number of people reached by IYA2009: 8000

Budget: N/A

Sources:N/A

## General Overview of IYA2009 activities in Iraq

Unfortunately it was not that huge. Given the current situation in Iraq, around 10% of the whole population are immigrants in Europe and US because of the bad security situation.

## Main Activities

### List of Activities
- Exhibitions;
- Star parties;
- Seminars;
- Training course;
- Seasons without borders;
- Beauty without borders;
- Star peace.

### Exhibition

Around 3000 people participated in organised in both Baghdad and Arbil.

Organisers: Amateur Astronomers Association of Kurdistan and Scientific Association in Baghdad.

Estimated number of people who attended or were reached by this activity: 3000

Budget: 1500€

### Star parties

In many provinces, including Baghdad, Dewanya and Arbil.

Organisers: Amateur Astronomers Association of Kurdistan and Scientific Association in Baghdad.

Estimated number of people who attended or were reached by this activity: 1000

## Lessons Learned

Such projects is unlikely to succeed in countries like Iraq. Lifestyle is terrible, nobody want to supports a project that would not generate money, in a country in which no-one is able to travel to Europe to participate in international conferences because of VISA issues, in a country where if you are going to your workstation, you doubt that you can return safely.

## Legacy

Yes, of course, for example two weeks ago during a partial solar eclipse in Iraq some organisations brought their telescopes to the roadside in order to let ordinary people see the eclipse with telescopes.

## Comments

I believe we did a lot. I know it cannot be compared to what's been achieved in Europe or the US but it is very good considering the bad situation of Iraq.



# Ireland

## National Node

http://astronomy2009.ie and mirror site: http://scholars.arm.ac.uk/iya/

Official Languages
- English

Number of organising committee members: 3
- Volunteers: 0
- Paid: 1

Population: 6 200 000

Number of people reached by IYA2009: 3 000 000 (1 000 000 people in IYA2009 events, 2 000 000 in IYA2009 astronomy-themed street parades)

Budget: 100 000 €

Sources: DSE (Discover Science and Engineering), Ireland's science promotion programme

## General Overview of IYA2009 activities in Ireland

Overall, the IYA2009 all-Ireland programme has had a very significant impact both nationally and internationally and demonstrates the success on the world stage of DSE's support for astronomy, science education and lifelong learning throughout the island of Ireland.

IYA2009 began in Ireland on 21 December 2008 with an immensely popular live web-cast of the rising sun from the 5 000 year-old burial chamber at Newgrange. Public involvement was raised even higher when astronomy and the IYA were the joint themes of the Belfast Carnival and the St. Patrick's Day parades in all the major cities of Ireland. More than 675 000 people lined the streets of Dublin alone and over six million people watched the spectacle on television or the Internet. Apart from outdoor exhibitions, the Dublin parade was Ireland's largest IYA display, promptly recognised in the general IYA2009 one-picture report.

Astronomers on the island of Ireland worked intensively to provide a wide-ranging and vibrant programme of events and activities during IYA2009 to bring the Universe down to Earth, to stir people's imagination and to open their eyes to the wonders above. The programme of activities was supported throughout the island of Ireland by universities, research institutes and astronomical observatories; libraries, museums and science centres; and by schools, astronomy clubs and societies. In practice, it was possible only with the active help and support of countless astronomy enthusiasts and volunteers and through support from the Republic of Ireland's 'Discover Science and Engineering' (DSE) programme . Major partners were the National University of Ireland (NUI) Galway, the Northern Ireland Space Office and Armagh Observatory, as well as science education and visitor attractions such as Armagh Planetarium, the Blackrock Castle Observatory, the Science Gallery Dublin, and Waterford Institute of Technology's CALMAST. Many other bodies provided additional financial or in-kind support, for example the Newgrange visitor centre, the EU Representation in Ireland, the French Embassy in Ireland, the Dublin, Cork and Belfast city councils, and many more.

Millions of people took part in IYA2009-Ireland actions. The IYA2009-Ireland website recorded 3 million hits, and nearly 70 GB of data were downloaded up to the end of 2009. Hundreds followed the IYA2009ie twitter account, and an estimated minimum of 500 media mentions were found in newspapers and electronic media.

Link to photo:
http://star.arm.ac.uk/~mdp/IYA/2010images/20091215-Ireland-parades.jpg
Astronomy street parades in Ireland

## Main Activities

### IYA2009 cornerstones in Ireland

IYA2009-Ireland activities were developed through linkages to IYA2009 international cornerstones. This is the approximate number of people reached by the global IYA2009 cornerstones in Ireland:

- Opening/closing ceremonies: 280 000 people (80 000 directly, 200 000 on the web)
- From Earth to the Universe: 2 450 000 people (FETTU indoor: 400 000; FETTU outdoor: 2 000 000; FETTU in Armagh Astropark: 50 000 in 2009 only)
- 100 hours of astronomy: 1 000 people
- Sidewalk astronomy: 2 500 people
- Galileo teacher training: 100 teachers
- She is an astronomer: 1 000 people
- Dark sky awareness: 9 000 people (1 500 directly, 7 500 on the web)
- Universe Awareness: 33 000 people (2 000 children participating in workshops; 1 000 on the web, 30 000 visitors to exhibitions)
- Developing astronomy globally and Astronomy for All: 6 500 000 people (100,000 in various projects, 2 000 000 in street parades, 2 000 000 on the web; 2 400 000 for the Cork outdoor astronomy trail)

Ireland had more than a dozen separate projects to support the 'Developing Astronomy Globally' and "Astronomy for All" cornerstones. St Patrick's Parades on 17-18 March in Dublin, Ballymena, Cork, Downpatrick and Galway had an astronomy theme, attracting about 670 000 people in Dublin and approx. 300,000 in the other cities, and at least 1 500 000 watching live webcasts from Dublin and Cork. The Belfast and Dongal carnivals in June and September, also featuring an astronomy theme, had at least 1 000 000 participants. Another successful activity was the Cork outdoor astronomy trail, attracting 2 400 000 passers-by. Many other activities were held at Blacrock Castle Observatory to support the "Astronomy for All" cornerstone, for example free open nights, special workshops, space camps, Cosmic Christmas, and many more.



St Patrick's parade in Dublin attracted 670 000 people on the streets

The From Earth To The Universe (FETTU) cornerstone was another successful cornerstone in Ireland. The outdoor FETTU exhibition was displayed during the entire month of January in Dublin and for another month (June/July) in Belfast. This brought the wonders of the Universe to the eyes of millions of passers-by. A permanent FETTU outdoor exhibition emerged in the Armagh Observatory's Astropark. The two indoor travelling FETTU poster exhibitions (North/South) were exhibited at dozens of locations indoors, e.g. in libraries, museums, and visitor centres, enchanting many hundreds of thousands of visitors. The exhibition is currently still in use on request.




The travelling FETTU exhibition in Ireland was in big demand

Astronomy clubs throughout the island of Ireland, as well as the Armagh Observatory, Armagh Planetarium and Blackrock Castle Observatory joined in the '100 hours of Astronomy' cornerstone during 2009 April 2–5, an event in which Deirdre Kelleghan, vice-chair of the Irish Federation of Astronomical Societies, played a leading role. This was a huge success, facilitating telescopic views of astronomical objects for hundreds of people possibly for the first time.



People taking part in the 100 hours of astronomy event in Ireland

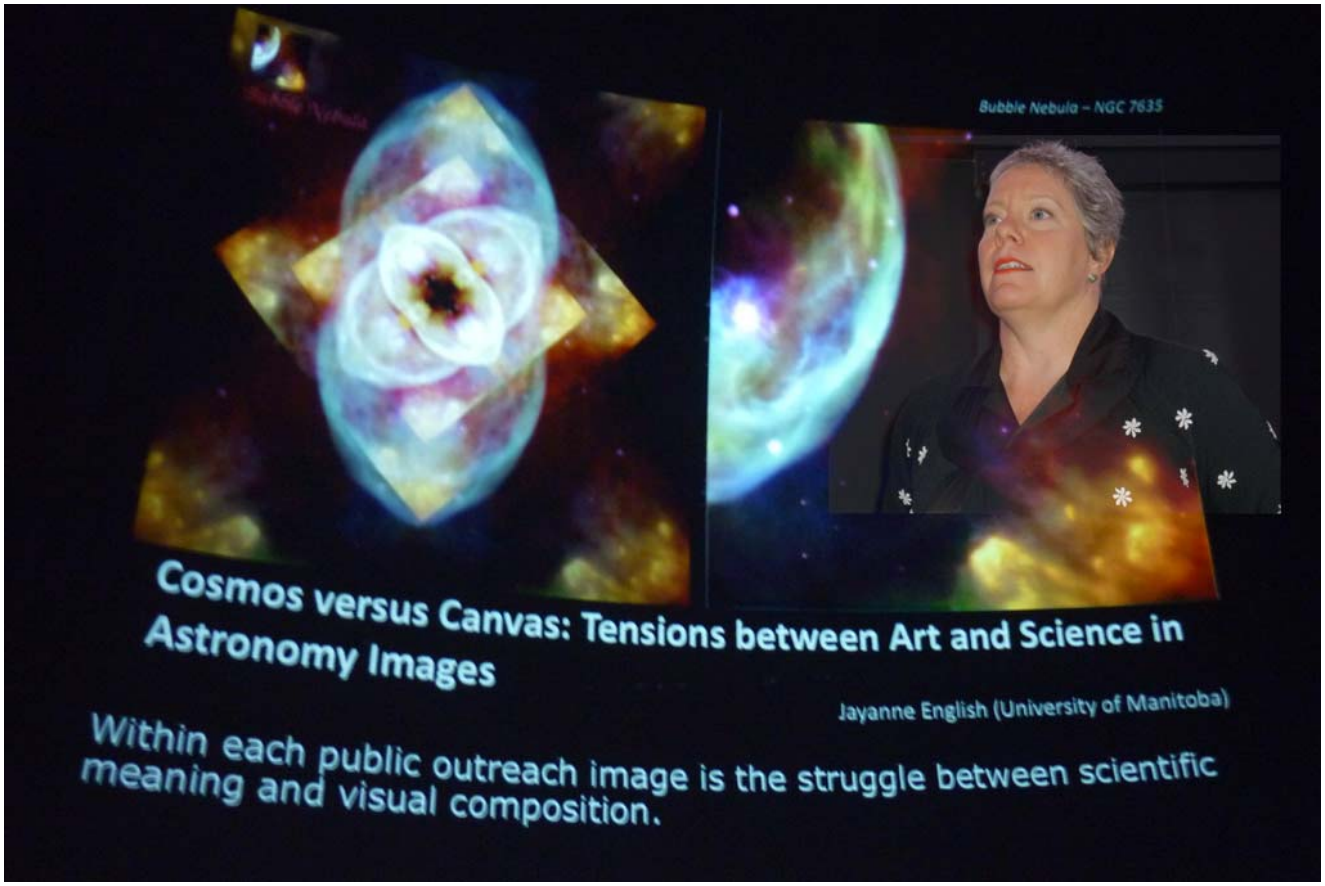
The related IYA2009 cornerstone 'Sidewalk Astronomy' also presented the wonders of the night sky to thousands of people, either by enabling them to look directly through a telescope or by mobile planetarium shows.



Robert Hill (Northern Ireland Space Office at Armagh Planetarium) was involved in two further IYA2009 cornerstones, namely the 'Galileoscope' programme (in which free telescopes were provided to schools in Northern Ireland) and — together with staff from Queen's University Belfast — the 'Galileo Teacher Training Programme '.




Another cornerstone, ‘She is an Astronomer’ was promoted by the Armagh Planetarium and Blackrock Castle Observatory through support for a number of popular public or school lectures by women astronomers (some of whom toured many locations in Ireland), for example Dr Carolyn Porco (NASA Imaging Director for the Cassini-Huygens Mission to Saturn), Dr Jayanne English (University of Manitoba, Winnipeg, Canada), Betty Joe Harper (Vice-President of Fort Wayne Astronomical Society, Indiana).



Jayanne English giving a public talk about astronomy and art

The largest contribution to the 'Dark Skies Awareness' cornerstone was brought to Ireland by the Armagh Observatory in collaboration with a number of partners through its support for the Ninth European Symposium for the Protection of the Night Sky. The "Earth Hour" was also celebrated all across the island of Ireland and strongly promoted by Armagh Planetarium and Blackrock Castle Observatory.



Students taking part in the Light Pollution Symposium

The ‘Universe Awareness (UNAWE)’ cornerstone, an umbrella organization encompassing activities designed to inspire very young children and those from disadvantaged communities with greater knowledge and understanding of the Universe, has reached many thousands of children aged 12 years or under in Ireland. Children were reached by various astro-art and science-art programmes separately organised by Blackrock Castle Observatory, Deirdre Kelleghan (Irish Federation of Astronomical Societies and the Irish Astronomical Society) and by Miruna Popescu (Armagh Observatory).



Children taking part in an Astro-art workshop




OASES Astro-art exhibition of paintings done by children in Armagh

## Stamp issue

The 55c stamp bears a picture of the Crab Nebula. First observed by the English astronomer, John Bevis, in 1731, this nebula was named by William Parsons, the Third Earl of Rosse, based on observations made from Birr Castle, Co Offaly. The brightest and most recent supernova close to the Earth, this may very well be the most studied object in the sky. It is associated with a number of important scientific discoveries in Ireland.
The 82c stamp shows an artist's impression of jets from a Brown Dwarf. These are astronomical objects whose mass is smaller than that of a star but larger than that of the largest planets. There is a great deal of research being carried out on Brown Dwarfs at the moment, with Irish astronomers very much at the forefront.




## Other main activities

A list of IYA2009 events was continuously updated on the Irish IYA website:
http://astronomy2009.ie/local/

IYA09-Ireland National Opening Event in Newgrange: 21 December 2008, Newgrange a live webcast of the winter solstice from the 5 000 year old burial chamber; 210 000 people saw the webcast live

BT Young Scientist and IYA2009-Ireland Opening Event: January 2009, Dublin
37 000 people (mainly students) were present at the event



Students and Prof Mike Redfern, dressed as Gallileo, at the IYA2009 opening event

BT Young Scientist and IYA2009-Ireland Closing Event: January 2010, Dublin
34 000 people (mainly students) were present at the event
people involved: Robert Hill, Blackrock Castle Observatory

100 Hours of Astronomy 2-4 April 2009
Main organiser: Deirdre Kellegan, involving astronomy clubs all around Ireland
At least 1,000 members of the public came to look through a telescope at events

Launch of free telescopes for schools in Northern Ireland
main organiser: Robert Hill

Sidewalk Astronomy
main organisers: astronomy clubs (Irish Federation of Astronomy Societies)
minimum 2 460 people were reported to have taken part in this cornerstone



She is an Astronomer: breaking down misconceptions — public or school lectures by women astronomers
main organiser: Armagh Planetarium and Blackrock Castle Observatory
lecture tours organised together with Blackrock Castle Observatory, TCD, Armagh Observatory, Northern Ireland Space Office
about 1 000 people came to the lectures

9th EU symposium on Light Pollution and Dark Skies
main organiser: Armagh Observatory with help from ILPAC, Irish Federation of Astronomical Societies, Northern Ireland Space Office, DSE
included primary and secondary schools participation
approx. 500 people present at the meeting and about 7 500 logged on the web



Children participating in the Light Pollution Symposium

### Galileo Teacher Training Programme

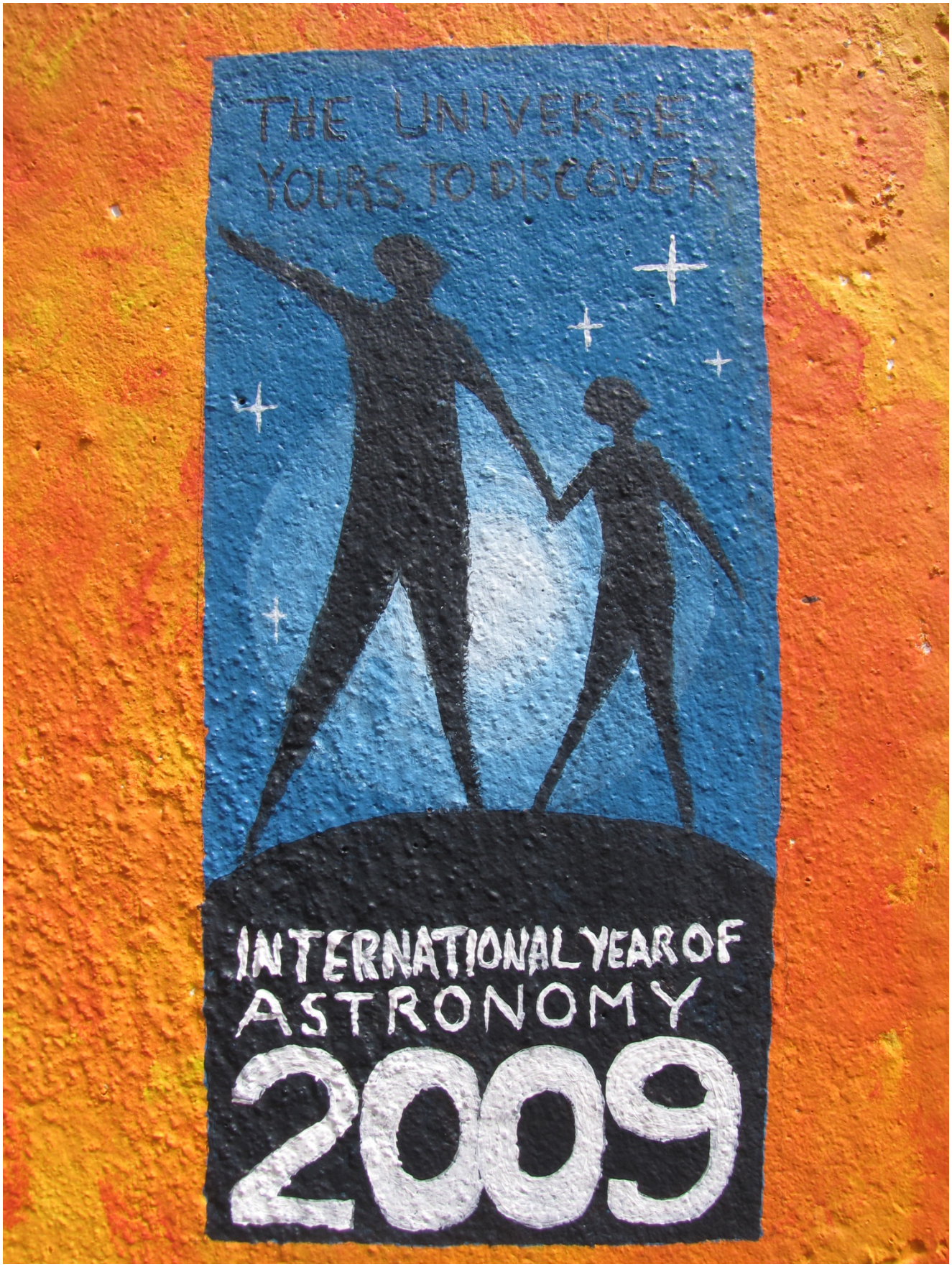
main organiser: Robert Hill
100 teachers took part in courses organised at Queen's University Belfast Widening Participation Unit

### "Astro-Art Fun", "Deadly Moons"

workshops of astronomy& art for nursery and primary school children
main organisers: Miruna Popescu, Deirdre Keleghan, Blackrock Castle Observatory
2 000 children participating in workshops; 1 000 on the web, 30 000 visitors to exhibitions


Cara






**From Earth to the Universe Outdoor Exhibition (RDS Arena)** — Dublin: January
**From Earth to the Universe Outdoor Exhibition** — Belfast City Hall: June/July

Main organiser: Robert Hill
People reached by this activity: about 2 000 000 passers-by

### From Earth to the Universe (FETTU) indoor touring exhibition

Main organisers: Irish Astronomical Association & Armagh Observatory (North); Astronomy Ireland (South)
People reached by this activity: around 250 000 people saw the FETTU North indoor exhibition at 18 venues





St Patrick's Parades 17-18 March 2009
in Dublin, Ballymena, Cork, Downpatrick, Galway
main organiser: Robert Hill
670 000 people in Dublin
approx. 300 000 in the other cities
at least 1 500 000 watching live webcasts from Dublin and Cork

Seagate Young Innovators and Technology Exhibition at Odyssey Arena, Belfast
main organiser: Robert Hill
about 5 000 students present

"In the Footsteps of Gallileo", a showcase of international Astronomy drawings
main organisers: Deirdre Kelleghan, Blackrock Castle Observatory
thousands of people saw the exhibition

Belfast carnival
Donegal carnival
main organiser: Robert Hill
about 1 000 000 passers-by

Discover the Stars at Armagh: Schools Science Conference 2009
organised by Armagh Observatory
in collaboration with Armagh Planetarium and the Centre for Cross-Border Studies
250 pupils from North & South took part in the conference over the two days in April '09



IYA summer events at Armagh Planetarium and Blackrock Castle Observatory
about 50 000 people visited the science centres for various activities

National Science Week & various other science-related weeks
organised mainly by Blackrock Castle Observatory, Robert Hill, Deirdre Kelleghan
thousands of people took part in various activities




**Faulkes Telescope Schools National Competition**
organised by Mike Redfern (National University of Ireland)
this project is sliding into 2010

**Public Astronomy/Space Competition**
organised by Terry Moseley (Irish Astronomical Association)
hundreds of entries from North & South
prizes announced in March 2010, award ceremony held in April 2010




**Astronomy Badge**
organised by the Northern Ireland Irish Amateur Astronomical Society
250 pupils from North & South

**Touring astronomy presentation**
3D show — organised by Robert Hill (Northern Ireland Space Office)
17 000 pupils from North & South



The IYA2009-Ireland website: http://astronomy200.ie
and mirror site: http://scholars.arm.ac.uk/iya/

The website was constantly updated by Miruna Popescu through 2009 (nearly daily), announcing IYA astronomy events through Ireland as well as other general news from the astronomy stage, a photography gallery of IYA events, links to participant organisations and sponsoring bodies. The website constitutes an archive of the IYA2009-Ireland events that is permanently accessible on the web on the two mirror sites.

### Press Releases

A number of 16 press releases were sent by the IYA-Ireland secretariat to newspapers through the year (and more were sent by partner organisations).

### Media Mentions

We estimate a minimum number of 500 media mentions, in newspapers and on the web. A sample of 347 identified web IYA2009-Ireland mentions and links is to be found here:
http://scholars.arm.ac.uk/iya/press_coverage.html

## Legacy

Many of the activities and networks developed throughout the IYA in Ireland and internationally are continuing into 2010 and beyond. For instance, April 2010 was the Global Astronomy Month, in which many astronomy clubs took part, continuing the highly successful cornerstone “Sidewalk Astronomy”. Another example is the continuation of some of the projects started during the IYA2009: Universe Awareness workshops for children, the FETTU travelling exhibition, Developing Astronomy Globally — “First Fridays at the Castle” and various astronomy workshops (at Blackrock Castle Observatory).

A tighter collaboration between astronomy visitor centres, universities and astronomy clubs and Ireland’s science promotion programme , Discover Science and Engineering, developed during the IYA2009, and is continuing at present.

An important objective for 2010/2011 and beyond is to build on these successes and broaden the networks of national and international contacts established during IYA2009 to develop even more effective programmes of

education, public understanding of science and lifelong learning. Programmes within the island of Ireland provide many opportunities to learn from these activities and so provide a step-increase in the quality of informal science-education provision.



# Israel

## National Node

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http://www.astronomy2009.org.il/

Official Languages

- Hebrew
- Arabic
-

Number of organising committee members: N/A

Population: 7 602 400

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Astronomy webcast from Bareket Observatory

Israel's Bareket Observatory hosted a live webcast, exploring the amazing objects within, and indeed beyond, our Solar System. To help as many people as possible view the footage, event organisers recorded the entire broadcast and have made it available to view online. The source file can even be downloaded to view at any time. To see the video, please follow the link: http://live-internet-telescope.com/

# Italy

## National Node

Leopoldo Benacchio (INAF — Italian National Institute for Astrophysics)

www.astronomy2009.it

Official Languages
- Italian

Number of organising committee members: 0

A total of nearly 30 people worked to IYA2009 activities in the 20 INAF astronomical observatory in Italy; one person full time (Valeria Cappelli) worked in Padova in the 2009 for the design, editing and maintenance of the national website, for the development of contents and as info point for the Italian organiser. It is not possible for us to quote the number of "civilians" meaning non-INAF people working at the more than 1500 initiatives in Italy. A rough figure could be 4500 people (1500 x3).

Population: 60 231 214

Number of people reached by IYA2009: 400 000

Budget: 1 000 000€

Sources:
- Italian Ministry of University and Research (only for INAF).

## General Overview of IYA2009 activities in Italy

1500 activities entered in the website www.astronomy2009.it and featured in exhibitions, public lectures, observing runs, dissemination for schools, workshops, websites, books. The distribution of events has covered all Italy. The national media coverage of IYA2009 has been very successful: newspapers, scientific magazines, TV and, most of all, web and radio. The official website has had around 12,000 visitors and 40,000 pages visited per month.

## Main Activities

### List of Activities

- Exhibitions;
- Public lectures;
- Observing runs;
- Dissemination for schools;
- Workshops;
- Websites.

### Astrum, Roma, Vatican Museums, 16 October 2009 — 16 January 2010

An extraordinary exhibition of old astronomical instruments and books that made the history of the Italian and Vatican astronomy, from Galileo until today. The Italian astronomical heritage is collected for the first time: Galileo's telescopes, astronomical instruments, old atlas of the sky, documents about the first Italian astronomical observatories and modern astrophysics.

Organisers: INAF- Italian National Institute for Astrophysics, Vatican Observatory, Vatican Museums.

Website: http://mv.vatican.va/2_IT/pages/z-Info/MV_Info_Eventi.html



Estimated number of people who attended or were reached by this activity: 11,000

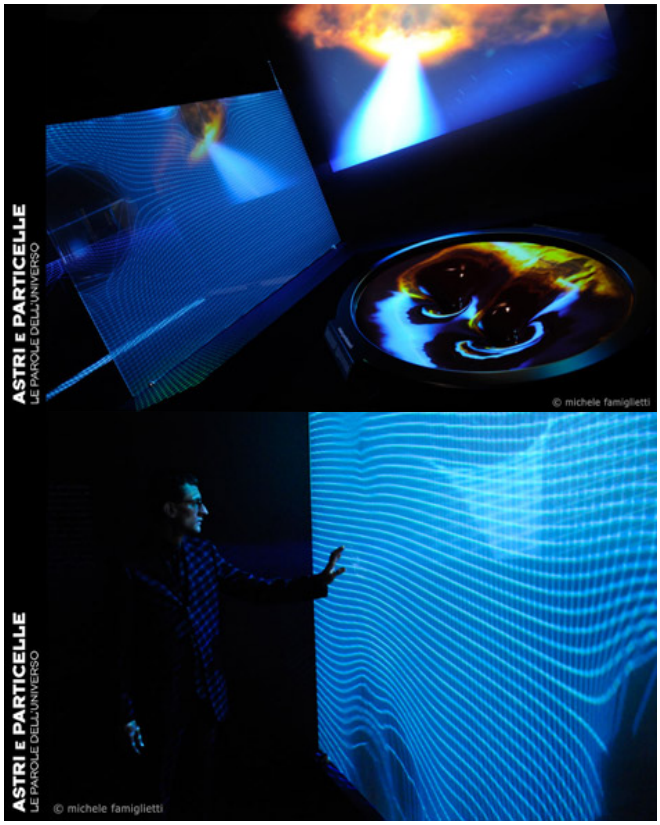
Budget: 300,000€

### Astri e particelle. Roma, Palazzo delle Esposizioni, 27 October 2009 — 14 February 2010

A big exhibition focused on science, experiments and people that study the Universe. A journey through space and time to discover the secrets of the Universe — from telescopes to cosmic radiations — guided by scientists and multimedia. Besides, public lectures, cultural activities and thematic events in the city.

Organisers: NAF- Italian National Institute for Astrophysics, INFN — Italian National Institute of Nuclear Physics, ASI — Italian Space Agency, ESA, Le Scienze.

Website: http://www.astrieparticelle.it/







Estimated number of people who attended or were reached by this activity: 140,000

Budget: 200,000€

## Attivamente — Italy, May — June 2009

INAF and Disney Channel Italy made a bet during IYA2009: to involve children in unusual discovery of life, science and ideas of Galileo. In the age of web 2.0 the core of the project was composed by a traditional “snakes and ladders” — focus on the Moon- and a thematic kit with astronomical basic contents packaged for the target of 8-13 years. A cartoon, a comic strip, and a website completed this composite project of edutaitement. The distribution has been massive: 30 museums and astronomical observatories all over Italy, and 30,000 children involved.

Organisers: Disney Channel Italy and INAF — Italian National Institute for Astrophysics.

Website: http://www.disney.it/DisneyChannel/supersites/attivamente/


ALLA SCOPERTA DELLA LUNA!
Phineas e Ferb
MARE DELLE PIOGGE
MARE DELLA SERENITÀ
MARE DELLE CRISI
OCEANO DELLE TEMPESTE
CRATERE COPERNICO
CRATERE KEPLERO
MARE DELLA TRANQUILLITÀ
MARE DELLA FECONDITÀ
MARE DELLE NUBI
MARE DELLE ONDE
CRATERE TEOFILO
CRATERE ALFONSO
MARE DEL NETTARE
CRATERE TYCHO BRAHE
CRATERE LEIBNIZ
CRATERE NEWTON
Ecco cosa vide Galileo 400 anni fa:
la Luna con le sue montagne, i crateri e i mari.
"Mari"... sulla Luna? Certo!
Per saperne di più, gioca con le carte
di Phineas e Ferb!
© Disney
Disney Channel SM
www.disneychannel.it

Estimated number of people who attended or were reached by this activity: 30,000 kids from 8 to 13 years.

### The future of Galileo, Padova, Centro Altinate, 28 February — 14 June 2009

An exhibition that has celebrated in the city where Galileo lived and taught for 18 years, the discoveries, the legacy and the modernity of his ideas and science. A journey that departs from Galileo and arrives at CERN showing instruments and astronomical documents and proposing exhibits, multimedia and video installations in a very impressive set up.

Organisers: NAF- Italian National Institute for Astrophysics, INFN — Italian National Institute of Nuclear Physics, Padova University, Municipalty of Padova, Veneto District.

Website: http://www.ilfuturodigalileo.it/index.php

Estimated number of people who attended or were reached by this activity: 100,000

Budget: 800,000€

### Galileo e le immagini dell'Universo — Galileo. Images of the Universe from antiquity to the telescope, Firenze, Palazzo Strozzi 13 March — 30 August 2009

The exhibition proposes a journey through time and space that begins with the mystical and poetic visions of ancient Egypt and Mesopotamia. It then moves on to the Greek cosmogonies through the planetary architectures of Ptolemy and Arab astronomy, revoking the Christian interpretations and arriving at the heliocentric theories of Copernicus that inspired Galileo and Kepler, the scholars who — together with Newton — made a decisive contribution to the consolidation of the new concept of the Universe.

Organisers: ESA, Institute and Museum of the History of Science.

Website: http://www.galileofirenze.it/index.jsp?idProgetto=1

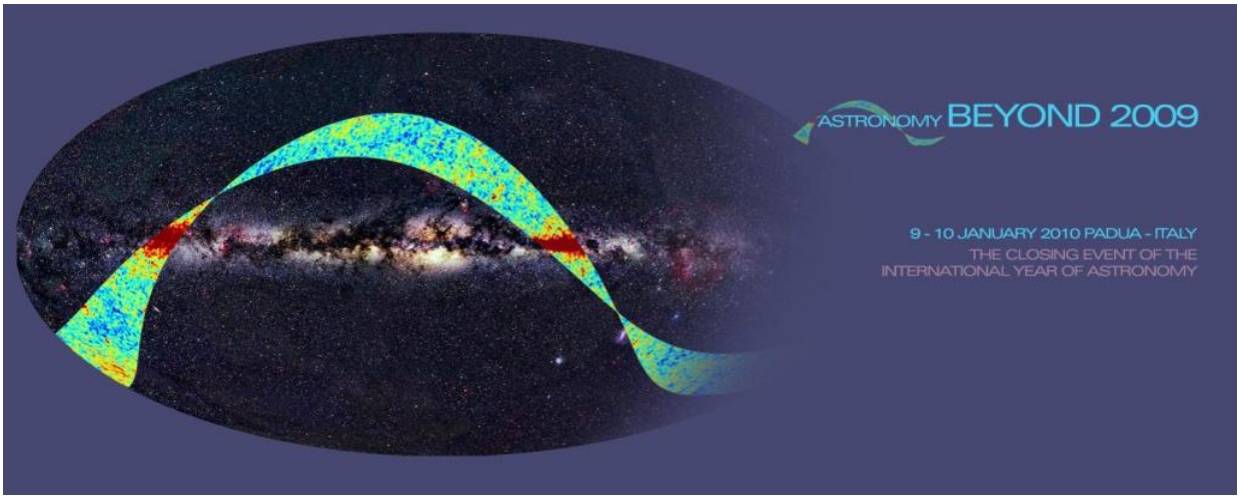
Estimated number of people who attended or were reached by this activity: 100,000

### Astronomy Beyond 2009 — Closing Ceremony of the IYA2009, Padova, 9-10 January 2010

The Closing Ceremony was organised to have an account of IYA2009 and discuss the astrophysics of the next decade and beyond. Professional astronomers, historians of science and Single Points of Contact from various countries that participated in IYA2009 discussed the impact of IYA2009, the legacy of Galileo, the role of science in society and the future of astronomy. Besides this, a number of diverse activities took place with a strong involvement both of the public and of individuals who participated in the programs of IYA2009.

Organisers: IAU, UNESCO, INAF — National Institute for Astrophysics.

Website: www.beyond2009.org






Estimated number of people who attended or were reached by this activity: 300 (to the conference), 10000 (to public events).

Budget: 150000€

## Professione Astronoma

The Italian side of She Is An Astronomer — IYA2009 Special project. A blog to break down the misconceptions and discover life, careers, challenges and ideas of the women that work in science. Italian astronomers coordinated by Ginevra Trinchieri (INAF -Milan) told their public and personal stories in a very straight, informal and humoristic way during the whole of 2009.

Organisers: INAF.

Website: www.professioneastronoma.it

## Il teatro del cielo

An astronomical theatre “en plein air” realised to host the education and outreach activities that the Observatory of Florence organised for the general public and schools. The theatre is the place where people, led by astronomers, can observe the sky with their own eyes before looking through telescopes. It is also a good stage for astronomical events, projections and multimedia.

Organisers: INAF — Astrophysical Observatory of Florence.

Website: http://www.arcetri.astro.it/iya09/teatro.html



Budget: 40 000€

## Astromania, Bologna, 12-22 March 2009

A whole week dedicated to astronomy: activities, games and special astronomical events for schools and the general public that took place in the city centre of Bologna. Some of the events organised during the week include: a Solar System scale model, shows at the planetarium, exhibits, public lectures, “astronomical” games for children.

Organisers: INAF — Astronomical Observatory of Bologna and “Marino Golinelli” Foundation.

Website: http://www.bo.astro.it/universo/boastro/pagina5a.html



## Lessons Learned

We experienced that the national website, well designed and structured, managed as a “neutral” hub of info on IYA2009 in our country. It has been the major tool for the dissemination of information and cross fertilisation of the initiatives of the very different actors, as associations, universities, professionals, amateur astronomers, municipalities, etc.



# Jamaica

## National Node

Stanley Smellie (Vice President)
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http://sites.google.com/site/astronomyjamaica/

Official Languages

- English

Number of organising committee members: 6 -10

- Volunteers: all
- Paid:

Population: 2 825 928

Number of people reached by IYA2009: 3000

Budget:200 €

## General Overview of IYA2009 activities in Jamaica

The programmes participated in by the AAJ started with the July 2008 Arecido invitational seminar in Puerto Rico where we sent two poems written by members. We responded to the request for entries in an essay competition on the use of astronomy in a civil society and one of our students won with his entry although he was underage.

The main successes of the year are recorded in the activities but we were unsuccessful in certain areas where we lacked the training to participate especially in the area of IT. We tried to participate by renting a 'scope but here again we had nearly two months on one in Canada and were bugged by bad weather.

Some of the requests we failed to deliver on like the submission of posters for International exhibition we failed to get certain grants applied for but accept the fact that some countries were more deserving. The lack of enough members in the production field was our main issue we got great help from Marc Cornwall of SGAC in London who helped us get into the area of websites and PowerPoint production.

Also we had assistance in a survey and assessment of Astronomy in Jamaica sent to DAG in Africa. This enabled us to get a number of facilities and most recent an allotment of 400 free Galileoscopes for distribution to schools in Jamaica.

## Main Activities

### List of Activities

- Star Parties
- Lecture
- Movies
- Slide shows
- Visit to schools

### Tourist Star Party

The Astronomical Association of Jamaica on the night of 31 December 2008 sent astronomers to the Rose Hall Ritz Carlton Hotel and Spa to Join the visitors in Ringing in the NEW YEAR IYA2009 with a star party. The

telescopes were set up on the beach and although the music and lights were nearby, the revellers enjoyed coming over to view the planets, Moon and galaxies visible. Visitors from all over the world were there and were surprised to learn in Jamaica that this year 2009 was the International Year Of Astronomy 2009 we had a screen set up on the beach showing a continuous slide show and this encouraged many questions. We were surprised that so many viewers express the fact that they had never before looked in a telescope.

After the midnight dancing toasting and celebrating the start of the year many people stayed on with us to catch the rising of Saturn in the early hours of the morning. As it cleared the horizon we were able to show the planet in very clear skies and most said that they were glad of the chance to witness this and it would be the highlight of their visit to the Island.

We did not charge for this service but the hotel covered our expenses and gave a donation to our project to repair our observatory which was damaged in a hurricane.

Organisers: Errol Rickman.

Website: http://sites.google.com/site/astronomyjamaica/

Estimated number of people who attended or were reached by this activity: 600.

Budget: 80 €

## Rock Hall Star Party



On Friday 6 March 2009, leaving Kingston at sea level we drove up the winding Red Hills Road to the top of the hill. Here we visited the Rock Hall All Age School on the invitation of Mrs Pat Lazarus who organised an Explorers Club of children between the ages of 10 to 15 years. At an elevation of over two thousand feet the skies were very clear and with a wide horizon viewing was to say the least exceptionally good and we stayed with the kids until 9.30 PM.

Organisers: Jennifer Rowe / Wayne Chin.

Estimated number of people who attended or were reached by this activity: 60.

Budget: 40 €

## School Star Party




For Our “100 Hours of Astronomy” participation the Astronomical Association of Jamaica organised an event at the Campion College and this was registered with the IYA2009 Secretariat’s 100HA programme . We started viewing at 5PM and Bobby focused the 8” Newtonian Reflector on Sirius while it was still daylight. Other instruments there were one 6” Newtonian Reflector one 6” Refractor and two 60mm reflectors. We also had two binoculars. Members of the newly formed “Astro Club” were given lessons in the use of the telescope and how to locate objects in the sky. Many pictures were taken and the event was published in the school annual magazine also one picture was published in the “Sky and Telescope” August 2009 Issue. About 60 students and visitors viewed until Saturn cleared a building and presented one of the best displays. It showed no atmospheric aberrations.

Organiser: Errol Rickman / C. Gustard.

Website: SGAC Jamaica Page.

Estimated number of people who attended or were reached by this activity: 100

Budget: None.

## Sun Project

On 24 April 2009 Bobby Rodriques and Errol Rickman participated in the project to measure the Sun’s shadow at midday. This programme was designed by Professor Udu Babkus in Germany. Our project went off very well and we had pictures sent to Germany for publication. Other students who were invited to participate were not able to comply.

Organiser: Errol Rickman.

Estimated number of people who attended or were reached by this activity: 15.

Budget: None.

## Duke of Edinburgh Award

On 4 August 2009 the AAJ was invited to do a special lecture and viewing session for a group of aspirants of the Duke of Edinburgh’s Award foundation Gold Medal summer camp. Over 150 students from all over the Caribbean, Canada and Europe took part in the event.

Armed with telescopes and projection equipment we left Kingston at about 4pm and headed up into the foothills of the Blue Mountains. The Camp was situated at about 1500ft in an All Age School named Louise Bennett All Age. Our programme Started with a presentation by Shaun Reid who was visiting from Trinidad “TTAS” Trinidad and

Tobago Astronomical Society. He introduced the audience to the basic interactive format of teaching Astronomy in Trinidad. The programme went over very well and a short introduction in what to expect in the telescope was given by Jim Pair.

At about 10pm we had them at the telescopes the main object at this time was the planet “Jupiter”. They were in for a rare treat as the planet was exhibiting five moons instead of the usual four. On examination the President Errol Rickman offered the explanation that the extra moon was in fact the planet Neptune which had been tracking Jupiter for some time and was heading for full occultation. He informed them that this was very special as many astronomers around the world had never seen Neptune. We had over 300 viewers as members and friends joined us and we viewed until about 11pm when clouds started to interfere.

Organiser: Jennifer Rowe / Errol Rickman.

Estimated number of people who attended or were reached by this activity: 300.

Budget: None.

## 50 Years of Space Exploration Movie




The Astronomical Association of Jamaica in association with the Embassy of the United States of America presented a movie provided by the Embassy in Kingston. This was shown on 24 September 2009 at the Physics Lecture Theatre Lab “B” at 2.30pmin the afternoon to facilitate students who were on break at this time. A presentation was made to the president of the AAJ by Mrs Attikissoon Director of Protocol in the Embassy. The show was well attended and pictures were taken. A second showing was planned for Space Week.

Organiser: Stanley Smellie.

Estimated number of people who attended or were reached by this activity: 80.

Budget: None.

## Christmas Party

Our Last Meeting of the year IYA2009 took the form of a star party on the roof of the physics department. Refreshments were provided and members and friends were introduced to the Galileoscope for the first time as the 400 free ‘scopes for distribution to schools in Jamaica had just arrived and cleared on 23 December. Our viewing covered the Moon and planets visible at the time. Members were amazed at the magnification and clarity of the optics of the Galileoscopes and the night was a memorable one. Members were warned that the drive and enthusiasm of IYA2009 should not diminish in 2010 and the process of forming clubs and training teachers to assemble and use the Galileoscope should be our driving point for the new year.

Organiser: Stanley Smellie.

Estimated number of people who attended or were reached by this activity: 30.

Budget: 40 €

### Rock Hall 2



Leaving the city of Kingston at 3:30pm in the afternoon of 4 of November 2009, astronomers set off for the hills to do a second trip to Rock Hall at the request of the “Explorers Club”. This is a new set of members as the previous class have moved on to higher grades in school some to high schools. This trip we provided snacks the compliments of Chris Lee who is also taking his brand new Celestron Cassegrain 8” Telescope with full electronic controls. This is backed by Wayne Chin’s Meade 8” inch Cassegrain and Bobby’s 8” Reflector Newtonian equatorial mount.

On our way we were informed that there was no ice on the hill and we had to stop to get some for the refreshments we had. On arriving at the school the President and Cleveland stopped at the school where Errol did a lecture and tested the children’s knowledge of the planets and Solar System. They were very well informed and asked very pertinent questions. After this briefing and their partaking of the snacks provided, they lined up double file and marched up the steep road to the Catholic Church Our lady of Lourdes situated on top of the hill at about 200 feet above sea level. The telescopes were all set up and viewing started with the finding of Comet Lulin and Jupiter. There was good viewing of the Pleiades, the Andromeda Galaxy, Jupiter and its Moons. Saturn had lost its skirt and was too low on the horizon to get a good view. The viewers were given a chance to see Neptune which was blown up to high magnification.

Organisers: Jennifer Rowe.

Estimated number of people who attended or were reached by this activity: 45.

Budget: 80 €

## Legacy

Our society, the Astronomical Association of Jamaica, has already forged a path of outreach into 2010 and has initiated a number of programmes. Our president Errol Rickman has already been named a member of Astronomers Without Borders and NC for Jamaica. He has also been instrumental in naming members in the Caribbean region. Already “Beauty Without Borders” and the GAM programme . The main thrust will be the Gallileoscopes and teacher training and Astro Clubs in schools. The projects will all be centred around the ‘scopes. We have been active in participating in science expo and seminars.

# Japan

## National Node

Norio Kaifu
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Executive member of the Science Council of Japan
Kaifunorio@aol.com

http://www.astronomy2009.jp/

Official Languages
- Japanese

Number of organising committee members: >11
- Volunteers: 25
- Paid: 3

Population: 127 380 000

Number of people reached by IYA2009: 6 000 000

Budget: 160 000 €

Sources:
- Donations (from the public)
- National Astronomical Observatory of Japan
- Japan Aerospace Exploration Agency
- Astronomical Society of Japan
- Foundation for Promotion of Astronomy

## General Overview of IYA2009 activities in Japan

The IYA2009 has been extremely successful in Japan and was very well accepted by Japanese public and media. Let me show some characteristic numbers; About 2900 events by 730 organisations/groups were officially recognised by the IYA2009 Japan Committee. Some 560 books related to astronomy/Universe and about 860 bookstores all through Japan have registered the IYA2009 special book exhibition “Starry Night Book Fair”. 222 000 visitors enjoyed the Travelling Museum Exhibition: 400 years since Galileo’s observation. 7.3 million people had reported their stargazing to the “Look up the Sky” website. 56.5 million hits/4 million page view on the IYA2009 Japan website, among above 1.3 million hits were made in only one week just before the total solar eclipse of 22 July 2009.

The IYA2009 Japan Committee was established in May 2007 based on a variety of organisations of astronomical research, education and outreach (Chair: Norio Kaifu). It is a character of Japan that about more than 400 public observatories with 0.3-2 m aperture telescopes are being operated by local governments to show the stars and Universe to the public nightly. Furthermore about 300 planetariums and many science museums are being operated by local governments for the public. Wholehearted contribution by staffs of those facilities working on popularisation of astronomy, as well as the participation of professionals of education and school teachers, made the IYA2009 Japan activities wide and strong.

Under the IY2009 Japan Committee we organised Donation Committee (Chair: Keiichi Kodaira) and Planning Committee (chair: Junichi Watanabe). The IYA2009 Japan Committee organised/hosted the following about 20 projects.

1. IYA2009 Kick-off Symposium: Held on 23 November 2008 in Tokyo. 160 attendants, mostly organiser-level of popularisation, discussed the view of the IYA2009.
2. Amateur Astronomers' Summit 2008: Very first all-Japan meeting of amateur astronomers in Japan. Held on 6-7 December 2008 in NAOJ headquarters, Mitaka, Tokyo. 156 attendants from 60 amateur groups all over Japan. Discussed IYA2009 cooperation and other activities.
3. IYA2009 All-Japan Opening Events: Held on 4 January 2009 in 40 science museums, planetariums, and observatories around Japan with about 6000 attendants.
4. Publication of IYA2009 Organisers' Manual: A 125 page manual published in January 2009 including various way of organising IYA2009 activities, contacts, networking and variety of information. 1500 copies were printed and distributed to many science museums, planetariums, observatories and amateur astronomers.
5. You are Galileo!: Organised and supported observations by children and public with small hand-made telescopes kits, named "You are Galileo! Telescope". Two type of kits were provided with special price of 10 and 20 US$ and became quite popular for children. About 10 000 kits of telescopes were distributed in domestic. 167 groups through Japan were made observation events including 30 lectures for leaders/teachers. About 3000 kits were distributed to 41 overseas including many donations. Lecture for leaders/teachers by this project group were made in Mongolia, Uzbekistan, Brazil, Peru, Egypt, etc. With great enthusiasm and success.
6. Stars of Asia — Asian Myths and Legends of Stars and the Universe: IYA2009 Asian cooperation project to publish a book of Asian myth/legends of stars and Universe. Aim is to introduce rich culture on stars and Universe in Asian region to children and public in Asia and the world. The "Stars of Asia Workshop" was held on 11-13 May 2009 at NAOJ, Mitaka, Tokyo Japan with about 50 attendants from 14 countries/regions in East- and Sotheast Asia and more than 60 stories were proposed from each area. International editorial board was established (Chair: Norio Kaifu) and editing process is under way. The publication will be made in English and in each regional language within 2010.
7. Travelling Museum Exhibition –"Solving puzzle of the universe — 400 years since Galileo's observation": This exhibition aims to introduce how our vision of the universe has changed by telescopes and observational technologies since Galileo's observation. The exhibition is intended to be held at Tokyo and to travel to Sendai, Niigata, Nagoya, and Osaka. Cooperation with the Astronomical Society of Japan and host museum.
8. Restoration of Galileo's Telescope: Exact restoration of Galileo Telescopes , we will restore the pair (large and small ones) of Galileo Telescope which was made by Galileo Galilei and is possessed now in the Florence Science History Research Museum, Italy. 30 copies of each telescope were produced and then were sold to museums and persons during IYA2009. The large telescope of them is restored not only appearance but also optical system. All of them were sold and be used for the hands-on experience of Galileo's observations in many museum and schools.
9. Safety Solar-Glasses for the Solar Eclipse: The total solar eclipse which can be observed in Japan caused a big boom. The IYA2009 Japan Committee cooperated with an optical industry to produce safety glasses for the solar eclipse watching by spectral transparency measurements etc. We donated 60 000 safety glasses to all elementary schools, junior high schools, senior high schools, and science museums. And we announced safe observations of the eclipse through the website.
10. Live Broadcast of the Solar Eclipse on 22 July 2009: The day of the total solar eclipse was almost cloudy in Japan but many people still enjoyed the event. Needs of safety glasses were widely recognised. Japan Committee organised the observation and high-vision quality real-time broadcasting using "WINDS" (Wideband Internetworking engineering test and Demonstration Satellite) from Iwo-Jima. This project was successful in cooperation with NAOJ, NICT, JAXA and NHK and tens of millions people enjoyed the spectacular events through TV or public view at museums in real time.
11. Look up the Sky!: Ten-Millions' Star Gazing: We announced interesting astronomical events on the web and provide you various opportunities to observe the stars and the Universe during IYA2009. After stargazing, we counted how many people see and enjoy starry sky together. Our target was that 10% of population of Japan. Finally 7.3 million people had reported their stargazing to the "Look up the Sky" website.
12. Starry Sky Book Fair: IYA2009 special book fair in cooperation with booksellers and libraries. Some 560 books related to astronomy/Universe were registered and 860 bookstores all through Japan have registered the IYA2009 Japan special book exhibition "Starry Sky Book Fair". IYA2009 Japan website also introduced those books and Book Fairs. This project was very much appreciated by bookstores and libraries.

13. Traditional Tanabata Light Down Campaign: On the July 7 Star Festival “Tanabata” a light-off Milky Way gazing event was made in Ishigaki Island, Okinawa and in other 16 places in Japan. In Okinawa event we invited two Korean ladies to tell about the Korean “7th of July” stories to the 4500-strong audience. In addition, about 90 universities cooperatively held IYA2009 Tanabata lectures for the public.
14. Let’s go to Planetaria! IYA2009 all through Japan: Japan Planetarium Association organised a big campaign for IYA2009. As a result 5 000 000 people visited planetariums in 2009. Big success!
15. IYA2009 Essay Contest: Essays relating to stars/Universe were invited and 378 essays were applied. Ms. Yoko Ogawa, a famous noel writer chaired the selection committee and 19 prizes were presented to the winners in the IYA2009 Grand Finale at Kobe and put on the IYA2009 Japan website.
16. IYA2009 Symphonic Night — “2009: A Space Odyssey”: Vocal and orchestral music were played with showing images of Universe. Held on 2 December 2009 at Bunkamura Orchard Hall, Shibuya, Tokyo with 2100 people in the audience.
17. IYA2009 Grand Finale at Kobe: Formal ceremony and symposium were held on 5 December 2009 at Hyogo Prefecture Traditional Public Hall at Kobe with about 180 attendances. In addition to cerebration and ceremony active reports and discussion were made by audiences to harvest and evolve the rich fruits of IYA2009. Exhibitions, lectures and star-gazing for the public were made on the next day (6 December). Visitors numbered about 1060.
18. Amateur Astronomers’ Symposium 2010: Held on 17-18 April 2010 at NAOJ, Mitaka, Tokyo. 170 attendances from some 90 amateur astronomers’ groups all over Japan discussed intensively on the results of IYA2009 and future activities on astronomy. They concluded to organise an over-all Japan network of amateur astronomers “Japan Astronomy Amateur Association” to keep contacts and develop coordinative activities for astronomy. It will be a member of newly organised all-astronomy network “Japan Astronomy Network” (JAN: temporary name: see the 8. Legacy)
19. Web Comic: Galileo-kun and his Friends: “Galileo-kun and his friends” are mascot characters of IYA2009 Japan. Galileo-kun is a character, parody of Galileo Galilei. Four friends who are always with Galileo-kun are called Io, Europa, Ganymede and Callisto, called “Galilean satellites” revolving around Jupiter. Galileo-kun and his friends explained the interest of astronomy and Universe to readers through this comic.
20. IYA2009 Selection –recommended materials relating to IYA2009 and astronomy: IYA2009 Japan Committee recommended excellent materials useful to watching star and education of astronomy, e.g. telescopes, binoculars, PC software, etc. Oer 100 materials were entries and 23 prize winners, they are introduced on our website.

IYA2009 Japan Committee organised many other activities on the website like: Original character: Galileo-kun and his Friends (also comic characters); Life Story of Galileo; Astronomy Calendar 2009, 2010 (for stargazing); IYA2009 Mail-magazine: IYA2009 topics for public sending via e-mail(about 3700 readers); IYA2009 News Letter: IYA2009 topics for media and organisers (about 90 readers); etc.

IYA2009 Japan Committee encouraged organising of a variety of IYA2009 events. Anywhere in Japan, any time within 2009, in any size and in any style. Some 2900 grass-roots events by 730 organisations/groups were officially registered and recognised by the IYA2009 Japan Committee, but uncounted many events should be made through Japan and through 2009.

Japan also actively joined the IYA2009 Cornerstone projects, i.e.; 100 Hours of Astronomy, Galileo Teacher Training Program, Dark Skies Awareness, Universe Awareness, Cosmic Diary, Developing Astronomy Globally, Galileoscopes, Galilean Nights, etc.

## Main Activities

### Stars of Asia — Asian Myths and Legends of Stars and the Universe

IYA2009 Asian cooperation project to publish a book of Asian myth/legends of stars and Universe. Aim is introduce rich culture on stars and Universe in Asian region to children and public in Asia and in the world. The “Stars of Asia Workshop” was held on 11-13 May 2009 at NAOJ, Mitaka, Tokyo Japan with about 50 attendants from 14 countries/regions in East- and Sotheast Asia and more than 60 stories were proposed from each area. International editorial board was established (Chair: Norio Kaifu) and editing process is under way. The publication will be made in English and in each regional language within 2010.

Organisers: Norio Kaifu.

Website: http://www-irc.mtk.nao.ac.jp/~webadm/StarsofAsia_E/ (English)

Estimated number of people who attended or were reached by this activity: Project member = 20.

Budget: 20 000 €

### You are Galileo!



*(c) Hitachi City Science, Culture, and Information Foundation.*

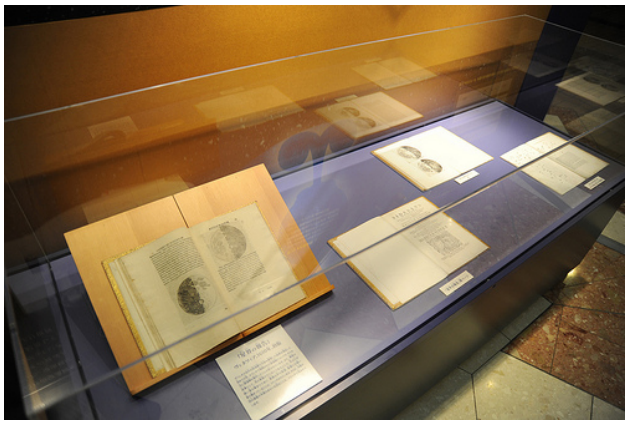
Organised and supported observations by children and public with small hand-made telescopes kits (aperture:4-cm), named “You are Galileo! Telescope”. Two type of kits were provided with special price of 10 and 20 US$ and became quite popular for children. About 10 000 kits of telescopes were distributed domestically. 167 groups through Japan were made observation events including 30 lectures for leaders/teachers. About 3,000 kits were distributed to 41 overseas including many donations. Lecture for leaders/teachers by this project group were made in Mongolia, Uzbekistan, Brazil, Peru, Egypt, etc. With great enthusiasm and success.

Organisers: Hidehiko Agata, Kazuhiro Sekiguchi.

Website: http://www-irc.mtk.nao.ac.jp/~webadm/Galileo-E/ (English)

Budget: 20 000 €

## Travelling Museum Exhibition –"Solving puzzle of the universe — 400 years since Galileo's observation"



This exhibition aims to introduce how our vision of the Universe has changed by telescopes and observational technologies since Galileo's observation. The exhibition is intended to be held at Tokyo and to travel to Sendai, Niigata, Nagoya, and Osaka. Cooperation with the Astronomical Society of Japan and host museum.

Organisers: Toshihiro Horaguchi, Toshihiro Handa.

Website: http://www.astronomy2009.jp/ja/project/exhibition/ (Japanese)

Estimated number of people who attended or were reached by this activity: 220 000.

Budget: 130 000 €

## Restoration of Galileo's Telescope



Exact restoration of Galileo Telescopes, we will restore the pair (large and small ones) of Galileo Telescope which was made by Galileo Galilei and is possessed now in the Florence Science History Research Museum, Italy. 30 copies of each telescope were produced and then were sold to museums and persons during IYA2009. The large telescope of them is restored not only appearance but also optical system. All of them were sold and be used for the hands-on experience of Galileo's observations in many museums and schools.

Organisers: Takeshi Inoue.

Website: http://www.astronomy2009.jp/ja/project/telescope/ (Japanese)

Budget: 1200 € per each telescope.

## Safety Solar-Glasses for the Solar Eclipse



*(c) Jun Takahashi (IYA2009 Japan Committee, Planning Committee).*

The total solar eclipse which can be observed in Japan caused a big boom. The IYA2009 Japan Committee cooperated with an optical industry to produce safety glasses for the solar eclipse watching by spectral transparency measurements etc. We donated 60 thousand safety glasses to all elementary school, junior high school, senior high school. and science museums. And we announced about the safe observations of the eclipse through the website.

Organisers: Jun Takahashi.

Website:
http://www.astronomy2009.jp/ja/project/solar-p/ (Japanese) http://www.astronomy2009.jp/ja/webproject/soecl/ (Japanese)

Estimated number of people who attended or were reached by this activity: distribution = 60 000.

Budget: 26 000 €

## Look up the Sky!: Ten-Millions' Star Gazing

We announced interesting astronomical events on the web and provide you various opportunities to observe the stars and the Universe during IYA2009. After stargazing, we counted how many people see and enjoy starry sky together. Our target was that 10% of population of Japan. Finally 7.3 million people had reported their stargazing to the "Look up the Sky" website.

Organisers: Chiharu Ishizaka, Takeshi Inoue.

Website: http://star2009.jp/ (Japanese)

Estimated number of people who attended or were reached by this activity: 7 309 685.

Budget: 1400 €

## Publication of IYA2009 Organisers' Manual




A 125 page manual published in January 2009 including various ways of organising IYA2009 activities, contacts, networking and variety of information. 1500 copies were printed and distributed to many science museums, planetariums, observatories and amateur astronomers. A PDF version was available on the website.

Organisers: Kyohei Ando.

Website:
http://www.astronomy2009.jp/ja/project/manual/ (Japanese)
http://www.tenkyo.net/iya/manual/ (Japanese)

Estimated number of people who attended or were reached by this activity: distribution = 1500.

Budget: 1500 €

## Starry Sky Book Fair




IYA2009 special book fair in cooperation with booksellers and libraries. Some 560 books related to astronomy/Universe were registered and 860 bookstores all through Japan have registered the IYA2009 Japan special book exhibition "Starry Sky Book Fair". IYA2009 Japan website also introduced those books and Book Fairs. This project was very much appreciated by bookstores and libraries.

Organisers: Jun-ichi Watanabe, Hiroyuki Takata.

Website:
http://www.astronomy2009.jp/ja/project/bookfair/ (Japanese)
http://www.astronomy2009.jp/ja/bookfair/ (Japanese)

## IYA2009 Essay Contest



Essays relating to stars/Universe were invited and 378 essays were applied. Ms. Yoko Ogawa, a famous noel writer chaired the selection committee and 19 prizes were presented to the winners in the IYA2009 Grand Finale at Kobe and put on the IYA2009 Japan website.

Organisers: Hiroyuki Takata.

Website:
http://www.astronomy2009.jp/ja/project/essay/ (Japanese)

Estimated number of people who attended or were reached by this activity: contribution = 378 essays.

## Comic: “Galileo-kun and his Friends”






“Galileo-kun and his friends” are mascot characters of IYA2009 Japan. Galileo-kun is a character, a parody of Galileo Galilei. Four friends who are always with Galileo-kun are called Io (a bird), Europa (a cat), Ganymede (a dog) and Callisto (a horse). They are named after the four largest satellites revolving around Jupiter. These are also called the “Galilean satellites” because they are discovered by Galileo with his telescope. His discovery of these satellites revolving around Jupiter was one of the strong evidences to support the Copernican theory. Galileo-kun and his friends explained the interest of astronomy and Universe to readers through his comic.

Organisers: Hiroyuki Takata

Website:
http://www.astronomy2009.jp/ja/webproject/spgali/ (Japanese)
http://www.astronomy2009.jp/en/galileo-kun/ (English)

## Lessons Learned

- Astronomy is a wonderful tool of popularisation and education of science.
- Cooperation among professional astronomers, popularisation staff, teachers, and amateur astronomers is powerful and effective.
- Organise more by professional astronomers!

## Legacy

We have proposed to organise “Japan Astronomy Network” (JAN: temporary name in English), a new committee combining all community of Japanese astronomy, by inviting:

- National Astronomical Observatory of Japan (NAOJ)

- Japan Aerospace Exploration Agency (JAXA)
- Astronomical Society of Japan (ASJ)
- Japanese Society for Planetary Sciences (JSPS)
- Japanese Society for Education and Popularization of Astronomy (JSEPA)
- Japan Planetarium Association (JPA)
- Japan Public Observatory Society (JAPOS)
- Japan Amateur Astronomers Association (JAAA)

Under the advice of the Committee of Astronomy and Astrophysics, Science Council of Japan.
All above organisations had composed the IYA2009 Japan Committee except for the JAAA. We are pleased to report that the JAAA was newly established in April 2010 as a product of IYA2009 in Japan.
The JAN (temporary name in English) will be formally established in June, and will be a main body for the "Beyond IYA2009" activities and further future through the coordination of professional astronomers, popularisation staff, teachers, and amateur astronomers.

## Comments

We are happy that we astronomical community of the world have jointly proved the power of astronomy for the promotion of education and popularisation of science. The "Beyond IYA2009" and the IAU strategic plan "Astronomy for the Developing World" should go together as natural extensions of IYA2009.



# Jordan

## National Node

Hanna Sabat, Director
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AL-AlBayt University
kosmopolites@yahoo.com
http://www.aabu.edu.jo/findex.jsp?id=80&sm=1

Official Languages

- English
- Arabic
-

Number of organising committee members: N/A

Population: 6 407 058

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Jordan

Information not available.



# Kazakhstan

## National Node

Vilkoviskiy Emmanuil (Fesenkov Astrophysical Institute)

Official Languages
- Kazakh
- Russian

Number of organising committee members: 1-5
- Volunteers: 1-5
- Paid: 0

Population: 16,196,800

Number of people reached by IYA2009: 5000

Budget: Unknown €

## Main Activities

### List of Activities

- Lectures on astronomy and IYA2009 in planetariums in Kazakhstan;
- Scientific conference on astronomy and a Young Physicists conference, devoted to IYA2009, 8 — 11 April 2009;
- Creation of the website by Amateur Astronomers of Kazakhstan (www.astrokaz.ru);
- Regular astronomical excursions in observatories of the Fesenkov Astrophysical Institute (in total about 200 excursions in 2009);
- The winter “Astronomical observational school” took place at the base of the Republican Physical and Mathematical school (RFMS) from 3 — 9 January 2009. It gathered 29 participants from Almaty city and the region. There were lectures on the stellar sky and lessons and practical trainings for the astronomical task solutions;
- In February 2009 Kazakhstan schoolchildren took part in the 4th International Astronomical Tournament and in the XII Open Olympiad of the Central Russia in the Pushino town (Russia) and had won two second places and one third place prizes;
- From 22 — 26 July 2009 the Republican Methodic Center for Additional Education held the Gathering of Young Astronomers and Cosmonauts devoted to IYA2009;
- The Summer Observational school was carried out in 2009 at the Issyk Kul Lake in Kyrgyz Republic (30 participants from Kazakhstan and Kyrgyzstan);
- In August 2009 the Children’s Observatory was opened in the children’s National Science-Practical Center “Bobek”;
- The 5th Asian-Pacific Astronomic Olympiad took place in Dam Yang, Korea. There were 11 teams from nine countries. In the team of Kazakhstan there were children from Almaty, Pavlodar, Petropavl and many other cities of Kazakhstan;
- The children’s team from Kazakhstan took part in the Olympiad, organised by Bejing Planetarium and Shanghais Astronomical Observatory in October 2009 in Hang Zhou (China);
- From 18 — 23 February 2010 three teams from Kazakhstan took part in XLIV winter Olympiad for Astronomy and Physics of Cosmos. Two of the Kazakhstan’s teams won 1st and 3rd places;
- Creating video DVD discs devoted to history of astronomy in Kazakhstan;

- Participation in the observation of the solar eclipse in China.

### Scientific conference on astronomy and Young Physicists conference, devoted to the IYA2009, 8 — 11 April 2009

About 30 young scientists and pupils took part in the conference. Lectures from leading scientists from the Fesenkov Institute were given and reports of young participants were considered.

Organisers: Fesenkov Astrophysical Institute and Abay Pedagogical University.







Estimated number of people who attended or were reached by this activity: 50

### Regular astronomical excursions in observatories of the Fesenkov Astrophysical Institute (in total about 200 excursions in 2009)

Every evening if weather permitted many citizens of Almaty city, pupils, students and others attended the Fesenkov Institute where researches give lectures and showed interesting astronomical events.

Organisers: Fesenkov Astrophysical Institute.

Estimated number of people who attended or were reached by this activity: 2000



## From 22 — 26 July 2009 the Republican Methodic Center for Additional Education held the Gathering of Young Astronomers and Cosmonauts devoted to IYA2009

The gathering was conducted to promote children's interests in space and astronomical researches, keeping in mind the future developing of Kazakhstan as the country developing space technologies. The participants were 85 pupils from 7 to 10 forms of the general education schools, who took part in circles for additional study of astronomy and space subjects. In the Gathering teams from 12 regions of Kazakhstan and 1 team from neighbouring Kyrgyz Republic had taken part.







Estimated number of people who attended or were reached by this activity: 300

## In August 2009 the Children's Observatory was opened in the children's National Science-Practical Center "Bobek"

The Observatory has 60-sm telescope "HALFMANN" and Planetarium ZKP-4 with the 10-m "dome" and many other facilities for good astronomical education.

Estimated number of people who attended or were reached by this activity: 100

## The children's team from Kazakhstan took part in the Olympiad, organised by Bejing Planetarium and Shanghais Astronomical Observatory in October of 2009 in Hang Zhou (China)

There were more than 120 participants from 17 countries. The schoolgirl Astachova Diana won second place.

Estimated number of people who attended or were reached by this activity: 15

## Participation in the observation of the solar eclipse in China

With financial support from the SCSIT, the Fesenkov Astrophysical Institute organised an expedition to China to observe the solar eclipse on 22 June 2009 in the region of Wuhan-Yuexi. Except four researchers from AFIF there were two scientists from astrophysical laboratory of Furier University (France) and a researcher from Kazakh State University. Some equipment for observations was arranged by foreign colleges and was tested in AFIF. Observations of velocity field of dust particles in the outer solar corona were carried out with Fabri-Peirot interferometer.

Organisers: Shestakova L.I. (AFIF).

Estimated number of people who attended or were reached by this activity: 8

# Kenya

## National Node

Paul Baki (University of Nairobi)

Official Languages
- Swahili
- English

Number of organising committee members: 10
- Volunteers: 10
- Paid: 0

Population: 39 002 772

Number of people reached by IYA2009: 1 000 000

Budget: 17 370€

Sources:
- UNESCO
- Developing Astronomy Globally
- International Astronomical Union

## General Overview of IYA2009 activities in Kenya

The IYA2009 coincided with the mounting of an Astronomy and Astrophysics bachelor's degree programme at the University of Nairobi and now we have applicants than we can admit into the programme . Consequently, other universities are considering starting similar programmes, and they are scheduled to receive Galileoscope donations. This is a big boost for Kenya.

## Main Activities

### List of Activities

- IYA2009 Country Launch;
- Two workshops;
- Two radio interviews;
- Three television talks;
- Three public lectures;
- Night sky observing with telescopes.

### IYA2009 Launch

The launch was full of pomp and generated a lot enthusiasm amongst the public, as well as teachers and students. It entailed cosmic poems and public lectures as well as some media interviews.

Organisers: SPoC, Charles Obure, Susan Murabana, Thomas Mwangi, Boniface Muthoka, Department of Physics, School of Physical Sciences, Unversity of Nairobi, Global Hands on Universe, university students.

Estimated number of people who attended or were reached by this activity: 1500

Budget: 370€

### Workshops

We held two workshops. The first one was for the IYA2009 National Organising Committee as well as university lecturers and students, teachers and amateur astronomers from the general public. The number of participants was 45 and it was funded by the UNESCO Nairobi Office.

The second workshop was regional and was sponsored by the IAU and ISP, Uppsala University. It was graced by TAD Chair Prof. Edward Guinan who was also one of the lecturers. The participants were drawn from Kenya, Uganda, Tanzania, Rwanda and Ethiopia. It was attended by 45 people and five lecturers from USA and South Africa.

Organisers: SPoC, Charles Bourse, Francis Omollo, Boniface Muthoka,, Dr. Collins Mito, Dr. John Buers.

Estimated number of people who attended or were reached by this activity: 50

Budget: 17 000€

### Television Talks

These were very popular with the public and created much awareness and generated a lot of interest amongst the public. After these, overwhelming numbers of the public made enquiries or sought clarification on sky events such as the conjunction of the Moon and Venus, annular eclipse, asteroids, etc.

The university became a popular place for discussing science and we have received many invitations to give talks by various organisations. These TV talks have really popularised astronomy in Kenya.

Organisers: SPoC, Francis Omollo, Charles Obure, Boniface Muthoka and students, Department of physics, University of Nairobi.

Estimated number of people who attended or were reached by this activity: 5,000,000

## Lessons Learned

Some of the duties delegated to some members of the organising committee never materialised such as website development. People accept responsibility but do not act.

## Legacy

We are continuing with public talks. It is the cheapest means to reach a wider audience and it is almost cost free. The media invite us or come to us.

## Comments

IYA2009 was a huge success.



# Kuwait

## National Node

Ismail Sabbah
Department of Physics / Faculty of Science / Kuwait University
sabbahsom@yahoo.com

Official Languages

- Arabic
-

Number of organising committee members: N/A

Population: 3 520 000

Number of people reached by IYA2009:

Budget: N/A

## General Overview of IYA2009 activities in Kuwait

Information not available

# Latvia

## National Node

Martins Gills

www.astronomija2009.lv

Official Languages
- Latvian

Number of organising committee members: 5
- Volunteers: 3
- Paid: 0

Population: 2 231 503

Number of people reached by IYA2009: 5000

Budget: 500€

Sources:
- Travel grants from the Science foundation
- Numerous cases of non-financial support in terms of practical assistance information, premises, transport, etc.

## General Overview of IYA2009 activities in Latvia

IYA2009 was quite well received by the mass media. It was seen as something positive against the bad news coming from the economy, unemployment, and banks. We managed to organise all events with almost no cash funds — everything was reached with direct participation of persons and the good will of organisations to provide technical means and premises. With more human and financial resources involved we could reach more, but the current status is seen as good enough by many people in our country.

## Main Activities

### List of Activities

- Public sky demonstrations in 15 locations;
- Conference;
- Meeting and public lectures of Latvian Astronomical Society;
- Workshop on the use of telescopes at schools;
- Starparties;
- First day of postage stamps;
- Exhibition on astronomy;
- Astronomy summer workshop;
- Science cafes;
- Workshop on solar eclipses;
- Observatory visitors' day;
- Astronomy Olympiad for school students.

### Public sky demonstrations

Public sky demonstrations on 11 dates of 2009 — January 4, 9; February 2, 9; March 4; April 2-4; September 28, October 26-27, November 23-24.

On average, the demonstrations took place in 15 locations throughout Latvia — mainly in the largest towns.

Organisers: Martins Gills. Local sky demonstrations made by: Silva Audere, Ausma Bruņeniece, Jānis Čeksters, Baiba Daģe, Dmitrijs Docenko, Ilze Kaļāne, Indulis Grīniņš, Aija Klegere, Larisa Koroševska, Marija Kozlovska, Austris Krauja, Olga Ķēniņa, Aivars Lamberts, Janīna Leja, Baiba Priedīte, Ivars Šmelds, Aivars Žogla.






Estimated number of people who attended or were reached by this activity: 3000

## Conference “Astronomy in Latvia”

One of the main IYA2009 events in Latvia for professional and hobby astronomers. History, instruments, activities, discoveries, new projects. 9-10 October 2009. Riga. 32 presentations, 5 sessions. 150 participants.

Organisers: Martins Gills, Irena Pundure.




Estimated number of people who attended or were reached by this activity: 150

Budget: 50€

## Meetings and public lectures of the Latvian Astronomical Society

Regular meeting of Latvian Astronomical Society were transformed into publicly accessible seminars on astronomy. Held every month per year exceeding the regular earlier rhythm of LAS meetings.

Organisers: Martins Gills, Maris Krastins.

Website: www.lab.lv

Estimated number of people who attended or were reached by this activity: 240

## Workshop on the use of telescopes at schools

Workshop for school teachers on the practical use of telescopes. Some 50 schools obtained new telescopes right before IYA2009, and teachers were looking for practical tips on how to use them most efficiently.

Organisers: Ilgonis Vilks, Martins Gills.




Estimated number of people who attended or were reached by this activity: 30

Budget: 5000€

## Star parties

Started as part of 100 Hours of Astronomy (on 4 April) held again on 26 September. Gathered owners of telescopes and some guests as well.

Organisers: Arnis Ginters, Martins Gills.

Website: www.starspace.lv








Estimated number of people who attended or were reached by this activity: 50

Budget: 50€

## Astronomy summer workshop Tau Aquilae

The summer workshop continued a series of annual Aquila workshops (starting with Alpha Aquilae). Students, teachers, and hobby astronomers observe the Perseids, planets, stars with and without telescopes. Lectures, educational projects. 7-9 August.

Organisers: Maris Krastins.





Estimated number of people who attended or were reached by this activity: 40

Budget: 100€

## Science Cafes

Science cafes are regular evening seminars held in the university cafe. Very atmospheric and exiting topics. During IYA2009 two cafes — over 100 Hours of Astronomy (2 April) and during Researchers' Night (25 September) — were dedicated to astronomy. Evolution of stars, space travel and searching for exoplanets were topics covered.

Organisers: Maija Bundule.

Estimated number of people who attended or were reached by this activity: 300

## Observatory visitors' day

Two observatories — Astrophysical Observatory of the Astronomical Institute at the University of Latvia and Ventspils International Radio Astronomy Center (with 32-m radio antenna) on 3 April were open to the general public.

Organisers: Ilgmars Eglitis, Ivars Smelds.



Estimated number of people who attended or were reached by this activity: 100

## Exhibition on Astronomy

Within the agreement between the Latvian Academy of Sciences and the French Centre of Culture from 26 September -16 October, an exhibition on astronomy was visiting Riga. There were posters and interactive elements.

Organisers: Maija Bundule.



Estimated number of people who attended or were reached by this activity: 1000

## Lessons Learned

Build a network of people that organise local activities. We had a network of astronomy teachers throughout our country.

## Legacy

We will continue with summer workshops, star parties, and occasional public sky demonstrations in numerous locations.



# Lebanon

## National Node

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http://www.astronomy2009lebanon.org/

Official Languages
- Arabic
-

Number of organising committee members: N/A

Population: 4 224 000

Number of people reached by IYA2009: 25 000

Budget: 22 000 €

Sources:
- Research Council
- Universities
- Ministry of Education
- Municipalities
- Individuals.

## Overview of IYA2009 Activities in Lebanon

The Organization of the IYA2009 activities started in July 2009 with informal meetings gathering a number of interested persons. In September 2009, the Board of Administration of the Lebanese Council for Scientific Research officially established the National Committee of the IYA2009, with the partnership of the Lebanese National Commission for UNESCO and invited various ministries to contribute to the effort.

The IYA2009 activities helped probe interest for astronomy among the Lebanese population. It also helped boost the presence of astronomy and Lebanese astronomers in the media. We have worked on targeting different population groups with various tools; professional astronomy with the First Lebanese Astrophysics Meeting, amateurs and the general public with the sidewalk observing evenings and the educational community with the 1st Astronomy Fair.The National Committee decided to benefit also from the opportunities offered by the official products of the IYA 09. Orders were placed for Celestron's FirstScope and the Galileoscope and distributed to schools and amateurs across the country. The Science Days activities helped train a number of persons on the animation of groups around various hands-on astronomy activities. The most popular part of the activities and most requested during the year was the organization of observing evenings in public places as well as take the initiative to contact municipalities to organize them in their towns and villages. These activities, organized in various cities, towns, and villages were immensely successful. We are now receiving follow-up calls to organize additional activities with the support of these municipalities. The magazine that is being published has provided a medium to advertise organized activities. It is also aimed at increasing scientific literacy among school students and the general public. Various means are used to make it available to as many people as possible.

Comparing the number of persons reached despite the absence of societies and astronomy clubs to those achieved by other countries shows that the IYA activities, mostly the observing nights have reached a sizable fraction of the Lebanese population. Communication and coordination with the Ministry of Education has given us access to the education system.

The IYA2009 lead to the creation of astronomy clubs in a number of schools, most prominent being the club in Val Pere Jacques and Houssam Eddine Hariri Schools who have equipped themselves with telescopes and are

organizing various activities. An astronomical society known as the Lebanese Astronomy Group is known being officially recognised and the support network for the development of astronomy in Lebanon is being set following the First Lebanese Astrophysics Meeting.

## Main Activities

### List of Activities

- Opening Ceremony
- 100 Hours of Astronomy
- 1st Lebanese Astrophysics Meeting
- Sidewalk evenings in municipalities
- Participation to the Science Days
- Galilean Nights
- Quarterly Astronomy Magazine (Ouloum Al Falak)
- 1st Astronomy Fair
- Galileoscopes and FirstScopes

### Closing Ceremony

An Opening Ceremony for the activities of the IYA2009 in Lebanon was organized in the UNESCO Palace under the patronage of the Minister of Education, on 20 February 2009. It included words from the National Committee of the IYA 09, the National Committee for UNESCO, the CNRS, and the Minister of Education. The address of Dr. Catherine Cesarsky, President of the IAU was projected. A projection of Eyes in the Skies followed.




Organisers: National Committee for the IYA2009

Website: http://www.astronomy2009lebanon.org

## 100 Hours of Astronomy

Lebanon participated in this Cornerstone Project. 14 different events were organized by different parties in different locations or the country. They covered Beirut, Saida, Nabatieh, Tyre, Jezzine, Bkanaya, and Zouk. They included conferences, viewing of movies, commented projection of astronomy images. All these activities were organized around or just before observation evenings. Most of the events were organized in public places open to all those passing by. Municipalities were heavily involved in the organization of the events happening in their towns. Many printed posters and invitations, offered refreshments to participants, etc. Three schools also organized various events for their students, teachers and parents. Two of which used the 100 Hours of Astronomy to launch activities of their astronomy clubs.

Organisers: National Committee of the IYA2009; Municipalities of Nabatieh, Tyr, Jezzine; Lebanese Astronomy Group; Ecole Val Pere Jacques; Houssam Eddine Harriri School; Baha Eddine Hariri School

Estimated number of people who attended or were reached by this activity: 4000 - 5000

\Website: http://www.astronomy2009lebanon.org

## The First Lebanese Astrophysics Meeting

The first Lebanese Astrophysics Meeting, 14 – 17 April 2010, is the first professional meeting of Lebanese or Lebanese descent astrophysicists working in Lebanon and abroad. It regrouped the vast majority of those holding positions outside of Lebanon, all of those working in Lebanon, as well as most of the Lebanese students completing graduate studies in astronomy and astrophysics. It also included collaborators of Lebanese astrophysicists and other Lebanese scientists with an interest in astrophysics. The purpose has been to start building a support network for the development of astrophysics in universities in Lebanon, as well as the development and support of research in astronomy. Recommendations were issued by all participants and will form a basis for the continued development of the science in Lebanon. The second meeting is tentatively scheduled for Summer 2011.

Organisers: Task Force Astronomy and Astrophysics of the Lebanese CNRS; NDU and AUB

Website: http://www.astronomy2009lebanon.org/

## Astronomy Evenings

Astronomy Evenings were organized throughout the Summer and early Fall in villages, towns and cities in Lebanon. Most included a conference followed by an observing evening. All were organized in coordination and upon the invitation of municipalities. Evenings were organized in Zeita, Mashghara, Maamriye, Douma, Al-Mina, Rahbe, Jezzine, Sfaray, Bhamdoun, Aley. The event in Al-Mina included an impromptu standing conference on Messenger by Dr. Nelly Mouawad on the promenade on the sea shore where telescopes were set-up to observe the Moon and Jupiter.

Organisers: National Committee of the IYA 09; Lebanese Astronomy Group; Municipalities; Association; Parishes

Website: http://www.astronomy2009lebanon.org

## Science Days

The National Committee of the IYA2009 and the Lebanese Astronomy Groups along with some astronomy clubs participated in the second edition of the Science Days organized by the municipality of Beirut and the Ministry of Culture along with the Municipality of Geneva, October 14th to 17th.The IYA 09 stand was one of the largest of the exhibition. It included various activities for young and old such as building paper sundials, paper planispheres, solar motion demonstrators, puzzles based on FETTU images, FETTU image projection, and various additional informational activities. An observing platform was also set at the entrance of the tent were people were invited to look at Jupiter. The organizers of the exhibition also secured a FETTU set of images that were displayed along a path crossing all of the exhibition grounds.

Organisers: IYA2009 Stand: National Committee of the IYA2009; Lebanese Astronomy Group.

Website: http://www.astronomy2009lebanon.org/

Estimated number of people who attended or were reached by this activity: 4000-5000

### Galilean Nights

Activities for the Galilean Nights were organized in Beirut, Zaita, Tyre, and Jezzine. Stickers were prepared to give to all those who looked at the Moon and Jupiter. The Lebanese Astronomy Group managed Beirut events while other activities were organized by local groups with the support of the National Committee for the IYA 09. The Municipalities of Jezzine and Tyre organized events including observing evenings. The event in Zaita targeted the educators of the Saida region. It included a conference, an observing evening.

Organisers: National Committee of the IYA2009; Lebanese Astronomy Group.

Website: http://www.astronomy2009lebanon.org

### Ouloum Al Falk

Ouloum Al Falk is the first Lebanese astronomy magazine. It is published by the National Committee of the IYA 09 and distributed free to public and private school libraries, public libraries, various public places such as the first class lounge of the Beirut Hariri International Airport, and hotel lobbies, and in the various astronomy activities organized by the Committee and supporting organizations. It is also sent to all persons and institutions on the mailing list of the Lebanese CNRS. The magazine is also available for download from the Lebanese IYA2009 website. Two issues have been published, one is ready to go online and a fourth one is planned. The Committee along with other astronomy organisations is planning to continue its publication beyond the IYA2009. Estimated readership of about 10000

Organisers: National Committee of the IYA2009

Website: http://www.astronomy2009lebanon.org

### First Astronomy Fair

The National Committee of the IYA2009 will hold mid-May the first ever astronomy exhibition in Lebanon. It is a competition of astronomy projects done by school students. All projects will be on display during two days and a ceremony to distribute prizes and close the activities of the IYA 09 in Lebanon will be held then. About 20 schools are participating in the project with varying projects including Astrophotography, models of planets and the solar system, sundials, etc. The activity is coordinated with the Ministry of Education and the Lebanese CNRS
Organiser: National Committee of the IYA2009
Website: http://www.astronomy2009lebanon.org

## Lessons Learned

It is important to secure initial funding well before the start of the year. A dedicated, paid, person should be entrusted with all media needs to secure a continuous relationship with the media.

## Legacy

A National GTTP committee is being formed to begin the organization of a national training program for school teachers. We are also planning to address officially the Ministry of Education to request a better integration of astronomy in the school curriculum. The Astronomy Fair will continue in subsequent years. Municipalities are now requesting the organization of activities in their towns. These activities will be building on the Science Days activities to organize day-long animation and public outreach programs that will target the different age groups. The Lebanese Astronomy Group is also planning the first ever Star Party in Lebanon. We are also preparing the publication of the magazine Ouloum Al Falk beyond the IYA2009.



# Lesotho

## National Node

Mpho Sekhosana-Nyenye
Ministry of Education and Training
NyenyeMS@education.gov.ls

Official Languages

- Sesotho
- English
-

Number of organising committee members: N/A

Population: 2 067 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

The national commission for UNESCO Lesotho, in collaboration with Einsteins Mind Lesotho women and Girls Science programme, visited different schools especially girls -only schools in the ten districts of Lesotho from April to October 2009.

This joint venture meant to improve performance in that subject as well as in Mathematics at COSC so that more women and girls can take science subjects at the tertiary level. Again it was to promote participation of women and girls in the science disciplines and careers such as engineering, medicine and technology.

The Eistein Mind Lesotho girls and Science Programme is an organization of undergraduates and graduates in the fields of Science and Technology at the National University of Lesotho who have joined hands to uplift the spirit of Science and Mathematics nationally.



# Liechtenstein

## National Node

Vreni Schächle
Astronomischer Arbeitskreis
vs@astronomie.li
http://www.astronomie.li/

Official Languages

- German
-

Number of organising committee members: N/A

Population: 35 789

Number of people reached by IYA2009: N/A

Budget: N/A

## Impressions from the IYA2009 activities in Liechtenstein




RATHAUS


Astronomie - Jahr 2009
LANGE NACHT
DER MUSEEN




Zeige
& erkläre
mir das
Robin Scagell
Weltall
Eine illustrierte
Geschichte
des Universums





# Lithuania

## National Node

Algirdas Kazlauskas (Vilnius University)

http://astro2009.astro.lt/

Official Languages
- Lithuanian

Number of organising committee members: 7
- Volunteers: 7
- Paid: 0

Population: 3 341 966

Number of people reached by IYA2009: 15 000

Budget: 20 000€

Sources:
- Lithuanian Ministry of Education and Science
- Research Council of Lithuania
- European Commission
- Local municipalities
- Private donations

## Main Activities

### List of Activities

- Opening ceremony of IYA2009 in Lithuania;
- Mobile lectures;
- Kids contest “The Universe and the person”;
- “100 Hours of Astronomy”;
- The camp of young astronomers at Moletai astronomical observatory
- Dark nights in Zagare;
- “Researchers’ Night”;
- The republican quiz “Starry sky”;
- International conference “Astronomy Education in Lithuania: New Trends and Challenges”;
- The National conference “Lithuanian astronomy: today and tomorrow.

### Opening ceremony of IYA2009 in Lithuania

The opening ceremony was held on 17 February in the Star Hall of the Planetarium of the Institute of theoretical physics and astronomy of Vilnius University. At this ceremony participated about 150 persons, among them representatives of the Ministry of Education and Science, Lithuanian National Commission for UNESCO and Lithuanian universities, several journalists, teachers, students and members of the Lithuanian astronomical society. The main tasks of IYA2009 were presented by the President of the astronomical society Dr. A. Bridzius and the global projects all over the world and local to Lithuania by the SPoC of the national node in Lithuania.

Organisers: Institute of theoretical physics and astronomy of Vilnius University, Planetarium of this Institute, Astronomical society of Lithuania.

Estimated number of people who attended or were reached by this activity: 150

## Mobile lectures

Professional astronomers visited schools and cultural centres in various towns and villages of Lithuania. They gave the lectures and demonstrated sky objects through the amateur telescopes. There were about 30 similar trips during 2009.

Organisers: The Palace of Scientists of Lithuanian Academy of Sciences.

Estimated number of people who attended or were reached by this activity: 3000

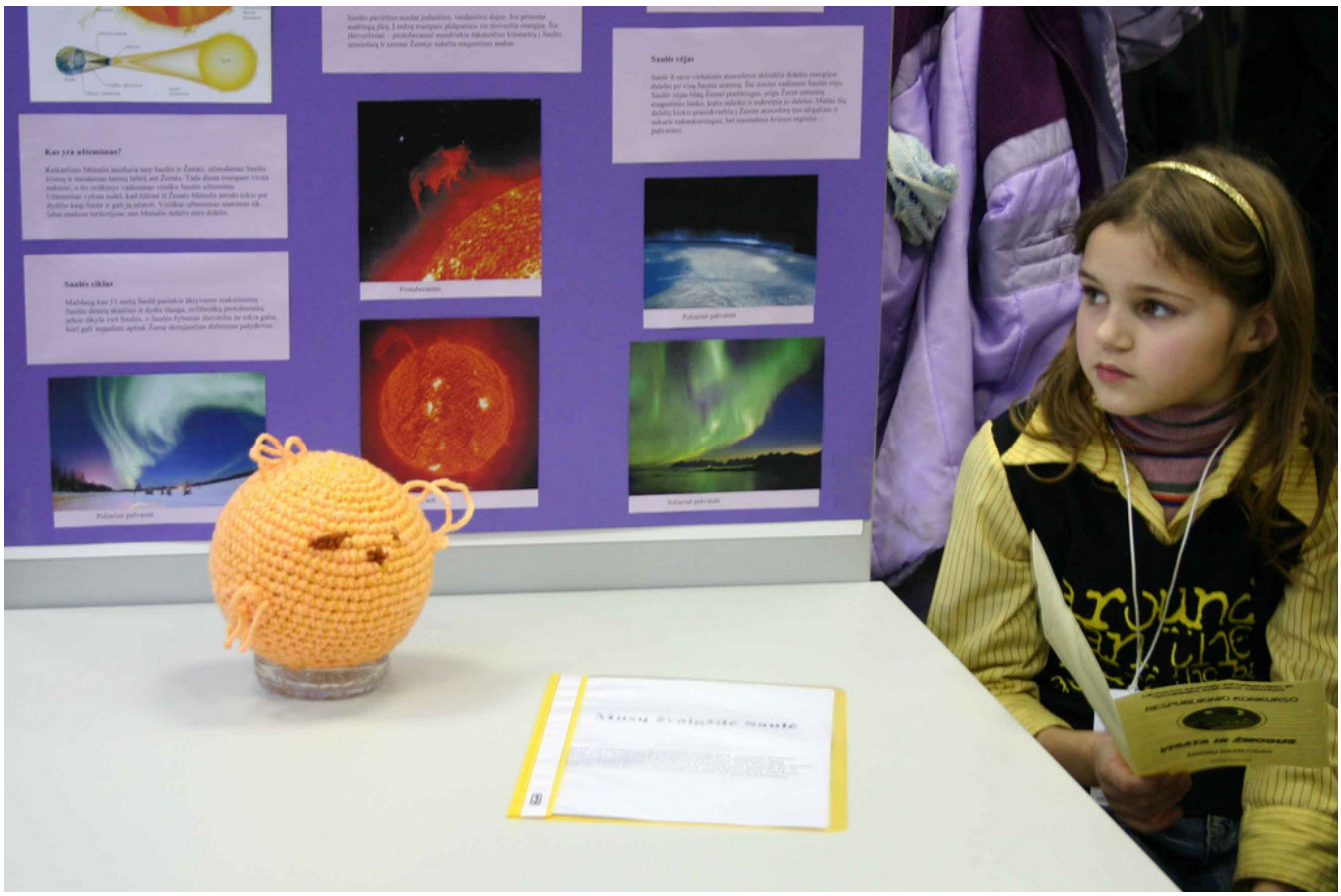
Budget: The local municipalities covered the transport expenses of scientists ca. 1000€

## Kids' contest "The Universe and the person"

The contest for children was organised on 6-7 February at the Lithuanian Youth Technical Creativity Palace. At this contest participated 140 schoolchildren from 11 districts of Lithuania and the six largest Lithuanian cities. They presented drawings, photos and movies, models, stories, and presentations. 40 of the best projects were awarded by a jury of 10 experts. All projects were seen by the public at the Vilnius Planetarium during several months.

Organisers: Lithuanian Youth Technical Creativity Palace.

Website: www.lmitkc.lt



Estimated number of people who attended or were reached by this activity: 200

Budget: 3000€

## “100 Hours of Astronomy”

The event was organised at several places. It started in Vilnius Planetarium on 2 April with internet translations from science centres. The next day was devoted to internet translations from 80 observatories around the world, which were watched by people in the Planetarium and in the Observatory of Vilnius University. The scientists of the Observatory also gave lectures, demonstrated their instruments and organised sky-watching through two small telescopes. On 4 and 5 April hundreds of autos from all Lithuania moved to rural Moletai district, where the Moletai astronomical observatory of the Institute of theoretical physics and astronomy and Lithuanian museum of ethnocosmology are located. At the observatory people listened to lectures from astronomers, visited three professional telescopes of the observatory and had the possibility to look at the sky through largest of them: a 165-cm telescope. The event lasted eight hours until 2am. The next day was Sunday and it indeed was devoted to observations of Sun through the amateur telescopes, equipped with the special Sun-filters. At the Lithuanian museum of ethnocosmology the visitors were also invited to view the new exposition of the museum and to look at the sky through the 40-cm telescope. All four days of “100 Hours of Astronomy” saw members of an amateur-club “Albireo” place their 10 telescopes on main squares of two largest cities of Lithuania, Vilnius and Kaunas. This action had a great success.

Organisers: Vilnius University, Institute of Theoretical Physics and Astronomy of Vilnius University, Lithuanian Museum of Ethnocosmology, Club “Albireo”.

Website: http://astro2009.astro.lt/





Estimated number of people who attended or were reached by this activity: 5000

## Dark nights in Zagare

The festival of astronomy was organised for citizens of small town Zagare at the north border of Lithuania by members of astronomy amateur club “Albireo”. 10 astronomers with their telescopes and tents went there on 22August and gave the opportunity to residents of this small town to touch the beauty of Universe during the night.

Organisers: “Albireo” club.

Website: www.albireo.lt/

Estimated number of people who attended or were reached by this activity: 300

## Researchers’ Night

This took place at the Moletai astronomical observatory and at the Lithuanian museum of ethnocosmology on 25 September 2009. It was a part of larger project “Researchers’ Night in Lithuania 2009”, in which several Lithuanian universities and institutions participated. This project was supported by EC.Moletai event was devoted to IYA2009. About 1500 visitors from all regions of Lithuania were accepted by full teams of scientists of both institutions. The visitors listened to fun presentations given by scientists in three halls simultaneously, visited the scientific telescopes and examined the instrumentation, and communicated with the researchers. They also had the

opportunity to sing and dance with the artists of the folklore ensemble of Lithuanian Academy of Sciences, who also are the scientists. 10 amateur astronomers with their telescopes were ready to show them the wonders of the sky. Unfortunately, the heavy autumnal clouds covered the sky during the night. Nevertheless, people were quite satisfied and expressed willingness to come again and again.




Organisers: Institute of theoretical physics and astronomy of Vilnius University.

Website: http://astro2009.astro.lt/



Estimated number of people who attended or were reached by this activity: 1200

Budget: 8000€

## Conference “Astronomy Education in Lithuania: New Trends and Challenges”

The conference was held on29-30 October 2009 at the Vilnius Pedagogical University. About 100 scientists, teachers and students participated at this conference and discussed the new tasks and challenges of astronomy education in Lithuania. At this conference participated educators from several other countries, i.e. Latvia, Sweden and Germany. The participants of the conference visited the Moletai astronomical observatory and examined the scientific instrumentation of the observatory. Part of the conference was held at the Vilnius Planetarium.

Organisers: Vilnius Pedagogical University, Lithuanian Astronomical Society.

Estimated number of people who attended or were reached by this activity: 100

Budget: 1500€

# Luxembourg

## National Node




Eric Buttini (National Museum of Natural History, Department of Geo/Astrophysics)

www.astronomy2009.lu

Official Languages
- German
- French
- Luxembourgish

Number of organising committee members: 10
- Volunteers: 9
- Paid: 1

Population: 502 202

Number of people reached by IYA2009: 30,000

Budget: 80 000€

Sources:
- Government
- National Research Fund
- Private Sponsors

## General Overview of IYA2009 activities in Luxembourg

The Astronomy2009-Lu Committee is very satisfied with the resonance of the public who attended our activities. Even if we are a small country with about 450,000 inhabitants all our activities were very well visited. We see that there is a real demand and a thirst for knowledge of astronomy. This motivates us to continue organising such activities.

## Main Activities

### List of Activities

- Series of public lectures;
- Astronomical Science Cafe;
- Astronomy-quiz;
- Astronomy in school;
- Astronomy Day;
- Science Festival;
- Public observations;
- Dark Sky: Awareness against light pollution.

### Series of public lectures

We organised a series of about 12 public lectures on actual astronomical / astrophysical themes.
Some of the speakers were :

- Jean-Luc Lehners (Princeton Center for Theoretical Science);

- Wolfgang Duschl (Institut für Theoretische Physik und Astrophysik, Kiel);
- Simon White (Max Planck Institut für Astrophysik, München);
- Yaël Nazé (Université de Liège);
- André Brahic (CEA, Université Paris VII);
- Hubert Reeves (CNRS, Paris).

Organisers: Astronomy2009-LU Committee.

Estimated number of people who attended or were reached by this activity: 2000

Budget: 20,000€

## Galactic Science Cafe

We invited Luxembourgian astrophysicists working all around the world and organised a Science Cafe where the general public had the opportunity to talk to these specialists and know their research topics and what it means to work in the field of astrophysics.

Organisers: Astronomy2009-LU Committee.

Estimated number of people who attended or were reached by this activity: 100

Budget: 3000€

## Astronomy in School

The organisation of the “Luxembourg Amateur Astronomers” went into schools and presented a short introduction on astronomy.

Organisers: Astronomes Amateurs du Luxembourg.

Website: www.aal.lu

Estimated number of people who attended or were reached by this activity: 4000

## Astrnomy-Quiz

We organised a quiz on astronomy for primary school classes as well as for secondary school classes.
Primary school classes had to present a project (model, film, board-game...) about the Solar System to qualify for the final of the quiz which was a real quizhow with multiple choice questions.

The quiz for secondary school classes was made of three series of multiple choice questions to be answered online.

Organisers: Astronomy2009-LU Committee.

Estimated number of people who attended or were reached by this activity: 2000

Budget: 12 000€

## Luxembourg Astronomy Day

On one day at a specific place, we organised about 20 different workshops dedicated to astronomy (planetarium shows, assembling of star maps, nocturnal, water-rockets, telescopes...). In the evening we made a big observation session.

Organisers: Astronomy2009-LU Committee.

Estimated number of people who attended or were reached by this activity: 400

Budget: 5000€

### Public observation session

The “Luxembourg Amateur Astronomers” and the “National museum of natural history” organised several public observation sessions of the night sky.

Organisers: Astronomes Amateurs du Luxembourg.

Website: www.aal.lu

Estimated number of people who attended or were reached by this activity: 2000

### Science Festival

The “Luxembourg Science Festival” took place from 12-15 November 2009.
Among the 50 workshops offered, 10 were dedicated to astronomy.
More than 100 school classes (~2000 students) attended the astronomy workshops during the school-days (12 and 13 November).

Organisers: National Museum of Natural history.

Website: www.science-festival.lu

Estimated number of people who attended or were reached by this activity: 12,000

### Dark Sky: Initiative against light pollution

Initiative to arouse public interest in addressing the problem of light pollution: printing of an information leaflet and mass distribution to politics, mayors, architects; production of an information DVD and distribution; various newspaper articles, radio and television interviews,

Organisers: Amateur Astronomers of Luxembourg.

Website: ww.aal.lu

## Legacy

We want to organise several public lectures per year. An exhibition about “exoplanets” is in planning. Our Astronomy-Quiz will certainly be repeated in the near future.



# Former Yugoslav Republic of Macedonia

## National Node

Gordana Apostolovska (Institute of Physics, Faculty of Science, Skopje)
gordanaa@on.net.mk www.astronomi2009.dk
http://sites.google.com/site/iya2009macedonia/2009-megunarodna-godina-na-astronomijata




Official Languages
- Macedonian

Number of organising committee members: 6-10
- Volunteers: All
- Paid: None

Population: 2 114 550

Number of people reached by IYA2009: 12 000

Budget: 3000 €

Sources:
- UNESCO
- IYA2009
- Macedonian Astronomical Society

## General Overview of IYA2009 activities in the Republic of Macedonia

Despite astronomy not being a financially profitable science, it is nevertheless practiced almost in every country and it is under the protection of state institutions. There are no astronomical observatories of any type (scientific, popular or as part of an university) in the Republic of Macedonia, making the country one of the few where astronomical phenomena are experienced by the majority of the population, including the media, on a more primitive level. During 2009 we send few formal requests for building of observatory and although the initiatives were very good accepted there is no any formal decision.

Official opening of IYA2009 happened on 26 February 2009 by SPoC for Republic of Macedonia and President of Macedonian Astronomical Society Gordana Apostolovska. Active participation in this ceremony participated professors from Faculty of Science in Skopje, members of Skopje Astronomical Society, Macedonian Research Society, Kokino astronomical club from Kumanovo and representative from Skopje Planetarium.

In the past year we have asked the local and government authorities for support in organising teacher training events, but unfortunately our requests were declined due to lack of finances. As we were unable to find other sponsorships, we couldn't organise GTTP events in our country.

As part of our regular and IYA2009 activities we organised the following:
- Winter Astronomical School, 27-28 March 2009, organised by the Macedonian Astronomical Society; location: Institute of Physics, Faculty of Science, Skopje; number of participants: 80 high school students and 10 high school teachers. The event included the National Competition in Astronomy, where 40 candidates participated.
- Basic Course in Astronomy, organised by the Skopje Astronomical Society: 18 March to 15 April 2009; location: Skopje; the event consisted of eight lectures on different astronomical topics; Number of participants: on average 35 per lecture; the course was open to the general public.
- Astronomy Camp on the Megalithic Observatory Site of Kokino, 18-20 September 2009: Location: Kokino, Republic of Macedonia; the camp was organised by the Macedonian Astronomical Society,

Skopje Astronomical Society and with the help of the Municipality Staro Nagoricane. A total of 21 young people (mainly high school students) from different parts of the country took part in the camp.

- Astronomical Caravan 2009; Organised by the Skopje Astronomical Society. The project included visits to five cities in Macedonia, realised between June and October 2009 and it consisted of astronomical lectures, public astronomical observations and an exhibition of astronomical photographs.
- A Series of Lectures given in 10 different primary and secondary school. The lectures were organised by the Skopje Astronomical Society with the help of Physics and Geography teachers who work in the schools, and they were given during the regular classes.
- A Series of Popular Astronomical Lectures, 5 November to 17 December 2009, organised by the Skopje Astronomical Society; Location: Skopje; Number of participants: ranging from 100 to 40, depending on the lecture.

The closing ceremony of IYA2009 happened on 4 February 2010 with the exhibition of astronomical photographs obtained mostly by the members of Skopje Astronomical Society. In the same evening a public lecture was organised in a planetarium accommodated in a youth cultural centre.

List of Activities

- Astronomy Camp on the Megalithic Observatory Site of Kokino;
- Astronomy caravan 2009;
- Star Peace event between Macedonia and Serbia;
- 100 Hours of Astronomy in Macedonia;
- 11 Winter Astronomical School and National Competition in Astronomy;
- Basic Course in Astronomy 18 March to 15 April 2009; location: Skopje; The event consisted of eight lectures on different astronomical topics;
- Series of lectures given in 10 different primary and secondary school;
- Exhibition of astronomical photographs (closing ceremony).

## Main Activities

### Astronomy Camp on the Megalithic Observatory Site of Kokino, (18-20 September 2009, Kokino, Republic of Macedonia)




As part of the activities in the IYA2009 the Macedonian Astronomical Society organised the first ever astronomical camp for young people in the country. The location for the camp was the megalithic observatory site of Kokino, specifically chosen because of its astronomical significance. Namely, in its “Timeless Knowledge” project in 2005 NASA recognised the megalithic observatory Kokino as a significant heritage of this type. Kokino is also listed side by side with ancient observatories as Stonehenge (Great Britain), Abu Simbel (Egypt), Angkor Wat (Cambodia), Machu Picchu (Peru), etc. As such, Kokino presented a symbolic connection between ancient and modern astronomy.

A total of 21 young people (mainly high school students) from different parts of the country took part in the camp. Since astronomy is not present in the high school syllabus in Macedonia as a separate subject (but is briefly mentioned in some physics textbooks), for almost all participants this was their very first encounter with astronomy as a science and the telescope as an instrument for astronomical observations. Support for organising the camp was received by the office of the UNESCO-BRESCE. The camp was organised by the Macedonian Astronomical

Society, Skopje Astronomical Society and with the help of the Municipality Staro Nagoricane. Main outputs of the project are: Introducing the participants to the aims, goals, and worldwide and local activities of the International Year of Astronomy 2009; Participants acquired basic theoretical knowledge in several astronomical topics (minor objects in the Solar System, extrasolar planets, the night sky in autumn, basic astrophotography); Participants developed basic practical skills in working with telescopes; Participants constructed a model of the Solar system; Participants observed the Moon, Jupiter and Saturn, as well as some Messier objects through a telescope. For most of the participants this was their first glimpse through a telescope; Participants were introduced to archaeoastronomy in general and archaeoastronomical analysis while visiting the Megalithic Observatory Kokino; Participants received two DVDs with education materials, presentations, astrophotographs, a photo album from the camp, and video clips of the event.

Organisers: Macedoniana astronomical society, Skopje astronomical society.

Website:
http://sites.google.com/site/iya2009macedonia/kokino2009/kokino2009eng
http://sites.google.com/site/iya2009macedonia/kokino2009/programme

Estimated number of people who attended or were reached by this activity: 30.

Budget: 1200 €

## Astronomy caravan 2009



The project “Astronomy caravan 2009” was realised in cooperation between Skopje and Macedonian Societies, under funding of one of the official projects of IYA2009, Developing Astronomy Globally. The project included visits of five cities in Republic of Macedonia: Bitola (6-7 June), Ohrid (4-5 July), Strumica (26-27 September), Stip (3-4 October) and Kumanovo (31 October — 1 November). In each town were organised two public lectures with astronomical themes, exhibition of astronomical photographs taken by members of the Skopje Astronomical Society and open public observations of the Moon and planets Saturn and Jupiter.

The project goals were lifting the awareness about astronomy among the population, especially among the youngest, increasing interest for scientific research among citizens in everyday life, informing and teaching the citizens about the beauty of the night sky and astronomy; motivating young people to participate in observations by telescope. Long-term objectives of the project were increased citizen participation in astronomy clubs and their opening in cities where there aren’t any astronomy clubs and making schools aware that they need to have more astronomy in the curriculum in primary and secondary education.

Organisers: Skopje Astronomical Society and Macedonian Astronomical Society.

Website: http://sites.google.com/site/iya2009macedonia/Home/karavan2009

Estimated number of people who attended or were reached by this activity: 350.

Budget: 891 € (grant from Developing Astronomy Globally).

## Star Peace event between Macedonia and Serbia



After the difficult one month of preparations and weather concerns the Star Peace event between Macedonia and Serbia finally came true on the weekend between 22 and 24 May. The event was held on the peak “Odvrakjenica” on the mountain Golija, near the city Novi Pazar in Serbia. On this event there were participants from five astronomy clubs from Macedonia and Serbia. In total there were 11 participants on the event from all the clubs and we had one special guest from Brazil that also participated in the event. The weather on both of the observation nights was good and we had good conditions for observations and for astrophotography. There were seven telescope setups, from which four were used for making astrophotography, and three for observations, and two binoculars that were available to us. As the goal of the Star Peace we tried to join our forces in everything that we did during the event. Participants were learning from each other different techniques about astrophotography, making together photos of different objects on the sky, and participating together during the hunting for the Messier and NGC objects in the sky.

During both observation nights there were more than 30 students that visited the event from the city of Novi Pazar that were really interested to have the chance for the first time to see the sky through a telescope. They were amazed to see Saturn and its rings, the colliding between the Whirlpool galaxy (M51) and NGC 5195. During their visit except of this objects they had a chance to see more than 15 different and beautiful objects on the sky. Also we gave a little task for them to try to count all the visible satellites of Saturn that were visible at the moment. Most of them were interested to learn the constellations, so during both nights we did a short presentation of the constellation in the sky. The ones that were most interested and could stand the cold during the night had the chance to learn more about cosmology and the creation of the Universe. Every one of the participants was giving their best to explain every question and uncertainty that the students had. You can see their excitement from all they had the chance to see and hear during both days; at the end they thanked us 100 times and tell to us to come another time and to show them again the beauty of the sky.

The weekend was fulfilled with a lot of companionship that connect the members of different astronomy clubs together, under one sky, so they can make new friends, tell about different astronomical experiences, giving advices about astronomical observations and equipment and trying to give their best to give their knowledge to all the children that came and visit the Star Peace event on Golija.

Organisers: Skopje Astronomical Society from Skopje — Macedonia, AD Novi Pazar from Novi Pazar — Serbia, Astronomy club Aristarh from Kraguevac — Serbia, Astronomy club Univerzum from Backa Palanka — Serbia and Astronomical Society Ruger Boshkovic from Belgrade — Serbia.

Website:
http://www.starpeace.org/En/Events/22May2009/22May2009Macedonia/Default.aspx
http://sites.google.com/site/iya2009macedonia/star_peace_mkd_srb

Estimated number of people who attended or were reached by this activity: 60.

### 100 Hours of Astronomy in Macedonia



The celebration of 100 Hours of Astronomy in Macedonia went perfectly. Although the weather was not great over the past month, that weekend (4-5 April) we had clear skies. More than 2000 people passed to see through the telescopes. Lectures about telescopes were organised and two public observations (one at the Central city square and one at the Central city park). Citizens who looked through the telescope and saw the Moon and Saturn got sticker: “I Saw Saturn, I saw Moon”.

Organisers: Skopje Astronomical Society.

Website: http://sites.google.com/site/iya2009macedonia/100-casa-astronomija-skopje

Estimated number of people who attended or were reached by this activity: 2000.

### 11 Winter Astronomical School and National Competition in Astronomy

Winter Astronomical School, 27-28 March 2009, organised by the Macedonian Astronomical Society; location: Institute of Physics, Faculty of Science, Skopje; number of participants: 80 high school students and 10 high school teachers. The event included the National Competition in Astronomy, where 40 candidates participated.

Estimated number of people who attended or were reached by this activity: 100.

Budget: 600 €

## Legacy

Our plan of activities for this year consist of many activities which are more or less traditional in past few years. Winter astronomical school already took place on 26-27 January 2010. Participants were 120 high school students, and 50 of them participated at the national competition in astronomy. Public lectures and observations will be organised through the whole year.

We will be more active involved in the Galileo Training Teacher Program. One GTTP Workshop will take place in May 2010.

## Comments

We did not get any financial help from authority (as it was in past years) in our country and because of that we could not pay for transport of donated 50 Galileoscopes and Celestron telescopes.



# Madagascar

## National Node

Charles Ratsifaritana
Malagasy Association for the Promotion of Science
ratsifa@moov.mg

Official Languages

- Malagasy
- French
- English
-

Number of organising committee members: N/A

Population: 20 653 556

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Observatory ASTRO of Ankadiefajoro

Underway since November 2008
Exhibition on the Universe and astronomy.

### Conferences and lectures

Conferences and lectures in schools and colleges.

### Madagascar Broadcasting System

Weekly, throughout 2009
Weekly 10 minute scientific TV programmes during prime time on national TV throughout the year.



# Malaysia

## National Node

Mustafa Din Subari
National Space Agency
mustafa@angkasa.gov.my

Official Languages

- Malay
-

Number of organising committee members: N/A

Population: 28 310 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Bringing The Solar System To You

- Solar System Model
- Mini Exhibition

### Malaysia IYA2009 Day

The 3 days/2 nights programme enhanced the awareness of young generation and public in astronomy
Activities:

- Telescope gathering (Malaysia Book of Records)
- Telescope workshop
- Public talk
- Exhibitions
- Astrophoto Contest
- Seminars

### Astronomy on Screen

- Drama
- Theatre
- Documentary officiate (Blame It On The Moon )
- Planetarium show (multi wavelength, space astronomy and planetary exploration)
- Video clip for TV campaign (15-30 sec)
- Malaysia's astronomical book/documentary

### Asia Pacific IYA2009 Conference

- Hosting Asia Pacific conference (planetarium/observatory)
- Consolidation of astronomical resources

## New Educational Methodology

- Enhance the teaching and interest in astronomy in schools through:
- Educational Resource Development and Distribution
- Educator Development
- Learner Development
- Promotion of Astronomy Related Careers

## Hari Angkasa Malaysia

- Hari Angkasa Malaysia is the special astronomical day : 10 October
- Poster/astrophotography campaign
- Distribution of Galileo telescopes
- Teachers workshop

## The 2009 5th MICSS Science Camp

In conjunction with the declaration of 2009 as the "International Year of Astronomy", Sekolah Menengah Foon Yew – Kulai has successfully organised "The 2009 5th MICSS Science Camp" with the theme "Reflection on science for the 21st century and its new commitment" in Sekolah Menengah Foon Yew – Kulai, Johor on 1 – 5 June 2009. National Planetarium was invited to participate and share the joys of space science in this science camp. The science camp was officially opened by Y.B. Dato' Seri Ong Ka Ting on 2 Jun 2009 at Dewan Besar, Sekolah Menengah Foon Yew – Kulai, Johor.

## Space science awareness programme (6 August 2009)





On 6 August 2009, National Planetarium was invited to organise Space Science Programme at MARA's Junior Science College, Kuantan. There were 500 people which included form 1 and form 4 students and teachers in this program. The activities conducted involve video screening titled "The Moon", Sun Prominence Observation through a SolarMax 90 telescope, Poster Exhibition themed Moon and Apollo Program, "Solar System Planetarium Kit" and quizz session. A brief introduction about the National Planetarium and programme have been carried out at the beginning of the program. Teachers and students have been divided into 3 groups to ensure all will be able to join three of the above mentioned activities. Some educational materials such as the Moon charts, star charts, brochures for the Moon and eclipse have been distributed to teachers as for their teaching materials.



# Maldives

## National Node

Ahid Rasheed (Maldives Science Society)

www.sciencemaldives.org

Official Languages
- Divehi (Mahl)

Number of organising committee members: 0
- Volunteers: 0
- Paid: 0

Population: 396 334

Number of people reached by IYA2009: 1000

Budget: 2500 €

Sources:
- Sponsorship
- Contributions

## General Overview of IYA2009 activities in the Maldives

Astronomy is something very new to the Maldives. The country does not have any observatories or planetariums. Since there are no universities in Maldives, astronomy is not taught as a subject. In fact there are no qualified astronomers in the Maldives. The Maldives Science Society was registered earlier in the year to foster public awareness to science related activities, and tried within the year to promote astronomy related activities in the Maldives. From the few activities that the Society was able to organise, we feel that public interest is there and people are curious to know more about the area.

## Main Activities

### List of Activities

- "The Universe As Seen Through The Hubble Telescope" — A presentation by Dr. Kavan Ratnatunga;
- Maldives Science Society stall at the Youth Day activities (featuring astronomy related information and activities);
- World Peace Day Star Party.

### The Universe As Seen Through The Hubble Telescope

A presentation by:
Dr. Kavan U. Ratnatunga, Astronomer, Associate Research Professor

An event to celebrate IYA2009
Hosted by the Maldives Science Society
Date: Wednesday 11 February 2009
Venue: MCSE Seminar Room

The event which was a presentation on the Universe as viewed through the Hubble Space Telescope by the ex-NASA researcher and astronomer Dr Kavan Ratnatunga, was well-attended by students and science enthusiasts from across the city. The stunning display of ultra-sharp and breathtaking images taken from the Hubble alongside an ultra-clear expository running commentary by Dr Kavan made the whole event all the more spectacular and indeed was well-received by the audience.

Organisers: Maldives Science Society.







Estimated number of people who attended or were reached by this activity: 150.

Budget: 1000€

## Maldives Science Society stall at the Youth Day activities (featuring astronomy related information and activities)

On 12 August, the International Youth Day, the Maldives Ministry of Human Resources, Youth and Sports organised a two-day youth festival in the capital Male'. The Maldives Science Society booked a stall at the festival

to celebrate the International Year of Astronomy 2009. The stall featured backlit displays of information relating to astronomy, and the public was given the opportunity to view the sky through Galileoscopes.

Organisers: Maldives Science Society.

Website: http://www.sciencemaldives.org/photo-gallery/?album=MSSStallAtYouthdayFestival&kpap=2








Estimated number of people who attended or were reached by this activity: 800.

Budget: 1000€

## World Peace Day Star Party

The Maldives Science Society organised a star party to coincide with the World Peace Day (21 September), to be part of the StarPeace project. Public were invited to join in to view Jupiter and its moons through the telescopes provided by the Society. However the weather was not favourable and hence very few eventually participated.

Organisers: Maldives Science Society.

Website: http://www.sciencemaldives.org/photo-gallery/?album=WorldPeaceDayStarPartyStarPeace&kpap=1





Estimated number of people who attended or were reached by this activity: 30.

Budget: 100€

## Lessons Learned

The country needs to a planetarium and an observatory for interest to increase in the area. Students and public in general are curious about astronomy and we feel that if more activities are organised, astronomy will become popular here.

## Legacy

The Annular Eclipse of 15 January was a huge success here with the public coming out in full force to view it. Plans are there to get students involves in promoting astronomy activities (including building a scale model of the Solar System) and getting funds to establish a planetarium here.



# Mali

## National Node

Ahmed Sagaidou Maiga
Faculty of Science and Technique / University of Bamako
mahmedsagaidou@yahoo.fr

Official Languages

- French
-

Number of organising committee members: N/A

-

Population: 14 517 176

Number of people reached by IYA2009:

Budget: €

## General Overview of IYA2009 activities in Mali

Republic of Mali received Galileoscopes from the EurAstro.
More information: http://www.astronomy2009.org/news/updates/513/



# Malta

## National Node

Gordon Caruana Dingli (The Astronomical Sciences Group, Department of Physics, University of Malta)

http://iya2009malta.page.tl/Home.htm

Official Languages
- Maltese
- English

Number of organising committee members: 8
- Volunteers: 8
- Paid: 0

Population: 413 609

Number of people reached by IYA2009: 100 000

Budget: 0€

## Main Activities

### List of Activities

- 20 January: Science Fair at St Francis Girl's Secondary School, Sliema
- 27 January: Robert Samut Hall, Floriana Launch of IYA MALTA
- 3 February: Launch of IYA exhibition at Italian Cultural Institute Valletta
- 3 — 13 February: Exhibition at Italian Cultural Institute Valletta
- 11 February: Talk about Galileo and Film at Italian Cultural Institute Galileo Galilei: Astronomy and the rise of modern science Eyes on the Skies
- 25 February: Talk at Junior College
- 6 March: Talk/Presentation/Observation session, Guze Damato BSS at YTC bungalow Buskett, "Saturn: Lord of the rings" Alexei Pace, "Astrophotography" Leonard Ellul Mercer, Observation session Antoinette Camilleri and Saviour Grech
- 12 — 16 March: Exhibition at St Michaels, Sta Venera
- 12 March: Savio College — Saturn: Lord of the rings, Alexei Pace; Saturn: Lord of the rings, Leonard Ellul Mercer; Solar Journey, Leonard Ellul Mercer; Observation session
- 14 March: Night walk from Savio College to Ghajn Tuffieha
- 16 March: Man on the Moon: Apollo Gordon Caruana Dingli Apollo 13 film, Savio College
- 18 March: Me and my telescope, Alex Pace; The amateur astronomer and his telescope, Ray Pace, Savio College
- 15 March: The Amateur Astronomer and his telescope, Sta Margarita Verdala Junior Lyceum
- 17 March: Tal-Qroqq. University of Malta — "The origin of Life: An enigma wrapped in mystery "Talk on Astrochemistry, astrobiology and the origin of Life in the Universe Prof Nigel Mason OBE(Open University UK)
- 21 March: Seher il-Punent, Gharb Gozo In collaboration with Gharb Local Council a presentation and an observing session will be held during a weekend long festival of cultural events. Alex Pace, Antoinette Camilleri and Sammy Grech are to set up telescopes. Films:"Eyes on the skies" "400 years of the telescope"

- 27 — 28 March: Exhibition at Hamrun Boys Junior Lyceum
- 27 March Observation session at Manikata
- 2 — 5 April: 100 Hours of Astronomy
- 2 April: Targa Gap MCAST Talk and presentation
- 5 April: Observation session. Promenade, Ghar id-Dud, Sliema
- 22 — 26 April: Visit by Senator Harrison (Jack) Schmitt Astronaut Geologist, Apollo 17 Lunar Module Pilot who spent 75 hours on the Moon in 1972 with Commander Gene Cernan
- 23, 24, 25 April: Puttinu caresMarsa Sports Ground
- 27 April: St Monica Gzira
- 29 April: St Augustine's College, Pieta Hosted Russian Cosmonaut Alexander Lazutkin
- 8 May: Girl's Junior Lyceum, St Benedict's College, Sta Lucia. The Amateur astronomer and his telescope Mr Ray Pace DVD Eyes on the skies. Audiovisual presentations by Mr Leonard Ellul Mercer "Moon Encounter" "Taste of the Universe"
- 8 May — 5 June: Basic Astronomy course (Astronomical Society of Malta)
- 9 May: Launch of Maltapost Europa stamp set featuring astronomy
- 11 — 15 May: Cospiua Girls secondary, St Margaret College CANCELLED BY SCHOOL
- 12 May: St Martin's College Swatar. Italian week commemorating Galileo
- 18 May: St Augustine's College, Pieta'. Astronomy week
- 28 May: Anniversary of President John F Kennedy's Apollo speech to the US congress Kennedy Memorial St Paul's Bay
- 29 May: San Anton School L-Imselliet Observing session
- 31 May: Dingli Observing session May IYA /Nature Trust/ Birlife L-Ahrax tal-Mellieha
- 4 June: Observing session
- 19 June: Summer solstice
- First week of July: Seminar for Institute of Journalists to update on 40th anniversay of Apollo 11 first Moon landing
- Apollo 11 anniversary commemoration. Zabbar Santwarju, St James Cavalier
- 17 July — 5 August: Trip to China to observe the solar eclipse
- August — September: Exhibition of old astronomy books at Bibliotheca
- October: Notte Bianca, St Dorothy's Zebbug, 34U
- 19 — 23 October: Hunting for the Dark: The hidden side of Galaxy formation
- November: Exhibition at China Cultural Centre
- December: Popular televison programme Xarabank (audience 100 000) on the IYA and hosting Senator Harrison Schmitt (Apollo 17 lunar modulepilot)

## IYA2009 Malta Opening event

27th January 2009 at 12.00
Robert Sammut Hall, Floriana



The Hon Minister Dolores Christina inaugurating the IYA2009 Malta



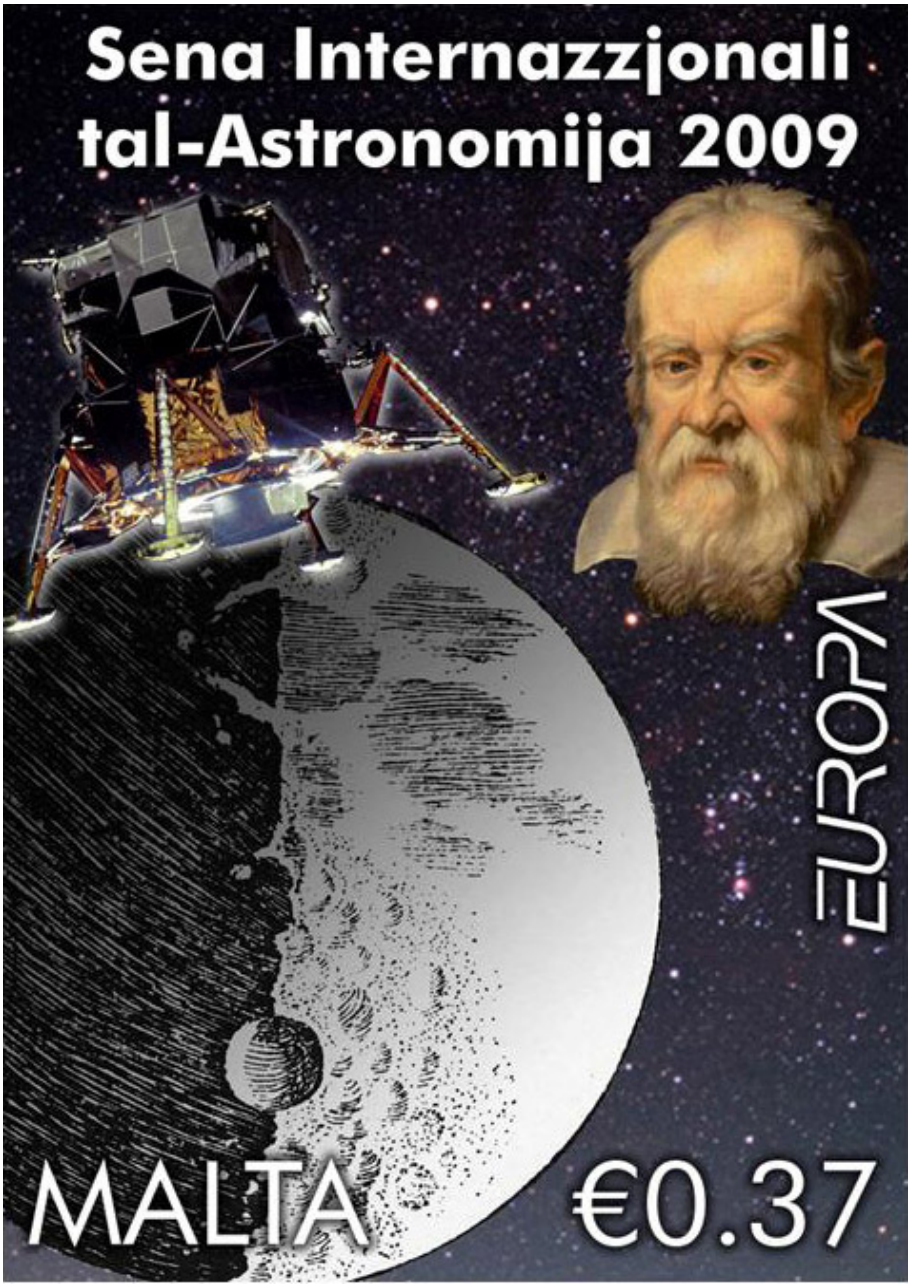
Dr Gordon Caruana Dingli launching the IYA2009 Malta

## Opening exhibition

Istituto Italiano di Cultura (Italian Cultural Institute)
3rd February 2009



Stamp issue




This stamp features a portrait of Galileo Galilei (1564-1642) by Francesco Boschi (1619-1675) exhibited at the Musée national des châteaux de Versailles et du Trianon. The year 2009 has been designated the International Year of Astronomy to commemorate the 400 year anniversary of when Galileo first used a telescope to observe the heavens. This stamp features one of Galileo's sketches of the Moon set against a starry background which features the constellation Orion, which was also observed by Galileo.

The stamp also commemorates the 40 year anniversary of the first manned lunar landing. It features the Apollo 11 lunar module "Eagle" carrying the astronauts Neil A Armstrong and Edwin (Buzz) Aldrin down to the sea of Tranquillity on the Moon while astronaut Michael Collins orbited the Moon in the command module "Columbia". On 20 July 1969 Neil Armstrong was the first man to step on the Moon, saying "That's one small step for (a)man, one giant leap for mankind".

The font used (Futura) is the same as that used in the plaque which was attached to the lunar module: "Here men from the planet earth first set foot upon the Moon, July 1969, A.D. We came in peace for all mankind".




This stamp shows the great telescope of William Lassell, set up in Malta between 1861-1865, against a background of stars showing nebula M42, which Lassell himself observed on various occasions from Malta. William Lassell was born in Bolton in 1799. He was a brewer by profession but used his fortune to build an observatory at Starfield near Liverpool. He equipped this observatory with a 24-inch reflector telescope. Like many other astronomers he ground the mirrors himself — this was considered a very delicate and laborious task in the astronomical field, but in contrast to others he pioneered an equatorial mount of his telescope for easy tracking of celestial objects as the Earth rotates. Soon enough discoveries started to be made.

On 10 October 1846 he discovered Triton, a satellite of the planet Neptune. Other spectacular results were announced when Lassell discovered Hyperion, the Moon of the planet Saturn and the satellites Ariel and Umbriel of the planet Uranus. Since even in those days light pollution in Liverpool hampered his observation of the night sky, and since Lassell's main observational interest was the outer planets, he decided that the clear skies of Malta would successfully enable him to continue his work.

William Lassell first visited Malta in 1852 and soon shipped his 61-cm diameter telescope which measured six metres in length to our island. This telescope, which was already an achievement in design and performance, was stationed on St.John Cavalier in Valletta. This was followed in 1861 by a 1.2 metre diameter telescope which had a

length of 11.3 metres. This telescope was also built and shipped from Liverpool and was mounted at Tigné Barracks in Sliema.

This instrument, the world's largest telescope of its kind at the time, was a Newtonian reflector. Its tube was made of an iron lattice with ribs fitted at equidistant spaces. This design was suitable to compensate and stabilise expansions due to the difference in internal and external temperatures of the telescope. To be able to operate his telescope a wooden tower with a built-in stair case was constructed adjacent to it, to give Lassell the space he needed to make his observations at any desired position. This telescope was driven by two Maltese workmen with the aid of gear wheels which had to be operated by hand. William Lassell collaborated with Albert Marth who was a professional astronomer in Ireland and amongst Lassell's discovies from his gigantic telescope in Sliema, are six hundred nebulae and the variable star "S" Pegasi. When Lassell returned to England in he offered his reflector telescope to other observatories but in spite of its excellent quality it was finally broken up for scrap in 1877. This marked the end of an era.

Lassell died in 1880. 10 years before William Lassell had been elected president of the Royal Astronomical Society and the University of Cambridge had awarded him with the honorary LL.D. degree. Two Moon craters were named after Marth and Lassell. William Lassell's crater is found adjacent to Mare Nubium and Albert Marth's crater is situated near the edge of Mare Humorum. In December 1975 a road in Fgura was named after William Lassell.

References


- Proceedings of History Week. (1981)(108-109) William Lassell:— Observations of Plantes and Nebulae at Malta — Public Lib.
- William Lassell:— Lettera sulla Nebula Planetaria — Public Lib.
- Despatches from Secretary of State to H.E. Sir J. Gaspard Le Merchant, Governor of Malta (1861).
- Monitore Geografico Scientifico di Malta (Ottobre 1887) — Public Lib.
- Malta Govt. Gazette — 12/12/75.


Organisers: Malta IYA2009 committee and Malta post.

Website: http://iya2009malta.page.tl/Stamps.htm

Estimated number of people who attended or were reached by this activity: sales estimated at 100,000.

## IYA2009 Malta — Astronomy exhibition at Saracino's Restaurant

Saracino is a popular restaurant which is situated in an old stone house contemporary with Galileo Galilei. The owner often hosts art exhibitions. During the IYA2009 Saracino hosted an extensive collection of astrophotography by Leonard Ellul Mercer. Pride of place was awarded to the Moon for All Mankind poster.



Astrophotography by Leonard Ellul Mercer exhibited at Saracino restaurant

## Visit by Senator Harrison "Jack" Schmitt, Geologist, Apollo 17 lunar module pilot

University of Malta Academic Member of Staff's Link to Apollo 17
Senator Harrison H. Schmitt, former NASA astronaut and one of the last two men to set foot on the moon, has revived fond memories for an academic member of staff at the University in May 2009. When Dr Robert M. Borg, currently Associate Professor of Chemistry in the Faculty of Science, was just 16 years old, he was treated to an adventure that was closely connected with Senator Schmitt's Apollo 17 lunar journey. It was December 1972, and to mark the last expedition to the moon, NASA had organised an "International Youth Science Tour" (IYST), where a science student from every country in the world was invited to visit various NASA and other scientific facilities in the United States. A local selection committee was set up under the auspices of the Education Department, and Prof. Borg (then simply Robert M. Borg, a student at the Junior College which at the time was run by the Royal University of Malta) was shortlisted and eventually chosen to represent Malta. He left Malta on December 1st 1972 to join students from more than 70 other countries in Washington DC.

The tour was organised to run concurrently with the Apollo 17 mission. Indeed the first (and most exciting) highlight of the trip was being present at the live night time launch of Apollo 17 at Cape Kennedy. It was an awesome fiery and earth-shaking experience that none of the students would ever forget. This was followed by quieter, but equally memorable occasions, such as meeting Neil Armstrong, the first man to set foot on the moon, and Apollo 11 command module pilot Michael Collins, as well as other NASA personalities. They also toured facilities such as the Manned Spacecraft Center in Houston, the NASA Marshall Space Flight Center in Huntsville, Alabama, and the Jet Propulsion Laboratory in Pasadena, California.




Whilst at the Manned Spacecraft Center, the students were able to watch a live transmission of a moonwalk by astronauts Schmitt and Eugene A. Cernan. During the session, Cernan picked up a moon rock which he dedicated to all the participating students' countries. In fact, a fragment of the rock was eventually sent as a gift to all participating countries' Governments. Prof. Borg had been invited to the presentation ceremony, where he was named honorary custodian of the moon rock by the then US Ambassador John I. Getz. Sadly, the moon rock was stolen from the Museum of Natural History in Mdina in 2004. Prof. Borg hopes that Senator Schmitt's visit will also serve as a reminder to the authorities that the crime is still unsolved, and provide impetus to recover the pea-sized priceless raelic which was a unique gift from the United States to the people of Malta and Gozo.

The IYST was a major factor in determining that Prof. Borg, like many of the other students, embarked on a scientific academic career, and he has been grateful to NASA and the US Government ever since. He was looking forward to meeting with Senator Schmitt personally this time.



Organisers: IYA2009 Malta committee and the University of Malta Department of Physics and the US embassy in Malta.

Website: http://iya2009malta.page.tl/Astronaut-Geologist-Harrison-Schmitt%2C-Apollo-17-Lunar-Module-Pilot.htm

http://iya2009malta.page.tl/Sunday-Times-Harrison-Schmitt-10-.-05-.-09.htm

Estimated number of people who attended or were reached by this activity: 500 attended the two lectures, 100,000 watched TV programme .


Senator Harrison Schmitt
Geologist – Pilot – Astronaut – Administrator – Businessman – Writer - US Senator
Two lectures at the University of Malta, tal-Qroqq:
> A Scientist on the Moon - Apollo 17
Venue:
Erin Serracino Inglott Hall,
University of Malta
Date:
Wednesday, 22nd April, 2009
Time:
6:30pm
EMBASSY OF THE UNITED STATES
L-UNIVERS
2009
> Space Exploration & Exploitation
Venue:
Rm 401, Maths & Physics Building,
University of Malta
Date:
Thursday, 23rd April, 2009
Time:
6:30pm
Attendance to both talks is free of charge and open to the public. The Wednesday talk is intended for the general public while the Thursday talk will be more suited to persons with an interest in space exploration. Those wishing to attend are required to register by sending an email to physics.sci@um.edu.mt, with the date(s) of their selected talk(s) in the subject caption. Following the presentations Senator Schmitt will take questions from the audience. The audience for both talks is kindly requested to be seated at least 15 minutes before the scheduled start.
US Embassy ~ IYA 2009 Malta Committee ~ Department of Physics, University of Malta

Science and Technology week — University of Malta




## Malta Symposium on Hazardous Near Earth Asteroids

Between the 12 - 16 October 2009 a very important symposium was held at the Russian Cultural and Scientific Center in Valletta. This symposium formed part of the activities organized for the International Year of Astronomy 2009. It dealt with the problem of Hazardous Near Earth Asteroids which from time to time make a near-earth fly-by. One such example is that of Asteroid Opiphus (99942 Apophis ) which in 2004 caused a brief period of

concern because initial observations indicated a small probability (up to 2.7%) that it would strike the Earth in 2029. Additional observations provided improved predictions that eliminated the possibility of an impact on Earth or the Moon in 2029. However, a possibility remains that during the 2029 close encounter with Earth, Apophis would pass through a gravitational keyhole, a precise region in space no more than about 600 meters across, that would set up a future impact on April 13, 2036. At the moment there are at least 300 such objects which can be considered as potentially hazardous near-Earth objects ranging from a 7 meters to 1.2 Km. in diam. An impact by even the smaller of these objects could be devastating in a populated region. Just by sheer co-incidence, just a few days before the opening of this symposium, on the 8th. of October, a rock measuring 10 metres across, crashed into the atmosphere above South Sulawesi, Indonesia. The blast was heard by monitoring stations 10,000 miles away, according to a report by scientists at the University of Western Ontario.

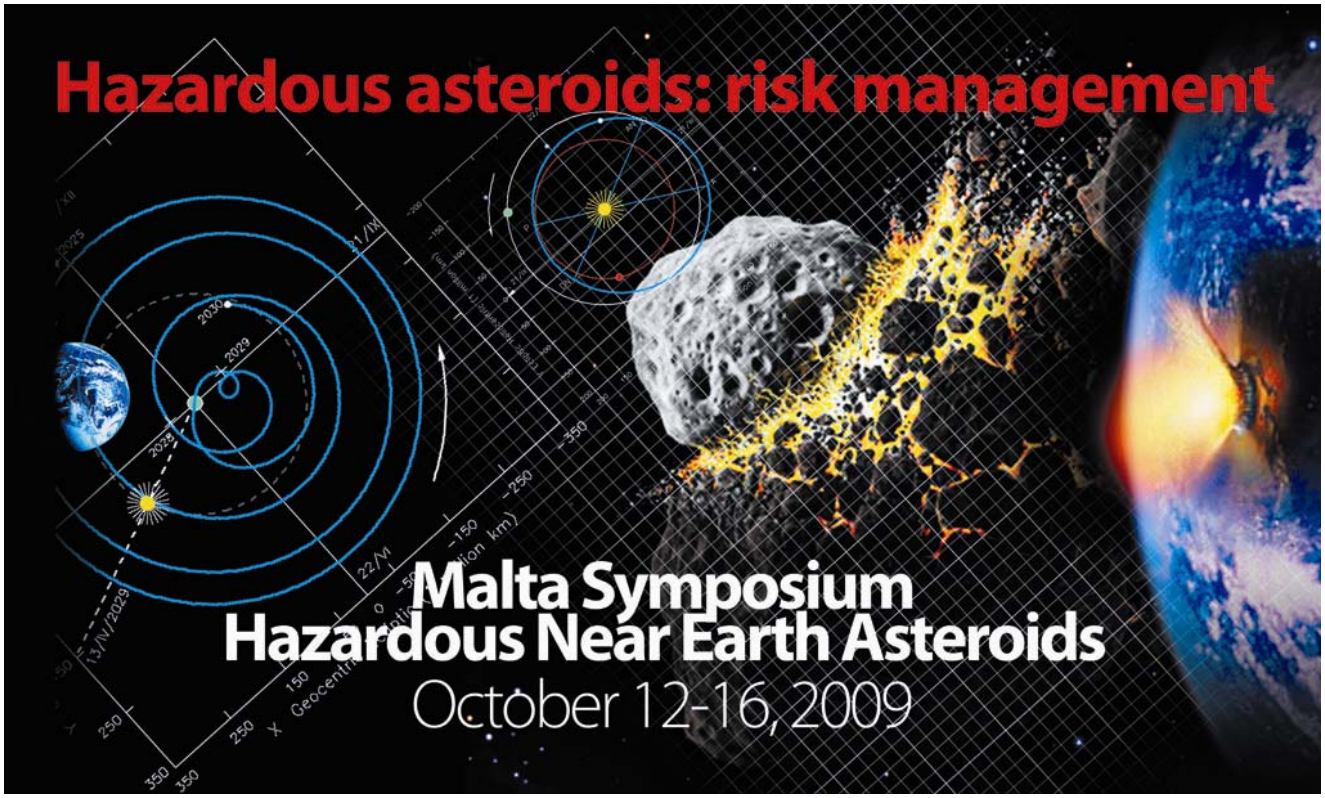
Scientists are concerned that it was not spotted by any telescopes, and that had it been larger it could have caused a disaster. The asteroid, hit the atmosphere at an estimated 45,000mph. The sudden deceleration caused it to heat up rapidly and explode with the force of 50,000 tons of TNT, the equivalent of 3 Hiroshima atom bombs Luckily, due to the height of the explosion – estimated at between 15 and 20 km (nine to 12 miles) above sea level – no damage was caused on the ground. However, if the object had been slightly larger – 20 to 30 metres (60 to 90ft) across – it could easily have caused extensive damage and loss of life, say researchers.
Very few objects smaller than 100 meters (300ft) across have been spotted and catalogued by astronomers. For this symposium a number of world-renowned scientists and astronomers from the Russian Academy of Sciences (RAS), NASA Jet Propulsion Laboratory (JPL) and the European Space Agency (ESA) were present.

The main goal of the Symposium was determined by its *title Motion Control of Near-Earth Objects (NEOs): Dream or Reality?*

To answer this question the following topics were planned to be included in the Symposium program:

- Evaluation of the level of danger of celestial object catastrophic collision with the Earth.
- Instruments and methods of detecting hazardous asteroids and determination of their motion. Estimation of asteroids ephemeris determination accuracy with the use of different approaches presently available and planned to be developed in the future.
- Possibilities to use contemporary astronautics tools to determine and predict motion parameters of asteroids with required accuracy.
- Existing ground facilities and required characteristics for solving the problem of hazardous asteroids.
- Active and other methods and instruments for asteroids motion control in order to prevent their collision with the Earth.

It is hoped that such symposiums will be held regularly to bring awareness to the whole world so that the problem will be tackled globally and not by just a few countries. It is also hoped that the necessary funding will be approved for the research and future missions pertaining to the problem of hazardous near-earth objects.
During this symposium, Leonard Ellul Mercer presented the animation of The Moon for all Mankind, a project of the IYA2009 Malta Committee, created and produced by Leonard Ellul Mercer with the kind collaboration of Dr. Gordon Caruana Dingli.




The Symposium was organized by: Russian Ministry of Education and Science, Russian Cultural and Scientific Center on Malta, Space Research Institute (IKI) of the Russian Academy of Sciences (RAS), Institute of Astronomy of RAS, Institute of Applied Mathematics of RAS with the support and participation of the European Space Agency (ESA).

Finally a point of interest is the fact that this symposium was planned to be held in St. Petersburg in September. However for logistical reasons, it was later decided to have it organised in Malta in October 2009 which made it more easily accessible to participants from Russia, EU and other countries. All the participants enjoyed their stay in Malta and it is hope that Malta will again be the venue for future symposiums of this kind.



US Scientist David Dunham with Leonard Ellul Mercer

## Seher il-Punent activity in Gozo

Seher il-Punent is a yearly activity organised by the Garb council in the island of Gozo.
During the International Year of Astronomy 2009 the President of the Astronomical Society of Malta Mr Sammy Grech and Ms Antoinette Camilleri set up a telescope for public viewing. This was very popular and a large number of people observed the wonders of astronomy for the first time.



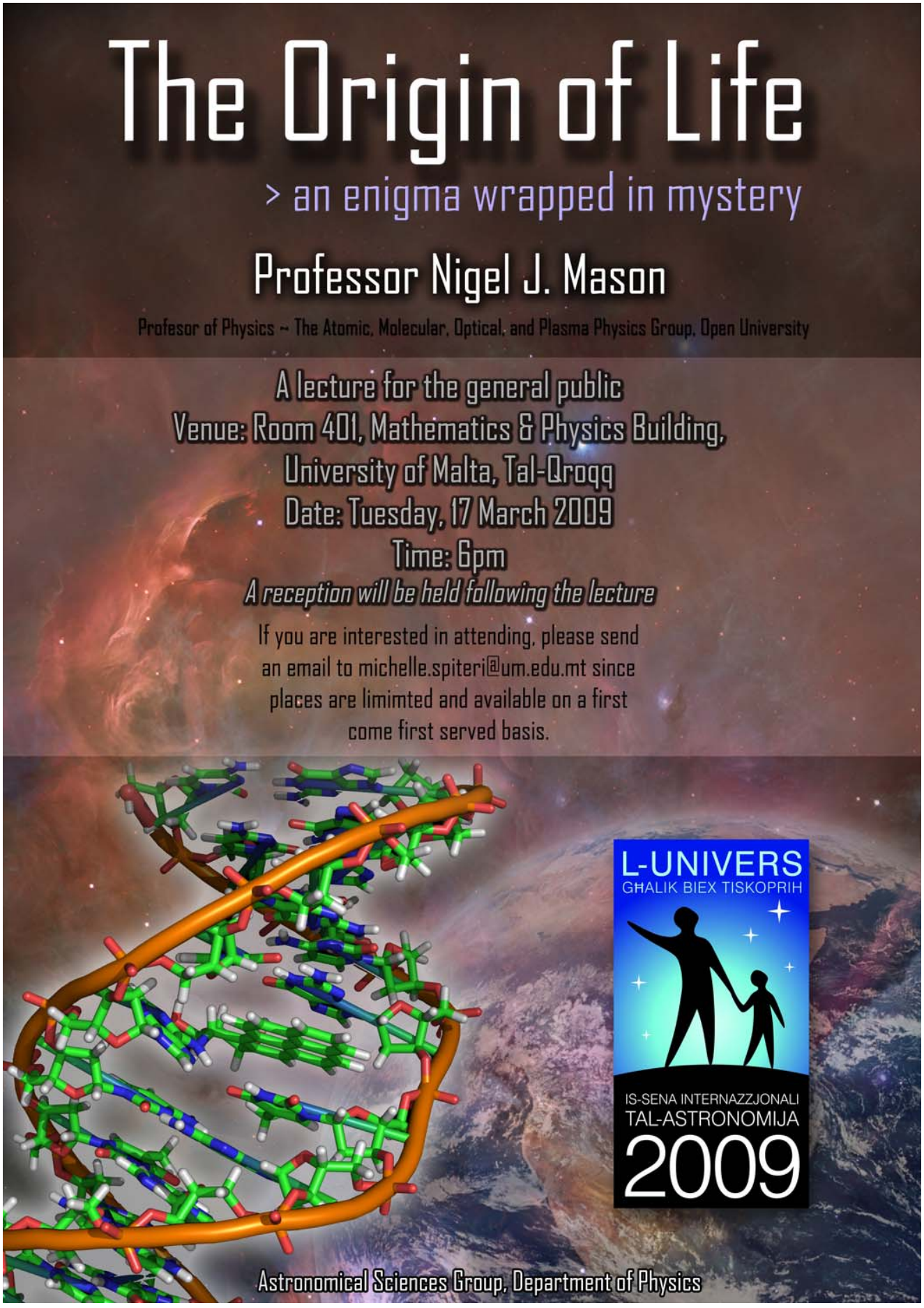







Seħer
il-Punent
09




The Origin of Life
> an enigma wrapped in mystery
Professor Nigel J. Mason
Profesor of Physics ~ The Atomic, Molecular, Optical, and Plasma Physics Group, Open University
A lecture for the general public
Venue: Room 401, Mathematics & Physics Building,
University of Malta, Tal-Qroqq
Date: Tuesday, 17 March 2009
Time: 6pm
A reception will be held following the lecture
If you are interested in attending, please send
an email to michelle.spiteri@um.edu.mt since
places are limimted and available on a first
come first served basis.
L-UNIVERS
GHALIK BIEX TISKOPRIH
IS-SENA INTERNAZZJONALI
TAL-ASTRONOMIJA
2009
Astronomical Sciences Group, Department of Physics


Hunting for the Dark
The Hidden Side of Galaxy Formation
Malta, 19-23 October 2009
uclan
University of Central Lancashire
Invited Speakers
Simon Driver (Univ. St. Andrews)
Annette Ferguson (Univ. Edinburgh)
Filippo Fraternali (Univ. Bologna)
Ken Freeman (ANU Canberra)
Kathryn Johnston (Columbia Univ.)
Guinevere Kauffmann (MPA)
Lucio Mayer (Univ. Zurich)
Ben Moore (Univ. Zurich)
Cristina Popescu (UCLan)
Volker Springel (MPA Garching)
Lister Staveley-Smith (UWA)
Eckhard Sturm (MPE Garching)
Scientific Organizing Committee
Victor Debattista (UCLan), co-chair
Cristina Popescu (UCLan), co-chair
Andreas Burkert (Univ. Munchen)
James Bullock (UC, Irvine)
Francoise Combes (Obs. de Paris)
Michael Dopita (ANU, Canberra)
Simon Driver (Univ. St. Andrews)
Annette Ferguson (Univ. Edin.)
Ken Freeman (ANU, Canberra)
Karl Gebhardt (Univ. Texas)
Ben Moore (Univ. Zurich)
Richard Tuffs (MPIK, Heidelberg)
Local Organizing Committee
Pierre-Sandre Farrugia
Edward Mallia
Joseph Caruana
Ray Pace
Emma Kelly
http://www.star.uclan.ac.uk/malta2009/index.shtml
Credits
Galaxy NGC 4414: The Hubble Heritage Team (AURA/STScI/NASA)
Design & Location Photography: Joseph Caruana

100 Hours of Astronomy — Sidewalk astronomy at the Sliema promenade





## Commemoration of Apollo 11's fortieth anniversary

### Inauguration of the restored Kennedy memorial at Salina, St Paul's Bay

- Talk on Astronomy by Mr Leonard Ellul Mercer
- Talk on Apollo and man on the moon by Dr Gordon Caruana Dingli

### Moon for all Mankind image.

The moon was imaged from 40 countries form all five continents to form a collage of images of the moon, in the spirit of Apollo 11'sexploration of the moon "We came in peace for all Mankind"

### Seminar at Zabbar Sanctuary Museum (talks in Maltese)

Exhibition of astrophotography imaged in Malta to commemorate the 400 year anniversary of when Galileo turned his telescope to the skies and the 40th anniversary of the first manned moon landing.
The following activities were also organised:
3rd July 2009 7.30pm
Opening of the exhibition and a video about nebulae and galaxies by Leonard
Ellul Mercer followed by an astronomy observation session.
10th July 2009 7.30pm
A talk on 'Galileo Galilei and the rise of modern science' by Professor Frank J. Ventura.
17th July 2009 7.30pm
A talk by Paul Xuereb about the Apollo 11 moon landing.
24th July 2009 7.30pm
A talk by Dr Gordon Caruana Dingli about the space race and US and Russian missions to the moon.
31st July 2009 at 7.30pm
A talk by Ray Pace on 'The astronomer and his telescope' followed by an astronomy observation session of the moon.

### Seminar on Astronomy and Science in the Media

The Astronomical Society of Malta together with the Tumas Fenech Foundation for Education in Journalism and the Institute of Maltese Journalists organised a half-day seminar on the theme of Astronomy and Science in the Media, during the International Year of Astronomy.
During this seminar an international project "Moon for all Mankind"was launched. This project involves several countries around the world in order to photograph the moon in the spirit of Apollo 11 "in peace for all mankind". The final collage of images of the moon and an animated feature were distributed around the world as collaboration between the different countries taking part.

Programme:
Saturday 4 July 2009, at the Halland Hotel, Tal-Ibraġġ
09:00 — Session 1 — Introduction to astronomy – Alexei Pace
09:35 — Session 2 — Bad astronomy in the media – David Pace
10:10 — Session 3 — The Apollo Missions – Gordon Caruana Dingli
10:45 — Session 4 — Presentation on the Moon for all Mankind initiative by Leonard Ellul Mercer

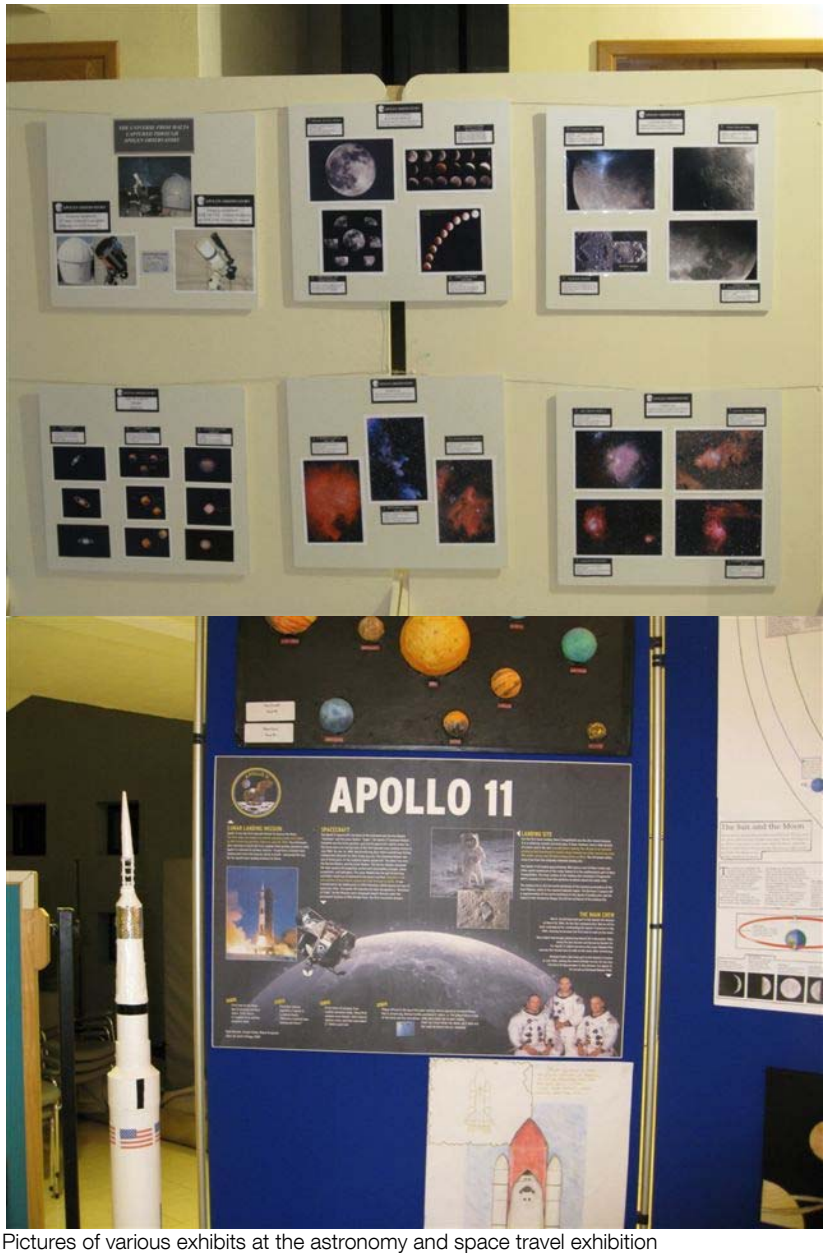
### Film Festival at St James Cavalier Valletta

## Astronomy week 12-18th March 2009

Together with the IYA2009 Malta committee Savio College organised an Astronomy week.
The aim of this activity was to introduce astronomy to school children through a serie of talks and films and to take part in an exhibition of astronomy. The school boys were very enthusiastic and produced an exhibition of very high quality. Parents were also involved and the organizers thought that this was an excellent way of increasing bonding between parents and their children by taking part in the activity together. The IYA2009 committee is grateful for the enthusiastic teacher Mr John Caruana who organised the activity so well.


Thursday
12th March
Launch of the Astronomy Week Presentations & Observation
19:00 Opening by the School Headmaster: Fr. S. Camilleri sdb
19:15 "Saturn Lord of the Rings" talk by Alexei Pace
19:45 "Saturn Lord of the Rings" animation by Leonard Ellul Mercer
20:00 "Solar Journey"
20:30 Observation Session
THE UNIVERSE YOURS TO DISCOVER
INTERNATIONAL YEAR OF ASTRONOMY 2009
Monday
16th March
Presentation Audiovisual Production Film
19:00 "Man on the moon: Apollo" by Gordon Caruana Dingli
19:30 Apollo 13 - the film
Wednesday
18th March
Presentations Documentary
19:00 "Me and My Telescope" by Alex Pace
19:30 "The Amateur astronomer and his telescope" by Ray Pace
20:00 Space - BBC production
ORGANISED BY:
SAVIO COLLEGE DINGLI, MALTA
THE UNIVERSE
Yours to Discover





Pictures of various exhibits at the astronomy and space travel exhibition

## IYA2009 Malta School outreach

The IYA2009 Malta committee was determined to take astronomy to students to teach them about the Universe and to enthuse them to study science. Malta's economy is being increasingly reliant on science and the country needs to produce more science graduates. Astronomy is the one science which is also a visual treat as astronomical images are so beautiful. Children are also fascinated by space travel.

Various committee members visited numerous schools to deliver talks, show films and to set up telescopes to allow children and their parents to see the wonders of the Universe. These outreach sessions were extremely popular and will be repeated even after the IYA2009.

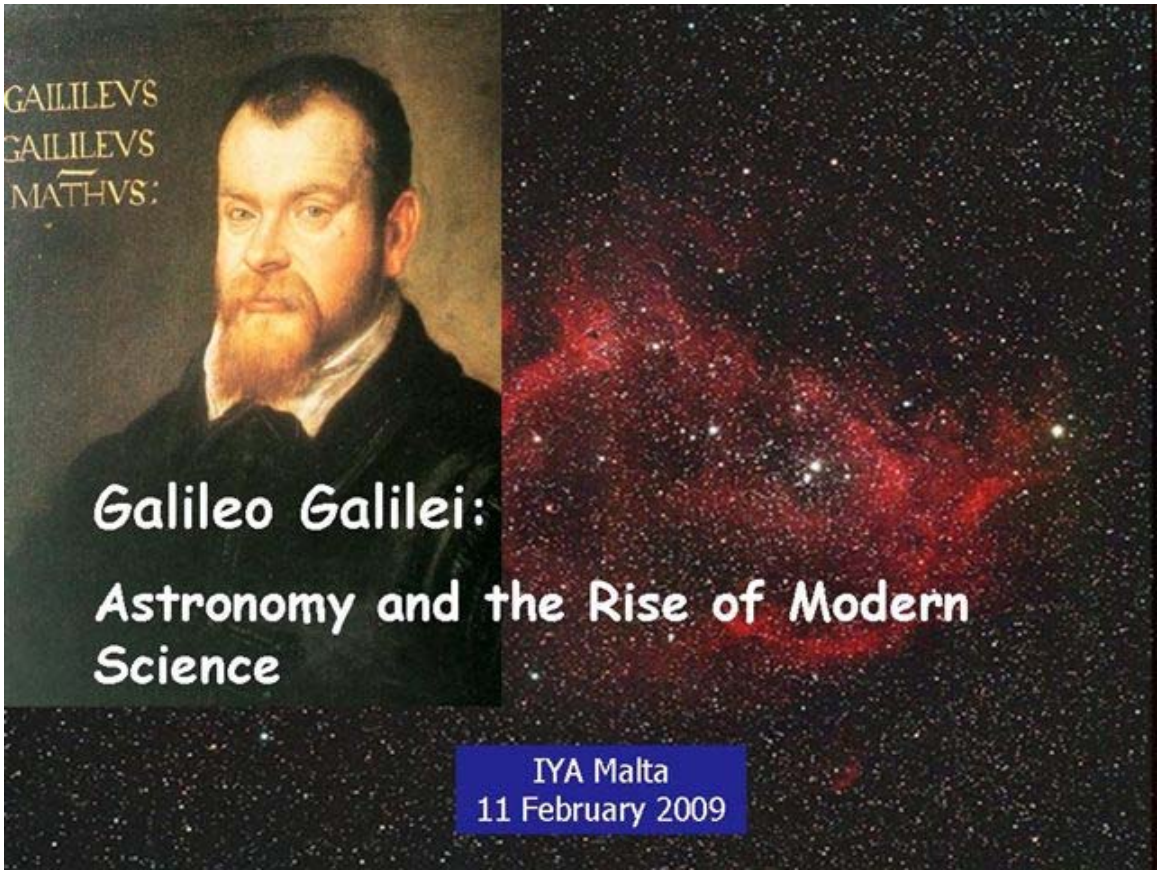



Apolen Observatory
Production
MOON
ENCOUNTER
by
Léonard Tellif-Mercer
Moon Encounter

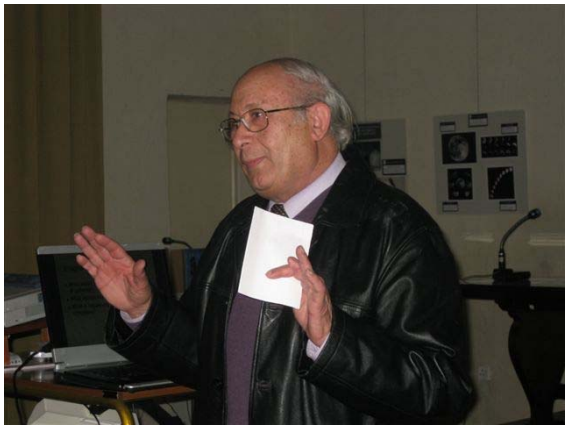



## Italian Cultural Institute IYA2009 Event

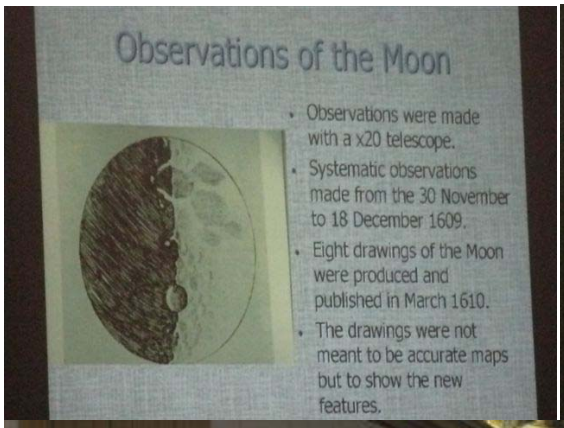
A talk was organised at the Italian Cultural Institute in Valletta on 11th February 2009. Professor Frank Ventura spoke about Galileo Galilei: Astronomy and the rise of modern science. There was also an astronomy exhibition set up by members of the Astronomical Society of Malta

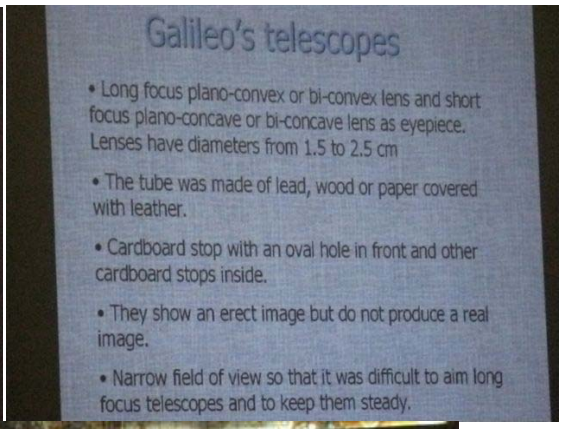






Dr Gordon Caruana Dingli and Prof Frank Ventura






Prof Frank Ventura lectures about Galileo Galilei




Professor Frank Ventura and Mr Sammy Grech





The Director of the Italian Cultural Institute and Perit Alexei Pace

## Launch of Astronomical exhibition at the Italian Cultural Institute Valletta (Istituto Italiano di Cultura)

An astronomical exhibition was launched at the Italian Cultural Institute on 3rd February 2009.
The speakers were the Chairman of the IYA2009 Malta committee Dr Gordon Caruana Dingli, the President of the Astronomical Society of Malta Mr Tony Tanti, the Director of the Italian Cultural Institute Dr Anna Maria DiMarco, HE the Italian Ambassador to Malta and Mr Joseph Caruana who delivered the keynote talk “The legacy of Galileo Galilei – 400 years later”.



Pictures of the setting up of the exhibition by members of the Astronomical Society of Malta

## The Moon for all mankind

The Moon is our closest celestial body and by far the brightest object in the night sky. It has fascinated man since antiquity. IYA2009 celebrates the four hundred year anniversary since Galileo Galilei turned his telescope toward the night sky. He was the first to observe our Moon in detail and some of the maps that he made have been preserved.
The year 2009 is also the fiftieth anniversary of the first unmanned lunar landing and the fortieth anniversary of the first manned landing.

Malta is an archipelago of small islands in the Mediterranean with a population of just over 400,000 people. It has a rich history and is home to the oldest free-standing stone structures in the world. It is claimed that these temples, which are thousands of years old, were aligned to the solstice, demonstrating that a strong astronomical tradition has existed in Malta since antiquity.

The IYA2009 Malta committee has been very busy organising several astronomy events, and has put an emphasis on the Moon and its exploration by robotic and manned spacecraft. These efforts have included the issuing of a stamp set commemorating Galileo, Apollo 11 and astronomer William Lassell's famous telescope in Malta. A highlight of the activities was a successful visit to Malta by the Apollo 17 lunar module pilot, the geologist and former U.S. Senator Harrison Schmitt. In addition, the IYA2009 Malta committee has presented several talks, seminars, exhibitions and observing sessions.

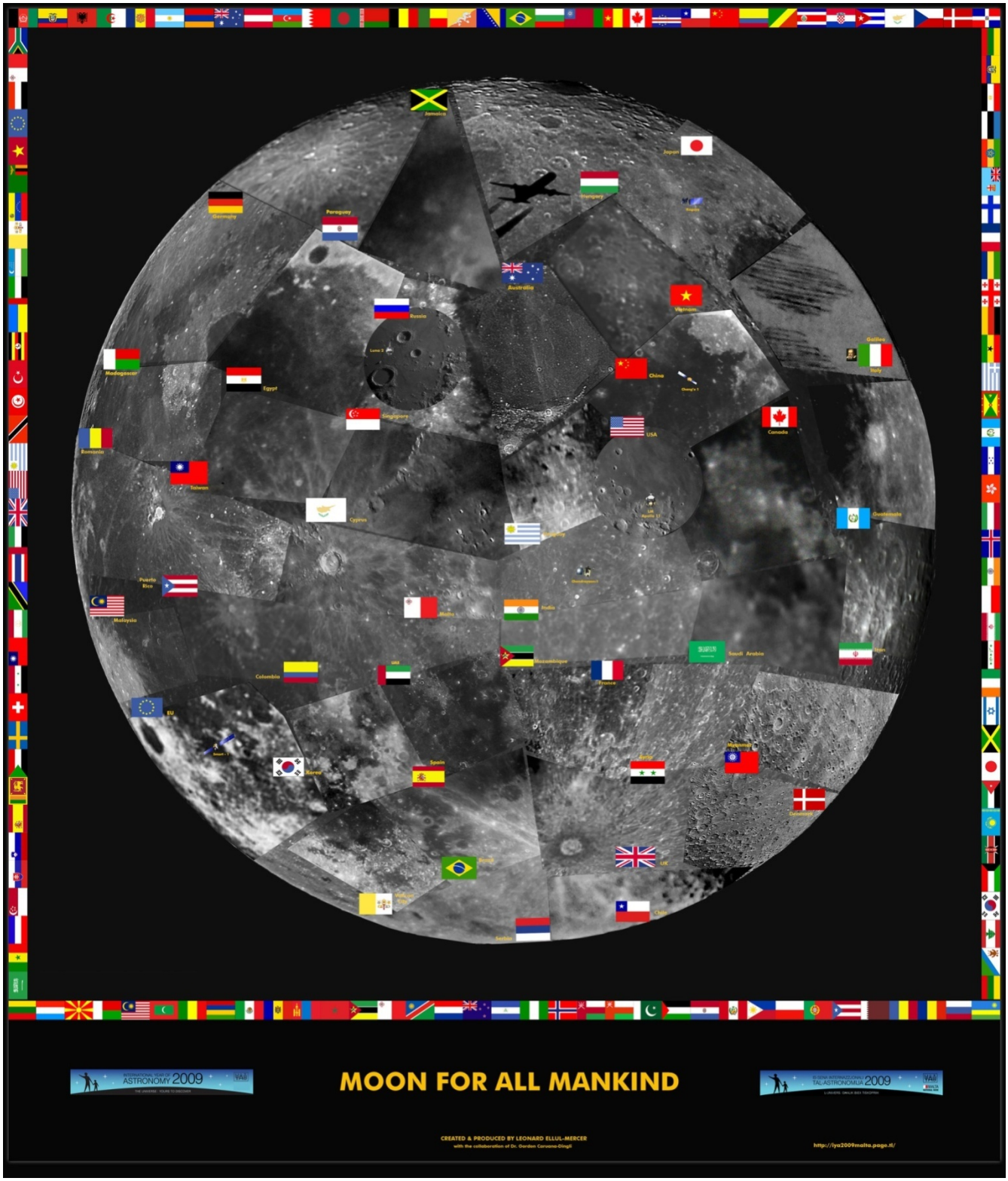
During the committee's early meetings, the chairman Dr Gordon Caruana-Dingli proposed that Malta should coordinate an international project for IYA2009. Mr Leonard Ellul-Mercer, who is a keen astrophotographer, had long wished to produce an astronomy image involving various countries. After discussions with Dr Alex Gatt, Dr Caruana-Dingli proposed forming an image of the Moon composed of images taken by countries all over the world. Mr Ellul-Mercer then divided an image of the Moon into numbered segments and all IYA2009 Single Points of Contact with an e-mail address were invited to take part. The response was overwhelming, with 40 countries submitting images from five continents — one country for every year that has passed since Apollo 11 landed on the Moon! Most of the images were taken during the May or June full Moons of 2009, but some were far older, such as Italy's 400 year-old sketch by Galileo Galilei. The IYA2009 Malta committee also included an image from the European Space Agency's SMART-1 spacecraft. These images were then painstakingly processed and pasted as a collage on the background of a full Moon imaged by Mr Ellul-Mercer. This took up many hours of Mr Ellul-Mercer's time, especially after he decided to produce an audiovisual production of the project. Lynn Faure specifically composed and played the music for the animated feature.

The project commemorates the Russian Luna 2, which was the first unmanned spacecraft to land on the Moon. The Moon For All Mankind also commemorates the Apollo programme that culminated in the first manned lunar landing on 20 July 1969, followed by another five landings. Other countries that have launched spacecraft to the Moon include Japan, Europe, China and India. These probes are also featured in the image.
The font used in the project is Futura, the same font used on the plaque that was fixed to the Apollo 11 lunar module Eagle, which read: "*HERE MEN FROM THE PLANET EARTH FIRST SET FOOT UPON THE MOON JULY 1969, A.D. WE CAME IN PEACE FOR ALL MANKIND*"

This served as the inspiration for our project, The Moon For All Mankind.

Organisers: IYA2009 Malta committee, Leonard EllulMercer, Gordon Caruana Dingli and people from 40 countries.

Website: http://iya2009malta.page.tl/The-Moon-for-all-mankind.htm




Estimated number of people who attended or were reached by this activity: unknown.

## IYA2009 Malta Competition The Universe – Yours to discover: Students Exhibition

Category A

Primary school students aged 7 to 11. Students are asked to draw an original picture (on an A4 paper). The drawing may show the beauty of the universe, its diversity, the Universe as an orderly and harmonious system, the human interaction with the universe, any historical aspect or other similar themes.

### Category B

Early secondary school students aged 12 to 13. Students are asked to prepare an elearning presentation using PowerPoint presentation software (max 15 slides). The theme should be any aspect of the universe, including the human interaction with the universe, the universal heritage of the universe, the universe as an orderly and harmonious system, any historical aspect, a personal experience or other similar themes. The presentation should be original, attractive, innovative and informative in all its aspects. Its target audience should be other students of the same age group.

### Category C

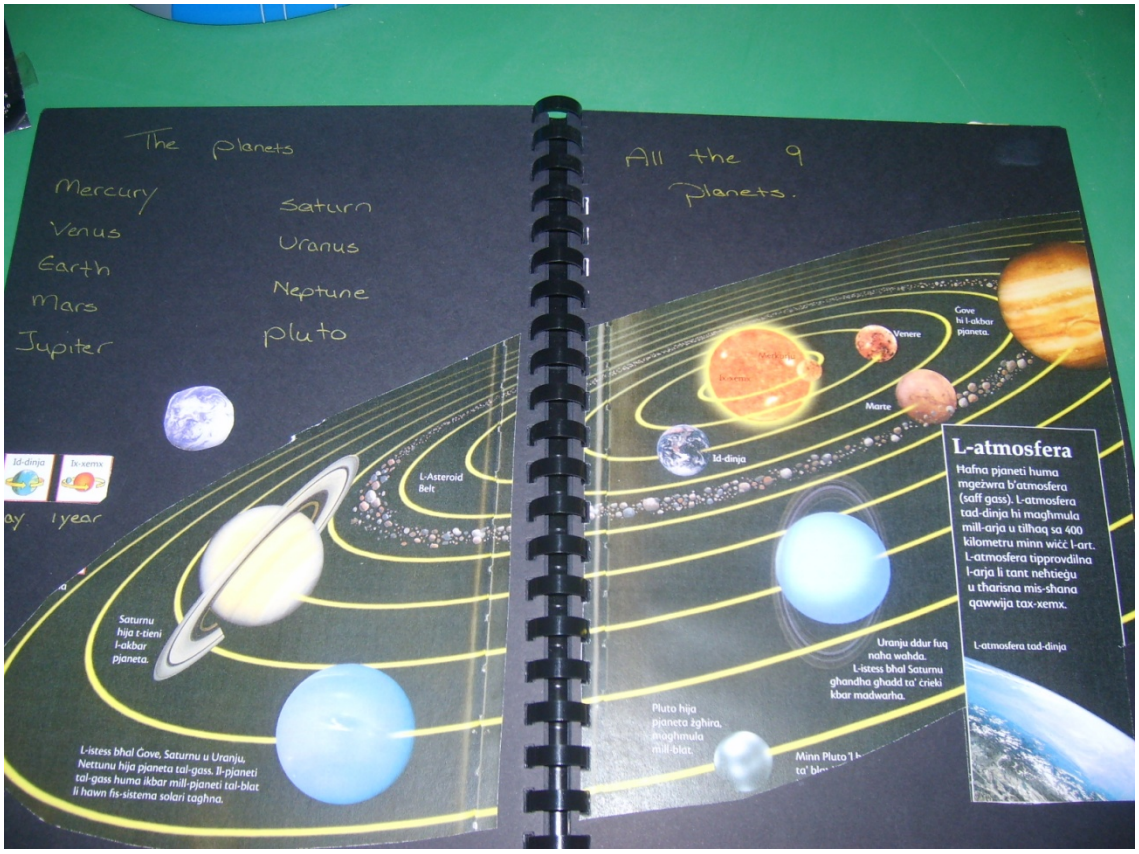
Secondary school students aged 14 to 16. Students are asked to prepare an elearning presentation software (max. 25 slides). The theme may include any aspect of the universe, the universal heritage of the universe, the universe as an orderly and harmonious system, any historical aspect, a well known scientist in the field, a personal experience or other similar themes. The presentation should be original, attractive, innovative and informative in all its aspects. Its target audience should be other students of the same age group.

### Participation

560 entries from 25 primary schools have participated in the Drawing competition and 180 entries from 20 secondary schools have participated in the PowerPoint Presentation competitions organized by the Curriculum Management and eLearning Department with the Directorate for Quality and Standards in Education and the Secretariat for Catholic Education.

Judging in each category was not an easy task. A number of teachers from different schools specialized in the areas related to the respective category volunteered to judge the entries. Members of the International Year of Astronomy Malta Committee also gave a helping hand.
More than a competition, this evening was a manifestation of the talents and capabilities of our students in Art, Information Technology and Science.




The planets
Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune
pluto
All the 9
Planets.
Id-dinja
Ix-xemx
ay 1year
L-Asteroid Belt
Saturnu hija t-tieni l-akbar pjaneta.
L-istess bhal Gove, Saturnu u Uranju, Nettunu hija pjaneta tal-gass. Il-pjaneti tal-gass huma ikbar mill-pjaneti tal-blat li hawn fis-sistema solari tagħna.
Venere
Gove hi l-akbar pjaneta.
Marte
Id-dinja
L-atmosfera
Hafna pjaneti huma mgeżwra b'atmosfera (saff gass). L-atmosfera tad-dinja hi magħmula mill-arja u tilħaq sa 400 kilometru minn wiċċ l-art. L-atmosfera tipproteġina l-arja li tant nehtieġu u tħarisna mis-shana qawwija tax-xemx.
L-atmosfera tad-dinja
Uranju ddur fuq naha waħda. L-istess bhal Saturnu għandha għadd ta' ċrieki kbar madwarha.
Pluto hija pjaneta żgħira, magħmula mill-blat.



Presentation of prizes

## Reaching For The Heavens: Closing ceremony of IYA2009 Malta

Reaching For The Heavens: Closing ceremony of IYA2009 Malta combined with an exhibition and talks on astronomy and space travel at the Chinese Cultural Centre, Valletta, Malta.

The final event in this astronomy year was held at the magnificently restored Chinese Cultural Centre in Melina Street, Valletta. An exhibition “Reaching for the Heavens” featured images taken by Maltese astrophotographers and images of the Chinese manned spaceflight programme. It was opened by the Hon Parliamentary Secretary Dr Jason Azzopardi on 1st December 2009.

There was also a series of talks. On 10th December at 7pm Professor Frank Ventur discussed ‘Galileo Galilei and the rise of modern Science’ followed by Leonard Ellul Mercer who delivered a talk and presentation on Astrophotography. On 17th December Gordon Caruana Dingli discussed manned spaceflight to the moon, Mr Tony Tanti talked about the sun and Perit Alexei Pace discussed the moon.



Mr Zheng Hao, Director China Cultural Centre; Mr Saviour Grech, President Astronomical Society of Malta; the Hon Jason Azzopardi, Parliamentary Secretary for Revenue and Lands and Dr Gordon Caruana Dingli, Chairman IYA2009 Malta committee.



Dr Gordon Caruana Dingli, Mr Zheng Hao, Hon Dr Jason Azzopardi and Mr Saviour Grech.





# Mauritius

## National Node

Sarojiny Saddul-Hauzaree
The Mauritius Astronomical Society
sarojiny@intnet.mu

Official Languages

- English
-

Number of organising committee members: N/A

Population: 1 288 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Mauritius

In Mauritius, the celebration of IYA was coordinated through the Mauritian National Committee for the International Year of Astronomy 2009 under the chairmanship of Sarojiny Saddul-Hauzaree. The committee comprises of representatives from:

- Mauritius Institute of Education
- Ministry of Education and Human Resources
- Ministry of Tourism, Leisure and External Communications
- Mauritius College of the Air
- Ministry of Environment and National Development Unit
- University of Mauritius
- University of Technology, Mauritius
- Rajiv Gandhi Science Centre
- Mauritius Astronomical Society

# Mexico

## National Node




Silvia Torres-Peimbert (Instituto de Astronomia, Universidad Nacional Autonoma de Mexico)

http://www.astronomia2009.org.mx

Official Languages
- Spanish

Number of organising committee members: 12
- Volunteers: 4
- Paid: 8

Population: 111 211 789

Number of people reached by IYA2009: 250 000

Budget: 250 000€

Sources:
- Public Institutions:
- Universidad Nacional Autonoma de Mexico
- Instituto Politecnico Nacional
- Instituto Nacional de Astrofisica, Optica y Electronica
- Consejo Nacional de Ciencia y Tecnologia
- Academia Mexicana de Ciencias

## General Overview of IYA2009 activities in Mexico

The star parties were a very exciting experience. There had never been such enthusiasm in so many different cities at the same time for a scientific activity. The professional astronomers became acquainted with amateur astronomers and were more in contact with the general public.

The exhibits were very inspiring, and although they were originally planned as a relatively limited activity, they were requested by many groups, and they are still being requested.

The amount of popularisation publications that were triggered by IYA2009 were increased significantly. Astronomy public lectures were requested everywhere.

The cosmowiki project has promoted the formation of many more astronomy clubs in Mexico as well as has served as a point of encounter of many Spanish speaking amateur astronomers. It is clear that the country needs more outreach activities.

## Main Activities

List of Activities:

- Star party — Noche de las Estrellas
- Observations — Reto Mexico
- Dark sky protection — La Ley del Cielo
- Astronomical Publications

- Cosmowiki

## Noche de las Estrellas (Night of the stars)

As part of the “Astronomy & World Heritage” Cornerstone Project Mexico organised a Star party in 26 archeological and historical sites, in 22 states of the Republic, at the same time as the inauguration of IYA2009, on 31 January. Among other activities, there was music, storytellers, exhibitions, workshops, games, lectures and close interaction with astronomers. Altogether. 244 institutions participated, and 706 telescopes were shared with 210,000 observers.

Organisers: Jose Franco and altogether there were 244 organisations involved. Some of them are listed below:

- Universidad Nacional Autonoma de Mexico;
- Instituto Nacional de Antropologia e Historia;
- Instituto Politecnico Nacional;
- Embajada de Francia en Mexico;
- Academia Mexicana de Ciencias;
- Consejo Nacional de Ciencia y Tecnologia;
- Federacion de Alianzas Francesas;
- many state and city governments.

Website: http://www.nochedeestrellas.org.mx/estrellas_w/, http://www.nochedelasestrellas.blogspot.com/









Estimated number of people who attended or were reached by this activity: 210,000.

Budget: 200,000€

## Reto México 2009

Guinness World Record for the largest number of stargazing people. More than 3000 telescopes were set in 41 sites to watch the Moon on 24 October, but many were clouded out. Therefore only 1178 telescopes were taken into account for the Guinness World Record. In many of these sites, star parties took place with exhibitions, workshops and lectures. This activity was also part of the Galilean Nights Cornerstone project.

Organisers: Jose Franco, Instituto de Astronomía- Universidad Nacional Autonoma de Mexico, Instituto Politécnico Nacional, Instituto Nacional de Astrofísica Optica y Electrónica, Alianza Francesa México, Agrupación Mexicana de Distribuidores de Telescopios y Binoculares, Academia Mexicana de Ciencias, Consejo Nacional de Ciencia y Tecnologia, Embajada Francesa, science museums and planetariums, astronomy clubs.

Website: http://www.retomexico2009.org.mx/mexico2009/




Estimated number of people who attended or were reached by this activity: 10,000.

Budget: 200,000€

## La Ley del Cielo (The Law of the Sky)

The State of Baja California passed a law to protect the night sky of the Observatorio Astronomico Nacional at San Pedro Martir. This is a very important step forward in our long standing effort to protect this privileged site. The flourish of activities displayed during IYA2009 gave the final momentum to achieve this goal. This forms part of the IYA2009 Cornerstone project “Dark Skies Awareness”.

Organisers: David Iriarte, Instituto de Astronomía- Universidad Nacional Autonoma de Mexico.

Website: http://aia2009.astrosen.unam.mx/cielo.html

## Astronomical Publications

A special effort was carried out by the astronomers to publish books on astronomically related topics, as well as on Galileo. This effort was also extended to organise conferences that gave rise to publications and to special issues on astronomical topics on science popularisation journals. The results were very encouraging.

Books on astronomical topics:

- “Galileo y el Telescopio, 400 años de ciencia” by H. Domínguez y J. Fierro — Ed. Correo del Maestro (2007)
- “Nebulosas planetarias, maravillas en el cielo” by S.Torres y J. Fierro — Ed. Fondo de Cultura Economica (2009) [
- “La Mirada de Galileo” by S. Biro — Ed. Fondo de Cultura Económica (2009)
- “Al otro lado del telescopio — Los descubrimientos de Galileo” by S. Biro y Bef — Ed. Ediciones SM (2009)
- “Galileo y sus experimentos” by S. Torres y C. Doddoli — Ed. El Correo del Maestro (2009) [6] “La Astronomía en México durante el siglo XIX” — Compiladores: Marco Arturo Moreno y Maria de la Paz Ramos — Ed. Universidad Nacional Autonoma de Mexico (2009)
- “Bibliografia astronomica mexicana” J. B. Iguniz y E. Pina — Ed. Universidad Autonoma Metropolitana (2009)
- “La poesia del Universo — Una exploracion matematica del cosmos” R.Osserman — Ed. Instituto Nacional de Astrofisica, Optica y Electronica (2009)
- “Breve historia de la Astronomía en México” N. Ávila , J. Galindo , M. A. Moreno y A. Poveda . Instituto de Astronomía UNAM/ Dirección General de Divulgación de la Ciencia UNAM. México, (2008)
- “El arte cósmico de Tamayo”. N. Ávila Jiménez,.Instituto de Astronomía UNAM/ Editorial Praxis, con apoyo de Conacyt. México, 2010 (in press)

Conferences on astronomical topics that have lead (or will lead) to publications:

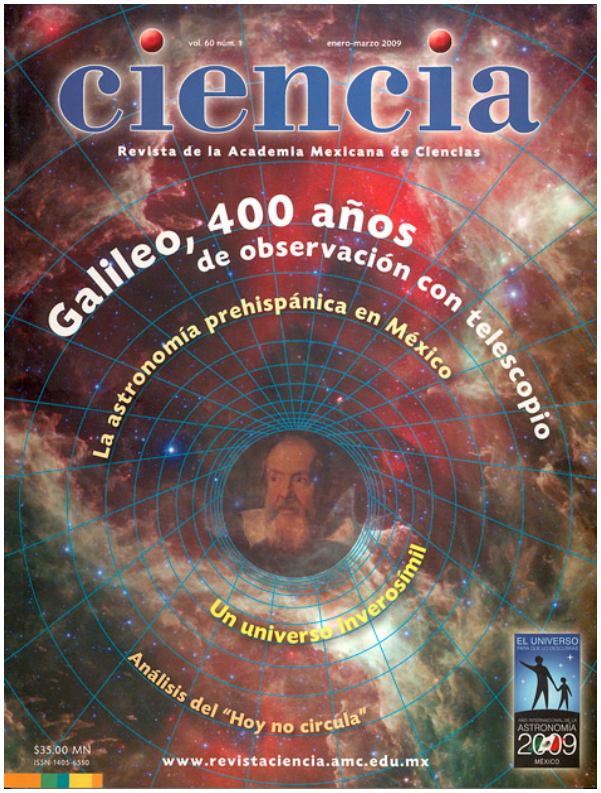
- “Galileo: su tiempo, su obra y su legado” — Compiladores: L. F. Rodríguez y S. Torres — Ed. El Colegio Nacional (2009)
- “Highlights of the Boletin de los Observatorios de Tonantzintla y Tacubaya” Eds. S. Torres-Peimbert and O. Lopez-Cruz, Revista Mexicana de Astronomia (Serie de Conferencias) in preparation.
- “Cantos de Mesoamerica” Ed. D. Flores, Revista Mexicana de Astronomia (Serie de Conferencias) in preparation.
- “El legado astronomico de nuestros antepasados” Universidad Nacional Autonoma de Mexico. Eds. D. Flores, M. Rosado y J. Franco (in preparation).

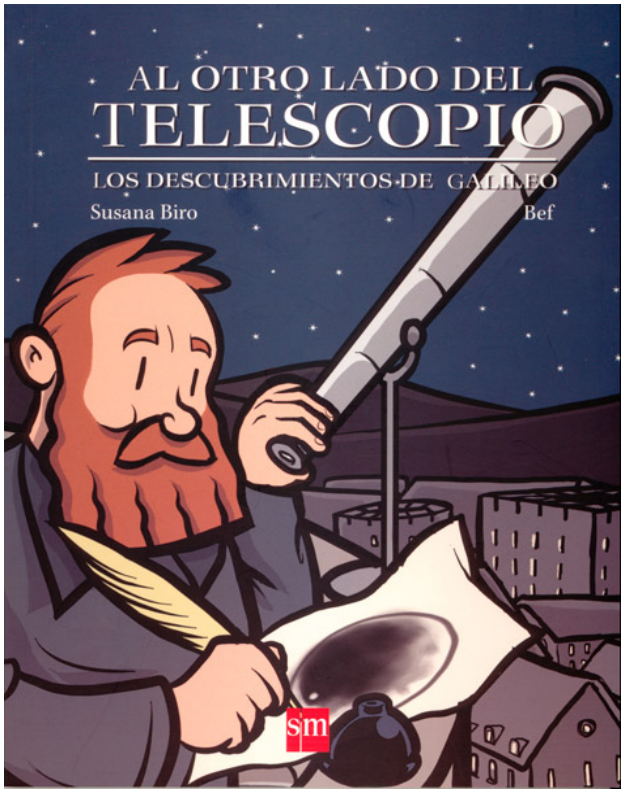
Special issues of science popularization journals:

- “Ciencia — Revista de la Academia Mexicana de Ciencias” — Vol. 60, número 1, enero-marzo 2009, Special issue with the topic “Galileo, 400 años de observación con telescopio” www.revistaciencia.amc.edu.mx
- “Ciencia y Desarrollo — Revista del CONACyT”, enero 2009.
- “Ciencias — Revista de difusión de la Facultad de Ciencias de la UNAM” –Num. 95, julio- septiembre 2009 www.ejournal.unam.mx

Organisers: It was an individual (or group) activity inspired by IYA2009. This list contains all the information available on Mexican publications.

Website: http://www.astronomia2009.org.mx/mexico/difusion/public.htm




Estimated number of people who attended or were reached by this activity: 10,000.

## Honouring astronomers by naming schools

In order to promote astronomy and as part of the celebration of IAY2009 in the State of Michoacan a set of 23 public schools were named as astronomers (some of the astronomers are foreign, while others are national). Of the selected schools there were some at Kindergarten level, while others were at high school level. It is to be noted that the State Government of Michoacan recognises the importance of this science.

Organisers: Yolanda Gomez and Centro de Radioastronomia y Astrofisica — UNAM.

Website: http://www.crya.unam.mx/aia2009/?f=NEscuelas

Estimated number of people who attended or were reached by this activity: 40 000.

## Cosmowiki

A webpage dedicated to organise astronomical activities in Mexico was set up. It is administrated at the Instituto de Astronomía-UNAM and edited by more than 600 users who refresh information regarding events, activities, software, books, links, societies, observatories, images, etc.



cosmowiki

Organisers: Alejandro Farah (IA-UNAM), Alfredo Díaz (IA-UNAM), Enrique Anzures (IA-UNAM), Mario De Leo (Posgrado en Ciencias, IA-UNAM), Roberto Sosa Higareda (Facultad de Ingeniería, IA-UNAM), Juan Venancio Hernández (IA-UNAM).

Website: http://cosmowiki.astroscu.unam.mx/

Estimated number of people who attended or were reached by this activity: 66 558 hits.

## Lessons Learned

- The need for cultural activities is enormous in Mexico, at all economic levels and for all age groups.
- We have learned to better appreciate the amateur astronomer groups.
- We became more proficient in promoting public activities in TV, radio and newspapers.
- The professional community has become more pro-active in writing popularisation publications.

## Legacy

- There are plans to continue coordinated star parties.
- Cosmowiki will continue its operation.



# Moldova

## National Node

Aculinin Alexandru
Institute of Applied Physics
akulinin@phys.asm.md

Official Languages

- Moldovan (Romanian)
-

Number of organising committee members: N/A

Population: 3 567 500

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Moldova

Information not available.



# Monaco

## National Node

Oliver Sodei
president@lions-monaco.com
http://www.lions-monaco.com/

Official Languages

- French
-

Number of organising committee members: N/A

Population: 30 586

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Monaco

Exhibition "*Un ciel pour une planète*", with the high patronage of H.S.H. Prince Albert II of Monaco.





An astronomical exhibit took place last September in Monaco, where amazing images from the astrophotographer Serge Brunier were displayed on the atrium of the renowned Casino de Monte-Carlo. This initiative, in the framework of the International Year of Astronomy 2009, had the patronage of the HRH Prince Albert II de Monaco. A print of the magnificent image of the Milky Way, signed by the HRH Prince Albert II de Monaco and the NASA astronaut Buzz Aldrin, was auctioned in Monaco in order to gather money to help children in Kenya, suffering from extreme poverty and abandonment caused by the severe drought. This event was organised by the Lions Club International of Monaco.

# Mongolia

## National Node

Tsolmon Renchin
National University of Mongolia
tsolmon91@yahoo.com
http://astromongolia.yolasite.com/

Official Languages

- Mongolian
-

Number of organising committee members: N/A

Population: 2 736 800

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Morocco

IYA2009 activities in Mongolia were organised by the Amateur Astronomy Club of Mongolia



The stars under unique Mongolian Dark Sky.



# Morocco

## National Node

Hamid Touma
Morocco Amateur Astronomers / Faculté des Sciences de Rabat
touma@cnr.ac.ma
http://www.raam.ma/

Official Languages

- Arabic

Number of organising committee members: N/A

Population: 31 993 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Morocco


AL AKHAWAYN UNIVERSITY
RAAM
SaharaSky
Astronomical Observatory
L'UNIVERS
ANNÉE MONDIALE DE L'ASTRONOMIE 2009
Organisent
A l'occasion de l'année mondiale d'astronomie 2009
La 1ere Rencontre des Jeunes Astronomes du Maroc
sous le Théme
Ciel de Sahara à découvrir
Du 13 au
15 Novembre 2009
Conferences,Nuit des étoiles
à l'observatoire Sahara Sky
Sponsorisé par :
KASBAH HOTEL
SaharaSky


RéMECS
الشبكة المغربية للتربية
والثقافة العلمية
شبكة الفلكيين
الهواة بالمغرب
السنة الدولية لعلم
الفلك
2009
الكون ـ حولنا لنكتشفه
L'UNIVERS
2009
ANNÉE MONDIALE DE
L'ASTRONOMIE
UNESCO
IAU


دعوة
يتشرف السادة سمير القادري
رئيس الشبكة المغربية للتربية والثقافة العلمية
وحميد تومة رئيس شبكة الفلكيين الهواة بالمغرب
بدعوتكم لحضور حفل إنطلاق
فعاليات السنة الدولية للفلك 2009.
يقام هذا الحفل يوم السبت 14 فبراير 2009
على الساعة التاسعة والنصف
بالمكتبة الوطنية بالرباط
(قرب ملعب الفتح الرباطي بأكدال).
- الدعوة مفتوحة -


Johannes Kepler (1571-1630)


مجموعة مدارس سيدي الغريب
معرض الفلك
تنظم معرضا للفلك


2009
La Lune : notre satellite




الشاوية وردية ، نيابة إقليم سطات ،
الأساتذة المنخرطين في النادي الفلكي الجهوي
أستاذ بكلية العلوم
حميد توما ،
20 يونيو 2009
يوم السبت


Banate
Al Naâche
Al Koubra


Constellations & Mythologies
Pr Hamid TOUMA
Réseau des Astronomes Amateurs du Maroc
www.raam.ma
GSM: 06 11 73 91 87
جهة الشاوية وردیغة ، نیابة إقلیم
لفائدة الأساتذة المنخرطين في النادي الفلكي
البروفسور حميد توما ، أستاذ بكلية العلوم
2009 يونيو 20 السبت


OBSERVATOIRE RIBAT AL FATH
ASTRONOMIE
L'observatoire à 10 ans
1999 - 2009
Samedi 28 mars
à partir de 18h
Observatoire Ribat Al Fath
RAAM
SOIRÉE
PORTES OUVERTES
L'UNIVERS
DÉCOUVREZ SES MYSTÈRES
ANNÉE MONDIALE DE L'ASTRONOMIE 2009
Séances de planétarium
conférence • observation
Tout public • entrée libre
ADAL Educ
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السنة الدولية
لعلم الفلك 2009
الكون لك لتكتشفه
Sun
الشاوية وردیغة ، نیابة إقلیم سطات ،
الفائدة الأساتذة المنخرطين في النادي الفلكي الجهوي
أستاذ بكلية العلوم بالرباط


Le cortège solaire
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مدرسة قوس قزح الكبير
روضة
إبتدائي
إعدادي






Institution
Souissi







# Mozambique

## National Node

Claudio Moises Paulo (Universidade Eduardo Mondlane)

http://astromozaia2009.weebly.com

Official Languages
- Portuguese

Number of organising committee members: 8
- Volunteers: 5
- Paid: 3

Population: 22 894 000

Number of people reached by IYA2009: 5000

Budget: 5000 €

Sources:
- Donations
- Some national institutions

## General Overview of IYA2009 activities in Mozambique

In general, the IYA2009 activities in Mozambique were very good and well received by students, teachers and the Government.

## Main Activities

### List of Activities

- 24 April (Portuguese School): First Star Party.
- 29 and 30 May (Portuguese School): Night with the Planets.
- 4 June (Physics Department UEM): Talk by Valerio Ribeiro.
- 2 to 22 de September: Using meteorites to promote astronomy in Mozambique: 3 Universities and 4 Schools were visited; Science and Technology Fair.
- 23 October: Night with Galileo.
- Several radio and television programs throughout the year.

### Using meteorites to promote astronomy in Mozambique

Using meteorites to promote astronomy in Mozambique was the best programme during IYA2009. We made it in collaboration with Brazil. We had one Brazilian astronomer in our country that came with FETTU posters, some meteorites and a telescope. From 2 to 22 September we visited many universities and secondary schools.

Organisers: Claudio Moises Paulo and Paulo Oliveira.

Website: http://astromozaia2009.weebly.com

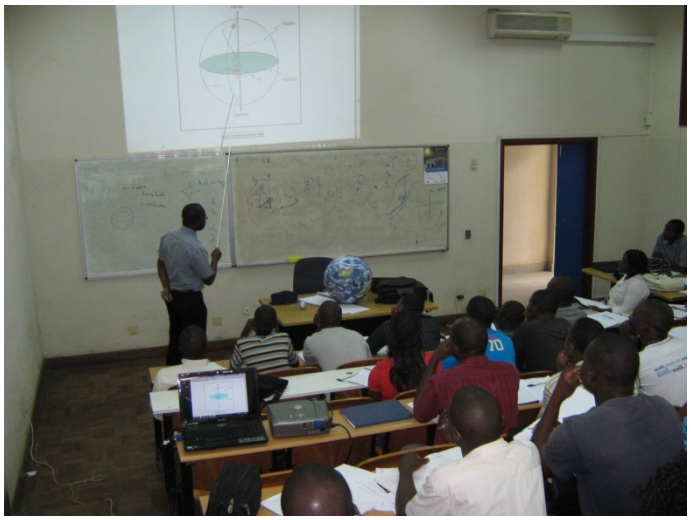
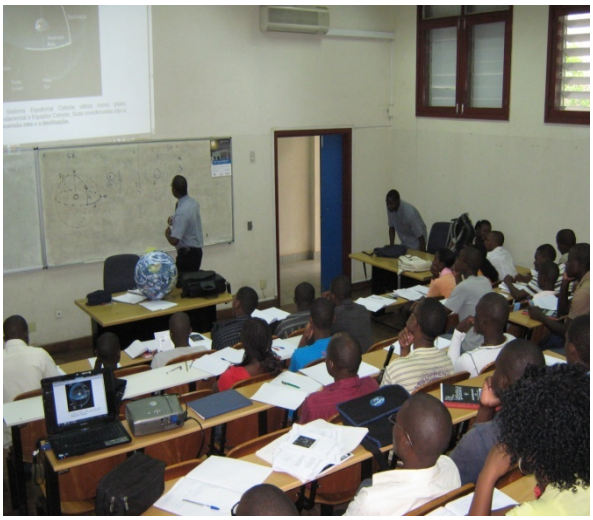





Estimated number of people who attended or were reached by this activity: 2500.

## Lessons Learned

We found that when there is no money to do the promotion of science in general, it's important to start doing so without any support in order to motivate who can help. In Mozambique, we started our activities without the support of the Government, but now we are have the Government's interest. We are designing a National Plan for Astronomy and we are having Astronomy as a Unity in one university.

## Legacy

We will keep promoting astronomy in our country.



# Myanmar

## National Node

Thaik Htun
Myanmar Astronomy & Science Enthusiasts Society
boothee@gmail.com
http://www.facebook.com/myanmarastronomy

Official Languages

- Burmese
-

Number of organising committee members: N/A

Population: 50 020 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Some impressions of IYA2009 activities in Myanmar




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TOTAL Learning Academy



# Namibia

## National Node

Riaan Steenkamp
Department of Physics / University of Namibia
riaan.steenkamp@gmail.com

Official Languages

- English
-

Number of organising committee members: N/A

Population: 2 108 665

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Official Launch of the IYA2009 and NAMSCI2009

The Minister of Education officially launched both the NAMSCI and IYA2009 officially in Windhoek, including:

- Official opening – Hon. Minister
- Keynote lecture on astronomy – e.g. prominent person in astronomy or an astronaut from NASA.
- Showcase DVD on Namibia's contributions to astronomy
- Laser show — CSIR

### 30 Minutes of astronomy in Namibia

This is a 30 minutes DVD/Video production on Namibia's contribution to astronomy. The DVD/video showcases Namibia's astronomy sites such as HESS, China Manned Space etc their importance to the Namibian society, and how they relate globally.

### Stargazing Party at HESS

The party on the night of 29 May 2009 provided an opportunity for everyone to observe the sky and the universe through a telescope, most of them for the first time. The objective was to share this observational and personal experience with as many people as possible.

### Learners astronomy outreach to HESS

The outreach activity took place during June 2009 in HESS. The aim was to expose teachers, especially from underprivileged schools to the beauty of Namibia's astronomy sites.

### Teachers Workshops on astronomy

The series of workshops on astronomy were implemented during the National Science, Engineering and Technology Week from the 29 June through 03 July 2009 in Windhoek. Similar workshops were organised outside the city of Windhoek, in the towns of Oshakati and Katima Mulilo during the week of 22 to 26 June 2009.

## Career talks on astronomy

What is it like to be an astronomer? Local professionals shared their life, work, experiences, challenges they face etc with the learners. A Namibian born working astronomer Dr. Jappie van Zyl who works for NASA gave this talk.

## Teachers Workshop on Astronomy

The teacher's workshop provided an excellent opportunity to engage the school teachers and subject advisors in the excitement of astronomical discovery for them to improve the teaching of science in classrooms around the country. The workshop was organised under the Galileo Teacher Training Programme and attracted around 100 teachers/ advisors from the 13 regions of Namibia.



# Nepal

## National Node

Jayanta Acharya (Nepal Sanskrit University)

http://www.astronepal.org.np/astronomy2009/

Official Languages
- Nepali

Number of organising committee members: 5
- Volunteers: 5
- Paid: 0

Population: 29 331 000

Number of people reached by IYA2009: 2000

Budget: 1000€

Sources:
- Personal of SPOCs

## General Overview of IYA2009 activities in Nepal

In Nepal IYA2009 is very important and it has created a grass root level approach to the astronomy and space science.

## Main Activities

### List of Activities

- Star parties;
- Trainings;
- Public talks.

### Star parties

Star party is most famous in Nepal. Many people participated in the parties.

Organisers: Astronepal, Takshashila Academy, Balmikee Campus

Website: www.astronepal.org.np

Estimated number of people who attended or were reached by this activity: 1500.

Budget: 500€

### Training for school teachers

Training is very useful for Nepali science teachers.

Organisers: Astronepal, NASo.

Website: www.astronepal.org.np

Estimated number of people who attended or were reached by this activity: 200.

Budget: 500€

### Public Talk

Public talks are rare for the Nepali audience and many students and general people asked us many questions about the sky, planets, stars, and galaxies.

Organisers: Astronepal, Takshashila Academy, NASo.

Website: www.astronepal.org.np

Estimated number of people who attended or were reached by this activity: 500.

Budget: 300€

## Legacy

IYA2009 activities will continue Beyond 2009 in Nepal.

# Netherlands

## National Node

Jan Lub and Marieke Baan
NOVA/University of Amsterdam
h.m.baan@uva.nl
http://www.astronomy2009.nl/

Official Languages
- Dutch
-

Number of organising committee members: 10
- Volunteers: 9
- Paid: 1

Population: 16 604 118

Number of people reached by IYA2009: 100 000

Budget: 100 000€

Sources:
- NOVA
- University of Amsterdam
- University of Leiden
- University of Utrecht
- University of Groningen
- University of Nijmegen
- NOW
- Astron
- Sron
- NAC

## Main Activities

List of Activities:
- Weekend of the Stars, Science Center NEMO
- Planetarium show and lectures/Van Gogh Museum/Starry Night
- Missie Maan
- Exposition in Museum for Astronomical clockworks
- The infrared Universe (Herschel-HIFI project: truck, contest)
- FETTU/Amsterdam
- Astronomy week on digital TV
- Books/astronomy calendar
- Film Spiral Galaxy
- Expo First Light in Photography Museum Huis Marseille
- Senior Fair
- Keys to the Stars, Grieg Piano Duo & Peter Barthel/world premiere of Urmas Sisask
- Historical dance from the time of Galileo
- Stamps
- Research competition for secondary schools
- Lecture contest for young astronomy students

## Weekend of the Stars

Weekend with activities for children & parents in science centre NEMO in Amsterdam during the 100 hours of Astronomy.

Organisers: NOVA, NEMO, NAC and NOW

Website: http://www.astronomy2009.nl/index.php?option=com_content&task=view&id=230&Itemid=1

Number of people reached: 7500

Budget: 40 000 €







## 50 Plus Beurs

Biggest senior fair in the world.

Website: http://www.50plusbeurs.nl/

Number of people reached: 100 000 visited the 5 days event from 16-20 Sept. 2009

Budget: 2000 €



## First light: Photography & Astronomie

Big exposition in photography museum Huis Marseille in Amsterdam.

Organisers: Huis Marseille/Ova/NOVA

Website: http://www.astronomie.nl/nieuws/1612/first_light:_fotografie__astronomie_6_maart_-_30_mei_2010.html

Number of people reached: 7500



# New Zealand

## National Node

Marilyn Head (Royal Astronomical society of New Zealand)

www.astronomy2009.org.nz

Official Languages
- English
- Maori

Number of organising committee members: 0
- Volunteers: 1
- Paid: 0

Population: 4 366 968

Number of people reached by IYA2009: 200 000

Budget: Unknown €

## General Overview of IYA2009 activities in New Zealand

With the excellent support of the global IYA2009 Secretariat led by Pedro Russo, IYA2009 proved to be an eventful year for astronomy in Aotearoa New Zealand, more than fulfilling its aim of introducing people to the science and thrill of astronomy and a better understanding of our place in the Universe. Roland Idacyzk's setting up of the website, with RASNZ support, gave us a fantastic communications tool right from the start. It was wonderfully extended and maintained by the Canterbury University Masters student, Chris Henderson, who managed to distil a huge amount of disparate information into a coherent and user-friendly site throughout the year. Another year-long contributor was University of Canterbury Prof. John Hearnshaw whose "astroblogs" were a popular feature of the Cosmic Diary project, and Dr Karen Pollard was part of the Women in Astronomy IYA2009 project. Aotearoa NZ was represented at the Opening Ceremony at UNESCO in Paris by Tawa College student Stacey Kalinnikova, Yvette Perrott from Auckland University and retired University of Canterbury Professor William Tobin.

Local astronomical societies were the backbone of IYA2009, providing numerous opportunities for the public to share in the thrill of observing though a telescope, appreciating Aotearoa's dark skies and learning more about local starlore, science, and cosmology. Almost every society made a special effort to organise events, lectures and workshops, in addition to the truly remarkable effort made with the global 100 Hours of Astronomy, brilliantly orchestrated by Jennie McCormack.

With over 70 sites (more than any other country) it was not surprising that a New Zealand group, the Levin Stargazers, coordinated by Ron Fisher, won the IYA2009 Community Outreach award. However, from the number of glowing recommendations received for Certificates of Appreciation for IYA2009, it is clear that this was one of a huge number of collaborative and imaginative events which combined astronomy with music, radio, film, theatre, rockfests, libraries, community groups, schools — multi-media extravaganzas which were appreciated by the public just as much the more direct, sidewalk astronomy approach.

Radio New Zealand co-produced with RSNZ a wonderful series of lectures for National Radio, and also an evocative and moving series "The Stars Are Comforting", featuring Beatrice Tinsley's letters. A curious consequence of the latter is that Beatrice Tinsley's name has been put forward to the National Geographic Board as a candidate for a remote mountain in the South Island. Other artistic achievements were David Hill's publication

of “Fire on High” an astronomical thriller for teenagers, Richard Hall’s superb IYA2009 Poster which featured at the IAU conference in Brazil, Poet Bill Manhire’s marvellous poem about John Herschel in Dark Matter: Poems about space edited by Jocelyn Bell Burnell, NZ photographer Max Alexander’s portraits of British astronomers and, on a more scientific note, Fulvio Melia’s cracking account of Roy Kerr’s “Cracking the Einstein Code” and John Hearnshaw’s meticulously researched and finely written “Astronomical Spectroscopes and Their History”.

## Main Activities

### List of Activities

1. 100 Hours of Astronomy
2. Galilean Nights
3. Public lectures including invited international astronomers
4. RASNZ conference
5. Star parties/Observing
6. Cosmic Diary
7. Website contributions
8. Press Releases
9. The Stars Are Coming — Radio dramatisation series
10. Opening of NZ’s first professional Radio telescope
11. Primary School publication
12. Opening of Bootes-3
13. Various arts/history/cultural collaborative events
14. Journey to the Moon — Apollo presentations
15. Several Stardates
16. Matariki Maori New year — festivals
17. Telescope, Astrophotography etc workshops
18. Cosmic Diary — Prof. John Hearnshaw, Universtiy of Canterbury

### The Stars Are Comforting

A 20 part radio NZ series featuring the letter of Beatrice Tinsley.

Organisers: Adrienne Baron.

Website: http://www.radionz.co.nz/concert/programmes/appointment/thestars

Estimated number of people who attended or were reached by this activity: 44,000.

### Space Radio Event

The Space Radio event at the Foxton audio visual museum — art, music, film, information, telescope viewing canvassing such questions as Are we alone in the Universe? Is there music coming from space? And can we hear the Big Bang?

Film premiere of movie of the planets, produced by Haritina Mogosanu, using the latest sounds and pictures from NASA and Space on the Silver Screen — a fascinating screening compiled from the New Zealand Film Archives.

Organisers: Levin Stargazers.

Website: http://www.facebook.com/group.php?gid=119550171335

Estimated number of people who attended or were reached by this activity: 200.

### Wellington Library Series

1–21 August 2009

Lecture series taking place in cities throughout New Zealand in August. Produced by Radio New Zealand in partnership with the Royal Society of New Zealand.

11 August, Auckland
The Mystery of the First Stars. Dr Grant Christie MNZM, Research Astronomer, Stardome Observatory.

12 August, Hamilton
The Political and Philosophical uses of Galileo's Telescope. Associate Professor Ruth Barton, The University of Auckland.

19 August, Christchurch
Comets and Asteroids: clues to our origin and threats to our survival. Professor Jack Baggaley FRAS FRSNZ, University of Canterbury.

20 August, Lake Tekapo
The search for other planets, other life. Alan Gilmore, Mt John Observatory, University of Canterbury .

21 August, Timaru
Neutrinos — ghosts of the Universe. Dr Jenni Adams, University of Canterbury.

Further details for all these lectures are available on the Royal Society website.

Organisers: Glenda Lewis, RSNZ, RadioNZ.

Website: http://www.astronomy2009.org.nz/galileo-lecture-series/

Estimated number of people who attended or were reached by this activity: 100,000.

### 100 Hours of Astronomy

70 sites in NZ.

Organisers: Jennie McCormick.

Estimated number of people who attended or were reached by this activity: 5000.

## Lessons Learned

In hindsight I would have been more insistent on having a formalised organising committee which included representatives from the universities, Ministries of Science & Education, RSNZ, RASNZ, and affiliated societies to support my position, which was thrust upon me, as SPoC. As someone outside both govt. and academic institutions it was impossible to raise funding/commitment to leverage the public profile and interest in IYA2009 that the local astronomical societies so ably built and some of the more compelling projects foundered for lack of sufficient infrastructure and funding to support them, including a FETTU installation which failed at the last minute for the sake of a very small funding shortfall. Funding for a programme coordinator was my recommendation two years before IYA2009 and it would still be my first recommendation as there is only so much that volunteers, and those working full time, can do outside working hours. It takes time to line up all the funding, timing, publicity, relationships etc for events aIn Aotearoa however, the do-it-yourself ethos is very strong! The website was very useful and was set up early so more use could have been made of it I think. We did get some good coverage of press releases.

The public lectures and a dramatisation of Beatrice Tinsley's letters broadcast on National Radio were very successful, and were funded and organised relatively independently; similarly links were made (and encouragement given ) to some astronomy-related publications, and also with other artists, musicians, filmmakers etc. I think there were useful links made to IYA2009 which collectively were important. The relationship built up with libraries and librarians was very important in some areas — even more so than schools which was surprising — and this would be well worth pursuing again. IYA2009 did highlight the amazing creativity, hard work and passion of local astronomers: more attention could be given to coordinating activities from the outset so that societies could support each other and share the cost and development of resources rather than each one reinventing the wheel. National leadership is needed.

## Legacy

We're working on it — we would like to link it to the Transit of Venus in 2012 where we think there are similar opportunities for public outreach, Cook's voyage for the 1769 Transit was very significant for Aotearoa NZ! We again realised the huge gap we have with reaching into schools and contacting teachers and we will try yet again to address this.

## Comments

I enjoyed the journals etc. which were sent and would have liked to have seen such material more widely available in newspapers, journals etc. I imagined the press particularly would have been encouraged to have e.g. syndicated regular night sky features throughout IYA2009.

More regional meetings that were close enough to be affordable would have been useful — a special plea for Australasia.



# Nicaragua

## National Node

Javier Pichardo Ramírez (UNAN)
javierpichardor@yahoo.es
www.astronomia2009.unan.edu.ni

Official Languages
- Spanish
- Miskito

Number of organising committee members: 10
- Volunteers: 5
- Paid: 5

Population: 5 891 199

Number of people reached by IYA2009: 4000

Budget: 4000€

Sources:
- Projects Developing Astronomy Globally (DAG)
- South African Astronomical Observatory
- UNESCO
- UNAN-Managua

## General Overview of IYA2009 activities in Nicaragua

We hope to count on the financial support of different organisations to achieve objectives so teachers of physics and sciences can receive courses to fulfil their educative functions in the classroom to improve education and knowledge in our country.

## Main Activities

### List of Activities

- 6 Talks about Astronomy
- Directed to: elementary school, high school and university teachers.
- Participants: 30 in average with a total of 181
- Funded: Faculty of Sciences/UNAN-Managua
- Course-workshop on Astronomy and Astrophysics topics
- Directed to: students of superior level from Normal School for Teachers
- Normal School of Managua, school for teacher training
- Participants: 88
- Funded: Faculty of Sciences/UNAN-Managua
- 3. First workshop of training on Astronomy and Astrophysics topics
- Participants: 42
- Funded by: Projects Developing Astronomy Globally (DAG) South African Astronomical Observatory (€ 960 Euros) y la Facultad de Ciencias/UNAN-Managua (C$ 500 American Dollars)

## First Workshop of Training on Astronomy and Astrophysics Topics

To mark this celebration different international organisations provided supporting. Especially organisations include: UNESCO, IAU, DAG, etc. Our country managed to introduce a project for developing the education area on topics of astronomy. The project was accepted and funded by Developing Astronomy Globally (DAG) with €940 for material purchases, financial assistance, food and accommodation for 30 teachers from different regions of Nicaragua.

When we were informed about this financing , I decided to apply for a project for high school teachers that give physics classes in Managua. My motivation was the new curricular transformation that is set up in an experimental way in some schools in Nicaragua. Another motivation was deficiency in the teaching of basic concepts of astronomy. I wish teachers to receive this course as it will be of great use in the classroom and students from high school and elementary school will benefit.

Organisers: Astronomical Observatory of UNAN-Managua.

Website: www.unan.edu.ni/oaunan/oaunan.php y/o www.astronomia2009.unan.edu.ni

Estimated number of people who attended or were reached by this activity: 42.

Budget: 1290€

## Course-Workshop of Astronomy and Astrophysics

This was a workshop directed to our next high school teachers that are studying from different regions of Nicaragua. The contents of the workshop correspond with astronomy topics that exist in programmes of education for elementary school.

Organisers: Astronomical Observatory of UNAN-Managua.

Website: www.unan.edu.ni/oaunan/oaunan.php y/o www.astronomia2009.unan.edu.ni

Estimated number of people who attended or were reached by this activity: 88.

Budget: 370€

## Visits of High Schools to Astronomical Observatory of UNAN-Managua

This project is an integral form of nonfiction and popularisation of astronomy and astrophysics that will develop the Astronomical Observatory of UNAN-Maangua. We receive three schools per week with 50 students and three teachers. During their visit , students and teachers will receive conferences about astronomy and astrophysics with academic practices and astronomical observations.

Organisers: Astronomical Observatory of UNAN-Managua.

Estimated number of people who attended or were reached by this activity: 3200.

Budget: 370€

## Talks about Astronomy and Astrophysics

We gave six talks with topics about Astronomy History, General Relativity, Exoplanets and more topics about Astrophysics. Conferences were given by teachers from Astronomical Observatory of UNAN-Managua with amateur astronomers, aimed at students and general public.

Organisers: Astronomical Observatory of UNAN-Managua.

Estimated number of people who attended or were reached by this activity: 500.

Budget: 5000€

## Lessons Learned

Different organisations that work on astronomy must plan as a whole to maximise the resources we obtain.

## Legacy

We will to continue working and developing the activities from last year.

## Comments

Only we send a description about activities at Astronomical Observatory of UNAN-Managua, but we do not have it about others organisations like ANASA and ASTRONIC.

# Nigeria

## National Node

Pius N. Okeke
National Centre for Basic Space Science / University of Nigeria
piusokeke2002@yahoo.com

Official Languages

- English
-

Number of organising committee members: N/A

Population: 158 259 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

List of Activities:

- Press conference hosted by the President of Nigerian Astronomical Society and National Node Chair Prof. P.N. Okeke.
- Construction and Distribution of locally made optical telescopes to schools in Nigeria.
- Open Session with Planetarium.
- A night with a 25cm optical telescope
- Regular Talks on Astronomy and Space Science to higher schools.
- Occasional Symposium
- Monitoring of Lunar and Solar eclipses for students and the public.
- Distribution pamphlets
- Publications in CBSS Newsletter and National papers.



# Norway

## National Node

Håkon Dahle
Institute of Theoretical Astrophysics
hdahle@astro.uio.no
http://www.astronomi2009.no/

Official Languages

- Norwegian
-

Number of organising committee members: 5

- Volunteers: 3
- Paid: 1.7 Full Time Equivalent

Population: 4 898 800

Number of people reached by IYA2009: 1 000 000

Budget: 375 000 €

Sources:

- University of Oslo
- Norwegian Research Council
- Norwegian Centre for Science Education
- Norwegian Space Centre
- Norwegian Academy of Science and Letters

## General Overview of IYA2009 activities in Norway

The Norwegian IYA2009 node had two paid positions, totalling a full-time equivalent of 1.5. A small group of astronomers contributed on a voluntary basis. Despite struggling with lack of manpower and financial support, we are proud and happy to have fulfilled so many of our original and ambitious goals. We here present our main efforts and activities.

## Main Activities

- 15 000 galileoscopes distributed to schools
- 20 000 educational booklets produced by the Norwegian node distributed to schools
- Competition for schools and the general public
- Stargazing nights
- Courses for teachers
- Photo exhibitions in several cities
- Popular science presentations
- TV presentations and articles in newspapers
- Web page with news about astronomical research, celestial events, IYA-related projects etc.

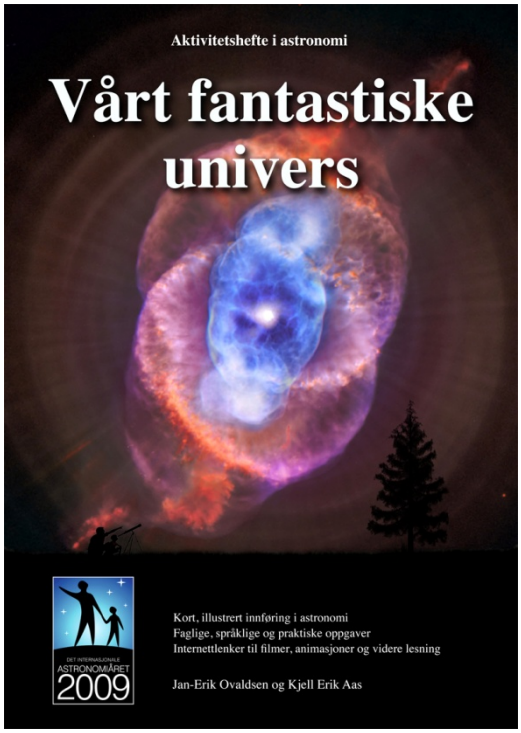
### 15 000 Galileoscopes to Norwegian school children

Norway ordered more telescopes than any other country, except the United States Brazil. 15,000 units are impressive, especially considering Norway's population of only 4.8 million. In fact, our order accounted for 25 % of the first production batch. The Galileoscopes were provided free of charge to students in grade levels 5–11. Dedicated teachers' programs were arranged at selected science centres.




## 20 000 educational booklets

A 60 page educational booklet about astronomy, including a variety of theoretical and observational exercises, was written and produced by the Norwegian node. A PDF version was available for downloading on our web site, and in May 2009 we printed 20,000 copies, which were provided free of charge to the Norwegian pupils together with the Galileoscopes. With 20,000 astronomy booklets and 15,000 Galileoscopes, the Norwegian children were well equipped to discover the universe.

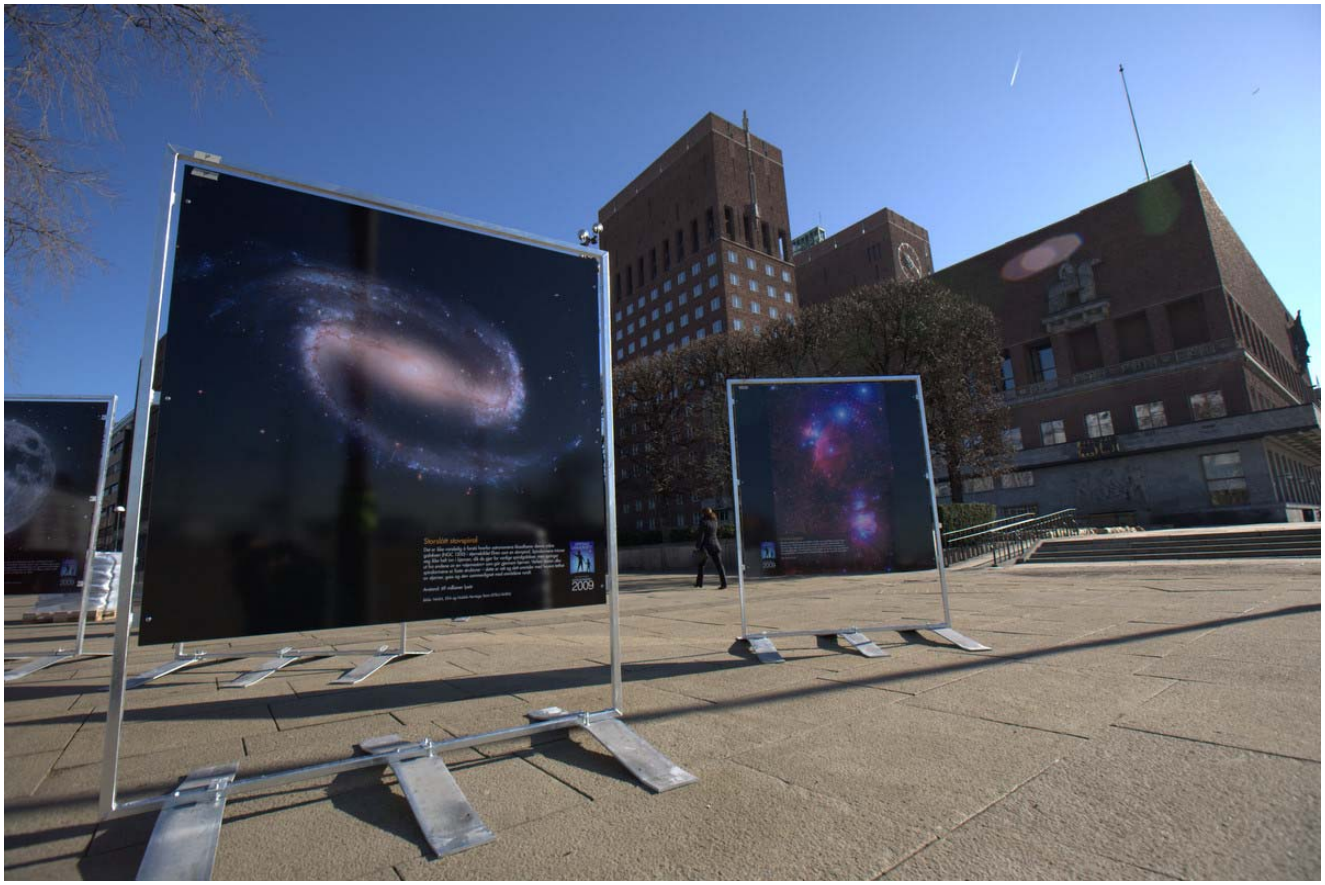



## Stimulating competitions with unique prizes

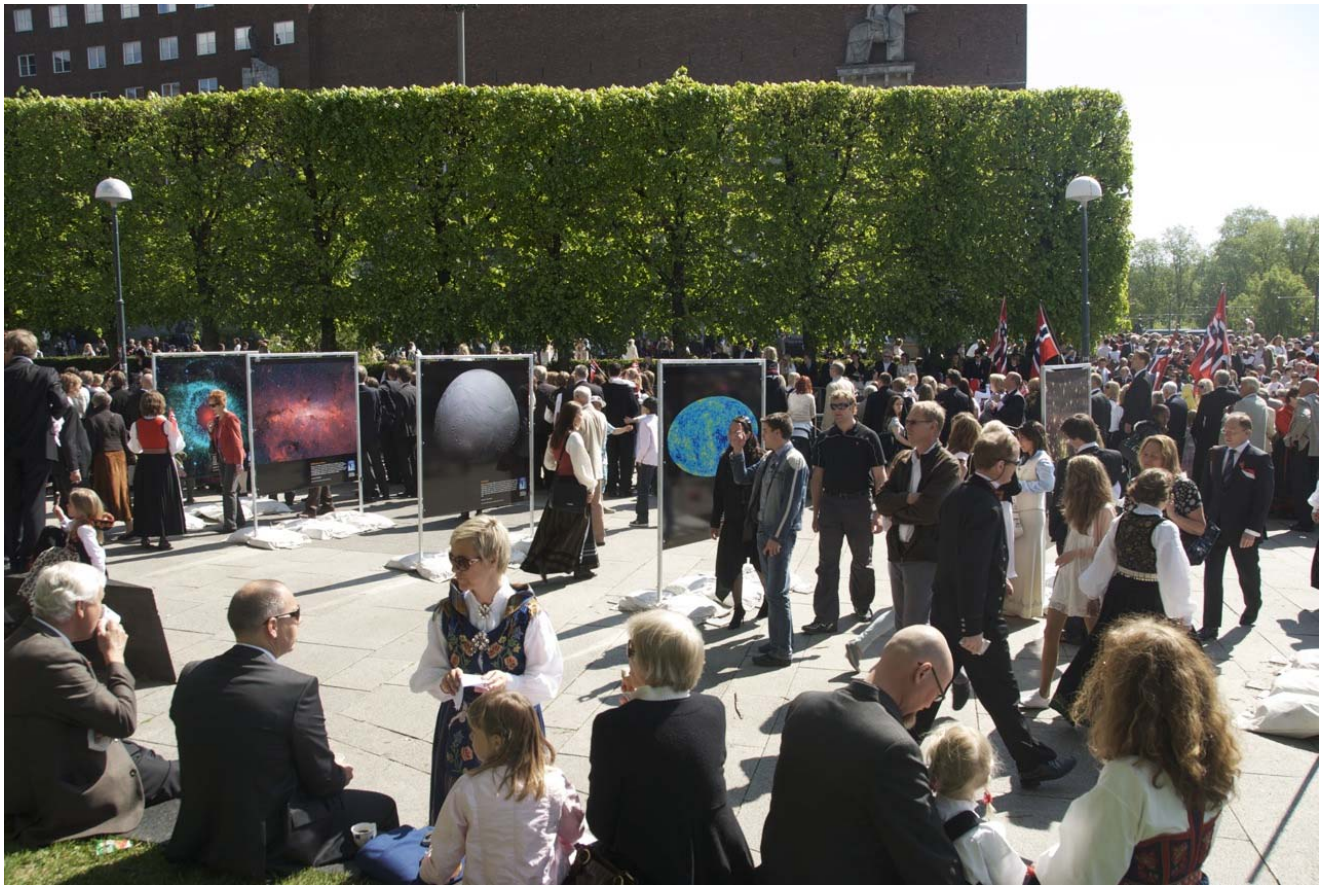
- School project competition: The school that developed and carried out the best astronomy project in 2009 had a real asteroid (1998 XC96) officially named after it.
- Astronomy essay competition: Our essay competition for high-school students featured another unique prize: An all-included trip to the beautiful island of La Palma, Canary Islands, in order to carry out their own observation program at the 2.56 m Nordic Optical Telescope.

- Astrophoto of the Year competition (open for everyone)

## Travelling photo exhibition



40 huge, high-quality posters (150 x 150 cm) displaying beautiful and stunning astronomical vistas made up the Discover the Universe exhibition. The exhibition visited a number of Norwegian cities during 2009 – e.g. from April 1st to June 30th thousands and thousands of people in Norway's capital could enjoy this spectacular display in the big square outside Oslo City Hall.



## National web page

Despite lack of manpower, we strived to maintain an updated and informative web page (www.astronomi2009.no). We provided news and articles concerning astronomical research, celestial events, IYA-related projects, national events etc. An “Astro panel” consisting of Norwegian astronomers was formed in order to answer questions from the media. Astro panel members regularly appeared on TV, radio and in newspapers regarding astronomy- and IYA-related topics. Our astronomi2009.no website had about 450,000 page views and almost 100,000 unique visitors from late 2008 to January 2010.

## “Book an astronomer”

Schools, science centres, clubs etc. had the opportunity to request lectures by professional astronomers. The lectures were free; we only asked that the lecturer’s travel expenses were reimbursed.

The Norwegian node also attended several other events during 2009, including rock and movie festivals, science fairs, and an astronomy festival in Oslo.



M. Moen and AO Jaunsen during the opening ceremony in Oslo on 1 April. Photo: PA Wilson




FETTU in Oslo. Foto: A. O. Jaunsen



FETTU in Lilleborg/Oslo. Foto: H. Dahle



Our wonderful universe — Astronomy activity booklet

# Oman

## National Node

Saleh Said Al-Shidhani
Physics Dept. College of Science / Sultan Qaboos University
shidhani7@squ.edu.om
http://www.falakoman.org

Official Languages

- Arabic
-

Number of organising committee members: N/A

-

Population: 2 845 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Opening of IYA2009 in Oman 1/1/2009



IYA2009 public star party and exhibition in Muscat Festival — January 2009











1st Family Astro Camp Sun mountain — June 2009





Astronomical Exhibition on Sultan Qaboos University Campus



Participation on the global experiment to measure sun shadow and earth radius





100 Hours of Astronomy





Training how to use skyscout and telescope to observe the Thin Crescents



Star party with the PDO Planetarium





Public talks



Junior training courses





OAS Observatory Training







# Pakistan

## National Node

Ghulam Murtaza (SUPARCO)

http://www.suparco.gov.pk/pages/IYA2009.asp

Official Languages
- Urdu
- English

Number of organising committee members: 10
- Volunteers: 10
- Paid: 0

Population: 169 282 500

Number of people reached by IYA2009: 6000

Budget: 10 000€

Sources:
- Government of Pakistan
- Society of the Sun
- Kwarzimic Science Society
- SZABIST Astronomy Society
- Universities
- Other donors

## General Overview of IYA2009 activities in Pakistan

Like other developing countries, Pakistan also celebrated IYA2009 utilising its available resources. During the year various events were planned and many of them were executed. Lectures, seminars and exhibitions were conducted for public awareness. Educational institutions, private organisations and the media contributed fully for the promotion of astronomy. Activities for global (astronomy survey), regional (Starpeace) and country level (award of telescopes) cooperation was also carried out. Due to paucity of funds, one of the planned activities (TWAN) could not materialise. However, this established cooperation will be helpful in continuing astronomy related plans in Pakistan.

## Main Activities

### List of Activities
- World Space Week 2009
- Starpeace
- Exhibition/ Science Fair
- Scientific Caravan/ Astroparties (Falsity Meal)
- Teacher Training

### World Space Week 2009

Pakistan Space and Upper Atmosphere Research Commission (SUPARCO) organised a number of events and activities to celebrate World Space Week 2009 in Pakistan's two largest cities Karachi and Lahore as well as some rural areas in the southern part of the country. The salient activities are inaugural ceremony, a panel discussion on

the theme of WSW 2009, Sky Simulation show at planetaria, quiz competition, declamation contest, model making, poster making for schools, and sky observation through telescopes. Around 2000 teachers, students, representatives of the public and private sector organisations and delegates attended the events. The event was covered by print as well as electronic media which helped create interest /raise awareness about WSW 2009 events and activities amongst the general public. Sky simulation shows, lectures, presentations and space-related movies were arranged for students at a planetarium run by Pakistan International Airlines in Karachi. A quiz competition and declamation contest was held for school students with a model and poster making competition. This was an excellent opportunity for students to express their imagination about space. Students enthusiastically participated in these events and showed their work with detailed scientific background to the visitors who appreciated the students' work and their zeal.

Organisers: SUPARCO and Pakistan International Airlines.

Website: http://www.suparco.gov.pk/pages/wsw.asp?wswlinkid=1





Estimated number of people who attended or were reached by this activity: 3000.

Budget: 5000€

## StarPeace

On 9 February 2009 during a penumbral lunar eclipse, StarPeace connected two countries, Pakistan and India, together. Society of the Sun in Pakistan and Kutch Amateur Astronomy Club in India organised this event successfully in SOS villages of both countries. Narendra Sagar Gor form Kutch Amateur Astronomy Club held the event in Bhuj SOS children village, India, for about 70 children and their teachers. The programme begins with introduction speeches on the basics of the eclipse and followed by sky observation.

Meanwhile, a few kilometres away, children in Lahore SOS children village, Pakistan, were attending astronomy lectures and workshops. Hassaan Ghazali and Umair Asim from The Society of Sun in cooperation with two other astronomers mounted three telescopes in the Lahore Planetarium. Planetarium visitors and the public were treated to fantastic views of the planet Saturn and the Moon. Hassaan Ghazali taught them the basics of the eclipse, Moon phases, Solar System planets, etc. Due to bad weather conditions children saw the Moon just after rising over the horizon. During these two events Narendra Gor and Hassaan Ghazali made a phone connection. While children in Lahore yelled “We are your friends”, children in Bhuj were so excited and one of them talked to Hassaan Ghazali and told him she was enjoying the event thoroughly. Children in two countries were so excited and happy that they persisted to have such programmes again. StarPeace project’s goal is to promote peace between nations and to show that there is no real border between humans, just like the sky in which there are no border lines! Wherever you are the sky is the same.

Similarly in Karachi, SZABIST Astronomy Society, Night Hawk arranged a StarPeace in Falcon Complex, Karachi soon after sunset on Friday 1 May. There were three telescopes (8” Meade SCT, 4” Japanese Bino Telescope by Vixen and 3” Adventurer) and some binoculars. The sky, as usual, was light polluted with Karachi lights in the west and sky was clear and seeing was good. In the middle of the observations two presentations on topics “Lunar Phases” and “Tonight’s Sky” given by Marim Gul (age 11 years) and Mohsin (age 28 years) respectively. The question and answer session was excellent and very participative.

The most viewed item was Saturn, followed by the Moon. M13 the globular, and M57 the Ring Nebula were liked by the late observers. Multiple stars (Mizar and Alcor) were appreciated by many. It indeed opened their understanding of additional concepts about stars. People came in groups, mostly as family units; children, ladies, and all ages. More than 600 people participated in this event and their enthusiasm was excellent. Theme of “The Universe yours to discover” is an apt idea for astronomy promotion.

There were talks with Hassaan Ghazali from Lahore while we were in the midst of the presentation and with Irene and Kazem from a place near Pak Iran border, and received the core message of StarPeace which was very imaginative, thought provoking and overwhelmingly wonderful.

Organisers: Khwarizmi Science Society, Society of the Sun, SZABIST Astronomy Society, Night Hawk.

Website: http://www.starpeace.org; http://sites.google.com/site/societyofthesun/programs-1/astronomy/IYA2009/starpeace-pakistan









Estimated number of people who attended or were reached by this activity: 900.

Budget: 1000€

## Exhibition/ Science Fair

IYA2009 was celebrated with great fervour at Science Centre Faisalabad on 10 November 2009 by Pakistan Science Foundation and CityFM89. The day started with visitors including students, teachers, parents and educationists visiting stalls as there were astronomy books, magazines, posters and astronomy calendar 2009. There were also models and posters displayed by students of various schools. There was also a panel exhibition

by Science Centre Faisalabad which displayed posters on space, and other areas of science. A ceremony took place in which students with best essays and models were given certificates. The students also benefitted from the Science Centre Faisalabad models and exhibits. The Center contained Country Diorama and specimens / models of National Sciences including Space and Earth Sciences. The exhibits displayed outside the building include the model of Ghouri-II Missile and a Solar Fountain.

This was followed by a planetarium show for which students awaited anxiously. Galileoscopes which are official IYA2009 products were also presented to students and they were told about its different parts and its magnification. Other IYA2009 Official Products included “The Cosmic Detective” and “Eyes on the Skies” books along with DVDs. There were also IYA2009 updated brochures which had all details/info about IYA2009 Cornerstone and Special projects.

Documentaries of Hubble, Hawaiian Starlight and Naming Pluto were screened indoor at Faisalabad Science Centre. It was stressed upon the students to adopt scientific applications in daily life and to pursue for scientific careers. CityFM89 was Radio Media partner for this event. The exhibition went for one week where students and the general public came in to view astronomy posters and literature. The event was also hyped on website and on-air. Interviews of students and visitors went on-air too. The event was also promoted on Facebook.

Pakistan culminated with a Space Family Fair on 10 October 2009 at Karachi and on 5 — 6 October 2009 in Gulshan-e-Iqbal park in Lahore. Apart from the colourful fun activities at the fair, SUPARCO organised stalls providing information about different applications of space technologies. Models and posters related to space technologies were also held at the fair for the general public and students. Highlights of the event were the space-related documentaries, Telemedicine Unit and its working, demonstration of water rockets and sky observation. A sky observation show was arranged at Space Application & Research Centre, Karachi. In Lahore, SUPARCO in collaboration with Khwarizmi Science Society mounted their three telescopes during the space family fair in Lahore. A very large number of people including students observed the planet Jupiter and its four revolving moons through SUPARCO’s telescope.

The Department of Physics and Astronomy, Hazara University organised a Two Day Astronomy Exhibition on 16 — 17 December 2009. Around 200 students and teachers participated in this event and displayed their models and posters related to Space Science for the public. In the closing ceremony on 17 December, shields, prizes and certificates were distributed to the winners of the models and participants.

Organisers: SUPARCO, Pakistan Science Foundation, City FM 89, Khwarizmi Science Society & Hazara University.

Estimated number of people who attended or were reached by this activity: 800.

Budget: 600€

## Scientific Caravan/ Astroparties

A special Space Education Bus equipped with state-of-the-art multimedia equipment and various other instructional facilities along with a team of scientists was sent on a tour from 6 — 9 October 2009, to schools in rural areas as well as suburban areas of Karachi to deliver lectures and show space related documentaries to the students. At the same time in Lahore, a team of scientists went to different schools to deliver lectures and to show space related documentaries. Scientists gave lectures on Our Earth, Changing of Seasons, Day and Nights, Our Solar System, Galaxies etc. Open discussion on space applications were also held among students and experts. About 1500 school students and teachers benefited from these lectures, documentaries and discussions.

In Lahore, Khwarizmi Science Society has held numerous “astroparties”, or falakyati melas, as they are known in Urdu. One evening in April, KSS held a live astronomical observation of the Moon, Jupiter, Saturn and Venus through a 14-inch telescope at the Okara District Public School and College in the Punjab, which drew over 2000 men, women and children to an event. The audiences were delighted at what they saw, although the lunar craters surprised many who were used to the Moon’s established literary image! The magnificent rings of Saturn certainly grabbed everyone’s attention.

Similar astroparties have also been arranged in Punjab University, Lahore and at a large school in Phoolnagar, some 70 km from Lahore. The most inspiring astroparties took place in September in an all-girls school in

Shahdara, along the banks of the river Ravi. KSS have so far organised eight astroparties, travelling throughout the country with our mobile observatory, each time focusing on different celestial bodies, notably the Moon and the planets.

It has been a real delight seeing parents, teachers, children, housewives and toddlers, all sitting together, revelling in the magnificent views of lunar shadows and other celestial objects. Most of our audiences will never have looked through a telescope before and we believe that even these brief moments of bliss can have a lasting impact on their thoughts.

A memorable astroparty event took place on 30 May, which saw a gathering of about 1000 local residents and tourists at the historic Rohtas Fort in Jhelum, north of Lahore. Moreover, we have found that recitations of poetry related to the Moon and astronomy during breaks in the events help to attract people.

SZABIST Astronomy Society, Night Hawk has arranged an astroparty on small scale in the remote location of Dallo Khel, Lakki Marwat on 26 December. The only instrument was a set of binoculars but the value of the evening cannot be matched by any other for the following four reasons. Firstly, the remoteness of the location, secondly the potentials of talking to budding astronomers of the future, thirdly the cultural impact of IYA2009, and fourthly and finally the amount of reach the activity made. Many children and ladies of the village experienced and realised the value of astronomy.

Organisers: SUPARCO.

Estimated number of people who attended or were reached by this activity: 3500.

Budget: 500€

## Teachers' Training

A number of space related lectures were given to science teachers from public and private schools at National Center for Remote Sensing & Geo Informatics (NCRG), Karachi on 7 October 2009. The lectures included topics on Our Sun in Space, Introduction to Satellites, Orbits, Types and their Applications and Use of Space Technology for Telemedicine in Pakistan. The event was basically arranged in connection with GTTP. Similar training session was arranged by Agha Khan University-Institute of Educational Department, Karachi on 4 February 2010. Teachers from Sindh province participated enthusiastically. The lectures on the above mentioned topics were given by SUPARCO's scientists. The discussion and question and answer session was excellent and very participative. Teachers showed their keen interest in these lectures. Similarly the inaugural lecture of IYA2009 was delivered by Dr Pervez Hoodbhoy, Chairman Physics Department, Quaid-e-Azam University, Islamabad at Punjab University, Lahore.

Organisers: SUPARCO, Khawrizmi Science Society, Agha Khan University.

Website: http://www.suparco.gov.pk/pages/wsw.asp?wswlinkid=1; http://www.khwarzimic.org/IYA/



Estimated number of people who attended or were reached by this activity: 200.

Budget: 300€

## Lessons Learned

Financial constrains are one of the major hurdles in planning and execution of various events. Usually developing countries can manage activities cheaper compared to developed countries. Similarly decision making authorities in developing country like Pakistan give least priority to public awareness programmes which require reasonable finances. Therefore, grants and technical supports from developed countries can be helpful in organising such activities. Due to the lack of astronomical infrastructure, international collaboration and local communication, coordinated management is very difficult. Each local participant tries to highlight himself ignoring prescribed hierarchy which causes sometime embarrassment and difficulty for the SPoC to present its national activities in a better way. Those professionals who are not given proper position do not involve enthusiastically which slows down the pace of planned activity.

## Legacy

We have planned education and public outreach activities after 2009. We will educate science teachers via delivering lectures at various educational institutes. Teachers will be motivated to participate in GTTP. Astronomical events will be telecasted on local media for public awareness. World Space Week will also be continuing for students to generate enthusiasm about astronomy in their minds.

## Comments

This was a fantastic idea to promote astronomy in general particularly in developing countries. We established a concrete network at global, regional and local level which will be helpful in planning and executing astronomy related programmes. Due to IYA2009, we were forced to think about astronomy all around and found it everywhere in our culture. Very rightly, this activity should continue beyond 2009.



# Palestine

## National Node

Ayman Tirhi
Palestine Astronomical Society
ayman@tirhi.ps
http://www.pas.ps/

Official Languages

- Arabic
-

Number of organising committee members: N/A

-

Population: 4 136 540

Number of people reached by IYA2009: N/A

Budget: €

## Impressions from IYA2009 in Palestine








MEADE





# Panama

## National Node

Vicente Forero Villao (Universidad de Panamá)

http://www.astronomia2009.org.pa/

Official Languages
- Spanish

Number of organising committee members: 10
- Volunteers: 10
- Paid: 0

Population: 3,360,474

Number of people reached by IYA2009: 1,000,000

Budget: 37,000€

Sources:
- Loteria Nacional de Beneficencia
- Universidad de Panamá

## General Overview of IYA2009 activities in Panama

IYA2009 in our country is developing in collaboration with the professors of Physics Department of the Universidad de Panamá and the collaboration of young students from the School of Physics. This initiative was also helped by the faculty of middle school who worked on a voluntary basis.

Collaborating institutions besides the University of Panama in the various activities were the National Lottery, the Institute of Culture, Arts and Science Center EXPLORA, observations were made with the support of the Panamanian Association of Amateur Astronomers (APAA) as University of Panama has only a 7-inch telescope and two smaller instruments.

Activities focused on promoting astronomy among students of primary and secondary schools and university. Both groups were always interested in the subject. Conferences were carried through Astronomy High School with the support of teachers and students of the University of Panama.

The general public could be reached only through a lottery ticket, a special magazine from the National Lottery and caps on Radio Astronomy University. There were also several notes on IYA2009 in the press, radio and television.

## Main Activities

### List of Activities

- Opening ceremony of International Year of Astronomy.
- Poster printing and postal alluding to the International Year of Astronomy.
- Lottery ticket printing commemorative of The International Year of Astronomy.
- Publication of a commemorative issue to the International Year of Astronomy Magazine Cultural Lottery.
- Astronomy Workshops at the Center for Science and Art EXPLORE.
- Celebration of 100 Hours of Astronomy.
- Lecture series in the Physics Department during the First and the Second Semester.

- Inclusion of the theme “The Universe to Discover” in the children’s literary contest HALF CHICKEN.
- Conferences of Astronomy and the New Order of the Solar System at different schools.
- Video Introduction of the International Year of Astronomy: Eyes on the Skies, “which discusses the history of the telescope until today.
- Travelling Gallery: “From the Earth to the Universe”.
- Cultural Events Siderius Nuncius.
- Astronomy Capsules in University Radio.
- Astronomical Observations.
- Printing of stamps with astronomical images from the Organization for Panamanian Anti-Tuberculosis (OPAT).

## Opening ceremony of International Year of Astronomy 2009

The Opening Ceremony of IYA2009 was held Moscote Jose Dolores Auditorium at the University of Panama. At the same time words were given by Mr. Iván Jaén, president of the Panamanian Association of Amateur Astronomers (APAA by its Spanish acronym), Ing. Marcela Paredes de Vásquez, Rector of Universidad Tecnológica de Panamá and by the Univerdidad de Panamá spoke Dr. Justo Medrano who formally inauguratedIYA2009 in Panama. There were certainly some promotional videos and eventually submitted to the Chamber Orchestra of Universidad de Panamá.

Organisers: Eduardo Chung, Etelvina Medina, Vicente Forero, Eduardo Saenz.

Website: http://www.astronomia2009.org.pa/inauguracion.html



Estimated number of people who attended or were reached by this activity: 200.

Budget: 2200€

## Poster printing and postal alluding to the International Year of Astronomy 2009

Poster and postcards were made alluding to IYA2009 to promote activities and astronomy among the public.

Organisers: Dr. Xavier Amador.

Estimated number of people who attended or were reached by this activity: 1000.

### Lottery ticket printing commemorative year of astronomy

The National Lottery issued a lottery ticket dated 8 April 2009. That issue reached nearly 1,500,000 Panamanians, also during the lot a delegation of teachers and students from the University of Panama spoke in different media that covered the lot (which has national coverage) on the International Year of Astronomy 2009 and the contributions of Galileo.

Organisers: Profesora Etelvina Medina, Profesor Vicente Forero Villao.







Estimated number of people who attended or were reached by this activity: 1,500,000.

## Publication of a commemorative issue to the International Year of Astronomy Magazine Cultural Lottery

Lottery Cultural Magazine is a magazine sponsored by Loteria Nacional de Beneficiencia (National Lottery ) to promote and disseminate culture in the Panamanian people. For 2009, the Lottery Cultural Magazine in collaboration with the University of Panama presents a special edition dedicated to IYA2009 in order to allow most Panamanians to know about this science and its contributions to humanity. To introduce the magazine to the public became a cultural event in the auditorium Bernardo Lombardo of the University of Panama.

Organisers: Dr. Eduardo Flores Castro, Profesor Vicente Forero Villao.

Website: http://www.asamblea.gob.pa/legispan/pdf_lnb/2000_LNB/2009_LNB/2009_483_LNB.pdf

Estimated number of people who attended or were reached by this activity: 5000.

Budget: 18,577€

## Astronomy Workshops at the Center for Science and Art EXPLORA

We catered for astronomy students at the Center for Science and Art Explore. The same activities were carried out for teaching directed towards astronomy.

Organisers: Profesora Etelvina Medina.

Website: http://www.explorapanama.org/imagens/index/96




Estimated number of people who attended or were reached by this activity: 100.

## Conferences of Astronomy, the New Order of the Solar System and Astronomical Observations at different schools

The Solar System, the International Year of Astronomy 2009, Galileo's life, and other topics. This activity was conducted by professors at the University of Panama and was assisted by students of the Bachelor of Teaching in Physics, Chemistry, Mathematics and Physics taking the course of Space Science and Earth who were prepared to issue the different talks.

Organisers: Profesor Vicente Forero Villao, Profesor Eduardo Chung, Eduardo Saenz.

Estimated number of people who attended or were reached by this activity: 5000.

## Cultural Events Siderius Nuncius

Cultural events organised by the university with the support of the Panama Christian Academy. In this activity we honoured Galileo Galilei for his many contributions to science and astronomy, and presented the Youth Folkloric Ensemble of the Comptroller of the Republic of Panama. We also presented to the Youth Orchestra of Panama Christian Academy.

Organisers: Eduardo Chung.

Estimated number of people who attended or were reached by this activity: 1000.

Budget: 3700€

## Astronomy Capsules in University Radio

Capsules have been transmitted relating to IYA2009 through Radio Estero University. The aim is to motivate interest in science with information given at a time no longer than 30 seconds.

Organisers: Profesor Vicente Forero Villao.

Estimated number of people who attended or were reached by this activity: 80,000.

### Printing of stamps with astronomical images from the Organization for Panamanian Anti-Tuberculosis (OPAT)

The OPAT is a non-profit organisation that among its activities every year sells stamps to raise money to fight tuberculosis, in 2009 decided to use stamps alluding to astronomy and the International Year of Astronomy 2009. These stamps are made to reach all students nationwide.

Organisers: OPAT.

Estimated number of people who attended or were reached by this activity: 700,000.

## Legacy

The University of Panama for the dissemination and promotion of astronomy is essential; we are working to create an observatory for dissemination and research in astronomy. It hopes to use the experience to further strengthen astronomy in the country, hoping to achieve the interest of the Ministry of Education to collaborate on curriculum changes in science.



# Paraguay

## National Node

Miguel Ángel Volpe Borgognon
mvolpe@cpia.org
http://www.astronomia2009.org.py/

Official Languages

- Spanish
- Guaraní
-

Number of organising committee members: N/A

Population: 6 349 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Opening Event

The IYA2009 launch featured a concert with more than 1600 musicians and an audience of over 15 000.

### IYA2009 — initiative of interest in Paraguay

IYA2009 was declared initiative of interest by the Paraguayan Ministers of Tourism and Culture. More information: http://www.astronomia2009.org.py/noticias_completa.php?samuel=20

# Peru

## National Node

María Luisa Aguilar Hurtado
Facultad de Ciencias Físicas / Universidad Nacional Mayor de San Marcos
ml_aguilarh@yahoo.es
http://www.astronomia2009.org.pe/

Official Languages

- Spanish
-

Number of organising committee members: N/A

Population: 29 461 933

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Travelling Telescope

Astronomers and condors fly away to the stars with the Peruvian children.

### Astronomical Fridays

The astronomers come out in San Marcos to share the skies with children, educators, old persons,

## Galileo Master Teachers in Peru



An astronomical education of the teachers in harmony with their cultural heritage, the science, the technology and the society.



# Philippines

## National Node

Cynthia P. Celebre
Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGAS
cynthia_celebre@yahoo.com
www.astronomy2009.ph

Official Languages
- Filipino
- English

Number of organising committee members: 7
- Volunteers: 7
- Paid:

Population: 91 983 000

Number of people reached by IYA2009: 32 100

Budget: 76 702 €

## General Overview of IYA2009 activities in the Philippines

The Philippine IYA2009 Celebration in the Philippines was successfully implementation in the country. All the activities that were planned by the NOC were undertaken. The success of the celebration maybe attributed to the strong determination and resourcefulness of the National Organising Committee.

The support given by the President of the Philippines through Presidential Proclamation No. 1630 also paved the way towards the its success, particularly in the coordination that were conducted with government offices such as the Department of Science and Technology (DOST), Department of Education (DepEd) and Commission of Higher Education (CHED). The financial support given by DOST and Rizal Technological University (RTU) also contributed a lot towards its success.

The support of the media in the promotion of the activities enabled the public to be informed about the event. The cooperation of the different astronomical societies in the conduct of various activities especially 100 Hours of Astronomy are very valuable. Through their help, a greater number of the general public throughout the country were enriched by the knowledge in astronomy by enabling them to have a glimpse of the Universe.

More importantly, the support of the IAU Secretariat including the IYA2009 updates allowed the Philippine SPoC to have a glimpse of what is being done around the world as well as the Cornerstone projects of IYA2009. The updates allowed her to deliver the news to the NOC, which in turn planned activities for the country.

It is also important to mention that the cooperation showered upon us by the Chairs of various Cornerstone projects have made a lot of impact on the success of our celebration. This is most especially true for the From Earth to the Universe Exhibit.

The cooperation made by our Southeast Asian neighbours also helped us in realising our objectives. Even countries such as Netherlands, Germany and France have helped us in so many ways, especially in sending participants to our Astronomy Congress and the 2nd Southeast Asian Astronomy Network Conference. The assistance extended by UNESCO and the IAU through President-Elect Prof. Norio Kaifu played important roles in the successful accomplishment of our goals. The presence of Prof. Kaifu during the Congress helped stimulate

interests among the participants, most especially to our youth. Former Senator Nikki Coseteng even went to RTU to meet him before he left for Japan because she is an astronomy enthusiast.

The conduct of the event also resulted in the creation of a closer link between the astronomical societies, academe and other scientists in the country. It enabled everyone to know the present status astronomy in the Philippines. It was also realised that education is very important in the promotion of astronomy. It also allowed the concerned agencies to prepare future plans for the enhancement of astronomy education in the country.

## Main Activities

### List of Activities

- Opening Ceremony of the Philippine IYA2009
- From Earth to the Universe (FETTU) Exhibit
- 100 Hours of Astronomy (100HA)
- IYA2009 Philippine Astronomy Congress
- Second Southeast Asia Astronomy Network(SEAAN) Conference 6. IYA2009 Astronomy Olympiad
- Closing and Awarding Ceremonies of Philippine IYA2009
- Galileoscopes

### Opening Ceremony of the Philippine IYA2009




The Opening Ceremony of IYA2009 marked the beginning of the Philippine participation in the celebration of IYA2009 as stipulated under Presidential Proclamation No. 1630 that was signed by President Gloria Macapagal Arroyo on 28 September 2008. It was held at SM Science Discovery Center SM SDC), Mall of Asia, Pasay City on 16 February 2009.

After the formal ceremony, a Press Conference was conducted in the same venue. Various reporters from tri media participated in the 30-minute activity. The panel of discussants include Dr. Cynthia P. Celebre, Philippine SPoC, Ms. Yolanda Berenguer, UNESCO Space Education Programme Coordinator, Dr. Jesus Torres, Chairman, Department of Astronomy of RTU, Dr. Merle Tan,Director of UP-National Institute for Mathematics and Science Education(UP-NISMED), Mr. Cristopher Go a member of the Astronomical League of the Philippines who discovered Red Spot, Jr. of Jupiter, Dr. Armando Lee, the lone candidate for graduation of the M. Sc. in Astronomy programme of RTU for AY 2009 and Mr. Eligio Obille, Jr, a staff of UP-NISMED who is in charge of the FETTU exhibit.

The Ceremony was also highlighted by the ribbon-cutting of the FETTU Exhibit. It was attended by a list of prominent personalities that include Hon. Estrella F. Alabastro, Secretary of DOST, Dr. Prisco d. Nilo, Chairman, IYA2009 NOC, and Administrator, PAGASA, Ms. Berenguer of UNESCO, Dr. Jose Macaballug, President, RTU and the high-ranking officials of SM Mall of Asia. The FETTU exhibit was displayed at the said Mall for a period of two-weeks.

Also important is the conduct of lectures in the afternoon on Red Spot, Jr. and Basic Astronomy by Mr. Go and Dr. Lee, respectively. Students, teachers, members of various astronomical societies, a group of media personnel and other astronomy enthusiasts participated actively in the discussions that were conducted after each lecture.

Organisers: NOC.

Estimated number of people who attended or were reached by this activity: 500.

Budget: 15 600 €

## 100 Hours of Astronomy

100HA was held successfully at various locations in the Philippines on 2-5 April 2009.The success was made possible by the cooperation displayed by various astronomical societies. Mr. Frederick Gabriana, IYA2009 Webmaster, was appointed by the NOC as the National Focal Point for the activity. The assistance made by Dr. Armando Lee, the National Coordinator of the International Sidewalk Astronomy was also worthy to mention.

A Press Conference was held a few days before the scheduled activity. It was conducted in order to promote the awareness of the general public on the activity. It was attended by various media personnel. Mr. Gabriana gave an overview of the activity that was followed by queries from the media. Drs. Nilo, Celebre, Torres and Lee and Mr. Obille were also among the panel of discussants.

Another method by which awareness on the activity was promoted is through radio and TV interviews attended by the some members of the NOC. Foremost among this Teleradyo, which is being aired simultaneously over radio and TV station, DZMM and Channel 2, respectively. The show guests included Drs. Celebre, Torres and Lee who discussed the 100HA and the other activities of IYA2009.

The success of the conduct of 100HA was due largely to the core strategies undertaken, by the group of Dr. Lee in particular that includes service delivery, advocacy, capability building and networking and coordination. The service delivery scheme encompassed the actual free telescope viewing sessions that covered a wide range of audience composed of street children, church goers, pedestrians, commuters and students. The advocacy approach on the other hand, involved the dissemination of information to local officials, church leaders, students, and amateur astronomers of the coming 100HA activities and inviting them to join in the celebration.

Capability building was a tactic that was applied wherein on site and on event training of astronomy students and amateurs on how to operate telescopes as well as how to manage crowd during public viewing sessions especially during a partial solar eclipse (January 2009) and the Beauty without Borders (Venus viewing) event by the Sidewalk Astronomer.

Lastly, the networking and coordination strategy pertains to the communication, coordination, and cooperation with GOs and NGOs.

Organisers: NOC and Sidewalk Astronomers.

Website: www.astroleaguephils.org

Estimated number of people who attended or were reached by this activity: 5000.

Budget: 400 €

## IYA2009 Philippine Astronomy Congress and 2nd SEAAN Conference




The IYA2009 Philippine Astronomy Congress was conducted in conjunction with the Philippine hosting of the 2nd SEAAN Conference. The events were held at the Rizal Technological University, Boni Avenue, Pasig City on 17-18 February 2010.

The occasion was highlighted by an Opening Ceremony, which was attended by important people from the Philippines and abroad. Among the guests who participated in the programme were Assistant Secretary Lourdes P. Orijla of DOST, who represented Sec. Alabastro and delivered the keynote message, Prof. Norio Kaifu, President-elect of the International Astronomical Union, Ms. Yolanda Berenguer of UNESCO, and Dr. Jose Macaballug of RTU. Also present during the Ceremony were the visitors from Science Education Institute (SEI), Institut D' Astrophysique de Paris, Institut Superier de l' Aeronautique Et de l' Espace , University of Maryland (USA), JAPAN Aerospace Exploration Agency (JAXA) and International Institute of Air and Space Law (Netherlands).

The most important part of the gathering was the 27 scientific presentations that were delivered by local and foreign participants during the two-day sessions. 500 participants from seven countries, which include Indonesia, Thailand, Japan, Germany, Netherlands, France, and Philippines joined the sessions.

The scientific presentations of the Congress and SEAAN were combined and the forum served as a venue for discussions on issues related to the emergence of new technologies, new patterns of attention, new aggregate states of knowledge, efforts to explore the Universe and finding new possibilities.

The objectives of promoting cooperation in the field of education, research and popularization of astronomy among Southeast Asian member countries were also realised. The exceptional blend of participants in the celebration presented opportunities to make contacts and lead inspiring discussions in the promotion of astronomy in the country and around the world.

The 2nd SEAAN Business Meeting was held after the Closing Ceremony on 18 February 2010. It was attended national representatives from member countries that include Indonesia, Thailand and the Philippines. Among the representatives Dr. Kunjaya Chatief (Indonesia), Dr. Busaba Kramer (Thailand) and Dr. Cynthia P. Celebre (Philippines). Also present are Jesus Rodrigo Torres and Dr. Jelly Nonesa of the Philippines, Drs. Hakim Malasan, Suhardja Wiramihardja, Suryadi Siregar and Mochamad Ikbal Arifyanto all from Indonesia, while those from Thailand include Drs. Nipon Gasiprong, Alejandro Saiz and Nuanman Sansuak. The observers include Dr. Osamu Hashimoto (Japan), Andrea Richichi (Germany), and M.B.N. Kouwenhoven (Netherlands).

After the Welcome Message from Dr. Celebre as LOC Chair and Philippine National Representative, reports from member countries were delivered, which was followed by reports from Chairs of Scientific Working Groups. Future

Plans were also discussed during the meeting including the venue of the 3rd SEAAN meeting, which will be held in Thailand in 2012.

The Southeast Asia Young Astronomy Collaboration (SEAYAC) Meeting was held simultaneously with the 2nd SEAAN Meeting. It was attended by Ms. Puji Iwarati,of Indonesia and Dr. Armando Lee of the Philippines. Students from the graduate programme in Astronomy of RTU, Philippines also participated in the meeting. The said meeting resulted in the formal establishment of SEAYAC.

The PAGASA-DOST hosted a Welcome Dinner on 17 February 2010, which was held at Legend Villas, Pasig City. The dinner was highlighted with songs and dance presentations depicting the culture of the Filipinos. A Metro Manila tour was undertaken on 19 February 2010 that was also sponsored by PAGASA.

Organisers: NOC.

Estimated number of people who attended or were reached by this activity: 500.

Budget: 15 534 €

## Galileoscopes

The PAGASA acquired 200 Galileoscopes and are scheduled to be delivered to 62 selected science high schools in the country. The said acquisition was made possible through the approved DOST-GIA fund, a proposal that was prepared by Dr. Cynthia P. Celebre. An additional 24 of these telescopes are to be bought, wherein the expenses are still to be shouldered by DOST.

The UNESCO through Ms. Yolanda Berenguer donated 100 Galileoscopes to the Philippines. The donation was channelled through the National Commission of the Philippines for UNESCO. These telescopes are planned to be donated to 33 more science high schools in the country. Such activity will enable our youth to be familiar with the use of telescopes and experience a glimpse of the Universe.

Organisers: PAGASA.

Estimated number of people who attended or were reached by this activity: 24 000.

Budget: 11 743 €

## Closing and Awarding Ceremonies of Philippine IYA2009

The Closing Ceremony of the participation of the Philippines in the celebration of the IYA2009 was held at the University of the Philippines (UP) — National Institute for Science and Mathematics Education (NISMED), Quezon City on 19 February 2010. The Ceremony was attended by students, teachers and NOC members. Former Senator Nikki Coseteng graced the occasion and delivered a message. The message of Secretary Estrella F. Alabastro of DOST was read by Assistant Secretary Ma. Lourdes Orijola. Also important was the speech delivered by Dr. Prisco D. Nilo, Administrator and Chairman of NOC the emphasised the importance of the celebration, particularly to our youth.

The Awarding Ceremony followed thereafter. The high school and college level students who belong to the top 10 winners of the IYA2009 Astro Olympiad were given plaques and cash prizes.

Organisers: NOC.

Estimated number of people who attended or were reached by this activity: 100.

Budget: 3500 €

### IYA2009 Philippine Astronomy Olympiad

The IYA2009 Philippine Astronomy Olympiad was a contest in astronomy, which was designed for high school and collegiate level students throughout the country. It was conducted at the regional and national levels. The regional tests for the two levels were written examinations while the national tests were oral and hands-on.

Due to unavailabity of participants in some regions, the regional elimination was conducted only in 11 regions instead of the existing 17 regions in the country. The said elimination was conducted on separate dates because some of the examination venues were not available.

The Astro Olympiad Committee was chaired by Dr. Merle Tan of UP-NISMED. Its members include Drs. Cynthia Celebre (SPOC,PAGASA), Jesus Torres (RTU), Rhodora Gonzalez (UP- Training Center for Applied Geodesy and Photometry) and Perico Esguerra (UP-National Institute of Physics). A group was also formed to be in charge in the preparation of questionnaires. Mechanics for the conduct of the contest were also prepared.

Test Administrators/Proctors were also designated who went to the different regions to conduct the examinations on January 15, 16, 21 and 22, 2010. They were assisted by the staff of the Department of Education in the concerned region. The top notcher in this regional elimination for both levels was considered as the finalists who will undertake the National Test.

The National Examination was held at the UP-NISMED on 19 February 2010. The students, together with their coaches arrived at the venue a day before the examination. All the expenses that they have incurred in connection with the activity were shouldered by the NOC. The top three examinees were announced as 1st, 2nd and 3rd prize winners for both levels. The next seven high ranking examinees were identified to receive consolation prizes. All of the winning participants were also given plaques of recognition both for the students and the schools.

The prizes are 354, 266, and 177 € each for the 1st, 2nd and 3rd prizes, respectively. The high school level finalists worked as a team and hence, was composed of two members. The consolation prize is equivalent to 18 €. The prizes were given to the winners during the Awarding Ceremony, which was held in the afternoon of 19 February 2010. The prizes were courtesy of the Grant-in-Aid fund of DOST.

Organisers: NOC.

Estimated number of people who attended or were reached by this activity: 2000.

Budget: 13 373 €

## Lessons Learned

The most important aspect in any endeavour is the budget. Hence, it is a must that the resources be made available that should complement the planned activities.
Coordination is also important. We failed to coordinate well in inviting our guests for Opening Ceremonies. Hence, our Keynote Speaker was not able to come.

Time is also of the essence. The occurrence of successive damaging typhoons had caused the postponement of series of our activities. But the attendance of most of our foreign guests were affected because their budget were affected by the postponement.

Also important is to know the correct people to coordinate with. We should only work with people who can give enough time to conduct the activities. Hence it will be better if there are people in the NOC who can work on a full-time basis.

## Legacy

The National Organizing Committee has not met yet after the activities. Hence, plans regarding this aspect is not yet discussed. But with or without NOC, the PAGASA and the various astronomical societies are pursuing the continuation of education and public outreach activities in the country.

## Comment

The effort exerted in the year-long conduct of the activities for the International Year of Astronomy 2009 is very worthy. It has left a mark worldwide that redound to the magnificent promotion of astronomy.

Our country as an example, though it is a developing one and archipelagic in nature, has benefitted a lot in this effort. Through our outreach activities and the conduct of the Astro Olympiad, the people, particularly the youth who are living in the remote areas of our country were given a snapshot of the activities.

Thank you very much to the organisers for this brilliant plan!



# Poland

## National Node

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http://www.astronomia2009.pl/

Official Languages

- Polish
-

Number of organising committee members: N/A

-

Population: 38 192 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Astronomia.pl Portal Activity in 2008–2009

The main content of the website is news coverage of science, education and communication topics from astronomy, a database of articles, newsletter, discussion forum, galleries and more. The portal addresses are: www.astronomia.pl and separate websites www.kopernik.pl, www.planetarium.pl and www.astrowww.pl.

#### IYA2009 Polish website

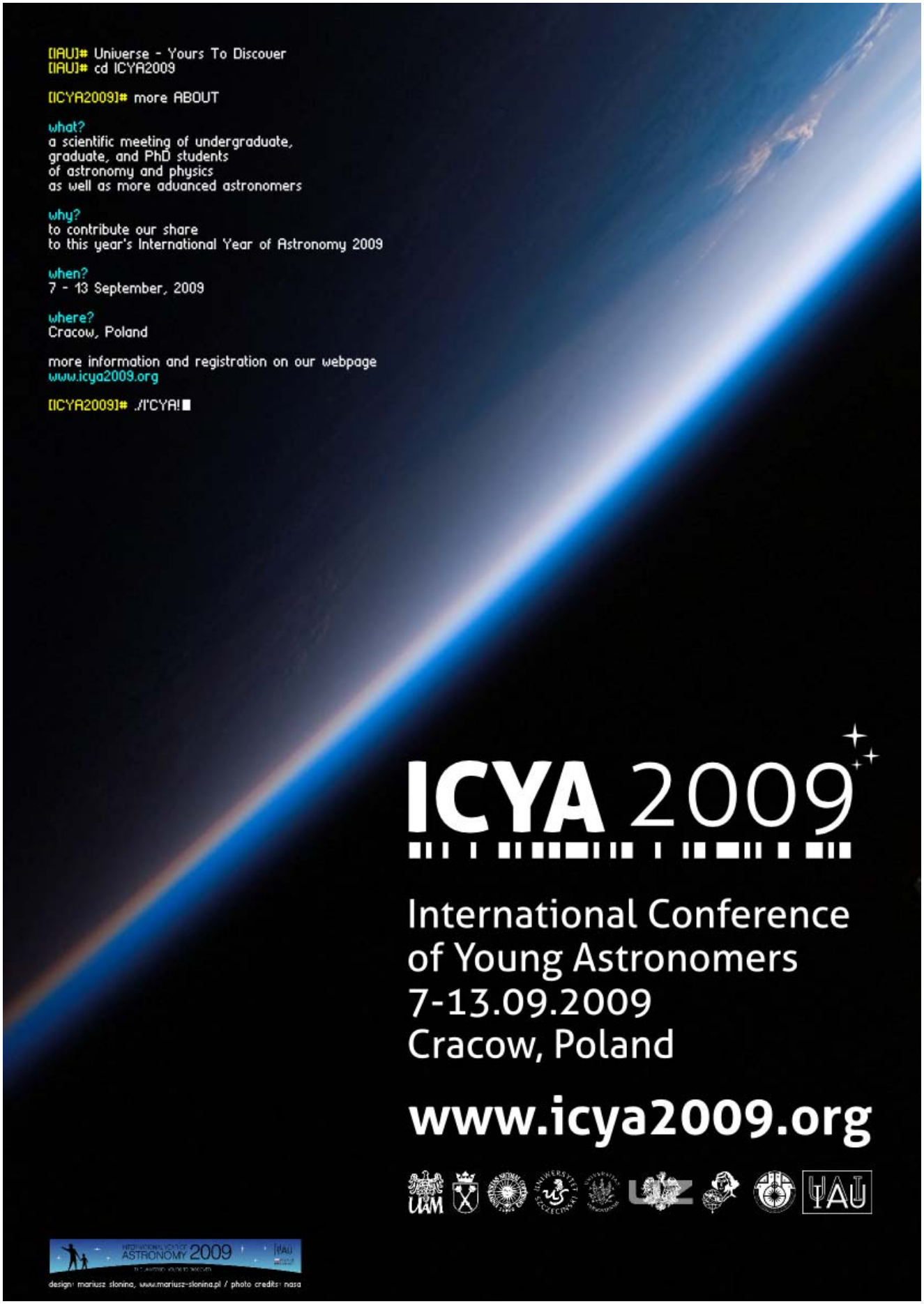
The main task of the portal during IYA2009 has been creating and maintaining the Polish national website of the IYA2009. The website acts as a database of events in Poland, it is also a source of basic information about astronomy in Poland and addresses of scientific and educational institutions related to astronomy. The website: www.astronomia2009.pl.

International Conference of Young Astronomers ICYA2009

About 150 participants from more than 30 countries attended the conference organised by Polish biggest universities and astronomical societies during 7-13 September in Kraków. The conference is aimed to be organised each year in a different country. The website: www.icya2009.org.






[IAU]# Universe - Yours To Discover
[IAU]# cd ICYA2009
[ICYA2009]# more ABOUT
what?
a scientific meeting of undergraduate,
graduate, and PhD students
of astronomy and physics
as well as more advanced astronomers
why?
to contribute our share
to this year's International Year of Astronomy 2009
when?
7 - 13 September, 2009
where?
Cracow, Poland
more information and registration on our webpage
www.icya2009.org
[ICYA2009]# ./I'CYA!
ICYA 2009
International Conference
of Young Astronomers
7-13.09.2009
Cracow, Poland
www.icya2009.org
IAU
ASTRONOMY 2009
design: mariusz slonina, www.mariusz-slonina.pl / photo credits: nasa

### Aurora Polaris

Aurora Polaris is cooperative project between institutions from Poland, United Kingdom, Slovakia and Greece. It is funded by Grundtvig programme of the European Union. During project there has been created resources for visually impaired people and for elderly learners. The task of Astronomia.pl portal was preparation of podcasts about astronomical topics. The website: www.aurora-polaris.eu.

### Galaxy Zoo and Galaxy Zoo 2

Galaxy Zoo is a programme aimed for general public. People were encouraged to classify galaxies. Preparation of Polish version was a great success and attracted many people to try this task. It is the only one non-English version of the project website. The website: www.galaxyzoo.org.

### Star count global activities

Astronomia.pl supported also global activities during IYA2009. The example are star counting project, for which we have prepared Polish materials and promoted them in our country. During 2008-2009 we supported in this way GLOBE At Night 2008 and 2009, and The Great World Wide Star Count 2008.



# Portugal

## National Node

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www.astronomia2009.org

Official Languages
- Portuguese

Number of organising committee members: 5
- Volunteers: 3
- Paid: 2

Population: 11 317 192

Number of people reached by IYA2009:
- 750000 (attended)
- about 2 000 000 (reached)

Budget:500 000€

Sources of Income:
- Fundação para a Ciência e Tecnologia
- Agência Nacional Ciência Viva
- Fundação Calouste Gulbenkian; institutions that organises activities locally

## General Overview of IYA2009 activities in Portugal

The IYA2009 in Portugal was organised by the Portuguese Society of Astronomy, with the collaboration of the Foundation for Science and Technology, Calouste Gulbenkian Foundation, the Museum of Science, University of Coimbra, the Ciência Viva Agency and the European Astronomical Society.

In our country more than 440 institutions were involved organizing more than 4000 activities throughout the year 2009, in more than 300 cities, towns and Portuguese villages. Among the institutions involved one can find universities, research centres, municipalities, museums, science centres, scientific societies, various associations, etc. More than 3000 people (mostly volunteers) have been involved in the organization of activities for IYA2009, either locally or nationally.




A special attention must be pointed out in more than 250 primary and secondary schools involved in the IYA2009. In these schools (for all over the country), many lectures and sessions of astronomical observations were promoted by astronomers (amateur and professional). An example of this involvement is the recent contest “Artistic Astronomy”: we received more than 1200 proposals, where astronomy served as motivation for artistic creativity of young people. Still in schools we must consider the ten advanced training courses for teachers on “Let’s teach and lear astronomy,” involving over 300 teachers. This training was formatted in accordance with IYA2009 Cornerstone Project “Galileo Teachers Training Program”. Thus, thousands and thousands of students enjoyed the activities promoted during IYA2009. Also, the Galileo Teachers Training Programme was awarded an honourable mention in the Mani Bhaumik Award for Excellence in Astronomy Education and Public Outreach established by the International Commission of IYA2009.

The general public was not forgotten during 2009. Among hundreds of lectures, public meetings and exhibitions all over the country, we highlight the “Oceans Festival” in 2009 dedicated to the International Year of Astronomy, which led to the riverside area of Lisbon over 300 000 people. In this context, we point out the Guinness record of the biggest painted canvas including astronomical and oceanographic themes, with 4.8 km length, painted by more than 15 000 people. Regarding the exhibitions we also want to highlight the project “From the Earth to the Universe”, where 1100 astronomical posters (1.7 x 0.8m) occupied interior (including a prison and a hospital) and exterior locations in dozens and dozens of Portuguese cities.

During 2009, astronomy has come to other areas of culture. Beginning with the opening session of IYA2009, held at the Casa da Musica in Porto, where the Porto National Orchestra performed “The Planets” by Gustav Holst, 31th January 2009. Among many other events, there were exhibitions of ancient astronomical books at the National Library and the Torre do Tombo. The Museum of Science, University of Coimbra, promoted a collection of traditional tales and legends in the “Heavens of our grandfathers” project, the “Galileo” of Bertolt Brecht was represented at the Prison of Coimbra (where the actors were the prisoners), the association AderMinho held a contest to craftsmen, inviting them to submit proposals on the theme of Astronomy.

And what to say about some national monuments that extinguished their lights to call attention to the problem of light pollution? It was the “Night of Stars” held nationwide on July 18, coinciding with the opening of “Astronomy in the summer”. Note also that the CAIS Magazine published in its October issue, an edition entirely devoted to IYA2009 with a circulation of 15,000 copies. We recall that this magazine is sold in streets by people with financial low resources.

The impact in the media also has been big with 80 press releases published and more than 600 articles in newspapers and many radio and television spots. A special mention to “1 minute of Astronomy” which led to the various channels of RTP (1, 2, International and Africa) public figures to speak about Astronomy. Access to the IYA2009 webpage has surpassed the 250 000 visits in 2009.

Notably, also the fact that Portuguese activities had been awarded internationally as activities of IYA2009: In the scope of “100 Hours of Astronomy”, Ana Mourão (IST) received a first prize and the Centro Multimeios de Espinho (Navegar Foundation) received an honourable mention; Related to the “Galilean Nights” Luis Santo (Group Atalaia) and the Multimedia Centre de Espinho (Navegar Foundation) were awarded with two first prizes and the NUCLIO was awarded with an honourable mention. Regarding the international impact of national initiatives we must also highlight the contest “Discover your Sky” coordinated by Carlota Simões (Museum of Science, University of Coimbra), which was accepted as a special project of IYA, being implemented in several countries (such as Slovenia, Mozambique or USA) beyond Portugal.

On March 17th, the Calouste Gulbenkian Foundation hosted the closing session of IYA2009 in Portual, where it was released, for the first time in Portugal, the translation of fundamental work of Galileo Galileo “Sidereus Nuncius,” published in Italy on March 12, 1610.

We are now working on IYA2009 evaluation. Nevertheless we can already point out some results of this evaluation, based on the delivered questionnaires (please see item 6): more that 80% of the answers of the local organisers agreed that the action of the national node was important to the success of local activities; more than 70% of these local organisers agreed that IYA2009 was an opportunity to have new collaborations with other institutions; 90% of the local organisers agreed that IYA2009 fulfilled their initial expectations; 90% of the people that participated on the activities agreed that IYA2009 helped to call the attention to Astronomy.

Finally, resuming, both for the numbers of activities, participants, synergies, collaborations and evolution, we can conclude that the IYA2009 in Portugal was a success. We look forward for the legacy of the IYA2009.

## Main Activities

Number of Activities: 4000 (1700 were communicated to the national node; from the final report of 40% of the associated institutions we can count 2700; so 4000 is an estimation)

### Talks and astronomical observations in schools

The main purpose of this activity was to share with school community (from primary to high school) the current knowledge about our Universe. This activity was guaranteed by professional astronomers in Portugal, nearly 50 scientists collaborated in this effort. The events also involved amateur astronomers who carried sun and night sky observations with telescopes. Nearly 200 sessions were promoted distributed over the continent and Madeira and Azores Islands. This activity was a clear opportunity to show the how (and where) research being developed in Portugal.




Website: http://www.astronomia2009.org/index.php?option=com_content&task=blogcategory&id=35&Itemid=126

Estimated number of people reached: 20 000

Budget: 25 000 €

## From Earth to the Universe (FETTU)

In Portugal we choose to host FETTU following three different approaches: 1) in Portugal (continental) we selected a group of 11 images and, adding the Portuguese IYA logo, we produce 100 groups of these 11 images that were printed in an outdoor format in order to be place in streets or to be used to mount exhibitions in schools and/or public indoor places 2) in Madeira Island a group of 30 images were printed in roll-ups in order to be placed in commercial centres 3) in Açores islands, several FETTU images were printed in order to be fixed in trees (1) and outside walls. One of the most emblematic exhibit was the one in Coimbra's Prison, an iconic example of the philosophy of IYA2009 in Portugal, the skies can reach everyone.




Website: http://www.astronomia2009.org/index.php?option=com_content&task=blogcategory&id=36&Itemid=127 and http://picasaweb.google.com/daterraaouniverso/ExposicaoDaTerraAoUniversoEmPortugal

Estimated number of people reached: 100 000

Budget: 10 000 €

## The stars night (18th July 2009)

The aim of this project was to call the public attention to the light pollution problem and it was inspired on the cornerstone project “Dark Skies Awareness”. The idea was to switch off some public lights around monuments or symbolic and very touristic places. The day of 18th July was chosen because it was the start of the national programme named “Astronomia no Verão” (Astronomy during the summer) organised by the national agency “Ciência Viva”. The activity was developed in twelve cites, including Madeira e Azores. . In each “stars night node” a set of activities has been developed (e.g. counting the stars in Ursae Minors) in order to call the attention to the light pollution problem. More than 10 000 people were present in all places. We expect to repeat again this activity this year.



Website: http://www.astronomia2009.org/index.php?option=com_content&task=blogcategory&id=40&Itemid=131

Estimated number of people reached: 10 000

Budget: 2 000 €

## Teachers training WS “To teach and learn astronomy”

This project was devoted to more than 300 teachers ( primary to high school) in order to train them on astronomy subjects. In Portugal the astronomy is studied in different curricula, but most part of the teachers didn’t receive specific training for this topics. The workshop idea was based on the GTTP cornerstone project with a schedule running in three days with the following structure:

- First day- Introduction to astronomy (theoretical concepts)
- Second day – How to use a telescope?
- Third day – GTTP module (new technologies applied to the classroom)

We promoted 10 workshops, distributed in the Continent and Islands. The course was accredited by our Ministry of education and all participants had to present a lesson plan as a form of evaluation. The feedback we received from the participants was fairly good.

Website: http://www.astronomia2009.org/index.php?option=com_content&task=blogcategory&id=39&Itemid=130

Estimated number of people reached: 300

Budget: 15 000 €

## “And now I’m Galileo”

The idea of this Project was to recover the observations performed by Galileo, namely the Moon, the Sun, Jupiter and satellites, Venus, Saturn and the Milkyway. We had nearly 30 different observing dates established (http://www.eagoraeusougalileu.org/Observ.php). The national node prepared a set of observing guides and reports to be filled by the observers, this material was based and authorized by the international project “You are Galileo”. Several institutions supported this effort, namely: Associação Portuguesa de Astrónomos Amadores, Centro de Astrofísica da Universidade do Porto, Centro Ciência Viva Bragança, Núcleo Interactivo de Astronomia, Universidade da Madeira, Observatório Astronómico de Lisboa, Sociedade Científica de Astronomia do Minho, Centro Multimeios de Espinho, Museu da Ciência da Universidade de Coimbra, Associação de Física da Universidade de Aveiro, Centro Ciência Viva do Algarve, Centro Ciência Viva de Constância, Observatório Astronómico de Mira, Observatório Astronómico de Tavira e Universidade dos Açores. The activities reached the whole country !




Website: http://www.eagoraeusougalileu.org/

Budget: 5 000 €

## Festival dos Oceanos — Oceans Festival

The Oceans Festival 2009 held in Lisbon between 1 and 14th August, with an edition devoted to astronomy and the sea. It included several events, to animate the Riverside Area of the Capital. This was the biggest event in Portugal involving Astronomy with different activities as:

- “The Planets” concert from G. Holtz: http://www.festivaldosoceanos.lpmcom.pt/index.php?option=com_content&task=view&id=509&Itemid=96

- Planetarium Giamello, constellations in streets: http://www.festivaldosoceanos.lpmcom.pt/index.php?option=com_content&task=view&id=514&Itemid=96
- The biggest painted canvas – Guinness record (4.5 km): http://www.festivaldosoceanos.lpmcom.pt/index.php?option=com_content&task=view&id=542&Itemid=96 and http://www.festivaldosoceanos.lpmcom.pt/index.php?option=com_content&task=view&id=541&Itemid=96.
- Telescope observing sessions – over 8000 people looked through our telescopes

Organisers: The Oceans Festival is organised by the Lisbon Tourism Association, a Realizar production that counts also with the support of Turismo de Portugal, Lisbon City Hall

## Contest "Artistic Astronomy" (Astronomia Artística)

This contest aimed to show the power of astronomy in arts (music, literature, poetry, dance, painting, sculpture, multimedia, etc, etc.) motivating students to produce their own projects. The idea was to mix astronomy and art giving the students the possibility to create art using astronomy as a main theme. This was devoted to non-superior school students and open to all schools in Portugal. The dead line to present the projects was 31 January 2010. We received more 1200 proposals for all over the country. Due to this unexpected large number we are still on the evaluation phase. We expect to deliver the results next November.]

Website: http://www.astronomia2009.org/astroarte

Estimated number of people reached: 5000

Budget: 5 000 €

## "One minute of Astronomy" (1 minuto de Astronomia)

This project aims was to present fundamental concepts of Astronomy in a one minute TV program. Thirteen episodes where produced involving different astronomical topics such as: What is Astronomy ?, Big Bang, Extrasolar planets, Saturn rings, the Galileo Legacy, Telescopes, The end of the Sun, Comets, Eclipses, Dark Matter, Black Holes, The Milky way and Light-year. Each TV programme was presented by a public personality, singers, actors or TV presenters. The thirteen episodes were shown daily during the month of November 2009 at the public channel (RTP). Between 3 – 4 November, various episodes have been viewed over than 50 times and 120 times in RTP1 in RTP2. In the middle of November these episodes also began to be exhibited on RTP International and RTP Africa. It is estimated that, in total, around 10 TV hours were devoted to these project. The TV programs where complemented by a webpage where those topics were explained by professional astronomers in Portuguese texts. These programmes were also followed in social networks as twitter, Facebook, You Tube and Vimeo. This project was, recently, one of winners of the "National Multimedia Prizes" given by the Association for the Promotion of Multimedia and Digital Society (APMP).



Website: http://www.1minutoastronomia.org/

Estimated number of people reached: 500 000

Budget: 46 500 €

## Evaluation

We produce two kinds of questionnaires: one for the institutions (local organisers of IYA activities) (http://questionpro.com/t/CG3DuZDSX8Y) and the other for public, mainly for those participating on the activities (http://avaliacaoaia2009.questionpro.com). The main goals of these questionnaires were: 1) to know numbers of: participants, activities, etc and to get the feedback of the local organisers on the different aspects of the national organization (including the national node activity) and 2) to have the feedback of the public that have been in contact with the IYA activities. We also had an expectation to know if the initial and global main objectives were fulfilled in Portugal.

## Lessons Learned

Taking into account our IYA2009 experience in Portugal the main lessons learned are:

- Start early: the national IYA node was nominated by the Portuguese Astronomical Society in July 2006 (quite before the SPoC nomination by the IAU). This fact gave to the national node the necessary time to discuss with the interested people and institutions and find the financial support.
- Involve everyone that wants to be involved: since 2006 we have been in contact with a larger number of associations and institutions in order to get their opinion and their inputs for the national activity program. This was particularly important on the relation between professional and amateur astronomers.
- Have a national program: during the summer of 2007 we deliver publicly a first draft of the national programme (including cornerstone projects adapted to Portugal and own projects) and we have received many comments and suggestions.
- Have the people informed: we used a webpage and a series of newsletter to inform the public about the activities. On the other hand we have organised with some national media (mainly radio and newspapers) dedicated appointments about the activities. We also had the collaboration of a communication agency in order to help us on the contact with media, in particularly they were responsible for sending around 80 press-releases about IYA2009.
- Have an evaluation: We deliver two specific questionnaires in order to get the feedback of the local organisers and public. Without that, we could not have a correct idea of how IYA2009 worked.

## Legacy

The Portuguese Astronomical Society (SPA) was the main organiser of the IYA in Portugal. We (national node and the SPA board) are now studding the opportunities to improve IYA legacy by the creation of a web platform that will congregate all the material produced during 2009 and the contact of different involved institutions. These will

be also the continuation of the present national IYA webpage. On the other hand there are some projects as the dark skies awareness, GTTP and the Week of Astronomy that will be developed in future.



# Qatar

## National Node

Sheikh Salman Ben Jaber Al-Thani
Qatar Astronomical Club
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Official Languages

- Arabic
-

Number of organising committee members: N/A

-

Population: 1 696 563

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities



September 2009: Opening of the first Qatari planetarium located at the Qatar Scientific Club.

# Republic of Korea

## National Node




Hong-Kyu Moon (Korea Astronomy and Space Science Institute)

www.astronomy2009.kr

Official Languages
- Korean

Number of organising committee members: 29
- Volunteers: 22
- Paid: 7

Population: 50,062,000

Number of people reached by IYA2009: 11,700,000 (including web access)

Budget: 826,000€

Sources:
- Government
- Research institutions
- Private companies

## General Overview of IYA2009 activities in the Republic of Korea

Working with the IAU, the IYA2009 Korean National Node hosted various events and activities in close collaborations with online/offline amateur astronomers all through the year. The projects organised by the National Node are divided into seven distinct areas; Education, Culture, Events, Exhibitions, Publications, Media, and Conferences. The IYA2009 national projects were planned to showcase astronomy and related issues for the general public.

In Korea, IYA2009 was even more successful than expected. We have more than 400 events registered on our website. We handed out a large number of postcards, diaries, calendars, IYA2009 commemorative issues, bookmarks, stickers, balloons, etc. The total number of hand-outs is over 500,000.
The events and programmes covered a wide range from star parties to public lectures, poetries, essays, sci-fi novels, concerts, cartoons, films, contests, movies, live webcasts, flash video clips, and many more.
In addition, we hosted art and photo exhibitions, and video advertisements in public observatories, science museums, subway trains, train stations, a city hall, an amusement park, shopping malls, department stores, art galleries, libraries, hospitals, and even in a police station.

Large number of TV/radio broadcasts and live webcasts highlighted IYA2009 and astronomy generally. We summarise the activities and events of the National Node as follows:
Overview: Activities: 91; Events: 410; Number of people attended or reached: 11,700,000
Outcomes: Public lectures: 202; Official books/booklets: 4/3; Exhibitions: 81; Concerts: 15; Conferences: 7
Media: Press releases: 40; Media coverage: >2485; Serial Articles: 248 (online: 121, offline: 127)
IYA2009 Web access: Visitors: 999,890; Total page views: 131,963,473

## Main Activities

### List of Activities

- Cartoon : Cartoonists-astronomers workshop

- Cartoon : International Comic artist Conference 2009
- Concert : Celestial Odyssey
- Concert : Music from Outer Space
- Concert : Music shuttle 2009, A Journey into the Space
- Conferences : IYA2009 Commemorative workshop on astronomical instruments
- Conferences : The IYA2009 Special Seminars on Pope Sylvester II and King Sejong the Great
- Conferences : The 3rd Korea-Japan Young Astronomers' Meeting
- Conferences : The KAS-KSSS IYA2009 Commemorative Conference
- Conferences : The Korean Academy of Science and Technology IYA2009 Commemorative Symposium
- Conferences : UN Basic Space Science and IHY2007 Workshop
- Conferences : IYA2009 Commemorative workshop on the Korean traditional astronomical instruments
- Culture : Star Festival in the South Island — IYA2009 Japan National Node
- Culture : Stars of Asia on the web
- Culture : Stars of Asia workshop — IYA2009 Japan National Node
- Dark Skies Awareness : How many Stars?
- Dark Skies Awareness : Public hearing on light pollution in National Assembly
- Dark Skies Awareness : Sky bright measurement campaign
- Education : Astronomy told in books
- Education : Book report award program
- Education : Galileo Teacher Training Program
- Education : Galileoscope
- Education : Meet an astronomer in the classroom
- Education : On-line Astronomy Dictionary version 1
- Education : She is an astronomer
- Education : Dong-A Science Students' Science Essay Test
- Education : The 3rd Students' Astronomy Contest
- Education : The 5th Asia-Pacific Astronomy Olympiad
- Education : The sun as a star — campaign
- Education : Universe Awareness
- Events : 100 Hours of Astronomy
- Events : Campus star party
- Events : Children's Day event
- Events : Christmas Science Concert 2009
- Events : CMB Space festival
- Events : Earth Hour
- Events : International Astronautical Congress 2009 Space Festival
- Events : IYA2009 Commemorative Science Festival in Pohang City
- Events : IYA2009 Korean National Node Closing Ceremony
- Events : IYA2009 Korean National Node Opening Ceremony
- Events : Kick a ball into the space — football league
- Events : 2009 Koomdori Science Festival
- Events : Korea Science Festival 2009
- Events : New Year's Eve event
- Events : New Year's sunrise event
- Events : Public observatory and science museum workshops
- Events : Star in a sickroom
- Events : "The Star of Gyeongju" Festival
- Events : Star party in Goyang City
- Events : The Altair and the Vega Festival 2009
- Exhibition : "Aurora Photos" in the shopping malls
- Exhibition : "The Digital Universe" at KTX stations
- Exhibition : Do It Yourself Universe
- Exhibition : From Earth to the Universe
- Exhibition : Kagaya space art
- Exhibition : NAVER on-line FETTU
- Exhibition : NAVER on-line TWAN
- Exhibition : Starry Nights

- Exhibition : The Korea at Night
- Exhibition : The World at Night
- Films : Sci-fi Film Festival 2009
- Films : The 13th Pucheon International Fantastic Film Festival
- Films : The universe in films — sci-fi film screening events
- Literature : Sci-fi novelists-astronomers workshop
- Literature : Stars meet poems — star party
- Literature : The universe in essays — serial articles
- Literature : The universe in poems — serial articles
- Media : Astronomy, how important it is? — public poll
- Media : IYA2009 promotion materials and souvenirs
- Media : IYA2009 Special news articles
- Media : IYA2009 'Time Box'
- Media : IYA2009 website "IYAzine"
- Media : LCROSS observation campaign — NASA/ARC
- Media : Meet the Universe in the subway
- Media : On-line flash — The 400 years of astronomical telescope
- Media : The Digital Photographic Atlas of the Moon
- Media : The Moon for All Mankind — IYA2009 Malta National Node
- Media : The partial solar eclipse livecast
- Media : The partial solar eclipse observation campaign
- Media : The universe in mobile
- Media : We are extrasolar planet hunters
- Official Book : An anthology of astronomy-related essays (to be published)
- Official Book : Eyes on the Skies
- Official Book : Loneliness in the Million Light Years of Space-time
- Official Book : Stars meet poems
- Publication : 2009 Astronomical Calendar
- Publication : 2009 Astronomical Diary
- Publication : Report on Lunar and Solar System Exploration Programs
- SETI : "SETI" web-toon drama
- SETI : SETI Mini-workshop
- Stamp : Korea Post IYA2009 Issue

## Solar Eclipse Viewing Session

On 22 July, partial solar eclipse viewing events were widely held across the nation at 45 places with over 0.4 million people when we limitedly counted the sessions organised by the Korean National Node. It is estimated that at least several millions of South Koreans, from kindergarten children to the President of the Republic of Korea, watched the eclipse in schools, their backyards, and their works including the Blue House, either with small telescopes or eclipse glasses. The partial solar eclipse was live-casted by www.astronomy2009.kr and NAVER which is the biggest web portal in Korea, and both sites unfortunately went down when it was overwhelmed by the sudden rush of million hits. The number of media coverage: > 600.

Organisers: The IYA2009 Korean National Node ,Korea Astronomy and Space Science Institute.

Website: http://www.astronomy2009.kr/solar_eclipse/live.aspx



Estimated number of people who attended or were reached by this activity: 452,000.

Budget: 7800€

## Photo exhibitions

A series of seven photo exhibitions were held across the nation over 76 places including public observatories, science museums, shopping malls, and KTX (Korean Train eXpress) stations. In Korea, “FETTU”(From Earth to the Universe), “TWAN”(The World at Night), “Korea at Night”, “Starry Night”, “Digital Universe”, “Aurora Photo Exhibit”, and NAVER online TWAN exhibition were enjoyed by more than 1.6 million people.

TWAN made its first stop in Seoul and moved to other big cities in Korea. The venues of TWAN varied from a city hall, to subway stations not to mention COEX mall. TWAN virtual exhibition with NAVER, the largest internet portal in Korea, ranked one of the hot click sites in the year 2009. FETTU has been displayed in 40 places including public observatories, national science centres, libraries, an amusement park, and even hospitals. From September through December, “Digital Universe” had tour exhibits at the 6 largest KTX stations and was enjoyed by 483,000 passengers. In this statistics, we applied only five percent of daily average passers-by in each station, which is regarded as rather conservative though.

The number of media coverage: 56

Organisers: The IYA2009 Korean National Node, NHN Corp.

Website: http://photo.naver.com/galleryn/46



Estimated number of people who attended or were reached by this activity: 1,624,000.

Budget: 23,000€

## Meet the Universe in the subway

In February and April, we showed short movies on IYA2009 in Seoul Metro subway trains on lines 1, 3, and 4. They were shown to 2020 LCD monitors on the train twice a day in rush hours, for about four minutes.

The themes of the videos are IYA2009 and “100 Hours of Astronomy”. They were produced based on the IYA2009 trailer and “Eyes on the Skies” DVD. If we assume that only five percent of the daily passengers on each subway line carefully watched the movies, the total number of actual audience would be more than 4 million! (In general, 30% of the daily average is applied for the statistics in similar cases).

Organisers: The IYA2009 Korean National Node, Seoul Metro.

Website: http://www.astronomy2009.kr/blog2/video_list.aspx?&page=3
http://www.astronomy2009.kr/blog2/video_list.aspx?&page=4




Estimated number of people who attended or were reached by this activity: 4,260,000.

Budget: 4900€

## Cartoonists Workshop

In May of 2009, for the first time in Korea, we hosted “Cartoonists-astronomers Workshop” at Mt. Bohyun Observatory where 10 famous cartoonists, a storyteller, critics, astronomers and a reporter participated. The workshop included lectures, observation and brainstorming with museum and public observatory visit session.

Tae-Ho Yoon, a renowned cartoonist who joined the workshop carried a “cartoon drama”, SETI, on the web serially in 16 instalments in October and November. His work reflects the trend of cutting-edge cartoons; it is a combination of still cuts and short video clips, and appeared on DAUM media, the second most popular web portal in Korea. “SETI” became very famous among young people partly because teen celebrities appeared on the real-life movies in SETI! The cartoon was supervised by the National Node. In addition, this project was supported by CANON Korea Consumer Imaging Inc.

The number of media coverage: 59

Organisers: The IYA2009 Korean National Node, Omelas.

Website: http://cartoon.media.daum.net/series/list/seti



Estimated number of people who attended or were reached by this activity: 3,000,000

Budget: 3800€

## The Universe in Poems!

50 top poets and poetesses composed poems on astronomy related themes such as Earth, Moon, planets, stars and the Universe. The newly written poetries were appeared in www.astronomy2009.kr and also in Korea Daily and Presian, internet news sites. Finally they were published in a special anthology “Stars meet poems” in August by a big publisher.

We hosted “Stars meet Poems” festival in the yard of a historical building in Seoul to commemorate IYA2009 and publication of the official anthology of poetry, where poems, songs, performances and star gazing share one theme, the Universe. An audience of 500 including poets, critics and devoted readers enjoyed this special event in an open stage under the stars.

- The number internet access: 27,405
- The number of media coverage: 115

Organisers: The IYA2009 Korean National Node, Minumsa Publishing Group.



Estimated number of people who attended or were reached by this activity: 27,905

Budget: 10 300€

## 100 Hours of Astronomy

We actively participated in 100 Hours of Astronomy in various ways. On 2 April, we organised “Campus Star Party” in seven universities, and on the 3rd, “Public Observatory Night” in 34 public observatories, science centres and libraries. On 4 April, we held “A Night in Science Museums,” and on the 5th, we organised “Street Astronomy” events at more than 30 locations across the country such as N Tower, Seoul Station, Haeundae Beach, and Jeju Island. Most amateur astronomers who zealously participated in this campaign indicated their willingness to join this kind of global event in the future as well. The number of media coverage: 39

Organisers: The IYA2009 Korean National Node.

Website: http://www.astronomy2009.kr/archive/calendar/20090402_125320/20090402_125320.aspx




Estimated number of people who attended or were reached by this activity: 31,000.

Budget: 33,000€

## Sunrise Event

On New Year's Day, we organised a sunrise event with the government of Busan City. In Haeundae Beach, which is one of the most renowned summer resorts, more than 400,000 people gathered to watch the once-in-a-year event. We presented short movies of the sun on a huge air-screen and live-casted the event via www.astronomy2009.kr and NAVER, the most popular internet portal in Korea. At noon on New Year's Day, we took part in the global solar observation campaign, Dawn of the IYA, at the same place. Many of the children and their elderly parents told us that it was the very first time that they have ever seen the sun through a telescope.

The number of media coverage: 27

Organisers: The IYA2009 Korean National Node, Korea Astronomy and Space Science Institute.

Website: http://www.astronomy2009.kr/blog2/video_list.aspx?&page=5


STAR CAR



Estimated number of people who attended or were reached by this activity: 400,000.

Budget: 1 260€ (IYA2009 Korean National Node only).

## IYAzine

“IYAzine” is the official website of the IYA2009 Korean National Node. In order to coordinate the various events and projects and to provide important resource, news articles for the general public, we established the website (www.astronomy2009.kr) as the principal IYA2009 information resource for the public, professionals and media as well.

“IYAzine” has provided a wealth of information such as introduction of IYA2009 and the National Node; the goals and visions, the organisational structure, the Cornerstone Projects, and domestic projects.

“IYAzine” has also provided important resources such as event schedule, press releases, news articles, star charts, essays, poems, interviews, photos, video clips, cartoons, and many more.

As of 31 December 2009, the total number of visitors was 999,890 and the number of unique visitors was 806,763. The total page views was 131,963,473.

Organisers: The IYA2009 Korean National Node.

Website: www.astronomy2009.kr




Estimated number of people who attended or were reached by this activity: 999,890.

Budget: 22,000€

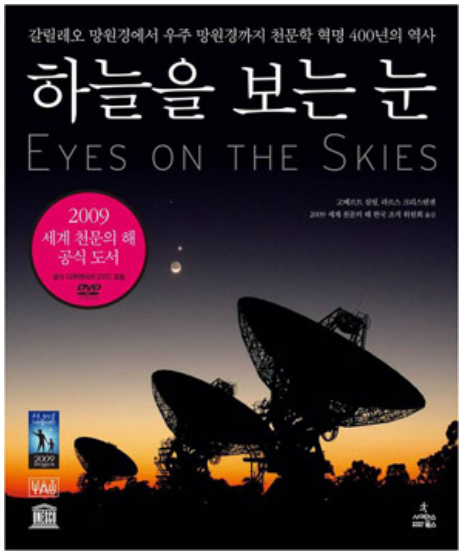
## Astronomy told in Books!

The Korean National Node published “Eyes on the Skies” Korean edition, “Stars Meet Poems”, a book of poetry, and “Loneliness in the Million Light Years of Space-time”, an anthology of sci-fi novels. We also plan to bind a collection of essays on stars and the Universe that have been already appeared on www.astronomy2009.kr in the first half of 2010.

Furthermore, six astronomy book authors visited six small public libraries in small cities and towns during the year. They gave lectures and had chats with the audience. In the evening, for school children and local resident we hosted public observation session when they have seen the stars through a telescope for the first time. “Astronomy told in Books!” library tour has been accompanied by “KB Star Car”, a big mobile observatory equipped with telescopes, domes and large LCDs. As a separate programme on astronomy books, we award online book reports for students from early spring to early summer, and in December.

- The total number of books printed: 12,500
- The number of media coverage: > 30

Organisers: The IYA2009 Korean National Node, Asia-Pacific Center for Theoretical Physics.







Estimated number of people who attended or were reached by this activity: 1300.

Budget: 3200€

## Meet an Astronomer in the Classroom!

Astronomers in universities and research institutions visited schools in Seoul and other big cities across the country to give lectures on astronomy related topics to the students. In the first half of the year, they visited 30 middle- and high schools in Seoul and in the second half, they gave lectures in 62 middle- and high schools, and 3 elementary schools in Daejeon, Daegu, Cheongju, Ulsan, and Busan. This programme has been enjoyed by 14,000 students during the year. More than 200 schools applied for this program; however we could not comply with the requests because of limited resources.

The number of media coverage: 3

Organisers: The IYA2009 Korean National Node.



Estimated number of people who attended or were reached by this activity: 14,092.

Budget: 5200€

## Evaluation

We have two kinds of formal evaluations for domestic IYA2009 activities:

- Advisory committee: In July 2009, we have referred to the elder advisory committee composed of 12 astronomers who have retired from universities and research institutions. The result of their assessment was “excellent” in general. They also gave us some constructive suggestions and proposals in addition.

- Government: In February 2010, we have submitted “The Final Report of IYA2009 Korean Activities” with more than 1000 pages of account balance to Korea Foundation for the Advancement of Science and Creativity, the supervision agency. The evaluation process is still in progress.

## Lessons Learned

### What worked well?

Working with professionals in other fields
During the year, we hosted workshops for sci-fi novelists and cartoonists, for the first time in Korea. Overall, the workshop participants were very much contended with the programme , and the outcomes of the workshop were satisfactory: a collection of sci-fi novels and a web-based cartoon. Especially, the last one was proved to be very popular among young people.

We also worked with poets, musicians (classical and rock), media artists, film makers, scenarists, and others. They expressed their intention to work with scientists, especially astronomers because stars and the Universe are the themes that deeply stimulate their inspiration; the audiences also like to enjoy them.

In fact, juvenile story writers, book critics, media artists, and scenarists proposed joint workshops with astronomers; in 2009, a famous sci-fi critic proposed a workshop where a group of top film directors and astronomers have an observation session and brainstorming in an observatory. However, the proposals and action plans are still provisional under the current condition with limited resources.

### IYA2009 Korean Website

In addition to some common functions of website of this kind, “IYAzine” the Korean IYA2009 website has two important roles;

A reception room where professionals and amateurs in different areas such as astronomy, poetry, novels, music, and art read each others’ articles, interviews “online” and actually meet in real life in offline IYA2009 events.

A reception desk where amateur astronomers and the general public apply for IYA2009 events participation such as 100 Hours of Astronomy, for example.

### What worked less well?

We hosted many kinds of “classical” large scale “star parties” which required large amount of budget, manpower and long preparatory period; however, the success of such an event is dependent upon the weather.

Participation in a global (or nation-wide) street astronomy (or stargazing) campaign, which can be held simultaneously during a certain period of time (from a week to a month) in different places, is considered to be one of the best ways to complement the above-mentioned vulnerability. It is because such an event requires relatively small amount of money (or breakup of budget by local organisers), flexible manpower supply, and rather short preparatory period by the guidance of unified instructions. Further, one can easily change or choose the date of an event according to local weather forecast. It is indeed the main conceptions of “100HA” and “One People, One Sky”.

## Legacy

Korea Astronomy and Space Science Institute (KASI), The Korean Astronomical Society (KAS), and The Korean Space Science Society (KSSS) have their own education and public outreach programs. Especially, KASI invests a good amount of budget and is very actively in public outreach.

We have not yet seriously discussed how to liaison the existing efforts with “Beyond IYA2009 programme .” However, I personally consider that the outreach and public education programme of KASI might be directly related to the Legacy of IYA2009.



# Romania

## National Node

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http://www.astro.ro/IYA2009.html

Official Languages
- Romanian

Number of organising committee members:
- Volunteers:
- Paid:

Population: 22 215 421

Number of people reached by IYA2009: 50 000

Budget: 2 440 €

Sources:
- 50% UNESCO-BRESCE
- 50% John Templeton Foundation

## General Overview of IYA2009 activities in Romania

IYA2009 was the largest and most comprehensive national astronomy in Romania. We discovered many active schools, astronomy clubs, and private groups performing observation and outreach of the astronomy. We have about 22 million inhabitants so the number of people interested and active in astronomy could not be accurately estimated. Each group had its own activity, making choosing the most important one extremely difficult, but the success of the students during the two international Olympiads of astronomy ranks very high.

## Main Activities

### International meeting: Recent Insights into our Universe, 28 — 29 October 2009

Organiser: Astronomical Institute of the Romanian Academy

Websites:
- www.astro.ro/2009/1st.htm
- www.astro.ro/2009/Abstract_Booklet.pdf

### International Workshop Big Questions about the Universe

Sibiu, Romania, 5 - 8 February 2009

It was dedicated to the Romanian opening of the IYA2009. It was held in Sibiu — former European Capital of Culture 2007 — between the 5th and the 8th of February 2009. The workshop included an international debate between science, art and religion in the South Eastern Europe. It was open to scientists, philosophers, theologians, sociologists, to all the people of the region but also to all others interested in such topics.

The organisers challenged attendees to look for answers to the “Big Questions about the Universe”. There are a lot of attempts for a critical examination from philosophical, theological and scientifically approaches. Would such

inter- and transdisciplinary connections be beneficial to the society? A new programme could be: “Big Questions about the Universe in the Light of the Dialogue between Science and Spirituality”. As well as the previous programs, it has the opportunity to get support from the John Templeton Foundation USA.

Organisers: Association “ASTRONOMIA 21” , Association for the Dialogue between Science and Theology in Romania

## She is astronomer

This event involved the tradition of March 8, the international day of the woman as well as “martzishor,” the traditional celebration of the beginning of the spring (and, until 1701, of the New Year) in Romania, Moldova, Bulgaria, Macedonia (under the name Martenitsa), on 1 March. It is the name for the red and white (or black and white, also blue and white) string, from which usually a small decoration (talisman) is tied, and which is offered by people on the 1st day of March. This time the “decoration” was the logo of the IYA2009.

## Stamps, envelopes, and other objects dedicated to the IYA2009.

The postage stamp with the face value of RON 2.40 illustrates in a compositional background Galileo Galilei´s portrait, next to the telescope that he invented and the image of the Tower of Pisa, the building that is closely related to his discoveries and theories.




The postage stamp with the face value of RON 9.10 illustrates a part of the map of the boreal sky constellations, together with inspiring images representing the movement of the planets, as well as the Universe that still hides many secrets which mankind has strived and still strives to discover.

Organisers: Romfilatelia

## Silver medals

National Bank of Romania (BNR) put into circulation, numismatic mint set of the year 2009 issue, which contains the Romanian currency in circulation, and a silver medal dedicated to the anniversary of International Year of Astronomy.

Mint set contains Romanian coins in circulation, with face values of a ban, 5 bani, 10 bani and 50 bani and silver medal is made of silver and weighs 15.5 grams, said in a statement NBR. Obverse coin shows the official emblem of the International Year of Astronomy and the circular inscription “ROMANIA 2009 International Year of Astronomy.” Reverse in the centre shows a graphical composition that includes: dome of the Astronomical Observatory of the Romanian Academy in Bucharest, Galileo’s telescope, his portrait and the planets of the Solar System and the outside arc of a circle, the inscription “Discover the only university. Both the medal and set up the coins are made in proof quality conditions. Circulation endorsed the issue is 1,000 copies.

The set will be presented in the form of leaflets, placed in a ETUI, spare parts are embedded in special slots, and selling price, excluding VAT, is 110 RON / set.

Organiser: National Bank of Romania

## SARM Earth Hour Activity

SARM initiate Earth Hour celebration in Targoviste and other cities in Romania with itself actions in 2008. In 2009 SARM succeeded to cooperate with local authorities/institutions using its slogan “Switch off a light bulb, switch on a star. Try yourself!” In Targoviste city all public lighting turned off, including streetlights, monuments, buildings, squares and more. As an effect, many more stars than are normally visible appeared during the event.




Organiser: Romanian Society for Meteors and Astronomy (SARM)
Website: www.sarm.ro/orapamantului2009




Estimated number of people who attended or were reached by this activity: 1000
Budget: 200€

## TWAN Astrophotography Expedition

SARM organised two astrophotography expeditions in Carpathian Mountains for The World At Night (June 18-21 and July 17-19), two SARM members becoming Winners in IYA2009 Earth and Sky astrophotography contest.
The first expedition was organised in Bucegi Mountains around summer solstice, June 18-21.
The photgraphers took many excellent pictures, including Romanian natural symbols (Sphinx and Old Ladies) and noctilucent clouds.
Organiser: Romanian Society for Meteors and Astronomy (SARM)
Website: http://www.cosmopoetry.ro/astropoetrytoiya/summer.html





Estimated number of people who attended or were reached by this activity: 9 participants, 1000 web access
Budget: 1200€

## Closing ceremonies of the IYA2009 in Romania

Romania is officially closing the International Year of Astronomy 2009 through a set of activities including a Symposium, conferences, awards ceremonies, public lectures, gastronomy fair, and science café. Activities started at Targoviste on November 27 through the national symposium “Love the Cosmos” organised by the SARM. Representatives of astronomical associations, astronomical observatories, planetariums, junior and high schools, universities and informal groups have presented the final results of the projects 100 Hours of Astronomy and Galilean Nights. Worth to mention that they organised also the astrophotography exposition and the National Astronomy Conference for the Youth ASTRO 2009-Discover the Universe!

Each student from the 2009 international Olympic astronomy and astrophysics team (all of them awarded from gold to bronze medals) were awarded during an event at the “Henri Coanda” Aeronautical College, Bucharest. It was the same time when the winners of the international essay contest Cassini were mentioned and presented to the mass media representatives and public. The event attracted students, teachers, professors, educators, science managers, scientists, professional and amateur astronomers, journalists, and the public. All of them shared a piece from a giant cake and a cup of champagne. (December 4, 2009) Dr. Zadig Mouradian, astronomer at Paris Observatory, had a talk about the couple Sun — Earth at the French Institute from Bucharest. The audience was made of college students, teachers, scientists, professors, and general public. (December 8, 2009) “The Sweet Planet — Astronomy and Gastronomy” or gastronomy fair dedicated to astronomy is part of the Minorities Gala that includes also music and dance. (December 10, 2009) The science cafe is about to take place at the British Council and is organised by Ziarul Stiintelor (The Science Newspaper), the official mass media partner of the IYA2009. (December 18, 2009)



# Russian Federation

## National Node

Oleg Malkov (Institute of Astronomy, Moscow)

www.astronomy2009.ru

Official Languages
- Russian

Number of organising committee members: >11
- Volunteers: >11
- Paid: 0

Population: 141 927 297

Number of people reached by IYA2009: 20 000

Budget: 50 000€

Sources:
- Astronomical institutes and observatories
- Russian Academy of Sciences
- Planetaria
- Sponsors / partners
- Universities
- Associations and individuals

## Main Activities

### List of Activities

- Participating in the global project “She is an Astronomer”, investigating professional and carrier growth of women in Russian astronomy.;
- Participating in the “The World at Night” (TWAN) special project;
- Developing websites of research institutes, university departments of astronomy, planetaria that will primarily address the general community, schoolchildren, amateur astronomers and cover scientific, social, and educational activities of the corresponding institutions; creating public relations and popular astronomy structures in observatories and institutions;
- Special events for children and youth: competitions of children’s astronomical drawings, with winners determined by an open ballot; visits of astronomers with lectures to schools, summer camps, orphan homes; astronomical Olympiads, conferences and team observations;
- Publishing a calendar for 2009;
- Issuing a postal stamp and envelope on the occasion of IYA2009;
- Participating in observations and media coverage of the total solar eclipse on 22 Jul 2009 — the longest-totality eclipse of the 21st Century;
- A series of Russian and international meetings and conferences.

## All-Russia Conference “Astronomy and Society”, the central event of the International Year of Astronomy 2009 in Russia

Moscow State University, 25 — 27 March 2009. Principal topics: fundamental and applied importance of astronomy; communication of astronomers with: public, amateurs, government, mass-media; astronomical popularisation and education. Nine invited discourses for public.

Organisers: National Committee of Russian Astronomers, Sternberg Astronomical Institute, Institute of Astronomy, Euro-Asian Astronomical Society.

Website: http://agora.guru.ru/iya-2009







Estimated number of people who attended or were reached by this activity: 700.

## UNESCO congress “Astronomy and World Heritage: Across Time and Continents” (20 — 24 August, Kazan)

As noted by the UNESCO General Conference at its 33rd session, the UNESCO Thematic Initiative “Astronomy and World Heritage” contributes to the preparation of the International Year of Astronomy 2009, and will provide an opportunity to raise public awareness, especially with young people, about the safeguarding of scientific heritage, and to enhance the links between science, education and culture.

During the Opening Ceremony of IYA2009, which took place on 15 January 2009, the Director-General of UNESCO officially launched the cycle of activities “Astronomy and World Heritage: across time and continents”. One of the main activities of this cycle is the International Conference on “Astronomy and World Heritage: across time and continents”, to be hosted by the Government of the Republic of Tatarstan (Russian Federation) 19 — 24 August 2009.

The role of astronomy on population of different continents, the importance of the astronomical heritage world-wide, in terms of its enrichment of the history of humanity, the promotion of cultural diversity and the enhancement of international exchange, and the fundamental role that culture plays in scientific progress and science are reflected in Congress items.

Organisers: United Nations Educational Scientific and Cultural Organization, World Heritage Centre, International Astronomical Union, Russian Academy of Sciences, Russian National Commission for UNESCO, Republic Tatarstan government, Tatarstan Academy of Sciences, Kazan State University, Institute of Astronomy, Euroasian Astronomical Society, Russian Foundation for Basic Research.

Website: http://astroheritage.ru/




Estimated number of people who attended or were reached by this activity: 500.

## FAQ service at the IYA2009 site (Russian node)

FAQ service: questions of the community concerning astronomy are answered, with participation of professional astronomers in preparing the answers.

Organisers: Institute of Astronomy.

Website: http://www.astronomy2009.ru/faq.html

Estimated number of people who attended or were reached by this activity: currently about 200 questions are answered by about 30 experts. Leading topics: Cosmology, Solar System.

## 100 Hours of Astronomy

Project consisting of numerous events world-wide on 2 — 5 April, aimed at turning the attention of society to astronomy. In particular, open days (nights) were arranged at astronomical observatories and institutes

Organisers: Kourovka Astronomical Observatory, Ural State University Pulkovo observatory INASAN (Zvenigorod observatory), Engelgart Astronomical Observatory of the Kazan State University (AO KazGU), Special Astrophysical Observatory, Russian Academy of Sciences (SAO RAS), Astronomical Observatory of the Irkutsk State University (AO IrGU), Institute of Terrestrial Magnetism and Radiowave Propagation, Russian Academy of Sciences (IZMIRAN), and others.

Estimated number of people who attended or were reached by this activity: tens of institutions and thousands of visitors.

## Autumn 100 Hours of Astronomy

We have decided to repeat the “100 Hours of Astronomy” in autumn. This period is more convenient for observations for our latitudes. The event was repeated on 24 — 27 September. One of the leading radioastronomical observatories, Pushchino radioastronomical observatory opened its doors during all the week. Sternberg AstronomicalInstitute (Moscow State University) was open for public all the month of September (except Sundays). This event will be repeated at least in 2010.



Organisers: Sternberg Astronomical Institute (Moscow State University), Pushchino radioastronomical observatory, Pulkovo observatory, INASAN (Zvenigorod observatory), Engelgart Astronomical Observatory of the Kazan State University (AO KazGU), Special Astrophysical Observatory (SAO RAS), Southern Federal University, Russian planetaria (Moscow, Perm, Tomsk, Lytkarino, Kirov, Nizhnij Novgorod and others).

Website: Observatories announce the event on their web-pages. E.g., here is the Sternberg Astronomical Institute web-page: http://www.sai.msu.ru/1/news/2009/03/29/teleskop.html





Estimated number of people who attended or were reached by this activity: 14,000.

### Expert prognosis of the future of astronomy

A list of 35 questions was compiled by Russian astronomy popularisers. Each question begins with “When”, e.g. “When a man will land on the Mars?” or “When white holes will be discovered?”. The list was independently checked and corrected by three scientific journalists.

Russian astronomers were asked to answer the questions. The questionnaire was also available to amateurs and enthusiasts of astronomy through the internet. Their answers were processed separately and they were compared with the answers of professional astronomers.

Organisers: National Committee of Russian Astronomers.

Website: http://www.astronomy2009.ru/prognoz.html

Estimated number of people who attended or were reached by this activity: 120 professional astronomers and 50 amateurs

## Earth Hour

Participating in the global Earth Hour project, organised together with the World Wide Fund for Nature. During this event, some 1 billion people in more than 1000 largest cities of the world switched off the light on 28 Marc 2009 for one hour (20:30 to 21:30 local time) to demonstrate their concern with global climate changes. The “dark wave” during this event permits millions of people in the whole world to have a better view of stars and notice the beauties of the night sky.

Organisers: World Wide Fund for Nature.

Website: www.earthhour.org

## Galilean Nights

Russian amateurs organise “sidewalk astronomy” parties three to five times per year every year.

Organisers: Astroclub (Organization of Moscow Amateur Astronomers).

Website: www.astroclub.ru

## Astrofest

Annual festival of amateur of astronomy and telescope instrumentation. XI Astrofest was held in Moscow Region on the last weekend of April.

Organisers: Astroclub (Organization of Moscow Amateur Astronomers).

Website: www.astroclub.ru

Estimated number of people who attended or were reached by this activity: 1000 participants and 200 instruments.

## Lessons Learned

The main lesson learned: one should plan all activity WELL IN ADVANCE. We in Russia have missed some opportunities because we had started to organise IYA2009 rather late.



# Rwanda

## National Node

Pheneas Nkundabakura (Kigali Institute of Education)

http://sites.google.com/site/rwandaiya2009/

Official Languages
- Kinyarwanda
- French
- English

Number of organising committee members: 6
- Volunteers: 6
- Paid: 0

Population: 10 746 311

Number of people reached by IYA2009: 120 000

Budget: 2200€

Sources:

- The project was sponsored by DAG and UNESCO (Nairobi Office).

## General Overview of IYA2009 activities in Rwanda

Rwanda joined the world science community in the celebration of IYA2009 (see the Rwandan national webpage for IYA2009 http://rwanda.iya2009.googlepages.com or at the official international webpage http://www.astronomy2009.org/organisation/nodes/national/view/RW/
Although astronomy is not developed in the country, IYA2009 has been an occasion to sensitise the Rwandan educational and scientific communities, of all levels, on astronomy, astrophysics and space sciences and on what can be the contribution of these latter to science and technology. We recalled some efforts which have been made to implement an astronomical observatory and explored other opportunities to start astronomy in Rwanda.

## Main Activities

### List of Activities
- Workshop
- Conferences and Outreach
- Astronomical equipment: Telescope and Galileoscopes
- Quiz
- Astronomy in the Rwandan media

## First Workshop on Astronomy in Rwanda

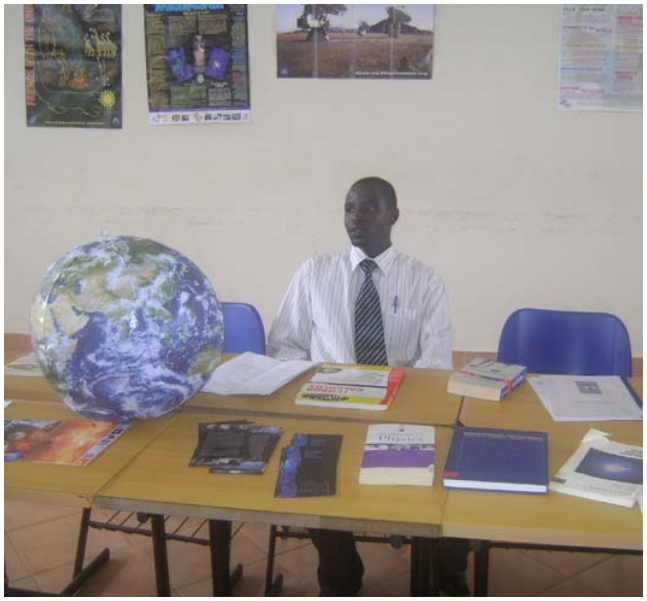
The International Year of Astronomy 2009 in Rwanda was celebrated on Friday 18 December 2010 at Kigali Institute of Education. The event was combined with the celebration of the World Science Day in Rwanda and attracted about 150 participants (lecturers, researchers, teachers, students) from educational and research institutions in Rwanda. The event was opened by the Minister of Education, Honourable Dr Charles Muligande.

Organisers: IYA/Rwanda in collaboration with RNCU (Rwandan National Commission for UNESCO, KIE (Kigali Institute of Education).

Website: http://sites.google.com/site/rwandaiya2009/







Estimated number of people who attended or were reached by this activity: 150.

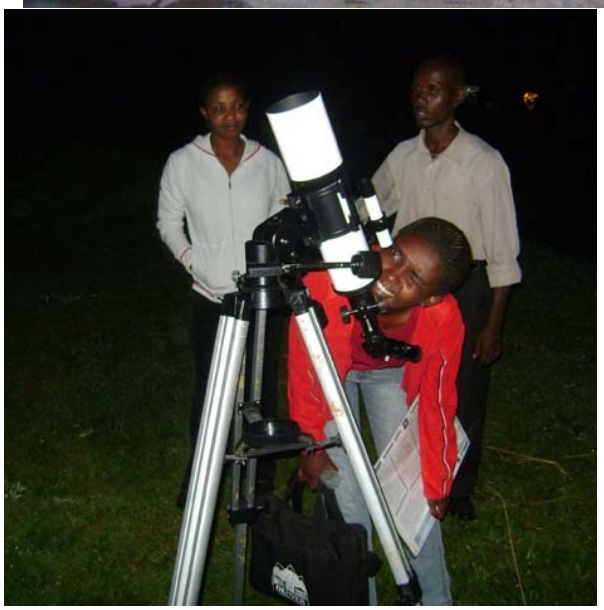
## Outreach and Conferences

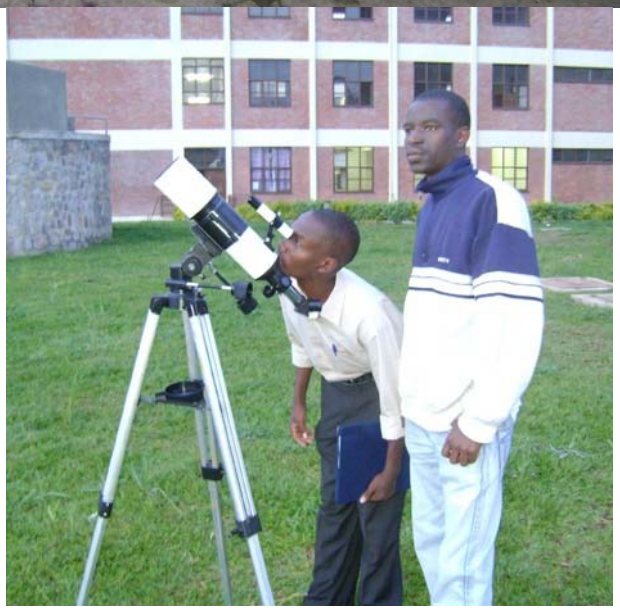
We conducted a series of conferences dedicated to universities, high schools and the public on astronomy and space sciences.

Organisers: IYA2009/Rwanda.

Website: http://sites.google.com/site/rwandaiya2009/





Estimated number of people who attended or were reached by this activity: 1000.

## Galileoscopes and sky watchers

During IYA2009, Rwanda received a donation of 100 Galileoscopes to be distributed to high schools. A 4-inch telescope was bought and donated to Kigali Institute of Education for teachers training purposes.

Organisers: IYA2009/Rwanda in collaboration with Kigali Institute of Education.

Website: http://sites.google.com/site/rwandaiya2009/

Estimated number of people who attended or were reached by this activity: 30,000.

### Quiz

Students (from universities, high and primary schools) answered a questionnaire on astronomy and space science prepared in order to measure the level of integration of astronomy and space science concepts in the national curriculum.

Organisers: IYA2009/Rwanda in collaboration with Kigali Institute of Education.



Estimated number of people who attended or were reached by this activity: 500 students.

### Astronomy in the Rwandan media

During IYA2009, we produced articles related to astronomy and space sciences in leading news papers in the country. A documentary made during the workshop was aired on the National TV.

Organisers: IYA2009/Rwanda.

Estimated number of people who attended or were reached by this activity: 100,000.

## Lessons Learned

We learnt many things and many people enjoyed the talks in outreach sessions. The most important to do if one wants to organise another event of such is to cooperate with the institutions (administration).

## Legacy

Some activities have been not yet closed e.g. the Galileoscopes have not yet reached the country. We will continue also to do outreach.



# São Tome and Principe

## National Node

Manuel Penhor (Instituto Superior Politecnico)

Official Languages
- Portuguese

Number of organising committee members: 3
- Volunteers: 3
- Paid: 0

Population: 163 000

Number of people reached by IYA2009: 3000

Budget: 1500€

Sources:

- Ministry of Education and Culture

## General Overview of IYA2009 activities in Sao Tome and Principe

IYA2009 in Sao Tome and Principe went smoothly, and people participated when asked. We would like to highlight the contributions of International Astronomical Union, who always showed willingness to support IYA2009 related activities. However, the national response was lower than expected due primarily to internal deficiency in internet access and secondly the difficulty of the SPoC with the English language, which hindered communication to some extent.

## Main Activities

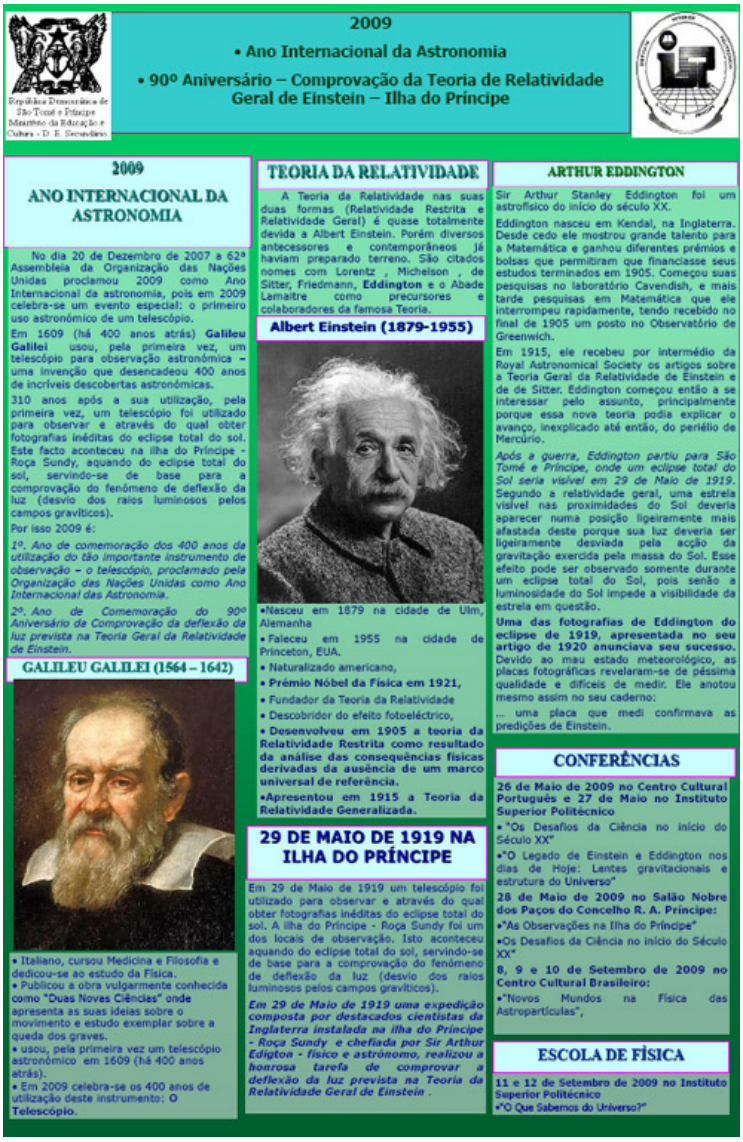
### List of Activities

- Talks in schools under the title “From the 1609 astronomical observation to the observation of the 1919 Eclipse in the Island of Principe”.
- Production of a poster about the International Year of Astronomy 2009.
- School of Physics and Astrophysics with the slogan “What we know of the Universe”.
- Official ceremony commemorating the 90$^{th}$ Anniversary of proving Einstein’s General Theory of Relativity of on the island of Principe.

### Poster about IYA2009

This poster was made in light of the commemoration of International Year of Astronomy 2009 simultaneously with the commemoration of the 90th anniversary of the expedition led by Sir Arthur Eddington to the island of Principe to observe the total solar eclipse on 29 May 1919 for experimental verification of theory Einstein’s General Relativity. The poster was distributed by schools and some of the country’s top public institutions.

Organisers: Organising Committee of IYA2009.




Estimated number of people who attended or were reached by this activity: 1000.

Budget: 300€

## Talk “From the 1609 astronomical observation to the observation of the 1919 Eclipse in the Island of Principe”

In eight secondary schools in San Tome, Principe secondary school and the Polytechnic Institute of St. Thomas, we conducted lectures whose purpose was to publicise the celebration of IYA2009 and the motivations that led to this celebration, referring to the deliberation of 62nd meeting of the UN. At the same time, throughout these activities we talked about something of extreme scientific and historical importance to Sao Tome and Principe, and unknown to most of the population: the confirmation of Einstein’s General Relativity Theory on the Island of Prince.

Organisers: Organising Committee of IYA2009.

Estimated number of people who attended or were reached by this activity: 2000.

Budget: 500€

## School of Physics and Astrophysics

By initiative of the Technical Institute of Lisbon, we organised the School of Physics on 4 and 5 September 2009, under the theme: “what they know of the Universe?”. The school was held at the Polytechnic Institute of Sao Tome and Principe, in collaboration with D. João Paul II Institute. This activity was addressed to physics teachers and students. This school was led by professors of the Higher Technical Institute and was about theoretical and practical aspects of physics and theoretical aspects related to astronomy.

Organisers: Instituto Superior Politécnico de São Tomé e Príncipe ISPSTP), Instituto Deocesano de Formação João Paulo II (IDF) and Instituto Superior Técnico de Lisboa (IST) through CENTRA and LIP.



Estimated number of people who attended or were reached by this activity: 100.

## Lessons Learned

- Act with greater autonomy and not wait for the signal of the national authorities to formalise their actions. This made our activities not go as quickly as they should.
- Always count on the participation of people showing interest in the activities to be undertaken, even if the number is relatively small.

## Legacy

We believe in continuing the programme and integrate GTTP more, naturally with the partnership of institutions like the Portuguese NUCLIO, providing appropriate training for teachers of different levels of education as a way to improve the quality of education in the field of astronomy.



# Saudi Arabia

## National Node

Hassan Basurah
Astronomy Department / King Abdu-Alziz University
hbasurah@kau.edu.sa
http://www.astronomy2009sa.org/

Official Languages

- Arabic
-

Number of organising committee members: N/A

Population: 28 150 000

Number of people reached by IYA2009:

Budget: €

## Main Activities

### School students training for sky objects

Jeddah, 3-4 January 2009
Seminars and telescope observations for two days at Jeddah Science Innovation Club.
Website: http://www.jsic.org.sa/

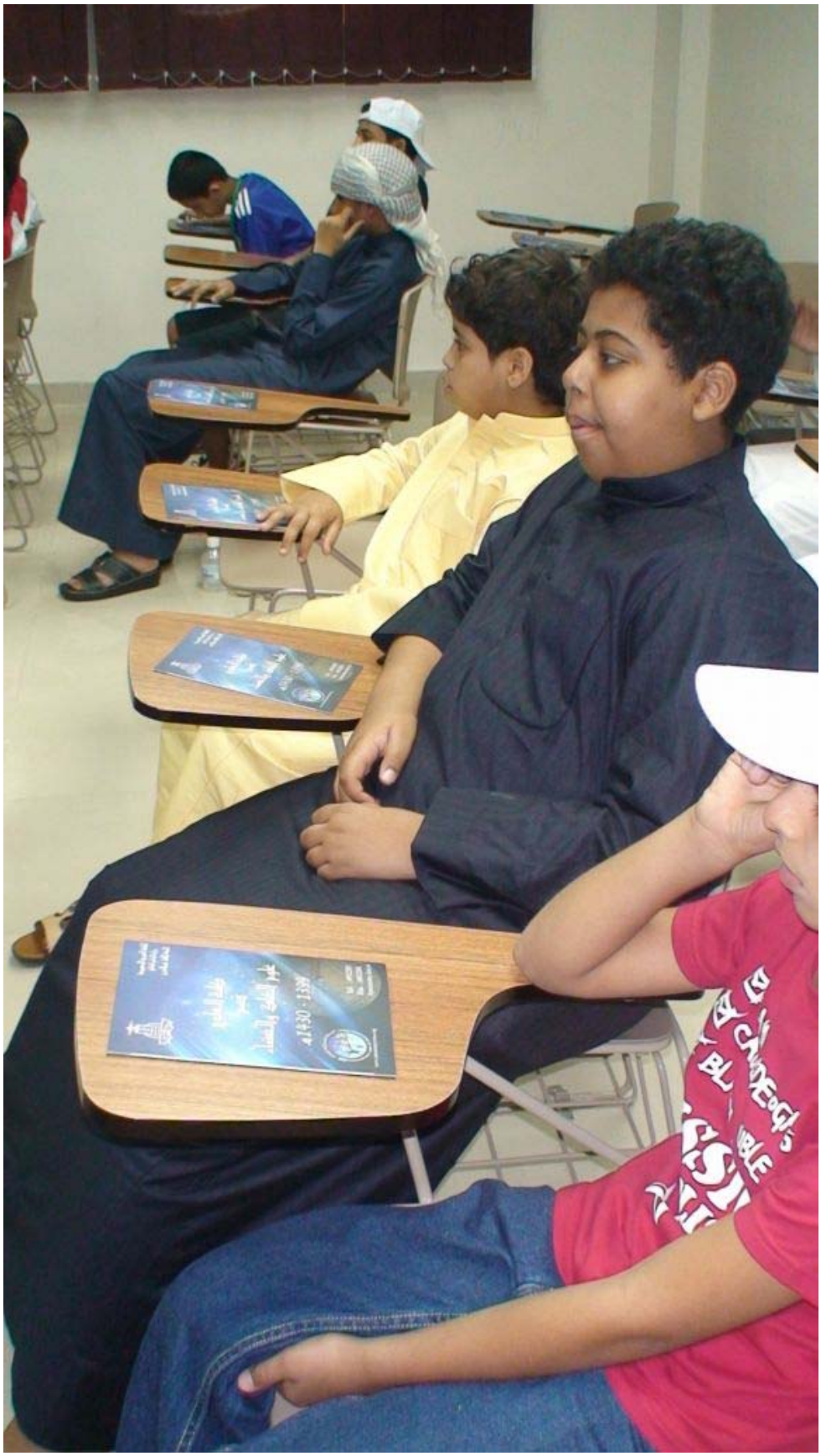
### Crescent visibility

Riyadh, 2-3 February 2009
Teaching astronomical fundamentals for specific peoples interested in crescent visibility. King Abdulaziz City for Science and Technology.
Website:: http://rpc.kacst.edu.sa/inst/agri/astronomy_index.php

### Astronomical night

Jeddah, 3 February 2009
Astronomical exhibitions of the sky (planets, Moon, and stars), Star parties and telescope hands-on experience training. The astronomy club of kAU (King Abdulaziz University).
Website: http://art.kau.edu.sa/content.aspx?Site_ID=130&lng=AR&cid=1446

Impressions from the IYA2009 activities in Saudi Arabia




السنة الدولية للفلك 1430
International Year of Astronomy 2009
WWW.astronomy2009sa.org




MEADE
adidas








2009
IN SAUDI ARABIA



# Senegal

## National Node

Mr. Mbaye NDIAYE
ASPA (Association Sénégalaise pour la Promotion de l'Astronomie)
mbayendiaye@ucad.sn

Official Languages

- French
-

Number of organising committee members: N/A

-

Population: 28 150 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Galileo in Senegal

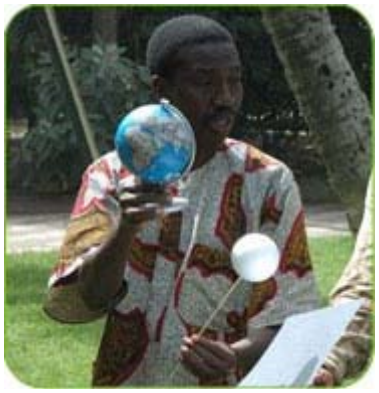
400 years ago, Galileo pointed a telescope up at the night sky. What he saw amazed him. The Moon is covered with mountains. Jupiter has its own moons. Venus waxes and wanes in a crescent shape. All of this added up to a crazy idea: Our little planet is not the centre of the universe.

It shook people up in a big way. But it also shook the Church's unquestionable authority. So Galileo was forced to deny his discovery (under threat of torture) and spend the rest of his life under house arrest.

Thought experiment: What if instead of being persecuted, Galileo had been sent to distant lands as a missionary? Instead of bibles, he would put his new telescope in the hands of people with little or no contact with Western science. What would that look like?

Website: http://gonzolabs.org/2010/04/galileo-in-senegal/

## Impressions from IYA2009 activities in Senegal





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# Serbia

## National Node

Nikola Bozic (Petnica Science Center)

http://www.das.org.rs/mga/

Official Languages
- Serbian

Number of organising committee members: 9
- Volunteers: 9
- Paid: 0

Population: 7 334 935

Number of people reached by IYA2009: 35 000

Budget: 25 000€

Sources:
- Serbian Ministry of Science

## General Overview of IYA2009 activities in Serbia

During the whole process of preparing for IYA2009 from 2007 there were a lot of activities carried out. As result of this the whole astronomical community was mobilised to start celebrating IYA2009 in Serbia. Professionals, amateurs, school teachers, journalists, and their institutions were dedicated to promoting astronomical results and the importance of this science. Good networks of science journalists, artists inspirited with astronomy, school teachers, good science communicators and young educators were created. A lot of activities were organised in very different parts of society.

Some good mid- and long-term campaigns were started, and they will continue in the following months and years. Even though we had very limited funds and the economical situation was bad because of the world economic crisis, we managed a lot of different things. IYA2009 in Serbia was used for creation of the good setup for following activities in the context of science education, communication and popularisation.
We participated in all Cornerstone projects of IYA2009 and organised some specific national projects too. We created specific programme of activities for kindergarten children, primary school pupils, secondary school students and university students. For university students we created multidisciplinary workshops with idea to show the complexity of the modern science.

A lot of educational materials were created to present some important issues of every Cornerstone project and distributed to all target groups.

All astronomical societies were coordinated to create interesting public events for observations and lectures, with the support of professionals, in their local communities. It was very important to create as many programmes as possible out of the capital Belgrade.

All very well visited events of science and culture in Serbia were used for science communication and astronomical popularisation. The Book Fair, Night in Museums and Science Fair were events which were visited with almost 140,000 people.

The central manifestation of IYA2009 in Serbia was the traditional South East European astronomical event — International Astronomical Camp “Letenka”. This camp gathered more than 200 astronomers from Slovenia, Croatia, Bosnia, Montenegro, Macedonia and Serbia. It is very interesting event for networking.

Very important for future development of astronomy in Serbia are the new mobile planetarium that we obtained with the support of UNESCO and the 100 small telescopes (Galileoscopes) which will be distributed to the schools in all regions of Serbia.

## Main Activities

### List of Activities

- Seminar for university students “Architecture in The Cosmos”, Petnica Science Center, Petnica, January
- Lecture series “Universe Yours to Discover”, Kolarac People University, January/February
- IYA2009 grand opening ceremony, The faculty of science of University of Belgrade, February
- Publishing the IYA2009 dedicated brochure, March
- Public telescopic observations (in at least 15 towns), during the whole year
- Popular lectures (in at least 20 towns), during the whole year
- Workshops for kindergarten children, 7. Children theatre festival “Pozorište Zvezdarište”, April
- Programme for kindergarten and elementary school children, Child Fair, Belgrade Fair, April
- Participation on the “Night of the Museums” manifestation, The faculty of science of University of Belgrade, Astronomical society “Rudjer Boskovic”, Belgrade, May
- Organising the participation in the international competition “Be an Integral astronomer”, May/June
- Participating in the realisation of the international photo competition “Earth and Sky”, summer
- Media activity in daily, weekly and monthly newspapers Politika, Novosti, Blic, 24 sata, Borba, B92, RTS, Radio Belgrade, Radio 021, Prosvetni pregled, Vreme, Mikro, Playboy, Planeta, Astronomijs, Glas javnosti, National Geographic, Pink, E-novine…
- The third student astronomy workshop, The faculty of science of University of Belgrade, June
- Lecture for the prisoners at the Valjevo prison, June
- International astronomy camp “Letenka”, Fruska Gora, over 220 astronomers from the whole region of South East Europe, central IYA2009 manifestation in Serbia, July
- International cooperation with other countries from the region, but also international, whole year
- Scientific movies projection at Film Archive Cinema, autumn
- Exhibition dedicated to the cooperation between Serbia and France on the field of astronomy, The Cultural Center of France, September
- Astronomy and Art, debate and exhibition, Library of Belgrade, Youth Center, September
- Lecture series “In Milankovic’s honour”, Astronomical Society “Rudjer Boskovic”, September
- VI SREAC regional conference of the professional astronomers with the participation of the amateur astronomers with the support of UNESCO, Serbian Ministry of Science and Astronomy Observatory, September
- Lecture series “Women in astronomy”, Kolarac People University, October
- Astrophotography exhibition within the project “From Earth to The Universe”, Education fair and books fair, Belgrade Fair, October
- Astronomy themed art competition for youngsters, during the whole year
- High school students science conference, Petnica Science Center participants, “A step into the Science”, November
- Astronomy exhibition on III Festival of Science manifestation, December
- Astronomy themed essays competition for elementary school pupils, cooperation with publisher Mladinska knjiga, December
- Supporting the cooperation between amateur astronomical societies and cooperation of astronomical societies with the professionals, during the whole year
- Seminar for physics teachers about astronomy, Autumn
- Supporting and encouraging establishment of school groups for astronomy, during the whole year
- Receiving the donation which consists of 100 Galileoscopes, which are going to be distributed to the Serbian schools, Autumn
- Starting the work on the formation of Astronomy museum within Astronomy Observatory, during the whole year

- The mobile planetarium, with the financial support from UNESCO, December

### Architecture in The Cosmos

Whether or not students are learning fundamental sciences, engineering or applied sciences, education in Serbia usually covers basic fields of research and students acquire classic skills in these fields. Rarely can we come across examples of creative study programmes that encourage free thinking or imagination. The Architecture faculty in Belgrade is a rare example of a place that gives students new and interesting opportunities. This faculty encourages creative thinking, so it is no surprise that cooperation between this faculty and Petnica has a 15 year tradition, during which time joint summer schools of architecture have been organised. In honour of IYA2009, a four day seminar was held in January entitled "Architecture in space". This seminar brought together second year master students from the Architecture faculty with the goal of designing a research centre on the Moon. The students were led by professor Slobodan Rajović.

They had to assess and solve the issues which would come up while building a research centre in these specific conditions. The goal was to create a centre for 100 employees, as well as housing for them and their families, recreation rooms, telecommunication rooms and evacuation zones. The idea was to shape the imagination of these young architects in realistic, but challenging conditions. The seminar started with a lecture given by Jelena Milanović, a Princeton graduate, entitled "Architecture in challenging conditions". This lecture gave students various examples of extreme architecture on Earth and challenges famous architects have faced in the past.

Students learned more about the Moon and what life for human beings would be like from Professor Milan Ćirković, from the Belgrade Observatory. Luka Mihajlović told them about extreme life forms on Earth and specific mechanisms these creatures use to survive. Finally, Igor Smolic gave a lecture on the specific conditions on each planet in the Solar System describing the flaws and advantages for potential colonisation. After the introductory part of the seminar, the students spent four days designing the Moon research centre and came up with some great ideas. Their designs matched the project demands and also contained interesting artistic expressions. The students also made an exhibit of their designs from a previous seminar in which there challenge was to create a space station in Earth's orbit. The exhibit displayed an interesting mix of almost science fiction habitats for humans. The goal of the seminar was to promote multidisciplinary research ideas and also to make a connection between science and art. The cooperation between the Architecture faculty and Petnica has been renewed and we expect more innovative seminars to follow

Organisers: Petnica Science Center.

Website: www.pi.petnica.rs

Estimated number of people who attended or were reached by this activity: 30.

## Publishing the IYA2009 dedicated brochure

This was a translation of the official brochure of IYA2009. The second part of the brochure consists of descriptions of the main astronomical institutions in Serbia (amateur, professional and educational), description of the short history of astronomy in Serbia, and presentation of popular magazines in Serbian. Idea was that this brochure presents main objectives and ideas of celebration of IYA2009 in the world and in Serbia, but also to be short descriptions of astronomy in our country. It was distributed to almost all schools in Serbia, astronomical societies and school groups, and to educational workers.

Organisers: National Node.

## Public telescopic observations

Public telescopic observations were held in at least 15 different cities and towns all around Serbia. They were organised for school population and general public. Some interesting sky events were chosen to be used for the observations as examples of interesting issues in astronomy. Together with these there were organised short popular lectures about astronomical instruments and astronomical phenomena.

Organisers: National Node and local astronomical societies.

## Popular lectures

Popular lectures were one of the main activities during 2009. In at least 20 towns and cities all around Serbia we organised series of popular lectures, presentations and discussions about the most interesting astronomical issues. This activity was used for animation of general public and specific groups of interested groups in astronomy. It was very important to created some small groups of amateurs in every of these cities and towns to continue activities on popularisation of astronomy after finishing of this activity.

Organisers: National Node, local schools and local astronomical societies.

## Programme for kindergarten and elementary school children

Education of youngsters is very important for future generations of well educated citizens. Well prepared workshops with carefully designed materials for this kind of public were used for explanation of the main astronomical issues. There were organised several events at children's theatre festivals, school fairs, and within schools. Also there were literary and art competitions for this group during the whole year.

Organisers: National node with astronomical societies and schools.

## Night of the Museums and Science Festival

Well visited big events are very good opportunities to present astronomical issues to huge groups of people. The two biggest events in Serbia which considers science are "Night in Museums" and "Science Festival". For them we prepared well designed astronomical exhibitions and workshops. Well visited events were used to present astronomical issues in interesting context to almost 25,000 people.

Organisers: National Node and Science Festival Organization.

Website: www.festivalnauke.org

## International astronomy camp "Letenka"

The main activity of IYA2009 in Serbia is a traditional regional event which gathers more than 200 astronomers from Slovenia, Croatia, Bosnia, Montenegro, Macedonia and Serbia. Amateur astronomers together with professionals had opportunity to discuss interesting astronomical issues, listen to interesting lectures, to see a lot of good telescopes and other astronomical equipment, and to participate in the process of creation of the mirror for a new telescope.

Organisers: Astronomical Society "Lyra".

Website: www.astronomija.co.rs

## Photo exhibitions

Astrophotography exhibitions within the project "From Earth to The Universe" organised during IYA2009 in Serbia were used to present to the general public with the most interesting aspects of astronomy. Fair of Education and Book Fair at Belgrade International Fair, are the most visited fairs in the region which enjoyed visits from more than 120,000 people. They were used to present very interesting astronomical photographs with interesting explanations in the Serbian language. Exhibitions dedicated to the cooperation between Serbia and France on the field of astronomy were also organised. The France Cultural Center in Belgrade was the host of this interesting exhibition.

Organisers: National Node.

## Astronomical education

The situation in the Serbian educational system is that there are no separate astronomical classes. On the other hand there are very interested pupils that want to learn something about astronomy. So the National Node tried to reach these two sides and organised seminars and workshops for teachers of fundamental sciences with the idea of preparing them for the astronomical issues. Together with this Serbia received the grant of 100 small telescopes

(Galileoscopes) and distributed them to the schools all around the country, helping schools and teachers to respond to the high interest of the pupils.

Organisers: National Node.

### The mobile planetarium

With the support of UNESCO Serbia obtained the mobile planetarium which will be used for astronomical education and popularisation all around Serbia. The planetarium came to Serbia at the beginning of December and was used for quick lectures during the Science Festival in December. Very intensive plans for usage of these equipment for astronomical education in all parts of Serbia was created.

Organisers: Society of Astronomers of Serbia.

## Legacy

The National Node of Serbia is planning to publish the book about the main activities during the IYA2009 to record it and leave it to the future generations. Also we are planning to finish the distribution of the Galileoscopes to schools during 2010, and to continue with planetarium shows all around the country. All created networks will be used for continuation of popularisation and promotion of astronomy.



# Singapore

## National Node

Albert Lim
Astronomical Society of Singapore (TASOS)
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http://www.astronomy2009.sg/
http://www.tasos.org.sg/

Official Languages

- English (first language)
- Malay
- Mandarin Chinese
- Tamil

Number of organising committee members: N/A

Population: 4 987 600

Number of people reached by IYA2009: 119 722

Budget: N/A

## Main Activities

### Official Launch of IYA2009





The Astronomical Society of Singapore (TASOS) and Science Centre Singapore (SCS) officially launched the International Year of Astronomy 2009 (IYA2009) on 26 Feb 2009. The event started with a media conference by Professor Lim Tit Meng (Deputy CEO) and Ms Wang Yu-Ann (Director, Strategic Planning) from Science Centre Singapore, and Mr. Albert Lim (President) of TASOS. This was followed by the official IYA2009 video presentation and an opening address by Prof. Lim. Mr. Albert Lim followed with an introduction of a locally written astronomy book titled “A Star Book for the Tropics” by Dr. Cheong KK (TASOS Member) and Ms Kamaria (SCS Staff). TASOS committee member, Mr. Albert Ho then announced the launch of The Moon Photo Competition which is jointly organised by TASOS and SCS in celebration of IYA2009. Professor Jocelyn Bell Burnell (discoverer of Pulsar) who was visiting from the University of Oxford, wrapped up the day’s proceedings with a talk titled “What’s going on in the Universe”. The above were held at the SCS Annex Auditorium and attended by more than 700 people including many students and teachers.

Organisers: The Astronomical Society of Singapore (TASOS) and Science Center Singapore (SCS)

## Moon Photo Competition

As part of the official launch of IYA2009 in Singapore, TASOS collaborated with Science Centre Singapore to launch a Moon Photo Competition on 26 Feb 2009. Attractive prizes worth a total of S$6 800 (3 800 €) were offered.’




TASOS and Science Centre Singapore jointly organised The Moon Photo competition which was launched on 26 Feb 2009. At the end of August 2009, all entries received were judged and the prize winners notified. Nearly S$7 000.00 (~4000€) in prize vouchers were handed out to the winners. Winning entries for all categories in Crescent, Quarter, Gibbous and Full Moon currently are displayed at the Omni Theatre, Science Centre Singapore. This winning exhibits were displayed until end 2009.




IYA2009 TASOS Talk by Albert Ho on “The Moon and Its Associated Phenomena” on 6 March 2009



TASOS committee member Mr. Albert Ho gave a wonderful talk titled “The Moon and its Associated Phenomena” on 6 March 2009 at Science Centre Singapore (SCS) Observatory Classroom. The classroom was packed and attendance was very good indeed. A large crowd also gathered on the observatory grounds for observations through telescopes put up by SCS and TASOS as well as the SCS observatories.

## IYA2009 TASOS Talk by Dr K K Cheong – “Why are people interested in the direction of the Sun?” – The use of astronomy in modern living on the 13 March 2009

TASOS member Dr. K K Cheong gave an interesting talk titled “Why are people interested in the direction of the Sun? — The use of astronomy in modern Living” on 13 March 2009 at Science Centre Singapore (SCS) Observatory Classroom. The talk was very well attended. After the talk, participants gathered on the observatory ground to look through the various telescopes set up and manned by SCS and TASOS.

## TASOS Celebrates IYA2009 with The Singapore Mathematical Society

The Singapore Mathematical Society (SMS) organised the annual essay competition for current students of Singapore (from Secondary One to Junior College or their equivalent). To coincide with the International Year of Astronomy, the theme for this year essay competition was “Applications of Mathematics in Astronomy”. Cash prizes were awarded to the top three entries from each age category. The winning essays were also considered for publishing in the forthcoming issues of Mathematical Medley, the official publication of the Singapore Mathematical Society.

## Observation Semakau Island on 4-5 April 2009

TASOS regularly organised overnight astronomical observation at dark site locations in and around Singapore. One of these preferred observation site is the Semakau Landfill, an island to the south of Singapore, as it offers reasonably dark sky. A group of 47 participants went to Semakau Island for overnight observation from 4 to 5 of Apr 2009.



The group comprised members from TASOS and a group of students from Catholic Junior College and their teacher, Mr. Tan Hoe Teck.

## Earth Hour celebration at Wisma Atria on 28 March 2009




TASOS tied up with StarHill Global Reit and conducted a public observation session on the rooftop of Wisma Atria Shopping Centre Building in celebration of Earth Hour (and as part of IYA2009 event) on 28 Mar 2009. TASOS deployed 8 telescopes and showed the night sky to more than one thousand people who turned up. TASOS committee and members also answered the many questions raised by the public. TASOS Secretary, Mr. Kalaimani also conducted 2 talks at the same venue.

## Side Walk Astronomy at VIVO City on 1 and 2 May 2009

TASOS and Science Centre Singapore organised a SideWalk Astronomy event on the rooftop of Vivo City, a large shopping complex, on the 1st and 2nd of May 2009. The event was supported by many partners including History Channel, Starhub, Vivo City and other governmental and Non-governmental organisations. On the 1 May 2009, Ms Ellen Lee, Member of Parliament was the Guest of Honour. Ms Ellen Lee and her entourage were received by Dr. Chew (CEO) of SCS as well as TASOS and Woodlands GRO representatives. Over 11,000 people attended the astronomy talks and shows by History Channel. They also participated in quizzes and viewed the Moon and Saturn through more than 20 telescopes set up on the rooftop of Vivo City.




TASOS Hon Secretary, Mr. Kalaimani gave a talk on both nights while TASOS Vice-President, Mr. Ang Poon Seng set up a live video view of the Moon and Saturn through a Celestron 5 SCT on large panel LCDs at the venue.

## Talk on Celestial Fireworks – "Supernova"

TASOS committee member Professor Srinivasan from NUS gave a very interesting talk titled "Celestial Fireworks – Supernova" at the Science Centre Observatory Classroom on Friday 22 May 2009 as part of IYA2009 activity. The talk was informative, humorous and enjoyed by a packed classroom of participants.



After the talk, members join in the usual observing session held on every Friday evening at the grounds of the Science Centre Singapore.

Organiser: TASOS committee member Prof Srinivasan (NUS)

## TASOS assist “Shell Astro Challenge” at SCS with 12 telescopes and talk at Inflatable Planetarium as part of IYA2009 on 29 May 2009

TASOS committee member, Mr. Albert Ho presented talks in an inflatable planetarium while TASOS organised and manned a dozen telescopes on the observatory grounds in support of “Shell Astro Challenge” and IYA2009. Observation Semakau Island on 30 May 2009 weekend



TASOS committee member Dr. KK Cheong also gave a basic astronomy talk at the observatory classroom. The activity lasted until past 11pm and an estimated 3,000 to 4,000 people attended.

## Observation Semakau Island on 30 May 2009 weekend

A small group of TASOS committee and members made another observation trip to Semakau Landfill on 30 May 2009.



TASOS Vice-President Mr. Ang Poon Seng gave a short presentation on `The Sky' and the participants watched an interesting video presentation about Semakau Landfill. TASOS deployed a new C8 Nexstar SE and members brought their own scopes and binoculars for the overnight observation.

## IYA2009 Moon Photo Talk by TASOS President



TASOS President, Mr. Albert Lim gave a talk on the basics of how to take good photos of the Moon at the Observatory Classroom on 26 Jun 2009. A number of Moon photo amateurs taking part in The Moon Photo competition attended. TASOS Vice-President, Mr. Ang Poon Seng help to demonstrate the techniques and adapters used for attaching cameras to telescopes. After the talk, TASOS set up a GPS C8 and participants took photos of the Crescent Moon. Members also visited the SCS Observatory and a field observation session.

## TASOS celebrates Moon Cake Festival 2009 with members

TASOS celebrated a local festival — Moon Cake Festival, on 25 Sep 2009 at the SCS Observatory classroom. TASOS committee Member, Dr. KK Cheong also gave an interesting talk on the moon.



The talk was lively and enjoyed by TASOS members and all present was treated to a small reception of mooncakes and drinks. There was also observation on the Moon through telescopes on the observatory grounds.

## Mid Autumn Festival Observatory Nite on 2 Oct 2009



TASOS in collaboration with Science Centre Singapore jointly organised the above event with great support from North West CDC on 2 Oct 2009. Upon the participants' arrival at the site — Chinese Garden Mass Rapid Transit Station, they received free lanterns for their walk to the Science Centre's Omni Theatre. An estimated 4,000 people participated in this event and many also visited the Science Centre itself which was open that night. A total of 3,000 lanterns, Mooncakes and 10,000 bottles of water were distributed to all participants. TASOS, Science Centre, Admiral Garden CC Astronomy Club and NUS High School set up 15 telescopes For participants to view the Moon as part of celebration For IYA2009. TASOS Hon Secretary, Mr. Kalaimani and Committee member, Mr. Albert Ho also gave talks and conducted quizzes on stage. The Guest of Honour for that night was Dr. Lim Wee Kiak, Member of Parliament for Sembawang GRC and advisor to Canberra GROs.

## Leonids IYA2009 – Festival of the Stars on 17 November 2009



The Science Centre and The Astronomical Society of Singapore (TASOS) in celebration of IYA2009 organised a Leonids Meteor Shower Watch event called Festival of the Stars on 17 Nov 2009. This event was co-organised by Taman Jurong CCC, with the support of North West CDC and South West CDC. Guest-of-Honour was the Finance Minister, Mr. Tharman Shanmugaratnam. Unfortunately, the weather condition was not favourable and it rained early in the evening. Despite this, more than 10,000 people attended the event which also featured Mr. Kenji Williams, international audio visual art performer along with science shows, meteorite exhibition, talks by TASOS, on-site telescope viewing of Jupiter and inflatable planetarium tours. TASOS also deployed telescopes donated by Lee Foundation at this event.

## Solar Eclipse on 15 January 2010 and the Closing of the International Year of Astronomy 2009



The first solar eclipse (annular) of the decade occurred on 15 Jan 2010. It was visible across Africa, the Indian Ocean, India, Sri Lanka and South East Asia. In Singapore, it was a partial solar eclipse that occurred between 3.30pm to 5.30pm. TASOS and Science Centre Singapore organised a host of astronomy activities and observed the solar eclipse around the SCS Observatory. This day also marked the closing of the International Year of Astronomy (IYA) 2009.



# Slovakia

## National Node

Drahomír Chochol (Astronomical Institute of the Slovak Academy of Sciences)

http://astronomia2009.vesmir.sk/iya-2009

Official Languages
- Slovak

Number of organising committee members: 16
- Volunteers: 1
- Paid: 15

Population: 5 379 455

Number of people reached by IYA2009: 300 000

Budget: 35 000€

Sources:
- Grants of the Slovak Research and Development Agency (APVV)
- EU AURORA POLARIS granted project of the programme GRUNDTVIG
- Public Observatories and Planetaria

## General Overview of IYA2009 activities in Slovakia

IYA2009 activities in Slovakia were influenced by the lack of financial support for the planned IYA2009 project through the Slovak Research and Development Agency (APVV). We used five existing granted projects: Meeting with the Universe, Astronomy — science for teachers and students (Astronomical institute SAS); Olympiad in Astronomy for scholars (Slovak Astronomical Society); Expedition: the Earth from the Universe, the Universe from the Earth (Observatory Rimavská Sobota); The Universe in direct transmission (Observatory Humenné) of this agency and new international EU project Aurora Polaris of the Grundtvig programme for activities of IYA2009. The activities were supported also by the Slovak Astronomical Society (SAS), the Slovak Union of Amateur Astronomers (SZAA), Public Observatories and Planetaria. They also issued promotional IYA2009 posters.

The website for Slovakia: http://astronomia2009.vesmir.sk/iya-2009 was created by Dr. Drahomír Chochol, DrSc., SPOC of Slovakia, in cooperation with Bc. Peter Kráčalík from Astronomical club Bratislava. The main task of IYA2009 was to attract people by the beauty of Universe. Therefore we prepared many exhibitions in astronomical institutions and outdoor exhibition “Universe — adventure of discoveries” in Košice. Visitors of exhibitions, scientific and public observatories received booklets and postcards with colour images of astronomical objects free of charge. Thanks to IYA2009 many people in Slovakia observed astronomical objects of the night sky for the first time. They could buy cheap personal telescopes — Galileoscopes. We ordered 350 pieces for Slovakia.

The main visitors of astronomical institutions were schools. Astronomical Institute SAS organised the astronomical seminar for teachers of basic and secondary schools. Four educational posters for schools were issued by AISAS and distributed in schools of the Poprad region. Many schools in Slovakia participated in the Olympiad in Astronomy competition. Four winners from secondary schools participated in the International Olympiad in Astronomy and Astrophysics in Iran in October 2009. One Slovak student was awarded with a bronze medal. The members of the IYA2009 organising committee informed the public about the most important actions through TV, radio and press. AISAS organised two press conferences devoted to IYA2009 in January (AISAS Stará Lesná) and October (Bratislava). During IYA2009, AISAS organised more than 300 astronomical actions in all regions of

Slovakia. Professional astronomers gave lectures for schools and the general public as well as wrote astronomical articles for newspapers and journals, especially the journal KOZMOS, issued by the Slovak Central Observatory in Hurbanovo. The youngest generation were informed about astronomy in the journal Vrabček (Sparrow). In July 2009, the first Slovak orloj (astronomical clock) was inaugurated in the village Stará Bystrica. The SPoC of Slovakia received the EU grant for the international project AURORA POLARIS of the programme GRUNDTVIG — learning partnerships. He organised the meeting of the participated countries: UK, Greece, Poland and Slovakia at the AI SAS in Stará Lesná. Teachers and students of the University of the Third Age of the Comenius University in Bratislava participated this meeting. 25 participants (18 from abroad) visited the observatory Skalnaté Pleso, Orloj in Stará Bystrica, Museum of M.R.Štefánik in Košariská, his tumulus in Bradlo and Observatory of Comenius University in Modra. In the frame of the project, the DVD: "Touch the Universe" was issued. The DVD was priced in the Festival of astronomical films in Piešťany in October 2009.

Through the project AURORA POLARIS, the University of Athens has exhibited the AISAS Mechanism Antikythera — an ancient mechanical calculator for astronomical positions. The exposition of the mechanism and eight panels were installed in the AISAS Stará Lesná from 1 October — 10 December 2009. The exposition was presented to general public during Galilean Nights and was visited by many schools from Slovakia. The exhibition was also installed in Hurbanovo on 11 December 2009 during the conference Galileo Galilei and recent epoch. In January 2009, Drahomír Chochol, the SPoC of Slovakia participated in the IYA2009 Opening Ceremony in Paris together with a student of the secondary school from Fiľakovo Ľubomír Urbančok. In April 2009, the SPoC of Slovakia participated the JENAM meeting in UK with the lecture "IYA2009 in Slovakia and European Project Aurora Polaris". He also prepared the poster "IYA2009 in Slovakia" for the 27th General Assembly of the IAU in Brazil. IYA2009 and large interest of the public in astronomy inspired the artists, as seen in exhibitions of contemporary art of Jan Zoričák in Poprad and Miroslav Polák in Nitra in November and December 2009.

## Main Activities

### List of Activities

- Opening Ceremony of IYA2009 in Slovakia on 15 January 2009 at the concert in the House of Arts, Košice.
- Press conferences for Slovak media devoted to IYA2009 in Stará Lesná (30 January 2009) and Bratislava (22 October 2009).
- Astronomical excursions and lectures for schools and public during 2009 in all astronomical institutions: Astronomical Institute of the Slovak Academy of Science, Tatranská Lomnica and observatories Skalnaté Pleso, Lomnický peak and Stará Lesná; Comenius University in Bratislava and its observatory in Modra; University of P.J.Šafárik, Košice; 18 Public Observatories, 6 Planetaria, 10 astronomical cabinets and schools in all regions of Slovakia. Lecturers were scientists, university teachers, employees of public observatories and planetaria and members of the Slovak Astronomical Society and Slovak Union of Amateur Astronomers.
- "100 Hours of Astronomy", 2–5 April 2009 and "Galilean Nights", 22–24 October 2009, Astronomical Institute SAS and Observatory Stará Lesná, Observatories Skalnaté Pleso and Lomnický štít and other astronomical institutions in Slovakia.
- Days of open doors at the mountain observatories Skalnaté Pleso and Lomnický peak (five times) in 2009.
- Astronomical seminar with lectures for 60 selected teachers of secondary schools from Slovakia in Astronomical Institute SAS, Stará Lesná, 23–25 April 2010.
- Inauguration of the First Slovak Orloj in the village Stará Bystrica on 18 July 2009.
- Exhibition: Encounters of microcosmos with macrocosmos. Exposition was installed in secondary school Fiľakovo, 17 February — 17 March 2009; Observatory Humenné 19 March — 15 April 2009; Observatory and planetarium Prešov, 27 April — 4 May 2009.
- Exhibition "The World at Night" prepared by Observatory Žilina. Exposition was installed in Žilina (2–16 March 2009) and Rimavská Sobota (8–19 June 2009, 1–30 September 2009).
- Exhibition: Light pollution (prepared by the Slovak Union of Amateur Astronomers). Travelling exposition was installed in 12 places in Slovakia: Sobotište, Senica, Prešov, Snina, Banská Bystrica, Žiar nad Hronom, Martin, Rimavská Sobota, AISAS Stará Lesná, Michalovce, Humenné.
- Exhibition: "Universe — adventure of discoveries" prepared in the Czech Republic. Outdoor exposition of 42 panels in Košice, 4–30 September 2009.

- Meeting of Aurora Polaris international EU project with participation of teachers and students of the University of the third age Comenius University in Bratislava, Stará Lesná, 30 September — 5 October 2009. Slovakia presented the DVD: "Touch the Universe", prepared by the teachers of U3A of the Comenius University and exposition Milan Rastislav Štefánik as astronomer.
- Exposition of Mechanism Antikythera and eight panels prepared in the frame of EU project AURORA POLARIS. The exposition was installed in the Astronomical Institute SAS, Stará Lesná (1 October — 10 December 2009) and Hurbanovo (11 December 2009).
- Conference: "Galileo Galilei and recent epoch" at the Central Observatory Hurbanovo on 11 December 2009.
- Posters devoted to IYA2009: Slovak Astronomical Society (two posters), Slovak Union of Amateur Astronomers (one poster), Slovak Central Observatory Hurbanovo (one poster). Poster: The map of light pollution in Europe prepared by Slovak Union of Amateur Astronomers.
- Educational posters for secondary schools prepared in the AISAS in the frame of the APVV project. In 2009, four posters were prepared: Cycles of solar activity and solar terrestrial relation; Falling stars; The life of stars; Nobel price and stars.
- Articles about IYA2009 and astronomy for the youngest readers in journal Vrabček (Sparrow). Articles in astronomical journal Kozmos.
- Poster "IYA2009 in Slovakia" prepared by the SPoC of Slovakia for General Assembly of the IAU in Rio de Janeiro (August 2009).
- Olympiad in Astronomy and Astrophysics for scholars. A competition of scholars of primary (11-14 years) and secondary (15-18 years) schools. March — June 2009.
- Exhibition of contemporary glass of the artist Ján Zoričák: Stars messages. Tatra gallery Poprad, 15 November 2009 — 17 January 2010.
- Exhibition of contemporary art of Miroslav Polák: The Universe by another way. Synagogue Nitra, November — December 2009.

## Astronomical workshop for teachers — 2009

The workshop was held in the Astronomical Institute SAS in Stará Lesná on 23–25 April 2009. Travel expenses, accommodation and daily allowances were fully paid for 60 teachers of basic and secondary schools from all regions of Slovakia. Following astronomical lectures were given: RNDr. Július Koza, CSc.: Modern instruments and methods of astronomical research; RNDr. Jozef Žižňovský, CSc.: Basic physical parameters of stars; doc. RNDr. Ján Svoreň, DrSc.: Comets; RNDr. Drahomír Chochol, DrSc.: International Astronomical Year 2009 in Slovakia; RNDr. Pavol Rapavý: The dark sky; RNDr. Drahomír Chochol, DrSc.: Stellar explosions; prof. RNDr. Karel Kudela, DrSc.: Cosmic radiation and cosmic weather. All lectures were published in Proceedings of the workshop together with PowerPoint presentations on CD and distributed to the participants of the 2007, 2008 and 2009 workshops free of charge. All teachers' workshops were prepared in the frame of the project: "Meetings with the Universe", granted by the Slovak Research and Development Agency (APVV).

Organisers: Vojtech Rušin, Ján Rybák.

Website: http://www.astro.sk/~choc/open/09_casu/str/seminar.html







Estimated number of people who attended or were reached by this activity: 180.

Budget: 8000€

## 100 Hours of Astronomy at the Astronomical Institute SAS

Headquarters of the Astronomical Institute SAS in Stará Lesná was open for the visitors from 2 April 2009 (0.00) to 5 April 2009 (24.00) nonstop. AISAS offered excursions to the main exposition in the entrance hall of the AISAS, consisting of new light panels with most exciting photos of the interesting astronomical objects and posters introducing the history and work of the AI SAS. TV monitors were at disposal to watch the broadcast 24 hours of astronomy. The pavilions with 60cm and 50cm telescopes for photoelectric and CCD photometry of variable stars, were also shown to visitors. Due to the excellent weather, the visitors could also see astronomers during their night work. Small portable telescopes were at disposal for visitors to see interesting objects of the night sky. The scientists of the AISAS gave the lectures for public in the lecture hall of the AISAS. They also gave interviews for TV, radio and newspapers. Mountain observatories AISAS at Skalnaté Pleso and Lomnický peak were opened for public on Saturday, 4 April 2009 from 9:00 to 16:00.

Organisers: Drahomir Chochol, Vojtech Rušin.







Estimated number of people who attended or were reached by this activity: 900.

Budget: 500€

## Open doors days at the AI SAS mountain observatories Skalnaté Pleso and Lomnický peak

AISAS mountain observatories were opened for public on 6 June, 27 June, 15 August , 25 August and 5 September 2009. The scientific workers of the AISAS gave to visitors basic information about the history of the observatories and showed them the 60cm telescope used for photoelectric photometry of variable stars at Skalnaté Pleso (1 786 m a.s.l.) and 20cm coronograph at the observatory Lomnický peak (2 634 m a.s.l.).

Organisers: Vojtech Rušin.



Estimated number of people who attended or were reached by this activity: 2200.

Budget: 1500€

## Inauguration of the First Slovak Orloj in the village Stará Bystrica on 18 July 2009

The biggest wooden statue in Slovakia — sitting Virgin Mary. In the centre of the statue is the Orloj — astronomical clock. Six small bronze statues of the most important people of the Slovak history are placed on both sides of the Orloj. Colours of the Orloj designate the parts of the day: red — the sunrise, blue — the day, black — the night. The position of the Moon in the sky, phases of the Moon, the position of the Sun in ecliptic and calendar are also given. Important days for Slovakia are designated by red stars. Technical part is controlled by the computer. Orloj was developed by Ing. Vítězslav Špidlen from Prague.

Website: http://www.starabystrica.sk/index.php?option=com_content&task=view&id=235&Itemid=1



Estimated number of people who attended or were reached by this activity: 700.

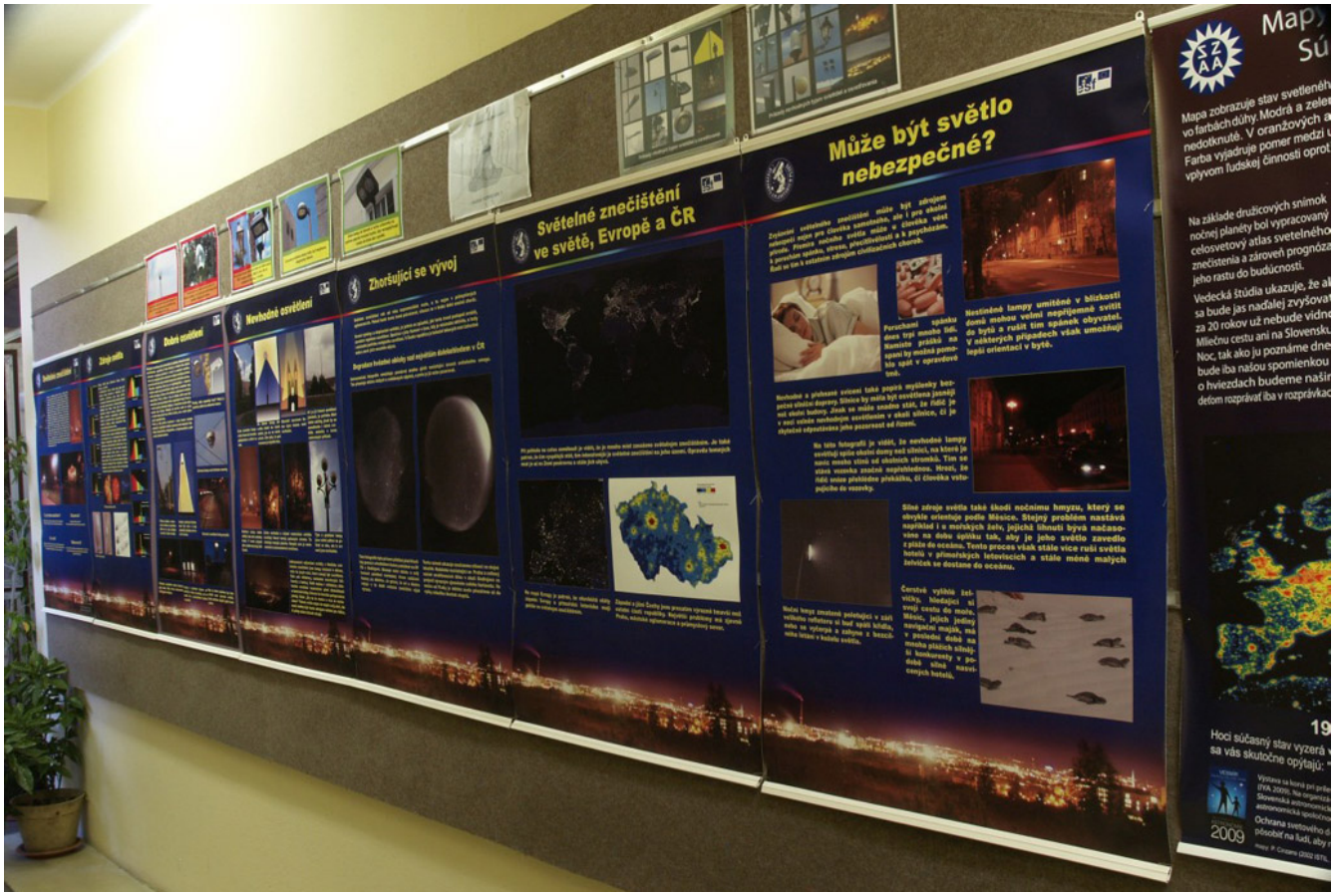
Budget: 130,000€

## Exhibition: Light pollution

The exhibition consists of 10 posters devoted to the origin of the light pollution, sources of light, good and wrong illumination, influence on man, society and ecosystems, maps of the light pollution, present state and prediction for the future, legislation and examples in the world and what to do to improve the present state. An important part of

the exposition is a 3D model of good and wrong illumination. During the exposition a photographic competition was proposed: “Shine to the road, not to the stars”. 40 authors participated with 418 photographs. Lectures about light pollution were given. Every participant received the booklet about the light pollution and the maps of light pollution in Europe and Slovakia. During the festival Envirofilm, the exposition was visited by participants from 33 countries.

Organisers: Pavol Rapavý and the Slovak Union of Amateur Astronomers.





Estimated number of people who attended or were reached by this activity: 5900.

Budget: 500€

## Exhibition: Universe — adventure of discoveries

Outdoor exhibition “Universe — adventure of discoveries” was installed in Košice nearby the St. Michel chapel in the term 4-30 September 2009. The exposition consisted of 48 large scale photographs of interesting astronomical objects starting from the bodies of the Solar System up to most distance galaxies. Images were taken by the Hubble Space Telescope and large ground based telescopes. The exposition was prepared in Czech Republic. The author of the exhibition: Prof. Jan Palouš, DrSc. participated at the inauguration of the exposition in Košice.

Organisers: Karel Kudela, Institute of Experimental Physics of the Slovak Academy of Sciences, Alexander Dirner, Institute of Physical Sciences, Faculty of Natural Sciences of the P.J.Šafárik University, Košice.

Website: http://www.sav.sk/index.php?lang=sk&charset=&doc=services-news&news_no=2810





Estimated number of people who attended or were reached by this activity: 17 500.

Budget: 7500€

## Legacy

All astronomical institutions in Slovakia will continue in public outreach. Thanks to IYA2009 the interest of the public for astronomy largely increased, reconstituted with full-time members who will provide better management support to the various associations.

# Slovenia

## National Node

Andreja Gomboc, Uroš Kostić (Astronomical and Geophysical Observatory Golovec, University of Ljubljana)

www.astronomija2009.si

Official Languages
- Slovene

Number of organising committee members: 5
- Volunteers: 5
- Paid: 0

Population: 2 054 199

Number of people reached by IYA2009: 300 000

Budget: 430 000€

Sources:
- Ministry of Higher Education, Science and Technology
- Ministry of Education and Sport
- The National Education Institute
- Faculty of Mathematics and Physics
- Halcom d.o.o.
- DMFA Slovenije
- Slovenian National Commission for UNESCO Universities
- Associations and individuals

## General Overview of IYA2009 activities in Slovenia

IYA2009 in Slovenia was in our opinion very successful. We managed to attract all astronomical societies and about one third of all schools. We carried out a number of projects despite the fact that Slovenia has just two million inhabitants and only five professional astronomers. The interest of the public was very high. Activities were ran and initiated by a handful of enthusiasts, but luckily financially supported by several organisations. To be honest, at the beginning of 2009 we did not expect to be able to carry out not even half of the above mentioned activities.

## Main Activities

### List of Activities

- Telescope for Every School project
- Public Observations (including 100 Hours of Astronomy and Galilean Nights)
- Astronomy for Children and Youth
- From Earth to the Universe: Travelling Exhibitions and Big Exhibition in the Tivoli Park
- Astronomical Heritage Exhibitions
- Astronomical Competition
- Open Days at observatories
- Workshop: Slovenia and Space: yesterday, today and tomorrow
- Public Lectures
- Opening Event and Closing Event

## Telescope for Every School project

During IYA2009 the Ministry of Education and Sport in Slovenia enabled all primary and secondary schools in Slovenia to purchase a telescope and other astronomical equipment of their choice to the value of 550 Eu per school. 82% of Slovenian schools took this opportunity and bought altogether about 600 telescopes. From this year on all Slovenian pupils should therefore have a chance to observe the sky through a telescope. This action was proposed by amateur astronomer Zorko Vičar. After the schools received their telescopes, we organised 15 workshops for teachers to educate them on how to use different kinds of telescopes.

Organisers: Ministry of Education and Sport, The National Education Institute.

Website:
http://www.astronomija2009.si/index.php?option=com_content&view=category&layout=blog&id=58&Itemid=90

Estimated number of people who attended or were reached by this activity: 10.000-20.000 this year, more in the future.

Budget: 350,000€

## Public observations (including 100 Hours of Astronomy and Galilean Nights)

Astronomical societies and schools organised 51 observing events during 100 Hours of Astronomy. During Galilean Nights there were 37 events. There were a number of observations organised also at other dates, including several astronomical camps during summer months. The biggest observing event was organised on 28 August in connection with the FETTU exhibition in the Tivoli Park.







Organisers: Astronomical Societies and Schools, coordinator: Rok Vidmar.

Website: http://www.astronomija2009.si/short/100ur.html;
http://www.astronomija2009.si/index.php?option=com_content&view=article&id=266&Itemid=92









Estimated number of people who attended or were reached by this activity: 20,000.

## Astronomy for Children and Youth

On the Slovenian IYA2009 webpage we offered educational material for teachers to use in kindergartens (some of it is translated UNAWE material) and in schools at different levels (from first grade in primary school to secondary schools). We tried to engage teachers to participate in Galileo Teacher Training Program. We sent all participating schools and kindergartens promotional material: IYA2009 calendar, DVD Eyes on the Skies, IYA2009 leaflets and posters.
We attracted schools to participate in the GLOBE at Night and in the IYA2009 Special project The Sky — Yours to Discover! We also invited them to participate in the Distance to the Moon and the Position of the Sun and the shape of the Earth projects. Altogether more than 200 schools and 10 kindergartens participated in various IYA2009 activities.

Organisers: Uroš Kostić, Zorko Vičar, Boris Kham, Andrej Guštin, Aram Karalič, Andreja Gomboc.





Website: http://www.astronomija2009.si/short/otroci.html

Estimated number of people who attended or were reached by this activity: 5000-10,000.

## From Earth to the Universe Exhibitions

Travelling exhibitions: Two travelling exhibitions From Earth to the Universe consisting of two sets of 20 photographs changed location every week and will visit altogether around 100 schools, kindergartens, libraries, museums, etc. The travelling exhibitions are on tour from January 2009 until (at least) June 2010.

Exhibition in the Tivoli Park: We made a very large (platinum) FETTU exhibition in the Tivoli Park in Slovenian capital Ljubljana. This exhibition first ran from 17 June until 4 September 2009. It contained 120 pictures (at 180x120 cm). On 22 June 2009 we had an opening of the exhibition attended by the president of Slovenia and minister for higher education, science and technology.

We also had a big public event on 28 August 2009 combining the guided tour of the exhibition with public observations of Jupiter and Moon with more than 30 telescopes. There were between 5000 and 10,000 visitors. Also the president of Slovenia came to this event and had a first look through the telescope.

Due to overwhelming public interest, the FETTU exhibition in the Tivoli Park was repeated at the end of IYA2009 from 26 November 2009 until 16 February 2010. It was aimed at school groups who could not see the exhibition in summer due to summer holidays, but also for everyone else — it was a nice decoration of pre-New Year and winter Ljubljana. On this occasion we prepared learning materials for school-children to fill out when they visit the exhibition (some astronomy questions related to exhibited images). We also published a catalogue of the exhibition (including all photos and captions in Slovenian and English) and distributed it to all Slovenian schools, libraries and astronomy lovers.

Altogether, summer and winter FETTU exhibitions in Tivoli Park were on display for about five months. After the end of it, the photos were given to several schools, Arboretum Volčji potok, Ministry of Higher Education, Science and Technology, and Astronomical and geophysical observatory Golovec for permanent display.

We promoted FETTU exhibitions also on 10 train boards, which were travelling across Slovenia on different trains from June until December 2009.

Organisers: Andreja Gomboc, Bojan Kambič; Institutions: Ministry of Higher Education, Science and Technology and Faculty of Mathematics and Physics, University of Ljubljana.







Website: http://www.astronomija2009.si/short/razstava.html

Estimated number of people who attended or were reached by this activity: more than 100 000 people, maybe even 200 000.

Budget: 35 000€

## Astronomical Heritage Exhibitions

To bring to people's attention the astronomical heritage in Slovenia we organised two exhibitions:

1. "Copernicus in Slovenia" in National and University Library in Ljubljana in October 2009 (repeated at Gimnazija Jožeta Plečnika in January 2010) — among other historically important astronomical book on display were also two copies of the Copernicus "De revolutionibus orbium coelestium" printed in 1566.

2. Exhibition in Technical Museum Bistra about Prof. Pavel Kunaver, well known in Slovenia for his popularisation of astronomy, was on display in autumn 2009 and repeated in Ljubljana in January 2010 and in Murska Sobota in February 2010.

Organisers: Boris Kham.

Website: http://www.astronomija2009.si/index.php?option=com_content&view=article&id=253:kopernik-v-nuku&catid=45:aktualna-obvestila&Itemid=67;
http://www.astronomija2009.si/index.php?option=com_content&view=article&id=286:moje-zvezdarne&catid=45:aktualna-obvestila&Itemid=67





Estimated number of people who attended or were reached by this activity: 10 000.

Budget: 6000€

## Astronomical Competition

In December 2009 we organised the first astronomical competition for primary and secondary school children. More than 130 schools participated in the competition at two levels: at first level — school competition 1500 children participated. 200 got the right to participate at the second level — the national competition. Since the school's response to the first competition was so good, we plan to organise the astronomical competition every year from now.
Organisers: Andrej Guštin, Andreja Gomboc, DMFA Slovenije.

Website: http://www.dmfa.si/Ast/index.html

Estimated number of people who attended or were reached by this activity: 1500.

Budget: 3000€

## Open days at observatories

Several amateur observatories (Alana, Grin Very, Kodaly etc.) and the only professional observatory at Golovec had several open days. For example, the Astronomical and Geophysical observatory Golovec opened its doors to visitors every first Wednesday of the month and during 100 Hours of Astronomy and Galilean Nights.

Organisers: various astronomical societies, Observatory Grin Very, Astronomical and Geophysical Observatory Golovec.

Website: http://www.astronomija2009.si/index.php?option=com_content&view=article&id=74&Itemid=55



Estimated number of people who attended or were reached by this activity: 3000.

## Workshop: Slovenia and Space: yesterday, today and tomorrow

A workshop entitled “Slovenia and space: yesterday, today and tomorrow” was held on 20 and 21 October 2009 at the Faculty of Mathematics and Physics, University of Ljubljana as part of the activities of Slovenia to become a participating country in the European Space Agency ESA. It was organised by the Ministry of Higher Education, Science and Technology and Faculty of Mathematics and Physics. The purpose of the workshop was to bring together Slovenian institutions and individuals, who are scientifically or technologically related to space research and its communication to broader public. The Proceedings of the workshop were published in March 2010.

Organisers: Andreja Gomboc, Tomah Witter, Ministry of Higher Education, Science and Technology and Faculty of Mathematics and Physics, University of Ljubljana.

Estimated number of people who attended or were reached by this activity: 100.

## Public Lectures

About 50 public lectures were organised in schools, libraries, museums across Slovenia.

Organisers: Uroš Kostić, Andrej Guštin, Rok Vidmar, Mastic Smear, Tomah Witter, Bojan Dintinjana, Herman Mikuž, Jurij Javoršek, Andreja Gomboc, Dušan Petrač, Primož Kajdič.





Estimated number of people who attended or were reached by this activity: 1500.

### Opening and Closing Event

On 27 January 2009 we organised an IYA2009 Opening Event in Grand Hotel Union in Ljubljana. It was attended by 250 people, including the IYA2009 patron, President of the Republic of Slovenia, Dr. Danilo Turk. The event was well covered also by the media.

We held an official Closing Event on 14 January 2010 at Conservatory for Music and Ballet Ljubljana. It was attended by the minister for higher education, science and technology, Mr. Gregor Golobič and accompanied by the exhibition of old astronomical instruments.

Organisers: Andreja Gomboc, Bojan Kambič, Andrej Guštin, Uroš Kostić.

Estimated number of people who attended or were reached by this activity: 400.

## Lessons Learned

Find the right people for the team with positive attitudes. Financial support also doesn't hurt, but some luck is needed in order to obtain it.

If you have time, plan ahead. If not, just go with the flow.

Be prepared to deal with a lot of people with ideas about what should be done. Some (most?) of them expect that somebody else will work hard to carry out "their" ideas. We adopted the so called "boomerang method of work" which worked wonders: an idea is like a boomerang, it comes back to the one, who proposed it. If you believe that what you propose is really such a good idea, you should be prepared to put your own time and effort in realisation of it. If not, be quiet. Don't expect others to do it!

## Legacy

We wish to continue the outreach programme . We will continue to organise public observations (in cooperation with astronomical societies), organise astronomical competitions, maintain the IYA2009 webpage and materials on it. We plan to be involved in the "Beyond IYA2009" programme , depending on the spare time of our active members (we are all volunteers with other full-time jobs).

## Comments

We think that IYA2009 was an amazing success worldwide!



# South Africa

## National Node

Kevin Govender
SAAO
kg@saao.ac.za
http://astronomy2009.saao.ac.za/

Official Languages

- Afrikaans
- English
- Ndebele
- Northern Sotho
- Sotho
- Swazi
- Tswana
- Tsonga
- Venda
- Xhosa
- Zulu.

Number of organising committee members: N/A

Population: 49 991 300

Number of people reached by IYA2009: N/A

Budget: N/A

## Overview of the IYA2009 Activities in South Africa

Activities in South Africa were coordinated by a steering committee chaired by the South African Astronomical Observatory (SAAO), with representatives from all major astronomy related bodies including government, research, outreach and amateur organisations. In the years preceding IYA2009, the "build-up" activities included national stakeholder meetings; astronomy education and outreach surveys; setting up of websites and email groups; consolidation of astronomy resources; development of the "astroguide" and "astroCD" (two useful resources to assist outreach volunteers); and a series of training workshops to equip stakeholders with astronomy outreach skills.

IYA2009 in South Africa kicked off in style on New Year's Eve with a once-in-a-lifetime opportunity for the public to enjoy a full night on the telescope plateau at the SAAO in Sutherland, home to the Southern African Large Telescope (SALT). For the first time in its 37 year history in Sutherland the SAAO dedicated an entire night to the public with astronomers showing people how the telescopes worked, discussing what they do and even carrying out observations for the public. The rural town of Sutherland came to life for a week long star party that preceded this unique night, with members of the community participating actively in the celebrations and hosting the hundreds of people who made the long trip. This event was soon followed by another mass media event — the official launch of IYA2009 in South Africa by the Minister of Science and Technology at a partial solar eclipse on 26th January 2009. Both these events were broadcast on national television and radio and published in many newspapers.

The momentum from these events carried South Africa through many other activities including the well attended public lecture series at the SAAO in Cape Town which was linked to a special issue of "Quest" (a popular science

magazine); an astronomy themed Scifest Africa (biggest Science Festival in the region) as well as National Science Week (biggest science outreach event on the South African calendar); and participation in various cornerstones including Dark Skies, 100 Hours of Astronomy (part of which was a SALT inclusive "Around the World in 80 Telescopes" webcast), Universe Awareness, Galileo Teacher Training, From the Earth to the Universe, and Developing Astronomy Globally. The very popular "telescopes on Lion's Head" full moon hike has established itself as a popular way of doing "extreme astronomy" and outreach training workshops with stakeholders and volunteers were held all over South Africa, as well as in 4 other African countries.

A major part of IYA2009 celebrations came as a result of funding from the Department of Science and Technology, which attracted people from all outreach areas including science centres, planetaria, observatories and astronomy societies. These activities were spread across the country and a summary table of these projects is given below:

| | Grant holder | Project Title |
|---|---|---|
| 1 | Southern Science: Marina Joubert | Media Stars: How to get Astronomy into the media |
| 2 | Fray Intermedia: Michael Schmidt | Stargazers and scribblers |
| 3 | HartRao: Sam Rametse | Astronomy workshops |
| 4 | Boyden Science Centre: Mattie Hoffman | IYA2009 Education and Public programme |
| 5 | Let's Look Publishers: Peter Sanderson | Sibo in Space |
| 6 | Astronomy Africa: Eckhart Pipreck | Travelling African Sky Lore Theatre and Telescope Viewing |
| 7 | Sci-Enza Science Centre: Rudi Horak | Creating Astronomy awareness |
| 8 | Moipone Academy: Joseph Taetsane | Public understanding of Astronomy |
| 9 | University of Limpopo: Sandile Rikhotso | IYA |
| 10 | Soutpansberg Astronomy Club: Kos Coronais | Limpopo Astronomy Outreach |
| 11 | Northern Flagship Institution: Julia Barnes | Tswaing Meteorite Crater Museum |
| 12 | STERS: Grcae Djan | Science Technology Environmental Rocketry and Space |
| 13 | National Museum: Tebogo Mohlakane | Astronomical Tours |
| 14 | SSMTE: Nadaraj Govender | Astronomy Interactive Garden |
| 15 | SSMTE: Nadaraj Govender | SAASTE National Astronomy Olympiad |
| 16 | OLD Mutual MTN Sciencentre: Allison Ruiters | IYA |
| 17 | Unizul Science Centre: Derek Fish | Exploring the universe, a better understanding |
| 18 | Olwazini Discovery Centre: Spar Duma | |
| 19 | Jive Media: Robert Inglis | Mobile astronomy exhibit |
| 20 | Utenhage Dispatch Development Initiative Science Centre: Peter McEwan | Instructional DVD's on light and astronomy |
| 21 | SKA: Kim De Boer | Starry Nights |
| 22 | Iziko Planetarium: Margie Walter | Solar System Board Game |
| 23 | Western Cape Primary Science Programme: Leslie | Bringing astronomy into the classroom |

| | | |
|---|---|---|
| 24 | MTN Science Centre | The universe, yours to discover |
| 25 | Iziko Museums of Cape Town | Outreach programme |
| 26 | SAAO | Langa astronomy project: Sivuyile Manxoyi |
| 27 | SAAO | Exhibit management and travel grant |
| 28 | SAAO | Equipment grant |

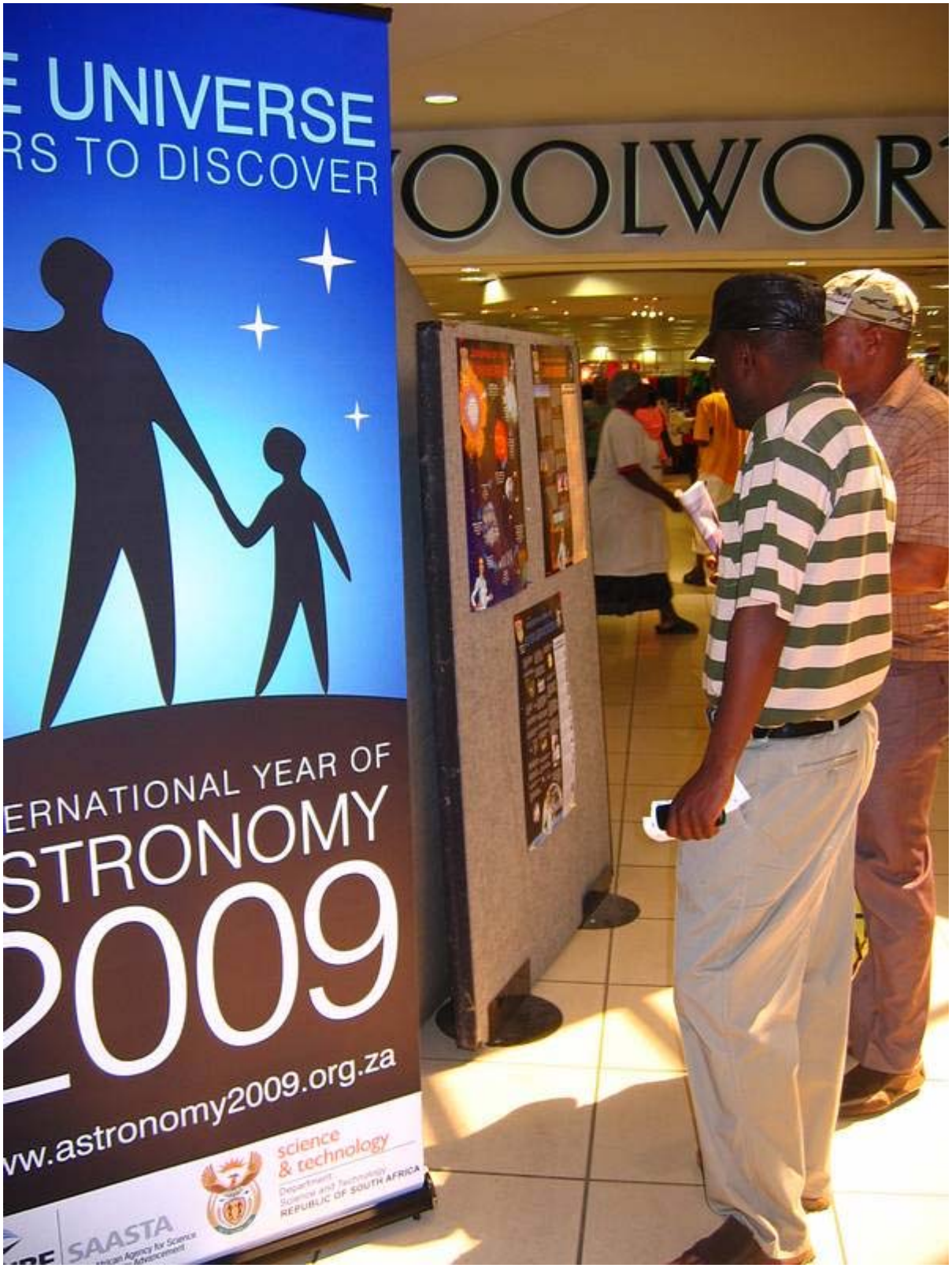
This grant also gave rise to an astronomy travelling exhibition and an equipment resource pool both available for willing volunteers to use to promote astronomy.

A grand highlight for IYA2009 in South Africa was the conference of the Southern African Association of Science and Technology Centres (SAASTEC) which was held in Sutherland. This is the biggest meeting of science education and outreach individuals and organisations in the country and was an opportunity for delegates to see the facilities at the observatory as well as learn some astronomy which they could include in their own science outreach programmes. The year ended with an IYA2009 closing star party just before the New Year, another big event for the Sutherland community. It was serendipitous that there was a partial lunar eclipse on New Year's Eve which attracted many people to the telescopes. Public were allowed to witness the last sunset and moonrise of 2009 from the telescope plateau, another unique opportunity for them. South Africa didn't stop the IYA2009 efforts there and went on to host the Communicating Astronomy with the Public conference (CAP2010) in Cape Town in March 2010,

## Main Activities

### Astronomy at the Mall

The University of Limpopo had an Astronomy Exhibition at the Savannah Mall on 3 October. Here are some pictures from this event.


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ww.astronomy2009.org.za
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Department:
Science and Technology
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## Galilean Nights

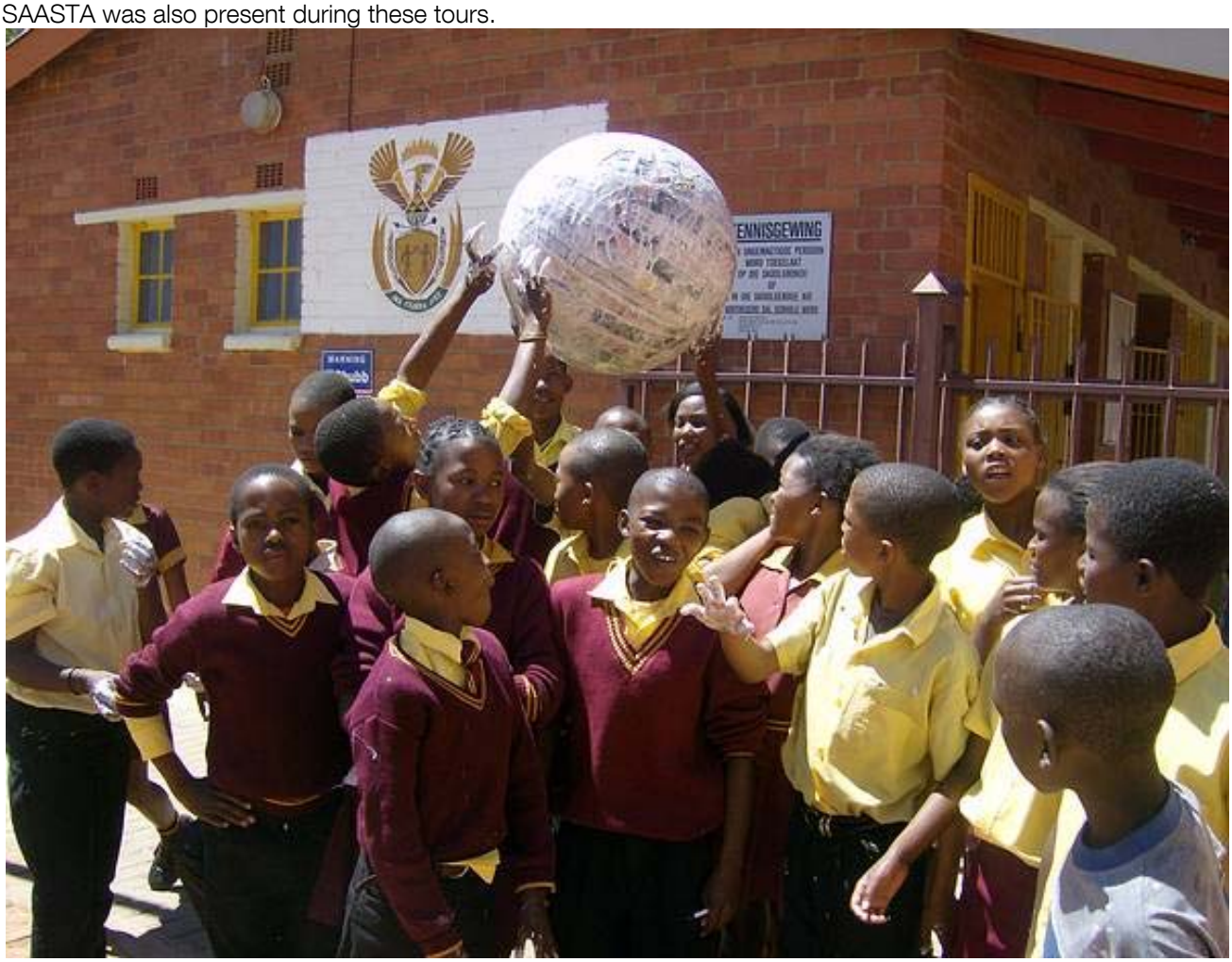
From 22nd to 24th October 2009, the Galilean Nights were celebrated with lots of public events. Here are some of them:

- Limpopo: Limpopo Astronomy Outreach Project was back on the road again and visited the University of Venda and Makhado Crossing.
- Cape Town: The ASSA Cape Centre offered a special Galilean Star Walk at Kirstenbosch Botanical Gardens.
- Nelson Wine Estate (near Wellington): The Orion Observasie Groep offered some telescope viewing at the Nelson Wine Estate Show & Share.
- Grahamstown: The Rhodes University Astronomical Society organised a telescope making workshop and public star-gazing in the Botanical Gardens.
- Calitzdorp Spa: Wim Filmalter explained our place in the Universe to teachers, learners and resort guests. (And showed them Moon and Jupiter.)
- Riversdale: Wim Filmalter gave a talk and some star-gazing for teachers at Panorama Primary School.
- Stellenbosch: The Star Gazers Club set up telescopes on the University of Stellenbosch campus.
- Brackenfell: The Star Gazers Club made good use of the Pick'n Pay parking deck.
- The Strand: Auke Slotegraaf introduced the public to introduced the public to Jupiter — and to Maphefo.
- Kleinmond: The Star Gazers Club offered a talk at the local library.
- Paarl: The Orion Observasie Groep celebrated at the Taal Monument.

## Astronomical Tours on the Lawns of Oliewenhuis

On 15th October 2009, four school groups took part in Astronomical Tours in the Lawns of Oliewenhuis. The learners of Maboloka Primary School built the 'planets' using paper mache and the design department of the National Museum put colour as well as graphics on the built planets. The learners were taken on an astronomy tour from the 'Sun' to Pluto, with interesting facts being shared at each planet. There were also surprises at some of the planets, i.e cooldrinks were handed out at Venus, chips at Saturn, Astros at Jupiter. About 245 grade 6-7

learners attended this event, thanks to the generous sponsorship of DST, through SAASTA. Maphefo Chauke from SAASTA was also present during these tours.




## Astronomy at Savannah Mall

Limpopo Astronomy Outreach and Sandile Rikhotso from the University of Limpopo's Science Centre visited Savannah Mall in Polokwane on Saturday the 5th of December 2009. With Sarah and James to help set up the display and telescopes, Sandile and I were ready shortly after 09:00 to welcome the inquisitive public, who were already stopping to enquire on proceedings.

The display consisted of astronomy related posters with two telescopes on view, a 10 inch Newtonian Reflector and solar filter and a 6 inch Dobsonian. Handout material consisted of information on the Sun, Moon, Solar System and "Sibo in Space" books. As usual the Edward Foster photographic display, showing an illustrated time-line of cosmic and fossil history going back 2.1 billion years, was a major talking point. With school holidays well under way, we were kept busy answering questions, showing everyone the solar disk and handing out IYA2009 posters, courtesy of the South African Astronomical Observatory (SAAO). Interest in astronomy and the Soutpansberg Astronomy Club from the residents in Limpopo and Polokwane has grown considerably during IYA2009 due to the IYA activities during the course of the year.







We concluded in the evening when an incoming thunderstorm prevented further nightsky viewing. Both radio and printed media, and Savannah Mall's management, played a major role in advertising the day's activities. Sandile and I would like to thank the centre's management, Savannah Spur and Ocean Basket, who surprised us with refreshments and food throughout the day, and Sarah, James and everyone else involved in this outreach initiative.

## Mvelelo Spring Show

The Mvelelo Spring Show in Louis Trichardt, lived up to its name with spring rains dominating two days out of the three day event. Due to factors beyond the control of the organisers the yearly show had to be postponed on a

couple of occasions and was eventually held on the last weekend of October. Limpopo Astronomy Outreach visited over two days with the display having to move indoors due the non-stop rain on the second day.









Overall the response from the public was enthusiastic and the first day, which is traditionally the quietest being productive with over 100 people visiting the display , looking at sunspot # 1029 and collecting the various astronomy material that was available. During the early part of the first evening lovely views of the Moon were projected onto the screen. Unfortunately Jupiter was moving in and out of the clouds that were ominously bringing in the much needed rain to the region and we did not get the opportunity to view the planet.

## Bidding farewell to the IYA2009 in Limpopo

Beautiful clear skies, sunspots on the solar disk, followed by the last sunset of IYA2009 and then glorious views of Jupiter and its moons. The cherry on top had to be the partial eclipse a little later of the “Blue Moon”. All the while a steady stream of the public experiencing this at Makhado Crossing in Louis Trichardt. What a fantastic end to 2009.



# Spain

## National Node

Montserrat Villar Martin (Instituto de Astrofísica de Andalucía-CSIC)

www.astronomia2009.es

Official Languages
- Spanish

Number of organising committee members: 25
- Volunteers: 0
- Paid: 25

Population: 45 989 016

Number of people reached by IYA2009: 10 000 000

Budget: 280 000€ (for general coordination expenses. Budget for specific activities not included)

Sources:
- MICINN
- CSIC

## General Overview of IYA2009 activities in Spain

IYA2009 in Spain has been the result of the collaboration between all institutions related to Astronomy, under the general coordination of the Comisión Nacional de Astronomía (CNA).

IYA2009 has been a success in Spain. We started this celebration with the good News that all political parties of the Spanish Parliament supported a proposal in favour of the IYA2009 celebration and encouraging the Government to support astronomy in general and IYA2009 in particular. The IYA2009 opening ceremony in Spain took place on January 27th in Madrid and was presided by Prince Philip of Spain. A national presentation for the general public took place on February 19th in the beautiful historical town of Cuenca. The closing ceremony took place on November 25th at the Spanish Parliament in a ceremony presided by the president of the Spanish Parliament. A national closure event for the general public took place in Granada on 12 December.

The response of the Spanish community at the celebration of IYA2009 has been excellent. More than 3100 activities have been organised by 1600 entities all over the country: research centres, amateur astronomical societies, museums and planetariums, schools, libraries, cultural societies, etc. Almost every month there have been between 200 and 400 ongoing IYA2009 activities. The data we have recorded and the comparison with other years suggest that the number of astronomy outreach activities during IYA2009 in Spain has been at least three times higher than previous years. We can also confirm that IYA2009 has stimulated enormously astronomy public outreach and its appearance in the press. IYA2009 has appeared more than 1500 times in Spanish digital press (only in Spanish language), three times more than the Darwin year and the European Year of Creativity and Innovation.

The mobilization IYA2009 has generated in our country and the great diversity of outreach activities it has promoted have no precedents. IYA2009 has reached not only the places we expected (those related to Astronomy research and/or outreach), but also places and events with no relation at all with this science, many of them emblematic of Spanish History and culture. As an example, the Bilbao Guggenheim museum, the Senate building (Madrid), the National Archaeological Museum (Madrid), the Calos V Palace (Granada), the Alcazares of Seville, Toledo and Segovia, archaeological deposits in Gran Canaria, etc have organised or hosted IYA2009 activities.

IYA2009 in Spain has left a rich legacy for Astronomy outreach, much of which is available at www.astronomy2009.es: TV documentaries, radio podcasts, articles, games, posters, interviews, etc.

The success of IYA2009 in Spain has been possible thanks to the institutional involvement and the participation of thousands of people who have contributed altruistically in most cases. Hundreds of researchers have presented to society the results of Astronomy research in Spain and other countries to society, showing the excellent evolution this science has experienced in the last decades in our country. Museums and planetariums have brought IYA2009 to several million people and teachers have been key to spread IYA2009 in thousands of schools. A special mention goes to amateur astronomers for showing the wonders of the night sky to thousands of people everywhere.

## Main Activities

The number of activities in Spain exceeded 3100. It is therefore impossible to list all of them.

### 100 Hours of Astronomy

“100 Hours of Astronomy” was one of the central events of IYA2009 in Spain, where it was a great success. More than 300 activities were organised all over the country, including star parties, special radio programmes, photo contests, conferences, etc. Spain also participated in the 24 hour webcast “Around the World in 80 Telescopes” with 11 connections from the observatories Roque de los Muchachos (La Palma), Izaña (Tenerife), Calar Alto (Almería), IRAM (Granada) and Yebes (Guadalajara) and the monitoring centre ESA satellites (INTEGRAL, XMM-Newton).

Organisers: Instituto de Astrofísica de Andalucía and Spanish IYA2009 node. IP: Miguel Pérez Torres.




Website: http://astronomia2009.es/Proyectos_pilares/100_horas_de_astronomia.html



A group of students attends one of the activities organised during 100 Hours of Astronomy.

## She is an Astronomer

She is an Astronomer has been a very successful project in Spain during IYA2009. It has been promoted by a multidisciplinary team integrated by nine women. The group was especially created to coordinate this project; they are specialists in the areas of professional and amateur astronomy, history of science, and sociology. The team has produced a rich variety of outreach material with the goal of giving visibility to the role of women in astronomy in different epochs and countries and teaching astronomy through their work. The main projects developed by the team have been:

- "Mujeres en las Estrellas" (Women on Stars): The production of a series of eight TV programmes in collaboration with UNED dedicated to the role of Spanish female astronomers in the development of this science in Spain. The programmes have been emitted on TVE1, one of the main TV Spanish channels.
- "Con A de Astrónomas" a very complete exhibit that teaches astronomy through the contribution of women astronomers of different countries and epochs. The exhibit consists of 13 panels with a rich scientific and didactic content, several interactive educational modules and a set of reproductions of scientific instruments and other objects used in the most recent movie Agora by Alejandro Amenábar dedicated to Hypathia of Alexandría. The exhibit will move to different places in Spain during 2010 and 2011. The panels are also available in English.
- The first statistical and sociological study about women in professional astronomy in Spain. This study focussed on different methods based on discussion groups, interviews and a thorough collection of data for the statistical study. The results were presented in December 2009 and they will be published in a book in the near future.

Most of this material is freely available in the team's webpage for schools, libraries, museums, research centres, etc.

Organisers: Spanish team “She is an Astronomer”, Spanish IYA2009 node. IP: Francesca Figueras.

Website: http://www.astronomia2009.es/Proyectos_pilares/Ella_es_una_Astronoma.html



Members of the team She is an Astronomer at the opening of the exhibit “Con A de Astrónomas” at the Casa de las Ciencias del CSIC in Seville on 14 December 2009.

Budget: 114,000€ in total, provided the Spanish Research Council (CSIC, 54,000€), the Ministry of Science and Innovation (MICINN, 35,000€) and FECyT (30,000€).

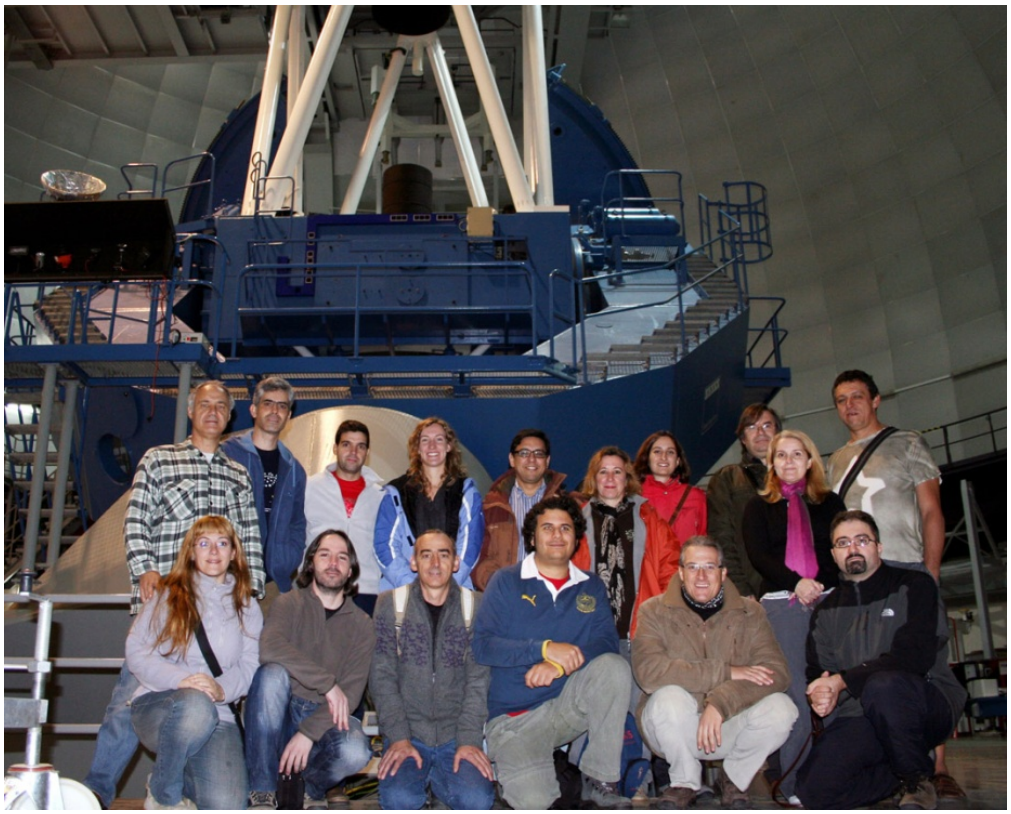
## Dark Sky Awareness in Spain

The Cornerstone project Dark Sky Awareness in Spain has been active all year long, and continues today with the fight against light pollution in many areas. As an example, on 19 February 2010 a related presentation was made at the Vasque Parliament and negotiations are in progress to convince the city court of Pamplona to adopt a compromise in order to reduce light pollution in the city. From the Cornerstone Project, several actions were taken:

- Support the star-count campaigns at both international (mainly the world-wide activity GLOBE at Night) and national levels (IACO, which was active during four periods along 2009);
- Participation in three international meetings during 2009: Star Light in Fuerteventura in March, 9th European Symposium for the protection of the night sky in Armagh NI in September and a second Star Light Initiative meeting in La Palma in November;
- Support the Star Light declaration of 20 April as the “Day of the night sky”;
- Promote the organisation of one of the five National Star Parties in dark sky areas coinciding with the Perseid Meteor shower in August. It was an excellent opportunity to promote the importance of dark skies and the need to fight against light pollution;
- Provide support to municipalities and regional governments sensible to the light pollution problems;
- Participation and organisation of several lectures, courses, seminars, planetarium presentations, etc. on light pollution issues;

- Organisation of the “I Course on Astronomical Photometry applied to light pollution measurement techniques” for amateur astronomers. It was celebrated at the professional observatory Centro Hispano-Alemán de Calar Alto and it had the goal of teaching them how to measure the artificial sky background light;
- Many of these activities are still active and will continue in the future: a IACO campaign is already scheduled for March, and it is hoped that the Photometry Course in Calar Alto will be repeated many times in the future.

Organisers: Spanish IYA2009 node, Planetario de Pamplona, Cel Fosc, Association against Light Pollution, Sociedad Malagueña de Astronomía, CAHA, RECTA, Universidad Complutense de Madrid and the Star Light Initiative. IP: Fernando Jaúregui.



Picture of teachers and participants of the “I Course on Astronomical Photometry applied to light pollution measurement techniques” organised at Calar Alto Observatory in October 2009.

Budget: 9000€ provided by FECyT.

## El Universo para que lo Descubras. The Universe, yours to Discover.

An exhibit of high quality astronomical images showing the wonderful beauty of the Universe and teaching astronomy at the same time. Each image is accompanied by a short scientific description and a special sentence or poem from writers of the universal Hispanic literature. The content of this exhibit has been shown with different formats at more than 100 related activities at different locations in five different countries: Spain, Mexico, Argentina, Czech Republic and Slovak Republic.

Organisers: INAOE (México), Instituto de Astrofísica de Andalucía-CSIC, Spanish Node for IYA2009. IPs: Enrique Pérez and Guillermo Tenorio Tagle.

Website: http://www.iaa.es/~eperez/AIA-IYA2009/

Estimated number of people who attended or were reached by this activity: 10,000,000.

Budget: Each of the institutions that have promoted a copy of the exhibition has provided the funding.

## Una Universidad, Un Universo (One University, One Universe)

This project had two main goals: 1) to make our Universe accessible to the society through a series of talks (at least one at each Spanish university) on astronomy related fields at the 77 universities active today in Spain. 2) To contribute to overcome the current existing social dichotomy “Sciences versus Humanities”, by promoting conferences and debates on astronomy at all types of faculties, independently of their specialisation, and in particular at humanities faculties.

The results were very positive. A large team of speakers was created and globally coordinated by the U4 organisers. The team was integrated by more than 170 researchers and university lecturers who gave 240 conferences on astronomy related talks at 49 of all 77 Spanish universities. The vast majority contributed altruistically since they did not receive any extra payment for these conferences.

Organisers: Spanish IYA2009 node, University of Vigo, Spanish Astronomical Society and University of Granada. IP: Ana Ulla.

Website: http://u4.cesga.es/web_U4.htm




Estimated number of people who attended or were reached by this activity: 15,000.

Budget: 24,000€ provided by FECyT, Ministry of Science and Innovation and Xunta de Galicia (Autonomous Government of Galicia).

## Astronomía made in Spain

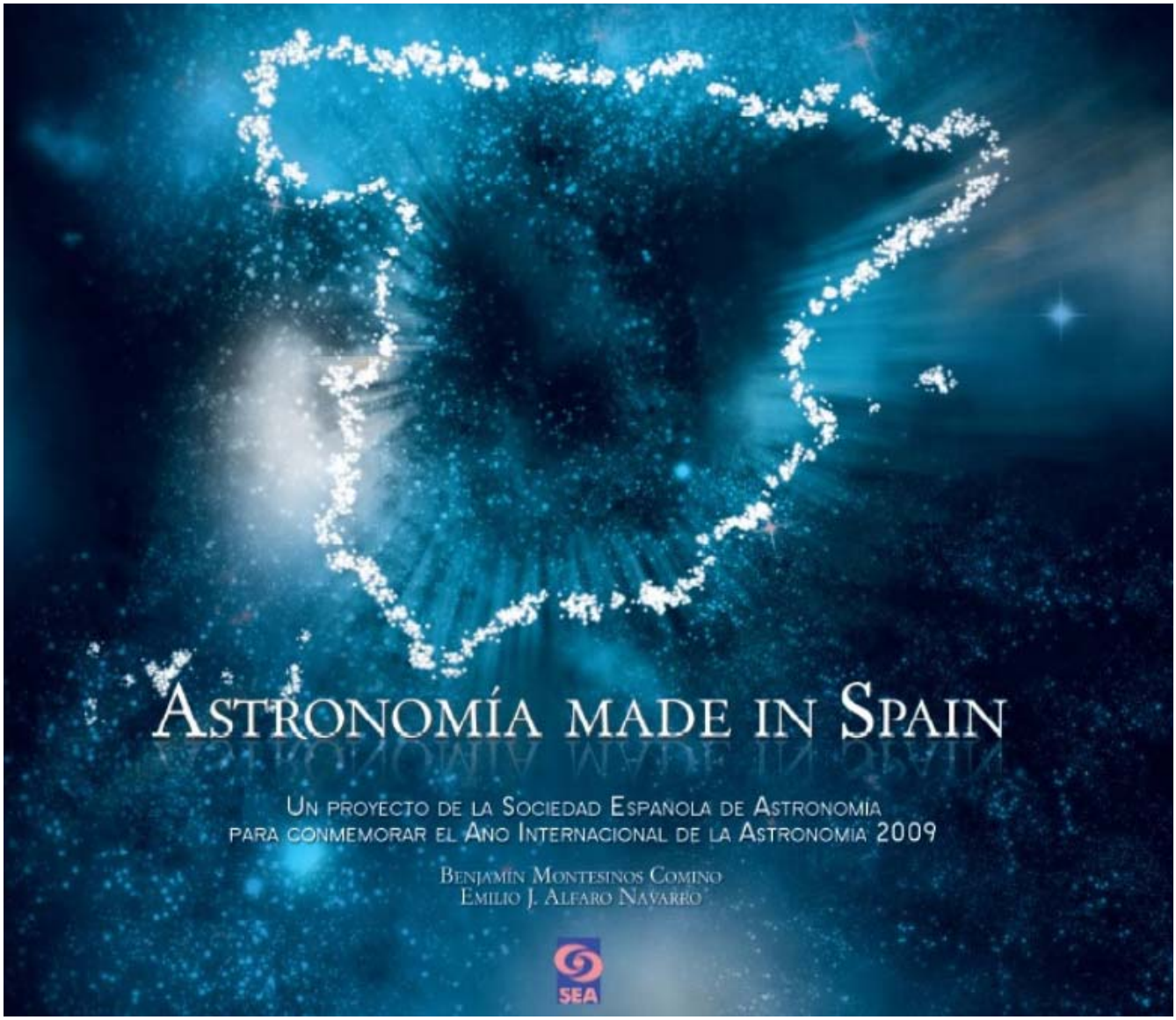
This is a twofold project organised by the Spanish Astronomical Society (SEA in its acronym in Spanish). The first part, developed during 2008 and early 2009 was devoted to the edition and publication of a book, which had the same title as the project, containing contributions of practically all the Spanish astronomers who have published one or more papers as first authors in Nature or Science in the last 30 years. The astronomers explain in a more or less plain language, what they did and the impact their work had in the corresponding field. The outcome was a 150-page book, nicely composed and printed, with a print run of 4000 copies. The book has been widely distributed for free among the audience of talks, summer courses, outreach activities etc.

The second part of the project, developed entirely in 2009, was the organisation of individual talks, or cycles of talks, given by the authors who contributed to the book. There were four cycles of talks co-organised by the SEA and other institutions who hosted the events, namely Universidad de Valencia, Universidad de Barcelona, Instituto de Física de Cantabria and Instituto de Astrofísica de Andalucía; and two cycles organised independently by the

Universities of Burgos and Murcia. The purpose of these cycles, and of the whole project, was to bring to audiences at different levels the research done in astrophysics in Spain without using intermediaries, i.e. by the people who did the work.

Organisers: Spanish Astronomical Society, Spanish IYA2009 node. IP: Benjamín Montesinos, Emilio Alfaro.

Website: http://www.sea-astronomia.es/drupal/?qode/618




Budget: 14,000€ provided by FECyT.

## Evolución

In order to celebrate IYA2009 and Darwin's Year, the community of Spanish planetaria joined resources to produce a new fulldome show on the idea of evolution. The show was presented on 24 April and is now available in 12 Spanish planetaria: Málaga, Barcelona, Madrid, Donostia, Las Palmas de Gran Canaria, Valladolid, Valencia, La Laguna (Tenerife), Cuenca, A Coruña, Àger (Lleida), Granada, Costix (Mallorca) and Pamplona. Astronomy and Biology walk together along the 45' of spectacular fulldome sequences.

Organisers: Planetario de Pamplona, Museos Científicos Coruñeses and Museo de las Ciencias de Castilla la Mancha. IP: Nieves Gordón.

Website: www.evolucion2009.es



Estimated number of people who attended or were reached by this activity: 500,000 during 2009.

## Measurement of the Earth's radius

Our proposal was to perform again the Eratosthenes' measurement of the radius of the Earth, in a number of schools. In the design of this project, two sets of goals were defined:

Organisational goals:

- Stimulate the participation of as many scholar centres as possible;
- Address the project to all scholar levels;
- Involve all courses of every participant school in an enjoyable way, giving visibility to the celebration of IYA2009.

Pedagogical goals:

- Give the younger students the opportunity to observe and describe the natural phenomenon of the shadow casted by an object and its evolution along the day;
- Practice some measurement skills, data registration and graphical representation;
- Increase the collaboration among centres, by interchanging data to perform the Earth's radius calculation;
- Perform some calculations with the collected data, according to the scholar level of the students.

In a few words, make science.

Although the Eratosthenes' measurement needs only two observers, the calculation was done at two different levels: A collaborative level, matching the data of all the participants in a single result, and an individual level: a pair

of centres, approximately on the same meridian and not too close one from another in North-south direction, can have a single result with their own data.

Organisers: Agrupació Astronómica de Barcelona ; IYA2009 Spanish node. IP: Pere Closas and Emilio García.

Website: http://www.astronomia2009.es/Proyectos_de_ambito_nacional/La_medida_del_Radio_de_la_Tierra.html




Estimated number of people who attended or were reached by this activity: 930 scholar centres registered to take part in the measurements 650 scholar centres sent data, report, images indicating they really took part. We estimate about 1000 teachers and 10,000 students directly concerned in the experience and approximately 20,000 or 30,000 students who knew and saw their colleagues doing the experience. This gave great visibility to IYA2009.

Budget: 8,500€ provided by the Ministry of Science and Innovation.

## Star parties

Spanish amateur astronomers joined efforts for the first time to occupy streets and squares all over the country with their telescopes. The objective of this project is to organise all over Spain the so-called “star parties” by the amateur astronomical organisations. On several dates, coinciding with relevant ephemerides, the amateur astronomers organised at the city streets and squares astronomical observations to show the night sky to the public. Thousands of people could gaze through a telescope, as Galileo Galilei did 400 years ago. At the beginning, four national star parties were planned, and finally, five took place. Instrumentation and telescopes were provided by the numerous entities participating in the project. The dates and participation of the five star parties was as follows:

- 7 March: “Star Parties” inauguration. Organised by 42 astronomical associations.
- 2 — 5 April: 100 Hours of Astronomy. Coinciding with the world activity also named “100 hours of Astronomy”. Organised by 55 astronomical associations.
- 12 August, coinciding with the Perseid Meteor Shower. Many observations were organised in special places because of their touristic, historical or natural interest. A special effort was devoted to transmit to the public awareness about the need to protect the dark skies and fight against light pollution. It was organised in collaboration with the project “Dark Sky Awareness” in Spain. Organised by 25 astronomical associations.
- 22 — 24 October: Galilean Nights. Organised by 54 astronomical associations.
- 21 November: Science Week and Star Closing Party. Organised by 20 astronomical associations.

Organisers: Spanish IYA2009 node, Sociedad Malagueña de Astronomía.

Website: www.astronomia2009.es



Five star parties organised at national level brought the wonders of the night sky to thousands of people.

Estimated number of people who attended or were reached by this activity: It is estimated that the five star parties reached more than 50,000 people.

Budget: 3500€ provided by FECyT.

## Jors, Jars, Jurs and the Galigalitos. A planetarium programme for children.

The object of the action is the realisation of a global programme aimed at children in “Fulldome” “Jors, Jars, Jurs and Galigalitos” in 2009, International Year of Astronomy. For the first time in a planetary village “fulldome” traditional puppets Bert and Ernie type are included through a process of post-production in the planetarium dome to interact with the young audience.

Synopsis: in space, a ship moves to the beat of a song they have received from a blue planet in one of the spiral arms of our Galaxy. Noting with its sophisticated telescope where the signal comes from, are Jars and Jors this Cosmotrasto crew and our actors. His mission of saving lives endangered alien planets by supernova, meteors or stars in their final stage and avoid the loss forever. Your ship is a kind of Noah’s ark. So far there have been very fortunate and have located only Jurs, an uneasy but very special alien, that accompanies them. To locate the alien and out of the troubles that are happening to them, they connect with Dr. Jersen, scientific anthropologist, who landed on Earth and that our planet has been discovered in a place that earthlings call the Museum or Planetarium.

The exhibition of the programme in different Spanish planetaria and related activities continue during 2010.

Organisers: Organismo Autónomo de Museos y Centros del Cabildo de Tenerife. Museo de la Ciencia y el Cosmos.

Estimated number of people who attended or were reached by this activity: The average science museum attendance per year is 6.54 million and 0.97 million visitors to the planetary (global data for the country). The time spent in rooms varies from two to four years once acquired. It is estimated that over two million people will see this production.

## UNAWE in Spanish

UNAWE is one of the Cornerstones for IYA2009. We contributed to the general project with a website in Spanish for all the Spanish speaking countries. The result is a website which has been used for teachers and children and it was very appreciated. The total number of people who contributed was about 30 teachers from Spain, Portugal, Colombia, Panama, Honduras, Chile, Brazil, Italia, El Salvador, Mexico, Tunisia and Venezuela. We produced a couple of books for children. The main idea is that children enjoy astronomy by means of tales of constellations and biographies of astronomers from many Spanish speaking countries. In each tale we included a short astronomical explanation for the adult reader in order to give him some scientific ideas that could be expanded upon to extend the tale. The books titles are:

- “Cuentos de Estrellas — Tales of Stars” (published in five languages: Spanish, Catalan, Arabic, English and Galician. It is being prepared for publication in Romanian, Dutch and French in a few months);
- “Astronomos olvidados — Forgotten astronomers” (published in Spanish and it could be published in Galician and Catalan in the near future).

A card game using a deck of “happy family cards” has been produced as a game for children. The main objective is that children learn to recognise nebulas, galaxies, and other astronomical objects just by playing cards. The contents of the card have been extracted from the exhibit “The Universe Yours to Discover”. It had been distributed in Spain by five different institutions:

- European Association for Astronomy Education — Spain;
- Asociación para la Enseñanza de la Astronomía ApEA;
- Planetario Móvil;
- Asociación Astronómica de Murcia;
- Universidad Nacional de Educación a Distancia UNED.

Organisers: Spanish UNAWE, Spanish IYA2009 node, CSIC; Leiden University is the main organiser of UNAWE at international level.

Website: www.csic.es/unawe (Spanish); www.unawe.org (International site).

## Astronomical activities with disabled people

The main goal of the project was to develop and carry out astronomical activities specially designed for people with different kinds of disabilities. We have focused in four main projects: an astronomy book in Braille (“Volver a ver las estrellas”), an open source software for people with motor disabilities (“Astroadapt”), a planetarium programme for the visually impaired (“The sky in your hands”), and a series of astronomy talks for people with cognitive disabilities (“The life of the stars”). All the educational material we have produced is freely available, most of it directly from the Spanish IYA2009 website, or upon request to the authors.

Organisers: IYA2009 Spanish node, “Activities for disabled people” team, Observatorio Astronómico de la Universidad de Valencia.

Website: www.astronomia2009.es



Estimated number of people who attended or were reached by this activity: 291 attendants. “The life of stars” series of talks: about 300 attendants.

Budget: 10,465€ in total: 10,000€ provided by FECYT and 465€ provided by the ALHAMBRA Survey via the Spanish Ministry of Science and Innovation.

## Astro for all audiences

The aim of this project is to introduce astronomy into normal live, really approaching all audiences, by means of spectacular images and messages about carefully selected astronomical contents, and acting so as an awareness campaign for the other AIA 2009 activities The still not enough basic scientific culture of our society causes that the surroundings are not too favourable nor demanding of scientific contents as for the direct implementation of actions like those proposed under the AIA-IYA2009 initiative; for that reason, it has been considered appropriate that a project like the one here proposed, prepares the floor, generates, raises up and maintains the interest and demands towards those other activities about astronomy that other initiatives address in a deeper way.

Results have been widely satisfactory, and these have fully surpassed the initial expectations of the team project. A set of activities of wide impact has been carried out under this initiative, as well as an intense work of open dissemination of the whole project, in agreement with budgetary possibilities, and looking for the highest possible presence in the public media:

1. Astro in your hands and for collectors: This has been carried out by the inclusion of spectacular astronomical images, accompanied by a brief descriptive text and the logo of IYA2009, in a set of eight coupons of the ONCE lottery (National Organization for Blind People), issued during the first trimester of 2009. These coupons conciliate the affection and prestige that the ONCE Lottery has among the general public, with the attraction of this public towards astronomy. The emission of a complete set has brought, in addition, the interest of the collectors. These coupons are distributed in Spain through more than 22,000 agents and, in total; 40 million coupons have been on sale (five million per coupon). The impact of this initiative is very considerable.

2. “Astro in your cellular phone and in your computer” is specially developed for teenagers and youthful audience, who uses these devices as the main tools for communication, entertainment, information and, why not, training. In order to carry out this initiative the website www.astroparatodos.es was set up by the end of 2008. This website has offered, and still offers, free downloads of a good number of astronomical contents (themes, image backgrounds and screensavers) for cellular phones and PCs. 15 different topics: the Sun, the Moon and planetary conjunctions, eclipses, planets of the Solar System, comets, stars, stellar clusters, nebulae (1 and 2), planetary nebulae, galaxies (1 and 2), galactic clusters, astronomical instruments, and miscellaneous.

“Made in Spain”: Only images obtained by telescopes located in Spain (professional and amateurs) have been used for the initiative with the ONCE Lottery and for the contents of the website. An important advertising campaign of all these activities has been designed and carried out: daily press, radio, internet and the issue of special flyers and posters.

Organisers: Insituto de Astrofísica de Canarias. IP: Inés Rodríguez Hidalgo.

Website: www.astroparatodos.es




Picture of the eight lottery coupons issued by ONCE during 2009 with astronomy contents and the IYA2009 logo.

Estimated number of people who attended or were reached by this activity: It is not easy to estimate this number, due to the own nature of the project. However, it can be considered as a good reference (apart from the audience of the intensive advertising campaigns), the number of people accessing the coupons issued by ONCE and accessing the website: Number of coupons issued by ONCE: 40 million coupons (five million / coupon); WEBSITE: Close to 92,000 visits since its launch in December 2008.

Budget: 45,000€ provided by FECyT.

### Music and Astronomy

Several musical pieces have been selected depending on the format of the event: “The Planets” of British composer Gustav Holst, “Pictures at an exhibition” of M. Mussorgsky orchestrated by M. Ravel, and the famous Serenade KV525 by W.A. Mozart. The music is performed live while video suites specially designed to show astronomical concepts in close choreography with the music are projected simultaneously. The videos present astronomical concepts in a very imaginative fashion, mixing music and physics in a manner that always surprises the audience.

In one case (“A short Astronomical Serenade”), one of the videos features the famous characters Don Quixote and Sancho Panza, created by Spanish author Miguel de Cervantes in the XVII Century. They help the audience discover the Universe in a reinterpretation of two of the most famous chapters of Cervantes’ ageless book, the fight against the windmills (1st Part, Chapter VIII) and the imaginary flight to the skies of both men riding the wooden horse Clavileño (2nd Part, Chapter XLI).

Thousands of people in Spain had the opportunity to hear and watch the three different productions in musical formats such two pianos (“The Planets”), chamber orchestra (“A Short Astronomical Serenade”) and symphonic orchestra (“Astronomical Pictures at an Exhibition”) during some 33 concerts where the music was played live. Many more have seen the DVD “A Short Astronomical Serenade” that was produced by the Spanish National Research Council as a legacy product of IYA2009. A total of 13 more concerts are confirmed in the coming months.

Organisers: Spanish IYA2009 node, Consejo Superior de Investigaciones Científicas (CSIC), AstroCam, Consejería de Educación de la Comunidad de Madrid; Ayuntamiento de Fuentealbilla; Centro de Astrobiología CSIC-INTA; Centro de Desarrollo Rural “La Manchuela”; Diputación de Albacete; EMI Music; Instituto de Estructura de la Materia (CSIC); Instituto Nacional de Técnica Aeroespacial; Junta de Comunidades de Castilla La Mancha; Sociedad Don Quijote de Conmemoraciones Culturales de Castilla La Mancha.

Website: http://astronomia2009.es/Musica_y_Astronomia_Pequena_Serenata_Astronomica.html

Estimated number of people who attended or were reached by this activity: 33,000 people in total: 8000 people (live concerts) plus 25,000 people (projection with recorded music).

Budget: Total: 276,500€

Production costs (“A Short Astronomical Serenade”): 10,000€ (paid by the organisers).

Live concerts:

- “Astromical Pictures at an exhibition”: 142 000€ in 8 concerts (paid by Red de Teatros de Castilla-La Mancha, and eight local councils).
- “The Planets”: 10,000€ in three concerts paid by Astrocam, Cosmocaixa, Cultural Albacete.
- “A Short Astronomical Serenade”: 114,500€ (paid by Red de Teatros de Castilla-La Mancha, CSIC and 32 local councils).

## Evaluation

An evaluation of IYA2009 in Spain has been completed and published both on-line (www.astronomia2009.es) and in a book.

## Lessons Learned

- Start at least one year in advance, even earlier if possible. Two years of preparation for IYA2009 have been absolutely critical to obtain the high levels of success achieved;
- Start as early as possible to engage the interest of as many institutions as possible that can support the initiative by organising their own activities and/or supporting others. Give maximum publicity to the initiative from early phases;

- A strong steering committee with members at strategic scientific-political positions related to the initiative can help to attract the interest of funding agents;
- Define which goals you want to achieve and the required strategy and create a working group with well defined responsibilities to implement this strategy. Try to have enough people to cover all responsibilities but not too many to avoid losing efficiency. Try to chose efficient, experienced and motivated people who you think will fall in love with the project. All this (and I highlight “motivation” here) is vital when money is scarce!
- Don’t get too depressed about the difficulties in getting funds or the usually uncompromising answers you will get when you ask for it!

## Legacy

Following the success of IYA2009 in Spain, and acknowledging the importance of maintaining the aims and goals of IYA2009 in the future, the Comisión Nacional de Astronomía (CNA), maximum responsible for IYA2009 in Spain has decided to create a national network for public outreach of astronomy in Spain. This network will be responsible for giving continuity to the aims and achievements of IYA2009 in Spain. The working strategy and required support for this network have already been defined. It is expected that the network will start being operational soon.

## Comments

IYA2009 has been a wonderful celebration. In Spain we have considered it from the very first moment as a unique opportunity to multiply the presence of astronomy among the general public, and share with them the importance of this science and its contribution of culture and society. It has been a fantastic year that we will never forget. From Spain we want to thank the IAU for making this project possible. Special thanks to Pedro Russo and his colleagues for their always efficient support.



# Sri Lanka

## National Node

Kavan U. Ratnatunga
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http://iya2009.lakdiva.net/

Official Languages
- Sinhala
- Tamil
-

Number of organising committee members:
- Volunteers:
- Paid:

Population: 20 238 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Astronomy Programme – Anula Vidyalaya.

10th July 2009
The Astronomical Society of Anula Vidyalaya organised a special lecture on “Doppler Effect & Expansion of the Universe” for students in grade 8 to 12.
The lecture was conducted by Prasanna Deshapriya a member of Astronomy & Space Study Center.

### Partial Solar Eclipse 22 July 2009

A partial solar eclipse was visible to Sri Lanka on the 22nd of July. Many observers around the country and students tried to witness the event, but unfortunately majority of the country was clouded except for some parts (North, East). A full report on the Partial Solar Eclipse with images can be viewed at http://thilinaheenatigala.blogspot.com/2009/07/longest-solar-eclipse-of-21stcentury. html

### Astronomy & Astrophysics Olympiad National Competition

The 3rd National Astronomy & Astrophysics Olympiad in Sri Lanka kicked off and many students around the country have applied. The Competition was conducted on following Universities of Sri Lanka in all three languages Sinhalese, English & Tamil.
- University of Colombo
- University of Perdeniya
- University of Kelaniya
- University of Ruhuna
- University of Batticoala
- University of Jaffna
- IYA2009 – Sri Lanka

Winners awarded with medallions and certificates whereas the top 5 scorers selected. These students will be trained extensively on Astronomy & Astrophysics to tale part at the international event.

http://ioaa2009.ir/

## Universe Awareness programme – Girl Guides of HFC

Universe Awareness (UNAWE) is an international programme that exposes very young children in under-privileged environments to the scale and beauty of the Universe. Universe Awareness illustrates the multicultural origins of modern astronomy in an effort to broaden children's minds, awaken their curiosity in science and stimulate global citizenship and tolerance. Using the sky and children's natural fascination with it as common ground, UNAWE creates an international awareness of our place in the Universe and our place on Earth.

Programne: UNAWE for Girl Guides of HFC
Date: 8th August 2009
Conductors: Mr. Thilina Heenatigala
Mr. Dimuth Waliwitiya

The first Sri Lankan UNAWE programme was held for Girl Guides at Holly Family Convent, Dehiwala. About 50+ girls in grades 6 – 9 and teachers joined together for an evening of a celestial experience. The programmestarted an introduction to Night Sky conducted by Thilina Heenatigala. It followed by introduction to use of "Star Maps" by Dimuth Waliwitiya. The girls were divided into two groups and the conductors took them a ride through the night sky, introducing constellations, planets, and the students were given chance to find constellations using Star Maps in their own as well. The evening concluded having dinner together with the guides. http://www.unawe.org/

## Astronomy Meeting – Thurstan College

Attendees:
Prof. Kavan Ratnatunga – IYA2009 Sri Lanka Node SPoC
Mr. Thilina Heenatigala – IYA2009 – Sri Lanka Node Secretary
Mr. Asitha Samarawickrama – Teacher in charge of Thurstan College Astro Club
Venue: Prof. Kavan Ratnatunga's residence

Summary:
Discussion was held regarding an upcoming programme organised by Thurstan College Astronomical Society. Mr. Asitha described that they are hoping to run series of programs starting from September to November which will end with an exhibition – "The Magnitude".

IYA2009 – Sri Lanka, Prof. Kavan and Thilina agreed to give their full support for the program.

## Eyes on the Sky – subtitled by skylk.com

The Eyes on the Skies explores the many facets of the telescope — the historical development, the scientific importance, the technological breakthroughs, and also the people behind this ground-breaking invention, their triumphs and failures... The website team from http://skylk.com subtitled the video in Sinhalese and put on their website.

## Astronomy Workshop – Galle Southlands College

Observational Astronomy Workshop – Piliyandala Central College.
11th September 2009

The Astronomical Society of Piliyandala Central College organised an observational workshop for its members and invited schools. The programme focused on basic observations to, moon, deep sky and constellation drawing. The programme kicked off with a lecture by Dr. Rohan Munasinghe of Moratuwa University, on the current astronomical development worldwide. The lecture gave a complete idea on what is astronomy nowadays. The lecture was followed by a talk on "Why study Astronomy" by the chief guest of the event, Rev. Dr. Marvyn Fernando of Subodhi Institute.

After the two initial lectures, the programme followed with some entertainment, and a lecture on basic observational astronomy. Later on the students got the opportunity to observe moon, and few deep sky objects. All together there were about 100 students from 6 different schools at the workshop.

## The 365 Days of Astronomy Podcast – SkyLK

365 Days Of Astronomy is an educational podcast, inspired by the International Year of Astronomy, that will publish one podcast per day, for all 365 days of 2009. The podcast episodes are written, recorded and produced by people all around the world. IYA2009 Sri Lanka Node also requested two podcasts. The first one was done by the SkyLK team. It was done under the theme of "Gravitational Lensing". You can listen to the episode at: http://365daysofastronomy.org/2009/09/03/september-3rd-quiet-skies/
SkyLK: http://skylk.com/

## Star Party2009 – Ananda College & Mahamaya College

Commenced in 2004, "Star Party" is an observational astronomy competition where students groups from different parts of Sri Lanka compete together. It's organised by the astronomical societies of Ananda College, Colombo and Mahamaya Girls' College, Kandy. Since then it has been held annually and has gain reputation as an Observation Competition and Astronomy Workshop over the years. For the 6th consecutive time "Star Party 2009 — Rendezvous of Celestial Surveillance" concluded successfully 26th of September, giving an unforgettable celestial experience to students, teachers, amateur observers and organisers as well. A special report on StarParty2009 can be viewed at http://iya2009.lakdiva.net

## Apollo 11 Moon Rock Display

The National Museum of Natural History of Sri Lanka was established on September 23, 1986, now completes 23 years. A special exhibition titled "Moonstones and mineral resources in Sri Lanka" was held to coincide with the 23rd anniversary. These moonstones were gifted by former USA President Richard Nixon. The exhibition held through 23.09.2009 to 07.10.2009 many schools students and public came to witness the historical moonstones. At this exhibition, moonstones and related important photographs were on display. Exhibiting of Sri Lanka Ministerial Resources is the other part of this exhibition. The schoolchildren and the public got a wide understanding about our resources through those gems, graphite, mineral sands, mica, silica, sand sulphur, clay and limestones found in Sri Lanka.

Read a full report with pics at: http://thilinaheenatigala.blogspot.com/2009/10/moon-rocks-from-apollo-11-mission.html

## SF competition – Royal College Astronomical Society

Under the International Year of Astronomy 2009 programs, the Royal College Astronomical Society organised an all island science fiction competition for school students.
Categories:

- Grades 6-8 "I met an alien"
- Grades 9-11 "Moon Colonization"
- Grades 12 – 13 "Evolution of life in our solar system"

Please visit the link for more info: http://thilinaheenatigala.blogspot.com/2009/10/royal-college-astronomical-societysci.html

## Night camp – Mathematical & Astronomical Society of University of Colombo

Mathematical & Astronomical Society of University of Colombo (MAS) organised a night camp for their members. The programme was warmly welcomed by the newcomers to the society.
Evening kicked off with an observational astronomy lecture which followed by observation sessions.
http://www.uocmas.info/

## 3rd International Olympiad on Astronomy and Astrophysics,Teheran, Iran

Last July the 3rd National Astronomy & Astrophysics Olympiad in Sri Lanka was held and 5 students were selected for the team representing Sri Lanka on "3rd International Astronomy & Astrophysics Olympiad which held on Teheran, Iran this month.

One of the team members, Yasith Mathangasinghe, was awarded a special prize for "The Most Creative Solution in Theory". He has produced the most creative solution in the entire competition, in a method that International

Olympiad committee has not expected previously. The prize for “The most creative solution” is a precious one, regarding any kind of an International Science Olympiad in the world.

Team members:

- Eranga Thilina Jayashantha
- Ashan Ariyawansa
- Yasith Mathangasinghe
- Shyaminda Bandara Basnayake
- Danula Sochiruwan Godagama

http://ioaa2009.ir/

## Beyond the Sky III – Night camp at Kaduwela

30th September
“Beyond the Sky” is a series of night camps conducted by Royal College Astronomical Society. The third consecutive event of the series was held in Kaduwela Bombiriya Kumaratunga Munidasa Vidyalaya. The programme kicked off with a lecture on observational astronomy which followed by session on Basic Astronomy. Giving a new experience to the students, a special session was held via the World Wide Telescope. A presentation via WWT was projected to screen. It was a more like a trip around the universe. Students were very keen on the session as it was a new experience for them.
After a small break, the students were introduced to the Star Map and the proceeded to the school ground to catch the beauty of the night sky. First they were taken a across the sky introducing constellations and how to identify them using the Star Map. The observation session was followed by moon observations via two telescopes.

More into the night, the programme included an entertainment session by the students which was followed by a fun astronomy activity, which was conducted as a competition between the girls and boys. The last session of the programme included a Lander Activity and a group session. The programme concluded successfully giving all the participants an unforgettable experience.

Programme:

- Introduction to observational astronomy
- Session on Basic Astronomy
- An interactive session via World Wide Telescope
- Group session – How to use the star chart
- Observation session on constellation and moon
- Competition – recognizing the celestial object
- Group session – students asks questions
- Activity – Lander

Conductors:

- Mr. Thishan Pavithra
- Mr. Haritha Wickramasinghe
- Mr. Sohan Gunaratne
- Mr. Sameera Samarasinghe,
- Mr. Dishan Anupama

## Astronomy Workshop – Galle Southlands College

31st September
Astronomical Society of Galle Southlands College organised their annual workshop. This year workshop focused on hands-on activities such as Space Shuttle, International Space Station, Moon Colony and Discovery Shuttle. The programme kicked off with a talk given by the chief guest – Prof. Kavan Ratnatunga. He highlighted the importance of the upcoming Annular Solar Eclipse and elaborated the science behind it. The second part was the programme was hands-on activity, where all the members of the society and the students from the invited schools gathered in to four groups are started building a model of a Space Shuttle, Moon Colony, International Space Station and a small scale model of the Colombia Space Shuttle. The ISS and the Moon Colony came out as the best model of all.

Programme:

- Talk on Solar Eclipse 2010 – Prof. Kavan Ratnatunga
- Activity – Model making

Guest: Prof. Kavan Ratnatunga.

## Impressions from the IYA2009 activities in Sri Lanka









THE UNIVERSE
3rd



# Sudan

## National Node

Tahani Salaheldin M. Shatir
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http://www.geocities.com/sudan_iya2009/sudan2009.html

Official Languages

- Arabic
-

Number of organising committee members: N/A

-

Population: 42 272 000

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### The 9th Astronomy and Space Sciences conference

17 - 19 November 2009
This conference was organised by AUASS in collaboration with the Sudan Ministry of Education, Science and technology.

### Meteoroid explosion Activities

On 7 October 2008 a meteoroid exploded in the atmosphere 37 km above Sudan's Nubian Desert. More information is available here: http://en.wikipedia.org/wiki/2008_TC3 Linking this exciting event with IYA2009, Sudanese astronomers have organised outreach events to reach a large number of people: The University of Khartoum organised three trips to the Nubian Desert to recover the fragments of the meteoroid: http://asima.seti.org/2008TC3/
A one day symposium was run on 21 June 2009 with the help of the Ministry Higher Education.

### Workshop on Asteroid 2008 TC3

More information: http://asima.seti.org/2008TC3/workshop2008TC3.html










# Suriname

## National Node

Bruce Vreden
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Official Languages

- Dutch
-

Number of organising committee members: N/A

-

Population: 481 267

Number of people reached by IYA2009: N/A

Budget: N/A




## General Overview of IYA2009 activities in Suriname

Information not available.

# Sweden

## National Node

Bengt Gustafsson
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bg@astro.uu.se
www.astrnomi2009.se

Official Languages
- Swedish

Number of organising committee members: 15
- Number of Steering Comittee Members: 8
- Paid committe members: 1, part time, the rest volunteers

Population: 9,354,462

Number of people reached by IYA2009: 2 000 000

Budget: 60 000 €

Sources:
- Swedish Foundation for Strategic Research
- Swedish Research Council
- Uppsala University
- Swedish Astronomical Society

## General Overview of IYA2009 activities in Sweden

A most striking fact as regards the Swedish activities during the Year of Astronomy has been the very great participation by very many different agents, from academic institutions, amateur associations, academies, etc but, much more astonishing, public libraries, museums, theaters, organisers of concerts, churches, etc., and not the least schools. We estimate that many hundred events of this character were arranged. Most of these activities occurred on local initiatives, although they may have been triggered by more central action.



## Main Activities

### National activities: Emphasis on young people

On the national level an Organizing committee with representatives for various institutions and societies was established. This committee decided that the major emphasis in the national endeavours should be put in attempts to reach young people, in schools and elsewhere. A number of projects were defined, and next money was applied for from various authorities and foundations for these projects. For five such projects means were obtained: the establishment of one distance controlled optical telescope for high school students, similarily a

distance controlled radio telescope, two exibitions to circulate among public libraries, musems and schools through the country, one mainly showing the history of the telescope and the other showing strikiing pictures of astronomical objects. In addition, a competition was initiated for Nordic high school students to discuss possible astronomy projects for the Nordic Optical Telescope, NOT, and the winners, one group from each of the five Nordic Countires, were sent to NOT to take part in the observations. Nationwide, we also took part in the 100 hours of astronomy event, and many thousands of Swedes have been watching the sky through telescopes during the year. Another project on the national stage is the “Sweden Solar System”, a scale model of the solar system extending through Sweden with the spherical Ericsson Globe Arena in Stockholm representing the Sun, and planets, satellites, minor planets, asteroids and coments distributed across Sweden. The “terminal shock” is then placed in Kiruna, in the very north. Many new bodies have been introduced into this model during the year, including satellites of Saturn which have been been housed and designed by schools in Uppsala, where a 10 m picture of Saturn itself during the year was glued to the pavement in the central shopping area. On the national level, the Year was also celebrated by two stamps.




One of the national projects which has still not been funded is a kit with astronomical apparatus and experiments aimed to be distributed in very may copies to secondary schools, for the students to work on themselves and with courses for teachers included. A more advanced kit for high-schools has, however, been designed and distributed locally in Northern Sweden.

## Locally a plethora of initiatives: exhibitions, concerts, festivals, …

Locally, a great number of projects were carried out. Museums produced at least 5 exhibitions, in addition to those initiated nationally, including the Nobel Museum in Stockholm which exhibited one of Galileo’s original telescopes, and the Uppsala University historical museum, Gustavianum, which showed the Antikythera mechanism. The planetariums made special programmes, concerts were arranged in many places with astronomical themes, the Uppsala composer Håkan Larsson composed on demand a piece for symphony orchestra, “Sjärnesång” (Stellar song) which was performed in a concert devoted to the Year in the regular series of concerts in the Uppsala concert hall, the theatres in several places as well as the Royal Opera House in Stockholm arranged special programmes. Many churches, including the cathedrals in Stockholm and Göteborg, arranged events with astronomical themes in which astronomers contributed. In the yearly Science Festivals in Göteborg and Stockholm, astronomy was stressed. Many public libraries also arranged small exibitions of astronomical literature and invited astronomers and others for talks and discussions with the public. The number of public talks by astronomers and amateur astronomers during the year can be estimated to several hundreds. A very great public interest has been reported from many of these talks.

## Media: some disappointment

The media coverage of all this activity was considerable, though, on the national level still not up to expectations. The major journals, as well as the national radio and TV had some articles and programmes which were directly referring to the Year, but the increase of astronomy coverage as a whole was not very substantial – on the other hand, this coverage was already before the Year extensive. The local events were satisfactorily covered by local media.



# Switzerland

## National Node

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Official Languages

- German
- French
- Italian
- Romansh
-

Number of organising committee members: N/A

Population: 7 782 900

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### Opening ceremony

This event gathered personalities from politics, the federal administration, universities, the press, and actors in Swiss astromoy to announce the Swiss IYA2009 program. The topic of the ceremony, held on 5 February 2009 at the University Bern, is « Astronomy in Switzerland: top science for a small country ».

### A project for young people: the IYA2009 Special Prize

In the framework of the "Schweizer Jugend forscht" competition a special price is available for astronomy in 2009. The competition ended with an exhibition and price distribution 23-25 April 2009 in Geneva. The prize included a 10-day trip to Chile with visits of the European Southern Observatory (ESO).

### 100 Hours of Astronomy

A series of astronomical events took place during five days and nights in Switzerland from 2 to 5Aapril 2009.

### Swiss Resources and Educational Material

A 24 page Brochure presenting the International Year of Astronomy 2009 and Astronomy in Switzerland was published

### From Earth to the Universe Exhibit

The exhibition «From Earth to the Universe» was adapted and will circulate in Switzerland, starting at the opening ceremony in Berne. Several copies of the exhibition material in german, french, and italian are available to schools, amateur societies etc. during the entire year.

## Closing ceremony

At the end of IYA2009 the different voluntary actors (amateur astronomers, teachers etc.) met with professional astronomers and other scientists at a common event at the Swiss Museum of Transport. This meeting of the Schweizerische Astronomische Gesellschaft (SAG), the Swiss Society for Astrophysics and Astronomy (SSAA), and the Swiss Academy of Sciences (sc|nat) took place between 13-14 November 2009 in Lucerne.



# Syrian Arab Republic

## National Node

Mhd Firas Safadi (Syrian Amateur Astronomers Association)

http://iya2009.saaa-sy.org/

Official Languages
- Arabic

Number of organising committee members: 10
- Volunteers: 9
- Paid: 1

Population: 21 906 000

Number of people reached by IYA2009: 30 000

Budget: 7000€

Sources:
- Sponsors (local private companies and foundations)

## General Overview of IYA2009 activities in the Syrian Arab Republic

We know very well that the activities of IYA2009 in our country were localised and small-based. We were able to reach a reasonable number of people and to introduce astronomy to people who never heard about it. However, we think that many things could be done in addition to that. Our projects were not creative or highly-productive. We would like to focus in particular on these three issues:

- There is no official governmental astronomy agency or committee in Syria. This was a great barrier in face of large-based activities because we worked in a small organisation with limited capabilities. Governmental support is so important in such a celebration (as we saw in many other countries), but this was never available to us in spite of our constant demands.
- We could not get the funding that we needed. For example we planned at the beginning of 2009 to organise a picture gallery with large posters and prints, but funding was barely available to cover some other critical aspects of our projects. Funding was through some local and private sponsors, and was used for essential costs (brochures and advertisement printing, stands, telescopes purchasing,...)
- Nearly all of the IYA2009 committee consisted of volunteers. Those have their additional jobs as well and could not dedicate much of their time for the projects. This issue deeply affected our outcomes because many activities were aborted or not completed, or at least were not performed according to the plans, because there were not enough staff to organise and direct the project.

## Main Activities

### List of Activities

Not all activities are documented, and we do not have a comprehensive list because many of these were organised by local members in different cities on small- or large-scale basis. We will list the main activities with a rough estimate of other activities.

- 100 Hours of Astronomy (seven activities in different cities).
- Popularising the telescope — Galileoscope (about 50 separate activities).
- Extensive astronomy lecture programme (about 50 separate activities).

- Professional star parties (about 15 occasions).
- Astronomy Movie programme (about 15 different shows).
- Participation in TWAN (few pictures taken by our members).
- Launch of first astronomy website for kids in Arabic language.
- Launch of first Arabic and Muslim astronomers' biography website in Arabic language.
- Launch of first comprehensive astronomy links and resources on the web in Arabic language.
- Translation of "Eyes on the Skies" into Arabic language.
- Translation of several presentations of IYA2009 into Arabic language.
- First course in astrophotography in Syria (14-day course).
- Participation in "Position of the Sun and shape of the Earth experiment" in three cities.
- Participation in "Moon for all Mankind" project.
- Participation in "Star Peace" project through one star party.
- Observation and count of two meteor showers (Perseids, Leonids) and one lunar eclipse.
- Launching "The Amateur Astronomer" magazine in Arabic language.
- Participation in local fairs and exhibitions to introduce IYA2009.
- Purchasing and mounting the biggest telescope in Syria as yet (only 30 cm mirror).
- Introducing the portable planetarium to schools (many activities, nearly 10).

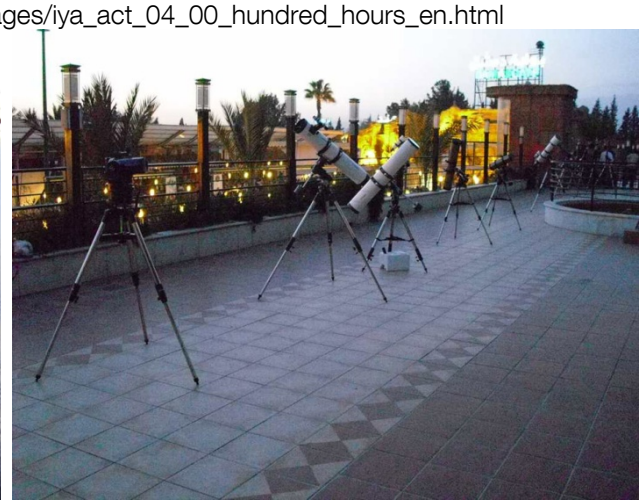
## 100 Hours of Astronomy

Maybe our most successful project with seven activities in different cities over five days, and we could make 1675 persons have their first look through the telescope during this project.

Organisers: Mouhammad Assiri.

Website: http://www.saaa-sy.org/iya2009/iya_pages/iya_act_04_00_hundred_hours_en.html







Estimated number of people who attended or were reached by this activity: 2000.

## Galileoscope — popularising the telescope

The aim of the project was as follows: to mount telescopes in public places (streets, squares, stations, restaurants, and other busy places) in order to let people have their first look through the telescope, and to show them the Moon plus one of the giant planets (Saturn or Jupiter). About 50 separate activities were done all over the country in nearly all cities by different members, and we sent telescopes to some cities were telescopes were not available to help the organisers.

Organisers: Abdullatif Khaldi

Website: http://www.saaa-sy.org/iya2009/iya_pages/iya_act_04_00_galileo_en.html





Estimated number of people who attended or were reached by this activity: 20,000.

## The Young Astronomer (first astronomy website for kids in Arabic)

This website was so important because until now there has been no website for kids in Arabic language about astronomy. Kids and parents always asked about simplified resources on the internet, but most of these are in English. We launched this simple website to help communicating astronomy to children. This website will be further developed and extended soon.

Organisers: Dana Akil.

Website: http://kids.saaa-sy.org/

Estimated number of people who attended or were reached by this activity: Internet-based audience.

## Arabic Cosmic Diaries

This was not a real “diary” but rather a biography of Arabic and Muslim astronomers and astronauts that are not well-known by the public, presented in a dedicated website in Arabic language. This website is aimed at introducing those people to the public in order to make them know that this science is part of our society as well.

Organisers: Amani Nabhani.

Website: http://diary.saaa-sy.org

Estimated number of people who attended or were reached by this activity: Internet-based audience.

## Lessons Learned

- There must be a strong collaboration with the government in order to get the recognition and support, on both logistic and financial level;
- It is better to depend on paid-employees when performing a specific project or activity in order to get constant performance and commitment; this obviously necessitates funding;
- Our people are so eager and willing to know more about this science; and there are so many ways that could have helped to reach them; for example organising activities at work or with other local organisations;
- We failed to introduce astronomy books to public, which should have been distributed freely if we had the capabilities;
- We failed to maintain our national IYA2009 website and keep it up-to-date. We worked on it until June 2009, when we were no longer able to continue updating it with news and activities because of the lack of resources.

## Legacy

Our organisation was established on the intent of education and public outreach in astronomy since its recent establishment in 2005. We found the year 2009 an opportunity to collaborate with other nations and to use all possible resources in order to reach the biggest number of audience. So continuing our efforts through 2010 and beyond is a natural and integral part of our existence.

## Comments

We would like to thank the general Secretariat of IYA2009 for the unlimited support and extensive contact through the internet and for the very-useful mailed material we received constantly during 2009. Many materials helped us and inspired our activities.



# Tajikistan

## National Node

Khursand Ibadinov
Institute of Astrophysics
Ibadinov@mail.ru

Official Languages
- Russian

Number of organising committee members: N/A
-

Population: 7 349 145

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Tajikistan

### Conference: Astronomical researches and astronomical education in Tajikistan

End of May - beginning of June, 2009.
International conference. Dushanbe, Institute of Astrophysics of the Academy of Sciences of Tajikistan.

### Astronomy centre

The organisation of the Trading-Methodical Centre on astronomy on the basis of Hissar Astronomical observatory of Institute of Astrophysics of the Academy of Sciences of Tajikistan.

### Astronomy outrecah

Astronomy outreach on TV, radio, newspapers, on the internet.



# Tanzania

## National Node

Noorali T Jiwaji
Open University of Tanzania
noorali.jiwaji@out.ac.tz and ntjiwaji@yahoo.com

Official Languages

- Swahili
- English

Number of organising committee members: 5

- Volunteers: 5
- Paid: 0

Population: 43 739 000

Number of people reached by IYA2009: 100 000

Budget: TZS 15 000 000 (~7 700 €)

Sources: Mainly from private contributions, and institutions
OUT, NATCOM

## General Overview of IYA2009 activities in Tanzania

Beginning October 2007, after the recognition of the International Year of the Planet Earth in the following year 2008 by the Tanzanian Government, Dr Jiwaji pursued recognition of the importance of participating in the International Year of Astronomy in 2009 (IYA2009) as an opportunity to promote basic sciences, science education and creativity and to dissociate it from its cultural and religious association with astrology. Dr Jiwaji was selected by the IYA secretariat as the Single Point of Contact for IYA2009 in Tanzania. Tanzania was among the 27 out of the total 50 countries in Africa that participated in the International Year of Astronomy.

Though astronomy is not at all well developed, Tanzania has vast areas of pitch black skies with minimum light pollution even most urban areas. Most of the country has very conducive climate suitable for pursuing astronomy by both professionals as well as amateurs. Tanzania is saddled in mid-latitudes with the potential of viewing more than 95% of the entire sky in one night, from sunset to sunrise. All this added to the necessity of celebrating the excitement of Galileo's first viewing of the heavens through a telescope 400 years earlier. Tanzania is also the home of the sixth largest meteorite in the world located at Mbozi in southern Tanzania, and the origin of the precious Ivuna meteorite. All these attributes add up to make Tanzania a prime destination for Astro-Tourism and a very suitable location of telescopes for research and observation, especially if the height of the Kilimanjaro, the highest mountain in Africa is exploited with care.



The 16 ton Mbozi meteorite in Mbeya in southern Tanzania is the sixth heaviest in the world.

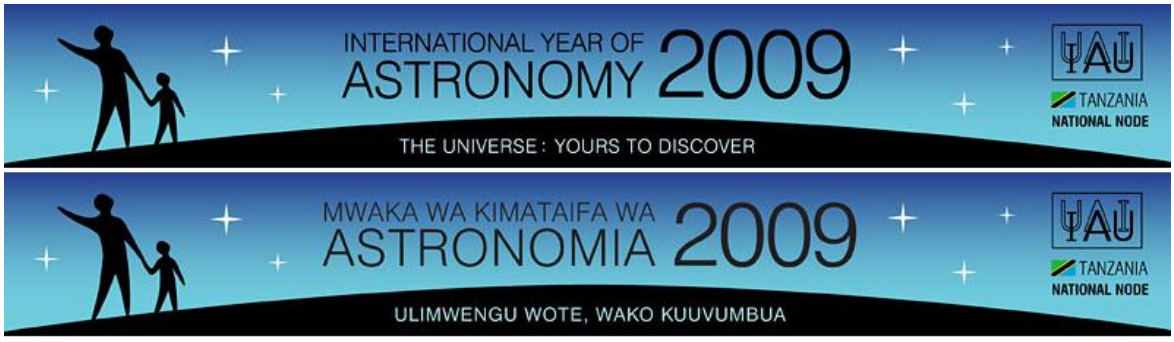
With UNESCO's association with the IAU in presenting the IYA2009 to the UN, we worked with the Tanzania National Commission for UNESCO (NATCOM) to approach to the government for recognition of the astronomy community in Tanzania in IYA2009. A Steering Committee consisting of University academic staff, teachers, students and lay members of public was proposed. In spite of delay in the formation of the Steering Committee, all the activities of IYA2009 during the year were conducted by dedicated members of the Astronomy Contact Group including Dr Geoffrey Karugila an astrophysicist from the Sokoine University of Agriculture, Dr Christian Uiso from the Physics Department at the University of Dar es Salaam, Mr Beniel Seka a retired Educationist and Mr Mponda Malozo, a recent graduate of Environmental studies from the Sokoine University of Agriculture. The activities were conducted in coordination with NATCOM and supported by various institutions and individuals.

## Opening Ceremony in Paris

Dr Jiwaji was able to participate representing Tanzania in the Opening Ceremony of the IYA2009 in Paris from 15-16 January 2009, together with the student participant Mr Mponda Malozo.

## Astronomy materials and publicity

The IYA2009 banner and logo were customized for Tanzania and also translated into Kiswahili. These were used to publicize all events during the year.




IYA2009 Tanzania Banner in English (top) and in Kiswahili (bottom)

More that 300 print copies of the attractive IYA promotional brochure was distributed together with 1,000 copies of the "Eyes of the Skies" CD were distributed during the Year.

An AstroCD and stargazing Astro Guide compiled by colleagues in South Africa with inputs from colleagues in other African countries was available to introduce new entrants into astronomy as well as a resource for new material and guide for all. Copies of these CDs and photocopies of the Astroguides were distributed during events and occasions. A download of the very user-friendly Stellarium programme was included in the CD for those not connected to the Internet.

Astronomy posters received from University of Nigeria at Nsukka as well as those bought by Dr Jiwaji from India were also used in displays at events and distributed to schools.

International publicity was also achieved for Tanzania through a BBC interview of Dr Jiwaji for its Science in Action programme which was aired on 9th January 2009.

## Website

An existing astronomy website created initially by Dr Jiwaji for presenting his astronomy activities was transformed into one for Astronomy in Tanzania. An official web address http://www.astronomy2009.ac.tz was registered and hosted at the Open University of Tanzania as an online outlet for IYA2009 matters in Tanzania. The portal provides monthly stargazing tips and information and sky map for Tanzanian skies and includes progress in activities of the IYA2009.

## Venus-Moon-Jupiter Smiley Conjunction

IYA2009 was unofficially inaugurated the previous December 1st 2008 with an amazing smiley line up just after sunset, of crescent Moon with Venus and Jupiter lined up on either side, to form an amazingly unique smiley face; a view that was marveled by thousands all over Tanzania. The pictures below show (left) the event viewed at sunset from the Open University of Tanzania and (right) close up one and a half hours later.



Left: The conjunction viewed at sunset from the Open University of Tanzania. Right: Close up of the conjunction one and a half hours later with Venus (left), crescent Moon (centre) and Jupiter (right).

## Space Education Workshop

The previous year 2008 was also elemental in bringing the attention of the Government and educational institutions towards astronomy through the Space Education Workshop on 5th and 7th May 2008 in Dar es Salaam and Arusha, organised under a programme of astronomy education by UNESCO which also donated six Mead ETX 90 Go To telescopes for two schools each in Dar es Salaam, Zanzibar and Arusha.



Left: One of the six Meade ETX 90 telescopes donated by UNESCO being presented to the Deputy Minister for Education and Vocational Training Ms Gaudencia Kabaka, during the Space Education Workshop in Dar es Salaam.Right: Students preparing to launch the Water Rocket during demonstration session of the Workshop

## Telescope Training

A follow up of the Space Education Workshop was the telescope training conducted by Dr Jiwaji on 17th and 18th July 2009, organised by NATCOM and attended by teachers from various schools from Dar es Salaam and Arusha which received the Mead ETX 90 telescopes.



Students at Sakila Secondary School at Mto wa Mbu, Arusha learning to use the UNESCO donated Mead ETX 90 telescope under the supervision of their teacher.

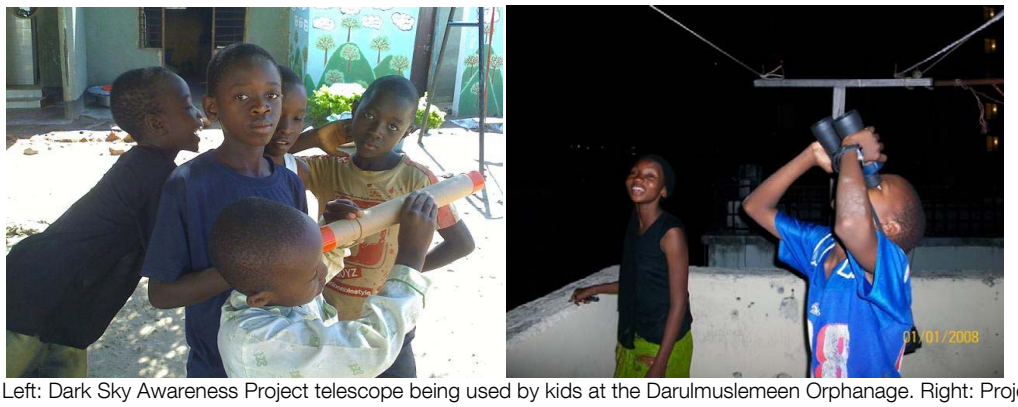
## Eyes on the Skies DVD translation

Following a request for translation of the script of the "Eyes on the Skies" documentary film produced by IAU a Kiswahili translation was done by Dr Jiwaji, together with a team from the Open University of Tanzania. Since Kiswahili is spoken by 100% of Tanzania, many more members of the public have been able to understand the contributions of Galileo and the developments of the telescope over the past 400 years.

## Dark-Skies Awareness Project

During the year, a seed funding was received for promoting Dark Skies awareness and the potential of astro-tourism in Tanzania in a project led by Prof William Waller of Tufts University in the USA.

Equipment and books amounting to 600 USD were received consisting of 2 binoculars, 10 Project Star telescope kits, 2 green laser pointers 4 sky atlases, 1 red flashlight, 2 star planispheres. These have been used for various stargazing activities, including lunar eclipse viewing, stargazing at an orphanage in Morogoro and other school and community star viewing sessions.




Left: Dark Sky Awareness Project telescope being used by kids at the Darulmuslemeen Orphanage. Right: Project Binoculars being used to view the New Year's partial lunar eclipse




Left: Students at Sarawatt Secondary School in Mbulu, Manyara practicing using the Project Star telescope. Right: Salum, a youth at the Darulmuslemeen Orphanage was inspired to paint one of the monthly star maps produced by Dr Jiwaji

## Astro-Tourism

As a follow on promoting Dark-Skies Astro-Tourism, Dr Jiwaji presented the case for preserving dark skies in Tanzania at the Round Table on Responsible Tourism held in Arusha on 3rd June 2010.

## The 100 Hours of Astronomy

Tanzania was among the rare 9 out of the 50 African countries that participated in the world wide 100 Hours of Astronomy event with activities organised at the Open University of Tanzania by Dr Jiwaji and at the Sokoine University of Agriculture by Dr Karugila and Mr Mponda.




Left: Students admiring a Mead LX 200 telescope before the 100 Hours of Astronomy function at the Open University of Tanzania. Right: Prof. Elizabeth Kiondo (third left), UNESCO NATCOM Executive Director with Prof Lughano Kusiluka the Deputy Vice Chancellor (RM) of the Open University of Tanzania enjoying the viewing session of the 100 Hours of Astronomy event with invited guests.


Dr Jiwaji demonstrating the Indian telescope kit to the audience during the 100 Hours of Astronomy event at the Open University of Tanzania

## 365 Days of Astronomy

Tanzania participated in the 365 Days of Astronomy cornerstone project of the IYA with a podcast by a Tanzanian student Abraham Samma titled “An African Boy’s Heavenly Dream” aired on 16th August.2009.

Due to limited access to the internet and access to computers for most people in Tanzania, Dr Jiwaji downloaded ALL the 365 episodes of the audio podcasts and their accompanying transcripts and distributed them to in a set of 6 CDs.

## Galilean Nights

As a follow up on the success of the 100 Hours of Astronomy project, the Galilean Nights event was marked by stargazing activities world wide on 22nd to 24th October 2009. Tanzania was among the 11 of the total 50 African countries that participated in the event, an improvement over the nine countries that participate in the 100 Hours event. In Tanzania there was a marked increase in the participation from the 2 in 100 Hours event to 11 during the Galilean Nights events after major effort by the event organiser, Mr Mponda Malozo.

Usiku wa
Nyota za Galileo

The Galilean Nights Logo in translated into Kiswahili



Left: A study in concentration as Mr Beniel Seka of the Astronomy Contact Group adjusts the telescope during the Galilean Nights event at the Sinza Astronomy Club. Right: Mr Mponda Malozo leading a kid in sky watching during the Galilean Nights activity.

## Galileo Teacher Training Program

It was expected that our education system would benefit most from this cornerstone project but it failed to take off when the international proposal under the FP7 funding was not successful. Lack of internal funds have prevented

us from providing training to produce Galileo Experts in schools through a training of trainers programme to create Galileo Ambassadors who can teach school teachers and bring astronomy into school mainstream. We still expect this to materialize as a follow up of our IYA2009 activities.

## Astronomy and World Heritage

Mr Valence Meriki got an opportunity to present his paper on “CHAGGA CALENDER, SACRED AND CEREMONIAL MOUNTAIN: An Astronomical observation from Kilimanjaro” at and international conference.

We intend to continue to document fully the ancient astronomy culture and practices in Tanzania.

## Telescopes and equipment

Dr Jiwaji introduced 20 pcs of the simple and inexpensive Indian telescope kit in 2008 as an affordable but useful educational and observation tool. 20 sets were distributed to various schools at different occasions.

During 2009, the inexpensive Japanese SPICA Galileoscope was also ordered and tried out. A normal retort stand found in science laboratories was found to be an effective mounting of these scopes to save on the cost of a tripod. A project was presented to the Ministry of Education and Culture to distribute 5,000 telescopes to all secondary schools and selected primary schools in Tanzania to be funded by the Japanese International Cooperation Agency, JICA.

Tanzania also received in 2007 a Celestron Comet Catcher telescope donated by the Williams College, through Prof. Jay Pasachoff.

In 2008, Tanzania received 6 pcs of the Mead ETX 90 telescopes for distribution to schools in Dar es Salaam, Zanzibar and Arusha (see above).

As part of the Dar Skies Awareness project we received 2 binoculars, 10 Project Star telescope kits, 2 green laser pointers 4 sky atlases, 1 red flashlight, 2 star planispheres. (see above)

Dr Jiwaji also purchased a Celestron SkyScout Personal Planetarium and a Celestron First Scope telescope as an example of higher quality but relatively inexpensive telescope. Dr Jiwaji has also purchased a Celestron NextImage CCD camera for use in astrophotography.

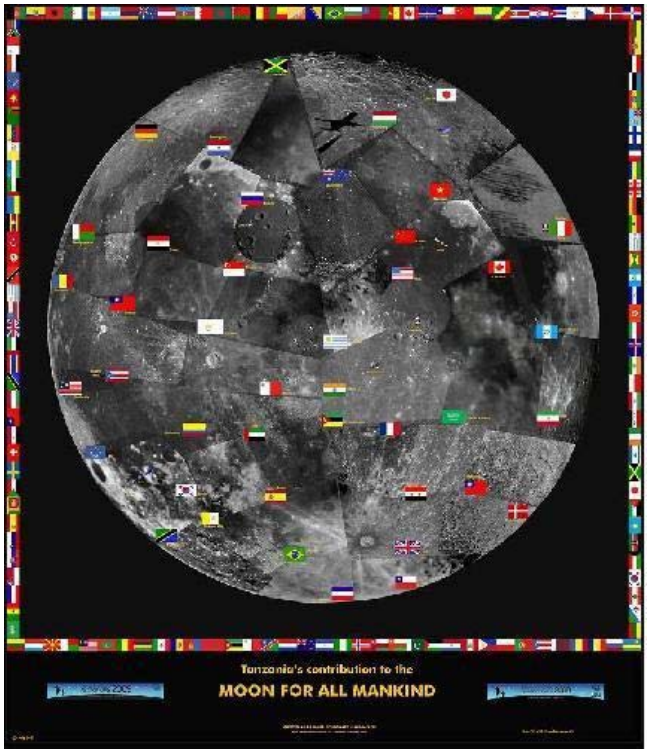
During 2009 we also received a six inch telescope from UNAWE. Dr Jiwaji also ordered several Galileoscopes and a few Orion Star blast telescopes for use in Schools in Tanzania.

More recently, UNESCO has donated 100 Galileoscopes for distribution to schools in Tanzania. We also expect to receive another 100 Galileoscopes from the Developing Astronomy Globally project coordinated by IYA SPOC in South Africa.

A high quality H-Alpha filter for observing the sun’s corona and flares was donated by Prof Tim Barker of the Wheaton College, USA.

## Astrophotography and Moon for All Mankind

Tanzaina also participate in the Moon for All Mankind project which involved taking a picture of a part of the Moon. Hence we were able to do astrophotography of the Moon and part of it was included in the Moon for All Mankind as seen in the lower left corner in the final picture below. The project was coordinated by Mr Mponda Malozo and astrophotography was done by Dr Jiwaji



A Moon for All Mankind with Tanzania at bottom left

## FETTU (From Earth to the Universe)

As part of the FETTU cornerstone project, Dr Jiwaji obtained access to high quality images of astronomical objects in our Universe which could not be printed locally due to lack of funds. They were used to show in electronic projects during events conducted during the year. We are following up on the possibility of exhibitions in other countries being brought to Tanzania.

## Astronomy Outreach and UNAWE

Astronomy outreach was a continuous activity throughout the year, with members of the Astronomy Contact Group volunteering to hold stargazing events at schools, community gatherings, and public places, especially during special astronomy and cultural events.

One special focus group was children through the UNAWE project coordinated by Mr Mponda Malozo assisted by Ms Mary Joeline Ezekiel who was able to gather a team of committed members to conducts astronomy activities in schools in Dar es Salaam and Arusha. Under a UNAWE-Tanzania project of Kids Sky Exploration, members of UNAWE-Tanzania team conducted special astronomy awareness classes for primary school children.

The success of IYA2009 was demonstrated by an invitation to Dr Jiwaji for an interview on 23rd January 2010 for a one-hour talk-show on the Channel Ten television with a nation-wide audience. Dr Jiwaji was interviewed by a prominent host Mr. Hamza Kasongo for his namesake program, “The Hamza Kasongo Hour” and was accompanied by Mr. Mponda Malozo in discussing the role of astronomy in the development of science in Tanzania




Left: A UNAWE activity for kids conducted with their 6 inch Star Watcher Dobsonian telescope. Right: Kids admiring a telescope at the Silver Jubilee by Environment group EWAT at Sokoine University of Agriculture.




Right: Dr Jiwaji explaining the finer details of an astronomy poster during a Universities Exhibition in Dar es Salaam. Left: To celebrate a Hindu religious occasion with an astronomy theme, a devotee, Mr Ragahavan constructed a model of a solar system on a ceiling with planets represented by lights of various colours and brightness and invited Dr Jiwaji to conduct stargazing activity for his guests

## Astro-Book Drive — Tanzania

As part of a global activity coordinated during IYA2009 by Thilina Heenatigala of the Sri Lanka Astronomical Society, UNAWE-Tanzania received books, CDs, posters and other teaching materials for outreach activities of Astronomy in Schools, Science Centres and the whole public with interest in Astronomy. These materials were received from the Great Portland Astronomical Society of Maine, USA and they are suitable for Children from 3 years of age as well as for anyone interested in astronomy including armatures and professionals.




Books and other resources received for the Astro-Book Drive — Tanzania

## Globe at Night and Light Pollution Campaign

The annual Globe at Night activity for the International Light Pollution Campaign conducted in March each year was widely publicized through email and magazine articles and gives thousands of ordinary viewers a chance to participate in a science activity.

## Astronomy Education

The main achievement of the IYA2009 in education in Tanzania was to promote participation of school teachers in initiating astronomy clubs and activities at their schools, supported by provision of various telescopes as detailed above. We could not initiate improvement of the existing astronomy curriculum in schools neither were we able to get it continued at advanced secondary school level. Dr Jiwaji got an opportunity to interest make a presentation Follow up efforts will be continued along this line.

We intend also to produce a Kiswahili dictionary of astronomy to assist in teaching of astronomy in primary schools and for use by the general public since this language is spoken by all Tanzanians.

At University, discussions have been initiated to revive the existing optional course on Concepts of Astronomy and Astrophysics, and also to introduce new courses which can be made part of the core courses for some programs.

We also failed to make use of the NASSP postgraduate scholarship programme due to lack of suitable candidates. We continued to urge students to pursue Physics Math programs at Undergraduate level so as to avail this continuing opportunity.

## Astronomy Research

With Dr Karugila's continued with his astrophysics research on solar dynamics using perturbation analysis of plasma and gravitational waves in collaboration with Prof Dirk Calebut.

Mr Said Ally has initiated a proposal to do his dissertation in Masters in Mathematical Modeling in astronomy to model periodic signals in X-ray bursts from a neutron star using Fourier analysis under the guidance of Dr Alaa Ibrahim of the American University in Cairo.

Dr Alaa Ibrahim first proposed to assist in developing astronomy research in developing countries during the first Middle East and Africa Regional IAU Meeting in Cairo in April 2008 which Dr Jiwaji attended. There is a huge potential of doing numerous and cutting edge research using mountains of freely available electronic data gathered from space crafts and remote telescopes. We intend to continue to use Dr Alaa's services together with other specialist to exploit this research resource.

Dr Karugila, accompanied by Ms Mary Joeline Ezekiel a student member from the Sokoine University of Agriculture, attended the East African Regional meeting of Developing Astronomy Globally (DAG) programme in Nairobi on 9-13 November 2009 and set out the guidelines for establishing astronomy in East African countries.

Recently, Dr Karugila accompanied by Mr Deudatus Kiriba a student member from the Sokoine University of Agriculture, also attended the East, Central and Southern Africa Global Naviation Satellite System (GNSS) and Space Weather Workshop from 19-23 July 2010 from which many new opportunities for research are expected to arise.

Following these two meetings, the need to form an East African Astronomy Association has been underscored, following which we are also pursuing the establishment of a Tanzania Astronomy and Space Association.

We also intend to pursue the possibility of setting us remote telescopes in Tanzania. Another area of research is preservation of dark skies by limiting light pollution.

# Acknowledgements

It would not be possible to name the numerous people from all walks of life in Tanzania who contributed to the events reported here but I do indeed appreciate their contributions and enthusiastic participation. I would like to thank all members of the Astronomy Contact Group for making it possible to do all the activities, primarily on

volunteer basis and would appeal for continuation of this volunteer spirit until astronomy is institutionalized in Tanzanian mainstream. I would also like to thank the support of the UNESCO, the NATCOM and the management and staff of Open University of Tanzania, The Sokoine University of Agriculture, and the University of Dar es Salaam for moral and material support and in allowing staff members time to participate in various astronomy activities.

# Thailand

## National Node

Boonrucksar Soonthornthum (National Astronomical Research Institute of Thailand)

http://www.narit.or.th/en/index.php?option=com_content&view=article&id=27&Itemid=51

Official Languages
- Thai

Number of organising committee members: 0
- Volunteers: 0
- Paid: 0

Population: 63 525 062

Number of people reached by IYA2009: 500 000

Budget: 50 000€

Sources:
- Royal Thai Government

## General Overview of IYA2009 activities in Thailand

The National Astronomical Research Institute of Thailand, Ministry of Science and Technology was proud to be a National Node in the International Year of Astronomy, 2009. Our commitment is to support the Year in a number of ways, including having roles in three of the IYA2009 Global Projects, namely; 100 Hours of Astronomy, The World at Night (TWAN), and 400 Years of the Telescope. In addition, we had been fully embracing the ethos of bringing the Universe down to Earth by arranging many local events of which the public had enthusiastically participated. The IYA2009 activities had been placed strong emphasis on the Project's contributions to society and culture, particularly on education, public engagement and the involvement of young people. We strongly hope that the nation's public appreciation of science will be changed as result of IYA2009.

## Main Activities

### List of Activities

- The World at Night
- 100 hours of Astronomy
- 400 years of Telescope
- Teacher Training Programme
- Astronomy and World Heritage

### The World at Night

The National Nodes for IYA2009 activities in Thailand has registered for the special project of TWAN and has conducted the following activities:
- An exhibition of night-sky photographs
- On 12 June 2009 The World at Night arrived in Thailand with a major exhibition in the National Science Museum near Bangkok. The centre is the leading science museum in the country. TWAN exhibition is opened by Dr. Khunying Kalaya Sophonpanich, the Minister of Science and Technology. The exhibition

was from 12-24 June 2009 and was free of charge. Thousands of people came to the exhibition and appreciate the beauty and wonders of the night-sky captured in the pictures.

- A night sky photography workshop
- A TWAN night sky photography workshop (13-14 June 2009) accompanied the exhibition and was presented by the invited TWAN member Oshin Zakarian and Thai astrophotographers, M.L Aniwat Suksawat and Anticha Sopitpinyo. The practical session of the workshop is held in Ayudhaya, a stunning World Heritage complex of temples and palaces. The event was very successful.
- IYA2009 Wonders of Astrophotography In Thailand Photo Contest
- NARIT has organised the Wonders of Astrophotography in Thailand Photo Contest in collaboration with IYA2009 The world at Night project. The contest was designated in four categories:
- Deep Sky Objects photographs
- Celestial Events photographs
- Solar System Celestial Objects Photographs
- Earth and Sky Photographs

Organisers: NARIT and National Science Museum of Thailand.

Website: http://www.narit.or.th/en/index.php?option=com_content&view=article&id=31:the-world-at-night&catid=36:global-activities&Itemid=52




Estimated number of people who attended or were reached by this activity: 10,000.

## 100 Hours of Astronomy

Thailand National Nodes for the IYA2009 had registered for the 100 Hours of Astronomy event. Our goal is to get as many people as possible to look at night sky and boundless space through telescopes and feel in their own unique way the beauty and greatness of the universe. The events, which covered the period from 2-5 April 2009, took place in different parts of the country, in which hundreds of students and general public had participated. They were taught how to use astronomical instruments like sunscopes and telescopes followed by informal lectures and seminars on how to get the best out of stargazing. The zest of the events kicked off after sunset. Every night the actual stargazing was conducted at various places due to geographical locations of the cities. In Chiangmai, the city in the Northern part of Thailand, stargazing party was carried out at 31-km up Doi Intanon, the site of NARIT Astronomical information Service and Visitor Centre. Some of them just had their first close-up views of the Moon, Saturn Rings, Jupiter's moons and other objects of interest through telescopes.

Though for some participants, students and the public alike, this was just spending a night out and having fun but, for a larger group, this 100 Hours of Astronomy had opened for them a new door to a real meaning of astronomy and the night sky.

Organisers: NARIT.

Website: http://www.narit.or.th/en/index.php?option=com_content&view=article&id=30:100-hours-of-astronomy&catid=36:global-activities&Itemid=56



Estimated number of people who attended or were reached by this activity: 400.

## 400 Years of the Telescope

The 400 Years of the Telescope project is a celebration of Galileo's first telescopic observations of the cosmos, and the resulting journey of discovery for humanity. The goal of the project is to create awareness, harness interest, and educate the public about achievements in astronomy, and other sciences, made possible through the discovery of the telescope.
NARIT, the National Nodes for IYA2009 in Thailand, joined this project in the 2009 National Science and Technology Festival at Muang Thong Thanee Conference Hall in Patum Thanee from 8-23 August 2009 on a theme " Telescopes: 400 years of Evolution — Past to Present".

Models of various kinds of telescopes were on show and received enthusiastic attention from the crowd. A session of "Questions and Answers in Astronomy" was also a great attraction especially for students and the young. Outreach programmes with educational organizations and schools throughout the country were coordinated. By the end of 2009 we hope to get more response from the public concerning the use of telescopes and simple telescope design.

Organisers: Ministry of Science and Technology of Thailand and NARIT.

Website: http://www.narit.or.th/en/index.php?option=com_content&view=article&id=32:400-years-of-the-telescope&catid=36:global-activities&Itemid=56




Estimated number of people who attended or were reached by this activity: 500,000.

## Teacher Training Program

Apart from being counterparts in some of the international initiatives, Thailand National Node for the commemoration of the International Year of Astronomy has developed its own programme for 2009.

The establishment of solid foundation in astronomy and astrophysics in Thailand is a long-term process that is complexly intertwined with the educational development in the fields at all levels. At present, Thailand suffers from critical educational challenges in schools: substantial shortages of teacher staff who understand the resources in astronomy or use them effectively in their curricula and needs to revitalise education in astronomy in schools.

To celebrate an International Year of Astronomy 2009, though not exactly in a concise term of the Cornerstone project– Galileo Teacher Training Program, NARIT has conducted a programme on Astronomy Teacher Training. The core concept is that by training teachers better under practical guidance, and equipping them with the right resources to tackle astronomy in the classroom, the quality of education for children and young adult will be boosted. The programme has been launched, bringing training and resources to teachers around Thailand. Through workshops and basic education kits, we hope that the products and techniques developed by this programme can be adapted to meet the classroom astronomy curriculum.

The “Astronomy Teacher Training Program” is one of the more successful activities in Thailand. The number of teachers that showed interest in attending the sessions exceeded the limited number of participants. The training took place in Chiang Rai, Chiang Mai, Naan, and Angthong. The training is organised in a series of hands-on sessions. Day sessions included several talks which allowed understanding better the fundamentals of astronomy.

Participants had a chance to practice the use of kit-model telescope to build in the classroom. The sessions gave guidance on the pedagogical resources that are freely accessible. Astronomical Information network media for schools received much attention from teacher participants as well as several other low cost kits that were easily accessible. At night, participants could observe the sky and some of the celestial habitants with low-cost telescopes they have built.

Organisers: NARIT.

Website: http://www.narit.or.th/en/index.php?option=com_content&view=article&id=36:teacher-training-program&catid=35:local-activities&Itemid=55



Estimated number of people who attended or were reached by this activity: 450.

## Astronomy and World Heritage

To celebrate IYA2009, NARIT has conducted an informal on site seminar on “Astronomical Wonders of Prasat Phnom Rung” to raise public awareness, especially with young people, about the safeguarding of scientific heritage, and to enhance the links between astronomy and culture. This activity was in accordance with the IAU and UNESCO global project Astronomy and World Heritage. Although Prasat Phnomrung has not yet been enlisted as a world heritage, its importance as an astrocultural site may not be denied, at least from the point of view of Thai people.

The seminar which took place at Prasat Phnom Rung on 7 March 2009 received much attention from students and the public. The majestic ruins of the Phanom Rung Temple formed the centrepiece of this event. During the discussion forum, much was discussed on how the detailed calculation for the exact time and date that the rays of sunrises and sunsets would pass through the 15 aligned doorways of the main sanctuary. Participants also suggested some practical ideas on how to enhance public awareness on the temples as an astrocultural site.

Organisers: NARIT.

Website: http://www.narit.or.th/en/index.php?option=com_content&view=article&id=29:astronomy-and-world-heritage&catid=35:local-activities&Itemid=55



Estimated number of people who attended or were reached by this activity: 100.

## Lessons Learned

To be engaged as a National Node, one has to have a collaboration network with other institutes and universities in Thailand to work together for those kind of activities. NARIT has played an important role for organising IYA2009 network activities in Thailand.

## Legacy

NARIT will continue the education and public outreach activities in astronomy especially a Teacher Training Programme as a part of the “Beyond IYA2009” programme .



# Trinidad and Tobago

## National Node

Graham Rostant (Caribbean Institute of Astronomy — CARINA)

http://www.astronomy2009-tt.org/

Official Languages
- English

Number of organising committee members: 6
- Volunteers: 6
- Paid: 0

Population: 1 299 953

Number of people reached by IYA2009: 6000

Budget: 5000€

Sources:
- Corporate sponsorship

## General Overview of IYA2009 activities in Trinidad and Tobago

IYA2009 has, for the small islands of Trinidad and Tobago and Grenada in the southern Caribbean, been a landmark period in communicating the wonders of the Universe to the general public. In all 35 specific activities directed at public outreach were managed, in addition to enhanced activity at the level of astronomy clubs and the local campus of The University of the West Indies.

Key activities during the first quarter included a large media launch, television and radio appearances, and the coordination of public viewing sessions. In the second quarter, the 100 Hours of Astronomy Cornerstone project was celebrated up and down the country with thousands of people looking through a telescope for the first time. There was also a large public star party, a humorous astronomy stage show for students, participation in cultural events, and more viewing sessions. There was also an outreach visit to the island of Grenada, where hundreds of people viewed the night sky through a telescope for the first time.

In the third quarter, there were astronomy workshops for students and interested amateurs and an astronomy course provided by the university. In the fourth quarter, there was a schools-based astro quiz game, another star party and more viewing sessions. The year culminated with the hosting by the University of the West indies of the 31st International School for Young Astronomers, an event that also included many outreach events including workshops, media appearances and public lectures.

During the year, an introductory book on observational astronomy for beginners was published and a donations of seven telescopes to students in Grenada was coordinated through the assistance of a DAG grant.

Most of Trinidad & Tobago's activities were accomplished with little or no budget since the global economic crisis had a real impact on the anticipated level of corporate sponsorship required for many planned projects. We were also hampered by the non-delivery of Galileoscopes on order from early in the year and the failure of a hoped-for cooperative effort with UNESCO to bring these activities to the smaller, English-speaking Caribbean islands where no astronomy resources exist.

In spite of this, we have managed to expose over 5000 people (or 5% of our total population!) in 2009 to the wonders of astronomy and are confident that we have set the stage for future accelerated activity in both this and neighbouring islands.

## Main Activities

### List of Activities

- January — IYA2009 Launch (Trinidad & Tobago Astronomical Society)
- January — IYA2009 Media Launch (CARINA)
- January — Viewing Session (National Science Centre)
- February — Viewing Session (National Science Centre)
- March — Viewing Session (National Science Centre)
- April — CARINA Star Party
- April — Sidewalk Viewing — University of the West Indies (CARINA)
- April — Sidewalk Viewing — MovieTowne (CARINA)
- April — Sidewalk Viewing — Gulf City (CARINA)
- April — Sidewalk Viewing — Arima (CARINA)
- April — Sidewalk Viewing — Saith Park (CARINA)
- April — 5th Element Astronomy Play (Trinidad & Tobago Astronomical Society)
- May — Talk to Students — UWI Marryshow (Grenada) (CARINA)
- May — Viewing Session — UWI Marryshow (Grenada) (CARINA)
- May — Talk to Students — St. George's Boys (Grenada) (CARINA)
- May — Viewing Session — St. Rose's Modern Secondary (Grenada) (CARINA)
- May — Red Earth Viewing Session (CARINA)
- May — Viewing Session (National Science Centre)
- May — Astronomy Workshop (Trinidad & Tobago Astronomical Society)
- July — Astronomy Workshop (Trinidad & Tobago Astronomical Society)
- July — Astronomy Workshop (National Science Centre)
- July — Introduction to Astronomy Course (University of the West Indies)
- August — Astronomy Workshop (National Science Centre)
- November — AstroQuiz Schools Game (Trinidad & Tobago Astronomical Society)
- December — International School for Young Astronomers (University of the West Indies)
- December — Teachers' Workshop (University of the West Indies)
- December — Children's Workshop (University of the West Indies)
- December — Public Lecture by Prof. Stephon Alexander (University of the West Indies)
- December — Public Lecture by Prof. Edward Guinan (University of the West Indies)
- December — CARINA Star Party 2
- Assorted appearances on television shows and radio programmes (various)
- Galileoscope Distribution (pending)
- Publication of a book on observational Astronomy for beginners (Trinidad & Tobago Astronomical Society)
- Donation of telescopes to UNESCO Grenada (CARINA)
- DAG Grant for outreach activities in other Caribbean islands in 2010 (CARINA)

### CARINA Star Party

Every year, CARINA hosts a highly popular Star Party at a deserted US Military site on top of a hill on the North-Western corner of the island… a wonderful dark-sky site. An unusual feature of the event is that its audience is much wider than astronomy enthusiasts, extending to families and groups of young people who just wish to gain a first-time appreciation of the night sky; learning constellations, listening to talks, etc.

For IYA2009, CARINA held two of these events. The first was on 25 April and attracted 500 people. Groups spread out picnic-style around the site, many preparing to spend the entire night under the stars. A giant screen was erected for the first part of the evening's events; presentations on astronomy related themes. These culminated with a detailed introduction to the constellations overhead, which by then were brilliantly on display. We distributed star maps and used helpers with ultra-powerful laser pointers dispersed through the site to help people "see" the patterns and relate them to classical illustrations on their star maps.

After the talks, we used several fairly powerful instruments to allow people to view nebulae, galaxies, double stars and clusters. Many people also brought binoculars and small ‘scopes.

A second Star Party was held in December to coincide with the International School for Young Astronomers, and the ISYA students and their lecturers attended. It coincided with the Geminid meteor shower and for a period it was easy to see at least one meteor per minute. This was the first time virtually all the attendees had ever seen such a show.

Organisers: Caribbean Institute of Astronomy (CARINA).

Website: www.caribbeanastronomy.com




Estimated number of people who attended or were reached by this activity: 500 (1st event) and 300 (2nd event).

Budget: 750€

## IYA Cornerstone project — 100 Hours of Astronomy — Public Viewing

From 2-5 April, CARINA, with support from the National Science Centre, staged a series of public outreach events in celebration of the Global Cornerstone project — 100 Hours of Astronomy. Over the four day period, and particularly over the last two when people were out at night, we gathered at public hotspots, movie multiplexes, downtown parks, university campuses etc. armed with mid-sized telescopes and let people stop and view the Moon, easy clusters, Saturn etc. as they strolled by.

There was great interest by the public, with many people lingering and asking questions, coming back with more friends etc. In all, over 1500 people looked through telescopes, many for the first time.

Organisers: Caribbean Institute of Astronomy (CARINA).

Website: www.caribbeanastronomy.com



Estimated number of people who attended or were reached by this activity: 1500.

## The 5th Element Astronomy Play

In April, the Trinidad and Tobago Astronomical Society's Astro Club produced a public performance combining a fusion of astronomy, art, music and humour at the National Science Centre. This sciences-oriented comedy played out to about 100 people and was based on a Jerry Springer-type talk show in which eminent philosophers from the past were interviewed to give their views on the mechanism of the Universe. The invited guests ranged from Aristotle to Einstein.

Since rival personalities sometimes appeared simultaneously, this often led to rather heated exchanges. The private lives of the characters were explored along with their scientific contributions. Much of the script was based on actual quotations and every effort was made to preserve scientific and historical accuracy.

Organisers: The Trinidad and Tobago Astronomical Society — Astro Club.

Website: http://ttasastroclub.piczo.com




Estimated number of people who attended or were reached by this activity: 100.

## Grenada Outreach

In May, CARINA travelled to the neighbouring island of Grenada to conduct two days of talks and viewing sessions with the support of the local UNESCO representative in Grenada. Originally it had been hoped that the regional UNESCO office in Jamaica would have supported such activities across the English Caribbean, but although a formal request was made, there was no response. In Grenada, however, the local representative was highly enthusiastic and was personally responsible for the planning and coordination of each activity. On 22 May, CARINA gave a TV interview in the morning, spoke with faculty at the St. George's University campus, had an interview with a cable TV provider at the University of the West Indies' Marryshow House, gave a talk to about 50 primary school students, had a extensive radio interview and finished with a viewing session in St. George's to over 200 persons. On 23 May, there was a talk at the St. George's Boys Secondary School to about 25 students and teachers and, in the evening, a viewing session in an outlying town, Gouyave, to about 100 people.

Grenada has no local astronomical resources whatsoever, so it was the first time that any of the attendees had such an opportunity. CARINA also managed to get a fledgling Astronomy Club started and later in the year secured a donation of seven telescopes to the Club through a DAG Grant. A follow-up visit is planned for May, 2010.

Organisers: Caribbean Institute of Astronomy (CARINA).

Website: www.caribbeanastronomy.com



Estimated number of people who attended or were reached by this activity: 500.

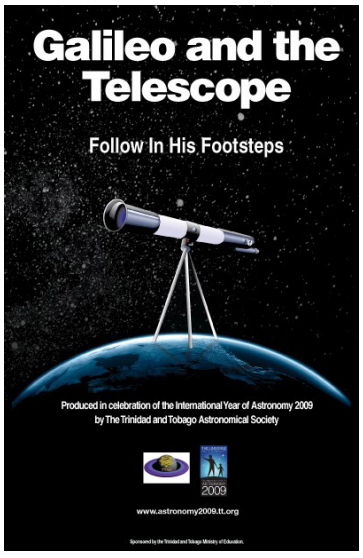
Budget: 750€

## Publication of book on observational astronomy

In May, the Trinidad and Tobago Astronomical Society published a small book entitled Galileo and the Telescope… Follow in his Footsteps. The book was intended to introduce children to the wonders of observational astronomy and was intended to accompany CARINA's order of 200 Galileoscopes to be distributed to schools.

The book introduces kids to Galileo's world, and explains how he developed and refined his telescopes and what he saw through them. It then goes on to explain telescope design in general and introduces the different designs commonly available. Finally it gives a series of simple projects involving the Moon, Venus and Jupiter that can be accomplished using a basic instrument such as the Galileoscope. The book was well received but, at the time of this writing, Trinidad & Tobago has yet to receive the Galileoscopes ordered in April 2009.

Organisers: The Trinidad and Tobago Astronomical Society.




Website: www.tt-astrosociety.com

Estimated number of people who attended or were reached by this activity: potentially hundreds.

Budget: 1150€

## Astro Quiz

Astro Quiz 2009, held in November, is an annual event staged by the Trinidad and Tobago Astronomical Society's Astro Club. To celebrate IYA2009, special effort was put into making this event as large as all the previous years combined.

The Astro Quiz is the highlight of all student-based astronomical activities in Trinidad and Tobago. The purpose of the quiz is to develop an interest in astronomy among secondary school students and to encourage the formation of school clubs. The Quiz also gives students the opportunity to meet other, like-minded individuals from across the school system. The format of the quiz is an open book, multiple-choice exam in the style of a game show. Contestants raise paddles to ring in their answers and points are awarded by a panel of judges for correct answers.

The IYA2009 Astro Quiz trophy was won by the team from St. Augustine Girls High School by the slimmest of margins out of a total of 14 finalists.

Organisers: The Trinidad and Tobago Astronomical Society — Astro Club.

Website: http://ttasastroclub.piczo.com

Estimated number of people who attended or were reached by this activity: 150.

## International School for Young Astronomers

The 31st ISYA took place at the University of the West Indies, St Augustine, Trinidad and Tobago, and was the first one that benefited from the grant donated by the Norwegian Academy of Sciences. It was also special because it was one week shorter than usual to reduce the cost of the host in difficult financial times, but as a complement it also exceptionally had a special enlarged outreach component in the framework of the end of the International Year of Astronomy 2009.

Out of 42 candidates, 34 were selected for participation. Four of them didn't come (two from Brazil, two from Uruguay), and one extra student from Trinidad participated. There were in total students from 12 nationalities participating, including two from out of the region (one from Nigeria, one from Macedonia).

The programme included the following topics:

- Planetary astrophysics: D. Schulze-Makuch (USA);
- (Eclipsing) Binary stars, exoplanet detection, extrasolar planets, planetary science: E. Guinan (USA);
- Stellar and binary evolution, and sessions for secondary school teachers and children: J-P De Greve (Belgium);
- Virtual observatory: Data reduction, queries of databases and related practical activities: R. Barba (Chile);
- Stellar atmosphere (radiative transfer), stellar fundamental parameters, sessions for secondary school teachers and children: M. Gerbaldi (France);
- Cosmology: S. Alexander, Department of Physics and Astronomy, Haverford College (USA);
- Using remote telescopes and preparing observations: Vanessa Stroud (Venezuela);
- Seminars on writing observing proposals, and workshop for children (Louise Edwards, Trinidad).

An important aspect of the first week was the preparation of the observations to be carried out in the second week. Thanks to the Faulkes Foundation, ISYA had access to the 2-metre robotic Faulkes telescopes on Maoui, Hawai and in Australia. Several slots of two hours were offered throughout the two weeks of the ISYA. In the first week the students were asked to organise themselves into teams and to develop and propose a feasible observing project. In the second week observations were carried out and reduced.

ISYA also had a strong public outreach component, including appearances by lecturers on three television shows, a Teachers' Workshop and a Children's Workshop. Two public lectures were also given by lecturers, "The Once

and Future Sun: The Sun's Impact on Climate and Life" by Prof. Ed Guinan and "Music and Cosmology" by Prof. Stephon Alexander.

Organisers: The University of the West Indies — Department of Physics.

Website: http://sta.uwi.edu/fsa/physics/ISYA2009.asp



Estimated number of people who attended or were reached by this activity: 31 ISYA students, 50 Workshop participants, 200 lecture attendees.

## Lessons Learned

- The most difficult challenge is coordinating the various interest groups and ensuring that the activities of each is supportive of a whole framework. The danger is that each Group does activities on their own without overall coordination. In hindsight, an effective organising committee comprising representatives of all stakeholders would have been a better approach.
- Sponsorship of specific Cornerstone projects which required investments were stymied by lack of corporate support. This may have had much to do with the economic crisis that hit the local economy hard during the period that we were soliciting funds. Actual programmes run were those that required no funding, relying instead on manpower and volunteerism more than anything else.
- We also failed to gain hoped-for support from IYA2009 co-sponsor UNESCO through their regional office to co-host events in the islands. Since USESCO has a presence in each of these islands and strong contacts with governments and the education sector, their support would have made it easy for us to efficiently conduct events in these islands. The one happy exception was Grenada where, thanks to the personal efforts of the UNESCO office there, we were able to achieve a lot over a four-day visit on essentially zero funding.
- Fully one year after placing an order for Galileoscopes, we are yet to receive them. Our partner, TTAS, produced a book on observational astronomy to accompany these telescopes and we jointly devised a programme for their distribution. This has been a real disappointment. The funds that we raised for this would better have been spent on other activities.
- We probably didn't make enough use of the resources of the IYA2009 Secretariat to help us overcome some of our difficulties.

## Legacy

CARINA's mission is public outreach in Trinidad and Tobago and other small islands in the Caribbean and we will be using the "Beyond" programme as a guide for future activities.

## Comments

Despite the frustrations encountered with the execution of an ambitious programme , it's fair to say that we have exposed perhaps 10 times more people to the wonders of astronomy in Trinidad and Tobago that would be in an average year. This gives us a strong impetus for future activity at an enhanced level. The lessons learned during the year will also ensure that we are more effective in future planning.

The final, and perhaps most important, observation is this: wherever and whenever we offer astronomy-related activities, people just can't get enough. This most fascinating of sciences reaches beyond the intellect to penetrate the sense of wonder of even the most life-hardened of people once they are able to approach it at their own speed. This experience is probably mirrored everywhere on the planet and an activity such as IYA2009 highlights just how great the thirst for this knowledge is and how easy it is for those with a love for astronomy, moderate training and basic resources to satisfy it.

# Tunisia

## National Node

Mohamed Hédi Ben ISMAÏL (Tunis Science City)

www.astronomy2009tunisia.org

Official Languages
- Arabic
- French

Number of organising committee members: 25
- Volunteers: 25
- Paid: 0

Population: 10,432,500

Number of people reached by IYA2009: 200 000

Budget: 124 000€

- Sources:
- Tunis Science City
- Public Institutions represented in the National Node

## General Overview of IYA2009 activities in Tunisia

The preparations to celebrate IYA2009 in Tunisia began in April 2008. The general director of the Tunis Science City was agreed SPoC by Minister for Higher Education, Research and Technology. A national committee was created, at once, gathering all the institutions to disseminate the scientific culture or to supervise the young people on the educational, scientific or astronomical plans. Several meetings took place to create a final more or less detailed programme taking into account all the possibilities, all the regions of the country and especially inspired by the Cornerstone projects proposed by the international committee. All the participants were enthusiastic about the success of the programme . All year round, the Tunis Science City, as main coordinator, took conscientious care of the annual programme . We underline that the only project which was lacking in our programming was the Galileoscope, although several attempts were led in the sense to acquire a lot to distribute in regions and during the astronomical observation activities. We vainly tried by all means to have them via the donation propositions among several countries.

Altogether, the celebration of IYA2009 was a success: a huge step towards the integration of astronomy in school programmes, moreover, there were many primary school teachers, the teachers of middle schools or high schools which benefited from this astronomy initiation. Also, for the educators of young people and children, within the framework of UNAWE, they will be henceforth be autonomous within their clubs to develop astronomical activities. The astronomical evenings organised by the Tunis Science City, for several years, managed to develop loyalty of a rather wide public and for whom the rudiments of astronomy present no more mysteries.

Today, the Tunis Science City, is strongly sought for its astronomical activities which it offers by means of its Astro — Bus: the most effective means to disseminate astronomy as well as possible. As a matter of fact, we can conclude that an astronomical event such as that of 11 August 1999, when it will occur will not certainly engender the same panic nor the same ignorance, experienced this day on the national scale.

Besides, the Tunis Science City, due to its mission since its creation, always worked to disseminate scientific culture, in particular in astronomy, and will continue in the same sense and with the same enthusiasm until it reaches its objectives.

## Main Activities

### List of Activities

- Mars destination: a hands-on exhibition; from 1 November 2008 to 22 March 2009. It belongs to the Cité de l'Espace of Toulouse.
- Press Conference and Information Day for the media: 9 January 2009.
- Astronomical evenings:
- 24 January as opening ceremony: at Tunis Science City, Sidi Bou Ali — Sousse, Meteorological Stations of Kairouan, Jendouba, and Bizerte;
- 28 February: at Tunis Science City, the Cultural Complex of Nabeul, Faculty of Sciences of Tunis, Faculty of Sciences of Bizerte, the Meteorological Stations of Monastir and Beja;
- 17 March: at the Cultural Complex of Nabeul;
- 21 March: at Tunis Science City, The Youth House of Jendouba, the Meteorological Station of Sousse;
- 23 and 28 March: at The Meteorological Station of Tunis;
- 25 April: at the Faculty of Sciences of Bizerte, the Youth House of Kasserine, the Meteorological stations of Mehdia and Siliana;
- 30 May: at Tunis Science City, the Youth house Nefta-Tozeur, the Meteorological Station of Sfax;
- 1 August: at Tunis Science City, Monastir Science Palace, the Meteorological Stations of Zaghouan and Jerba;
- 13 August: at The Meteorological Station of Tunis;
- 12 September: at Tunis Science City, the Meteorological stations of Gafsa, Gabes and Tataouine;
- 14 November: at Tunis Science City, the Youth House of Medenine, the Meteorological Stations of Kebilli and Kasserine;
- 31 December: at Tunis Science City.
- The Sun Days:
- 8 February: at the Meteorological Stations of Nabeul, Tozeur et Sfax;
- 23 March: at the Meteorological stations of Tunis, Sousse, Gafsa, Jendouba;
- 9 May: at Tunis Science City, the Youth House of Kasserine, Youth Science Club of Sidi Bourouis — Siliana;
- 17 May: at the Meteorological Stations of Kasserine, Jerba and Mehdia;
- 21 June: at The Youth House of Hammam Ghzez in Nabeul.
- Friday Workshops at Tunis Science City:
- 16 and 30 January;
- 13, 20, 27 February;
- 6 and 30 March;
- 10, 17, 24 April;
- 8, 15, 22, 29 May;
- 5, 12, 19 June;
- 23 and 30 October;
- 13, 20, 27 November;
- 4, 11, 18 December.
- The Astro — Bus, with telescopes, mini planetarium, local exhibition "From Earth to the Universe" and many material for different workshops:
- 7 — 22 January: at Nabeul, Sousse, Monastir, Mehdia, Sfax;
- 25 February — 10 March: at Gabès, Médenine, Tataouine, Kébilli, Tozeur, Gafsa;
- 15 — 21 April: at Kef, Kasserine, and Sidi Bouzid;
- 6 — 11 May: at Béja, Bizerte, Zaghouan;
- 14 — 19 October: at Kairouan, Siliana, Jendouba;
- 2 — 8 November: the tour of the cultural and scientific caravan.
- Exhibitions and conferences (How Does Space Work, Walk in the Waves, and local FETTU):
- 20 — 31 January: The University Dormitory of Girls, great Tunis;
- 6 — 14 February: The Faculty of Medicine of Monastir;
- 25 February — 10 March: The Cultural house of Gabes;
- 17 — 25 March: The Cultural house of Jendouba and University dormitory of girls, Kairouan;
- 22 — 25 April: The Cultural house of El Mourouj;
- 14 — 15 May: The Preparatory Institute of Engineering Studies of Monastir;

- 16 — 17 May: The Faculty of Pharmacy of Monastir;
- 18 — 19 May: The Higher Institute of Arts and Professions of Mehdia;
- 20 — 21 May: The Higher Institute of Languages Applied to Business and Tourism of Moknine;
- 22 — 23 May: The Higher Institute for the Promotion of the Handicapped persons of Manouba;
- 25 July — 6 August: at Monastir Science Palace;
- 1 — 31 September: at Tunis Science City;
- 22 — 31 October: The Youth House of Kef;
- 12 — 21 November: The House of Culture of Tataouine;
- 12 — 21 December: The Cultural Complex of Sousse.
- Galileo Teacher Training Programme (Two training courses for 25 children's clubs, educators from all Tunisian regions):
- 10 — 11 February: The Tunis Science City;
- 27 — 28 June: at Tunis Science City.
- Initiation to Astronomy (mainly for young people).
- 100 Hours of Astronomy, 2 — 5 April at Tunis Science City, the Cultural Complex of Sfax, the Youth House of Siliana , the Youth House of Kairouan.
- 50 hours of Astronomy, 27 — 28 June at Tunis Science City, the Cultural Complex of Kairouan.
- 50 hours of Astronomy, 12 — 13 September at Tunis Science City.
- A Round Table:
- 7 March: at Tunis Science City within the Cornerstone project "She Is An Astronomer".
- World Space Week:
- 4 — 10 October: at Tunis Science City and at Monastir Science Palace.
- Drawing and writing competitions: From April 2009, at basic and secondary schools. Drawing and writing competitions organised with the cooperation of the Ministry of Education and Training.
- Regional meetings:
- 19 — 22 March: the Regional Scientific Meeting of Mehdia;
- 2 — 5 July: scientific days for children in Kerkeneh and Sfax.
- Scientific Camps:
- 12 — 17 July: at Bizerte;
- 21 — 22 July: at Borj Cedria and Ben Arous.

## An informative press conference

The Tunis Science City organised on 9 January 2009 an information day destined for the media. The goal of this information day was presenting the national programme to celebrate IYA2009. This information day started by a press conference aiming to present the programme elaborated by the national committee. In fact, this information day was a good initiative enabling the media to understand the objectives of IYA2009. Furthermore, this day was a good opportunity for the media to discover some astronomical concepts and to contribute to the efforts done by the Tunis Science City and all the different associations to disseminate astronomical culture.

During the press conference Dr. Mohamed Hédi Ben Ismail, General Director of the Tunis Science City and SPoC for IYA2009, welcomed the journalists and introduced the general context of IYA2009. Then Mr. Abdelkader OUESLATI, Scientific Director, presented the IYA2009 objectives, the organisation and the 11 Cornerstone projects, as well as the different steps for the international celebration of IYA2009. He also presented the most important astronomical events of 2009. Finally, Mr. Amine Abdellatif, head of the Astronomy Pavilion at the Tunis Science City, presented the different activities of the national programme .

Organisers: National Node.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: over 100 journalists from written, seen and listened press.

Budget: 2500€

## The opening ceremony

The official opening of the national programme for the celebration of IYA2009 was on 24 January, a week after the conference of Paris held in the headquarters of UNESCO on 15 and 16 January. The programme included the following activities:

- A conference entitled “Creation of the Universe and its Evolution” presented by Dr. Béchir Torki, former member of the IAEA;
- Showings of documentary films on astronomy;
- Guided visits to the Universe Pavilion;
- Four sessions at the planetarium of the Tunis Science City;
- A guided visit to the exhibition “Mars Destination”;
- An astronomy evening.

Organisers: Tunis Science City.

Estimated number of people who attended or were reached by this activity: 2000.

Budget: 4800€

## The Astro Bus

The goal of the Tunis Science City is to make science accessible and close to everyone. For this reason, the Tunis Science City owns a bus destined specially to make scientific trips to all the regions of Tunisia. The Astro Bus is equipped with mini planetariums, telescopes, laptops, and a number of educational tools. It can be considered as the most efficient way to disseminate astronomy among youngsters. The bus of the city makes three scientific trips a month. It is also equipped for showing films and exposés. During IYA2009, the Astro Bus visited approximately 70 regions all over the country, so crossing approximately 15,000 km, and succeeded in sharing its rather rich contents to approximately 100,000 Tunisians, from all population categories; children, young people, adults and also seniors. All those itinerant exhibitions are designed to be housed by institutions such as museums, cultural centres, youth centres, childhood clubs, schools, etc. In addition to the mini planetarium shows, astronomical evenings and the exposés inside the bus, it brings a number of workshops dealing with the following themes: eclipses, Moon phases, the rotation of the Earth and its effects, rotation of the Earth around the Sun and seasons, etc. It is equipped for showing films too.

Organisers: Tunis Science City.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: 100,000.

Budget: 30,000€

## She is an Astronomer

Within the framework of the International Day of Woman, 7 March, the Tunis Science City organised with the cooperation of the Ministry of Women Affairs, Family, Children and the Elderly, a scientific meeting under the theme “She is an Astronomer”. A great number of female students, pupils, teachers, and members of scientific associations attended this meeting in order to participate in the dialogue about the contribution of woman to astronomy. During his opening speech, Dr. Mohamed Hedi Ben Ismail, the General Director of the Tunis Science City shed light on the cooperation between the Tunis Science City and the Ministry of Women Affairs, Family, Children and the Elderly in disseminating the scientific culture and particularly the astronomy. It is worth noting that the number of women acting by world in the field of astronomy is so small. During the first intervention Dr. Zohra Bellakhder , Professor of Physics at the Faculty of Sciences of Tunis and amateur astronomer shed light on the history and the development of observation instruments due to the technological progress, especially in the field of nanotechnology. In the second intervention presented by Dr. Nejia Laridhi, a Professor of Physics at the Faculty of Sciences of Tunis, the lecturer introduced the sky objects which landed on the territory of Tunisia. In fact, a study showed the existence of a number of bodies on the territory of Tunisia since 1931 until 2001. The first body was found in Tataouine and it was displayed in one of the museums of France. The second body was found in Kef, in

1981, and the third was picked in Sfax in 1986. The last body was seen according to the witnesses at the end of 2008 in the region of Kairouan, but until today researches could not localise it .The third intervention presented by Dr. Hedia Habib Abdelkafi , a Professor of Literature at the University of Sfax dealt with micrography of the sky , the relation between Man and the cosmos. The lecturer showed us that astronomy is a multidisciplinary and rich science and she encouraged girls to make career in astronomy.

Dr. Chedia Jrad a senior lecturer at the INSAT and Miss. Maroua Siidi, a student at the faculty of Sciences of Bizerte told the public about their experience as amateur astronomers and about the pleasure that the astronomy can get to people. In the same frame, several activities (mini planetarium, exhibitions, workshops, astronomy evenings…) were organised within some university homes for girls.

During 2009, Tunisia celebrates the proclamation of Kairouan as a capital of Islamic Culture by the UNESCO. On this occasion, the Tunis Science City visited Kairouan and it organised an awareness day in astronomy for the female students.

Organisers: Tunis Science City and the Ministry of Women, Family, Children and the Elderly Affairs.

Estimated number of people who attended or were reached by this activity: 1500.

Budget: 3000€

## Publications and exhibitions

UNAWE Tunisia has developed a manual for teachers and educators that will serve as a guide for UNAWE activities. It was recommended by the National Action committee and was distributed to ministries of Education and family affairs and to the Ministry of Youth. It contains all the activities developed by UNAWE Tunisia. Educational priorities for Tunisian children have been taken into account in the writing of this manual. It will be the first book in Arabic with astronomical activities for young children.

The Tunis Science City has also translated to Arabic the UNAWE Book “Cuentos de Estrellas” in which UNAWE Tunisia contributed a legend, originally published by UNAWE in Spanish. The guide of the Universe; it is a notebook allowing the visitors of the Universe Pavilion to take advantage of conducted tours made in this space magnificently furnished by a permanent exhibition telling all the history of the Universe, in particular its architecture.

The Tunis Science City has also translated to Arabic the IYA2009 brochure which has served to all Arabic language countries and it has been distributed to all public institutions (10,000 copies).

The Tunis Science City also published a new number of its junior magazine “Madar J” intended for young people recapitulating the most important knowledge relative to the Solar System. This magazine is distributed in a kit including a big poster of the Solar System and an interactive CD for the youngest. The next” MadarJ” will be ready next April 2010 talking about the Universe’s story. About posters, the Tunis Science City has conceived and published three big posters; the IYA2009 poster in Arabic, another poster on the occasion of the general assembly of the IAU of August, in Rio, and finally a poster of participation in a workshop organised in Spain within the framework of UNAWE.

Within the framework of the Cornerstone project FETTU, the Tunis Science City conceived a bilingual exhibition (Arabic, French) including 100 better photos, duly credited, of Universe objects. This exhibition was intended to make the tour of squares, youth clubs, shopping malls, houses of culture, and it was also sheltered in the office of the Tunis Science City.

Organisers: Tunis Science City.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: 15,000.

Budget: 37,000€

## UNAWE

UNAWE has been running in Tunisia since 2005. It is based in the Science City Museum in Tunis and reaches out to isolated communities throughout the country via a travelling science caravan containing astronomy activities for the very young. The Tunis Science City offers three daily astronomy workshops for the very young. The annual visit of the Astro-Bus is prepared and followed-up on locally by children's clubs, a nationwide governmental service for children outside of schools hours. They are open and freely available to all. UNAWE Tunisia is supported by the Science City in Tunis, the Ministry of Women , Family, Children and the Elderly Affairs, as well as the Ministry of Education and Training. An important stream of materials was made in French and Arabic, of which activities, tools, games and even cartoons and plays.

Today in Tunisia, initiating children to astronomy has become a reality, not a dream. Since 2006 and following achievements reached through the Children's Clubs and Primary Schools, the National Partners of UNAWE Tunisia (Science City in Tunis, Ministry of Family affairs, Ministry of Education) are increasingly convinced by the cause of the international UNAWE programme .

The astronomy section of the Science City in Tunis has organised eight astronomy training sessions for children educators since 2008 until the first quarter of 2009, two sessions for primary teachers in 2008 and one session for secondary in December 2009. In all, 50 children animators and 13 secondary teachers have benefited of these training courses to prepare the implementation of UNAWE and the progress of the IYA2009 programme . The children's clubs whose educators attended the workshops were visited to see the evolution of their projects and evaluate their initiatives.

The UNAWE Tunisia National Action Committee met three times to finalise the UNAWE programme to celebrate IYA2009.

Organisers: Tunis Science City and Ministry of Women, Family, Children and the Elderly Affairs.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: 150,000 since 2006.

Budget: 16,000€ since 2006.

## The day star, protagonist of the summer solstice

As every year, 21 June was a big astronomical opportunity in the Tunis Science City. Only this year, it is not a common astronomical evening, but rather of a diurnal manifestation where it was necessary to investigate the astronomical specificities of this rather particular date corresponding to a position of the Earth on its orbit. The objective of this day was to allow young people to observe the Sun, by means of instruments, and to know more about its characteristics. In the programme , an outfit of workshops were carefully sorted out by objective and age bracket. The present day constitutes an excellent conciliation between UNAWE and the programme of IYA2009 in general. Besides, this day was heightened by the presence of Pr. George Miley, Vice -President of the IAU and Dr. Carolina Odman, the general coordinator of the project UNAWE. In this occasion, Pr. Miley was also invited to give a public conference underlining the contribution of the astronomy to the development in general and to the development of education in particular.

The manifestation began by:

- A presentation of the programme ;
- An exposé "the Sun at the summer solstice".

Workshops of the day took place simultaneously for presenting to the visitors both rich and varied menu:

- Geographical North determination by the culmination and western by sunset;
- Measure of the maximal height of the Sun in Tunis;
- Measure of the solar constant;
- Determination of the Sun's diameter;
- Realisation of a spectroscope;

- Counting sunspots (unfortunately there were none);
- Observation of protuberances by the PST (H alpha).

Professor George Miley and Dr. Carolina Ödman were invited in Tunis from 21 — 24 June 2009 for a working visit about the progress of UNAWE-TUNISIA activities of the national programme . The visit of Pr. Miley and Dr. Carolina Ödman was made in several stages:

- 21 June, Dr. Carolina Ödman attended the activities of the solar day at Tunis Sciences City;
- 22 June, both guests made a visit to the pilot child — club of Sfax (South capital at 300km);
- 23 June, Pr. Miley gave a public conference entitled Astronomy and Development.

Organisers: Tunis Science City.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: 2000.

Budget: 5000€

## Astronomy evenings

Except the astronomical evenings assured by the Astro Bus during its rides through the regions of the country, 13 astronomical evenings were organised in the Tunis Science City among which three out of the Tunis Science City walls insurants by the National Institute of Meteorology. It has been a tradition for many years and these activities succeed today in attracting more and more loyalty from the public, in particular young people and children who are behind the important influx of the public during these evenings. During these astronomical evenings the public had the opportunity to learn, (thanks to the presentations that we organised at the beginning of the astronomical evening), several concepts and to observe through telescopes, often for the first time, several objects such as the planets from Venus to Neptune, the Moon, nebulae and galaxies.

Organisers: Tunis Science City, National Institute of Meteorology.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: 7000.

Budget: 4200€

## Astronomy for all

Except the actions defined in the IYA2009 annual programme , the Tunis Science City does not miss to answer positively and free of charge, if possible, the requests of institutions, universities, regions, associations which wish to organise activities of education with the aim of promoting the astronomy and adhering to the IYA2009 celebration. The Tunis Science City organised several activities such as:

- In order to contribute to the project FETTU, the Tunis Science City organised from 7 — 18 January an astronomical event at a commercial space in the capital. The programme of this event included workshops and exposés, mini planetarium shows, two exhibitions (FETU), astronomy evenings in the open air;
- On 17 January with the cooperation of many travel agencies an astronomy evening for tourists, in the region of Oung Jemel, 30km from Tozeur. The programme of this astronomy evening included observation of the Orion Nebula, the Pleiades, and Andromeda M31;
- With the cooperation of the Centre of Social Protection of Children, an open day full of astronomical activities. The programme of this day included mini planetarium sessions and workshops;
- On 5, 6, 7 February, an astronomy event in Kelibia (governorate of Nabeul). The programme of these days encompassed workshops, exposés, mini planetarium shows, and an astronomy evening;
- On the eve of 100 Hours of Astronomy and at the request of the National School of the Engineers at Sfax, the Tunis Science City organised a whole day of astronomy for the pupils engineers of the school;
- As usual, the Tunis Science City participated in the International Book Fair of El Kram from 27 April — 3 May.The stand of the city attracted many visitors and it had a great role in disseminating scientific culture and particularly astronomy among the large public;

- At the Faculty of Medicine of Monastir : Two exhibitions, FETTU and “How Space Works?”, 6 — 14 February, and a conference “Galilée, 4 centuries ago”.

With the cooperation of the Ministry of Higher Education, Scientific Research and Technology, the IYA2009 programme included the following universities too: the Faculty of Medicine of Sfax, The Faculty of Laws and Economic Sciences in Tunis, the Higher Institute of Languages Applied to Business and Tourism-Moknine, the National Institute of Applied Sciences and Technology, the Institute of Arts and Professions of Mehdia.

Organisers: Tunis Science City and public institutions.

Website: www.cst.rnu.tn

Estimated number of people who attended or were reached by this activity: 20,000.

Budget: 13,500€

### 100 Hours of Astronomy

Within the framework of the Cornerstone project “100 Hours of Astronomy”, 2 — 5 April, the Tunis Science City elaborated a rich programme including different activities. The programme took place at the Tunis Science City and at the Cultural Complex of Sfax. It is worth noting that in Sfax the mini planetarium and the workshops replaced the planetarium of the city and the visits to the Universe Pavilion. A similar programme was also organised at Tunis Science City for children within UNAWE Cornerstone project.

The IYA2009 programme of Tunisia was planned there were two 50 hours of astronomy during the weekend 27028 June and 12 — 12 September, on the occasion of the month of Ramadan.

The programme of the 100 or 50 hours of astronomy in Tunis ScienceCity or at Sfax consisted of projections of astronomical films, presentations, workshops, and evenings of observations with telescopes.

Organisers: Tunis Science City.

Website: www.cst.rnu.tn
Estimated number of people who attended or were reached by this activity: 6000.

Budget: 8000€

## Lessons Learned

To make a success of such an action, at first, it is necessary to plan the projects enough in advance and to make only institutions really concerned by the celebration to participate, and then to count only on persons suitably chosen for their efficiency, interactivity and seriousness. The planning will have to take into account the slightest details to avoid surprises during the application, but all this can become a reality only by the provision of the necessary budget. Indeed, the budget is an essential criterion before beginning; otherwise, a good part of the programming will need to be amputated and won’t see the day. In the celebration of IYA2009, the Tunis Science City found its same objectives and missions; the dissemination of the scientific culture in general and astronomical in particular. At the end, for good organisation, it is necessary to plan, enough in advance, solutions to all possible blockings due to the administration or then the means to bypass them, and that requires an excellent coordination between the various partners.

## Legacy

The dissemination of the astronomical culture goes into the missions of the Tunis Science City, and thus its programmes during years to come will contain without the slightest doubt astronomical activities intended for the general public, for children, for schools, and for students..The main purpose of the Tunis Science City is to see astronomy and astrophysics integrated into the official school programme .



# Turkey

## National Node




Mehmet Ali Alpar (Turkish Astronomical Society)

www.astronomi2009.org

Official Languages
- Turkish

Number of organising committee members: 5
- Volunteers: 5
- Paid: 0

Population: 72 561 312

Number of people reached by IYA2009: 100 000

Budget: 100 000€

Sources:
- Turksat
- Universities, schools
- Turkish Academy of Sciences
- Optronik
- Türkiye Is Bankasi Yayinlari

Activities were mostly sponsored by the organising parties. Local hosts (universities, some schools) covered their own costs. This may be a source of inaccuracy in the estimate. Turkish Astronomical Society found the following sponsors: —Turksat (the main satellite communications company) sponsored the publication of the IYA2009 brochure.—Turkish Academy of Sciences financed 100 small telescopes which were sent to universities and schools. —Optronik, a company marketing optical equipment, supplied telescopes which were sold without profit, and sponsored an amateur astrophotography competition. —Türkiye Is Bankasi Yayinlari , a major publisher, made a grant of 2500 TL to the Turkish Astronomical Society and issued their books on astronomy , including Galileo's dialogues, with IYA2009 stickers.

## General Overview of IYA2009 activities in Turkey

IYA2009 was celebrated in Turkey with a participation way beyond our expectations. Many universities, schools, nongovernmental organisations, astronomy clubs, museums, science centres joined the effort to engage as many people as possible with astronomy. Public was receptive and many people attended the organised events.
Before 2009 Turkish Astronomical Society met with schools, universities, astronomy clubs, nongovernmental organisations, museums, science centres to give information on IYA2009 and ask for their participation. These meetings were very useful in engaging people to plan ahead. Turkish Academy of Sciences financed 100 small telescopes to be distributed to schools and universities. Many similar telescopes were sold without profit.
We started the year by distributing published some material including the IYA2009 brochure, posters etc. The IYA2009 national website was renewed in February, by then at least one event was announced on the event calendar almost every day of the month.

The emphasis was on education. The Galileo Teacher Training programme was launched successfully and follow-ups with participated teachers are going on at the moment. Many schools organised astronomy events on their own and invited local astronomers. Many universities organised observation events and public lectures. There is also an ongoing effort to integrate astronomy into the curriculum in a potential collaboration with Ministry of Education. There is no doubt that national and global impact of IYA2009 had a positive effect on the point of view

of the authorities in education. A nongovernmental organisation — Education Volunteers of Turkey Foundation is joining this effort by implementing astronomy in their educational programmes. They have 55 educational parks, 19 mobile learning units and 11 education parks which have a capacity of reaching 7250 children a year. Now each educational park is owning a small telescope and a Galileoscope and there is an ongoing effort to integrate astronomy related activities in their programmes.

Both 100 Hours of Astronomy and Galilean Nights were widely celebrated. About 5000 people looked through a telescope and observed the Moon, Saturn and Jupiter's moons during these events.

FETTU exhibitions were opened in various places in different scales. Special project TWAN publicity in Turkey started when a major popular science magazine gave a TWAN calendar for 2010, the exhibition and a book is planned for next year. As a part of UNAWE, several programmes were designed and applied to preschool children. Women astronomers were encouraged to give public talks and about 10 talks were organised nationwide in schools to create a role model to young children. Many activities related to the "Dark Skies Awareness" project were advertised widely, and a wide participation was recorded for GLOBE at Night.

A joint committee of TAD and UNESCO National Commission Turkey started on inventory and publicity work on the cultural heritage in astronomy. The grave of 15th Century astronomer Ali Kushci was found. Work for a memorial plaque for the 16th Century Istanbul Observatory is under way.

## Main Activities

### List of Activities

1. JANUARY
   - Halk Gozlemi (Antalya)
   - Besiktas Burak Reis Ilkogretim Okulu Astronomi Etkinligi (Istanbul)
   - Amator Astronomi Konusmalari (Istanbul)
   - Eyuboglu Anaokulu Sabanci Kampusu Etkinligi (Istanbul)
   - Halk Gozlemi: Galileo'nun Jupiter'in Ilk uc uydusunu 399 yil once teleskobuyla gozlemesi (Antalya)
   - Amator Astronomi Konusmasi (Istanbul)
   - Bahcelievler Ozel Aka Koleji Astronomi Etkinligi (Istanbul)
   - Amator Astronomi Konusmalari (Istanbul)
   - Amator Astronomi Konusmasi (Istanbul)
   - TRT FM Prof. Ali Alpar'i agirliyor…. (Radyo)
   - Ozel Antalya Koleji Radyo Programi (Antalya)
   - Ozel Getronagan Lisesi DAY Etkinlikleri (Istanbul)
   - Ay Tutulmasi Gozlemi (Kayseri)
   - Lulin Kuyrukluyildiz Gozlemi (Kayseri)
   - Eta Aquarid Goktasi Yagmuru ve Gokyuzu Gozlemi (Kayseri)
   - Istanbul Bilim ve Sanat Merkezi DAY 2009 yili etkinlikleri acilisi (Istanbul)
   - Astronot Albert Sacco Konusmasi (Ankara)
   - DAY 2009 Universite Ogrencileri ile Kanal — D'de (TV — Turkiye)
2. FEBRUARY
   - TAD Genel Sekreteri Prof. Dr. Zeynel Tunca Radyo — 1'de (Radyo)
   - Goremedigimiz Uzay Fotograflari sergisi — I (Adana)
   - Parcali (Penumbral) Ay Tutulmasi (Ankara)
   - Parcali Ay Tutulmasi ve Gokyuzu Gozlemi (Kayseri)
   - Seminer: "Gokyuzunun Sirlari" (Kayseri)
   - İKU Astronomi Kulubu Paris Gozlemevi Gezisi
   - DAY2009 Etkinlikleri Acilisi (Kayseri)
   - Seminer: "Radyo ve TV Yayini Nasil Yapilir?" (Kayseri)
   - TAD Baskani Prof. Ali Alpar konusmasi (Kirsehir)
   - Seminer: "Yeni Yasam Arayislari ve SETI" (Kayseri)
   - Kultur Un. Rektoru Prof. Dr. Dursun Kocer TRT Radyo-1'de (Radyo)
   - Seminer "EXOPLANET'ler Hakkinda Yeni Bilgiler" (Istanbul)
   - Seminer: "Kuresel Isinma ve Atmosfer Hareketleri" (Kayseri)
   - Goremedigimiz Uzay Fotograflari Sergisi-1 (Iskenderum)

3. MARCH
   - Goremedigimiz Uzay Fotograflari Sergisi-1 (Iskenderum)
   - Kultur Anaokullari “Gokyuzunu Taniyalim” Seminerleri (Istanbul)
   - Karadelikler, Karanlik Madde, Enerji, Pamukkale Universitesi (Denizli)
   - DAY2009 Etkinlikleri Bilgilendirme Toplantisi ve Film Gosterimi (Ankara)
   - İ.D.V. Ozel BIlkent Lisesi, Prof. Dr. Ethem Derman’i Agirladi (Ankara)
   - Cag Universitesi Uzay Fotograflari Sergisi (Tarsus)
   - 8 Mart 2009 Halk Gozlemi (Ankara)
   - Ankara Universitesi Rasathanesi “Halk Gunu” (Ankara)
   - Ozel Tas Ilkogretim Okulu “Uzayda Sayili Gunler” (Istanbul)
   - Ozel Sezin Okulu “Gokyuzu Maceramiz” (Istanbul)
   - Dunya, Ay ve Gunesin Otesindeki Uzaya Bakiyoruz (Istanbul)
   - Osmanli Bilimi Arastirmalari Dergisi “Atilla Bir Armagani”ni Sunus Toplantisi (Istanbul)
   - Ankara Universitesi Gelistirme Vakfi Okullari Galileo Bilim Senligi (Ankara)
   - Koc Anaokulu Sunumu
   - Seminer: “Evrende Yasam Var mi?” (Kayseri)
   - Nalan Kaynak Anadolu Lisesi’nde Cuma Gozlemleri (Denizli)
   - DAY2009 Etkinlikleri (Adana)
   - Goremedigimiz Uzay Fotograflari Sergisi — II (Adana)
   - Prof. M. Emin Ozel DAY 2009 Konusmasi (Adana)
   - İzzet Baysal Anadolu Lisesi, Ankara Universitesi Rasathanesi’nde (Ankara)
   - VKV Ozel Koc Ilkogretim Okulu DAY2009 Etkinligi (Istanbul)
   - Erzurum Ataturk Universitesi DAY2009: Astronomi’nin Kisa Tarihi (Erzurum)
   - Hedef: Astronom Ogretmen! Galileo Ogretmen Egitimi Programi (İzmir)
   - 100 Saat Astronomi ve Karanlik Gokyuzu Farkindaligi (Isparta)
   - Yazar Demirtas Ceyhun’un Galileo uzerine konusmasi (Adana)
   - Ali Naki Erenyol Lisesi DAY2009 Etkinligi (Tekirdag)
   - Tiyatro: Evren Bizi Bekliyor (Istanbul)
   - Karanlik Gokyuzu Farkindaligi, isiklari sondurelim (Turkiye)
   - Cacabey Gokbilim Medresesi DAY2009 Etkinlikleri (Kirsehir)
   - TAD Yonetim Kurulu Uyesi Doc. Dr. Emrah Kalemci TRT Radyo 1′de
4. APRIL
   - Cacabey Gokbilim Medresesi DAY2009 Etkinlikleri (Kirsehir)
   - İKU — TEGV Astronomi Etkinligi (Istanbul)
   - 100 Saat Astronomi Etkinlikleri (Kayseri)
   - “Kadin Astronomlar” Konusmalari — Gulcin Kandemir, Istanbul
   - Eyuboglu Egitim Kurumlari İkiz Gozlemi 100 Saat Astronomi Etkinligi (Istanbul)
   - İTU Astronomi Kulubu 100 Saat Astronomi Etkinlikleri (Istanbul)
   - Ankara Universitesi Rasathanesi 100 Saat Astronomi Etkinlikleri (Ankara)
   - Ozel Yuzyil Isil Okullari, 100 Saat Astronomi Etkinligi (Istanbul)
   - 100 Saat Astronomi Etkinligi (İzmir)
   - DAY2009 Kandilli Rasathanesi Gezileri
   - 2009 Dunya Astronomi Yili Etkinlikleri (Istanbul)
   - İKU — TEGV Astronomi Etkinligi (Istanbul)
   - Tubitak Ulusal Gozlemevi 100 Saat Astronomi (Antalya)
   - “ULU Asto + Capella + TEGV = 100 Saat Astronomi” (Bursa)
   - 100 Saat Astronomi (Ankara)
   - İKU 100 Saat Astronomi Etkinlikleri — 1. Istanbul Ataturk Fen Lisesi Gozlem Senligi
   - Turkiye Egitim Gonulluleri Vakfi Astronomi Senligi (Istanbul)
   - 100 Saat Astronomi Etkinligi, TEVİTOL ( Gebze )
   - 100 Saat Astronomi Etkinlikleri (Canakkale)
   - Eskisehir DAY2009 Etkinlikleri (Eskisehir)
   - 100 Saat Astronomi Etkinligi (Isparta)
   - İKU 100 Saat Astronomi Etkinlikleri — 2 — İKU Astronomi Kulubu Gozlem Senligi
   - 100 Saat Astronomi ve Karanlik Gokyuzu Farkindaligi (Kirsehir)
   - İTU Astronomi Kulubu 100 Saat Astronomi Etkinlikleri (Istanbul)
   - Antalya Koleji 100 Saat Astronomi Etkinlikleri (Antalya)

- Sabanci Universitesi 100 Saat Astronomi Etkinlikleri (Istanbul)
- Seminer: “Yildizlarin Evrimi” (Kayseri)
- İKU 100 Saat Astronomi Etkinlikleri — 2. İKU Astronomi Kulubu Gozlem Senligi
- “Kadin Astronomlar” Konusmalari- Gunay Tas, İzmir
- Cukurova Universitesi UZAYMER Etkinligi (Adana)
- 100 Saat Astronomi Etkinligi (Iskenderum)
- Nalan Kaynak Anadolu Lisesi 100 Saat Astronomi Etkinligi (Denizli & Pamukkale)
- Karabuk Anayasa Ilkogretim Okulu 100 Saat Astronomi Etkinlikleri (Karabuk)
- İKU 100 Saat Astronomi Etkinlikleri — 3 — Sehremini Anadolu Lisesi Gozlem Senligi, sunumlar ve gozlem
- Ozel Sezin Okulu DAY2009 Etkinligi (Istanbul)
- Gokbilim Forumu 100 Saat Astronomi Etkinlikleri (Edirne)
- Eskisehir DAY2009 Etkinlikleri (Eskisehir)
- İTU Astronomi Kulubu 100 Saat Astronomi Etkinlikleri (Istanbul)
- 5 Nisan 2009 Halk Gozlemi (Ankara)
- Kusadasi Rahime Bilici Ilkogretim Okulu Astronomi Senligi (Aydin)
- İKU 100 Saat Astronomi Etkinlikleri — 4 — Kabatas Lisesi Gozlem Senligi
- Eskisehir DAY2009 Etkinlikleri (Eskisehir)
- İKU — TEGV Astronomi Etkinligi (Istanbul)
- Hacettepe Universitesi “Evreni Modellemek” Semineri (Ankara)
- İKU — TEGV Astronomi Etkinligi (Istanbul)
- İKU — TEGV Astronomi Etkinligi (Ferit Aysan Eg. Parki, Istanbul)
- Dunya’dan Uzaya Bakiyoruz (Atasehir — Istanbul)
- Rakamlarin Dili Var Mi? Prof. İ. Ethem Derman (Erzurum)
- İKU — TEGV Astronomi Etkinligi (Istanbul)
- Bogazici Universitesi Bilim Kulubu 9.Bilim Gunleri (Istanbul)
- Astronotlarin Uzayda Yasami, Prof. İ. Ethem Derman (Erzurum)
- Yuri Gecesi Yildiz Partisi (Kayseri)
- Yuri Gecesi Istanbul
- Istanbul Astronomi Topluluklari YURİ GECESİ (Istanbul)
- TED Kayseri Koleji Anaokulu, Erciyes Univ. Fen-Edeb. Faklt. Astronomi ve Uzay Bilimleri Bolumu Gezisi (Kayseri)
- TEVİTOL Astronomi Gunleri ( Gebze )
- TED Afyon Koleji 3 Boyutlu Astronomi Sergisi (Afyonkarahisar)
- Isik kirliligi ve Karanlik Gokyuzu Farkindaligi (Gebze/Kocaeli)
- “Kadin Astronomlar” Konusmalari — Aysegul Teker, Istanbul
- Seminer: Uzay Araclari ve Guncel Gokbilim (Ankara)
- CAAM & Can Sehit Engin Eker İOO Astronomi ve Uzay Semineri (Canakkale)
- Aka Koleji Nisan Gozlemleri (Istanbul)
- Adiyaman Fevzi Cakmak İ.O.O. & Egitim Gonulluleri Vakfi Astronomi Resim Sergisi (Adiyaman)
- Ozel Yuzyil Isil Okullari Cocuklar İcin Astronomi Atolyesi (Istanbul)
- Aka Koleji Nisan Gozlemleri (Istanbul)
- Erzurum Ataturk Universitesi Fizik Bolumu ve Fizik Kulubu Astrofizik Gurubu DAY2009 Etkinlikleri (Erzurum)
- Seminer: Degisken Yildizlar (Ankara)

5. MAY

- Dunya Astronomi Yili 2009: Eyuboglu Egitim Kurumlari 14. Gokyuzu Gozlem Senligi (Istanbul)
- Ozel Yuzyil Isil Okullari Cocuklar İcin Astronomi Atolyesi (Istanbul)
- Yildizevi Toplantisi Notlari….
- 3 Mayis 2009 Halk Gozlemi (Ankara)
- “Kadin Astronomlar” Konusmalari — Kutluay Yuce, Nigde
- TED Istanbul Koleji DAY 2009 Gunleri
- Erzurum Ataturk Universitesi Astronomi Etkinligi (Erzurum)
- Seminer: Osmanli Astronomisine Genel Bir Bakis (Kayseri)
- Seminer: Kuyrukluyildizlar (Ankara)
- Hisar Egitim Vakfi Okullari Gokyuzu Gozlem Senligi (Istanbul)
- 20-21 Mayis ODTU AAT Gokyuzu Gunleri (Ankara)
- DAY2009 Kafkas Universitesi Dunya’dan Evren’e Bakis Fotograf Sergisi
- Kars Kafkas Universitesi Seminer — Yrd. Doc.Dr. Cahit Yesilyaprak

- Osmangazi Universitesi Astronomi Semineri (Eskisehir)
- Iskenderum Demir Celik Anadolu Lisesi Gozlem Senligi (Iskenderum)
- Goksun Lisesi DAY 2009 Etkinlikleri (Kahramanmaras)
- “Cocuklarin Cercevesinden Evren” Konulu Resim Calismasi (Canakkale)
- Istanbul Universitesi Fen Fakultesi Amator Astronomlar Kulubu Mayis Etkinligi 2009
- Kadin Astronomlar Konusmalari — Hulya Caliskan, Istanbul
- FMV Ozel Erenkoy Isik Okullari — Astronomi Etkinligi
- Bartin Universitesi DAY2009 Etkinligi (Bartin)
- Astronomi ve Doga Kampi (Istanbul)

6. JUNE
   - Erzincan Universitesi, Dunya’dan Evren’e Bakis Sergisi (Erzincan)
   - Senkaya Gozlem Senligi (Erzurum)
   - İDC Anadolu Lisesi Gozlem Senligi (Iskenderum)
   - Ilk ve Orta Ogretimde Astronomi Egitiminin Yayginlastirilmasi Sempozyumu (Denizli)
   - 7 Haziran 2009 Halk Gozlemi (Ankara)
   - Kultur 2000 Koleji Bilim Senligi (Istanbul)
   - İzzet Baysal Anadolu Lisesi Gokyuzu Senligi (Bolu)
   - Ozel Enka Okulu Gozlem Senligi (Adapazari)
   - Anadolu Universitesi Gozlem Etkinligi (Eskisehir)
   - Ozel BIlkent Erzurum Laboratuvar Lisesi, Dunya’dan Evren’e Bakis Sergisi (Erzurum)
   - Amator Astronomi Konusmalari (Istanbul)
   - Amator Astronomi Konusmalari (Istanbul)
   - Astronomi Yaz Okulu (Istanbul, Cekmekoy)
   - Amator Radyo Astronomi Calistayi (Kayseri)
7. JULY
   - II Amator Teleskop Yapimi Calistayi
   - Amator Teleskop Yapimi Calistayi, Amator Astronomi Sempozyumu
   - 5 Temmuz 2009 Halk Gozlemi (Ankara)
   - III Amator Astronomi Sempozyumu (Istanbul)
   - Doc. Dr. Ersin Gogus, Erkan Ataer ile Geceye Dogru programinda TRTFM’de.
   - Ankara ANTARES Alisveris Merkezi Etkinlikleri (Ankara)
   - TUBİTAK 12. Ulusal Gokyuzu Gozlem Senligi
   - Kadin Astronomlar Konusmalari- Feryal Ozel “Evren’in Bize Sundugu İpuclari ve Bilmeceler”
8. AUGUST
   - Ankara Universitesi 2 Agustos 2009 Halk Gozlemi coskuyla yapildi
   - 5. Astronomi Yaz Kampi (Canakkale)
   - Bir Gozlemevi Yapalim (Konya — Alibeyhuyugu)
   - 12-13-14-15-16 Agustos — DAY 2009 Ozel Etkinligi (Ankara)
   - Galileo Ogretmen Agi- Egitim Programi
   - Suleyman Demirel Universitesi Teleskop Yapim Calistayi (Isparta)
   - Galileo Ogretmen Egitim Programi, Sabanci Universitesi (Istanbul)
   - Hillside Trio Cocuklar icin Astronomi ve Dunya’dan Evrene Bakis Sergisi (Istanbul)
   - Yakacik Cocuk Esirgeme Kurumu Etkinligi (Istanbul)
   - Kinali Ada Gozlem Senligi (Istanbul)
9. SEPTEMBER
   - Uzay Robotlari, Cekmekoy Gonulluleri Dernegi (Istanbul)
   - Cekmekoy “Uzay Robotlari” Etkinligi ve Halk Gozlemi (Istanbul)
   - Cag Universitesi Ortak Konular Calistayi (Tarsus)
   - 6 Eylul 2009 Halk Gozlemi (Ankara)
   - İ.U.F.F. Amator Astronomlar Kulubu 2009-2010 Acilis Etkinligi
   - Seminer: Turkiye’de Astronomi Calismalari (Kayseri)
   - CAAM: “Space Studio II” AB Genclik Projesi Gerceklestirildi (Canakkale)
   - Ankara Fen Lisesi Etkinlikleri (Ankara)
   - COMU Teleskop Acilisi ve “Turkiye’de Astronomi’nin Gelecegi” Sempozyumu (Canakkale)
10. OCTOBER
    - CAAM: “Space Studio II” AB Genclik Projesi Gerceklestirildi (Canakkale)
    - Dunya’dan Evren’e Bakis Sergisi — ODTU Bilim Merkezi

- Umraniye Anadolu İmam Hatip Lisesi: 2023 Cacabey Uzay İstasyonu Maket ve Resim Sergisi
- 4 Ekim 2009 Halk Gozlemi (Ankara)
- TAD ve Anadolu Universitesi “Dunyadan Evrene Bakis” Sergisi Acilisi (Eskisehir)
- Ozel Doruk Kardelen Anadolu Lisesi: Astronomi ve Uzay Bilimleri Secmeli Dersi (Batman)
- Astronomi Yili ve Dunya Uzay Haftasi Kutlamalari (Nevsehir)
- Galileo ve Modern Bilim Anlayisi (Kastamonu)
- 17 Kasim 2009 — Leonid Meteor Yagmuru (Ankara)
- İstek Belde Fen Lisesi Astronomi Sergisi ve Atolye Calismalari (Istanbul)
- 2009 Astronomi Yili’nda Turkiye’deki Astronomi Faaliyetlerinin Degerlendirilmesi Sempozyumu (Istanbul)
- Resit Ascioglu Konusma — “Yerkuremizi Herkes Yerde Ararken Galileo Gokte Buldu”
- Galileo Geceleri: Balikesir Universitesi (Balikesir)
- Istanbul Univ. Fen Fak. Astronomi ve Uzay Bilimleri Bolumu Dunya’dan Evren’e Bakis Sergisi
- Galileo Geceleri: Saffet Simavi Ilkogretim Okulu (Kartal-Istanbul)
- Galileo Geceleri: Ankara Universitesi Rasathanesi (Ankara)
- Galileo Geceleri: Adana Bilim ve Sanat Merkezi (Adana)
- Galileo Gecesi — Esenler Belediyesi ve Esenler Kâzim Karabekir Ilkogretim Okulu isbirligiyle
- Galileo Geceleri (Canakkale)
- Galileo Geceleri: Istanbul Univ. Fen Fak. Amator Astronomlar Kulubu (Istanbul)
- Galileo Geceleri Ege Universitesi Gozlemevi (İzmir)
- Galileo Geceleri: Nalân Kaynak Anadolu Lisesi (Denizli)
- Galileo Geceleri: Cukurova Universitesi Astronomi Toplulugu (Adana)
- Galileo Geceleri — Galileo Besiktas’ta
- Galileo Geceleri: FMV Erenkoy Isik Okullari (Istanbul)
- Galileo Geceleri — Sabanci Universitesi
- Galileo Geceleri: İTU Gelistirme Vakfi (Istanbul)
- Galileo Gecesi: TEGV — Antalya
- ODTU Galileo Geceleri (Ankara)
- Galileo Geceleri: Ali Kuscu Astronomi Toplulugu (Istanbul)
- Galileo Geceleri: Ondokuz Mayis Universitesi & TEGV (Samsun)
- Galileo Gecesi: BIlkent (Ankara)
- Galileo Geceleri: Batikent’te Gozlem Senligi (Ankara)
- Galileo Gecesi — TEGV — Gaziantep
- Galileo Geceleri: Saint-Joseph’liler Dernegi (Istanbul)
- Ilk ve Orta Ogretimde Astronomi Egitiminin Yayginlastirilmasi Sempozyumu (Kusadasi)
- 75.Yil Teknik Lise ve Endustri Meslek Lisesi Gozlem Senligi (Aksaray)
- Seminer: “Astronomik Gozlemler Nasil Yapilir?” (Kayseri)

11. NOVEMBER
    - Adiyaman Univ. & Fevzi Cakmak İ.O.O.: Fotograf Sergisi ve Gozlem Senligi (Adiyaman)
    - Istanbul Kultur Universitesi — Bilfen Okullari Gozlem Senligi
    - Adiyaman Univ. & Fevzi Cakmak İ.O.O. Gozlem Senligi (Adiyaman)
    - Uzay Kampi Turkiye: Uzay Teknolojileri ve Gokbilim Sempozyumu (İzmir)
    - Basogretmen Gozlemevi: 10 Kasim Ataturk’u Anma Gozlemi (Kemer/Antalya)
    - Fevzi Cakmak İ.O.O. Konferans: Gunes Sistemi (Adiyaman)
    - Sakarya Bilim ve Sanat Merkezi III. Uzay Bilimi Etkinlikleri (Sakarya)
    - FMV Erenkoy Isik Anaokulu Astronomi Etkinlikleri (Istanbul)
    - Prof. Dr. Fuat Sezgin, Bilimler Tarihi Acisindan Turkiye’ye Bakis, 16 Kasim
    - Ankara Universitesi Rasathanesi: Leonids Meteor Yagmuru Etkiligi (Ankara)
    - Mustafakemalpasa Cevdet Nerse Bilim ve Sanat Merkezi: Leonid Goktasi Yagmuru İzleme Calismasi (Bursa)
    - 2009 Astronomi Yili’nda Turkiye’deki Astronomi Faaliyetlerinin Degerlendirilmesi Sempozyumu
    - ILKYAR Gezici Deneyler Projesi YİBO Gozlemleri (Sinop)
    - Adiyaman Merkez Emniyet İ.O.O. Dunya’dan Evren’e Bakis Sergisi (Adiyaman)
12. DECEMBER
    - Bogazici Univ. Bilim Kulubu Dunya’dan Evren’e Bakis Sergisi (Istanbul)
    - Ege Universitesi: Gokbilim Terimlerinde Dil Birligi Sempozyumu (İzmir)
    - Amator Astronomi Konusmalari (Istanbul)
    - Prof. Dr. Fuat Sezgin — Astronomi Tarihinde Muslumanlarin Yeri

- İkizler Meteor Yagmuru Gozlemi
- Kadin Astronomlar Konusmalari — Dr. Ayse Ulubay Siddiki
- Aksaray Univ. Astronomi Toplulugu: Rakamlarin Dili Var Mi? Evren Modeli Konferansi (Aksaray)
- Kadin Astronomlar Konusmalari- Dr. Defne Ucer
- Terakki Vakfi Ozel Sisli Terakki İ.O.O. & Istanbul Kultur Univ.: Benim Bir Teleskobum Var (Istanbul)
- Kuzdere H.M. Saygin İ.O.O.: Mars Gozlemleri (Kemer-Antalya)
- Ozel Bornova İ.O.O.: Gun Donumu Senligi (İzmir)
- Sabanci Universitesi Cuma Konusmalari — “Dunden Bugune Galileo’nun Teleskobu” — Harun Kucuk
- 2009 Astronomi Yili Kapanis Partisi (Ankara)
- Sabanci Universitesi Halk Muzigi Toplulugu — Yildiz Turkuleri Gecesi
- 31 Aralik 2009 — Parcali Ay Tutulmasi ve Yilbasi Partisi (Ankara)

## Advertising of IYA2009

The organisational efforts for IYA2009 started early in 2008. Turkish Astronomical Society (TAD) organised several meetings with universities, schools, museums, science centres, astronomy clubs and potential sponsors. This way a number of networks were formed. TAD supplied the requesting parties with posters, IYA2009 booklets, sky maps, stellar almanacs etc. to give a jumpstart to activities. The IYA2009 brochure was translated and distributed as well. TAD printed this material as large flags and hung them in strategic locations in Istanbul.

Organisers: Turkish Astronomical Society.

Estimated number of people who attended or were reached by this activity: The published material was distributed to about 70 locations such as universities, schools, nongovernmental organizations, museums etc. so probably about 50,000 people were reached by them.

Budget: 1500€

## From Earth to the Universe exhibitions

TAD has signed protocols with universities, schools, shopping malls etc for From Earth to the Universe Exhibitions. FETTU was exhibited in about 18 distinct places in nine different cities. Besides the large scale exhibitions FETTU photographs were shared with public through slideshows and small scale exhibitions.

Organisers: Rahmi M. Koc Museum, Kirsehir Governership, Sabanci University, Erciyes University, Istanbul Teknik University, Erzurum Ataturk University, Regnum Astrum Towers, Education Volunteers of Turkey Foundation, Sisli Science Center, Adiyaman University, Adiyaman Merkez Emniyet Ilkogretim Okulu, Middle East Technical University Science-Society Center- Museum, ISTEK Ozel Belde Fen Lisesi, Ankara Fen Lisesi, Anadolu University, Cekmekoy Gonulluleri Dernegi, Balikesir Valiligi, Kars Kafkas University.







Estimated number of people who attended or were reached by this activity: 50,000.

Budget: A medium size exhibition with 50 photos (size 70x100cm) costs about 850€.

## 100 Hours of Astronomy

100 Hours of Astronomy was celebrated with a wide participation in Turkey. The events took place in 18 different cities and about 38 distinct locations. The public had a chance to attend popular astronomy talks and observe the Moon and Saturn with a telescope. The events took place in schools, universities, and observatories.

Organisers: various organisers.





Estimated number of people who attended or were reached by this activity: 3000.

## Galilean Nights

Galilean Nights were also celebrated with a wide participation in Turkey. During Galilean Nights more events were planned on streets and public places. Events took place in 11 different cities and over 28 distinct locations. During Galilean Nights Jupiter's moons and the Moon has been observed with telescopes

Organisers: various organisers.

Website: http://www.iucaa.ernet.in/~iya09ind/mft/









Estimated number of people who attended or were reached by this activity: 2000.

Budget: 5000€

## Amateur Telescope Making Workshop

The ATM Workshop was organised by IKU, in conjunction with TAD, as a part of IYA2009 activities in Turkey. TAD acted as a platform of networking for amateur and professional astronomers with priority for education and teacher training. The workshop was held on 4-9 July 2009, at Kilyos — Istanbul. Most of the 100 participants were teachers in primary and secondary schools from all over Turkey. Expert amateur telescope makers from Turkey and the USA guided participants to grind 15-cm mirrors and to construct mounts, achieving a 100% completion rate. The participants attended an Amateur Astronomy Symposium on 10 July and the final test of the telescopes was made by observations that night. On 11 July thousands of people gathered for the star party “STARFEST09” to look through the ATM telescopes. The teachers and amateur astronomers took their telescopes to their schools or homes to use in teaching and observing.

Organisers: Istanbul Kultur University.

Website: http://www.iku.edu.tr/aas2009

Estimated number of people who attended or were reached by this activity: 100 participants of workshop, about 200 participants to the symposium.

Budget: 38 000€

## Astronomy in Science Education — A workshop series for Teachers

Astronomy in Science Education was a nine-month long teacher training programme which took place between October 2008 and June 2009. 40 science teachers from Istanbul participated in the programme and met with the organisers on a Saturday every month. Every month several hands-on astronomy applications (modules) were introduced to the teachers. Total of 19 modules were introduced which consisted of simple, easy to make, cheap applications / games / experiments. During the monthly workshops teachers were given the materials and necessary information to build / try the modules themselves. Then they were asked to share these modules to their students for the following month. Participants were asked to share their experiences through a forum in the website of the programme and also in the beginning of the next meeting a month later. Roughly a total of about 2000 students were exposed to the suggested modules. A handbook including all the modules was prepared and shared through the website. The outcome of this organisation was shared during the Galileo Teacher Training Programme as well.

Organisers: Sabanci University (supported by Scientific and Technological Research Council of Turkey (TUBITAK)).

Website: www.astroed.net





Estimated number of people who attended or were reached by this activity: 40 teachers attended the workshop. About 2000 students were exposed to the outcome of the project.

Budget: 11,000€

## Galileo Teacher Training Program

Galileo Teacher Training Programme started with a pilot programme in the summer of 2008. 15 teachers were trained during this pilot. There were two more programmes organised in the summer of 2009. A three day programme was organised in Sabanci University with 70 participants in August 2009. This consisted of 11 lectures, night sky observations and a workshop on hands-on astronomy applications. During observations participants were taught to use a telescope. A compact version of this programme was also included in the Nesin Foundation Mathematics Village with about 25 participants in August. A general follow up survey was collected recently from all the participants. Their activities beyond GTTP are going to be evaluated and some participants will be given Galileo Teacher Certificates.

Organisers: Turkish Astronomical Society, Ege University, Sabanci University, Nesin Foundation.

Website: http://myweb.sabanciuniv.edu/galileo







Estimated number of people who attended or were reached by this activity: 110 teachers/educators attended the programme so far.

Budget: 10 000€

### IYA2009 National Website

IYA2009 website was launched in 2008 and renewed in February 2009. The website got over 82,000 unique visitors (different IP numbers) since February 2009. People sent information on their IYA2009 related activities and all these were posted on the event calendar. Total of 260 events were reported in the website during 2009. An activity was announced almost every day of the year. The event calendar can be seen on the right. Besides the very active event calendar, website includes extensive information on the Cornerstone special projects adapted in Turkey. All issues of the e-bulletin are reachable through the website. There are also various astronomy resources and IYA2009 related news.

Organisers: Turkish Astronomical Society.

Website: www.astronomi2009.org

Estimated number of people who attended or were reached by this activity: 82,000.

Budget: About 3200€ were paid to two university students to build and update the website through 2009.

### IYA2009 e-bulletin

Turkish Astronomical Society started to distribute and IYA2009 e-bulletins in August 2008. The bulletin included astronomy and IYA2009 news, good practices of IYA2009, night sky guides. Bulletin reached about 1100 people every month by e-mail and it can be reached through the IYA2009 website. The bulletin is also going to be a part of Beyond IYA2009 programme as well.

Organisers: Turkish Astronomical Society.

Website: http://www.tad.org.tr/astronomi2009/?page_id=399

Estimated number of people who attended or were reached by this activity: 1100.

### Optronik Astrophotography Competition

The competition was organised by Optronik Company. Optronik contributed to IYA2009 in a number of ways. The company is a distributor of many telescope brands in Turkey and they sold small telescopes without profit through 2009. Many schools, universities, educational units and individuals bought these telescopes and contributed to IYA2009 with their own activities. Optronik organised a astrophotography competition for which 51 individuals attended with 197 photographs. A jury has evaluated all the applications and the results of the competition will be announced soon.

Organisers: Optronik A.S.

Website: http://www.optronikastro.com/

Estimated number of people who attended or were reached by this activity: 51 participants sent 197 photographs.

Budget: First three places are going to receive the following: First place / Meade LX90 (20 cm), Second place / Meade ETX 125 (12.5cm), Third place Meade ETX 90 (9 cm).

## Lessons Learned

Use of the web and sharing information with local sponsors through the web worked very well. We wouldn't recommend spending so much effort for financial sponsors with little return.

## Legacy

We believe networks established during IYA2009 will last also in the future. Galileo Teacher Training Programme follow-ups and evaluations is being done at the moment. Turkish Astronomical Society is hoping to collaborate with the Ministry of Education to integrate astronomy into present middle and high school curriculum more efficiently by systematically training teachers, to support science teaching. National IYA2009 website will be renewed for Beyond IYA2009 activities. The e-bulletin which is reaching about 1100 people, mostly teachers and educators. It is aimed to serve as a platform to keep in touch with people who helped IYA2009 be a success in Turkey. Turkish Astronomical Society is planning to supply as many resources possible to local organisers, teachers and public for events beyond IYA2009.

## Comments

It was a great experience which we enjoyed and learned from, together with the colleagues and the wider publics. The legacy will continue to have an impact.



# Uganda

## National Node

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Mbarara University of Science and Technology
simonanguma@yahoo.com
http://www.must.ac.ug/

Official Languages

- English
- Swahili
-

Number of organising committee members: N/A

-

Population: 32 369 558

Number of people reached by IYA2009: N/A

Budget: N/A

## Main Activities

### IYA2009 Workshop for Secondaryschool Students From Schools In Southwestern Uganda

July 2009

The workshop was organised by the Physics department of Mbarara University of Science and Technology (MUST) at the Pharmacology Lecture Theatre on 11 July 2009.

The main theme of the workshop was: “Empowering the youth in Astronomy”. This was based on the wider theme of the International Year of astronomy: “The Universe Yours to Discover”. The workshop targeted mainly secondary school students and their teachers and thus drew participants from a total of 25 schools from three districts located in southwestern Uganda. The workshop drew a total of 55 participants composed of students, teachers, lecturers and general public.

The workshop was organised to achieve the following objectives:

- Equip secondary school students and their teachers with some basic knowledge of astronomy.
- Increase scientific awareness about the importance of astronomy to society.
- Motivate and encourage students into science and mathematics.



Astronomy workshop for secondary School students from schools in Southwestern Uganda



# Ukraine

## National Node

Vavilova Iryna
Ukrainian Astronomical Association (UAA)
vavilova@nas.gov.ua
www.astronomy2009.com.ua / http://www.mao.kiev.ua/astronomy2009

Official Languages
- Ukranian

Number of organising committee members: 13
- Volunteers: 13
- Paid: 0

Population: 45 888 000

Number of people reached by IYA2009: 5 000 000+

Budget: 50 000€

Sources:
- Ukrainian Astronomical Association
- European Astronomical Society
- Astronomical institutions of Ukraine

## Main Activities

### List of Activities
- Opening and Closing Ceremonies at least in 25 cities;
- 100HA and Galileo Nights;
- Special lessons for pupils in 20,000 schools of Ukraine;
- Exhibitions and excursions in astronomical observatories, museums, universities, planetariums etc.;
- Special conferences and trainings in atronomy for teachers and scientists;
- Online-astronomy observations and lessons for schools and institutions;
- Special stamps and coins;
- Universe Awareness;
- Special issues and programmes in journals, newspapers, TV stations, radio, etc.

### Opening Ceremony

Opening ceremonies have been hold in more than 25 cities of Ukraine, including cities where astronomical observatories, planetariums, and amateours astroclubs are located. The programme of these events was concern with the lessons about history and contemporary astronomy, art and photo presentations, excursions to the museums, special meetings of the scientific council of institutions etc. Among the interesting events: “Ordain into Astronomers” in the Main Astronomical Observatory of the NAS of Ukraine; solemn procedure of the “Meridian Sign Opening” in the Kyiv and Mykolaiv astronomical observatories




Organisers: UAA, astronomical institutions, planetariums, astroclubs

Website: http://www.mao.kiev.ua/astronomy2009

Estimated number of people reached: 5000

Bduget:4000

## 100 Hours of Astronomy, Galileo Nights, Crimean Nights

In frame of these projects and other projects dedicated to the observations of the night sky for people about 80,000 persons take part in these events, which were in Crimea, Kharkiv, Kyiv, L'viv, Mykolaiv, Odesa, Dnipropetrovsk, Kherson, Uzhgorod, Donetsk, Chernigiv and others cities. These projects were so popular that UAA and amateours astroclubs decided to support this initiative in the future in forms of the "sidewalk (footpath) astronomy".



Organisers: UAA, astronomical institutions, planetariums, astroclubs

Website: http://www.mao.kiev.ua/astronomy2009 / http://www.astroclub.kiev.ua

Estimated number of people reached: 80 000

## Special events dedicated to IYA2009

The Ministry for Education and Sciences of Ukraine has initiated the special lessons dedicated to IYA-2009 in all the schools of Ukraine (about 20,000). So more than 5 millions pupils of different ages were involved in this activity. The form of these lessons included the lections about the life of the famous astronomers (Galileo, Copernicus, Brahe, Kepler, Struve) and Ukrainian astronomy as well as astronomical games for the youngest pupils (for example, “I am Stargazer”). The All-Ukrainian Festival of Science (May, 2009) provided by the National Academy of Sciences of Ukraine was accentuated also on IYA2009. All Planetariums organised special exhibitions and events for public.

The National Bank of Ukraine issued the exclusive coins to the IYA-2009. One of them (denomination 100 hryven) is made from 1 kg of silver. Its principal elements: portrait of Galileo; miniature of ancient astronomer, two large telescopes of Ukraine (RT-70 and 2,6 m); scheme of the Solar system, where the Earth is presented by topaz (0,2 carats); celestial bodies, and armillary sphere. The second coin (denomination 5 hrn) is made from German silver, 16,5 g. Its principal elements: Portrait by Yu. Drohobicz; Urania – the muse of Astronomy; celestial bodies, stellar map, attributes of astronomer.

The “Stamp of Ukraine” issued the special stamps dedicated to the IYA-2009(“Europe stamps” project). Principal elements: Portrait of Galileo, Galileoscope, Fragment of his “De Motu” manuscript, Stellar map and Saturn with rings, Repsold’ Meridian circle, and IYA-logo

Organisers: Ministry for Education and Science of Ukraine, National Academy of Sciences of Ukraine, UAA, Planetariums, National Bank of Ukraine, “Stamp of Ukraine”.

Website: http://www.mao.kiev.ua/astronomy2009

Estimated number of people reached: 5 000 000

## IAU-UNESCO Project “Astronomy and World Heritage”

The part of this IAU-UNESCO project is to create a public database of important astronomy sites in all fields from Earlier prehistory to the Space astronomy. Owing to this initiative observatories in Mykolaiv (1821), Kyiv (1845), and Odesa (1871) were suggested as the objects of “Astronomy from the Renaissance to the mid-twentieth century” as well as the Crimean Astrophysical Observatory (1945) as of “Contemporary Astronomy” ( nomination for inscribing of these four observatories in the list of UNESCO World Heritage properties has #5267). Ukrainian scientists have reported also at the International conference “Astronomy and World Heritage: across time and continents” (19 - 24 August, Kazan, Russia). This initiative was discussed also during the International Workshop NAO2010 in Mykolaiv, Ukraine (17-20 May, 2010)

Organisers: Ukrainian Astronomical Association, Mykolaiv Astronomical Observatory, National Space Agency

Website: http://www.mao.kiev.ua/astronomy2009

Estimated number of people reached: 150

Budget: 5000€

## IYA2009 Cornertsone Project: Universe Awareness

In frame of this project many interesting events were provided.We would like to point your attention on two of them. First of all, the All-Ukrainian Children’s Drawing Contest, which was organised by the Kyiv Planetarium in Feb-May 2009? During the final presentation of results the winners in 3 age’s categories were selected. But what is wonderful that most of children’s drawings reflected their imagination about the Solar system, blackholes, galaxies and structure of the Universe. Another important event is the issue of the “Children Space” Encyclopedia prepared by the Publishing House “A-BA-BA-GA-LA-MA-GA” (Editor in Chief I. Malkovich).




Organisers: Kyiv Planetarium, publishing houses

Website: http://www.mao.kiev.ua/astronomy2009 / http://www.planet.org.ua/

Estimated number of people reached: 50 000

## IYA2009 Cornertsone Project: Galileo Teacher Training Program

Especially for teachers of astronomy the professional astronomers have organised special seminars, lections, and excursions on the observatories with the aim to innovate training programme and present new discoveries in astronomy. Several text books for teachers in schools and students of pedagogical unversities were published. As the final accord of this project the All-Ukrainian Pedagogical Astronomical Festival was organised in the Grinchenko Pedagogical University in Kyiv (2-3 March, 2010) where teachers of astronomy have the opportunity to change by own pedagogical experience and methodology.

Ukraine is the country where astronomy subject is included in the educational standart for schools . By this reason the UAA and professional astronomers try to keep under control the situation in this field of knowledge. For growing the interest to astronomy among the sholars and recommending new training programme for teachers, the The Ukrainian Astronomical Association under support of the European Astronomical Society and the Kyiv City State Administration started the unique project “Astronomy Lessons with Online-Observations”. These observations are provided with Kyiv-Internet-Telescope mounted at the Main Astronomical Observatory of the NAS of Ukraine with participation of the Astronomical Observatory of the Taras Schevchenko National University of Kyiv. The first three lessons were devoted to the Ukrainian Native Astronomy (Constellations) as well as observations of Moon surface details (Moon Nomenclature) and Comets (Visitors during the autumn, 2009). Because of this project was successful for advertizing astronomy,UAA decided to conduct it in the future perspective for all schools of Ukraine with the good Internet-facilities.



Organisers: UAA, National Academy of Sciences of Ukraine, Ministry for Education of Sciences of Ukraine, European Astronomical Society, pedagogical universities, schools, astronomical observatories

Website: http://www.mao.kiev.ua/astronomy2009

Estimated number of people reached: 10 000

## IYA2009 and Society

IYA2009 activity has a well public outreach. Besides the 100HA, Galileo Nights, and Crimean Nights projects which had a wide resonanse, the Ukrainian astronomers have published many papers for public as well as were the guests of different TV- and radio program. For example , among the guests of only radioprogramme tittled “Window into the Universe” of the Kyiv TVRadio State Company, which helds twice per week , were astronomers, cosmonauts, physicists, and astrobiologists, but such programme are in all the regions of Ukraine.



Three international conferences in frame of the IYA2009 were organised in Ukraine: “Kirchhoff-150” dedicated to G.R. Kirchhoff, and discovery of the spectral analysis in 1859 (CrAO, Crimea, June 2009); “Astrophysics and Cosmology after Gamow” dedicated to G. A. Gamow, and problems of Dark matter &Dark Energy (Odesa, Aug 2009); VIII Meeting of the Ukrainian Astronomical Association (Kyiv, June 2009) .

More than 1500 astronomers, about 220 students and post-graduated students, a few thousands of amateurs are involved in the astronomical research and advertising astronomy. All this armada was engaged in the IYA2009 activity.

Website: http://www.mao.kiev.ua/astronomy2009

## Legacy

The Ukrainian Astronomical Association at their meeting in 2009 decided to continue the following projects: Galileo Teacher Training Program, 100 Hours of Astronomy, Astronomy online Lessons-Observations for schools, Astronomy and World Heritage.



# United Arab Emirates

## National Node

Hamid M.K.Al-Naimiy
Professor of Astrophysics and Dean of College of Sciences
alnaimiy1@gmail.com
http://iya2009.uaeu.ac.ae/

Official Languages
- Arabic

Number of organising committee members: 1-5
- Volunteers: All
- Paid: 0

Population: 6 888 888

Number of people reached by IYA2009: More than 5000.

Budget: None

## General Overview of IYA2009 activities in the United Arab Emirates

The country of UAE Many activities have been accomplished in UAE during IYA2009.The participants into these activities were: university professors, astronomers, space scientists, primary and secondary school teachers, university faculty members and instructors, amateur astronomers, university and school students and publics.

These activities accomplished by the following organisations:
- Physics Department/College of Sciences/UAE University
- Physics Department/College of Science/University of Sharjah
- Physics Department / College of Science/American University of Sharjah
- Emirates Astronomy Society
- Dubai Astronomy Group

## Main Activities

### List of Activities

Many astronomical activities held at UAEU during the year 2009, organised by UAEU ,University of Sharjah, American University of Sharjah and the Emirates Astronomical Society, these activities are:-

- Astronomy Exhibitions (many times during the year 2009)
- Astronomical observation activities (many times during the year 2009)
- Public Astronomy Nights (many times during the year 2009)
- Stargazing (many times during the year 2009)
- Astronomy & Physics teacher workshops (there was at least one in a month during 2009)
- Astronomy Days
- The 9th Gulf Astronomy Colloquium
- Astronomy lectures and seminars (many times during the year 2009)
- The ninth Arab Astronomy and Space Sciences conference

## Astronomy Days



Department of Physics at Sharjah University organised two days of astronomy activities, by hosting as a guest speakers, the most famous astronauts Professor Jeffery Alan Hoffman (a graduate of Harvard University, astronaut space agency NASA and the head of aeronautical engineering at the Institute of Space) and MIT Professor Robert Williams, the world of space and astronomy elected President of the International Astronomical Union for the year 2009 graduate of the University of Wisconsin. This event which was first of its kind in the Middle East has take place in the period of 23-24 March 2009. The event hosted by UAEU/Physics department on 25 March 2009.

Organisers: University of Sharjah and UAEU.

Website:
http://www.sharjah.ac.ae/English/Academics/Colleges/Sciences/dp/PhysicsDivision/Pages/ASRNOMY.aspx
http://faculty.uaeu.ac.ae/ifernini/ActivitiesIYA2009.htm

Estimated number of people who attended or were reached by this activity: Around 2500.

Budget: None.

## The 9th Gulf Astronomy Colloquium

The Physics Department at UAEU hosted and organised the 9th Gulf Astronomy Colloquium. The meeting held at the University Social Club (Multaqa, near the Islamic Institute) in Al-Ain during the period 28-29 March 2009.




The objectives of the colloquium are to enhance and develop collaborative research projects and to promote astronomy in the Gulf region at all levels, professionals and amateurs. The main theme of the colloquium was the

International Year of Astronomy 2009. Several sessions will be dedicated to the activities of IYA2009 in the Gulf region.

Moreover, in collaboration with the Ministry of Education, the colloquium also include an “Astronomy Teachers’ Workshop” for science teachers all over the United Arab Emirates. More than 100 astronomers, physicists, teachers and amateur astronomers attended the colloquium.

Organiser: UAE University.

Website:
http://www.cos.uaeu.ac.ae/news_events/cos_physics_astronomy_9th.asp
http://faculty.uaeu.ac.ae/ifernini/IYA2009UAE/Program9thGulfColloquium.pdf

Estimated number of people who attended or were reached by this activity: 100 astronomers.

## 100 Astronomy Hours

Organisers: Mr.Nazar Salam / Emirates Astronomy Society.

## Physics & Astronomy Second festival



Organiser: Sharjah University.

Website:
http://www.sharjah.ac.ae/English/Academics/Colleges/Sciences/dp/PhysicsDivision/Activities/Pages/CommunityServices.aspx
http://www.sharjah.ac.ae/English/Academics/Colleges/Sciences/dp/PhysicsDivision/Activities/Pages/Physicsfestival.aspx

Estimated number of people who attended or were reached by this activity: 2000 people for two days.

## The ninth Arab Astronomy and Space Sciences Conference

The Arab Union for Astronomy and Space Sciences Organised the 9th Arab Astronomy and Space Sciences Conference during the period 15-17 November 2009.The conference had more than 15 scientific sessions includes different field of astronomy and Space sciences including teaching of astronomy, besides the general assembly of the union.



Organiser: The Arab Union for Astronomy and Space Sciences.

Estimated number of people who attended or were reached by this activity: Around 200 astronomers and scientists.

## Legacy

We have made a plan to continue education and public outreach activities in astronomy.

## Comments

IYA2009 was an excellent experience and was very important to develop astronomy in developing countries.



# United Kingdom

## National Node

Ian Robson (Science and Technology Facilities Council)

www.astronomy2009.co.uk

Official Languages
- English

Number of organising committee members: 1
- Volunteers: 0
- Paid: 1

Population: 62 041 708

Number of people reached by IYA2009: Total audience estimated at over 1 million (300 000 at local star-party style events, 300 000 at IYA2009 planetarium shows, 400 000 for FETTU).

Budget: 1 175 000€

Sources:
- Science and Technology Facilities Council (STFC)
- Royal Astronomical Society (RAS)
- Institute of Physics (IOP)
- Scottish Government

## General Overview of IYA2009 activities in the United Kingdom

As we take stock of all that had been achieved — so much more than is listed above — it was clear that we end the year with several important legacies for UK astronomy public engagement.

Across the UK new networks have been established between the amateur societies, between the amateur and professional astronomy communities, professional science communicators, and the public. These networks need to be maintained and expanded in years to come, to ensure a lasting and valuable legacy of IYA2009.

A significant amount of momentum has been generated behind the programme of public engagement events: 1600 in total, the vast majority of which would not have happened without the impetus of IYA2009. This momentum needs to be maintained, with organisations such as the RAS, STFC and IOP continuing to make small grants available to astronomers who want to communicate their passion for the subject to the public.

Centralised access to information, via the astronomy2009.co.uk website, database of events, searchable map of events, Twitter feed and newsletters, are valuable assets that needs to be sustained for the long term. For the first time ever, IYA2009 meant that anyone in the UK could easily find out what local events were happening in their area.

Also, new skills were developed amongst the people who ran IYA2009, from the national coordinators to the local events organisers, which place us on a surer footing for years to come when planning new national and regional programmes of events. Furthermore, feedback informs us that event organisers were spurred on by the IYA2009 “banner” to attempt more ambitious goals than would otherwise have been undertaken, and in all cases these provided spectacularly successful, giving them greater confidence for future events and also raising the standard of what they should be aiming for.

And finally, and most importantly, through the efforts of IYA2009 people in the UK are more aware of astronomy, through the increased media coverage and opportunities to take part in the thousands of days of events, which will hopefully lead to an increased recognition of the importance of astronomy — and science in general — in society. The final emphasis must return to focus on the huge number of people who made IYA2009 happen; the thousands of amateur and hundreds of professional astronomers who welcomed new members to their societies and universities, and brought the Universe to the public on the streets of our towns, cities and park; to the science centres, planetariums and observatories who welcomed hundreds of thousands of people through their doors to take part in their astronomy programmes, and to the estimated 1 million+ members of the public who took part in our activities and supported all our efforts through their interest and enthusiasm.

## Main Activities

### Telescopes for Schools

To celebrate IYA2009, the Society for Popular Astronomy (SPA) arranged the distribution of 1000 telescopes to give to secondary schools to help inspire young people (aged between 11 and 14) with the wonders of the night sky. The funding for the telescopes was provided by the Science and Technology Facilities Council (STFC). To help teachers take full advantage of the telescope, the SPA provided a DVD (funded by the Royal Astronomical Society) showing how to set up the telescope, use a star chart, interviews, and much more. One of the aims of this project was to link each school with a local astronomical society or university department to form links and to have on-hand advice and assistance on using the telescopes. This has been a tremendously successful venture with the formation of 135 new astronomical societies in schools and a very high appreciation by the schools in the evaluation.

About the telescope: the telescope is a 70 mm refractor with a focal length of 700 mm, and is produced by Phenix Optical Group of China. It is mounted on an AZ2 type altazimuth mount, and has a small finder telescope which you use to locate objects prior to observing them through the main instrument. It comes with two main eyepieces, giving magnifications of 35 and 60, with a third very high power eyepiece which is best suited to bright objects such as the Moon. There is a “star diagonal”, which makes it easier to observe objects high in the sky without having to crouch down.

Organisers: Society for Popular Astronomy.

Website: http://www.popastro.com/moonwatch/schools_telescope/index.php

Estimated number of people who attended or were reached by this activity: 1000 secondary schools, 2500 uses during IYA2009, 11,000 pupils used it during IYA2009, 135 new UK school astronomy clubs .

Budget: 75,800€

### From Earth to the Universe UK

The UK took the opportunity to use the IYA2009 Cornerstone project “From Earth to the Universe” (FETTU) to produce a spectacular travelling outdoor display of some of the very best astronomical images obtained from the space- and ground-based telescopes. This was sponsored by the Science Photo Library and was the prototype produced in 2008 for the ASTRONET conference at Liverpool. The display consists of 25 panels, some 3m x 1.5 metres in size and made of aluminium, onto which are laminated up to three images per pane and protected by a weatherproof coating. These huge displays boards were, wherever possible, mounted in places that would be appreciated by the widest cross-section of the general public in non-traditional venues for a month at a time. The image exhibit was installed at the following outdoors venues throughout the UK during 2009:

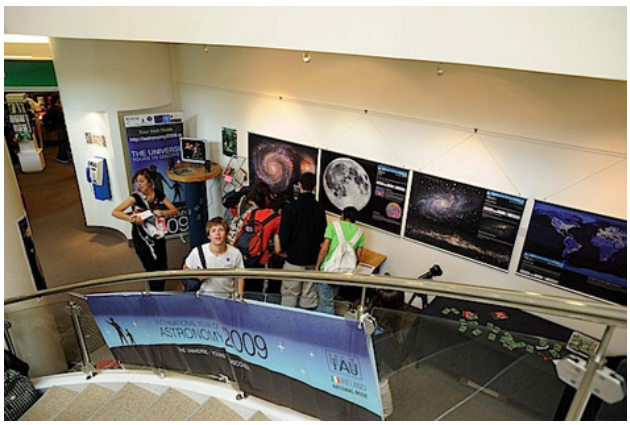
- 04 January — 16 January, Dublin as part of the BT Young Engineers Festival;
- 19 February — 23 March, Glasgow Science Centre, Glasgow;
- 24 March — 27 April, St Andrew Square, Edinburgh, as part of the Edinburgh International Science Festival;
- 04 May — 06 June, Eureka Children’s Museum, Halifax;
- 13 June — 17 July, Belfast City Hall, as part of the Belfast Carnival;
- 22 July — 10 August, Techniquest, Cardiff;
- 29 August — 26 September, Oxford University Parks, Oxford;

- 13 October — 15 November, Manchester Science Festival;
- 11 December 2009 — 04 January 2010, Stonehenge.

Organisers: IYA2009 UK.

Website: http://astronomy2009.co.uk/index.php/from-earth-projectsmenu-47









Estimated number of people who attended or were reached by this activity: 300,000.

Budget: 466,740€

## “We Are Astronomers” digital planetarium show

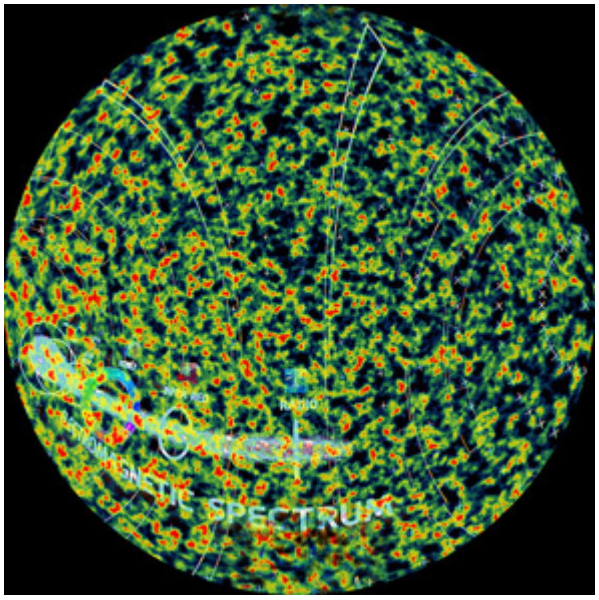
Do you know what an astronomer does? Today’s astronomer is not the lone observer of past centuries. “We Are Astronomers” reveals the global collaboration, technology and dedication required to answer the unresolved questions of the Universe. It takes us on a trip through the electromagnetic spectrum showing how astronomers observe the Universe from the ground and space, tells us what we understand about planets, stars and galaxies and shows how the latest experiments at CERN are looking at the earliest times of creation.

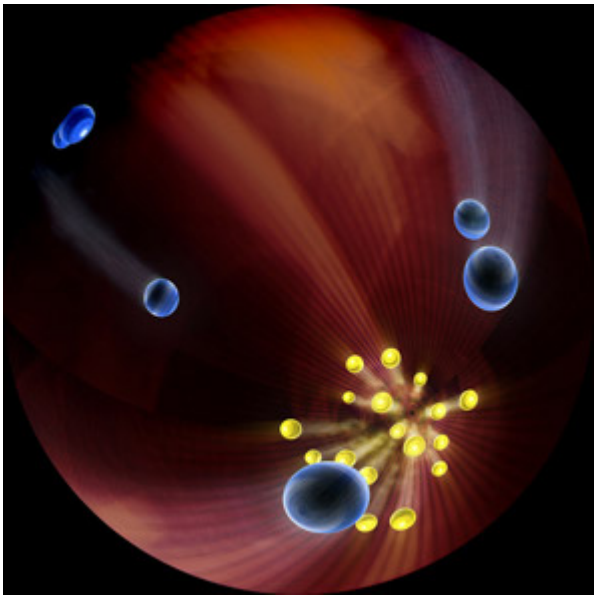
“We Are Astronomers” is narrated by David Tennant and is an exciting new 360° Fulldome digital planetarium show produced by NSC Creative with input from UK astronomers. The show appeals to all ages and has had rave reviews and huge audiences wherever it has been shown.

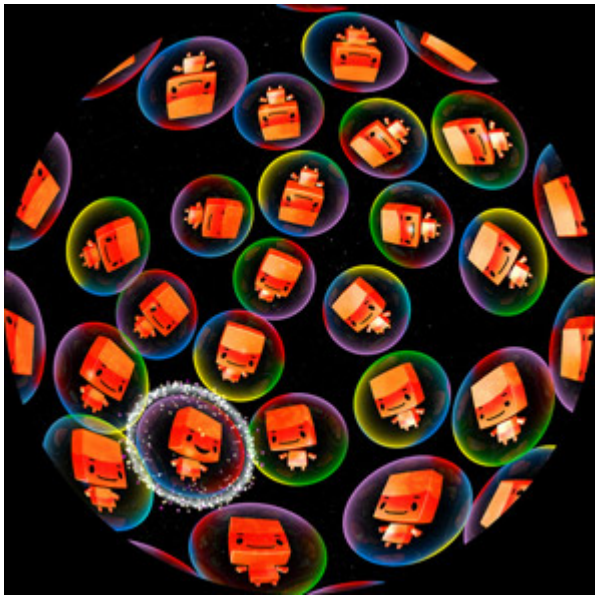
The project is collaboration between Armagh Planetarium, Centre For Life, INTECH Science Centre & Planetarium, National Space Centre, Our Dynamic Earth, Royal Observatory Greenwich, Spaceport with funding from the Science and Technology Facilities Council.

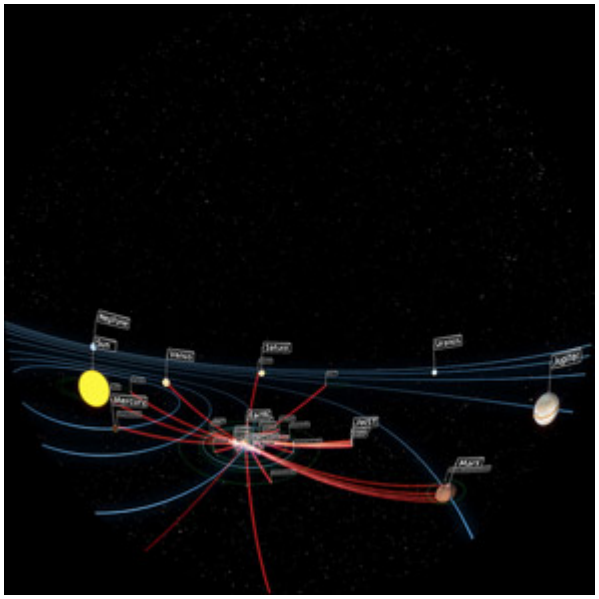
Organisers: NSC Creative and Above Consortium.

Website: http://weareastronomers.com/









Estimated number of people who attended or were reached by this activity: 500,000.

Budget: 227,000€

## Spring and Autumn Moonwatches

Spring Moonwatch 28 March — 5 April 2009, Autumn MoonWatch 24 October — 1 November 2009.

Schools' MoonWatch 19 — 29 November:
This project is based on the Global Cornerstone of 100 Hours of Astronomy and it was recognised very early on that the chance of obtaining clear skies for public viewing during 100 hours is not high in the UK weather and we also believed that running two such events was highly beneficial, not least because Jupiter was not available for observation in the Spring, and IYA2009 was partly to celebrate Galileo's early observations including the Jovian satellites. The UK was one of the instigators of 100 Hours and the dates for the spring and autumn were selected to have the Moon between crescent and first quarter to show the craters and mountains, for the Moon to be high in the sky, when it would get dark at a reasonable time and finally the observability of Saturn and Jupiter. The Schools Moonwatch was chosen for a week when it gets dark very early, allowing pupils to observe the Moon right after school.

The amateur astronomers were the main organisers and participants of the Moonwatch weeks supported by professional astronomers, science centres, planetaria, observatories etc. Open evenings, telescope viewing, public lectures, sidewalk astronomy, astronomy cafes and a host of other activities (some quite bizarre) were organised as part of the Moonwatch Weeks.

As part of their IYA2009 public engagement grant scheme, the Royal Astronomical Society weighted those projects that ran during the Moonwatches more highly than non-Moonwatch events, thus encouraging the astronomy community to make maximum impact.

Simply as a result of the extra time allowed for planning, the Autumn Moonwatch had around 80% more events than Spring Moonwatch (332 events in Autumn as opposed to 184 in Spring), but both events were hugely successful in focussing the public's attention on IYA2009 events. Both events were supported by flyers and handouts produced by the UK IYA2009 centre and distributed via the web.

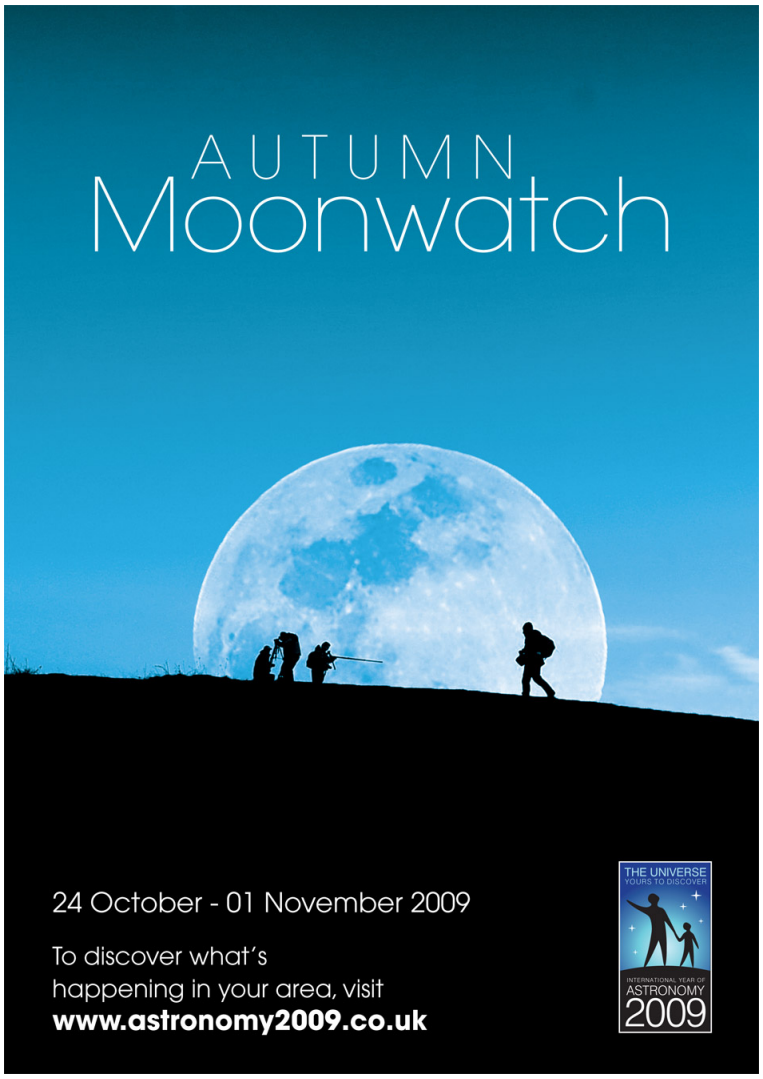
One specific example of a nationally integrated Autumn Moonwatch event was the "Scottish Solar System" project, in which astronomers at the University of Glasgow and Glasgow Science Centre teamed up to run an exciting programme of public astronomy events throughout Scotland. One of the highlights was creating a scale model of the Solar System in Scotland. With Glasgow Science Centre representing the Sun, astronomy societies and towns were identified with the "planets", "moons" and "asteroids" all across the country — from Shetland to Stranraer. Events were held at these locations throughout the year, but especially during Autumn Moonwatch Week

The presence of the Moonwatches allowed a concerted focus on public events at two points in the year, and was very successful in gaining the support of the astronomy community. If we had not planned these two focus weeks it is likely that the number of public events would have been approx. two thirds the level it was for the whole year.

Organisers: IYA2009 UK and the SPA on behalf of the amateur societies.

Website: http://astronomy2009.co.uk/index.php/moonwatch-projectsmenu-53

Estimated number of people who attended or were reached by this activity: 70,000 estimated — note this is still an estimate, but based on online survey: 43 societies have replied (out of ~120, so one third) and their public attendance figures are around 70,000, so we can extrapolate up to 3 x 70,000 = ~200,000 public attending star party style events. One third of all public events occurred in Moonwatches so say — 70,000 attendances.




Budget: In-kind support and grants from RAS.

## Twitter Meteorwatch

On the evenings of 11 and 12 August 2009 a truly phenomenal event took place with thousands of Twitter users joining in with a worldwide Meteorwatch.

The event was intended to be fun and a way for people to join in and experience astronomy first- hand by watching the Perseid meteor shower and other objects visible during the evening. People posted comments about what they were seeing and hoping to see, questions and answers, links to more information, pictures and video

clips. The huge variety of contributions by so many people was what made Meteorwatch successful beyond our wildest expectations.

Meteorwatch started at 9:30 pm BST in the UK with @NewburyAS tweeting from the “Astrobunker”. In the finest English tradition the Meteorwatch “mission control” was a garden shed in rural Berkshire. NewburyAS joined forces with @astronomy2009uk in Scotland, @philipstobbart in Northern England, @KSAstro in the US and many others worldwide who actively contributed to the event.

Because of all the hard work put in beforehand #Meteorwatch already had an impressive number of people following us and waiting for it to start. Tweets began to pour in and many images and snippets of information were posted within a very short time. After the first hour, the volume of people following the event was off the scale. The Newbury Astronomical Society blog received over 3000 hits in the first hour, and images posted to twitpic were being visited in droves.

People all round the world were prompted to go outside and look at the sky, perhaps with friends, family or just on their own, and to see meteors for the first time. In a sense what we were doing was virtual sidewalk astronomy. There were thousands of messages posted by people of all ages and from all walks of life. They tweeted questions, described their own experiences and told us how much they were enjoying the event. There were many enquiries about taking up astronomy as a hobby — some people were just inquisitive, some were frustrated by the weather, but many were just delighted at seeing a meteor for the first time. The overall impression was of a huge good natured party, with entire families or groups of friends crowding around a computer and then rushing outside to see what they could see.

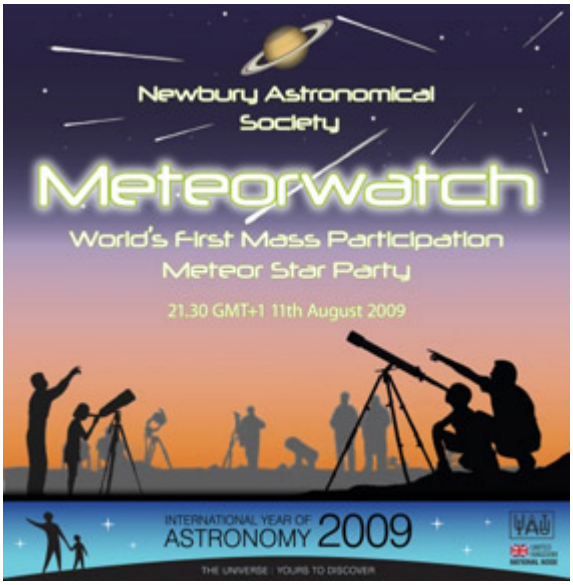
The event attracted a great deal of interest from the media and at one stage there seemed to be almost as many reporters and cameramen as there were astronomers imaging and tweeting at the Astrobunker. By the end of the first two days Meteorwatch had been reported on by BBC National and local Radio and TV, ITN News, Sky, Channel 4 and most of the major newspapers. There were scores of websites and blogs mentioning and highlighting the event worldwide.

Just after midnight on the first evening the Meteorwatch became the most popular topic on Twitter, with tens of thousands of Twitter users joining in. On the second evening the event again became one of the top “trending” topics.

Even though, because of the moonlight, the visibility of the Perseids was not particularly good this year, people around the world still joined in and made the #Meteorwatch a huge phenomenon. Many of them were also hampered by poor weather and light pollution but they still made the effort. It certainly demonstrated that astronomy can be fun and accessible.

Organisers: Adrian West, Newbury Astronomical Society and IYA2009.

Website: http://www.astronomy2009.co.uk/index.php/news-mainmenu-37/22-announcements/124-twitter-meteorwatch-report




Estimated number of people who attended or were reached by this activity: 10,000 on Twitter (was the #1 trending topic worldwide for two evenings). Was subject to extensive UK and worldwide media coverage so ultimate reach in the millions.

## Dark Sky Programmes — creation of Gallway Dark Sky Park

Dark Sky Parks was part of a focused programme to promote dark skies within the UK. There were three main themes, Dark Sky Scotland — to take astronomy outreach to dark and remote areas (often parts of National Parks); Dark Sky Inspirations — to identify dark sky areas close to urban areas so that many people could find a place in their locality that was safe, convenient and yet dark, dark enough to see almost down to the Mlky Way; Dark Sky Parks. This latter theme was to promote the creation of official (in the internationally designated sense) Dark Sky parks. This turned out to be extremely successful with the Forestry Commission Scotland establishing part of Galloway Forest Park as the first Dark Sky Park in the UK. This was the result of some 15 months of work pulling together audits, controls and readings from around the forest park. It was announced on Monday 16 November 2009 and was a massive achievement for the UK and the South-West of Scotland.

The designation was awarded by the International Dark Sky Association (IDA) with the aim of reducing light pollution, conserving energy and looking after nature. Further areas within the UK are either seeking the same status or a slightly reduced level of award.

The overall goals of the IDA are to: stop the adverse effects of light pollution; raise awareness about light pollution, its adverse effects, and its solutions; and to educate people about the values of quality outdoor lighting.

What has Galloway Dark Sky Park got that is so special?

1. Land area and development control — the Forest Park has around 75,000 hectares of land, where limited numbers of buildings means light pollution can be kept to a minimum. In addition, control over development of this land is exercise, thereby making it easier to control sources of light.

2. It is extremely dark — measurements with a Sky Quality Meter showed that this is one of the very darkest places around yet still accessible by a significant number of the population in south-west Scotland.

Organisers: IYA2009 UK, UKATC, Galloway Forest Park, Forestry Commission Scotland.

Website: http://www.forestry.gov.uk/forestry/INFD-7R5HHE

Estimated number of people who attended or were reached by this activity: Was subject to extensive UK and worldwide media coverage so ultimate reach in the millions.

Budget: 18,600€

## Telescope 400

400 years ago, an Englishman named Thomas Harriot turned a telescope on the Moon and marvelled at its rugged, cratered surface. The drawing he made that night is the oldest known depiction of a celestial object as seen through a telescope, beating Galileo by four months. However, unlike Galileo, he did not publish his results and so is little known by the general public or even astronomers for that matter. IYA2009 was an opportunity to bring this achievement to more general notice, especially in the UK.

Telescope 400 celebrated the 400th anniversary of Harriot's achievement at an astronomically themed day for space enthusiasts young and old on the very site where Harriot made his observations — Syon Park, West London.
Exciting and interesting activities ran for all the family: e.g. make a sundial, win a telescope, launch a rocket!

A memorial to record Harriot's achievements was unveiled by Lord Egremont.

The Quatercentenary Lecture and Reception was given by Dr Allan Chapman.

Organisers: Telescope400 Steering Group.

Website: http://www.telescope400.org.uk/

Estimated number of people who attended or were reached by this activity: 600.

## Astronomy Portrait Exhibitions

IYA2009 in the UK saw two fabulous astronomy portrait collections launched and exhibited.

*Portraits of Astronomers, by Lucinda Douglas Menzies*
As the name suggests, this was a professional photographer's view of leading UK professional astronomers. To coincide with the IYA2009 celebrations taking place throughout the year, a touring exhibition "Portraits of Astronomers" visited seven different venues around the UK. The book, "Portraits of Astronomers", was published in February 2009 in association with the Science Museum, London, with a foreword by Alison Boyle, Curator, Astronomy and Modern Physics. Each of the 38 leading UK astronomers has their portrait on a full page with, facing, their written piece on the subject of what inspired them to study astronomy, of around 150-200 words.

10 of the portraits were on show for six months at the National Portrait Gallery, London, in a small display around the unveiling of the newly commissioned portrait of the Astronomer Royal, Lord Martin Rees, on 21 April 2009.

The exhibition and book have been widely acclaimed, such as by Dr Catherine Cesarsky, President, International Astronomical Union: "The faces of British astronomers, colleagues and friends of mine, gathered in this book, radiate a story of quest, passion and fulfilment, attuned to the wonders of the Universe."

*Explorers of the Universe, by Max Alexander*
Funded by the STFC as part of IYA2009 UK, this was a stunning exhibition consisting of both interpretive portraits and documentary photography of professional and amateur astronomy. The subjects ranged from academic research and observation through to the stargazing public and captured the truly amazing journey of discovery on which both scientists and the public are travelling.

The reportage section of the exhibition includes some of the UK's most iconic images in the field; from the sunrise at Stonehenge during the Summer Solstice, to the laser line at the Royal Observatory in Greenwich, to the birthplace of Sir Isaac Newton.

The portrait pictures show over 40 astronomers in a dynamic new light, many away from their usual environments of offices, computers and observatories. They also reveal the diversity among UK astronomers and include not just the leading figures in astronomy, but a cross-section of people working in the field, including amateur observers, young people and people from varied cultures.

Organisers: Lucinda Douglas Menzies and Max Alexander.

Website: http://douglas-menzies.com/index.html; http://maxalexander.com/astronomy/





## Winter Solstice Event at Stonehenge

This was a three-day special event at Stonehenge, where people were allowed during restricted times to visit the inner parts of the famous stone circle, normally barred to visitors. Throughout the period during normal opening hours, archaeologists and astronomers were on hand both around the site and in and around a marquee in the car park, where they engaged with visitors, offered tours and answered questions. Also present were a number of local astronomical societies with an impressive array of telescopes and binoculars. This was also the closing event for the FETTU UK travelling image exhibition, which remained on-site until 3 January.

Fortunately the weather was not too unkind: the first day was cloudy but the remaining days were largely clear and sunny.

The special access tours to the interior of the stones after dark were extremely well received, drawing participants from as far afield as the Isle of Wight and the Isle of Man, not to mention the USA!

Organisers: Royal Astronomical Society's Astronomy Heritage Committee, and English Heritage.

Website: http://www.le.ac.uk/has/ahc/shws-event/









Estimated number of people who attended or were reached by this activity: 15,000 (inc. visit to FETTU exhibition).

### Miscellaneous activities

The range of activities in the UK was absolutely huge, ranging from the usual events that took place during the Moonwatch Weeks to drama festivals, astronomy film productions and plays. Just to give a flavour, here is a list of a small sample of different events or projects:

The Jodecast; “All the Dead Stars” — modern artwork by Katie Pearson at the Tate Britain; “One Giant Leap” — a play by the Wee Stories; “Twinkle Twinkle Little Bat” — guided walks by the National Trust Scotland; “My Lunar Landing” — cheese and wine party at Herstmonceux Castle; Well Dressing at Bollington, Aston, and Derby; “Sleep under the stars” — at the Science Museum London; Astronomy Photographer of the Year by the Royal Observatory Greenwich; ThinkTank in Birmingham; Moonbounce at Jodrell; “The Sun-Worshipers” at the Glastonbury Festival; Sci_fi London visits the Royal Observatory Greenwich; “The Starry Messenger” — the movie by Dr Robert Priddey; Earthballs by the UNAWE team; Starlight — astronomy newsletter for schools; The Scottish Solar System by the University of Glasgow and the Glasgow Science Centre; “Wonder — a Scientific Oratoria” — by Alan Williams and the BBC Philharmonic Orchestra and Salford Choral Society; “The Planets” — South London Youth Orchestra.

## Lessons Learned

It was vital to have a full-time coordinator. This was recognised early on, funding was found and the coordinator appointed in 2008 to ensure a good lead-up to IYA2009 and follow-through to evaluation. Early planning worked very well — especially focusing on the Spring and Autumn Moowatch Weeks as focal points. Commercial sponsorship failed with the banking crisis, but support from the professional societies was excellent. The UK webpage was a critical component and this was provided and supported by the Royal Astronomical Society.

## Legacy

The IYA2009 UK Co-ordinator, Steve Owens, has been retained in a 0.5FTE capacity to carry the momentum of IYA2009 beyond the year, finally ensuring that the valuable parts of that role become integrated permanently within one of the UK’s learned societies, such as the Royal Astronomical Society.

# United States of America

## National Node

Douglas Isbell (American Astronomical Society)
dougisbell@hotmail.com
www.astronomy2009.us

Official Languages
- English

Number of organising committee members: 6-10
- Volunteers: 3
- Paid: 3

Population: 309 366 000

Number of people reached by IYA2009: 1 500 000

Budget: 810 000 €

Sources:
- National Science Foundation
- NASA
- AAS
- Private donations

## General Overview of IYA2009 activities in the United States of America

The United States conducted a vigorous IYA2009 effort thanks to the support of the National Science Foundation, NASA and the American Astronomical Society. The U.S. contributed to the leadership of a half-dozen cornerstone projects—in particular, the Galileoscope, Dark-Skies Awareness and From Earth to the Universe (FETTU). More than 110 000 Galileoscopes have been sold and delivered in 70 countries, and another 70 000 of the telescope kits are in production for sale at 12 € to 16 € each. A wide variety of award-winning dark-skies education programmes are underway worldwide, and more than 20,000 measurements of the night sky were made by citizen scientists during IYA2009; many of these programmes will continue in 2010. The FETTU project enabled more than 250 exhibits of the most beautiful and inspiring large-format astronomical images in 60 countries, including 35 U.S. cities. These exhibits will continue in many forms, including transfer of exhibits at the Atlanta and Chicago O'Hare international airports being transferred to local hospitals.

NASA's Science Mission Directorate (SMD) has embraced the opportunity presented by IYA2009 to take the exciting science generated by NASA missions in astrophysics, planetary science and heliophysics to students, educators and the public worldwide. NASA is an Organizational Associate of the International Astronomical Union (IAU) IYA2009 programme , and as an integral component of national U.S. IYA2009 team, has aligned its activities to the overarching themes outlined by the team.

NASA Science Mission Directorate (SMD) celebration of IYA2009 was kicked off in January 2009 with a sneak preview of a multi-wavelength image of M101, and of other images from NASA space science. Since then some of the exciting science generated by NASA missions in astrophysics, planetary science and heliophysics, which has been given an IYA2009 flavour, has been made available to students, educators and the public worldwide. Some examples of the progress of NASA programmes will be presented. The travelling exhibit of NASA images to public libraries around the country has been a spectacular success and is being extended to include more libraries. NASA IYA2009 Student Ambassadors met at summer workshop in August 2009, at Goddard Space Flight Center and presented their projects. NASA's Afterschool Universe has provided IYA2009 training to community-based organisations, while pre-launch teacher workshops associated with the Kepler and WISE missions have been designed to engage educators in the science of these missions. IYA2009 activities have been associated with

several missions launched this year. These include the Hubble Servicing Mission 4, Kepler, Herschel/Planck, LCROSS. NASA IYA2009 programme have captured the imagination of the public and continue to keep it engaged in the scientific exploration of the universe. NASA's Go Observe! programme provides guidance to the public to observe the object of the month and links to related NASA educational activities. NASA's IYA2009 website astronomy2009.nasa.gov is a key resource to guide visitors to NASA resources and enable participation in special events.



IYA2009 pin by Disney

Engaged and committed volunteers used the major themes of IYA2009 to conduct year-long outreach efforts in their local U.S. communities, from New York City to the Village of Barrington Hills, Illinois, to Hilo, Hawaii. Several world-leading programmes in new media managed in the U.S. will continue, such as the "365 Days of Astronomy" podcast and the IYA2009 island in Second Life. A repeat of the successful global star party "100 Hours of Astronomy," with new twists, will be held in April 2010. Formal education efforts via the Galileo Teacher Training Programme will continue nationally through the involvement of the Astronomical Society of the Pacific.

## Main Activities

### 100 Hours of Astronomy

The greatest attendance reported at any event in the US was more than 9000 at an event with 22 telescopes for public viewing at a U.S. Naval Observatory open house in Washington, DC. Next was the Virginia Living Museum with 5000-plus people attending a variety of events including observing night and day, planetarium programme mes and family campouts over the four days. There were 18 events in the US with reported attendance of 500 or more, all of which had telescope viewing.

### International Year of Astronomy 2009 Star Party at White House

NASA organised a star gazing event at the White House on 5 October 2009, at the direction of the Executive Office of the President, Office of Science and Technology Policy, as a celebration of astronomy during the International Year of Astronomy 2009. President Obama and the First Family were joined by ~150 students from Washington DC, Maryland and Virginia to peer through telescopes set up on the White House lawns, view celestial phenomena in portable planetaria, and engage in activities including those on our planetary system, Moon rocks, crater formation, and learn about some of the exciting science from NASA missions from astronomers who were present there. NASA Administrator Bolden and NASA staff, together with astronauts Buzz Aldrin, John Grunsfeld, Mae Jamison, Sally Ride mingled with the students and school teachers and answered questions.



Photo of President Obama at the White House Star Party looking through a telescope with the US IYA2009 sticker on it.

## Second NASA Great Observatories Image Unveiling

In celebration of this International Year of Astronomy, on 10 November 2009 NASA released images of the galactic centre region as seen by its Great Observatories, Hubble Space Telescope, Chandra X-Ray Observatory, and Spitzer Space Telescope to more than 150 planetariums, museums, nature centres, libraries and schools across the country.

The sites unveiled a giant, 6-foot-by-3-foot print of the bustling hub of our galaxy that combines a near-infrared view from the Hubble Space Telescope, an infrared view from the Spitzer Space Telescope and an X-ray view from the Chandra X-ray Observatory into one multi-wavelength picture. Experts from all three observatories carefully assembled the final image from large mosaic photo surveys taken by each telescope. This composite image provides one of the most detailed views ever of our galaxy's mysterious core.

## GTTP in the USA

"In the Footsteps of Galileo", an initial 2-day workshop to train US teachers on how to convey basic astronomical concepts in a hands-on way, took place near San Francisco on 12 and 13 September 2009, as part of the 121st Annual Meeting of the Astronomical Society of the Pacific (ASP). Approximately 30 teachers from around the United States participated, and were joined by five astronomy education specialists (from as far away as Australia and Israel) who want to replicate the workshop locally. The workshop was led by Andrew Fraknoi (of Foothill College & the ASP) and Dennis Schatz (of Seattle's Pacific Science Center). Other presenters included Connie Walker and Robert Sparks (National Optical Astronomy Observatories) and Suzy Gurton (ASP).

Among the areas covered in the workshop were:

- Research on Student Learning and Hands-on Science
- Jupiter's Moons: Galileo's Experiment
- Building and Using a "Galileoscope"
- Paper-Tape Solar System: An Easy Scaling Activity

- Measuring the Dark: Activities on Light Pollution
- The Moon Doesn't Phase Me: Understanding the Changing Appearance of the Moon
- Who is Your Hero: Creating Your Own Constellations.

Participants received a wide range of activity handouts and astronomy resource materials that can be put to direct use in the 3rd through 12th grade classroom. More information will be posted at: http://www.gttpusa.org/

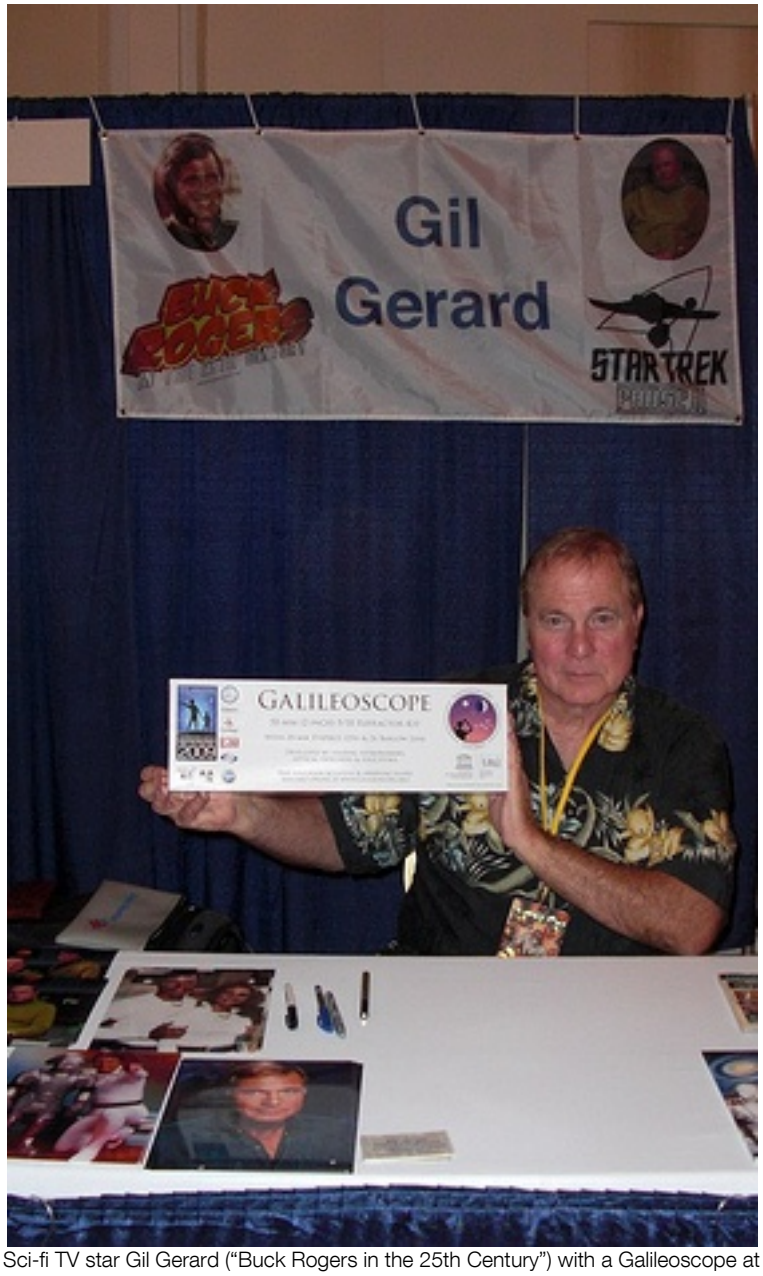
## Music And Astronomy Under The Stars: Bringing Telescope To The People

Music and Astronomy Under the Stars is a three-year NASA SMD-funded astronomy outreach programme held at community parks on Long Island, New York, and at the Tanglewood Music Festival in Lenox, Massachusetts (summer home of the Boston Symphony orchestra). While there have been many astronomy outreach activities and telescope observations at city parks and on sidewalks, our programme targets music lovers who are attending classical, rock, pop, and ethnic-music concerts and have made a commitment to be outside at night for several hours. The target audience of 3 000 000 people in Nassau and Suffolk Counties, New York is larger than combined population of Atlanta, Boston, Denver, Minneapolis, and San Francisco. More than 20 000 people participated in these astronomy in 2009.

Many of these music lovers have never visited a science museum, planetarium, or star party, so we expose them to telescopes and astronomy at no additional cost. Approximately 25% to 50% of the 500 to 16 000 people who attended each concert participated in the astronomy programme .

This programme includes: solar telescopes before the concerts and 6-8 telescopes after the concerts; a live telescope image and astronomy vidoes projected onto a large outdoor screen screen; an astronomy video presentation projected onto 12' x 16' screen; an 8'x20' image by of the Milky Way from Mauna; a 3'x10' banner of the Orion Nebula; and twelve 2.5'x 5' Visions of the Universe posters (STSCi and the American Library Association). On cloudy nights many people still were interested in looking through a telescope and viewed the posters, mural, and video program. The Amateur Observers' Society of New York plays an integral role and assists with the telescope observations for the New York events. Members of the Springfield STARS Club assisted last year with observations at Tanglewood.

Our first 2009 event a "tail-gate" star party, on 4 June, was a concert at Jones Beach State Park, NY by the rock group Phish, which was attended by 14 000 people. The audience was extremely enthusiastic and I was even asked if I was touring with the band! Even on a cloudy day the concertgoers were I excited to look through telescopes. People were taking pictures posing in front of the Milky Way mural and it became a teachable moment as I described many features of our Galaxy seen in the image.



Sci-fi TV star Gil Gerard ("Buck Rogers in the 25th Century") with a Galileoscope at the September 2009 DragonCon convention in Atlanta

The largest event in 2009 was Tanglewood, 28 July, attended by 16 000 people. Almost everyone saw the large Milky Way mural and 5000 people came to look at the Sun or Moon through telescopes, look at the *Visions of the Universe* posters, or view the video presentation.

The final event in 2009 was a four-day Halloween-Spooky-Walk in Clark Botanic Garden, in Albertson, N.Y. More than 8000 children (many in costume) and their parents attended. Almost everyone saw the astronomy mural and posters and 1000 people looked through a telescope at Jupiter and the Moon on 29 October, which had clear skies. This programme is adaptable to the many concerts and events are held throughout the U.S. and around the world. The 2010 programme will include jazz in New York's Central Park.

Organisers: Hofstra University Astronomy Outreach Program.

Website:www.hofstra.edu/Academics/Colleges/HCLAS/PHYSIC/physic_underthestars.html.

Estimated number of people who attended or were reached by this activity: 20 000.

Budget: 81 000 €

The 2009 budget for this NASA-funded outreach programme was 81 000 €. The budget included the 33% Hofstra University administration fee (indirect costs), summer salary; summer student support expenses; equipment costs for 10 telescopes with mounts, filters, and eyepieces; video projection eyepiece system; printing of the large posters, banners, information sheets, 20,000 bookmarks; two outdoor video projection systems; outdoor power sources, outdoor halogen battery powered lights, outdoor display hardware; travel to AAS, ASP, and IAU meetings to promote and disseminate information about this program; expenses to store and transport the equipment; transportation and meal expenses for the astronomy club members that assisted with the programme (12 people per each eight hour event); professional evaluator; video creation, astronomy visualisation (Dr. Jose Salgado); art director to design the posters and banners. This equipment is needed to last for 70 concerts over three years and is designed to be sufficient for our largest concert with 60 000 people expected for the Philharmonic in 2010.

## The Inwood Astronomy Project




The Inwood Astronomy Project (IAP) is an ongoing urban astronomy educational outreach effort supported by the NASA/JPL Solar System Ambassadors Program. Based in Northern Manhattan, in a community that is 60% Hispanic and Black, Inwood and Washington Heights are underserved communities. The goal of the IYA2009 project was to have two star parties every week in 2009 with a goal of over 100 observing sessions in the “Forever Wild” Inwood Hill Park which is 1/3 the size of Central Park and has no lighting fixtures. The IAP also included lectures at the New York Public Library, and special community-based music and theatre events. The IAP forged relationships with the New York City Parks, state and local officials, and was covered in numerous publications and media throughout the year. Jason Kendall, heading up the IAP is a NASA/JPL Solar System Ambassador. One of the key goals was to bring the neighbourhood outdoors under the sky and find commonality. As a inner-city urban outreach, the goal of bringing diverse groups together.

Organiser: Jason Kendall, NASA/JPL Solar System Ambassador for New York City.

Website: http://www.InwoodAstronomy.org

Estimated number of people who attended or were reached by this activity: >3000 in attendance, with a market penetration and awareness of up to ~100,000. I was featured in the New York Times twice in 2009. I was on FOX5 News twice, featured both times. Interviewed and featured in the Village Voice, Time Out New York, Manhattan Times, AP Network News, and The Christian Science Monitor. Once for observing, and the second time for the LCROSS Mission event. Star Party events got very large, with ~200 for the Perseid Meteor Shower, and ~100 on a thunderstormy night for 100 Hours of Astronomy when I convinced New York City to turn off the lights in a major park for the first time in NYC history. Hosted 16 different lecture events, spoke at Columbia University and at the Hayden Planetarium. I was also elected to the Board of the Amateur Astronomers Association of New York, where I have helped encourage the Club to be much more active. We also had a live discussion with the head of the Amateur Astronomers Association of Kurdistan, Iraq. We presented the world premiere of “Minding the Heavens”, a play about Caroline Herschel.

Musical performance was a big part of the IAP. Donna Stearn’s song “Up Up Up in the Sky” was one of the 11 official songs of IYA2009. This Broadway-styled astronomy song engaged children with its catchy anthem and was performed at every indoor event and many outdoor events.

Budget: Personally financed. Under 3300 € excluding expenses for papers presented at AAS conferences.









## Lessons Learned

Recommendations on How to Sustain Dark Skies Awareness Programmes:

- Help find funding to continue
- Improvements and expansion of the GLOBE at Night website
- The new Dark Skies Ranger programme with the Galileo Teacher Training Programme and hopefully UNAWE.
- The Dark Skies Education Kits
- Improvement on the programme to analyze the data from GLOBE at Night
- The How Many Stars Programme
- The Great World Wide Star Count Programme
- Dark Skies Discovery Sites (led by the Astronomical League)
- Help with networking: access to contacting different communities available through IYA2009.
- Help with advertising and marketing all of the Dark Skies Programmes listed above as programmes continuing beyond IYA2009.
- Continue to keep the IYA2009 leaders posted with updates.

On behalf of the IYA2009 Dark Skies Awareness Task Group and the U.S. IYA2009 Dark Skies are a Universal Resource Working Group, I want to thank the IYA2009 Secretariat's Office for allowing our involvement in what was an exciting year that has proven successful in ways never predicted and will live on in more positive ways still unforeseen.

# Legacy

## NASA Websites

Afterschool Universe: universe.nasa.gov/au
From Earth to the Universe: www.fromearthtotheuniverse.org
Visions of the Universe: amazing-space.stsci.edu/visions
Night Sky Network: nightsky.jpl.nasa.gov
MicroObservatory: microobservatory.org

## ASP and GTTP Continuing Programmes

Galileo Teacher Training Programme : http://www.gttpusa.org/
The ASP has hired a formal education director, Dr. Greg Schultz. He, Brian Kruse and Andy Fraknoi will be planning future GTTP workshops.

### Galileo Teacher Training Workshops Planned for 2010

- On 6 March ASP is conducting a GTTP related session at the San Mateo County Spring Math and Science Workshop. The workshop is held at Cañada College in San Mateo, CA. Our session will present Galileo's observations of sunspots and teachers will learn about an activity where they measure the rotation of the Sun using sunspots. ASP will also staff a booth in the exhibit hall promoting GTTP.
- In partnership with Northrup-Grumman ASP is conducting a GTTP workshop at the NG campus in Redondo Beach, CA on13-14 March. With Northrup-Grumman support each teacher participant will receive 15 Galileoscopes. Response to recruiting efforts have produced a tremendous response with the potential to conduct a second workshop at some future date.
- On 24 April a one-day San Francisco Bay Area GTTP workshop is scheduled at Foothill College in Los Altos Hills, CA.
- The Project ASTRO National Network site leaders meeting is 14-15 May in San Francisco. The meeting agenda includes plans for a Galileoscope training and promotion of GTTP as a professional development resource for network sites.
- The ASP has preliminary plans for another SF Bay Area GTTP workshop in the fall of 2010.
- The ASP is currently seeking funding to expand and further develop the GTTP concept in 2011 and beyond.

### Other Programs

IYA2009 Discovery Guides, providing online education resources for selected themes and objects, will continue: http://astrosociety.org/iya/guides.html. The Night Sky Network has a newly launched interactive public map for finding astronomy events in the U.S., further helping astronomy clubs bring astronomy to the public in 2010 and beyond: http://nightsky.jpl.nasa.gov/. Cosmic Clearinghouse, providing links to online education resources, will continue to expand beyond 2009, as a permanent resource for anyone interested in astronomy, space science, education and outreach: http://www.cosmicclearinghouse.org/.

## Continuing Programmes in Dark-skies Awareness

1) A Dark Skies Awareness Flagship Programme : GLOBE at Night
One of the most productive "DSA" programme mes that can hopefully be sustained is GLOBE at Night. During IYA2009, the GLOBE at Night programme me endeavoured to promote social awareness of the dark sky by measuring light pollution and submitting results online. During IYA2009 alone, over 15 700 measurements from 70 countries were contributed during the 2-week campaign period. That amount is twice the number of measurements on average from previous years. This included meter measurements, which were used to measure quantitatively the sky brightness in magnitude/square arcsecond. 73% were from the U.S. (all 50 states). 900 measurements were from Chile. There were over 200 measurements each from the Czech Republic, Hungary and the United Kingdom. 13 other countries reported more than 100 measurements (Argentina, Australia, Canada, Colombia, Finland, Germany, Macedonia, Mexico, Poland, Romania, South Africa, Spain and Turkey). (Among all three official Dark Skies Awareness star hunting programme mes, there has been a total of over 50 500 measurements in four years, over 35 000 from GLOBE at Night, 12 000 from the GWWSC and 3500 from How Many Stars.)

The GLOBE at Night programme has been expanded to include trainings of the general public, but especially educators in schools, museums and science centres in unique ways that include blogging, podcasting, online forums, Skype-videoconferencing and teleconferences in addition to on-site workshops.

Close to 400 education kits for Dark Skies Awareness have been built and distributed at the training workshops. The kit includes material for a light shielding demonstration, a digital Sky Quality Meter, Dark Skies Ranger Activities and other dark skies education and GLOBE at Night resources on 2 CDs and 2 DVDs, advertising materials (postcards, poster, flyers, etc), light pollution trading cards, a book called “There Once was a Sky Full of Stars”, and a Quiet Skies Activity (with an AM radio and a fan).



A sample of creative IYA2009 dark-skies awareness posters for U.S. national parks created by Tyler Nordgren from the University of Redlands

The GLOBE at Night website explains clearly the simple-to-participate-in 5 step programme . The website offers background information on key concepts. There are interactive games and fun quizzes to check proficiency on the key concepts. Teacher (and Family) Guides come in 13 different languages. And to help advertise the campaign, there are downloadable postcards and flyers (in Spanish too). The report page is user-friendly and map page has data in various formats.

The programme recently included activities with which to prepare the public (and especially students) to participate in GLOBE at Night. In particular, the activities introduce children and adults to the affects light pollution has on public health, economic issues, ecological consequences, energy conservation, safety and security, and astronomy. The new programme is called “Dark Skies Rangers” and is being adopted internationally by the Galileo Teacher Training Programme . There are three categories in the Dark Skies Ranger programme before becoming a Dark Skies Ranger: Explorer, Protector, and Advocate.

In Dark Skies Explorer, educators hold a session for students (or the local community) on the importance of shielding lights through an interactive demonstration and a PowerPoint presentation on what light pollution is, its importance and relevance to one’s life (e.g. its effect on safety, wildlife, health, energy, cost, and astronomy). In a second activity, students make an inventory of the energy efficiency of outdoor lighting at their school. They

determine the good, the bad and the ugly in outdoor lighting and how much energy and money is lost to poor lighting. They evaluate the effects of light pollution at the school to suggest economical, energy efficient and task-effective improvements.

In Dark Skies Protector, students are engaged in activities on how light pollution effects wildlife and other issues. The older students promote a symposium in which they role-play key people and do research on important dark skies issues such as the impact on wildlife, human health, personal and municipal budgets and government regulations. They detail possible solutions and inform the public via methods like YouTube.

In a second Dark Skies Protector activity called “The Night You Hatched”, the younger kids role-play turtles hatching on a beach at night to experience the affect too much lighting has on their survival. There are also two more hands-on activities: one for the older students on how light pollution affects animals and another for the younger students on how light pollution affects insects.

The Dark Skies Advocate prepares for the star-hunting campaigns by participating two activities. These activities help monitor the night sky during the campaigns and introduce concepts and skills such as how to find a constellation, what is a magnitude, and how these concepts and skills help to measure night sky brightness. The activity “Constellation at Your Fingertips” uses glow in the dark puffy paints to draw the outline of the constellation (e.g., Cygnus or Orion) on a transparency to hold at arm’s length and identify the constellation. A “Magnitude Reader” is made by students to convey the concept of a limiting magnitude by using layers of transparency.

Students then engage in a star-hunt programme at Night to determine the night sky brightness in their town and to convince schools in the same region to participate) by joining in 1 of 3 global star-hunting campaigns: “GLOBE at Night”, “The Great World Wide Star Count” or “How Many Stars”. By participating in any of these 3 star-hunting programmes offered at different times of the year, students join people all around the globe in collecting data on the night sky conditions in their community and contribute to a worldwide database on light pollution. For older students, as an optional “Going Further”, the data can be analyzed using various online tools.
To become a Dark Skies Ranger, students can present results from the Dark Skies Explorer, Protector or Advocate activities to local authorities (e.g., a city council or a school board) or school community (e.g., at a Family Science Night or a student conference within or between schools or classrooms).

In addition to “front-loading” the GLOBE at Night Programme , there are also projects being developed for what to do with the data once it is taken. There is now a database of 4 years worth of data to inter-compare. Students can make comparisons of data over time (changes, trends); make comparisons of data with population density; search for dark sky oases; monitor areas for ordinance compliance; as well as search for affects of light pollution on animals or plants, human health, safety, security, energy consumption, and cost.

All of this was accomplished this year and we will endeavor to continue the programme . The Dark Skies Ranger activities can be found by January 2010 on www.globeatnight.org or www.darkskiesawareness.org. (Future funding would help sustain the programme .)

2) All Other Dark Skies Awareness Programmes
*Using New Technology*

- Podcasts: 10-minute audio podcast about once a month on dark skies programmes, events, and resources during IYA2009 have been contributed to the 365DaysOfAstronomy.org/ podcast. Dark Skies podcasts are on “Let There Be Night”, IDA educational materials, GLOBE at Night, outdoor lighting (by the NPS), DSA programmes, Dark Sky Places on Jan. 18 & Aug. 17, Feb. 2, Mar. 6, Apr. 25, May 16 & June 18, respectively, as well as later in the year.
- In Second Life, as the scene changes from city to suburban to rural to forest, the avatar sees the “magnitude changes” in Orion. This scene is being orchestrated by Adrienne Gauthier of the New Media group. In a holodome above this area, there is an urban street that allows visitors to switch between good and bad lighting to see the impact of their actions. This urban street scene, created by Chuck Bueter and associates, was one of the finalists for the Linden Prize, a prestigious prize for innovations in Second Life.
- MySpace and Facebook web pages introduce new audiences to dark sky issues. These were created by a dark skies advocate still in high school, to address that age group.
- The funding to continue the 365 Days of Astronomy podcasts in 2010 has been obtained. The Second Life presence for Dark Skies Awareness will continue for as long as the IYA2009 island is open and the social networking sites will continue at least as they are now.

*Educational Materials*

- The Great Switch Out: A Homeowner's Guide to Quality Outdoor Lighting (See www.darksky.org.)
- Downloadable posters, brochures and displays on the effects of light pollution on health, wildlife, energy, astronomy, safety and glare control (See www.darksky.org)
- A planetarium programme for small and portable domes to advocate dark skies and to introduce participants to outdoor lighting issues. (See www.LetThereBeNight.org.)
- A 2 DVD set with videos, activities, songs, PowerPoints, images and other ancillary materials (See www.LetThereBeNight.org.)
- The educational kit (supplied by NOAO and explained in the GLOBE at Night section)
- The Homeowner's Guide, posters, brochures and displays will continue to be downloadable from the International Dark Sky Association website for the foreseeable future. Parts of the planetarium programme and the resources on the 2 DVD set will be placed online to also be downloadable. The DVDs and educational kit will be available until resources run out.

*The Arts*

- The Earth and Sky photography contest: The contest is open to anyone in the world who is not a professional photographer. The image should express how important and amazing the starry sky is, how it affects our life, and how bad the problem of light pollution has become. Led by The World At Night (www.TWANight.org) and the Institute for Astronomy at the University of Hawaii. The Earth and Sky photography contest may be a one-time event, depending on the interest it incurs. The contest ends at the end of the 2009 calendar year.

*International and National Events*

- Earth Hour — On 28 March 2009, 1 billion people in over 4100 cities and iconic landmarks in 87 countries turned off non-essential lights, conserving energy while allowing the public to see the dark skies from cities. Hosted by the World Wildlife Fund.
- World Night in Defence of Starlight was the 1st night of the International Dark Sky Week (20 — 26 April 2009).
- Dark Skies Discovery Sites are in rural locations (e.g. a backyard observatory or a community park or school) where the public can learn about the importance of dark skies. Led by the Astronomical League and in the U.K. by Dark Skies Scotland.
- Nights in the National Parks — Throughout 2009, dark sky observing (with light pollution education) have been highlighted from within 24 U.S. National Parks with near-pristine skies.

Earth Hour has its own source of funding. Dark Skies Awareness has been involved in promoting the campaign, getting communities to organise and participate in it. We will continue to support Earth Hour without any need for funding. Similarly, Dark Skies Awareness will continue to promote World Night in Defence of Starlight and the International Dark Sky Week without any need for funding. The U.S. National Parks Service will attempt to secure its own funding to continue some aspects of Nights in the National Parks. The Dark Skies Discovery Sites in Scotland is expanding throughout the United Kingdom this coming year and has secured funding to do so. The U.S. Dark Skies Discovery Sites programme , led by the Astronomical League is not fairing as well and is in need of funding to continue.

*Citizen Science, Star-Hunt Programmes*

Great World Wide Star Count

- Tentative Campaign: October 2010
- Uses Cygnus and Sagittarius
- Visit www.starcount.org

GLOBE at Night

- Next Campaign: 3-16 March 2010
- Uses Orion and Sky Quality Meters
- Visit www.globe.gov/GaN

How Many Stars?

- Campaign: All year-round
- Uses Little Dipper & 3 belt stars in Orion
- Visit www.sternhell.at/

All of these star hunts have citizen-scientists record the brightness of the night sky by matching its appearance toward the constellation with star maps of progressively fainter stars. Measurements are submitted on-line and resulting maps of all worldwide observations are created.

Inspired by these programmes, The Milky Way Marathon in Brazil and the Big Aussie Star Hunt in Australia were born this year (www.astronomia2009.org.br/ and www.starhunt.net.au/). Both use Scorpio in their campaigns, which ended in September. The likelihood that they will continue in the future is low. How Many Stars will most likely continue, but this is probably the last year for the Great World Wide Star Count.

There is also a radio wavelength analog to the visible wavelength version of the star hunt programmes called Quiet Skies. Quiet Skies is a programme where students learn how Radio Frequency Interference (RFI) blinds radio telescopes at certain frequencies. There is a kit loan programme to schools and museums in the U.S.. Participants measure the RFI levels in their communities, enter their measurements into a database, and later results will be graphically displayed. The programme is led by the U.S. National Radio Astronomy Observatory (NRAO). (See www.gb.nrao.edu/php/quietskies/.) This programme also did not get the funding hoped. Only 20 RFI kits were made. However, included in the Dark Skies kits made by NOAO is a simple hands-on version that uses an AM radio and a handheld, battery-run fan to detect RFI, supplied by NRAO. There is no NRAO funding to continue contributing the AM radios and fans. NOAO will try to find funding.
Dark Skies Communities

UNESCO, the IAU and colleagues been instrumental in creating a formal Starlight Declaration to recognize that the ability to view a dark sky has been an inspiration to all throughout time and that necessary measures should be implemented to raise public awareness. As such the IYA2009 Dark Skies Awareness Cornerstone Project has helped to promote the declaration through initiating the IAU B5 resolution under Pedro Russo's suggestion. And during the year, Dark Skies Awareness (DSA) has also supported the Starlight Reserve Concept (i.e., a site where a commitment has been made to defend and preserve the night sky quality). In the same vein, DSA has also supported IDA in terms of their International Dark-Sky Communities, Parks and Reserves (i.e., a certification programme to promote the establishment of special protection areas for natural night skies). (See www.starlight2007.net/StarlightReserves.html and www.darksky.org under "Policy/Programmes", then "IDSCommunities, Parks and Reserves".) For Dark Skies Awareness to continue promoting the Dark Skies Places, no funding is needed.

## From Earth to the Universe (FETTU)

Continuing plans
Plans for FETTU in 2010 in the U.S. include a continuation of the travelling FETTU to several new locations as well as the ongoing tour of the tactile/Braille exhibits. The anchor FETTU exhibits in Chicago's O'Hare and Atlanta's Hartsfield airports have been extended and will remain in place at least through June 2010. (A new version of FETTU will appear in Chicago's Midway airport as well.) Arrangements are being made to transfer these panels to two children's hospitals in the Chicago and Atlanta areas once the run in the airports is finished. Detailed timeline maps are being updated for the U.S. and international communities at:
http://www.fromearthtotheuniverse.org/timeline.php.

Outside the U.S., numerous countries around the world, including the United Kingdom, India, Germany, Brazil, Canada, and others already have plans for FETTU into 2010 and more countries are working to follow suit.

FETTU is happy to report more requests for exhibits coming in since the new year, with new locations in Peru, Germany, India, France, and Russia. And in addition, representatives in Tanzania have been in discussion with Mozambique on possibly sharing their FETTU exhibit (donated by Brazil) when they're done with it.

Braille exhibits will be returning to the MLK library in D.C. to be displayed during the AAS. The Braille display will also go to National Federation of the Blind Jernigan Institute over the summer including a trip to the National conference in Texas. Large distribution FETTU-Braille-tactile posters are in production; dissemination will begin in 2010.

FETTU-NASA landed in Fayetteville Arkansas in December and will stay through January 2010.

We are submitting a FETTU article for Mercury magazine's spring issue.

## Galileoscope

It is very important to the Galileoscope team, and to the wider astronomical community, that this project continues beyond IYA2009. Accordingly, we are working on a plan to transition manufacturing and order processing to a new company. As the project evolves from a volunteer effort to a professional, commercial enterprise, there should be notable improvements in customer service and reductions in wait time from order to delivery.

Importantly, the donation programme — which has distributed about 6,000 telescopes to underserved youth worldwide, in cooperation with our IYA2009 sister project Developing Astronomy Globally — will continue under the new company, though with modifications to make it more effective. We recently received a donation for thousands more Galileoscopes for U.S. classroom teachers; this will enable us to augment our current educational efforts.

The educational networks where Galileoscopes have been distributed remain largely unchanged and intact. For example, in the U.S. Galileoscopes have been distributed through networks of small science centers, through the Association of Science-Technology Centers, through outreach centers of observatories, and through teacher professional organisations. Online training has been offered to many of these organizations, and the National Optical Astronomy Observatory will consolidate the newly created training resources online in January 2010.



# USA — Puerto Rico

## National Node

Carmen A. Pantoja (University of Puerto Rico)

http://www.astronomy2009pr.org

Official Languages
- Spanish
- English

Number of organising committee members: 4
- Volunteers: 4
- Paid: 0

Population: 3 994 259

Number of people reached by IYA2009: 45 000

Budget: 70 000€

Sources:
- NASA Puerto Rico Space Grant Consortium
- Other sources

## General Overview of IYA2009 activities in Puerto Rico

In Puerto Rico the preparations for IYA2009 started in 2007. An organising committee was established that considered the IYA2009 international goals in relation to our community. To establish the focus for our activities the committee used the most recent study published by the United Way in 2007 regarding the most important social problems and needs of Puerto Rico. This study (which is done every five years) made interviews and surveys that included the general population, community foundations and experts on social issues. It is intended as a tool to identify those problems and needs that should be given the highest priority. It included data from government agencies and other studies. From the seven most important needs identified in this study we selected the ones that could be addressed during IYA2009: 1-Problems related with the family — this includes child abuse, domestic violence, family disintegration, senior citizen care, among others, 2-Education — access to high quality services, opportunities for skill development 3-Values and Responsibility — in the social and community context. The study makes recommendations as to what populations should be given priority attention: children, young adults and senior citizens. The committee also reviewed the published results of the National Assessment of Educational Progress in mathematics which indicated an urgent need to stimulate progress in this area. There is also a need in Puerto Rico for providing inclusive materials for learning science for persons with disabilities.

The organising committee decided to focus our activities (aligned with the IYA2009 international goals) toward students (K-14), their families and teachers with the following goals:
- Stress the value of personal effort to achieve goals;
- Diminish the aversion or fear to mathematics in the general public;
- Show the importance of science in daily life;
- Show how science and technology can help attain a more peaceful and equitable society.

The organising committee developed a programme directed at undergraduate students that prepared them to work as volunteers in IYA2009 activities. We included college level students with diverse backgrounds and interests.

The IYA2009 organising committee established a working group of persons interested in science outreach projects from different campuses of the UPR, private universities, and the two major amateur groups of the island. Communicating the activities of IYA2009 was a continuous effort that included the different media (web, newspapers, TV and radio stations).

IYA2009 in Puerto Rico was honoured by the House of Representatives with a resolution recognising the value of the goals of IYA2009 and congratulating professional and amateur astronomers and the Starry Messengers' involvement in this celebration.

Numerous public talks and star parties were organised each month with the participation of a diverse audience. More than 45,000 people participated or were impacted by these events, which included the two Cornerstone projects "100 Hours of Astronomy" (in which Puerto Rico was "Highly Commended" in the category of "Most Registered Events by a Single Group") and FETTU. Puerto Rico followed with great interest and emotion the flight of the first Puerto Rican astronaut, Joseph Acaba, during the STS-119 Space Shuttle mission in March 2009. During June and December, Acaba and fellow astronaut Steven Swanson (STS-119) visited Puerto Rico and spoke to thousands of interested people in several locations across the island.
One of the goals of IYA2009 was to expand national and international collaborations and establish new partnerships. Our activities provided several opportunities to achieve this goal. We have had guest speakers from several locations in the world.

We contacted the IYA2009-Jamaica node to invite them to participate of our display of poetry from the Caribbean. The Jamaica SPoC Stanley Smellie facilitated two poems by members of the Astronomical Association of Jamaica: Stephen England and Gladstone C. Walling.

100 Hours of Astronomy was a challenging event that required coordination with organisations we had not worked with before. We established contacts with the National Park Service to set up the telescopes at the grounds of "El Fuerte San Felipe del Morro". We established contacts with the San Juan City officials for use of the San Juan museum for display of the NASA/JPL Mars Exploration Rover during 100 Hours of Astronomy. We helped establish collaboration between the UPR School of Communications and the Arecibo Observatory. Students from the School of Communications under the guidance of Professor Carlos Malavé prepared the introduction video for the "Around the World in 80 Telescopes" event of 100 Hours of Astronomy.

We coordinated with Dr. Lucas Macri from the University of Texas for a remote observing session with the general public. During 100 Hours of Astronomy we had the visit and collaboration of JPL engineers Carolina Barltrop and Alfonso Herrera. These engineers interacted with the public and communicated the importance of the Mars Exploration Rover mission. During 21-30 May 2009 the graduate student Ms. Gloria Isidro from the University of Puerto Rico participated of the Science Education Conference Marking the Astronomy Year and Darwin Theory Bicentennial at Israel. The amateur astronomer Efraín Morales participated of the project from the IYA2009-Malta node:"Moon for All Mankind". The amateur astronomer Eddie Irizarry visited the Dominican Republic and offered public talks and distributed education materials. During the 41st annual meeting of the Division from Planetary Sciences (DPS) of the American Astronomical Society which took place in Puerto Rico during the month of October more than a thousand students and teachers were able to interact with the visiting planetary scientists. The IYA2009-Puerto Rico was a great success. Having clear goals has been very important in attaining such a result. The participation of the events has been very high. The comments of the public were very favourable. The Puerto Rico Space Grant Consortium has allowed us to use the resources efficiently. The working group has expressed interest in maintaining the close collaboration that we have established during the year.

## Main Activities

### List of Activities

- TV Programme "ABC Con Señas" about accessibility was transmitted in channel 6 TUTV May 2008 and was dedicated to astronomy and IYA2009. This one-hour special programme has been shown several times in 2009;
- Workshop for Students ("Starry Messengers"): 10-14 July 2008 at Arecibo Observatory, 22 undergraduate level students;

- Open House at Arecibo Observatory “Fundación Ángel Ramos Visitor Center” 13 July 2008, “Descubre tu Universo con los Mensajeros Siderales” Outreach event with the student volunteers “Starry Messengers”. 700 persons;
- IYA2009 Outreach Contest for Starry Messengers, Announcement of contest to select two Starry Messengers to represent the Puerto Rico Node (15 August). The contest consisted in organising an outreach activity at a school in which the Starry Messenger presented IYA2009 to students and teachers. 10 students participated. These students visited 13 schools and announced IYA2009 to 416 students and 23 teachers. The selection was announced on 19 October 2008. Two Starry Messengers (Ms. Lilian Reyes and Ms. Yorimar Vargas) and the SPoC travelled to Paris for the International Year of Astronomy 2009 Inauguration (15-16 January 2009). Funding for these students came from the “Fundación Comunitaria de Puerto Rico” a community foundation in Puerto Rico;
- IYA2009 Exhibit at “Aéreo Feria 2008” 11 October 2008 by “Starry Messengers” about 60 students and teachers participated in; this event;
- Announcement of IYA2009 at Arecibo Observatory. On 1 November 2008 one of the Starry Messengers served as tour guide at Arecibo Observatory and a presentation was given by the SPoC to the visitors about IYA2009 (53 persons);
- Inauguration Ceremony of IYA2009 in Puerto Rico, 31 January 2009. 300 persons attended;
- An article was published in “Diálogo”, February 2009 (“Por qué es importante la Astronomía by the SPoC Dr. Carmen A. Pantoja and the IYA2009 Organiser Dr. Mayra E. Lebrón. (http://www.dialogodigital.com/node/722). The Front page was dedicated to IYA2009. The article was published also in the Dominican Republic. (Distribution of newspaper 25,000 copies);
- Open House of Astronomy Lab at the University of Puerto Rico for pre-school children and their teachers (a group of about 40 persons);
- Special Conference: “Space Weather” by Dr. Ramón López, University of Texas, Arlington, 11 March 2009 (51 persons);
- UPR Anniversary activity: “Retorno Universitario” (15 March 2009). The activities for the public of the Faculty of Natural Sciences were dedicated to IYA2009 (http://alumni.uprrp.edu/revista/index.html). The Starry Messengers participated of the events and interacted with the public. An exhibit presented by Ms. Gloria Isidro, Dr. Mayra E. Lebrón and Dr. Carmen Pantoja on “Adapted Materials on Astronomy for the Blind or Visually Impaired”. (100 persons);
- Special Conference: “La Inquisición Católica y Galileo” by Dr. Antonio Martínez Montalvo from University of Texas, Austin (17 March 2009). 67 persons attended;
- Special Conference: “Astronomy vs Astrology” by Dr. José L. Alonso, University of Puerto Rico, Cayey Campus (18 March 2009). 80 persons attended;
- Special Conference: “De Galileo a Einstein:Paradojas de la Luz” by Dr. Antonio Martínez Montalvo from University of Texas, Austin (19 March 2009). 100 persons attended;
- Special one- hour broadcast on Radio WKAQ 580 AM Programme “La Voz del Centro”. The title of this programme was “El Año Internacional de la Astronomía” and is preserved as podcast. 22 March 2009. (No estimate on number of persons impacted);
- Special Conference:”Galileo y el Universo” by Dr. Mayra E. Lebrón Santos (University of Puerto Rico, Río Piedras Campus). 24 March 2009. (12 persons);
- Special Conference: “Kepler and the IYA” by Dr. Carmen Pantoja (University of Puerto Rico) (30 persons);
- “100 Hours of Astronomy” Celebration 2-5 April 2009. (5000 persons participated). University of Puerto Rico, Interamerican University, JPL, NASA Puerto Rico Space Grant Consortium, San Juan City, Ateneo Puertorriqueño, Arecibo Observatory;
- “Library Week” at the University of Puerto Rico, Río Piedras Campus 13-17 April 2009, Exhibit of FETTU images “Life of Stars” at the Natural Sciences Faculty Library (13-17 April 2009), Special Conference by Dr. Mayra Lebrón “Lo que le pasó a Plutón” at the Natural Sciences Faculty Library (14 April 2009), and Exhibit of Accessible Astronomy at the General Library of the UPR-RP (15 April 2009). (100 persons);
- Open House of the Arecibo Observatory Visitor Center, 18 April 2009. 700 persons attended (Prof. Dolores Balzac, UPR-Mayagüez, Sociedad de Astronomía del Caribe and Sociedad de Astronomía de Puerto Rico);
- Astronomy Day Celebration at “Parque de las Ciencias Luis A. Ferré” 2 May 2009. 200 persons impacted. (Sociedad de Astronomía de Puerto Rico);
- Special Presentation “IYA2009 in Puerto Rico” at the “Science Education Conference Marking the Astronomy Year and the Darwin theory Bicentennial” by Prof. Gloria Isidro at Israel (23 May 2009). (200 persons);

- Special Education Workshop at Hateed College in Israel by Prof. Gloria Isidro on Accessible Astronomy. (24 May 2009). (30 persons);
- Visit of Astronauts from STS-119 Joseph Acabá and Steve Swanson (1-5 June 2009). 3250 persons impacted;
- Teacher Workshop "Celebrating Kepler in the IYA2009" by Dr. Carmen A. Pantoja (100 persons) 10 June 2009, for teachers of science and mathematics.;
- Picture of one section of the Moon submitted by Amateur Efraín Morales Rivera for the Special Project from the Republic of Malta "The Moon for all Mankind". (12 June 2009). (No estimate of persons impacted);
- Interview on local radio (WALO AM) Susan Soltero interviews Leonard Ellul Mercer from the Republic of Malta. (17 June 2009). (No estimate of persons impacted);
- Special Conference by Dr. Daniel Altschuler "Extraterrestre y Vida Extraterrestre" 17 June 2009 (30 persons). Sociedad de Astronomía de Puerto Rico;
- Special Star Party at the town of Maunabo (27 June 2009). (100 persons);
- Discussion Panel "Llegamos en Paz para toda la Humanidad" in celebration of the 40th anniversary of the Apollo 11 mission. (21 July 2009). (30 persons). Ateneo Puertorriqueño, Universidad de Puerto Rico;
- The Amateur Society "Sociedad de Astronomía del Caribe" visits the Dominican Republic (15-18 July 2009) offers special conference, shares astronomy outreach materials and participates of observing night. (440 persons impacted);
- Special Presentation of Accessible Education Activity "Jugando con Galileo" at the Arecibo Observatory Visitor Center (30 July 2009). This Astronomy Bingo (Braille) was tested with a group of visitors at Arecibo Observatory (20 persons impacted);
- Special Conference of Accessible Education Activity "Jugando con Galileo" at the Arecibo Observatory Library (6 August 2009). This Astronomy Bingo (Braille) was tested with a group of visitors at Arecibo Observatory (15 persons impacted);
- Special Presentation of the Astronomy theme children's book "Plutón se Casa" by Laura Salvá at the radio programme "Las Artes, la Cultura y tu" on Radio Atenas 1500 AM. (No estimate of persons impacted);
- Exhibit of FETTU images "Vida de las Estrellas" at the Polytechnic University 17-22 August 2009. (No estimate of persons impacted);
- Special Conference by Dr. Mayra Lebrón "Vida de las Estrellas" 17 August 2009 Polytechnic University (30 persons);
- Exhibit for "Día de Liderato Estudiantil: Accesa tu Máximo Potencial". University of Puerto Rico, Río Piedras Campus. We presented information about the "Starry Messengers" and about IYA2009. 19 August 2009 (no estimate of persons impacted);
- Special Article about IYA2009-Puerto Rico appears in "La Información" a newspaper of the Dominican Republic. 22 August 2009 (no estimate of persons impacted);
- Exhibit of FETTU images "Vida de las Estrellas" 24-28 August 2009 at TASIS school at Dorado with talk by Dr. Mayra Lebrón and Star Party on 26 August 2009 (200 persons);
- Special Exhibit of tactile and Braille astronomy materials at event of the American Federation for the Blind: "Noche de Catársis en Braille". (26 September 2009). (15 persons impacted);
- "Future Scientists" Outreach event for high school and middle school students coordinated with the 41st Division of Planetary Science meeting (5 and 7 October 2009). (860 persons impacted). Arecibo Observatoy, AAS, University of Puerto Rico, Division of Planetary Science;
- Scientists from the Division of Planetary Science meeting visit schools in Puerto Rico (six scientists give nine talks at different locations of the island) . 1, 2, 5, 7, 9, 13 October 2009 (800 persons impacted);
- Special Concert "The Planets" by Gustav Holst by the Puerto Rico Symphony Orchestra with FETTU images display. 10 October 2009. (1000 persons);
- Teacher Workshop "Celebrating Kepler in the IYA2009" by Dr. Mayra Lebrón (60 persons) 11 October 2009, for teacher of science and mathematics;
- Galilean Nights (22-24 October 2009). 150 persons;
- Special Conference at the American Association for the Advancement of Science (AAAS) Caribbean Division (24 October 2009). Dr. Antonio Lazcano, Dr. Daniel Altschuler and Dr. Mayra E. Lebrón (100 persons impacted);
- Open House of the Astronomy Laboratory at the University of Puerto Rico, Río Piedras Campus "IYA2009, Radio Astronomy and Space Weather" by Dr. Carmen A. Pantoja (28 October 2009). (40 persons impacted);

- FETTU NASA Travelling exhibit at the Interamerican University, Bayamón (3-7 November 2009). (2000 persons impacted) Prof. Dorcas Torres;
- FETTU NASA Travelling exhibit at the University of Puerto Rico, Mayagüez Campus (10-13 November 2009) (1000 persons impacted) Prof. Dolores Balzac;
- FETTU NASA Travelling exhibit at the University of Puerto Rico, Río Piedras Campus (17-29 November 2009) (1000 persons impacted) Dr. Carmen Pantoja and Dr. Mayra Lebrón;
- FETTU Exhibit of the "Life of Stars" Catholic University of Ponce (no estimate of persons impacted);
- FETTU 5 Braille and Tactile panels on exhibit at school for the Blind, 23-24 October 2009. (100 persons impacted). Prof. Gloria Isidro and Dr. Carmen Pantoja;
- FETTU "Life of Stars" exhibit 30 November — 4 December 2009 at University of Puerto Rico, Arecibo Campus (no estimate of persons impacted);
- Special Concert "The Planets" by Gustav Holst by the Puerto Rico Symphony Orchestra with Adler Video Suite at the University of Puerto Rico, Río Piedras Campus. 3 December 2009 (1000 persons);
- Open House for High School Students at the Natural Sciences Faculty of the University of Puerto Rico, Río Piedras Campus. Topic: The Moon and Science Careers. (9 December 2009). (50 persons). Prof. Gloria Isidro and Dr. Carmen Pantoja;
- FETTU Exhibit of "Life of Stars" at the University of Puerto Rico, Bayamón Campus (2000 persons) Dr. Javier Ávalos;
- Closing Event IYA2009 at the Interamerican University of Puerto Rico, Bayamón (~30 persons) Conference by Dr. Karín Ménendez-Delmestre, Carnegie Observatories.

## Inauguration of IYA2009 in Puerto Rico

Puerto Rico initiated the celebration of IYA2009 on 31 January at the "Ateneo Puertorriqueño", one of the oldest cultural centres of the island. The Starry Messengers (volunteer students) welcomed the visitors. The visitors received a copy of "Science, Technology, War and Peace" by Dr. Daniel Altschuler (UPR). This book contains the UNESCO Chair for Peace Education Lecture 2007-2008 that was presented at the University of Puerto Rico in 2008. They also received a copy of the inaugural programme , a NASA lithograph, an IYA2009 sticker and a copy of the musical composition "Seis a Galileo" by Dr. Ramón López Aleman (UPR). The "Seis" is a traditional musical rhythm from Puerto Rico. The interpretation was by Daniel Vázquez and "Los Cantores de Bayamón". As the visitors entered the room, they could listen to this composition that celebrates Galileo.

The Master of Ceremony for the event was Dr. José L. Alonso from the UPR. The President of the "Ateneo Puertorriqueño", Eduardo Morales Coll, Esq., welcomed the visitors. The Dean of Academic Affairs from the UPR-Río Piedras, Dr. Sonia Balet addressed the public. The Honorable Bernardo Márquez García, President of the Education Commission, read a Resolution from the House of Representatives of the Commonwealth of Puerto Rico that recognises the achievements of the professional astronomers, the amateurs and the Starry Messengers during IYA2009. Attending this inaugural event was Dr. Juan Martínez Rodríguez, Chancellor of the Interamerican University of Puerto Rico, the Director of the National Astronomy and Ionosphere Center (NAIC), Dr. Donald Campbell and the Director of Arecibo Observatory, Dr. Michael Nolan.

Dr. Carmen A. Pantoja and Dr. Mayra E. Lebrón Santos presented a summary of the core events for the IYA2009-Puerto Rico. Dr. Daniel Altschuler presented the conference "The Galileo Affair". An exhibit of 14 images from the "From Earth to the Universe" (FETTU) collection was displayed for the first time. Dr. Mayra E. Lebrón made a description of the images. These images will be available to schools of Puerto Rico. During the event the visitors with visual impairments could enjoy the collection by means of an adapted Braille guide of the exhibit. A children's book of astronomy "Plutón se Casa" ("Pluto gets Married") by Laura Salvá (adapted in Braille by Gloria M. Isidro) was also presented.

The central activity of this event was a remote observing session with a telescope from the Campus Observatory of Texas A&M University. This activity was made in collaboration with Dr. Lucas Macri and Mr. Don Carona from the Department of Astrophysics at Texas A&M. Observations were made of nebulas, galaxies and globular clusters. The public enjoyed the excellent presentation by Dr. Lucas Macri, who immediately connected with the audience and was able to transmit what an astronomer does, what the process of astronomical observing involves, and astronomy in general. Dr. Lucas Macri answered diverse questions from the audience.

This was an opportunity for the interaction of professional astronomers, amateurs, professors, teachers, students, artists, musicians and the general public.

Organisers: IYA2009 Organising Committee.

Website: http://www.astronomy2009pr.org






Estimated number of people who attended or were reached by this activity: 300.

Budget: 3000€

## 100 Hours of Astronomy

- Preparation of the video for the event: “Around the World in 80 Telescopes”: Students from the School of Communication at the University of Puerto Rico prepared the five-minute introductory video of Arecibo Observatory for this event under the supervision of Prof. Carlos Malavé (UPR).
- Astronomy Exhibit at the XI Biennial Conference 2009:”Access to Assistive Technology a Right for All”. Convention Center, San Juan 1-2 April 2009: This conference gathers a diverse audience including educators, counsellors, social workers, therapists, psychologists, lawyers, persons with physical disabilities, visually impaired or blind among others. This year some 600 persons assisted to the conference, 250 of these had some disability and 100 were blind. Ms. Gloria Isidro, a graduate student in Education at the University of Puerto Rico and Ms. Marlena Castro, UPR graduate in Education who is blind presented an exhibit on Astronomy for people with visual impediments in the Interactive Zone of this Conference. The exhibit was aligned with the topics covered during the 100 Hours of Astronomy event in Puerto Rico.
- Mars Exploration Rover Exhibit: Thousands of persons came to visit the “Museo de San Juan” between 9:00 a.m. and 4:00 p.m. on 2-5 April 2009. A full-scale model of the Mars Exploration Rover (MER) was displayed at the “Museo de San Juan” in Puerto Rico during the 100 Hours of Astronomy. The public had the opportunity to have a close view of this fascinating robotic explorer and learn about the discoveries made by the rovers which at present are on the surface of Mars (Spirit and Opportunity). One of the highlights was the direct contact between the public and the team of experts present on site each day ready to inform and answer questions. The rover was displayed in the interior patio of the Museum of San Juan and the event was packed with exciting astronomy activities including several hands-on activities for children.
- Observations with Optical Telescopes from “Castillo San Felipe del Morro” in Puerto Rico: The two groups of amateur astronomers of Puerto Rico: Sociedad de Astronomía de Puerto Rico (SAPR) and Sociedad de

Astronomía del Caribe (SAC) set up their telescopes at the grounds of “Castillo San Felipe del Morro” fort. This area, overlooking the San Juan bay, is a UNESCO World Heritage Site in San Juan, Puerto Rico. The fort dates back to 1539. The public was mostly integrated by families: children, parents, and grandparents and other relatives. Many students participated and many clubs such as boy and girl scouts.

- 100 Hours of Astronomy at Vieques: 100 Hours of Astronomy was celebrated at the island-municipality of Vieques. Vieques is located towards the east of the island of Puerto Rico. The exhibit “Vida de las Estrellas” a collection of images from the From Earth to the Universe Cornerstone project (FETTU) was displayed at the Museum “Fortín Conde de Mirasol” in the town of Isabel II. Several public talks were presented organised by the “Proyecto Observatorio de Vieques”.

Organisers: IYA2009 Organizing Committee.

Website: http://www.astronomy2009pr.org/100_horas.html




Estimated number of people who attended or were reached by this activity: 5000.

Budget: 6500€

## “Life of Stars” (Exhibit of FETTU images)

The collection “Life of Stars” is a selection of 14 images from the “From Earth to the Universe” Cornerstone project of IYA2009. Each image was printed in Vinyl (3x4 ft) to be hanged without a frame. A set of seven images is available on loan (free of charge) for schools or other community organisations. Information and suggestions for activities are available at our web page.

During 2009 the “Life of Stars” exhibit has been presented at 12 locations with more than 2000 persons impacted:

- IYA2009 Inaugural event in Puerto Rico, Ateneo Puertorriqueño, San Juan (31 January 2009);
- University of Puerto Rico Anniversary (Retorno Universitario), Natural Sciences Faculty, San Juan (15 March 2009);
- Fortín Conde de Mirasol, Isabel II, Vieques (2-7 April 2009);
- Néstor M. Rodríguez Rivera Library (13-17 April 2009) and José M. Lázaro Library (14 April 2009), University of Puerto Rico, San Juan;

- Piaget Bilingual Academy, Manatí (15 May 2009);
- Polytechnic University, San Juan (17-22 August 2009);
- TASIS, (K-12 school) Dorado (24-28 August);
- University of Puerto Rico, Rafael Mangual Coliseum, Mayagüez (10 October 2009);
- Catholic University: Pontificia Universidad Católica, Ponce (9-20 November 2009);
- University of Puerto Rico, Arecibo Campus (30 November 2009);
- University of Puerto Rico, Bayamón Campus (7-11 December 2009);
- University of Puerto Rico, Carolina Campus (25-29 January 2010).

Organisers: IYA2009 Organizing Committee.

Website: http://www.astronomy2009pr.org/Vida_Estrellas.html;
http://www.astronomy2009pr.org/Vida_Estrellas_Presentado.html



Estimated number of people who attended or were reached by this activity: 2850.

## Students Participate in the Division of Planetary Sciences 41st Annual Conference

A large scale public outreach event was coordinated by the IYA2009- Puerto Rico node and the Division of Planetary Sciences (DPS) meeting organisers on 5 and 7 October. More than 860 students and teachers from 27 schools (high school and middle school levels) participated of the event denominated “Future Scientists”. A guided tour exposed students to a professional conference and the way in which scientists communicate their discoveries and research. They received the latest information regarding the exciting LCROSS mission.

The Moon impact was scheduled for 9 October. The tour was guided by Prof. Dolores Balzac (UPR), Dr. Carmen Pantoja (UPR), and Dr. Mayra Lebrón (UPR) and included a visit to the poster section, the exhibit area at the conference, and an orientation about science careers. During the visit to the exhibit area the students had the opportunity to interact with EPO representatives of NASA AMMOS, NASA Planetary JPL, NASA Exoplanet Science Institute, James Webb Space Telescope, NASA Planetary Science Division, Space Science Institute, Spitzer Science Center, STScI, The Boeing Company, USRA/SOFIA, Arecibo Observatory and IYA2009-PR. The school students received diverse educational materials (a special lithograph of “Scientists” with information about careers

in science, and other information). Students had the opportunity to talk to scientists and outreach specialists about astronomy, research, and science careers. The organisers are grateful of the scientists that were attending the DPS conference that offered astronomy talks to the students: Dr. Pedro Valdés-Sada (Universidad de Monterrey, México), Dr. Karen Meech (University of Hawaii), Dr. Amy Lovell (Agnes Scott College), Dr. Orlando Figueroa (NASA/Goddard), Prof. Abel Méndez (UPR), Dr. Silvia Giuliatti Winter (UNESP, Brazil) and also to all scientists that interacted with the students at the poster area. The students were able to ask questions about different topics in astronomy and about science careers.

Members of the amateur astronomy society "Sociedad de Astronomía del Caribe" (Eddie Irrizary, Agustín Rivera (Sr.), and Agustín J. Rivera) worked as volunteers during this event. The students enjoyed a meteorite display by amateur collector Raymond Borges (Universidad del Turabo, student volunteer) and talked with Dr. Peter Jenniskens (SETI Institute) about asteroid 2008 TC3.

In addition to these two days at the Conference with the support of the O.P. and W.E. Edwards Foundation and Arecibo Observatory (NAIC) public talks were coordinated at different schools:

Dr. Orlando Figueroa (NASA/Goddard):
1) University of Puerto Rico, Mayagüez Campus;
2) Escuela Superior Inés María Mendoza, Cabo Rojo;
3) Universidad Politécnica.

Prof. Alberto Quijano-Vodniza (Nariño Observatory, Colombia):
1) Escuela Especializada en Ciencias, Matemáticas y Tecnología, Caguas.

Dr. Cristina Thomas (MIT) and Prof. Francesca DeMeo (Paris Observatory):
1) Escuela Elemental Adalberto Sánchez, Arroyo;
2) Escuela Superior Urbana, Patillas;

Dr. Stephen Squyres (Cornell University):
1) Universidad Interamericana Recinto Metro, San Juan.

Dr. David Rabinowitz (Yale University):
1) Escuela Germán Rieckehoff, Vieques;
2) Escuela 20 de septiembre de 1988, Vieques;

Organisers: IYA2009 Organising Committee.

Website: http://www.astronomy2009pr.org/DPS_meeting.html




Estimated number of people who attended or were reached by this activity: 1860.

Budget: 4300€

## Astronomy Concert

The Puerto Rico Symphony Orchestra under the direction of Roselín Pabón perfomed the concert “The Planets” at the Rafael Mangual Coliseum (University of Puerto Rico, Mayagüez campus, 10 October 2009. The event was free of charge. Each movement was accompanied by the presentation of images of the planets which the public could view on two screens set above the musicians. The selected images included images from the “From Earth to the Universe” (FETTU) Cornerstone project and images from diverse NASA missions. The superb performance of the orchestra, the illumination and the selected images conveyed the emotions of each movement and transported the audience into outer space. The orchestra was located at one extreme of the coliseum and the public was seated at the opposite side, facing the musicians.

The public arrived early and enjoyed the collection of images “Life of Stars” from the FETTU project. The images were displayed at the entrance of the coliseum. This was a family event, with children and adults of all ages enjoying the programme . Members of the “Sociedad de Astronomía del Caribe” (amateur astronomy association) and members of the “Starry Messengers” (college level student volunteers for IYA2009-Puerto Rico) greeted the public as they arrived and distributed the programme for the concert and a commemorative lithograph of the planets. The lithographs were prepared with images from the FETTU collection and with information about the planets and a mathematical challenge denominated “Galileo’s Challenge”.

Among the invited guests was Dr. Orlando Figueroa past Director of the Mars Exploration Mission (NASA) and who is currently the Director of Applied Engineering and Technology at NASA Goddard.

This event was organised by the IYA2009-Puerto Rico node, the Puerto Rico Space Grant consortium and the University of Puerto Rico, Mayagüez campus.

On 3 December 2009 the Puerto Rico Symphony Orchestra directed by Roselín Pabón performed the concert “The Planets” at the University of Puerto Rico, Río Piedras Campus. This presentation was accompanied of the Video Suite “The Planets” from Adler Planetarium that was created by Dr. J. Salgado (IYA2009 Special project).

Organisers: IYA2009 Organizing Committee.

Website: http://www.astronomy2009pr.org/Concierto.html



Estimated number of people who attended or were reached by this activity: 2000.

Budget: 18,700€

## “We came in Peace For All Mankind”: a Discussion Panel to Celebrate the 40 Anniversary of the Apollo 11 Mission

Puerto Rico celebrated the 40 anniversary of the Apollo 11 mission with a discussion panel held at the “Ateneo Puertorriqueño” in San Juan on 21 July 2009. The panellists included experts in science, journalism, religion and social sciences. The group included: Alex W. Maldonado — well-known journalist in Puerto Rico. Member of the “Inter American Press Association”, the “American Society of Newspaper Editors” and the “American Newspaper Publishers Association”, Margarita Mergal (UPR-RP) — Social Sciences Professor at the University of Puerto Rico. She was director of the Social Sciences Department at the General Studies Faculty. She worked at the Hispanic Institute of the Library of Congress and was editor in the Publications Programme at the Organization of American States. She has done research and published various articles on feminism in Puerto Rico. She is currently a professor at the Communications School at the University of Puerto Rico, Juan José Santiago — Jesuit Priest and a much solicited speaker on topics regarding the dialogue between different religions and cultures. Professor of Theology in the International Theological Institute of Puerto Rico. He has been a member of different consulting boards, such as the Puerto Rico Symphony Orchestra and the Ana G. Méndez Foundation, and Daniel Altschuler (UPR-RP) -Radio Astronomer and Professor at the Department of Physics at the University of Puerto Rico. He directed the Arecibo Observatory for 12 years and contributed to the construction of the “Fundación Ángel Ramos” visitor center. He is the author of numerous books and articles related to the public understanding of science. The moderator was Juan González Lagoa (UPR-Mayagüez) — Marine Biologist. He is the Associate Director of the Resource Center for Science and Engineering at the University of Puerto Rico, Mayagüez campus. Very active in outreach and education, he has been mentor of many students at all levels from PhD. to school children. He is well known in the island, and is an example of excellence and commitment to education in the community. The activity was initiated with a short film about the Apollo 11 mission. The panellists presented their thoughts in 10 minute presentations which generated a lively discussion with the public. The discussion focused on the significance of the Apollo mission in Puerto Rico and the world in 1969 and its significance today.

It was suggested by the public that the presentations made by the panellists be preserved in some format. The panellists and the IYA2009-PR organising committee agreed to prepare a printed version of the talks. After the event the public and panellists enjoyed an exhibition of materials related to space exploration. The image of "The Moon for All Mankind" prepared by the IYA2009-Malta node was also on display. Among the public was Efraín Morales Rivera, the amateur astronomer who provided the contribution from Puerto Rico to the IYA2009-Malta project. The collector Raymond Borges displayed his collection of meteorites.

Organisers: IYA2009 Organizing Committee.

Website: http://www.astronomy2009pr.org/Apollo11.html






Estimated number of people who attended or were reached by this activity: 30.

Budget: 380€

## Visit of Astronauts Joseph Acaba and Steve Swanson (STS-119)

During the week of 1-5 June 2009 the astronauts Joseph Acaba and Steve Swanson visited Puerto Rico and made presentations to thousands of persons at different locations of the island. Governor Luis Fortuño welcomed the astronauts at a ceremony at "The Fortaleza", the official residence of the governor of Puerto Rico. The astronauts received Resolutions from the Senate and the House of Representatives recognising their achievements in space. The astronauts took part of a reception at the State Department at which they interacted with students, professors, Puerto Rico Space Grant Consortium affiliates, members of the IYA2009-PR organising committee, government representatives and others. The astronauts visited the University of Puerto Rico at Río Piedras, the "Parque de las Ciencias" at Bayamón, the Polytechnic University, the Central Park of San Juan, they participated of the commencement act of the "Universidad del Este" and they visted the Arecibo Observatory "Fundación Ángel Ramos" visitor centre. They gave presentations, gave advise to the students and answered questions from the general public and the press. They signed autographs and took pictures with hundreds of persons in particular children.

Organisers: Puerto Rico State Department, Puerto Rico Space Grant Consortium, IYA2009 Organising Committee.

Website: http://www.astronomy2009pr.org/Space.html






Estimated number of people who attended or were reached by this activity: 3250.

## "IYA2009-PR Conference Series"

During 2009 there was a cycle of conferences that took place at different locations of the island presented by scientists and other professionals:

- Dr. Antonio Lazcano — Universidad Autónoma de México. AAAS Caribbean Division Meeting: "Astronomy and the Origin of Life: Celebrating IYA2009 and 150 Anniversary of the "Origin of Species" by Charles Darwin", San Juan, 24 October 2009;
- Dr. Orlando Figueroa — NASA Goddard Space Flight Center. Talks at: UPR-Mayagüez Campus, 2 October 2009, High School: Escuela Superior Inés María Mendoza, Cabo Rojo, October 2, 2009, Polytechnic University, San Juan, 3 de octubre del 2009;
- Dr. Daniel R. Altschuler — UPR-Río Piedras. Talks: "Extraterrestres", "El Caso Galileo";
- Dra. Mayra E. Lebrón — UPR-Río Piedras. Talks:"Galileo y el AIA2009-Puerto Rico", "Lo que le pasó a Plutón", "Taller sobre las Leyes de Kepler";
- Dr. José L. Alonso — UPR-Cayey Campus. Talk:"Astronomía vs Astrología";
- Prof. Mario Lanza Amaro — UPR-Río Piedras. Talk:"Large Hadron Collider (LHC) y el Supuesto Fin del Mundo";
- Dr. Ramon López Alemán — UPR-Río Piedras. Talks:"Huecos Negros y Ondas Gravitacionales","La Vida el Universo y el Final del Tiempo:Implicaciones de un Universo en Expansión Acelerada";
- Dra. Carmen A. Pantoja — UPR-Río Piedras. Talks:"El Sol, la Estrella más Cercana","Materiales Adaptados de Astronomía para Estudiantes con Impedimento Visual", "Kepler y el AIA2009";
- Dr. L. Nowakowski — UPR-Mayagüez. Talk:"Radiopulsars";
- Dr. E. Figueroa — MIT. Talk:"Materia Oscura";
- Dr. J. Friedman — UPR-Mayagüez. Talk:"Galaxias";
- Dr. L. Quiñones — UPR-Mayagüez. Talk:"El Regreso a la Luna";
- Ing. E. Irizarry — Sociedad de Astronomía del Caribe. Talk:"Exoplanetas";
- Dr. J. Rosado — UPR-Mayagüez. Talk:"Space Weather";
- Dr. Rafael J. Muller — UPR-Humacao. Talk:"La Tierra y la Luna";
- Dr. Juan G. González Lagoa — UPR-Mayagüez. Talk:"Observación Solar";
- Dra. L. Chizmadia — UPR-Mayagüez Campus. Talk:"Meteoritos";
- Dr. Abel Méndez — UPR-Arecibo. Talk:"Habitabilidad Planetaria";
- Dr. Ramón López- University of Texas, Arlington. Talk:"Clima Espacial";
- Dr. Alberto Martínez Montalvo — Univ. of Texas, Austin. Talks:"La Inquisición Católica y Galileo", "De Galileo a Einstein:Paradojas de la Luz";
- Prof. Harry Nieves — UPR-Ponce. Talk:"Galileo: La Inducción Ingénua y el Método Científico";
- Sr. Alex W. Maldonado — Journalist. Talk:"El Espacio, la Prensa y un Toque de Filosofía";
- Padre Juan José Santiago — Jesuit Priest. Talk:"40 años de Alunizaje";
- Dra. Margarita Mergal — UPR-Río Piedras. Talk: "Un Penúltimo Parteaguas";
- Dr. Abraham Ruiz — UPR-Humacao. Talk:"Meteoritos en Puerto Rico";
- Sr. Víctor Román — Sociedad de Astronomía de Puerto Rico. Talk:"Constelaciones";
- Sr. Armando Caussade — Sociedad de Astronomía de Puerto Rico. Talk:"Saturno";

- Dra. Cristina Thomas — MIT. Talk: “Descubriendo el Sistema Solar con observaciones telescópicas y misiones espaciales”;
- Ms. Francesca DeMeo — M.Sc.MIT. Talk: “Descubriendo el Sistema Solar con observaciones telescópicas y misiones espaciales”(charla en conjunto con Cristina Thomas);
- Dr. David Rabinowitz — Yale University. Talk: “Planetas Pequeños”;
- Sr. Alberto Quijano Vodniza — Observatorio de Nariño, Colombia. Talk: “Las Maravillas del Universo desde el Observatorio Colombiano en Nariño”.

Organisers: various in collaboration with IYA2009 Organising Committee.

Estimated number of people who attended or were reached by this activity: 1200.

Budget: 6500€

## NASA FETTU Travelling Exhibit

The NASA FETTU travelling exhibit was on loan to Puerto Rico during the month of November 2009. The exhibit was displayed at three different locations of the island and the five Braille panels were also displayed at the school for blind children: “Instituto Loaiza Cordero para Niños Ciegos”.

The first exhibition took place at the Interamerican University at Bayamón, Puerto Rico (3-7 November 2009). The event was organised by Prof. Dorcas Torres. The student volunteers helped with the events, serving as guides to the exhibit, distributing materials and were also guides at the demonstration tables. Several physics demonstrations were presented with the concepts of waves and light. Special conferences (3) on astronomy were organised. One activity was to draw your favourite image. The public included students from the university, university employees, general visitors, students from local schools, teachers and senior groups (more than 1000 persons).

The Travelling FETTU exhibit was displayed at Mayagüez, Puerto Rico (10 and 12-14 November, Eugene Francis Hall of the University of Puerto Rico, Mayagüez Campus). Some 700 persons visited the exhibit including teachers, students, Boy Scouts, Girl Scouts, college students and professors. The visitors were offered guided tours of the exhibits by Dr. Juan González Lagoa, Prof. Dolores Balzac, Prof. Sandra Troche, and volunteer students from the Society of Physics students and the amateur society “Sociedad de Astronomia del Caribe”. Students from the programme “Science on Wheels” presented science demonstrations and a special exhibit from the Seismic Network of Puerto Rico was presented by their outreach staff. 60 Teachers from the Educators Resource Center also visited the FETTU exhibit.

The final display of the FETTU images took place at Río Piedras, Puerto Rico (17-27 November 2009) at the Faculty of Natural Sciences of the University of Puerto Rico, Río Piedras Campus. More than 1000 persons visited the exhibit (students, professors, university employees, school children, and families). Visiting schools were offered guided tours of the exhibit. A “Family Day” took place on Sunday 22 November with guided tours, activities for the children (astronomy puzzles, How to Build a Solar Clock). For the family there was an educational Bingo denominated “A Jugar con Galileo” (“Let’s Play with Galileo”) and the presentation of the NASA/ESA/ASI movie “Ring World 2” about the Cassini-Huygens mission to Saturn and its moons. On 23-24 November the Tactile and Braille Panels were displayed at the library of the School for Blind Children: “Instituto Loaiza Cordero para Niños Ciegos”. On 24 November, Ms. Gloria Isidro made a presentation about IYA2009 and adapted astronomy materials for students and teachers of the school.

Organisers: Prof. Dorcas Torres (Interamerican University), Prof. Dolores Balzac (UPR-Mayagüez), Dr. Mayra Lebrón (UPR-Río Piedras), Prof. Gloria Isidro (UPR-Río Piedras) and Dr. Carmen Pantoja (UPR-Río Piedras).

Website: http://www.astronomy2009pr.org/Exhibicion.html





Estimated number of people who attended or were reached by this activity: 3000.

Budget: 5100€

## Making IYA2009 Accessible for Blind or Visually Impaired Persons

We developed a programme directed at undergraduate students, that prepared them to work as volunteers and gave them experience in outreach and how to communicate astronomy to the visually impaired. We included 22 college level students with diverse backgrounds and interests (two blind participants, http://www.youtube.com/watch?v=CStzUGJ7T1Q). We organised many events and materials described at our Blog (http://materialdidacticoparaciegos.blogspot.com/).

Some of these activities were:

- Recorded 1 hour TV programme about astronomy and IYA2009 in the show “ABC en Señas” (May 2008) on channel 6 (WIPR TV). This is a public service TV programme dedicated to the hearing impaired community. It presents interesting topics for this community and offers lessons in sign language. The show has been retransmitted several times in 2009.
- Outreach events at the “Fundación Ángel Ramos” Visitor Center at the Arecibo Observatory Radio Telescope (more than 700 persons). Displays of Braille and tactile materials about astronomy, a tactile version of the Arecibo Observatory (http://scitation.aip.org/journals/doc/AERSCZ-ft/vol_6/iss_1/1_1.html) and a Braille Astronomy Bingo (http://materialdidacticoparaciegos.blogspot.com/2008/08/jugar-con-galileo.html).
- IYA2009 Inauguration (January 2009). This event took place at the “Ateneo Puertorriqueño”, the oldest cultural centre of the island (300 persons attended). We included a display of a small collection of the FETTU cornerstone project (14 images about the life of stars, denominated FETTU “Life of Stars”) and displayed the Braille and tactile versions we developed for these images (http://materialdidacticoparaciegos.blogspot.com/2008/08/actividad-inaugural-aia-2009pr.html).
- FETTU “Life of Stars” collection was borrowed by different schools (estimate of 2850 persons impacted). We had a guide for the schools on our website which included audio versions of the Crab and Vela pulsars for the visually impaired (http://www.astronomy2009pr.org/Vida_Estrellas.html).
- “100 Hours of Astronomy” we participated with a special display for persons with special needs (http://ltp.upr.clu.edu/astrolab/IYA2009/event2.pdf). Puerto Rico received a special award of “Most Registered Events” for the “100 Hours of Astronomy” Cornerstone project. (Estimate 600 persons).
- The NASA FETTU travelling exhibit (50 images and five tactile and Braille panels) was displayed at three locations during the month of November (3000 persons visited the exhibit) and the five Braille panels were exhibited at the school for the Blind “Instituto Loaiza Cordero para Niños Ciegos” (http://www.astronomy2009pr.org/Exhibicion.html, http://www.fromearthtotheuniverse.org/event_photos3.php).
- “Kepler’s Laws” Teachers Workshop (130 teachers participated) which included a section how to make astronomy and maths accessible.
- We interacted and shared experiences with other countries: Israel (http://www.youtube.com/watch?v=-ae672phnac), Colombia (http://materialdidacticoparaciegos.blogspot.com/2008/08/aia2009-puerto-rico-

en-bucaramanga.html) and Spain (http://materialdidacticoparaciegos.blogspot.com/2008/08/volver-contemplar-las-estrellas.html).

Organisers: Dr. Carmen Pantoja, Dr. Mayra Lebrón and Prof. Gloria Isidro (University of Puerto Rico).






Estimated number of people who attended or were reached by this activity: 3000.
Budget: 5800€

## Star Parties at different locations of Puerto Rico

Star Parties at different locations of Puerto Rico were held each month during 2009 organised by the two major groups of amateurs: the “Sociedad de Astronomía del Caribe” and the “Sociedad de Astronomía de Puerto Rico”:

- January 24: Sociedad de Astronomía del Caribe (SAC) at Cabo Rojo, Sociedad de Astronomía de Puerto Rico (SAPR) at Corozal and SAPR at Ponce
- January 31: Remote Observing Activity with the Observatory at Texas A&M, Ateneo Puertorriqueño
- February 14 SAPR at Corozal
- February 17: Open House at Planetarium and Observations UPR-Mayagüez
- February 21: SAPR at Arecibo, SAC at Cabo Rojo
- February 28: SAPR at Ponce
- February 28: Observations — UPR-Mayagüez and SAC, La Parguera
- March 10: Open House at Planetarium and Observations UPR-Mayagüez
- March 16: Talk and Observations at School (Escuela Ramón Pérez Purcell), SAPR-Joaquín Pérez
- March 20 — Talk and Observations. SAPR, Colegio Ponceño
- March 21 — SAC at Cabo Rojo, SAPR at Ponce
- March 28 — SAPR at Corozal
- April 2 — 5: 100 Hours of Astronomy observations at San Juan and Vieques
- April 18: SAPR at Corozal
- April 21: Open House at Planetarium and Observations UPR-Mayagüez
- April 25: SAC at Cabo Rojo, SAPR at Arecibo, SAPR at Ponce
- May 2: SAPR at Bayamón (Astronomy Day)
- May 12: Open House at Planetarium and Observations UPR-Mayagüez
- May 16: SAPR at Arecibo
- May 23: SAC at Cabo Rojo, SAPR at Corozal, SAPR at Ponce
- June 13: SAPR at Corozal
- June 20: SAC at Cabo Rojo, SAPR at Arecibo, SAPR at Ponce
- June 27: SAPR at Maunabo
- July 15 — 18: SAC visits the Dominican Republic (talks and Observations)
- July 18: SAPR at Arecibo
- July 25: SAPR at Corozal, SAC at Cabo Rojo
- August 15: SAPR at Ponce
- August 22: SAC at Cabo Rojo

- September 12: SAPR at Arecibo, SAPR at Ponce
- September 19: SAPR at Corozal, SAC at Cabo Rojo
- October 10: SAPR at Corozal
- October 17: SAPR at Arecibo, SAPR at Ponce, SAC at Cabo Rojo
- October 22, 23 and 24: SAC at Rincón (Galilean Nights)
- November 5 and 7: Observations at the Interamerican University-Bayamón with SAC and SAPR
- November 10: Open House at Planetarium and Observations UPR-Mayagüez
- November 14: SAPR at Corozal, SAPR at Ponce, SAC at Cabo Rojo
- November 21: SAPR at Arecibo
- December 12: SAPR at Corozal
- December 19: SAC at Cabo Rojo, SAPR at Ponce
-

Website: http://www.astronomiapr.org/



Estimated number of people who attended or were reached by this activity: 1200.

## "Starry Messengers: College Level Volunteers for the IYA2009"

The "Starry Messengers" are a group of college students from Puerto Rico (30) that worked as volunteers during IYA2009 events. During 2008 the students received appropriate instruction on observational astronomy through a workshop held at Arecibo Observatory. The workshop prepared the students for outreach activities in astronomy. An innovative model of inclusion was developed, adapting all the activities and material to include blind or visually impaired persons. Two persons of the Starry Messengers team are blind. The workshop was funded by the NASA IDEAS-ER programme and received support from the Arecibo Observatory.

The students participated of different activities for people of all ages. Some of the activities included visits to schools, exhibitions of images from the FETTU Cornerstone project, presentation of the Mars Rover (NASA/JPL), adapted Braille exhibits for the blind, and invited speakers such as the Puerto Rican Astronaut Joseph Acaba. The "Starry Messengers" also volunteered during the 41st Division of Planetary Science annual meeting (October 2009) at Puerto Rico. Some of the students have published articles about IYA2009.

Some of the events in which the Starry Messengers have participated:

- Two “Open House” Events at the Arecibo Observatory Fundación Ángel Ramos Visitor Center (1400 persons attended) Inauguration in Paris (three students from Puerto Rico participated in Paris and three students participated at Arecibo Observatory of the eVLBI observations);
- Inauguration at Ateneo Puertorriqueño, 31 January 2009 (300 persons attended). Star parties Bayamón, Corozal, Ponce, Cabo Rojo, San Juan, Mayagüez, Arecibo Public Talks different locations on the island, different speakers;
- FETTU Exhibits — “Life of Stars” this is a selection from the Cornerstone project “From Earth To The Universe” (Ateneo Puertorriqueño and UPR-Río Piedras), NASA FETTU traveling exhibit (UPR-RP, UPR-Mayagüez)
- 100 Hours of Astronomy, 2-4 April 2009, Exhibit (for the first time in Puerto Rico) of the Mars Exploration Rover and Astronomical Observations at “El Morro” (5000 persons) Preparation of Introduction Video “Around the World in 80 Telescopes” for Arecibo Observatory;
- Activities at Schools The Starry Messengers have visited different schools;
- DPS 41st annual meeting (860 students and teachers at “Future Scientists” activity);
- Concert “The Planets” with Puerto Rico Symphony Orchestra (2000 persons).

Organisers: Dr. Mayra E. Lebrón Santos and Dr. Carmen A. Pantoja.

Website: http://www.astronomy2009pr.org/Starry.html






Estimated number of people who attended or were reached by this activity: 30.

Budget: 15,800€

## IYA2009 Closing Event

The IYA2009 closing event in Puerto Rico took place at the Interamerican University, Bayamón campus on 18 December 2009. All of the members of the PR Space Grant Consortium that participated in IYA2009 were invited. A talk about massive galaxies (“Galaxias Masivas y Luminosas — las Reinas del Universo Lejano”) was presented by Dr. Karín Menéndez Delmestre (Carnegie Observatories). Dr. Menéndez is a Puerto Rican astronomer. Dr. Mayra Lebrón presented a summary of IYA2009 in Puerto Rico. The IYA2009 organising committee and the UPR-Mayagüez IYA2009 organisers made a special recognition of the dedication to outreach and service to students and teachers in Puerto Rico of Prof. Dolores Balzac. Dr. Carmen Pantoja announced the special recognition from the IYA2009 US node for the excellent programmes in Puerto Rico. The United States IYA2009 node awarded a Celestron NexStar 60GT-SA telescope and six Celestron FirstScopes (part of the Developing Astronomy Globally Cornerstone project). These were awarded to representatives of the participating organisations as follows: the Celestron NexStar 60GT-SA telescope to Dr. Mayra Lebrón (UPR-Río Piedras), one Celestron FirstScope to Prof. Dolores Balzac (UPR-Mayagüez), one Celestron FirstScope to Prof. Dorcas Torres (Interamerican University), one Celestron FirstScope to Ing. Eddie Irizarry (Sociedad de Astronomía del Caribe), one Celestron FirstScope to Prof. Gloria Isidro (UPR-Río Piedras), one Celestron FirstScope to Mr. Benito Aponte (Sociedad de Astronomía de Puerto Rico) and one Celestron FirstScope to Mr. Vicente Rosario (Proyecto Observatorio de Vieques). Dr. Mayra Lebrón awarded certificates to all the persons that participated in the organisation of events. Dr. Carmen Pantoja presented a talk of the plans in 2010 (“El 2010 y el Futuro”).

Organisers: Dr. Mayra E. Lebrón Santos and Dr. Carmen A. Pantoja.

Estimated number of people who attended or were reached by this activity: 30.

Budget: 400€

## Evaluation

We have evaluation for some activities that took place in 2009 and will work with this material during 2010. The activities we evaluated were:

- Starry Messengers' Student Workshop;
- Arecibo Observatory Open House for the General Public;
- Future Scientists event with high school and middle school students;
- Kepler's Laws Teacher Workshop;
- FETTU NASA travelling exhibit.

## Lessons Learned

What worked well was: have clear goals, start early and work hard. The challenge is to work on a voluntary basis on a job that requires so much time and dedication.

## Legacy

Some materials that were produced for the IYA2009 will continue to be available:

- Galileo Challenge FETTU lithograph collection;
- Mars Exploration Rover lithograph;
- Kepler's Laws Teacher Workshop;
- Adapted Braille astronomy books;
- Astronomy Blog about adapted materials for blind and visually impaired;
- Collection of astronomy YouTube videos;
- Around the World in 80 Telescopes Arecibo Observatory video;
- Astronomy IYA2009 song;
- Astronomy IYA2009 poem.

We plan to continue in 2010 with:

- Evaluation materials obtained in 2009;
- Publication of newspaper supplement about astronomy;
- Publication of book about Apollo 11 anniversary event;
- Kepler's Laws Teacher workshop;
- FETTU Life of Stars exhibit for schools;
- Galileoscope Teacher workshop;
- Participation of GLOBE at Night.

# Uruguay

## National Node

Tabaré Gallardo (Facultad de Ciencias, Universidad de la República)

www.astronomia2009.org.uy

Official Languages
- Spanish

Number of organising committee members: 24
- Volunteers: 20
- Paid: 4

Population: 3 494 382

Number of people reached by IYA2009: 700 000

Budget: 60 000€

Sources:
- Agencia Nacional de Investigacion e Innovación
- UNESCO

## General Overview of IYA2009 activities in Uruguay

The Node was integrated by almost all organisations related to astronomy and we worked in coordination with education authorities. We had the sponsorship of several ministries and government institutions. The coordination between all persons in the Node was made almost entirely by e-mail. The Node was subdivided in several groups that worked with other volunteers in the organisation of the different activities. We covered a wide spectrum of activities reaching very different target populations. Activities involving telescopic observation and planetarium sessions were probably the ones that people best acknowledged. Activities with children, students and teachers were also very well received. We are well poised for the further enhancement of astronomy and science awareness in the future.

## Main Activities

### List of Activities

- Discovering our sky
- Galilean Card
- The Universe in your city
- Olympiads of Astronomy
- Latinamerican School of Astrobiology
- Astronomer for a weekend
- FETTU
- UNAWE
- GTTP
- Series of Workshops and Talks
- Astronomical Parks
- Sundials (Census and construction)

- Photography contest and Exhibition
- Light Pollution
- Galileoscopes
- Multimedia to the schools
- 14 Concerts celebrating IYA2009
- 100 Hours of Astronomy
- Interactive Census of Observatories
- Webpage
- History of Astronomy in Uruguay
- She is an Astronomer
- Stamps and phone card
- Astronomical Agenda and Calendars

## Discovering our Sky and Galilean Card

Star watching tour with talks and activities in cities around the country. A team of amateurs and teachers with telescopes travelled around the country organising sessions of astronomical observations in squares and schools. In order to register the observations it was distributed a “Galilean Card” for each participant. It was also distributed a flyer with an explanation of Galileo’s observations.

Organisers: Asociacion de Aficionados a la Astronomia and Node Uruguay.






Estimated number of people who attended or were reached by this activity: 10,000.

Budget: 2000€

## The Universe in your City

“The Universe in Your City — 19 Capitals Program”, consisted in travelling around the country’s 19 (province) capital cities and erecting the Kappa Crucis Digital Mobile Planetarium thus reaching a wide range of children of school age in Uruguay, and especially children in the so-called “critical contexts” (i.e. socially and economically deprived children). The equipment was transported together with the FETTU exhibition materials — and was set it up in open public spaces, staying in each location for one week and offering an average of nine daily 40-minute presentations. Each session featured an introduction on Galileo Galilei´s discoveries, projection of the night Uruguayan sky, remarking the significance of its cultural heritage, and a follow-up, assigning observation tasks to be performed with the help of a map of the sky drawn by the Kappa Crucis staff. 46,428 people participated in the sessions; however, many more visited the exhibition.

Organisers: Kappa Crucis.

Website: http://www.vigyanprasar.gov.in/Planetearth/iyaradio/





Estimated number of people who attended or were reached by this activity: 60,000.

Budget: 31,000€

## Olympiads

A knowledge competition oriented to high school students. At the first stage all students (approx. 1100) participated via the internet with a teacher as a supervisor. At the second stage, a more rigorous test must be approved. At the third stage 30 students participated in several activities. They were distributed awards and certificates to students, teachers and schools. Five finalists travelled to Brazil in order to participate in the Latin-American Olympiads of Astronomy and Astronautics.

Organisers: Node Uruguay.

Website: http://astronomia2009.org.uy/aia/olimp-237-ada-2008/




Estimated number of people who attended or were reached by this activity: 2000.

Budget: 4000€

## Latin American School of Astrobiology

A postgraduate course for Latin-American students with lectures given by 18 first level specialists, for example, Frank Drake participated via videoconference. Approximately 100 students participated. There were also conferences for the public.

Organisers: UNESCO and Facultad de Ciencias (UdelaR).

Website: http://www.astronomia.edu.uy/astrobiologia2009/

Estimated number of people who attended or were reached by this activity: 3000.

Budget: 10,000€

## Astronomers for a Weekend

Small groups of high school students spent a weekend working with the astronomers at OALM. The main programme of the Observatory is photometry and astrometry of asteroids and comets. The students collaborated in the procedures of taking and processing images. They also visited the planetarium and science museums.

Organisers: Observatorio Astronomico Los Molinos.

Website: http://oalm.astronomia.edu.uy/astsfds.html






Estimated number of people who attended or were reached by this activity: 150,000.

Budget: 200€

## From Earth to the Universe

A sample of 80 images from the FETTU collection was exhibited in a public park for two months. Talks, sky watching and other activities accompanied the exhibition. Flyers were distributed. The Major of the City was present in the opening. A digital version was also elaborated and exhibited.

Organisers: Centro Municipal De Fotografia (IMM) and Node Uruguay.

Website: www.montevideo.gub.uy/fotografia/salas/acieloabierto/astronomia/astronomia.html







Estimated number of people who attended or were reached by this activity: 40,000.

Budget: 1000€

## Workshops and Talks

Astronomy is a discipline in high school and is included in the curricula in primary education since 2009. In consequence there is a big demand on helping teachers to prepare their astronomy classes. Several workshops and UNAWE and GTTP activities were developed all over the year reaching hundreds of teachers and professors.

Organisers: Inspección de Astronomia (CES), Consejo de Educación Primaria, Dirección de Formación y Perfeccionamiento Docente, UNAWE-Uruguay, Asociacion de Profesores de Astronomia del Uruguay (APAU), Node Uruguay.

Estimated number of people who attended or were reached by this activity: 2000.

Budget: 1000€

## Astronomical Parks and Sundials

Several sundials were recuperated and others were constructed in open places and schools. An interactive census of sundials was created using Google Maps and a brochure about sundials was distributed to the public and students. Some astronomical parks with Solar Systems at scale were constructed, some very simple and others more sophisticated. Workshops and talks on construction of sundials were organised.

Organisers: Node Uruguay.

Website: http://astronomia2009.org.uy/aia/relojes-solares-en-uruguay-mapa/





Estimated number of people who attended or were reached by this activity: 4000.

Budget: 1000€

## Astrophotography contest and exhibition

An astrophotography competition inspired by TWAN was organised, combining elements from the sky and natural or artificial elements from our country. More than 300 digital photographs were received and some were chosen for an exhibition that was opened to the public from October to December in the Planetarium of Montevideo.

Organisers: Node Uruguay.

Website: http://suf.fisica.edu.uy/aia2009/concurso/



Estimated number of people who attended or were reached by this activity: 5000.

Budget: 1200€

## Calidad de Cielo (Light Pollution)

A website with activities like GLOBE at Night was developed in order to promote night sky awareness. Hundreds of reports were received mainly from schools and the data were translated to Google Maps.

Organisers: Node Uruguay.

Website: http://sites.google.com/site/cielouruguay/

Estimated number of people who attended or were reached by this activity: 300.

Budget: 400€

## Evaluation

Some activities had some feedback by means of a questionnaire or similar. We included a questionnaire in our website.

## Lessons Learned

International sponsorship (like UNESCO and IAU) is very important in order to obtain support from government and this one is very important to obtain support by private companies. But, avoid financial support from several sources because the accounting will be very complicated and it will be necessary to make complete reports for each source of money. Moreover each source of money imposes its own particular conditions that restrict the possibilities of action. Each activity must have a coordinator so that not all is on the National Coordinator.

## Legacy

We usually have outreach and education programmes developed by our astronomical associations (see for example www.astronomia.edu.uy/sua) or by state institutions (University, Secondary Education, Planetarium of Montevideo for example). These programmes have the same spirit of “Beyond IYA2009”. But we cannot sustain the activities with same intensity than in 2009.

# Uzbekistan

## National Node

Shurat Ehgamberdiev (Ulugh Beg Astronomical Institute)

www.astrin.uzsci.net/astro2009

Official Languages
- Uzbek

Number of organising committee members: 10
- Volunteers: 10
- Paid: 0

Population: 27 606 007

Number of people reached by IYA2009: 1000

Budget: 0€

## General Overview of IYA2009 activities in Uzbekistan

Uzbekistan is native land of the Middle Ages' famous astronomers as al-Beruni, Uluhg Beg. So Uzbekistanis keep in their memory with care heritage of their ancestry. The night sky here attracts astronomical observations. Uzbekistanis consider astronomical knowledge a pride. Many Uzbekistanis know Galileo's discoveries.

## Main Activities

### List of Activities

- Seminar-training for astronomical students, 27-30 April;
- Pattarn-making of Main instrument of Ulugh Beig's Observatory, June;
- Galilean Nights, 1-5 April and 22-24 October;
- Students' conference "Global Warming: reasons and consequence", 20 April;
- Students' conference "Contemporary observations sunspot magnetic field", 16 September;
- Organising a conference devoted to the 615th anniversary of Ulugh Beg in Paris together with Institute of Astronomy Paris;
- Opening Museum of Astronomy, 16 December;
- Printed special issue of the main science-popular magazine FAN va Turmush (Science and Life) dedicated to IYA2009 intituled Astronomy in Uzbekistan (cultural heritage and science);
- More than 50 radio and TV transmission of lectures on astronomy, more than 40 papers in the local magazines and newspapers;
- Reports on international astronomical meetings;
- More than 900 people have attended excursions in the museum of astronomy.

### Seminar-training for astronomical students

Astronomical students from National University of Uzbekistan, Tashkent State Pedagogical University, Samarkand State University, Qarshi State University, Andijan State University, Namangan, Jizzax, Nukus, Qokand and Angran State Pedagogical Institutes were attended the seminar-training. Professors Akhmedov, Sattarov, Ehgamberdiev and Turaqulov have lectured on a basic and modern astronomy. Students took part in discussions on modern astronomic problems.

Organisers: Astronomical Institute Academy of Sciences of Uzbekistan.

Estimated number of people who attended or were reached by this activity: 50.

## Galilean Nights: 22-23 October

Observations of the Moon and Jupiter and its Galilean satellites took place on the university backyard(103 Yusif Khos Khojib str.) and Bobur park of Tashkent. The observations were attend by students of Tashkent State Pedagogical University (www.galileannights.org/events/report) (more then 100) and others from Tashkent University.

Organisers: Tashkent State Pedagogical University.

Estimated number of people who attended or were reached by this activity: 300.

## Students' conference "Contenary sunspot magnetic field observations"

Nine students of Tashkent State Pedagogical University have reports on magnetic field characteristics, magnetic field of Earth, Earth's magnetosphere, Hale's first observations of sunspot magnetic field, solar magnetism, stellar magnetism and magnetism in the Universe. The reports were discussed by other participants. It was noted by students the important part of the magnetic field in the Universe.

Organisers: Tashkent State Pedagogical University.

Estimated number of people who attended or were reached by this activity: 70.

## Opening Museum of Astronomy

16 December in Astronomical Institute AS of Uzbekistan was the opening of Astronomical Museum. Representatives of UNESCO in Uzbekistan and President Academy of Sciences of Uzbekistan were at the opening. Teachers of astronomy, students Tashkent State Universities (more than 70 people) attended the opening. To date more than 900 people have visited the museum.

Organisers: Astronomical Institute AS of Uzbekistan.

Estimated number of people who attended or were reached by this activity: 70.

# Vatican City State

## National Node

José G. Funes, (Vatican Observatory)

http://www.astron omy2009.va/

Official Languages
- Latin
- Italian

Number of organising committee members: 5
- Volunteers: 0
- Paid: 5

Population: 826

Number of people reached by IYA2009: Unknown

Budget: 40 000€

Sources:
- Funds of the Vatican Observatory
- Sponsors

## General Overview of IYA2009 activities in the Vatican City State

Though the Vatican Observatory has a small staff, the impact of the activities was very important. IYA2009 helped to raise the profile of astronomy in the Vatican. Even today we received requests from the media and the general public. Unfortunately we cannot handle all the requests.

## Main Activities

### Celebration of the International Year of Astronomy 2009 in Vatican City

The Governorate of the Vatican City State and the Vatican Observatory has organised a celebration of the International Year of Astronomy 2009 in Vatican City on 30 and 31 October. The two-day celebration included an address at the Pontifical Academy of Sciences by Prof. John Huchra of Harvard-Smithsonian Center for Astrophysics and President of the American Astronomical Society with the title “From Galileo to Hubble: Astronomy in the 21st Century”. The programme also included a tour of the Tower of the Winds at the Vatican, built in 1582 at the time of the Gregorian Reform of the Calendar and first location of the Vatican Observatory; a visit to the Vatican Secret Archives, the Sistine Chapel, and the exhibition ASTRUM 2009 at the Vatican Museums. On display in this exhibition there are 130 items, including Galileo Galilei’s original handwritten notes detailing his observations of the Moon, and his publication “Starry Messenger” from 1610. The highlight of the day is a private audience with Pope Benedict XVI who will address an international group of renowned astronomers. On 31 October, a tour of the new headquarters of the Vatican Observatory in the Vatican Gardens at Castel Gandolfo is planned. Pope Benedict XVI officially inaugurated the Vatican Observatory’s new headquarters on 16 September.

### Book on Astronomy and the Vatican

The Specola Vaticana (Vatican Observatory) and the Governatorato of the Vatican City State published, in English and Italian, a book on Astronomy and the Vatican, a popular-level gift-sized volume outlining the work of the Vatican Observatory and the rich history of the Church and astronomy. The book was printed by the Vatican Press

in collaboration with Our Sunday Visitor and De Agostini. The Spanish and Arabic translations will be available soon.

### International Symposium

On 21-26 June, the Vatican Observatory held a week-long international symposium on the role of astronomers and astronomy in 21st Century society. Gathering past participants and alumni of the Vatican Observatory Summer Schools (VOSS), which have been bringing young astronomers to Castel Gandolfo since 1986, this symposium was the third such "Super-VOSS" (others were held in 1998 and 2002). The morning sessions were devoted to research talks, where the participants could share with one another the work they have been doing since their summer school experiences; the afternoon sessions were devoted to the issues of science education and the dialogue between science and culture.

### Exhibition of historical astronomical instruments at the Vatican Museums

From 16 October through 16 January, the Vatican Museums, the Specola Vaticana, and the Italian Istituto Nazionale di Astrofisica (INAF) sponsored an exhibition of historical astronomical instruments at the Vatican Museums, centred on the history of astronomy in the Italian peninsula. Other museums and institutes throughout Italy are also involved. The topics covered included astronomy before Galileo; Galileo's telescope; 17th Century astronomy; the first modern star charts; the birth of astrophysics (where the work of Fr. Angelo Secchi, SJ, in Rome in the mid 19th Century played a crucial role); and astronomy in Italy during the last 100 years. Among the materials that the Vatican Observatory will be exhibiting include an astrolabe from 1582, a telescope used in the Vatican's eclipse expedition of 1887, and a number of photographic plates and documents from the Specola's involvement in the "Carte du Ciel" project, the first photographic atlas of the stars, dating from 1892. The exhibition received about 11,000 visitors.

### Study Week on Astrobiology

On 6-11 November 2009, the Vatican Observatory participated in the organisation of a Study Week on Astrobiology at the Pontifical Academy of Sciences. Astrobiology is the science concerned with understanding life in the Universe and with the search for extraterrestrial life; it was the topic of our Summer School in 2005.

In addition, the Vatican Observatory is participating in a number of the international activities of IYA2009. These include the public outreach programme "400 Years of the Telescope" in the United States involving a television programme and planetarium shows; and the Cosmic Diary, a weblog (http://cosmicdiary.org/) where astronomers from around the world share their daily experiences as astronomers on interactive blogs. The Vatican Advanced Technology Telescope (VATT) was one of the sites featured in the webcast "Around the World in 80 Telescopes" as a part of the ongoing 100 Hours of Astronomy, running from 2-5 April, a Cornerstone project of the International Year of Astronomy 2009.

## Lessons Learned

We have learned that people are excited about astronomy, a science that fulfils the most genuine desires of the human spirit.

## Legacy

We don't plan any education and public outreach programmes though we are continuously engaged in these activities.



# Venezuela

## National Node

César Briceño (Centro de Investigaciones de Astronomía — CIDA)

http://www.astronomia2009.org.ve/

Official Languages
Spanish

Number of organising committee members: 0
- Volunteers: 0
- Paid: 0

Population: 26 814 843

Number of people reached by IYA2009: 75 000

Budget: 400 000€

Sources:
- Centro de Investigaciones de Astronomía
- Science Development Foundations (Fundacites)
- Private sponsors
- Universities
- Venezuelan Association for the Advancement of Science

## Main Activities

### List of Activities

- 1. 20 UNAWE teacher training workshops
- 2. 10 UNAWE festivals
- 3. 70 Travelling Planetarium activities
- 4. 14,473 astronomy educational booklets distributed in 18/24 states
- 5. ~100 astronomy public talks throughout the country
- 6. 10 astronomy courses
- 7. 92 astronomy@school activities
- 8. 63 activities in science fairs and community activities
- 9. 30 amateur astronomy club activities
- 10. >80 radio & TV astronomy presentations
- 11. 25,902 visitors received at the visitor centre of the Venezuela National Astronomical Observatory
- 12. 27 star parties
- 13. 5 international astronomy outreach meetings attended
- 14. 1 national amateur astronomers meeting
- 15. 4 IYA2009 opening / closing ceremonies
- 16. 1 IYA2009 National Node meeting
- 17. 6 astronomy exhibits (including FETTU images)
- 18. 1 IYA2009 National Node webpage
- 19. Design and fabrication of the Astrobus project, an on-wheels astronomy activities centre and small observatory

## CIDA-UNAWE workshops

This project consists in a series of astronomy workshops aimed at: 1) forming “multiplying agents” that can bring astronomy to kids in school, 2) sparkling and orienting scientific inclinations among children, with an emphasis on underprivileged kids. During 2009 CIDA organised 20 of these workshops, together with 10 UNAWE festivals, in which kids participate actively, exhibiting their creative paintings and 3D representations of astronomical subjects. CIDA supports these activities by donating printed support material.

Organisers: UNAWE, CIDA, Venezuelan office of the UNESCO, local schools, Venezuelan Ministry of Education.

Website: www.unawe.org










Estimated number of people who attended or were reached by this activity: 3800 teachers, 30,000 children.

## Travelling Planetarium

In an effort to bring astronomy to people across Venezuela, CIDA has developed the Cocuyo I mobile planetarium, designed and built entirely in Venezuela with local materials and technology. This first prototype has evolved into an important and key educational tool, as it has drawn the interest and excitement from large crowds of adults and kids alike, in every city and town it has visited. The system was unveiled on 30 July 2008 at a Science Fair in Caracas, with the attendance of the Minister for Science and Technology and other high ranking government officials.

During 2009 the Cocuyo I planetarium visited six states (of the 24 states in the country) in various science and astronomy outreach events, receiving 9313 visitors. Given it is a prototype and its transport/installation requires some appreciable logistics and funding, we could not pursue a more extensive travel plan this year, but it is expected that in 2010 and further years its travel schedule will be more busy. Still, everywhere it goes, its nine-metre diameter dome attracts and impresses visitors, making it the focal point of any event in which it is installed.

Organisers: CIDA.

Estimated number of people who attended or were reached by this activity: 9300.

## Astronomy educational booklets

During IYA2009, CIDA's Public Outreach programme concluded a series of astronomy booklets aimed at school children, titled "Un Instante en el Universo" (An Instant in the Universe). This collection of eight booklets in full colour is specifically designed to capture the attention and interest of children, adolescents and educators, both because of its graphical design and its content. Its various sections include practical activities, general astronomy concepts, recreational activities, archeo and ethno-astronomy, biographies of Venezuelan astronomers, the research carried out at the Venezuela National Astronomical Observatory, collectable images, etc. In 2009 14,473 booklets were distributed in 18 of the 24 states across Venezuela. They are also available as PDF files that can be downloaded from the CIDA website or from the Venezuela IYA2009 National Node website. The material has been contributed both by professional astronomers and educators. In 2010, additional funds have been granted for reproducing close to 900,000 booklets for distribution in schools countrywide. The funding for this project came from the National Foundation for Science & Technology (FONACIT), a government agency.

Organisers: CIDA/FONACIT.




Estimated number of people who attended or were reached by this activity: 14,500.

## Astrobus

CIDA is developing a mobile astronomy exhibit and activity centre that can reach almost any corner of the country: the Astrobus. Designed and built entirely with local technology an materials, it is hoped it will become an important and efficient outreach tool, especially for small schools and communities in remote locations. CIDA's Astrobus includes a Celestron 8 telescope plus three small refractors for day and night-time observing, a large LCD TV for displaying audiovisual materials (movies, etc.), a small astronomy exhibit, learning materials and hands-on activities.

Organisers: CIDA.







## Gran Noche de Estrellas

The Great Starry Night, or Gran Noche de Estrellas has been a highly successful initiative of the Asociación Zuliana de Aficionados a la Astronomía (AZAFA — Zulia State Amateur Astronomers Association). They organised 26 star parties during 2009, two or more per month, with the large majority taking place in a nice boulevard bordering Lake Maracaibo, in the city of Maracaibo (second most populated in Venezuela), and in the premises of Maracaibo's Planetarium.

Organisers: Asociación Zuliana de Aficionados a la Astronomía (AZAFA).

Website: http://www.aiazulia.org.ve/pasado.htm




Estimated number of people who attended or were reached by this activity: 1500.

## Astronomical Exhibits and Festivals

During 2009 several Venezuelan amateur astronomy groups, as well as CIDA and other institutions organised astronomy exhibits and festivals, many of which also included public talks by professional or amateur astronomers, exhibits by school children and in some cases the presence of the CIDA travelling planetarium. Among those are:

- Images from the Cosmos, an exhibit. Colegio de Ingenieros, Valencia, 16-21 March. Organised by Asociación Carabobeña de Astronomía, Universidad de Carabobo and Asociación Venezolana para el Avance de la Ciencia (Capítulo Carabobo);
- - IV Jornada Nor-Oriental de Astronomía, Instituto Pedagógico de Maturín, Universidad Pedagógica Experiemental Libertador (UPEL), Maturín, 25-27 March. With the participation of UPEL, CIDA (Mérida), Planetario Humboldt (Caracas), Universidad de los Andes (Mérida), Fundacite-Monagas, UNESCO-Venezuela, Grupo de Estudiantes Investigadores en Astronomía y Física, and local schools. Attended by approx. 1400 people (mostly kids);
- Lagunillas Astronomy Festival, Lagunillas, 2-3 April. Organised by CIDA and local schools. About 2200 attended;
- The Universe, an exhibit of astronomical images, paintings and artifacts. Lia Bermudez Art Center, Maracaibo, 26 July. Organised by Asociación Zuliana de Aficionados a la Astronomía, Laboratorio de Astrofísica y Física Teórica — Universidad del Zulia, Grupo Astronomico del Zulia;
- Astronomy Festival: “World Week of Space”, Mérida, 3-10 October. Organised by CIDA. Some 1800 people attended;
- Colón Astronomy Festival, Colón, 21-23 October. Organised by CIDA and local schools. Some 1500 people attended.

Organisers: Various Amateur Astronomy Associations, CIDA.







Estimated number of people who attended or were reached by this activity: 9000.

## IYA2009 opening and closing ceremonies & Venezuela National Amateur Astronomy Meeting

Amateur astronomers associations like the *Asociación Larense de Astronomía, Asociación Carabobeña de Astronomía*, and CIDA, all organised IYA2009 opening and closing events, which were characterised by colourful exhibits, including FETTU images, public talks by professional astronomers, shows at the travelling planetarium, special astronomy-oriented puppet shows, day and night-time telescope observing, and in the case of Mérida, special guided tours to the National Astronomical Observatory.

At the Humboldt Planetarium in Caracas, during 10-12 October, took place the XXI Venezuelan National Amateur Astronomy meeting, which gathered about 50 participants from all around the country, including a few professional astronomers who delivered specialised talks. It was a moment for sharing technical and educational expertise and projects, and to put in perspective the experience had so far of IYA2009 among amateur astronomers, and to plan the activities for the last three months of the year 2009. More than 70 schools with about 200 students each visited and wondered at the marvel of astronomy.






Estimated number of people who attended or were reached by this activity: 3500.

## AstroCamp

AstroCamp is an initiative carried out by amateur astronomers, consisting weekends for all the family, from nine years old and above, where newcomers to astronomy can mingle with seasoned amateur astronomers in a relaxed, informal setting, socialise, interact with nature and at the same time learn and enjoy astronomy. The usual contents include basic theoretical and practical astronomy courses, tips on how to use telescopes, naked-eye and telescopic observing, astrophotography, practical mini-workshops such as how to build and use a sundial, how to build a water-propelled rocket, astronomy video-forums, etc. The locations for these astronomy camps are picked far from city lights, in a beautiful natural setting. The AstroCamp organised by ALDA is a more “down to the basics outdoor experience”, and they combine astronomy with a little geology field trips, while the one organised by SOVAFA is more astronomy-only, and takes place in a rural setting with basic commodities (bunk beds, showers, dining hall, etc.) The AstroCamp organised by SOVAFA takes place over weekends from July to December, while the one organised by ALDA is a three day outing which is organised a few times a year.

Organisers: Two Venezuelan amateur societies have been involved with the AstroCamp idea: the *Sociedad Venezolana de Aficionados a la Astronomía* (SOVAFA), located in the capital city of Caracas, and the *Asociación Larense de Astronomía* (ALDA), based at Barquisimeto, the 4th largest city in the country.

Website: http://www.sovafa.com/blank5.html; http://www.tayabeixo.org/alda/alda_2010/iii_astrocamp.htm






Estimated number of people who attended or were reached by this activity: 400.



# Vietnam

## National Node

Lan Nguyen (Hanoi National University of Education)

http://vatly.hnue.edu.vn

Official Languages
- Vietnamese

Number of organising committee members: 5
- Volunteers: 5
- Paid: 0

Population: 85 789 573

Number of people reached by IYA2009: 1000

Budget: 1000€

Sources: Not Available

## Main Activities

### List of Activities

- National competition on astronomy.
- Observation Solar eclipse.
- World Space Week.
- Courses on astronomy on national television.
- Publish books and exhibitions on astronomy.

### National contest on astronomy for high school students and amateurs in May 2009

The target of this contest is providing opportunity for everyone to have a chance to get more knowledge on astronomy.

Organisers: Vietnam Astronomical Society and Hanoi National University of Education.




Estimated number of people who attended or were reached by this activity: 300.

Budget: 560€

## Observation the Solar eclipse in July 2009

On 22 July 2009, there was a solar eclipse visible in Hanoi. Although it was not a total eclipse, we Vietnamese were very excited. We introduced and organised observations for everyone and there were many Vietnamese journals highlighting this event.

Organisers: Vietnam Astronomical Society.







Estimated number of people who attended or were reached by this activity: 500.

## Teaching astronomy on the national television channel for Scientific & Educational Programming (VTV2)

We have been teaching a course on astronomy on the television in order to improve the knowledge of citizens on astronomy.

Organisers: Vietnam Television and Vietnamese Astronomical Society.

Website: http://www.vtv.org.vn/en/





Budget: 400€

## World Space Week

There are several activities for WSW such as firing of missiles and building small telescopes.

Organisers: Astronomical Amateur Clubs.



Estimated number of people who attended or were reached by this activity: 200.

## Publish books and exhibitions on astronomy

High school students have collected, compiled, translated, painted the pictures about Vietnamese myths / legends about stars and the Universe. These Vietnamese stories tell us not only about astronomical knowledge but also about love and relationships. This project is a great lesson for people who want to learn more about both astronomy and culture.

There are several books by Vietnamese on astronomy. We have published the Vietnamese books on astrophysics for undergraduate students. These books are used for the junior and senior students.

Organisers: Vietnam Astronomical Society and Education Publishing.

Estimated number of people who attended or were reached by this activity: 300.

## Courses and seminar on astrophysics

Several lectures on astronomy were organised at Vietnam universities.

Organisers: Vietnamese universities.



# Yemen

## National Node

A. H. Sultan
Physics Department / Sana'a University
ahsultan@y.net.ye

Official Languages

- Arabic
-

Number of organising committee members: N/A

-

Population: 23 580 000

Number of people reached by IYA2009: N/A

Budget: N/A

## General Overview of IYA2009 activities in Yemen

Information not available



# Zambia

## National Node

Prospery C. Simpemba (Astronomers Without Borders, Copperbelt University and Space Generation Advisory Council)

Official Languages
- English

Number of organising committee members: 6-10
- Volunteers: 6-10
- Paid: 0

Population: 12 935 000

Number of people reached by IYA2009: 500 000

Budget: 4500€

Sources:
- Local institutions
- Individual sponsors

## Main Activities

### List of Activities

- Launch of IYA2009 in Zambia
- Yuri's Night
- IHY-Africa/SCINDA Workshop 2009
- Outreach to Hilcrest High School
- World Space Week
- Seminar on Space Science and Astronomy
- Outreach to Lechwe Trust School
- Cassini Scientist for a Day Essay Contest
- AstroBook Drive Zambia

### Launch of IYA2009 in Zambia

Officially, IYA2009 was launched in Paris, France in January 2009. At the official launch, Zambia was represented by a then University of Zambia student Melody Mwewa. Back home, there were no activities until the time when the IYA2009 SPoC for Zambia was appointed in February 2009. From this time onwards the SPoC started to engage the community and the two main public universities in a number of public outreach activities.

The launch of IYA2009 in Zambia was held on 6 April 2009 at the University of Zambia by Dr. H. V. Mweene at 19:00 local time. The launch coincided with the commemoration of Yuri's Night. There were PowerPoint presentations by selected UNZA students from a committee on astronomy under the University of Zambia Physics Students Association (UNZAPHYSA) and some physics lecturers on various aspects of astronomy and space science technologies. A stargazing session was then accorded to the attendees thanks to the powerful GOTO programmable telescope held at UNZA.

Organisers: Dr. K. Hansingo, Christopher Kaluba, Melody Mwewa, Prospery C. Simpemba, Nawa Manda, Patson Kasongo and Womba Soneka.



Estimated number of people who attended or were reached by this activity: 5000.

## Yuri's Night

Yuri's Night is a celebration of humanity's achievements in space. On 6 April 2009 we commemorated Yuri Gagarin's first flight into space (in 1961) and the first launch of the US Space Shuttle (in 1981). University of Zambia students and members of the community joined in the fan and observed the clear night sky using a telescope. There were presentations before the stargazing activity to prepare the participants.

Organisers: Dr. K. Hansingo, Christopher Kaluba, Melody Mwewa, Prospery C. Simpemba, Nawa Manda, Patson Kasongo and Womba Soneka.

Website: www.yurisnight.net

Estimated number of people who attended or were reached by this activity: 100,000.



## IYH-Africa/SCINDA 2009 Workshop

The second IHY/SCINDA workshop was held in Livingstone Zambia from 7-12 June 2009. It was officially opened by the Zambian Minister of Science and Technology, Honourable Gabriel Namulambe. The workshop brought together many scientists from Africa, America and Europe. A good number of graduate and undergraduate students, mostly from Africa, were in attendance.

The section on education and public outreach gave us an opportunity to reach to senior scientists in space science and present to them the good works being undertaken by young professionals and amateur astronomers. Susan Murabana had a chance to give an oral presentation on Hands-on the Universe and Universe Awareness while Prospery Simpemba had a poster presentation on Youth Initiatives in the promotion of space science and astronomy. In the poster presentation, the activities of SGAC, Astronomers Without Borders (AWB) and Space Generation Zambia were outlined.

We had a great opportunity to meet and discuss our activities in our respective countries: Kenya and Zambia. Another very important outcome was the meeting with Kabongo Leba Guy who was motivated to become a member of SGA and agreed to start a group in his country — the Democratic Republic of the Congo. The last day of the workshop saw the official establishment of the Africa Geophysical Society (AGS).

Organisers: Prof. Marius Potgier, Dr Lee-Anne Mackinnel, Mr Nchimunya Mwiinga, Dr. Patric Sibanda, Mr. J. B. Habarulema, Mr. Stefan Lotz, Mr. Petro Sieberhagen and Mr. Peter Kalebwe (as Local Organising Committee).

Website: www.unza.zm/ihyafrica2009 (deactivated).





Estimated number of people who attended or were reached by this activity: 123.

## Outreach to Hilcrest High School

We paid at least three visits to Hillcrest Technical High School and presented some astronomy software and hands-on lessons to a class of over 100 students. The outreach team comprised of approximately 10 University of Zambia undergraduate physics students, Prof. Abebe Kebede (North Carolina A & T State University, USA), Chibueze James (University of Nigeria), Scherrer Deborah (Stanford University), Dr. Bedoe Shelton (University of

Liberia), Kabongo Guy Leba (Democratic Republic of Congo), Susan Murabana (NPoC for Kenya) and Prospery Simpemba (NPoC for Zambia).

The high school students were highly motivated and excited about space science and astronomy. The management of the school was highly welcoming and gave us all the time we asked for to be with their students. These students should be able to implement some activities after the training sessions we had with them.

Organisers: Mr. Moshen Mokhta, Susan Murabana, Prof. Abebe Kebede, Prospery C. Simpemba, Nchimunya Mwiinga.

Estimated number of people who attended or were reached by this activity: 300.

## World Space Week

World Space Week in Zambia was organised by the Copperbelt University in partnership with the University of Zambia and Lechwe Trust School. The funding was provided by the Copperbelt University through the School of Mathematics and Natural Sciences. Two events were organised: International Year of Astronomy 2009 talk at Lechwe Trust School on 2 October 2009 at the school assembly attended by about 200 pupils and some teachers, and a seminar on space science and astronomy which attracted participation from 16 Kitwe based high school JETS, JETS coordinators and the Copperbelt university students and faculty members of staff. Motivating presentations were conducted by university lectures on astronomy, space science and technology and this spiced by interactive programmes with the planetarium dome and telescope which were provided by the Physics Department of the University of Zambia. Over 91 persons attended the one-day seminar.

Organisers: Mr P. C. Simpemba, Mr. W. Mbulwe, Mr. G.T. Baliga, Mr. W. Miyoba, Mr. J. Jumbe Mrs. S. George, Mr. George.







Estimated number of people who attended or were reached by this activity: 500,000.

Budget: 800€

## Seminar on space science and astronomy

The seminar on space science and astronomy took place on 9 October 2009 at the Copperbelt University Civil Engineering Lecture Theatre from 08:00hrs to 12:30. This seminar was an event for World Space Week 2009 and part of the activities for IYA2009. The World Space Week is an international celebration of science and technology, and their contribution to the betterment of the human condition. The United Nations General Assembly declared in 1999 that World Space Week will be held each year from 4-10 October. These dates commemorate two events:

- 4 October 1957 — Launch of the first human-made Earth satellite, Sputnik 1, thus opening the way for space exploration.
- 10 October 1967 — The signing of the Treaty on Principles Governing the Activities of States in the Exploration and Peaceful Uses of Outer Space, including the Moon and Other Celestial Bodies.

The theme for World Space Week 2009 was “Space for Education”. This theme encouraged participants to reflect during World Space Week on the space to:

- Educate people around the world about the benefits they receive from space;
- Encourage greater use of space for sustainable economic development;
- Demonstrate public support for space programmes;
- Excite children about learning and their future;
- Promote institutions around the world that are involved in space;
- Foster international cooperation in space outreach and education.

It was graced by the University Registrar, Mr. A. Illunga.

The seminar attracted 94 participants from 16 Kitwe District high schools and the Copperbelt University. Each participating school sent at least two pupils and one teacher. The teacher was either a JETS Coordinator in the school or a physics teacher where there was no JETS establishment. The high schools represented were Nkana, Kitwe Boys, Helen Kaunda, Chimwemwe, Mitanto, Malela, Ndeke, Wusakile, Kamfinsa, Mindolo, Chamboli and Chibote Girls. In addition to the above Government schools were three invited private schools namely Mpelembe, Lechwe Trust School and St. John’s. Copperbelt members of staff in the Schools of Mathematics and Natural Sciences and a few invited from other schools were in attendance. Our schools third and fourth year students were in attendance. We also had an invited lecturer from the University of Zambia, Dr. K. Hansingo.

Organisers: Mr P. C. Simpemba, Mr. W. Mbulwe, Mr. G.T. Baliga, Mr. W. Miyoba, Mr. J. Jumbe Mrs. S. George, Mr. George.

Budget: 600€

## Cassini Scientist for a Day Essay Contest

In celebration of IYA2009, the autumn 2009 edition of the Cassini Scientist for a Day essay contest was open to students from all nations.

The Cassini Scientist for a Day Essay Contest was an opportunity for students around the world to learn about the Cassini mission to Saturn and to study and write about one of three of Saturn's most interesting science targets: Saturn and its Rings, Tethys and Saturn's Rings, and Titan.

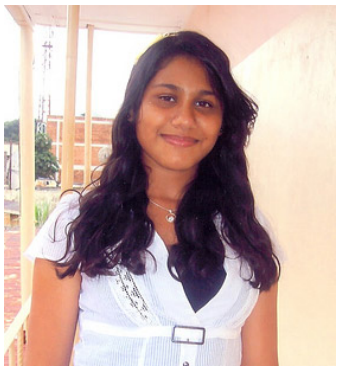
The students worked individually or in small groups of maximum four to decide which target they thought would yield the most interesting science results, and they conducted research and wrote an essay of up to 500 words justifying their selection.

In the process, students learnt to think like scientists, and gain practice writing essays. They learnt to conduct research and argue for their chosen target in much the same way that Cassini scientists do. The winners for Zambia were Lweendo Hachamba of Mpelembe Secondary School and Farhin Akberali of Lechwe Trust School.

Organisers: Prospery C. Simpemba and the Cassini Team.

Website: http://saturn.jpl.nasa.gov/scientistforaday/international





Estimated number of people who attended or were reached by this activity: 8000.

## Outreach to Lechwe Trust School

This was a school assembly at which the IYA2009 SPoC for Zambia made a 30 minute presentation about the International Year of Astronomy 2009.

Organisers: Mr George.

Estimated number of people who attended or were reached by this activity: 200.

## AstroBook Drive Zambia

Zambia finds the pleasure to participate in the Astro Book Drive project as a way to accelerate astronomy development in the country. The country is better positioned for astronomy studies and research, having clear night skies and being close to the equator. There have been very few happenings in the area of astronomy and many people have little knowledge of this old science. Participation in this project will help Zambia make meaningful steps towards becoming an astronomy research giant in the region. In realising this dream, we intend to establish astronomy centres at the Copperbelt University and University of Zambia where the young students and members of the public interested in astronomy will be coming to borrow the reading materials. We also shall host sky viewing equipment such as telescopes and astronomy simulation software which will be used to boost astronomy interest in many Zambians. These materials will also be used by members of the group in our outreach programmes, exhibitions, shows and public events such as Yuri's Night and World Space Week.

In this project, we are asking well wishers for reading materials on astronomy (books, magazines, journals, newsletters etc.), telescopes, astronomy software, GPS receivers, planetarium domes and other pieces of equipment that can accelerate and advance astronomy and space science development in Zambia.

If you wish to donate, please write to zambia@yurisnight.net or pcs200800@gmail.com.

Organisers: Mr. P. C. Simpemba.

Website: http://astrodrive.lakdiva.net

Estimated number of people who attended or were reached by this activity: 500.

## Sidewalk Astronomy Nights

As an extension of the IYA2009 Cornerstone project Galilean Nights, the Bangalore Astronomical Society (BAS) organised a 30 nonstop sidewalk astronomy nights event held at various places in Bangalore during the month of October. The volunteers of BAS set the telescopes on the streets in most areas of Bangalore, pointing the wonders that Galileo observed 400 years ago. Spread over 30 nights, BAS volunteers shared their knowledge and enthusiasm for space by encouraging more than 10 200 people look through a telescope. Their gift of time and sharing of telescopes reduced costs and increased efficiency a lot.

Organisers: Bangalore Astronomical Society.

Estimated number of people who attended or were reached by this activity: 10 200.

# IYA2009 Organisational Nodes

IYA2009 proudly involved a large number of Organisational Nodes. These institutions have a history of successful science communication and education, and lent their valuable expertise by supporting and implementing activities around the globe.

## Organisational Node

Cyrille Baudouin
Laboratoire Fizeau, France
cyrille.baudouin@unice.fr
http://arena.unice.fr/

Number of organising committee members: N/A

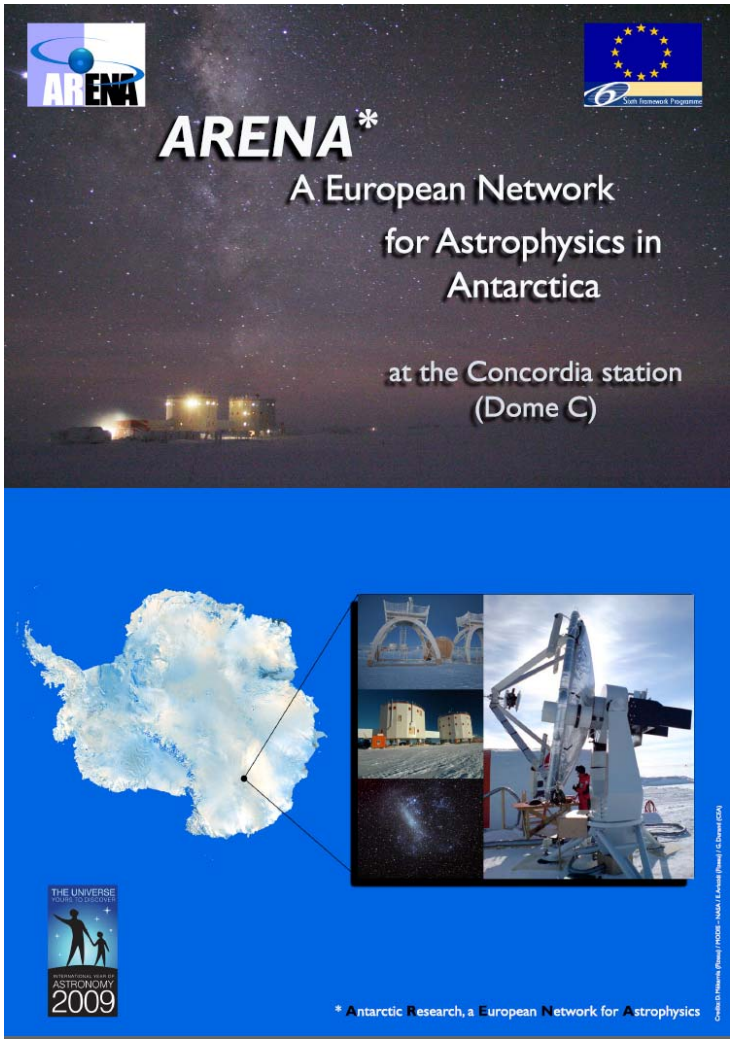
Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

### IYA2009 Brochure



## Organisational Node

Hamid M. K. Al-Naimiy
University of Sharjah / United Arab Emirates
alnaimiy@sharjah.ac.ae
http://www.auass.org/

Number of organising committee members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by Arab Union for Astronomy and Space Sciences

### The 5th Islamic Astronomy conference in Jordan

3-5 August 2009
This conference was organised by AUASS at Al-al-Bayte University of Jordan/Participants are, from all the Islamic countries.

### The 3rd International Astronomy & Space Sciences Forum for Young and Amateur Astronomers and Space Scientists

Algeria
29-30 October 2009
This Forum was organised by AUASS in collaboration with Al-Sherah astronomical Society of Algeria.

### The 9th Astronomy and Space Sciences Conference

Sudan
17-19 November 2009
This conference was organised by AUASS in collaboration with the Sudan Ministry of Education, Science and technology.




Association of Lunar & Planetary Observers

## Organisational Node

Ken Poshedly
cyrille.baudouin@unice.fr
http://arena.unice.fr

Number of organising committee members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities:

- The Strolling Astronomer: ALPO Journal
- The Association Of Lunar and Planetary Observers Lunar and Planetary Training Program
- ALPO Youth Programs Section

Association of Science-Technology Centers, Inc.

## Organisational Node

Walter Staveloz
wstaveloz@astc.org
www.astc.org

Number of organising committee members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## Main Activities

### Galileoscopes Around the World



Stephen Pompea demonstrates how to assemble a Galileoscope

In “Galileoscopes Around the World,” a session at ASTC 2009, attendees learned about collaborative skygazing that is happening around the world with the new telescopes. So far, 110 000 Galileoscopes have been produced and distributed, many through programs including ASTC’s Twinning project. After learning about the Galileoscopes and how they are being incorporated into programs, participants had a chance to try using one. They also were given the opportunity to apply on behalf of their institution for 100 free Galileoscopes to use with their visitors and teachers.

Stephen Pompea of the National Radio Astronomy Observatory, Tucson, Arizona, and Walter Staveloz of ASTC led the session. Other presenters were Robert Sparks of the National Optical Astronomy Observatory and Margaret Glass of ASTC.

# Astronomers Without Borders

## Organisational Node

Mike Simmons
MikeS@AstronomersWithoutBorders.org
http://www.astronomerswithoutborders.org

Number of organising committee members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

Organisation and support to the following global projects:

- 100 hours of Astronomy
- TWAN
- StarPeace
- Galilean Nights



# Astronomical Society of the Pacific

## Organisational Node

James Manning
jmanning @astrosociety.org
http://www.astrosociety.org

Number of organising committee members: 13

- Volunteers:3
- Paid: 10 (ASP staff members)

Number of people reached by IYA2009:150 000+

Budget: 250 000 USD (~190 300 €)

Sources:

- National Science Foundation
- NASA Science Mission Directorate
- NASA Origins Forum
- Donat Wentzel
- ASP members and supporters
-

## Main Activities

### List of Activities

- IYA2009 Discovery Guides
- Galileo Teacher Training Programme (GTTP)
- Expanding the Informal Universe
- Cosmic Clearinghouse
- Glass and Mirrors ToolKit: An Inside Look at Telescopes
- Preparing for the International Year of Astronomy: Symposium Proceedings

### IYA2009 Discovery Guides

Experience and share the universe! Join the international celebration with these easy-to-use monthly guides. Each IYA Discovery Guide includes:

- New theme every month
    - January – Telescopes and Space Probes: Today's Starry Messengers
    - February – Our Solar System
    - March – Observing at Night …and in the Day
    - April – Galaxies and the Distant Universe
    - May – Our Sun
    - June – Clusters of Stars
    - July – Black Holes
    - August – Rocks and Ice in the Solar System
    - September – Planets and Moons
    - October – What is the Fate of the Universe?
    - November – The Lives of Stars
    - December – Discovering New Worlds
- Hands-on activity to explore the theme
- Featured celestial object and how to find it in the sky.

Organisers: James Manning, Suzy Gurton Vivian White and Marni Berensen (ASP

Website: http://www.astrosociety.org/iya/guides.html

## Galileo Teacher Training Programme (GTTP)

The goal of the Galileo Teacher Training Programme (GTTP) is to develop and present workshops using Galileo's telescopic investigations to teach the process of science, problem-solving, and collaboration in an inquiry-based education framework, resulting in an ongoing and evolving teacher professional development opportunity for modelling science process in the classroom.

The Galileo Teacher Training Programme is a signature programme of the U.S. International Year of Astronomy effort. Go to http://astronomy2009.us/ to learn more about the wide array of IYA programs and events designed to provide astronomy experiences for everyone, in celebration of 400 years of discovery since Galileo's first observations of the heavens through a telescope.

A Galileo Teacher Training Programme workshop focuses on four areas:

- An activity recreating Galileo's observations of Jupiter's moons, demonstrating a hands-on, inquiry-based, collaborative approach to scientific investigation, illustrating the process of science
- International Year of Astronomy resources and activities
- Fundamental concepts to meet curriculum goals
- Resources adaptable for use in the classroom

Many GTTP workshops include the use of activities involving a portable, user-friendly telescope developed for IYA: the Galileoscope. Professional development opportunities utilizing the Galileoscope are currently under development and will be available through the Project ASTRO National Network and other venues, as well as online.







Graduates of the workshop may become Galileo Teacher Ambassadors with access to the national network of Galileo Teacher Ambassadors on the GTTP website.

Organisers: James Manning, Greg Schultz, Brian Kruse (ASP)

Website: http://astrosociety.org/education/gttp/gttp.html and http://www.gttpusa.org/

## Expanding the Informal Universe

The expansion of the ASP's professional development programme for informal educators at small and medium-sized museums, parks, and nature and environmental centres to include new distance-learning opportunities as well as tools and training to enable these educators to provide exciting IYA public and school programs.




Organisers: James Manning, Suzy Gurton and Anna Hurst (ASP)

Website: http://www.astrosociety.org/afgu/index.html

## Cosmic Clearinghouse

Cosmic Clearinghouse serves as an educational clearing house for the best astronomy outreach resources, activities, images, materials, guides, facilities and events for a variety of target audiences from the casual enthusiast to the professional educator. Sections suitable for teachers, museum educators, amateur astronomers, after-school providers, family programme leaders, and other groups will be included, with links to existing useful sites as well as directories of materials and information in areas in which resources are currently needed. The site was developed for sustainability beyond 2009, as a permanent resource for anyone interested in astronomy, space science, education and outreach.

Organisers: James Manning, Andrew Fraknoi (ASP)

Website: http://www.cosmicclearinghouse.org

## Glass and Mirrors ToolKit: An Inside Look at Telescopes

Use these demonstrations to answer questions that the public (or new club members!) may have about how telescopes work. Show how both a reflector and a refractor work.

Also included in the ToolKit you'll find the 400 Years of the Telescope DVD. This documentary on the history of telescopes premiered on PBS stations nationwide on April 10, 2009. There is also a planetarium program, *Two*

*Small Pieces of Glass*, being presented in over 750 planetariums worldwide. Find out more information about these by following the links below.

Organisers: James Manning, Suzy Gurton, Marni Berendsen and Vivian White (ASP

Website: http://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=368

## Preparing for the International Year of Astronomy: Symposium Proceedings

The Astronomical Society of the Pacific (ASP) has published the proceedings from the 2008 annual meeting of the ASP, as part of the summer meeting of the American Astronomical Society. This publication is edited by Michael G. Gibbs, Jonathan Barnes, James G. Manning, and Bruce Partridge, and is focused on the 2009 International Year of Astronomy. The purpose for this book of proceedings is to provide a written overview/summary of the workshops and symposium as well as to serve as a resource guide for the astronomy and space science EPO community for the 2009 International Year of Astronomy.




Organisers: James Manning (ASP), Michael Gibbs (Capitol College)

Website: http://www.astrosociety.org/events/2008mtg/proceedings.html



# COSPAR — Committee on Space Research

## Organisational Node

Jean Audouze
Institut d'Astrophysique de Paris
audouze@iap.fr
http://cosparhq.cnes.fr/

Number of organising committee members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## Main activities

### 10th COSPAR-IAU Capacity Building Workshop

Lunar and Planetary Surface Science
September 6 -19, 2009
Harbin, China
Website: http://astro.hit.edu.cn/cospar2009workshop/

## Organisational Node

DIGHAYE Jean-Luc L. J.
jdighaye@eurastro.de
http://www.eurastro.de/iya/iya.htm

Number of organising committee members: >11
- Volunteers: 17
- Paid: 5

Number of people reached by IYA2009: 2500

Budget: 45 000 €

Sources:
- Sponsoring
- DAG

## General Overview of IYA2009 activities by EurAstro

It was a great opportunity for EurAstro to be chosen as an organisational node of the IYA2009. All our previous activities — star parties, lectures, astro tourism — were amplified, and new contacts, both with individuals and corporate members, were established. Just before the IYA2009, EurAstro had 453 active subscribers in a total of 647 past and present associates. Just after it, those figures were 885 and 1117, respectively — a massive increase.

## Main Activities

### List of Activities

- Fête du LAC x2 (opening, closing)
- Le Matin des Astronomes
- Participation: opening ceremony, UNESCO
- Participation: opening ceremony, Berlin
- Participation: IAU Symposium 260
- Nuit de l'Obscurité
- Coordination: 100HA
- The Telescope Race
- The Eclipse of the Century
- Les Nocturnes du LAC x15
- Sur la route de Montalcino
- Coordination: Galilean Nights
- Management: corporate members
- Observations: POR x25
- Observations: LAC x25
- Observations: Skybar x25
- Preparation: closing ceremony Padua
- Preparation: Pleine Lune

## Fête du LAC

EurAstro Executives and project managers in Belgium were invited at the Lieu Astronomique Convivial facility to present projects (kick-off) and to evaluate them (closure) in a festive atmosphere.

Organisers: EurAstro West.

Website: http://eurastro.blogspot.com/2010/01/fete-du-lac-reportage-hugo-ruland.html

Estimated number of people who attended or were reached by this activity: 20.

Budget: 4000 €

## Participation: opening ceremonies

EurAstro delegations attended IYA2009 opening ceremonies and related events.

Organisers: EurAstro South & East.

Website: http://www.eurastro.de/iya/opening/iyaopening.htm

Estimated number of people who attended or were reached by this activity: 100.

Budget: 3000 €

## Coordination: 100HA

EurAstro coordinated 100HA events with AWB.

Organisers: EurAstro South & West.

Website: http://www.eurastro.de/iya/100HA1/100HA1.htm

## The Telescope Race — please refer to the submission for the Mani Bhaumik prize

## The Eclipse of the Century

EurAstro organised an expedition to observe the Total Solar Eclipse of July 22, 2009, with Eclipse-City as a contractor for travel infrastructure.

Organisers: EurAstro, Eclipse-City.

Website: http://www.eurastro.de/missions/tse09/tse09.htm

Estimated number of people who attended or were reached by this activity: 26

Budget: 20 000 €

## Les Nocturnes du LAC & Sur la route de Montalcino

Starting with a theatre play (Sur la route de Montalcino) about the Big Bang, a series of educational and observational activities were organised at the LAC in August 2009.

Organisers: EurAstro West.

Website: http://www.eurastro.de/iya/iya2009/iya2009.htm

Estimated number of people who attended or were reached by this activity: 300.

Budget: 2000 €

### Coordination: Galilean Nights

EurAstro belonged to the organisers of the GN, and facilitated observations and outreach activities in several countries

Organisers: EurAstro.

### Management: corporate members

EurAstro greatly expanded during the IYA. Several astronomy clubs joined EurAstro as corporate members i.e. all their members declared to belong to EurAstro. Management services and financial help were provided. Those activities will be expanded in 2010 and beyond: Astro Book Drive, Human Orreries, Astro-Tourism Year in Nepal, etc.

Organisers: EurAstro.

Website: http://www.eurastro.de/ (click on the icons of the corporate members having a website).

Estimated number of people who attended or were reached by this activity: 1000.

Budget: 3000€

## Lessons Learned

What worked best:
- the synergy between professionals and amateurs;
- the awareness of astronomy at national and regional level. In particular, isolated amateur astronomy clubs took friendly mutual contacts and were given the opportunity to work on common goals.

What worked worst: the clash between 100HA and GN teams. Both teams were brilliant and the results fantastic, but those teams had little in common, so that the GN implementation had to be done ex novo, instead of building on the 100HA heritage. In turn, the upcoming GAM is based in the first place on the 100HA concept, with little use of the GN heritage.

## Legacy

See activity “Management: corporate members”. In addition, EurAstro will be active in the GAM, will organise up to 1 astronomical lecture per month and at least 1 astro tourism event per year (2010: eclipse in Patagonia), and will send delegates to attend major pro-am conferences (ex.: JENAM 2010). This could pave the way to a closer cooperation e.g. in the frame of IAU Commission 55.

# European Association for Astronomy Education

## Organisational Node

Fernand Wagner
fernand.wagner@education.lu
http://www.eaae-astro.org/

Number of organising committee members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

### Astronomy Education Summer School for teachers

The European Association for Astronomy Education is the first all-European network for teachers interested in astronomy. During 2009 the institution organised a specific course for teachers in order to offer them access to new educational materials and methods and the chance to exchange experiences. This course is open to all secondary school teachers who work in European countries.

The course took place from 26 November to 1 December in Madrid. At this event several different kinds of activities were presented by astronomers, university professors, and secondary school teachers. The course is for school teachers interested in astronomy even if they only have limited knowledge in this field. The course is not aimed at experts. The preliminary theme is “Adventure in teaching Astronomy”. The aim of the organisers was to promote very active participation and the exchange of ideas.

Website: http://www.eaae-astro.org/EAAE_2009_info.html

# European Astroparticle Physics Network

## Organisational Node

Arnaud Marsollier
arnaud.marsollier@cern.ch
http://www.astroparticle.org/

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## Main Activities

### Pathways Among Stars And Particles

Public lectures with free entrance
November 2009–June 2010
The pre-Socratic philophers of ancient Greece, in their quest for the fundamental principle of the world, were probably the first thinkers in the western culture to look for a link between micro and macrocosmos. After more than 2,000 years the quest is still ongoing, but the domain changed from Philosophy to Physics.

The existence of a strong relationship connecting phenomena involving elementary particles and astrophysical processes, from star formation and production of energy to the origin and evolution of the universe itself as a whole, has been one of the most outstanding achievements of the 20th century. The convergence of these kinds of studies has given birth to a new scientific subject called Astroparticle Physics.

The “Clément Fillietroz-ONLUS” Foundation, who manages the Astronomical Observatory of the Autonomous Region of the Aosta Valley and the Planetarium of Lignan, in the Italian Alps at the border with Switzerland and France, organised *Pathways among Stars and Particles*, a special public outreach and education initiative devoted to Astroparticle Physics and spanning from mid- autumn 2009 to late spring 2010.

Five scientists operating in different fields of contemporary scientific research explained in five different lectures with free entrance the goals of their own work and the instrumentation they use to achieve them, the latest results they have found and the ones they expect to obtain in the next years.



From 10 to 17 October 2009, in France, Italy, Spain and many other countries, astroparticle physicists met the public to reveal some of the most exciting mysteries of the Universe. Within the first European Week of Astroparticle Physics, they organised about 50 events all over Europe: open days, talks for the general public, exhibitions, etc.

Paris honoured astroparticle physics pioneers at the Montparnasse Tower — the highest building in Paris — which became a real cosmic rays detector during the entire week. It will welcome the public for animations and meetings with scientists. At night a laser beam linked the ancient Paris Observatory and the Montparnasse Tower, flashing in synchronisation with the detection of cosmic rays.

In Czech Republic, The Netherlands, Poland, Romania... laboratories opened their doors and organised special events where physicists will meet the public.

Rome celebrated astroparticle physics with opening on 27 October 2009 in Palazzo delle Esposizioni a large exhibition dedicated to astroparticle physics: “Astri e particelle. Le parole dell’ Universo”. It was the very first exhibition of this kind in Europe, highlighting challenges and techniques of astroparticle physics, a truly new astronomy.

Website:http://europeanweek.astroparticle.org

## Organisational Node

Aliki Giannakopoulou
European Network of Science Centres and Museums
agiannakopoulou@ecsite.net
http://www.ecsite.net/

Number of organising committee members:N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activity

### The involvement of science centres in the International Year of Astronomy 2009 educational efforts

Session “The involvement of science centres in the International Year of Astronomy 2009 educational efforts” at the 2009 European Network of Science Centres and Museums Conference, held in Milan from 4 to 6 June 2009.
**Convenor**: Alessandra Zanazzi, education office, fondazioneIDIS, Citta della scienza, Naples, Italy
Website: http://www.ecsite-conference.net/en/index.php?n=200

CERN — European Organization for Nuclear Research

## Organisational Node

Arnaud Marsollier
European Organization for Nuclear Research
arnaud.marsollier@cern.ch
http://www.cern.ch/

Number of organising committee members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

### Special IYA2009 section on the International Journal of High-Energy Physics: CERN Courier.

COSMOLOGY

# Cosmology's golden age

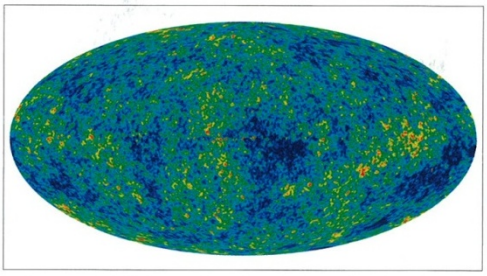
Four centuries after Galileo Galilei turned his telescope to the heavens, **George Smoot** considers the unprecedented and exciting times that cosmologists are now experiencing.




*"La verità è il destino per il quale siamo stati fatti* (Truth is the destiny for which we were made)". This article gives an example of how "truth" is achieved through "discovery" – the method used in science. By revealing nature, discovery is the way in which we can achieve truth, or at least glimpse it. But how can we know or have confidence that we have made a correct discovery? Here we can look to the major architect of the scientific method, Galileo Galilei: "*La matematica è l'afabeto nel quale Dio ha scritto l'Universo*" (Mathematics is the language with which God has written the universe). A discovery will be described best – and most economically and poetically – mathematically.

**Virtual space flight**

There has never been a more exciting time for cosmologists than now. Through advanced techniques and ingenious, and often heroic observational efforts, we have obtained a direct and extraordinarily detailed picture of the universe – from very early times to the present. I recently had the pleasure of using a specially outfitted planetarium at the Chabot Observatory Space and Science Center in Oakland, California, and taking a virtual flight through the universe on a realistic (though often faster-than-light) journey based on real astronomical data.



*The cosmic microwave temperature fluctuations from the 5-year Wilkinson Microwave Anisotropy Probe data seen over the full sky. The average temperature is 2.725 K and the colours represent the temperature fluctuations. Red regions are warmer and blue regions are colder by about 0.0002 degrees. (Courtesy NASA/WMAP Science Team.)*

sive in number and scope, revealing the web of the cosmos.

We were actually moving through time as well as space. As we went farther away from the Earth we were at distances where light takes a long time to reach our own planet, so we were looking at objects with a very much younger age (earlier in time). It was fun

# European Science Communication Network (ESCONET)

## Organisational Node

Steve Miller
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http://www.esconet.org/

Number of people reached by IYA2009:12

Budget: N/A

## Main Activity: ESConet Science Communication Workshop for IYA2009 Nodes

Organised by ESConet — European Science Communication Network and IYA2009 Secretariat
25 — 27 March 2009 Dubrovnik, Croatia

### Introduction

As our world grows ever more complex and the pace of scientific discovery and technological change quickens, the global community of professional astronomers needs to communicate more effectively with the public. This need and challenge is even more pressing now, when the world celebrates the 400th anniversary of the first use of the telescope by Galileo and the International Year of Astronomy 2009. With this in mind, ESConet — European Science Communication Network, kindly agreed to organise a science communication a special workshop for IYA2009 Nodes. This workshop was designed to give SPoCs the skills and confidence to interact with the media, engage with ordinary citizens, and to advise and persuade policy-makers. It was held in the Centre for Advanced Academic Studies in the beautiful city of Dubrovnik on Croatia's Adriatic coast, from the 25th to the 27th of March 2009.

### Workshop timetable (all sessions ~2 hours)

Day 1 — 25 March
Morning: Trainees arrived
Afternoon Introductions; Who are you communicating with and why?
Evening: Media writing: lecture; start practical
Day 2 — 26 March
Morning 1: Media writing practical
Morning 2: Talking to the media: lecture; feedback on press releases
Afternoon: Talking to media: interviews
Evening: Feedback on interviews; How the media cover science
Day 3 — 27 March
Morning 1: Public science on the web: lecture; start practical
Morning 2: Public science on the web: lecture; start practical
Afternoon: Feedback on web practical; Science in culture
Evening: Trainees departed

### Overview of the modules

Basic science communication skills have very wide applicability, from scientific journals and conferences all the way through to giving talks to school students. ESConet Trainers make use of a "scenario approach", in which the researchers to be trained are put into a number of situations in which they will be expected to communicate with lay, but intelligent, audiences. In particular, ESConet stresses the importance of communication with and through the mass media in order to provide basic training in structured and well-focussed communication. These basic science communication workshops consist of a number of modules, most of which have practical activities.

Feedback sessions are built into all of the practical modules, and further feedback will be given as required, after the workshops.

### Modules

- Who are you communicating with and why?
- Writing for the media
- Talking to the media
- Public science on the web
- How the media cover science
- Science in culture

### List of participants

- Muhamed Muminovic: muhamed_muminovic@yahoo.co.uk
- Rebecca Barnes: rebecca.barnes@esa.int
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## Feedback from participants

### Michael Geffert, from Germany

The place of the workshop is clearly a first choice place, because being so near to the old city of Dubrovnik is a fantastic opportunity to visit the old town even if we have a dense structured programme . I enjoy very much the contact to the other participants and I have a lot of nice meetings/discussions with people which I knew from the meeting in Vienna, or people, which I met for the first time. In my opinion we have the rare case, that the group of participants was growing very fast together and is now a real community! Our workshop takes place under good conditions, which were set by a team of trainers, who have not only a sufficient competition. They are also clearly interested to be in good contact with the trainees to have a successful workshop. It is also seen that the members of the team are collaborating and working in a good way together. I will not say, that everything is new for me — as it will be also not new some of the participants. But I never had the opportunity to think about the way, how I could communicate science to the public and I never saw such complete ideas about the realisation of such communication. In addition the PowerPoint presentations, which will be given freely to the participants, are an ideal guideline for my plans to teach also students in Bonn to learn more about science communication. It was typical for this workshop: the team offered me immediately any help for that! Finally I would say that I was glad, dropping my urgent work in Bonn for a while and attending the workshop here in Dubrovnik, because the contact to the other people involved in the year of astronomy (IYA2009) and the discussion about the progress of the IYA2009 in other counties was very important for me.

### Darije Maricic from Croatia

The ESConet network in Dubrovnik was very useful for me. Very active and I learnt a lot about communication in science. Once again thank you.

### Steve Miller from the United Kingdom

It was a pleasure dealing with you and your colleagues from IYA. Your own dedication to communication was clear from the enthusiastic way you all worked on the exercises we gave you, and from the insightful contributions to our discussions. You left just in time — the weather here is appalling with torrential rain. Just as well everything is nearby!

### Ricardo Cardoso Reis from Portugal

Although reaching Dubrovnik from Porto (Portugal) is not exactly easy (3 flights), the venue was no doubt carefully selected by ESConet so that trainees didn't lack anything. The accommodations where great, with internet available on every room, and on the same building as the workshop, so even in the cold Croatian days, we had no need to leave the building. And everything else was nearby, from places to eat, to post offices, supermarkets, banks, bus and taxi. As for the workshop itself, the team was highly dedicated to us. Not only that, (as Prof. Steve Miller put it), we where "grilled" with practical work, right after some very clear and concise theory. In 2,5 days we learned things always had eluded most of us, very used to communicating science. It also gave us a chance to work on some of our less developed skills. For example, I (finally) found out why my "100 hours of astronomy" national webpage (www.astro.up.pt/100horas) hasn't been that effective. It was a chance to learn from the best, but also a chance to learn from each other, and to realize that some problems we face are universal, while others are very local and driven by our different cultures. We exchanged what works, suggested what might work, and came out with the notion that communicating isn't an exact science, so all we can do is our best. Now our best is a little better thanks to this workshop.

Manolis Zoulias from Greece
Thank you all from the IYA2009 Secretariat for arranging with this. This has been a really useful course especially as regards to interviewing and press release preparation. Hands on team working was also a nice way to advance collaboration. During the commenting and discussion following the courses main lecture we exchanged views and ideas on science communication in general. An overall positive and useful experience. I would like to point out — just to be 100% sincere and for your records — that the only drawback was transferring to Dubrovnik for most of us because of the lack of proper connections and high cost. Me and the rest of the participants comprehend the reasons and this could not spoil our definitely positive feeling of this. During my stay here in Dubrovnik, I had a lot of fruitful discussions with many of the participants.

Catalin Mosoia from Romania
The workshop was one of the best I have attended. Informative and challenging. I have to mention the practical activity as one of the highlights of the workshop. I had very useful discussions with participants and hope we will keep contact and develop further projects.

Raquel Shida from ESO, Germany
The workshop exceeded all my expectations. It was a great opportunity to learn from the ones who know about science communication and to exchange experiences with people who have been working for long in the field. The lectures and the practical activities were all very helpful and had everything to do with our routines and with the challenges we have to face in our daily lives. All was so exciting that even during the meals and strolls around the city we kept talking enthusiastically about astronomy outreach and the International Year of Astronomy.

The workshop taught us many small practical tricks, especially for when we need to interact with the media. Combined with the unscheduled social activities, it gave to many of us much more confidence to keep working in astronomy outreach and disseminating the IYA2009 to the general public.

I'd like to thank the organisers for preparing and presenting these interesting activities and providing us all the materials online. I'd also like to thank the IYA2009 Secretariat for taking the initiative to promote this wonderful experience!

Olivier Hainaut from ESO, Germany
The venue of this workshop was ideal: good lecture rooms with excellent equipment and facilities, suitable rooms for discussion, superb internet. The lodging was excellent, also with internet. The proximity to the (fascinating) old town provided infinite choice for food and exploration during the (limited) free time. The connection from Munich to Dubrovnik was acceptable. The training itself had an excellent balance between theory, practice and feedback on the exercises. The balance between the 3 main topics (press release writing, radio interviews and web design) was good, and the level of the workshop was perfect for me (with some empirical public outreach experience, but almost no formal training). The theory lectures were fairly well structured and complete, with a good level of interactivity. In terms of quality of content, the web design one seemed a little weaker than to two others (more redundant, less deep). The practical exercises were perfect: topic chose carefully so that we could use our knowledge, motivating as they were directly related to our actual work. The teachers were fantastic at analysing the results and extracting the most interesting parts.

## IYA2009 suggestions/comments

- Improve national nodes visibility
- Keeping the relationship between professional and amateurs astronomers
- Astronomy as a locomotive of science disciplines
- This is for the people working at the secretariat and for the organisers of activities: keep up the good work and don't get discouraged when small problems pop up here and there. The IYA2009 has been a great event, and all I hear from people from many countries is always very positive!



A photo collage from the workshops. Credit: Catalin Mosoia, Romania



Three participants sharing information. Credit: Catalin Mosoia, Romania



At a radio station in Dubrovnik. Credit: Raquel Shida.



Working during a session. Credit: Raquel Shida.



The majority of participants in a group portrait.

## Organisational Node

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Number of organising committee members:N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

Dissimination of IYA2009 activities through ESERA E-News and website.

European Science Foundation

## Organisational Node

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Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by the European Science Foundation

IAU and ESF have been brought together by a signed agreement. During IYA2009, the ESF took on the role of Organisational Associate. ESF and IYA2009 worked closely together to run events and activities as well as design innovative initiatives.

In the faremwork of IYA2009, ESF organised the following activities in astronomy/astrophysics:

- Exploratory Workshops:
- 2008. Astrophysical tests of fundamental physics, Porto, Portugal
- 2008. Extreme laboratory astrophysics, Paris, France
- Conferences and Schools
- ESF-EPSRC-STFC Summer Schools in Physics and Astronomy
- 2008. High-pressure Physics, including Earth and Planetary Physics, Island of Skye, UK

- ESF-FWF Conferences in partnership with LFUI
- 2009. The Origin of Galaxies: Lessons from the distant Universe. Obergurgl, Austria
- ESF-COST High-Level Conferences
- 2009. Astronomy: Grids and Databases, Acquafredda di Maratea, Italy
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- Research Networking Programmes
- From 2006 to 2011. ASTROSIM, Computational Astrophysics and Cosmology
- From 2008 to 2013. COMPSTAR, The New Physics of Compact Stars
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- EUROCORES : EuroGENESIS – Origin of the elements and nuclear history of the Universe

# European Society for Astronomy in Culture

## Organisational Node

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Number of organising committee members:N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activity

Astronomy, possibly the oldest science in human evolution, has played an important role in most if not all, cultures over the ages. The European Society for Astronomy in Culture (SEAC) held its annual meeting in the international year of astronomy IYA2009 in one of the most important and famous schools of astronomy in the ancient Mediterranean and all the world (Bibliotheca Alexandrina), where a new library has been rebuilt in all its glory nearly on the same location of the long lost classical one, close to the Alexandria seashore, to become a new window for Egypt to the world and for the world to Egypt.

Professor Mosalam Shaltout and Dr. Juan Antonio Belmonte convened 90 specialists of all over the Earth to talk on astronomical traditions through cultures. The conference was specially concentrated on the Mediterranean region, with an emphasis in ancient Egypt and the Islamic culture. However, we also heard conferences on the Maya, the Inca or ancient China, to mentiuon just a few examples. The personal of the Library, under the supervision of Eng. Hoda el Mikaty and Dr. Omar Fekry provided a delightful ambience for such an extraordinary event. Astronomy was indeed portrayed as a peaceful global scientific enterprise that unites scientists of different disciplines in an international, multicultural family of human beings working together to find answers to some of the most fundamental questions that humankind has ever asked. The conference ended with a charming excursion to the only surviving wonder of the world, the pyramids, where the delegates could learn about the astronomy of ancient Egyptians and how this discipline was useful for them in his permanent search for cosmic order. The conference proceeding will hopefully be published along 2010 or early 2011 as a dedicated volume of the series British Archaeological Report.



European Southern Observatory

## Organisational Node

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Number of organising committee members: 1-5

- Volunteers: 0
- Paid: 3

Number of people reached by IYA2009: approximately 8 000 000

Budget: 322 500 €

Sources:

- ESO budget
- IYA2009 Secretariat for the Cornerstones

## Overview of IYA2009 Activities by ESO

The European Southern Observatory (ESO) has played a major role in the International Year of Astronomy 2009 (IYA2009) project since planning began in 2003. ESO is hosting the IAU's IYA2009 Secretariat, which coordinates the Year globally. ESO is an Organisational Node and one of the Or-ganisational Associates of IYA2009, and was also closely involved in the resolution submitted to the UN by Italy, which led to the UN's 62nd General Assembly proclaiming IYA2009. There has been a range of ESO-specific activities throughout 2009, from local to global in scope, and aimed at a range of levels of interest.

In search of our Cosmic Origins is a planetarium show about ALMA, the Atacama Large Millimeter/submillimeter Array. A young astronomer, Ariane, guides viewers on two interwoven journeys, through the Chilean Andes — home to ALMA — and through the Universe. The show, produced by ESO and the Association of French Language Planetariums in collaboration with the Planetarium of Augsburg, is available in multiple languages and in formats for full-dome video and classical planetariums.

ESO, in collaboration with the IAU, has produced a book and movie celebrating the 400th anniversary of the telescope. Eyes on the Skies (Christensen & Schilling, 2009) explores the story of the telescope — its history, the scientific and technical advances, and the people behind this ground-breaking inven-tion. The hardcover book is available in several languages, as is the movie on DVD and Blu-ray. Over 270 000 copies of the movie have been distributed, and it has also been broadcast numerous times on television.

The GigaGalaxy Zoom project, through three giant images, reveals the full sky as it appears with the unaided eye from one of the darkest deserts on Earth, then zooms in on a rich region of the Milky Way using an amateur telescope, and finally uses the power of a professional telescope to reveal the details of an iconic nebula. The renowned astrophotographers Serge Brunier and Stéphane Guisard captured two of the images, taking advantage of the excellent skies above ESO's La Silla and Paranal sites. The third image was obtained with the Wide Field Imager attached to the MPG/ESO 2.2-metre telescope at La Silla.

In terms of events, IYA2009 has been featured in ESO exhibitions throughout the year, including the global IYA2009 opening ceremony at UNESCO in Paris, the German IYA2009 opening event in Berlin, and many more. ESO also participated in a number of activities near its headquarters in Garching, near Munich, Germany, including the Open House day on the Garching campus on 24 October 2009.

Activities in Chile
ESO has organised a wide range of activities and projects for IYA2009 in Chile, our host nation. These include the distribution of a special multi-latitude Southern Hemisphere planisphere, running a series of Science Cafés,

promoting a network of schools, revisiting classical science experiments such as the determination of the size of the Earth, opening a permanent astronomical exhibition at the Huanchaca Museum of the Desert in Antofagasta, and hosting Open House at Paranal, La Silla, and APEX/ALMA. ESO is also a partner in the GalileoMobile IYA2009 Special Project, has supported the first Regional Congress "Astronomy at Schools" in the II Region of Chile, and has arranged several exhibitions of images in Chile including TWAN (The World at Night), ESO Heritage and GigaGalaxy Zoom.

IYA2009 Global Cornerstone projects at ESO
In addition to its ESO-specific activities, ESO is involved in many of the IYA2009 Global Cornerstone projects, and is playing a leading role in four of them.
Around the World in 80 Telescopes (Pierce-Price et al., 2009), part of the 100 Hours of Astronomy organised by ESO, was a record-breaking and unprecedented, live, 24-hour public webcast giving members of the public a snapshot of research observatories around the world during a single 24-hour period. The webcast reached well over 170 000 unique viewers over the 24 hours, showing over 80 ground-based, space-based and airborne telescopes, covering all wavelengths as well as neutrinos and gravitational waves, and visiting all continents including Antarctica.

The Portal to the Universe (Christensen & Gay, 2008) is a global, one-stop portal for online astronomy content, for content providers, laypeople, press, educators, decision-makers and scientists. The portal indexes and aggregates content including news, blogs, video and audio podcasts, images, and videos, as well as widgets showing live or near-live astronomy-related data. ESO, together with ESA/Hubble, is providing the portal infrastructure.

In the Cosmic Diary, professional scientists put a human face on astronomy through blogs, talking about not just the latest astronomical news, but what it is like to be an astronomer. The project is coordinated from the IYA2009 Secretariat at ESO, and 14 of our researchers are participating in the project's ESO blog. In total, 58 bloggers are contributing from 30 different countries. To date there are over 1500 individual blog posts that have attracted more than 150 000 unique visitors.

The Galilean Nights encouraged people all around the world to participate in stargazing events from 22–24 October 2009, and experience for themselves the same sense of awe and wonder that Galileo must have felt.

References


- Christensen, L.L. & Gay. P. 2008, The Portal to the Universe: A comprehensive gateway to what's new in astronomy, in ASP Conference Series 400, ISBN: 978-1-58381-672-1
- Christensen, L.L. & Schilling, G. 2009, Eyes on the Skies — 400 Years of Telescopic Discovery, Wiley-VCH, ISBN 3-527-40865-7
- Pierce-Price et al. 2009, CAPjournal, 6, 18


## Main Activities

- Around the World in 80 Telescopes
- Galilean Nights
- Portal to the Universe
- Cosmic Diary
- In Search of our Cosmic Origins
- Eyes on the Skies
- GigaGalaxy Zoom
- Open House Day at ESO HQ in Garching
- ESO Southern Hemisphere Planisphere
- Proyecto Eratosthenes
- Astronomy Hall at Huanchaca Museum of the Desert in Antofagasta
- Open House Days at ESO sites in Chile
- Galileomobile
- Exhibitions in Chile (TWAN, FETTU, ESO Heritage, Science Tunnel)
- Interactive Exhibition Noticias del Universo

## Around the World in 80 Telescopes




“Around the World in 80 Telescopes” was a record-breaking and unprecedented, live, 24-hour public webcast featuring most of the research-grade astronomical observatories both on and off the planet. It was part of the 100 Hours of Astronomy Global Cornerstone project of the International Year of Astronomy 2009. The webcast was coordinated and executed from the European Southern Observatory (ESO) headquarters in Garching, near Munich, Germany, by the ESO education and Public Outreach Department. The 100 Hours of Astronomy event took place from 2–5 April 2009, and “Around the World in 80 Telescopes” itself ran from 09:00 UT on 3 April to 09:00 UT on 4 April.

The aim of the webcast was to give members of the public a snapshot of life at research observatories around the world during a single 24-hour period, showing viewers the wide range of astronomers’ activities at many, often very different, observatories. The original concept was to follow midnight around the globe, although the final schedule was more flexible. There were over 70 timetabled segments, featuring well over 80 telescopes. A wide range of facilities was represented, including radio, submillimetre, infrared, optical, ultraviolet, X-ray, gamma ray, neutrino, and gravitational wave observatories, with ground-based, space-based, and airborne telescopes. During the webcast, we visited astronomers on all continents including Antarctica.

In the segments, each of which lasted about 20 minutes, a host at ESO headquarters introduced a prerecorded video about each observatory, which gave an opportunity to show background information and (for example) daytime views of observatories, or of space missions, as well as other visuals. Following this, the host spoke with astronomers or other staff at the remote observatory in a live videoconference, to find out more about the observatory, and the latest news and conditions during the webcast. In many of these conversations, the astronomers introduced previously unpublicised images or other observations from their observatories. An example of this was the first look at the observations from the Hubble Space Telescope’s “You Decide” public vote. In some cases, the webcast’s segment at an observatory coincided with public visits on-site, such as by students or astronomy clubs, giving members of the public another way to participate in the webcast.

The 24-hour webcast was produced with on-the-fly vision/audio mixing and graphics, and streamed live to a global audience via Ustream.tv. Despite the technical challenges that were to be expected during a 24-hour live event, none of the timetabled observatories were missed out.

“Around the World in 80 Telescopes” was the first time that so many research observatories were linked for an outreach activity (and possibly for any joint activity). This unique webcast was exciting for both participants and viewers, and the wide range of observatories gave a striking demonstration of the global diversity of astronomy and astronomers.

“Around the World in 80 Telescopes” was awarded the first runner-up position in the IYA2009/Mani Bhaumik Prize for Excellence in Astronomy Education and Public Outreach.

See also http://www.capjournal.org/issues/06/06_18.php

Organisers: Douglas Pierce-Price (Project Lead/100HA co-Chair) et al.

Website: http://www.eso.org/public/events/special-evt/100ha/



Behind the scenes, “Around the World in 80 Telescopes” webcast. Credit: International Astronomical Union / Lee Pullen.

Estimated number of people who attended or were reached by this activity: 200 000 estimated for webcast, possibly higher overall (500 000 estimated).

Budget: 20 000 €

## Galilean Nights

Galilean Nights is a Cornerstone Project of the International Year of Astronomy 2009. On 22-24 October 2009, amateur and professional astronomers, enthusiasts and the public took to the streets all around the globe and pointed their telescopes to the wonders that Italian astronomer Galileo observed 400 years ago.

Spread over three nights, astronomers shared their knowledge and enthusiasm for space by encouraging as many people as possible to look through a telescope at our planetary neighbours. The focus for Galilean Nights was the objects that Galileo observed, including Jupiter and the Moon, which were well-positioned in the night sky for observing.

Introduced following the great success of 100 Hours of Astronomy, another IYA2009 Cornerstone Project, Galilean Nights was the second biggest event of the International Year of Astronomy 2009. More than 1300 public events

took place in 88 countries, with well over 600 000 people seeing the skies through a telescope and having their own Galileo experience.

Organisers: Catherine Moloney (Chair) and Task group

Website: http://www.galileannights.org/

Estimated number of people who attended or were reached by this activity: 1 000 000 (~800 events in 60+ countries worldwide).

Budget: in-kind.

## Portal to the Universe

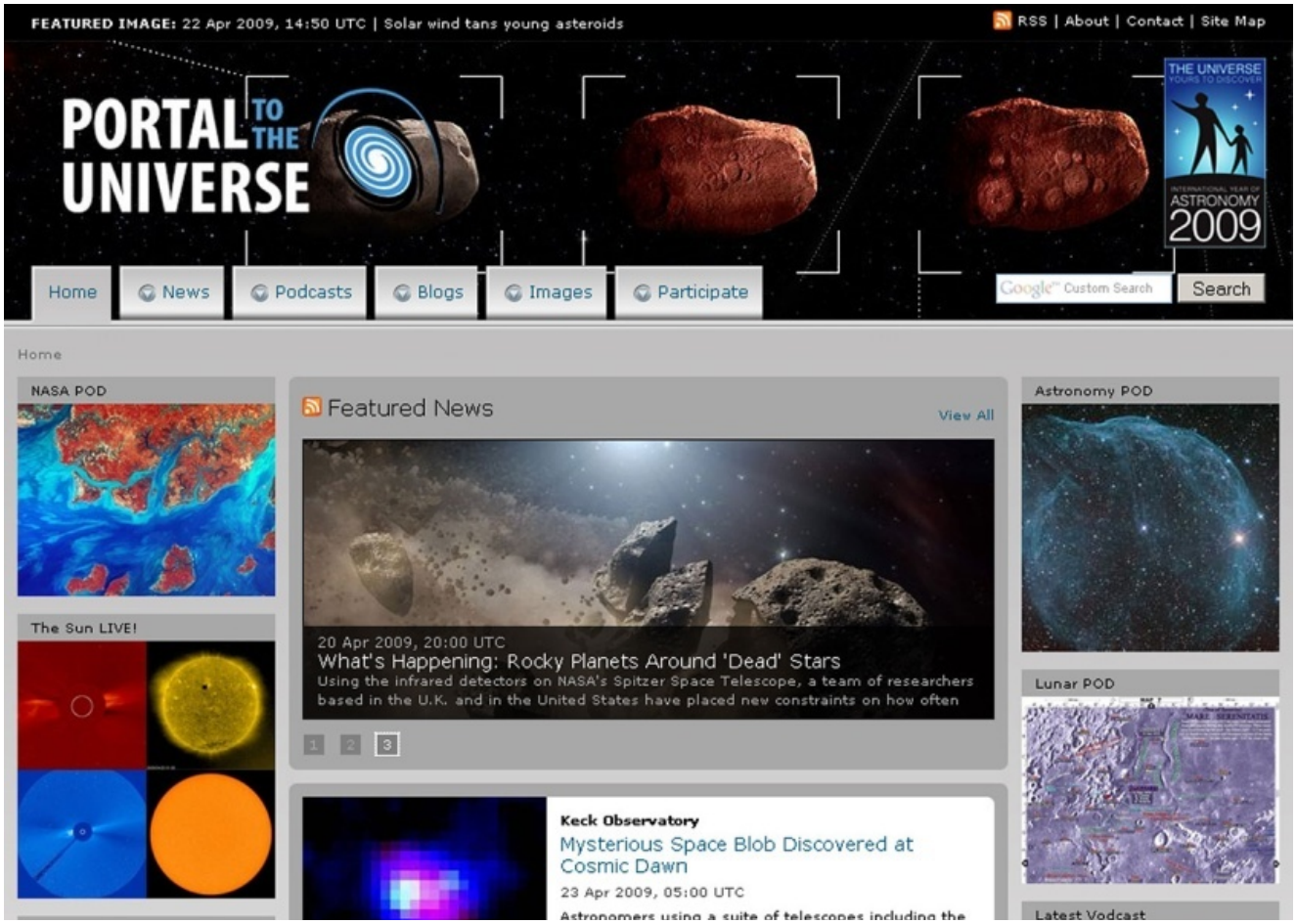
Keeping up-to-date with cutting-edge astronomy and space science breakthroughs has become that much easier, thanks to the Portal To The Universe, a Cornerstone project of the International Year of Astronomy 2009 (IYA2009). As a high-tech website embracing Web 2.0 technologies, the Portal To The Universe is a one-stop-shop for astronomy news.

Released during the European Week of Astronomy and Space Science (JENAM 2009) at the University of Hertfordshire, UK, the Portal To The Universe website was eagerly anticipated by journalists, science communicators, scientists, educators and members of the general public alike. The Portal To The Universe provides a global portal for online astronomy content, serving as an index and aggregator.

The site itself features news, blogs, video podcasts, audio podcasts, images, videos and more. Web 2.0 collaborative tools, such as the ranking of different services according to popularity, help the user to sift constructively through the wealth of information available and promote interactions within the astronomy multimedia community. A range of “widgets” (small applications) have also been developed to tap into all sorts of existing “live data”, such as near-live pictures of the Sun, live positions of spacecraft or live observations from telescopes.

The vision for the Portal is to enable real-time access to content by aggregating (pulling) from providers of dynamic content like blogs, images, news, etc. and distributing (pushing) to users, as well as indexing and archiving, collecting and maintaining a central repository of useful information.

Modern technology such as RSS feeds and standardised metadata make it possible to tie all the suppliers of astronomy information together with a single, semi-automatically updating portal. The result is a technologically advanced site that brings together strands of astronomy content from across the worldwide web.




Organisers: Lars Lindberg Christensen (Project Manager), Lars Holm Nielsen (Developmen Lead), Adam Hadhazy (Editor) et al.

Website: http://www.portaltotheuniverse.org/

Estimated number of people who attended or were reached by this activity: 300 000.

Budget: 30 000 €

## Cosmic Diary

The Cosmic Diary aims to put a human face on astronomy: professional scientists blogged in text and images about their lives, families, friends, hobbies and interests, as well as their work, their latest research findings and the challenges that face them. The bloggers represent a vibrant cross-section of female and male working astronomers from around the world, coming from five different continents. Outside the observatories, labs and offices they are musicians, mothers, photographers, athletes, amateur astronomers. At work, they are managers, observers, graduate students, grant proposers, instrument builders and data analysts.

Throughout this project, all the bloggers were asked to explain one particular aspect of their work to the public. In a true exercise of science communication, these scientists used easy-to-understand language to translate the nuts and bolts of their scientific research into a popular science article.

Organisers: Mariana Barrosa et al.

Website: http://www.cosmicdiary.org/

Estimated number of people who attended or were reached by this activity: 220 000.

Budget: 11 000€

## In Search of our Cosmic Origins




“In search of our Cosmic Origins” is an inspiring popular scientific planetarium show, introducing ALMA, the largest astronomical project in existence.

“In Search of our Cosmic Origins” appeals to a wide audience. In it, we follow our guide, Ariane, on two interwoven journeys, through the Chilean Andes and through the Universe. The show is beautifully presented, with amazing astronomical images and extremely realistic 3D computer renderings.

About 400 years ago, in Padua, Italy, Galileo observed the sky with a new instrument, the telescope, and our view of the world was transformed. Now, follow the young astronomer Ariane in the show “In search of our Cosmic Origins” to discover how astronomers are continuing Galileo’s quest to understand the Universe.

Ariane takes us on a journey from ALMA’s unique site high in Chile’s Atacama region, through our Milky Way and onward to some of the most distant galaxies, seen as they were in the early Universe. Closer to home, we learn about the formation of stars and planets, and how ALMA will help us answer questions about our origins.

ALMA is the leading telescope for observing the cool Universe — the relic radiation of the Big Bang, and the molecular gas and dust that constitute the building blocks of stars, planetary systems, galaxies, and life itself. ALMA is a partnership of Europe, North America and East Asia in cooperation with the Republic of Chile.

Organisers: Henri Boffin (ESO ePOD), Agnès Acker (Association of French-Language Planetariums, APLF), Planetarium of Augsburg, et al.

Website: http://www.cosmicorigins.org/

Estimated number of people who attended or were reached by this activity: Showing in 40 planetariums worldwide.

Budget: 57 500 €

## Eyes on the Skies

The International Astronomical Union's book and movie celebrating the 400th anniversary of the telescope.
The invention of the telescope has been by far the most revolutionary development in the history of astronomy. For thousands of years, astronomers had to rely on their eyes in unravelling the mysteries of the Universe. The telescope revealed an embarrassment of astronomical riches, and led to a dramatic increase of knowledge about the wider world we live in.

The Eyes on the Skies DVD movie and accompanying book explore the many facets of the telescope — the historical development, the scientific importance, the technological breakthroughs, and also the people behind this ground-breaking invention, their triumphs and failures...

The Eyes on the Skies movie is presented by Dr. J aka Dr. Joe Liske from ESO, host of the Hubblecast video podcast. The DVD runs for 60 minutes and contains subtitles in several languages.

The Eyes on the Skies book is available in English, German, Finnish, Korean, Japanese and Chinese.



Organisers: Lars Lindberg Christensen et al.

Website: http://www.eyesontheskies.org/

Estimated number of people who attended or were reached by this activity: 5 000 000.

Budget: 20 000 €

## Gigagalaxy Zoom

GigaGalaxy Zoom: The Sky, from Eye to Telescope**.** Through three giant images, the GigaGalaxy Zoom project reveals the full sky as it appears with the unaided eye from one of the darkest deserts on Earth, then zooms in on a rich region of the Milky Way using a hobby telescope, and finally uses the power of a professional telescope to reveal the details of an iconic nebula.

In the framework of the International Year of Astronomy 2009 (IYA2009) ESO's GigaGalaxy Zoom project aimed at connecting the sky as seen by the unaided eye with that seen by hobby and professional astronomers. The project reveals three amazing, ultra-high-resolution images of the night sky that online stargazers can zoom in on and explore in an incredible level of detail.

The GigaGalaxy Zoom project thus illustrates the vision of IYA2009, which is to help people rediscover their place in the Universe through the day- and night-time sky. Most of the photographs comprising the three images were taken from two of ESO's observing sites in Chile, La Silla and Paranal. The wonderful quality of the images is a testament to the splendour of the night sky at these ESO sites, which are the most productive astronomical observatories in the world.

The renowned astrophotographers Serge Brunier and Stéphane Guisard, who are members of the The World at Night (TWAN) IYA2009 project, captured two of the GigaGalaxy Zoom images. The first image by Brunier aims to present the sky as people have experienced it the world over, though in the far greater detail offered by top-notch stargazing conditions and with the view from both hemispheres. As such, the image provides a magnificent 800-million pixel panorama of the whole Milky Way.

Guisard, an ESO engineer, made the second image of a smaller area of the sky, containing 400 million pixels, using a hobby telescope at Paranal. This second image directly benefits from the quality of Paranal's sky, one of the best on the planet, and from his professional expertise as an optical engineer specialising in telescopes, a unique combination in the world of astrophotographers. This second image will be released on 14 September 2009.

The third GigaGalaxy Zoom image illustrates the power of professional astronomy. It covers a one-degree field of view and was obtained with the Wide Field Imager attached to the MPG/ESO 2.2-metre telescope at La Silla. This camera has already created several of the most iconic pictures produced by ESO. The third image will be released on 21 September 2009.

With GigaGalaxy Zoom, users can learn more about the many different exciting objects in the three images, such as multicoloured nebulae and exploding stars, just by clicking on them. They can also delve into the starscapes using a "zoomify" tool and download the images. After all three images have been unveiled, the public will be able to explore a magnificently detailed cosmic environment at many scales. The reward is the most breathtaking dive ever made into our Galaxy, linking the sky seen by all with the cosmos studied by astronomers.



Organisers: Henri Boffin, Olivier Hainaut, et al.

Website: http://www.gigagalaxyzoom.org/

Estimated number of people who attended or were reached by this activity: 1 000 000 (not including exhibition viewers).

Budget: 34 000 €

## Open House Day at ESO HQ in Garching

As part of the Tag der offenen Tür at the Garching Forschungszentrum research campus, the ESO Headquarters was opened to the public on 24 October 2009. A record number of visitors, approximately 4000, visited from the local Munich area and further afield. The programme included:

- The Human Resources Department presented information about Jobs at ESO.

- In the auditorium a series of “ESOcast” videos were shown, in rotation with public talks.
- An exhibition about ESO’s giant observatories, with the presence of many astronomers to answer questions from the public.
- Two live video connections to the ESO observatory site at Cerro Paranal in Chile.
- A “Children’s Corner” with many different activities.
- A tour through the Universe in a digital planetarium for children and adults.
- “Hubble”, a presentation by the Hubble Space Telescope’s European Coordinating Facility with reports from the telescope’s last servicing mission.
- An overview of current projects at ESO: experiments, videos, simulations, diagrams, and models.
- Local Astronomy: get to know the Münchner Volkssternwarte and Sternwarte Königsleiten
- Free software for amateur astronomers
- A souvenir store
- Delicious food for a good cause (proceeds going to charity projects in Chile)
- A view through telescopes of the AGAPE group
- Portraits of visitors made with an infrared camera

Organisers: Britt Sjoeberg, Ed Janssen, et al.

Website: http://www.eso.org/public/events/special-evt/openhouse09/index.html

Estimated number of people who attended or were reached by this activity: 4000.

Budget: 7000 €

## ESO Southern Hemisphere Planisphere

Design, printing and distribution of a special planisphere to invite the Chilean students and the general public to discover the southern sky throughout the year. The planisphere was distributed to schools through the network in Chile of Explora – Conicyt, as well as in a series of exhibitions and special events.

Organisers: ESO and Explora – Conicyt

## Project Eratosthenes & Galileo

Promotion of a large national network of students & schools revisiting classical science experiments, such as the determination of the size of the Earth, as well as first Galileo observations.

Organisers: Profisica – ESO – Explora Conicyt

Websites: http://www.profisica.cl/estrellas/index.html / http://www.profisica.cl/eratostenes/index.htm
Participants: more than 100 schools

## • Astronomy Hall at Huanchaca Museum of the Desert in Antofagasta

The new Museum of the Desert (MDA) was built on the levelled area in front of the Huanchaca Ruins, the remains of a silver foundry from the beginning of the 19th century. This historical monument represents a significant piece in the history of Antofagasta and the metallurgic industry in Northern Chile. The MDA includes five main permanent exhibitions and contains unique collections which present the whole history of the Atacama Desert, from its geological formation up to the present day, in which it has become a privileged site for ground-based astronomy. The permanent exhibition “A Window to the Universe” was created specially for the International Year of Astronomy.

Organisers: ESO and Fundacion Ruinas de Huanchaca

Websites: http://www.frh.cl/

Electronic brochure: http://www.eso.org/public/outreach/products/brochures/pdf/museum_desert.pdf

### Open House Days at ESO sites in Chile

At La Silla and Paranal observatories, groups of schools from Antofagasta and La Serena/Coquimbo visited the observatories, in the context of the national event “Laboratorios, Museos y Observatorios Abiertos”, during the National Week of Science and Technology.

Organisers: ESO and Explora Conicyt

### Exhibitions in Chile (TWAN, FETTU, Science Tunnel)

The international Interactive exhibition The Science Tunnel was presented for the first time in South America, at Muelle Baron in Valparaiso. Developed by the Max Planck Society, it presents a fascinating journey from the scale of atoms up to the largest structures in the Universe.

More info: www.tuneldelaciencia.cl

Organisers: Explora Conicyt – Max Planck Society – Universidad de Valparaíso – German Embassy in Chile – ESO
Local versions of international exhibitions such as “The World at Night” and “From the Earth to the Universe” were produced and travelled to different cities of Chile. After the International Year of Universe, they keep moving to new cities in the country, keeping alive the spirit of IYA2009.

Organisers: TWAN – FETTU – ESO – ALMA – Explora Conicyt – Astronomy Department Universidad de Chile

### Interactive Exhibition Noticias del Universo

Installed in one of the most visited subway stations in Santiago, “Noticias del Universo” presents through a serie of interactive experiments how astronomers study the universe. After the inauguration in Santiago, the exhibition has traveled and keeps traveling to different cities in Chile.

More info Noticias del Universo:

Electronic catalogue about the exhibition:
http://www.explora.cl/index.php?option=com_docman&task=doc_download&gid=113

Video: http://www.eso.org/public/videos/noticias/

Organisers: Explora Conicyt – ESO – ALMA – Metro of Santiago

## Lessons Learned

Making full use of the web, for global online projects, is important for activities run by an international organisation such as ESO, especially if we are to reach the broadest audiences. Having an overarching “IYA2009” event provides a strong impetus that encourages astronomy EPO activities at all levels, even in an organisation such as ESO that was already engaged in EPO. Furthermore, we found that the various global projects encouraged organisations and individuals around the world to produce EPO products that they would not otherwise have done (such as videos and other material), which should catalyse future activities beyond IYA2009.

## Legacy

ESO’s education and Public Outreach Department (ePOD) will certainly be continuing with its extensive education and public outreach activities after 2009. As ESO has been closely involved with IYA2009 since its initial planning stages, it is also to be expected that ESO will continue to have an involvement in “Beyond IYA2009”.

## Organisational Node

Leo Hennessy (Science and Robotic Exploration Directorate)
Leo.Hennessy@esa.int
http://astronom2009.esa.int/

Number of organising committee members: 1-5

- Volunteers: 0
- Paid: 2

Number of people reached by IYA2009: 450 000

Budget: 500 000 €

Sources:

- Internal budget.

## Main Activities

### List of Activities

- The Planck Dome
- The Herschel Truck
- Sterne und Weltraum Special issue
- 100 Hours of Astronomy Contribution
- Be an INTGERAL Astronomer Competition
- GTTP Workshop
- Science@ESA Vodcasts
- Edge of the Universe Planetarium Show

### Science@ESA Vodcasts

Initiated during the International Year of Astronomy, the Science@ESA vodcasts are monthly episodes describing ESA's contribution to Astrophysics and the Solar System Research. The first 6 episodes have concentrated on explaining the multiwavelength aspect of ESA's Astrophysical fleet of satellites covering the full range of the electromagnetic spectrum not visible from Earth. Each episodes takes the viewer on a journaey of discovery from High Energy Asrophysics of exploding stars and galaxies in the gamma and x-ray ranges to the cooler regions of the Universe where starbirth occurs in the infrared spectral range. It also outlines the heritage of Hipparcos and the challenges to come with Gaia. The last episode of the year focuses on Solar System research and recounts ESA's contributions in Solar Physics to the landing of Huygens on Titan.

Organisers: ESA.

Website: http://astronomy2009.esa.int/

Estimated number of people who attended or were reached by this activity: 300 000.

Budget: 100 000 €

## Be an Integral Astronomer

To celebrate the International Year of Astronomy, and as part of the 100 Hours of Astronomy cornerstone project, the European Space Agency ran a competition in which you can study one of the most active regions of our Galaxy and be in with a chance to win great prizes: a visit to the European Space Astronomy Centre, a Celestron Sky Scout, a Media Player, the 'Eyes on the Skies' book, and more. Every individual who sent a valid entry received a certificate acknowledging their participation in this competition.

Organisers: ESA.

Website: http://astronomy2009.esa.int/

Estimated number of people who attended or were reached by this activity: 30

Budget: 20 000 €

## GTTP ESA Workshop

In collaboration with the ESA Education Office, a teacher training workshop was held at the NEMO Science Centre in Amsterdam from 29 June to 1 July. Here 20 teachers from across Europe gathered to learn about ESA's Science teaching material and how to access ESA Science data resources and use them in the classroom. More than 50 applications for a place at the workshop were received from ESA Member States, while 19 were received from Lithuania, Slovenia, USA, Kenya, Tunisia, Pakistan, South Africa, Sudan and Malta. Unfortunately, due to the limited capacity we had, we could not offer all applicants a place. Each teacher was given a Celestron SkyScout IYA Special Edition to advance the teaching of Astronomy in schools across Europe. The feedback from the participants was extremely positive and we are sure to repeat this next year.

Organisers: GTTP / ESA.

Website: http://astronomy2009.esa.int

Estimated number of people who attended or were reached by this activity: 20.

Budget: 10 000 €

## The Groningen Herschel Discovery Truck

A mobile, interactive, discovery exposition bringing science to students and the general public in the Netherlands and across Europe, the Herschel Truck is operated by the Faculty of Mathematics and Science of the University of Groningen. Since mid-2008, the Discovery truck has hosted "Discover the Invisible Universe" which features the Herschel mission. Participants have direct interaction with scientists and hands-on infrared experiments. During IYA, and with the help of ESA, the truck visited the Netherlands, Belgium, Sweden, France (also during the IYA Opening Ceremony in January at the UNESCO in Paris), and Germany.

Organisers: Univ. of Groningen / ESA.

Website: http://www.rug.nl/Discovery

Estimated number of people who attended or were reached by this activity: 40,000.

Budget: 10 000€

## The Planck Dome

The Planck Dome, an exhibition, entitled "Planck — Looking back to the dawn of time" comprises a 10m diameter portable planetarium and features a 1/4-scale model of the Planck satellite, illustrative hardware pieces, interactive games, and informative poster panels all devoted to explaining the Planck mission, ESA's satellite dedicated to mapping the Cosmic Microwave Background. The Planck Dome was a centerpiece of the IYA Opening Ceremony in January at the UNESCO in Paris. It was also featured at ESOC during the launch of Planck in May.

Organisers: Canopée / Thales Alenia / CNES / ESA.

Website: http://astronomy2009.esa.int

Estimated number of people who attended or were reached by this activity: 14 000

Budget: 100 000 €

## Touching the Edge of the Universe Planetarium Show

The show presented by ESA, took place on 7 May 2009 in Germany, Austria and Switzerland. It featured Herschel and Planck, but also ExoMars. It opened in 33 planetaria across the three German-speaking nations. In addition, the first English-language public showing was held at the Thinktank Science Museum, Birmingham, England. 1,116 visitors saw the show between May and August 2009. Many other European planetaria have shown an interest in obtaining national-language versions, including Norway, Sweden and Poland, and a French version is currently in preparation.

Organisers: German Planetarium Consortium / ESA.

Website: http://www.planetariumshow.eu/

Estimated number of people who attended or were reached by this activity: unknown.

Budget: 200 000 €

## Organisational Node

Jean-Pierre Lebreton
Europlanet Outreach Activities Coordinator
European Space Agency/ESTEC
jean-pierre.lebreton@esa.int
www.europlanet-eu.org

Number of organising committee members:N/A

Number of people reached by IYA2009: ~1000

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by Europlanet

In addition to its core outreach activities to promote planetary science in Europe, the Europlanet RI outreach team supported two IYA2009 activities: the Galilean Nights Cornerstone project and the International Cassini Scientist for a Day competition.

Galilean Nights Astrophotography Competition was organised jointly by EUROPLANET RI and the Galilean Nights Task Group. The competition had two categories, one using a digital camera and the other using a telescope no larger than 20 cm diameter, and hence was open to the widest possible audience with no need for specialist equipment. The Europlanet outreach team assisted in drafting the competition rules, advertising the competition through its network of national outreach nodes, and arranging the judging process. Around 100 photos were entered for the competition in total. The results of the competition were announced on the 21st of December, with prizes contributed by ESA, Vito Technology and Sky and Telescope Magazine.

For IYA2009, NASA's successful Cassini Scientist for a Day essay competition was extended to an international audience. After watching videos of NASA scientists introducing 3 possible targets for the Cassini spacecraft, students were asked to submit an essay describing which of the targets they think will be the most interesting. Students with the best proposals in each age category won a telecon with a Cassini Scientist. Europlanet worked with NASA to promote the competition within Europe. Several of Europlanet's National Nodes acted as national organisers or worked with national organisers. Europlanet organised several telecons with European scientists working on the Cassini mission for winning students in participating countries, which included Belgium, France, Greece, Luxembourg, Poland, Portugal and Romania.

## Lessons Learned

The timing of the International Cassini Scientist for a Day competition, which was launched in early September and closed at the beginning of October was difficult for schools in many European countries. The decision was taken to extend the deadline for entries until the end of October to allow more schools to participate.

## Organisational Node

Rosa Doran
rosa.doran@nuclio.pt
http://www.globalhou.net/

Number of organising committee members: N/A

- Volunteers: N/A
- Paid: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## Main Activities

### Galileo Teachers Training Program

The main activity supported by GHOU promoters around the globe during IYA2009 was to actively promote the Galileo Teachers Training Programme cornerstone. All GHOU nations have successfully runned workshops for teachers as may be seen in GTTP chapter in this report

Website: www.galileoteachers.org

### International Asteroid Search Campaign

During the International Year of Astronomy (IYA2009) the International Astronomical Search Collaboration (IASC — "Isaac") sponsored a total of 9 asteroid search campaigns serving 151 schools, ~750 students, in 15 countries located on 4 continents. The following is a breakdown of those countries and schools:

| Country | # of Schools |
|---|---|
| United States | 51 |
| China | 31 |
| Portugal | 18 |
| Poland | 17 |
| South Africa | 11 |
| Ethiopia | 6 |
| Nigeria | 5 |
| Japan | 3 |
| Germany | 2 |
| Bulgaria | 2 |
| Switzerland | 1 |
| Puerto Rico | 1 |
| Morocco | 1 |
| Italy | 1 |
| Israel | 1 |

Approximately 750 students from these schools made 931 astrometric measurements of asteroids and near-Earth objects (NEOs). The following is a breakdown of these measurements:

| Measurement Type | # of Measurements |
|---|---|
| NEO Observations | 803 |
| NEO Confirmations | 73 |
| Asteroid Discoveries | 34 |
| Virtual Impactor Observations | 20 |

Organisers: Provided at no cost to the participating schools, IASC is a collaboration of Hardin-Simmons University (Abilene, TX), Lawrence Hall of Science (University of California at Berkeley), Astronomical Research Institute (Westfield, IL), Global Hands-On Universe Association (Portugal), Sierra Stars Observatory Network (Markleeville, CA), Wide-Field Infrared Survey Explorer (NASA), Tarleton State University (Stephenville, TX), The Faulkes Telescope Project (Wales), and Astrometrica (Austria).

Website: http://iasc.hsutx.edu/

## Global Hands-on Universe 2009

The 12nd yearly meeting of GHOU promoters took place in Porto Alegre — Brazil. The venue started with a GTTP training session for South American teachers and took place at the Universidade Federal do Rio Grande do Sul. The main topics covered during IYA2009 were:

- Hands-on Universe Around the Globe
- IYA2009 Galileo Teacher Training Program
- Telescopes and Mining Astronomical Database for Education
- Teacher Education/Development and Science@schools
- Global Projects and Campaigns
- Astronomy EPO and the community
- Resources — Online, physical materials and distribution



Organisers:

- Maria de Fátima Oliveira Saraiva (UFRGS/Brazil)
- Maria Helena Steffani (UFRGS/Brazil)
- Rosa Doran (NUCLIO/Portugal)

Participants: 60

Website: http://astro.if.ufrgs.br/GHOU2009/

## Organisational Node

Dirk Behrend
E-mail: dirk.behrend@nasa.gov
Web: http://ivscc.gsfc.nasa.gov/program/iya09/

Number of organising committee members:

- Volunteers:
- Paid:

Number of people reached by IYA2009:

Budget:

Sources:

-

## General Overview of IYA2009 activities by Int. VLBI Service for Geodesy & Astrometry

### IYA09 Very Large Astrometry Session

#### Purpose

As an activity for the International Year of Astronomy (IYA2009) the IVS organised a special astrometric session with as large a participation as possible. The observing goal is to observe as many of the 295 ICRF2 defining sources in a single 24-hour session as possible (the southern sky may not be fully covered) avoiding possible systematic effects of patchwise observing. The IYA09 session will thus enable a fully connected control of the ICRF2 and constitutes an ideal kick-off session for ICRF2 monitoring. The session will be accompanied by outreach activities at the stations and other sites. Bordeaux Observatory hosts the dynamic Web page IYA2009: VLBI Astrometric Session which will depict the latest images available for each source (either from BVID, RRFID, or VCS) and will be updated every time a new source is observed.

#### Goals

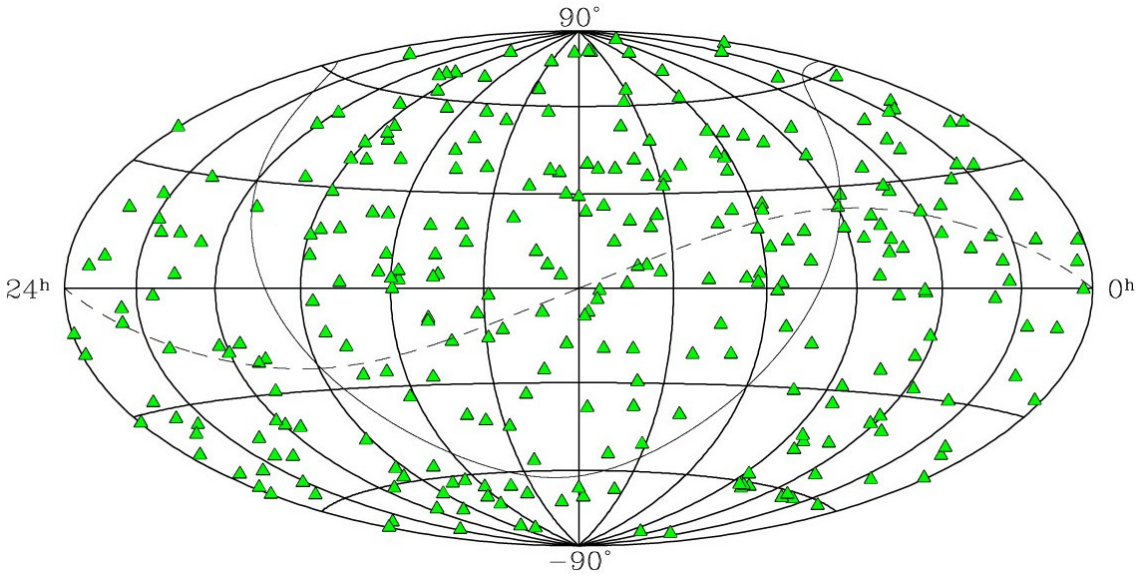
The very large astrometry session for the IYA2009 is an unprecedented effort to acquire unified data on the ICRF2 defining sources and gives the general public the opportunity to bear witness to the observational part as it happens.

#### Science

One of the major deficiencies of the VLBI data set for all-sky astrometry is that the usual 24-hour sessions observe only a small part of the total VLBI source catalogue. The primary reason is that the most common sessions are for monitoring EOP and use the small geodetic source catalogue. The earliest VLBI sessions were limited to 12–15 sources, but the number of sources gradually increased with time. A typical modern session observes 50–70 sources.

Most sources in the complete catalogue, including many of the ICRF2 defining sources, have usually been observed in a limited set of sessions specifically for the maintenance and improvement of the celestial reference frame. The complete catalogue is the result of concatenating all the relevant observations, both geodetic and astrometric. However, the strength of the overall network of sources in the sky depends on the overlap of common sources from session to session. Sources observed in a session that had no common sources with any other session could not be related in position to the other sources without using external information. Because of the nature of scheduling VLBI observations and the differences between the station networks used for various purposes, the source overlap between sessions is largely random and includes only a small fraction of the sources in the sessions. The weakness of overlapping is a particular difficulty linking the northern and southern sky hemispheres because of the small number of southern VLBI stations and limitations on observing time.

In contrast, this IYA09 astrometry session will attempt to observe all the ICRF2 defining sources (see sky map) and provide the arc lengths between all sources without relying on source overlaps. This should give much stronger geometry and relative positions between the ICRF2 defining sources. Unfortunately there are a few practical and exceptional difficulties. The ICRF2 defining sources are evenly distributed on the sky, so a few sources will be too close to the sun for good dual frequency observations. The station network in the southern hemisphere is sparse and generally insensitive. Three stations are smaller than the 20-m size common in the geodetic network. In addition, a key station in South Africa is under repair and is unable to participate. It is likely that more southern sources will be missed than is desirable. Nonetheless this is an exceptional opportunity to strengthen the ICRF2.




## Outreach activities

An important goal of the IYA09 session is to reach out to the public. This is in line with one of the major goals of the the IYA, which is aiming at stimulating worldwide interest in astronomy and science under the central theme "The Universe, Yours to Discover". The IYA2009 events and activities promote a greater appreciation of the inspirational aspects of astronomy that embody an invaluable shared resource for all nations (see http://www.astronomy2009.org/).

The IYA09 session was an official event of the IYA2009 and it was announced on the IYA2009 Web site. News updates were posted on 9 and 10 of November 9 2009. A dynamic Web page (IYA09 Very Large Astrometry Session) is hosted at Bordeaux Observatory. This page provides the latest images available for each source (either from BVID, RRFID, or VCS) and will be updated every time a new source is observed. It will also provide links to Web cams of participating stations that have this capability.

For the stations, a special issue of the IVS Newsletter was prepared. The issue gave an overview of "VLBI through the Decades" from the first VLBI experiments, to first operational sessions, to the formation of the IVS, and to the next generation VLBI system and beyond. In addition, a flyer will be prepared showing a map of the actual station network with explanatory text (rationale of session, what is a quasar, etc.) on the back

## Observation Period

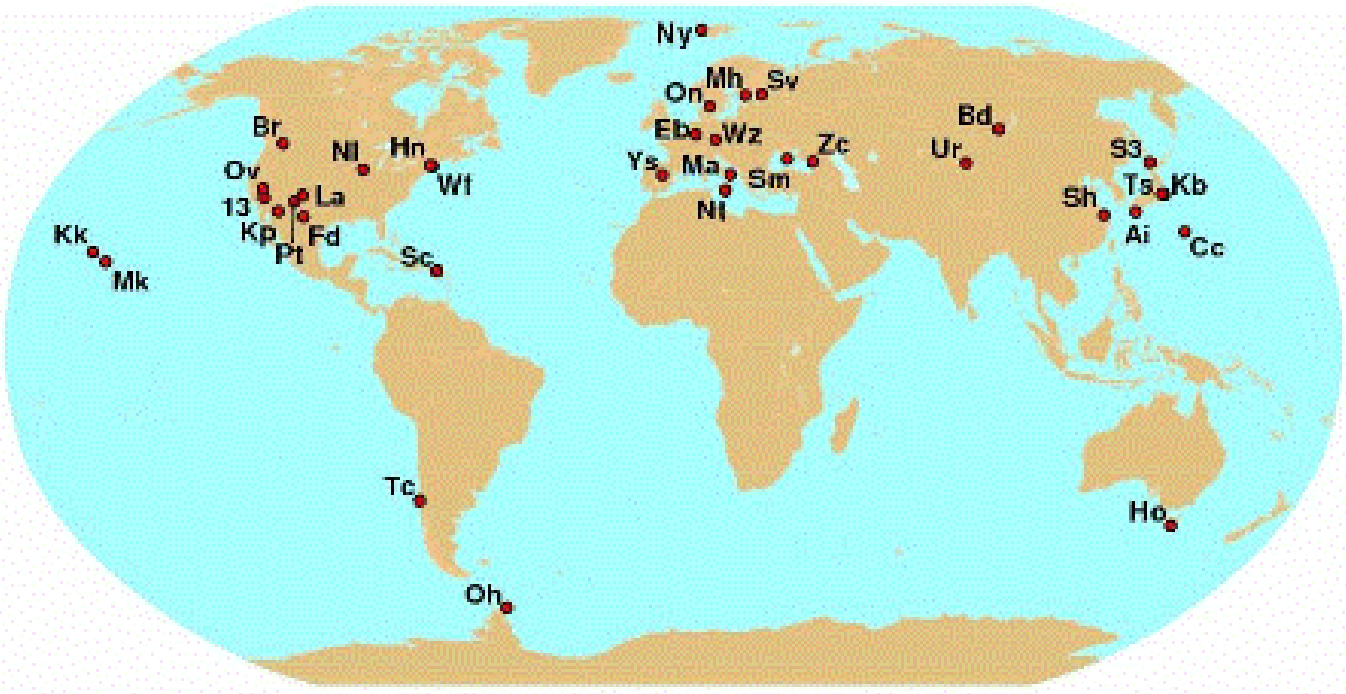
The 24-hour observation period was:
Observation start: Wednesday November 18, 2009 @ 18:00:00 UT
observation end: Thursday November 19, 2009 @ 18:00:00 UT

Network Resources
The observational network of the IYA09 session consists of 25 geodetic VLBI stations and the 10 VLBA stations.

| Name | Code | Observatory name and location |
|---|---|---|
| AIRA | Ai | Aira, Kagoshima, Japan |
| BADARY | Bd | Badary Radioastronomical Observatory, Russia |

| Name | Code | Observatory name and location |
|---|---|---|
| BR-VLBA | Br | VLBA near Brewster, WA, USA |
| CHICHI10 | Cc | Chichijima, Ogasawara, Japan |
| CRIMEA | Sm | Simeiz VLBI Station, Crimean Astrophysical Observatory, Ukraine |
| DSS13 | 13 | Goldstone (DSN), CA, USA |
| EFLSBERG | Eb | Radio Telescope Effelsberg, Germany |
| FD-VLBA | Fd | VLBA near Ft. Davis, TX, USA |
| HN-VLBA | Hn | VLBA near Hancock, NH, USA |
| HOBART26 | Ho | Mt. Pleasant Observatory, Hobart, Tasmania, Australia |
| KASHIM34 | Kb | Kashima Space Research Center, Japan |
| KOKEE | Kk | Kokee Park Geophysical Observatory, Kauai, HI, USA |
| KP-VLBA | Kp | VLBA on Kitt Peak, AZ, USA |
| LA-VLBA | La | VLBA near Los Alamos, NM, USA |
| MATERA | Ma | Matera CGS VLBI Station, Italy |
| METSAHOV | Mh | Metsähovi Radio Observatory, Finland |
| MK-VLBA | Mk | VLBA on Mauna Kea, HI, USA |
| NL-VLBA | Nl | VLBA near North Liberty, IA, USA |
| NOTO | Nt | Noto VLBI Station, Italy |
| NYALES20 | Ny | Ny Ålesund Geodetic Observatory, Spitsbergen, Norway |
| OHIGGINS | Oh | German Antarctic Receiving Station O'Higgins, Antarctica |
| ONSALA60 | On | Onsala Space Observatory, Sweden |
| OV-VLBA | Ov | VLBA in Owens Valley, CA, USA |
| PIETOWN | Pt | VLBA near Pie Town, NM, USA |
| SC-VLBA | Sc | VLBA on St. Croix, VI, USA |
| SESHAN25 | Sh | Sheshan VLBI Station, Shanghai, China |
| SINTOTU3 | S3 | Shintotsukawa, Hokkaido, Japan |
| SVETLOE | Sv | Svetloe Radio Astronomy Observatory, Russia |
| TIGOCONC | Tc | Transportable Integrated Geodetic Observatory (TIGO), Concepción, Chile |
| TSUKUB32 | Ts | Tsukuba VLBI Station, Japan |
| URUMQI | Ur | Nanshan VLBI Station, Urumqi, China |
| WESTFORD | Wf | Westford Antenna, Haystack Observatory, MA, USA |
| WETTZELL | Wz | Fundamentalstation Wettzell, Germany |
| YEBES40M | Ys | National Astronomical Observatory Yebes, Guadalajara, Spain |
| ZELENCHK | Zc | Radioastronomical Observatory Zelenchukskaya, Russia |

The geographical distribution of the entire network is depicted in the network map:


Ny
Mh
Sv
On
Bd
Br
Eb
Wz
Zc
Ur
S3
Nl
Hn
Ys
Ma
Sm
Ts
Kb
Ov
Wf
Sh
13
La
Nl
Ai
Cc
Kk
Kp
Fd
Pt
Mk
Sc
Tc
Ho
Oh

## Organisational Node

Kara Szathmáry
white_dwarf_studio@yahoo.com
http://www.iaaa.org/

Number of organising committee members:N/A

- Volunteers:
- Paid:

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by International Association of Astronomical Artists

### The GENESIS and the EXODUS of the IAAA: Kitt Peak Workshop: The Route to the Heavens

As part of the IAAA's commitment to the International Year of Astronomy (IYA2009) a number of projects were explored by the IAAA Ad Hoc IYA2009 Steering Committee consisting of Jackie Burns, Lynette Cook, Dave Hardy, Bill Hartmann, Bettina Forget, Ron Miller, Roy Scarfo and Kara Szathmáry Project Manager & Single-Point-of-Contact (SPoC) between the IAAA and the IAU's IYA2009.

Prior to the publication of the "Artists' Universe" on November 11, 2008, on the IYA-USA website, http://astronomy2009.us/a_and_e/the-artists-universe, a number of enquires began to be explored that further involved the IAAA in other special projects with the National Optical Astronomy Observatories (NOAO). Beginning in October 2008 Doug Isbell, USA-SPoC to IYA2009 and NOAO Public Relations representative, sent an e-mail inviting the IAAA to brain storm for activities during IYA2009. Volleys of ideas lead him to ask whether art exhibitions at observatories would potentially attract attention as a possible educational outreach to the public. Previous experience by a few of our members, including Lynette Cook, hadn't produced desirable effects concerning individual artists. Yet Bill Hartmann recalled that an exhibit at an observatory during the 1996 IAAA workshop at the Tenerife in the Canary Islands went very well. The IAAA already experienced a workshop in 1993 at the Mount Wilson Observatory, but that event didn't include an exhibit.

Doug Isbell sent his exploratory report and the IAAA's commitment to explore further IYA2009 USA projects to Elizabeth Alverez, NOAO and Kitt Peak National Observatory 50th Anniversary Steering Committee Chair. Elizabeth forwarded the series of e-mail exchanges to Pat Elaison, National Solar Observatory and Culture & Arts project lead for KPNO / NOAO-50th. Pat subsequently contacted Bill Hartmann at the Planetary Science Institute and invited him to join her subcommittee as a known Tucson space artist. Bill responded with a suggestion to have the NOAO consider hosting a workshop coupled with an exhibition at Kitt Peak to celebrate the 50th anniversary. His proposal was enthusiastically welcomed. The feasibility of such a venture needed to be explored and ultimately negotiated for technical efficiency. Kara began negotiations in earnest outlining past duties, responsibilities and obligations by workshop coordinators. The NOAO / KPNO committee organisers were directed to our website www.iaaa.org to review our mission statement, manifesto, history, and previous workshops which included Hawaii, continental USA, Iceland, Russia (former USSR), Tenerife Canary Islands Spain, England and Nicaragua. Bill was requested to represent the IAAA during any formal and/or informal meetings with Pat Elaison's Cultural & Art Sub Committee in Tucson and report back any progress and/or questions to Kara.

Within a short time, another opportunity unfolded. David Valls-Gabaud, on behalf of the IYA2009 Scientific Committee sent an invitation to the IAAA-SPoC for IAAA participation in the International Astronomical Union Symposium 260: "The Role of Astronomy in Society and Culture." The invitation also included an opportunity for an

exhibition at the UNESCO Center in Paris, France, during the symposium event scheduled for the third week of January, 2009. The symposium was focused on the relationship between the Arts and Astronomy, featuring artistic works inspired by cosmic phenomena. With Lionel Bret's recruitment as our IAAA representative, the genre of space art was presented in Paris followed by an exhibition of IAAA art works at the center.

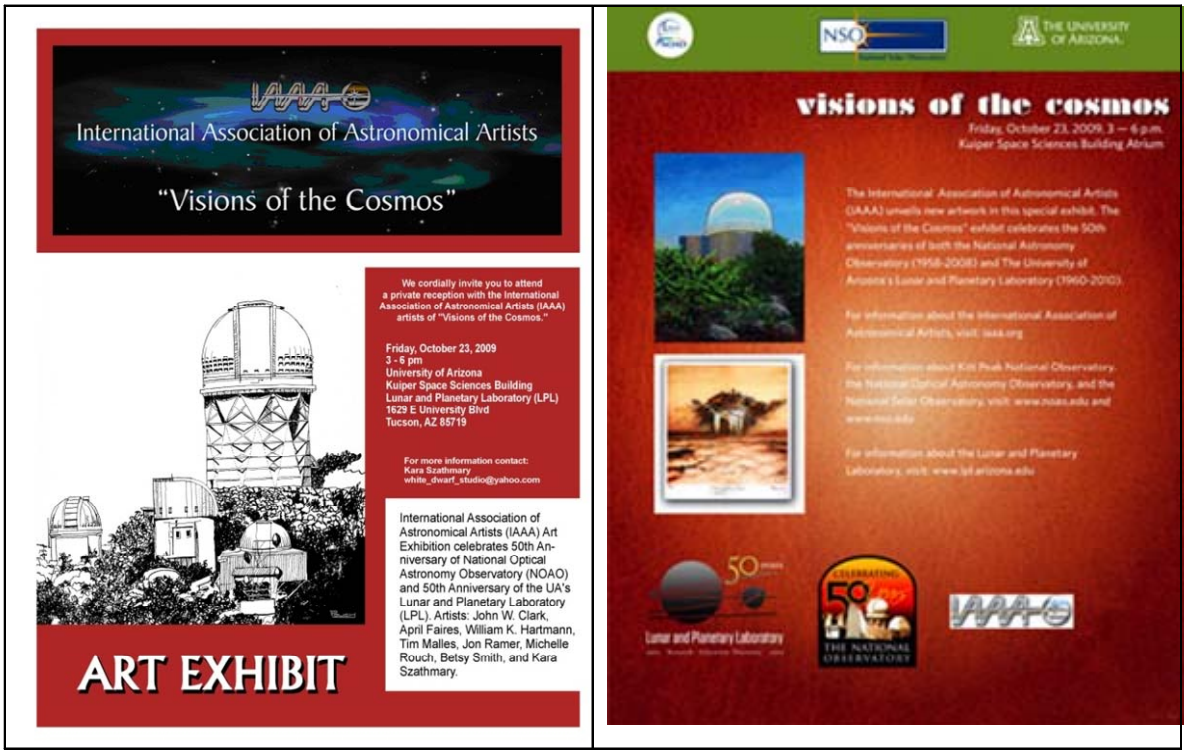
Several months passed with only tentative inklings of a possible time frame for a workshop either in the spring or the fall of 2009. A survey was conducted on the IAAA listserve for potential artists' interest and/or commitment to attend the Kitt Peak workshop. Choices of dates were bounced around by a couple of dozen artists with differing priorities and time tables to attend the workshop.

By early summer, Bill reported that not much progress had been taking place with the Culture & Arts subcommittee, and it was apparent that the needed preparation time was passing if a 2009 workshop could be coordinated. Another enquiry was sent to Pat Elaison requesting whether a decision to host an IAAA workshop at Kitt Peak had been rendered. By mid August good news finally arrived. The workshop was approved and scheduled for late October. Further negotiations now escalated and began to review the terms and conditions of agreements between the IAAA and KPNO / NOAO.

In addition to e-mail exchanges, weekly video teleconferencing was requested so that a broader scope of mutual interests and intentions could be explored in a timely fashion. The issues at stake included the limitation of a dozen artists staying on the mountain in six dormitory rooms, the number of periodic rotations of the remaining artists in Tucson off the mountain if any, locations of exhibition venues and extra accesses to mountain locations, telescopic sites and astronomical facilities outside the visiting general public tours during the week.

The final roster of IAAA artists-in-residence was settled with eight attendees: John Clark (AZ), April Faires (WA), Tim Malles (FL), Bill Hartmann (AZ), John Ramer (CA), Michelle Rouch (AZ), Betsy Smith (NH) and Kara Szathmáry (FL / Quebec, Canada). Video conferencing continued daily at the end of September, with the planning phase of the itinerary for the artists that included an outreach trip to the Tohono O'odham Reservation and a partnership day with visiting Tohono O'odham artists on the mountain during the week. Meanwhile, Michelle Rouch of Tucson was selected as the on site voice of the IAAA to assist Elizabeth Alverez, Aletha Kalish NOAO and Mary Guerrieri, Academic Affairs for the Department of Planetary Sciences and the Lunar Planetary Laboratory at the University of Arizona, where the summative exhibition venue would be hosted at the Planetary Sciences Kuiper Atrium.

Julie Jones, Assistant to the IAAA Director of Exhibitions, was commissioned to design a horizontal IAAA exhibition banner 3 feet by 8 feet in span with our name, logo and title "Visions of the Cosmos" by way of a generous donation by Pamela Lee FIAAA. Bill Hartmann and Michelle Rouch kindly provided cover art for the announcement of the exhibition at the LPL Kuiper Atrium in collaboration with Mary Guerrieri LPL. Matched funding by the IAAA and KPNO / NOAO provided the means for the opening preview (vernissage) of the exhibition.


International Association of Astronomical Artists
"Visions of the Cosmos"
We cordially invite you to attend a private reception with the International Association of Astronomical Artists (IAAA) artists of "Visions of the Cosmos."
Friday, October 23, 2009
3 - 6 pm
University of Arizona
Kuiper Space Sciences Building
Lunar and Planetary Laboratory (LPL)
1629 E University Blvd
Tucson, AZ 85719
For more information contact:
Kara Szathmary
white_dwarf_studio@yahoo.com
International Association of Astronomical Artists (IAAA) Art Exhibition celebrates 50th Anniversary of National Optical Astronomy Observatory (NOAO) and 50th Anniversary of the UA's Lunar and Planetary Laboratory (LPL). Artists: John W. Clark, April Faires, William K. Hartmann, Tim Malles, Jon Ramer, Michelle Rouch, Betsy Smith, and Kara Szathmary.
ART EXHIBIT
NSO
THE UNIVERSITY OF ARIZONA
visions of the cosmos
Friday, October 23, 2009, 3 – 6 p.m.
Kuiper Space Sciences Building Atrium
The International Association of Astronomical Artists (IAAA) unveils new artwork in this special exhibit. The "Visions of the Cosmos" exhibit celebrates the 50th anniversaries of both the National Astronomy Observatory (1958-2008) and The University of Arizona's Lunar and Planetary Laboratory (1960-2010).
For information about the International Association of Astronomical Artists, visit: iaaa.org
For information about Kitt Peak National Observatory, the National Optical Astronomy Observatory, and the National Solar Observatory, visit: www.noao.edu and www.nso.edu
For information about the Lunar and Planetary Laboratory, visit: www.lpl.arizona.edu
50 years
Lunar and Planetary Laboratory
CELEBRATING 50 YEARS
THE NATIONAL OBSERVATORY

# International Astronautical Federation

## Organisational Node

Rocio Caparros del Moral
rocio.caparros@iafastro.org
http://www.iafastro.org/

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## Main Activities

### International Astronautical Congress 2009

Plenary session during the International Astronautical Congress 2009 in South Korea:The contribution of space science to astronomy in celebration of International Year of Astronomy
More information: http://www.iafastro.org/index.html?title=IAC2009_Plenary_8

### IYA2009 Videos Series

IYA2009 throughout the year on the IAF website: http://www.iafastro.org/index.html?title=6_December_2009

## Organisational Node

Halina Bednarz
M_K_I and iEARN/Poland; Asia Europe Classroom NET
mki@m-szkola.net
http://webnews.textalk.com/pl/view.php?id=1510

Number of organising committee members: N/A

Number of people reached by IYA2009:

Budget: N/A

Sources: N/A

## Main Activities

### Young Scientists “In the Cosmos”

Throughout 2009
Science and art activity for Asia-Europe students: studying the sky and exchanging knowledge, preparing a monument to the cosmos with online voting, identifying properties related to astronomy, and more.

### From gnomon to...

Throughout 2009
Actions at school observatory open for visitors: sky observations in the school observatory using a telescope, outdoor observations, etc.

### Planetary Path in the Beskidy Mountains

Throughout 2009
Description of the Planetary Path in the Beskidy.

### Young Scientists — InsideCosmos

“Young Scientists — InsideCosmos” project includes 2 main subjects:

#### Following in Galileo’s footsteps (science activity)

Students will studied the sky with self-made telescope and share multimedia resources (photos, movies)

#### Linking Astronomy and World Heritage (culture/art activity)

Artistic projects for the ‘MONUMENT TO COSMOS’ (identify properties related to astronomy located around the home country, to ‘preserve their memory and save them from progressive deterioration.’)

Website: http://www.eu.cyberdusk.pl/science/ and http://www.aec.asef.org/projects/projects2008.html

## Organisational Node

Juergen Rendtel
president@imo.net
http://www.imo.net/

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by the International Meteor Organization

Information not available.

## Organisational Node

Chatief Kunjaya
Institut Teknologi Bandung
kunjaya@as.itb.ac.id
http://ioaa2009.ir

Number of organising committee members:11+

- Volunteers:
- Paid:

Number of people reached by IYA2009:600

Budget: 1 200 000 €

Sources: Iranian Government

## General Overview of IYA2009 activities by the International Olympiad on Astronomy and Astrophysics

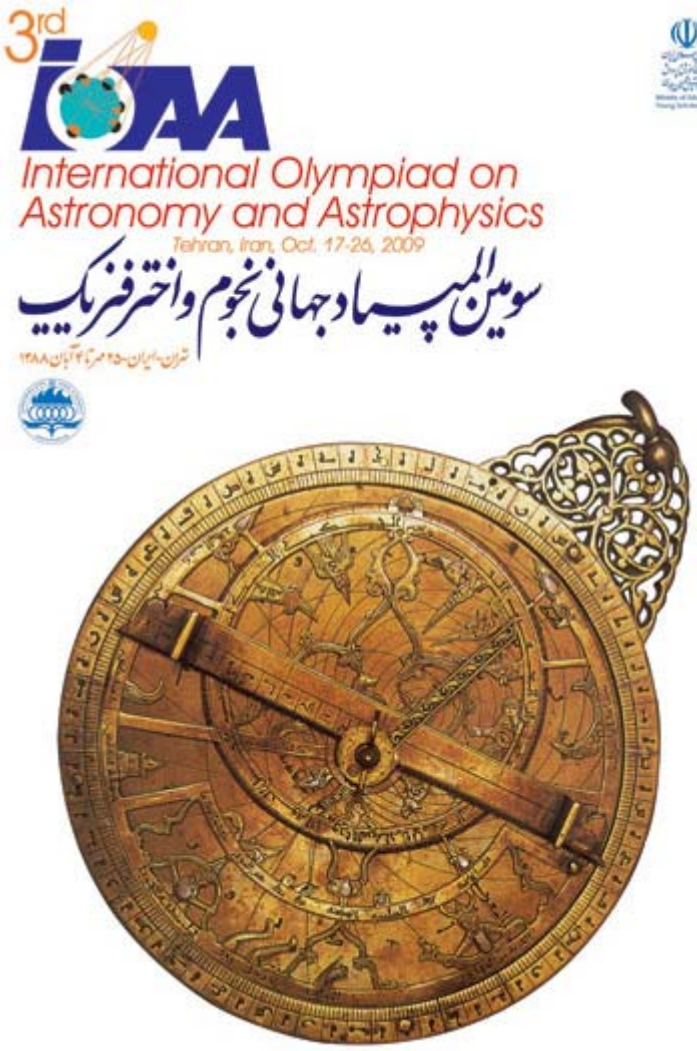
The International Olympiad on Astronomy and Astrophysics is an International organization for performing astronomy competition among high school students. The president of this organization is Prof. Boonrucksar Soonthornthum from Thailand and General Secretary Dr. Chatief Kunjaya from Indonesia. The first was held in Chiang Mai, Thailand 2007, the second was in Bandung 2008.




ISNA/PHOTO:AMIR POURMAND

The third International Olympiad on Astronomy and Astrophysics 2009 hosted by Iran as a part of Iranian participation in the International Year of Astronomy activities. It get full support from the Government of Islamic Republic of Iran, even the President invite the participants to his office.

## Main Activities




### The Third International Olympiad on Astronomy and Astrophysics

The Third International Olympiad on Astronomy and Astrophsics was held in Teheran, Iran, 17-26 October 2009. It is part of IYA2009 activities for Iranian Astronomers and people. The activities includes :

- Opening Ceremony
- Theoretical Test on Astronomy in Teheran
- Astronomical Data Analysis test in Teheran
- Astronomical Observation test in Deh Namak
- International Board Meeting
- Moderation sessions
- Cultural Activities
- Meeting with the President of Islamic Republic of Iran
- Banquette dinner with the Minister of Education and Minister of Foreign Affair
- Closing Ceremony and Medal Distributions




About 90 students, 40 leaders from 20 countries was participated in the activities. Hundreds of Iranian people get involved in the activities as organiser, jury members, liaison officer, technician, support worker, cultural activities worker etc.

## Lessons Learned

The International Olympiad on Astronomy and Astrophysics is a big event, always supported by the host country government. In the past three event, always attended by at least a minister. Head of government also get involved in past two of three event. Such an important event must be organised well, so coordination among organizing committee, academic committee, the IOAA president and General Secretary should be done intensively several months before the event.

## Legacy

IOAA will continuously be held annually. The fourth IOAA will be in Beijing, China, September 2010. IOAA also has get recognition from IAU and its activities will be part of the IAU commission 46 in the future.



ISNA/PHOTO:AMIR POURMAND

## Organisational Node

Jon W. Elvert
Louisiana Art & Science Museum
jelvert@lasm.org
http://www.ips-planetarium.org/

Number of organising committee members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by the International Planetarium Society

International Planetarium Society is the global association of planetarium professionals. Its nearly 700 members come from 35 countries around the world. They represent schools, colleges and universities, museums, and public facilities of all sizes including both fixed and portable planetariums.

The primary goal of the Society is to encourage the sharing of ideas among its members through conferences, publications, and networking. By sharing their insights and creative work, IPS members become better planetarians.

IPS membership is open to anyone interested in planetariums. Members include directors, teachers, technicians, writers, artists, media specialists, presenters, vendors, scientists, students, and sponsors and friends of the planetarium dome and its starry sky.

More than 20 regional and national planetarium associations from around the world are affiliated with IPS. Representatives from those affiliates, together with the elected officers, make up the Executive Council, the ruling body of the organization. IPS was founded in 1970.

What a fantastic, successful year in sharing with the world the importance and beauty of astronomy. The fact that over 140 countries and many of their heads-of-state acknowledged the IYA is a powerful statement for the importance of astronomy and what we do on a daily basis. The worldwide planetarium community is proud to have been part of this initiative.

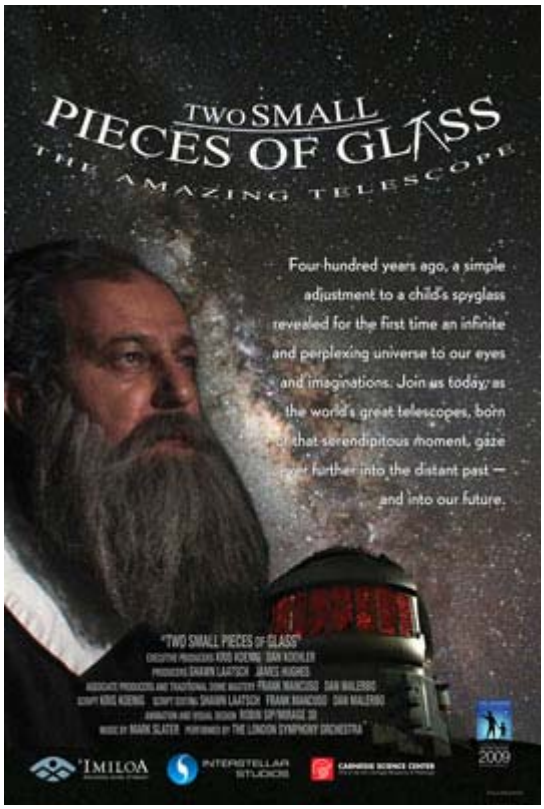
## Main Activities

### List of Activities

- Probing The Heavens with Galileo
- Touching the Edge of the Universe
- Galileo: The Power of the Telescope
- Galileo Skies
- Le reve de Galileo
- ALMA: The Search for our Cosmic Origins
- Auguen Im All
- Galileo Live!
- Pingo's Birthday
- 100 Hours of Astronomy

## Two Small Pieces of Glass

Engaging and appealing to audiences of all ages, Two Small Pieces of Glass is a planetarium show tracing the history of the telescope from Galileo's modifications to a child's spyglass-using two small pieces of glass-to the launch of NASA's Hubble Space Telescope and the future of astronomy. Shown in over 400 planetariums worldwide and translated in 14 languages, the show explores the wonder and discovery made by astronomers through out the last 400 years. The show follows two students as they learn how the telescope has helped us understand our place in space and how telescopes continue to expand our understanding of the Universe. While looking through an astronomer's telescope, the students, along with the planetarium audience, explore the Galilean Moons, Saturn's rings, and spiral structure of galaxies. During their conversation with the astronomer, they also learn about the discoveries of Galileo, Huygens, Newton, Hubble and many others.




Imiloa Astronomy Center, Buhl Planetarium at the Carnegie Science Center, and Interstellar Studios partnered on this program, which was distributed free to all IPS members. Mirage IIID provided computer graphics, animations, and compositing the program. The soundtrack was recorded by the London Symphony Orchestra.

Organisers: Imiloa Astronomy Center, Buhl Planetarium at the Carnegie Science Center, Interstellar Studios, and Mirage IIID.

Website: http://www.400years.org/en/planetarium_program/two_small_pieces_of_glass.php

Estimated people reached by this activity: 500 000

## ALMA: The Search for our Cosmic Origins

An inspiring planetarium show introducing ALMA (Atacama Large Millimeter/submillimeter Array), the largest astronomical project in existence, and how astronomers are continuing Galileo's quest to understand the Universe. The show takes the audience on a journey from Galileo in Padua, Italy 400 years ago to ALMA's site high in Chile's arid Atacama region, through our Milky Way and onward to some of the most distant galaxies in the Universe. We also learn about the formation of stars and planets, and how ALMA will help us answer questions about our origins. Translated from French in multiple languages.



Organisers: ESO, APLF and scientific communities in East Asia, Europe, North America & Chile

Website: http://www.cosmicorigins.org

Estimated people reached by this activity: 250 000

## Augen im All (Eyes on the Universe)

A planetarium show produced by the European Space Agency (ESO) along with planetariums in Germany, Austria, and Switzerland. The show introduces audiences to the history and various types of telescopes over the past 400 years.




Organisers: ESA and german speaking planetariums

Website: http://www.esa.int/esaCP/SEMJNABNJTF_Germany_0.html

Estimated people reached by this activity: 100 000

### 100 Hours of Astronomy

Planetariums worldwide provided 100 hours of continuous astronomy related activies, including planetarium shows, lectures, star parties, outreach programs, interviews, exhibits, and astronomy resources to their local communities. 100 Hours of Astronomy was a cornerstone project of IYA2009 that took place from 2-5 April, 2009.

## Lessons Learned

What worked well were the partnerships and collaborations between planetariums and businesses, both on local and national levels. Participation of worldwide planetariums and delivering an awareness of astronomy and the importance of the telescope. Some lessons learned that could be improved upon were in marketing, fund-raising, and distribution of planetarium shows worldwide.

## Legacy

Yes, some cornerstone Beyond IYA2009 programs will be promoted through the IPS's outreach committee.




Max Planck Society

## Organisational Node

Martin Asplund
asplund@mpa-garching.mpg.de
http://www.mpg.de/

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

## General Overview of IYA2009 activities by Max Planck Society

Max Planck Society supported financially the IYA2009 Special project, Galileomobile.

National Aeronautics and Space Administration

## Organisational Node

Hashima Hasan (Science Mission Directorate, NASA Headquarters)
hhasan@nasa.gov
http://astronomy2009.nasa.gov/

Number of organising committee members: 6-10

- Volunteers: 10
- Paid:

Number of people reached by IYA2009: 700 000

Budget: 600 000 €

Sources:

- NASA.

## Main Activities

### List of Activities

- Great Observatories Image Unveiling
- Visions of the Universe: Four Centuries of Discovery
- From Earth to the Universe
- MicroObservatory
- Sun-Earth Day 2009
- Around the World in 80 Telescopes
- 100 Hours of Astronomy
- "Hubble's Next Discovery — You Decide"
- Teacher Workshops
- International participation of NASA scientists
- NASA IYA2009 Student Ambassador
- Women in Astronomy and Space Science
- After School Universe
- Cosmic Calendar
- Black Holes:Space Warps and Time Twists traveling exhibition
- Music and Astronomy Under the Stars
- Epo's Chronicles
- Capture the Colourful Cosmos
- NASA JPL What's Up Podcast Series for IYA2009

### NASA Kepler Mission Teacher Professional Development & Resources

The *Kepler Mission* Education and Outreach team conducted six teacher professional development workshops that surrounded the March 2009 launch of the *Kepler Mission*. The workshops targeted middle and high school science teachers, and were held at SETI Institute/NASA Ames Research Center (CA), Laboratory for Atmospheric Physics at University of Colourado (CO), Jet Propulsion Laboratory (CA), Kennedy Space Center (FL), Harvard Smithsonian Center for Astrophysics (MA), and the National Air and Space Museum (WA, DC).

The workshop included a seminar with the *Kepler Mission* scientist/engineer, and a series of hands-on, inquiry-based activities for middle and high school science students. This was a day-long event, organised by the SETI

Institute in collaboration with the local hosts. Almost 200 teachers and staff participated. Each teacher received a kit of print materials, parts to build an orrery, optical sensor, computer interface, and software to demonstrate transits in the classroom. All activities and orrery instructions are available on the *Kepler Mission* website. At least three additional workshops are scheduled for 2010.

*Kepler Mission* education resources that supported IYA2009 were made available to the public at: http://kepler.nasa.gov/education/iya/

Those resources included:

- Activities Classroom activities (some are included on a Poster released in 2009).
- Human Orrery (GEMS—middle school) Laying out the inner solar system to create a "walking" model of planets not only showing relative sizea and distances, but movements as well.
- Detecting Planet Transits (GEMS—middle school).
- Transit Tracks (FOSS—middle school, field test draft version) — Analyzing light curves to determine characteristics of transiting planets.
- Tracking Jupiter's Moons (HOU—high school, requires Image Processing software) — Determining relationship of periods and distances of Jupiter's moons.
- Exoplanet Transits (HOU—high school, requires IP software).
- Kepler Star Wheel Uncle Al's Kepler Starwheels — free downloadable planisphere.
- Transit Hunt online interactive.
- Planet Families — Build a Solar System online interactive.
- Amateur Astronomer Kits — Night Sky Network *Shadows and Silhouettes* amateur kit was used at hundreds of astronomy club events.
- Your Name in Space — the mission made available online form for people to submit their names and why they think the Kepler mission is important, to be sent to space on a DVD attached to the Kepler spacecraft.

Organisers:
Alan Gould, Co-I, EPO at Lawrence Hall of Science — UC Berkeley, agould@berkeley.edu
Edna DeVore, Co-I, EPO at SETI Institute, edevore@seti.org
Pamela Harman, Education Manager SETI Institute, pharman@seti.org
Dr. David Koch, Deputy PI NASA Ames Research Center, d.koch@nasa.gov

Website: http://kepler.nasa.gov

Estimated number of people who attended or were reached by this activity:
200 directly, 20 000 indirectly.

Budget:
24 000 € to support the workshop materials and travel (only). All other funding was a part of the *Kepler Mission* EPO support.

Lessons Learned:
We found it relatively easy to integrate the work that we had already planned and products we were already creating into the themes for IYA2009. This allowed us to significantly support the effort.

Comments:
The *Kepler Mission* was especially excited by the focus on the year 1609, not only because of Galileo's activities that year, but because that was the year Johannes Kepler's paradigm changing work, *Astronomia Nova*, which was published in 1609. The NASA *Kepler Mission* depends critically on Johannes Kepler's work to determine distances of discovered planets from their respective stars.

## Epo's Chronicles (IYA2009 Special "Eposodes", lithographs for the Night Sky Network and 2010 Calendars)

Scientist Alkina and her sentient spaceship, Epo, explore the IYA2009's 12 Featured Observing Objects. The protagonists of this comic strip give a tour of the 12 IYA2009 objects to alien ambassadors visiting our Solar

System. In each comic various details of the object are discussed with additional science facts and images presented below the comic strip. The 12 IYA2009 episodes originally appeared at the beginning of each month in 2009 on the comic's website, http://eposchronicles.org

They were later reprinted as lithos that were distributed by requests received through the Night Sky Network of amateur astronomy clubs, and collected into a calendar.

Organiser:
Lynn Cominsky
Education and Public Outreach, Sonoma State University
lynnc@universe.sonoma.edu

Website: http://eposchronicles.org

Estimated number of people who attended or were reached by this activity:

- ~ 40 000 online hits of homepage per month.
- ~1400 printed lithos of individual episodes (~17 000 total printed lithos) given away through the Night Sky Network.
- 1550 printed calendar sets given away at conferences and direct mail.

Budget:
We spent 10 500 € total on printing the calendars and lithos. There was about one month of staff time for each of two people, to prepare the lithos and the calendar for print. This is estimated at about 12 000 € including benefits and overhead. Staff time to develop the comics themselves has not been included as we would have been doing the comics anyway, but on non-IYA2009 subjects.

Lessons Learned:
The artistic and graphical fit between an online weekly comic strip and the IYA2009's Feature Observing Objects made for an excellent product in addition to being a perfect vehicle for introductory astronomy education. Our artist's and writers' only complaint was that another list of 12 Featured Observing Objects was not made for 2010.

Comments:
The Night Sky Network clubs were very enthusiastic about receiving the lithos. Our hit rate for the Epo's Chronicles web site doubled during IYA2009 and remains at the higher level as a result of this project.

## Observing With NASA (OWN) — "Capture the Colourful Cosmos" Public Astrophotography Project




*Observing With NASA* (OWN) is a NASA-funded e-learning project developed by the Harvard-Smithsonian Center for Astrophysics (CfA). The project provides universal access to the CfA's MicroObservatory online network of robotic educational telescopes, allowing users to make their OWN astronomical observations and compare their images and data with that of professional astronomers. *Capture the Colourful Cosmos* was a special IYA2009 initiative that employed the OWN online telescope and image processing resources to engage diverse audiences

at museums, planetaria, libraries, and other informal learning venues in the excitement of NASA imagery and the 400th anniversary of the telescope.

Through a partnership with the Association of Science-Technology Centers and coordination with the Astronomical Society of the Pacific's Astronomy From the Ground Up project (AFGU), the US IYA2009 programme , the Year of Science project, NASA's Museum Alliance and IYA2009 Libraries projects—*Capture the Colourful Cosmos* included two online professional development seminars for informal educators in May and July that led to a series of public workshops and visitor-created astrophotography exhibit displays across the country during August through October.

More than 120 astronomy educators from institutions in 37 states, DC, and 3 non-US countries participated in the CCC online workshops. Through our ASTC partnership, two dozen of these institutions applied and received "micro-grants" to support the implementation of on-site CCC programs and astrophotography exhibits for the public and to report back on their results. Participating organisations showed an impressive range of creativity in carrying out their activities. *Capture the Colourful Cosmos* training events included family workshops, teacher workshops, Girl Scout sessions, afterschool clubs, and star parties. Exhibit venues included libraries, schools, planetariums, museums, and websites. All age groups except for very young preschool or school-aged children were included in the groups of visitors taught to use the MicroObservatory resources.

The 23 institutions that have filed their results reported just over 2000 direct participants using OWN resources in their Capture the Colourful Cosmos astrophotography programs. More remarkably, the institutions estimated that their participant-created astrophotography exhibits—most of which included comparisons of participants' OWN images with NASA images— have reached an additional 150 000 members of the public, due to an extended display period within a frequently visited building or gallery.

Organisers:
Mary Dussault, Harvard-Smithsonian Center for Astrophysics, mdussault@cfa.harvard.edu
Erika Reinfeld, Harvard-Smithsonian Center for Astrophysics, ereinfeld@cfa.harvard.edu
Margaret Glass, Association of Science-Technology Centers, mglass@astc.org

Website:
Capture the Colourful Cosmos Programme site at:
http://www.cfa.harvard.edu/seuforum/iyacosmos/

Online telescopes and resources at:
http://www.microobservatory.org/

Slide show at:
http://www.cfa.harvard.edu/seuforum/iyacosmos/cosmos2009.htm

Estimated number of people who attended or were reached by this activity:
150 000 (plus ongoing audiences in the future).

Budget: 40 000€

Lessons Learned:
We used a combination of web-statistics (for both the online workshops and the use of MicroObservatory resources); "Survey Monkey" online surveys; and written reports filed to ASTC by participating venues.

*The online workshops for informal educators, delivered through a Moodle course management system, appeared to be an effective tool for providing a diverse, geographically dispersed set of participants with professional development for implementing this project:*
In a post-workshop evaluation survey, 100% of respondents agreed or strongly agreed with the statement "I enjoyed this workshop";
95% agreed or strongly agreed with the statements: "I learned a lot from this workshop"; "This workshop helped deepen my understanding of NASA imagery"; and "I will use information or resources from this workshop in my own programs."

Respondents, who came primarily from museums, planetariums, libraries, and higher-ed astronomy outreach programmes, reported intention to use OWN resources in the following types of programmes, in rank order: family program/workshop (70%); programmes for the general public (60%); school programmes (60%); summer camps (45%); after-school programmes (37%); and other (25% — included exhibits, teacher workshops, and homeschool programmes).

*The use of "microgrants" to incentivise the implementation of programs at informal learning venues appeared to achieve our (and IYA2009's) goal of reaching new audiences and of leaving an ongoing footprint:*
Participants mentioned that the microgrant gave them the opportunity to plan a new kind of programme or work with a new audience segment.

Some took the event as a chance to make new community partnerships, between libraries and museums, or between art museums and science museums.

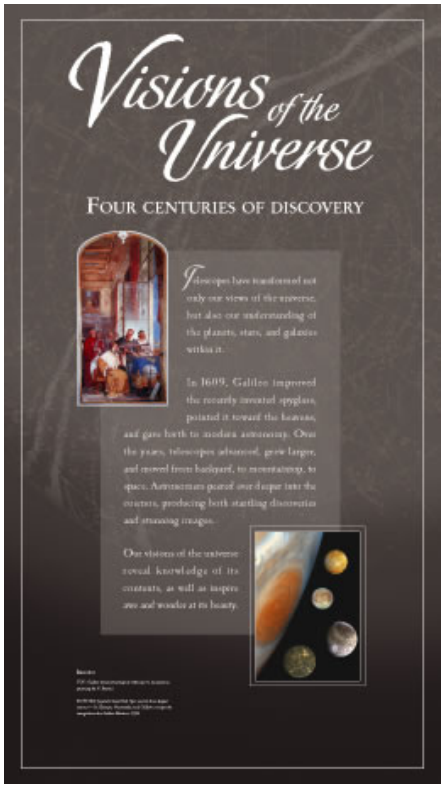
Evidence of capacity-building is present in the responses to a number of questions. For example, workshops and exhibit preparations typically involved two or more staff members, while only one was the initial participant in the workshop. In another example, staff normally involved in education programming learned some of the decision-making associated with exhibit or display preparation.

Most striking, over 90 percent of the participants report that they intend to incorporate MicroObservatory into their future programming, indicating that the microgrant was successful in supporting a learning phase for a few staff of an astronomy education activity that will be used in multiple future contexts

*The extra attention focused on astronomy education and on training "intermediate" informal education providers via this IYA2009 programme is resulting in significant and lasting increased public usage of the MicroObservatory online telescope network:*

- Our web statistics show that our efforts on OWN during IYA have resulted in a significant increase in the usage of the MicroObservatory online telescopes, from approximately 800 users per month prior to 2009 to over 3000 users per month currently, mostly among 11-19 year olds (presumably as a result of our PD sessions with after-school and informal educators).
- 45% of image requests come from female users, while 56% are from youth users (under 20).
- Our OWN image request infrastructure asks users to rate their astronomy knowledge on a scale of 0-10. The average self-rating of OWN users is 4.5, indicating that we are reaching significant numbers of "newcomers" to astronomy learning.
- One of our most interesting preliminary evaluation findings is that, for repeat, persistent users (those who use the telescopes multiple times on three or more separate occasions), we see evidence of an increase over time in users' self-rating of astronomy knowledge.

## Visions of the Universe: Four Centuries of Discovery




*Visions of the Universe: Four Centuries of Discovery* is a new travelling exhibit for public libraries that portrays how our knowledge of the Universe and the objects within it has changed over the past 400 years. Libraries play a clear role in engaging learners of all ages and backgrounds on multiple levels and provide free and convenient access to resources. The American Library Association, however, has identified an important need for library programmes that simultaneously target multiple audiences and present accurate, authoritative, up-to-date scientific information. This was the main inspiration for a partnership between the Space Telescope Science Institute, the Smithsonian Astronomical Observatory, and the American Library Association to create the Visions of the Universe exhibit.

The exhibit features stunning imagery from multiple NASA missions, including the Hubble Space Telescope, along with historic astronomical sketches and photographs. Relevant, historical discoveries in astronomy are highlighted together with the technological advancements that made these discoveries possible. The Visions of the Universe project includes six two-sided free-standing exhibit panels, supporting educational materials, a scientist speaker's bureau, and training and support for participating libraries and scientist speakers. In addition, each exhibit panel is available online as a downloadable, poster-size file. The exhibit itself requires just 150-200 square feet of display space, making it an accessible project for many smaller institutions.

Visions of the Universe will travel to 55 libraries during 2009-2011 to mark the International Year of Astronomy 2009 — and Beyond, and is presented by the Space Telescope Science Institute, the Smithsonian Astrophysical Observatory, and the American Library Association through funding from the National Aeronautics and Space Administration (NASA). The 55 participating libraries serve rural towns and large cities with limited access to NASA resources, and were selected from over 120 peer-reviewed applications from public libraries located across the United States.

Organisers:
Denise Smith, Space Telescope Science Institute, dsmith@stsci.edu
Bonnie Eisenhamer, Space Telescope Science Institute, bonnie@stsci.edu
Mary Dussault, Smithsonian Astrophysical Observatory, mdussault@cfa.harvard.edu
Susan Brandehoff, American Library Association, sbrandehoff@ala.org

Website:
http://www.ala.org/visionsoftheuniverse

http://amazing-space.stsci.edu/visions/

Estimated number of people who attended or were reached by this activity:
So far, the exhibit has served 32 libraries and about 200 000 visitors.

Lessons Learned: Astronomy-related exhibits such as the “Visions of the Universe” exhibit work well in a library setting. All librarians expressed that they would like to see more exhibits with astronomy-related themes.

Several librarians stated that they benefited from participating in telecons and having access to educational support materials prior to hosting the exhibit. This material provided them with a preview of the exhibit’s content so that they could begin planning relevant events and programmes in advance. In addition, a scientists’ speakers bureau was available to libraries.

Librarians planning programs for younger students expressed a need for hands-on activities for younger students and strategies for addressing the needs of beginning readers.

## NASA Great Observatories Image Unveilings




NASA’s Great Observatories — the Hubble Space Telescope, Spitzer Space Telescope, and Chandra X-ray Observatory — collaborated to release spectacular multi-wavelength views of the universe to celebrate the International Year of Astronomy. As part of this effort, U.S.-based science centres, museums, planetariums, nature centres, libraries, and other informal education venues unveiled large prints of Hubble-Spitzer-Chandra images of the spiral galaxy Messier 101 in February 2009 and the Galactic Centre in November 2009. 116 organisations hosted unveiling events in February 2009 to celebrate Galileo’s birthday; 152 organisations hosted unveiling events in November 2009 to celebrate culmination of IYA2009. The prints will be permanently displayed at the participating institutions.

The unveiling events created many new community partnerships: new collaborations between libraries, NASA, local universities, K-12 schools and the home-schooled community. Many locations reported that the images would be used by local school districts for Earth and Space Science units during the coming year. A variety of cross-disciplinary events were held as part of the unveilings, including a meteorite raffle, a blues concert, and the display of a first-edition Galileo book, all of which helped to attract new audiences to astronomy. Many of the libraries noted “phenomenal turnout”, and have plans to create additional astronomy programmes in the future. Extensive press coverage occurred, both local and national, and included NPR, Popular Science, space.com, MSNBC, UPI, Fox News, LiveScience.com, and more. Funding for the NASA Great Observatories Image Unveilings was provided by NASA.

Organisers:
Denise Smith, Space Telescope Science Institute, dsmith@stsci.edu
Bonnie Eisenhamer, Space Telescope Science Institute, bonnie@stsci.edu
Gordon Squires, Spitzer Science Center, squires@ipac.caltech.edu
Kathy Lestition, Chandra X-Ray Center, kathy@head.cfa.harvard.edu

Website:
http://hubblesource.stsci.edu/events/iyafinale/
http://hubblesite.org/newscenter/archive/releases/2009/07/
http://hubblesite.org/newscenter/archive/releases/2009/28/

Estimated number of people who attended or were reached by this activity:
We estimate that at least 40 000 people attended the image unveiling events. 80% of institutions participating in the November 2009 image unveiling reported back with descriptions and photos of their events; based on those reports, over 23 000 people attended one of the November unveiling events. We estimate similar numbers for the February events.

Lessons Learned:
Several strategies helped to make these events a success. Frequent, early communication with the institutions was critical to keeping the events on track. This gave event hosts sufficient time to gather partners and involve community leaders, such as a Senator, mayors, college deans, and K-12 leaders, as well as other NASA partners (including an Educator Astronaut finalist, Educator Ambassadors, Solar System Ambassadors, a NASA Historian, and NASA engineers). It also allowed time to notify press, both local and national (NPR, Popular Science, Space.com, MSNBC, UPI, Fox News, LiveScience.com, and more).

A Google Group was created, with libraries often seeking advice from institutions that had run similar events in the past, and had experience with mounting and displaying large prints. Two telecons were hosted for participants, one covering general event details, one covering the science behind the images. Both telecon transcripts were posted to a secure website for those unable to attend, and were cited as very valuable by many participants. Photographs from the February 2009 unveiling were posted online as guides for November 2009 event ideas. Lastly, the online reporting requested of all participants allowed the institutions to submit photographs and descriptions of their events, and gave the hosts an opportunity to express how these events had positively impacted their institutions and communities.

## NASA IYA2009 Student Ambassadors



NASA, in collaboration with the National Space Grants Consortium, selected 52 IYA2009 Student Ambassadors in all of the 50 states of the U.S., Puerto Rico and the District of Columbia. The students worked actively to spread the excitement of NASA science in their local neighbourhoods and beyond. 19 of these students met at a Workshop at NASA Goddard Space Flight Center, on 4-5 August 2009 to share their projects through oral and poster presentations, and discussions. They also heard science talks given by Nobel Laureate, John Mather, and Swift principal investigator, Neil Gehrels, HST SM4 engineering talk by Mike Weiss, and science policy talk by Jean Cottam. They shadowed GSFC scientists, visited labs, and saw the GSFC Visitor Center. Five students attended the American Astronomical Society meeting in January 2010 and presented their work. Two students represented NASA and the US at the IYA2009 Opening Ceremony in Paris in January 2009.

Organisers: National Space Grants Consortium.

Website: http://www.spacegrant.org/niya/

Budget: 120 000 €

## NASA JPL What's Up Podcast Series for IYA2009

The NASA IYA2009 What's Up podcast presents astronomy highlights which everyone in the world can see in the night sky. For IYA2009, an historic observation celebrating the 400 years of telescopic observations was paired with a NASA mission or telescopic observation of the object. The IYA2009 logo was prominently shown at the beginning of each 2-3 minute podcast, and a NASA educational activity was paired to each podcast. A simple night sky star chart was provided in each podcast, and a written transcript aided translation from English. International dissemination was through JPL's International volunteer network: the Cassini Saturn Observation Campaign comprised of 400 amateur astronomers in 52 countries, the International Planetarium Society, NASA Museum Alliance, International Sidewalk Astronomers, Astronomers without Borders, Cloudy NIghts Astronomy forum (online) and many others. The podcasts were downloaded 1.2 million times in 2009 alone, 4 million times since the ongoing podcast debuted in April 2007.

Organisers: Jet Propulsion Laboratory.

Website: http://solarsystem.nasa.gov/news/whatsup-archive.cfm

## Music and Astronomy Under the Stars

Music and Astronomy Under the Stars is a NASA-funded astronomy outreach programme at community parks before, during, and after concerts and outdoor family events on Long Island, New York or at the Tanglewood Music Festival (Lenox, MA, summer home of the Boston Symphony and Boston Pops Orchestras). This innovative programme guarantees large outreach audiences (25 000 in 2009) because thousands of music lovers attend outdoor concerts in the parks and have made a commitment to be outside at night for several hours. The target audience of 2 900 000 people in Nassau and Suffolk Counties (New York) is larger than combined population of Atlanta, Boston, Denver, Minneapolis, and San Francisco. This programme targets every segment of the public with concerts/events for all musical tastes. Astronomy events were scheduled within 20 miles or 40 minutes of everyone in our region. People of all ages, ethnic groups, and economic classes attend these concerts.

This comprehensive programme includes: observing with four solar telescopes before the concerts and six-to-ten telescopes after the concerts; a live telescope image projected onto a 5' x 9' screen; an astronomy video presentation projected onto 12' x 16' screen; an 8'x20' TWAN image by Wally Pacholka of the Milky Way from Mauna Kea rising over Hilo, Hawaii; a 3'x10' Music and Astronomy Under the Stars banner of the Orion Nebula (from HST); and twelve 2.5' x 5' Visions of the Universe posters (STSCi/NASA and the American Library Association). On cloudy nights many people still were interested in looking through a telescope and viewed the posters, mural, and video programme . The Amateur Observers' Society of New York assisted with the telescope observations for the NY events and The Springfield Telescope and Refractor Society assisted with telescope observations at the Tanglewood Music Festival.

2009 concerts and events: Rock: Phish; Rod Stuart tribute band. Popular: Tony Bennett tribute band. Classical: Boston Symphony and Boston Pops Orchestras. Outdoor movies on a large screen: Wall-E and Night at the Museum Part II. Ethnic: Irish tenors (Ronan Tynon and Andy Cooney); Halloween Stars — Spooky Walk in a Botanic Garden. Dance: Gato African- Brazilian Music-Dance Ensemble.
The Phish concert was attended by 14 000 young people. We had a "tail-gate" pre-concert star party by the parking lot. About 7000 concertgoers were excited about looking through telescopes and looking at the large image of the Milky Way. People were taking pictures posing in front of the Milky Way image and it became a "teachable moment" as I described the many features of the Milky Way. The largest concert in 2009 was 28 July at the Tanglewood Music Festival attended by 16 000 people (kids under 17 were free). Almost everyone saw the large mural of the Milky Way and 5000 people came to look at the Sun or Moon through telescopes, look at the Visions of the Universe posters, or view the video presentation. The final event in 2009 was a Halloween Stars–Spooky Walk in a park/botanical garden attended by 8500 kids (many in costume) and their parents. While almost everyone saw the astronomy mural and posters, 1500 people came to look through a telescope to see Jupiter and the Moon or view the astronomy video.

Organisers:
Dr, Donald Lubowich, Coordinator of Astronomy Outreach, Department of Physics and Astronomy, Hofstra University, Hempstead, NY 11549.

Website:
www.hofstra.edu/astronomy with a link to Music and Astronomy Under the Stars.

Estimated number of people who attended or were reached by this activity:
25 000.

Budget:
The 2009 budget for this NASA-funded outreach programme was 80 000 €. The budget included the 33% Hofstra University administration fee (indirect costs), summer salary; summer student support expenses; equipment costs for 10 telescopes with mounts, filters, and eyepieces; video projection eyepiece system; printing of the large posters, banners, information sheets, and 20 000 bookmarks; two outdoor video projection systems; outdoor power sources, outdoor halogen battery powered lights, outdoor display hardware; travel to AAS, ASP, and IAU meetings to promote and disseminate information about this program; expenses to store and transport the equipment; transportation and meal expenses for the astronomy club members that assisted with the programme

(12 people per each eight hour event); professional evaluator; video creation, astronomy visualisation (Dr. Jose Salgado); art director to design the posters and banners. This equipment is needed to last for 70 concerts over three years and is designed to be sufficient for the largest concert expected (60 000 people expected for the Philharmonic in 2010).

Lessons Learned:
Plan even earlier than you think; partnerships with parks and amateur astronomy clubs are crucial to success; test all equipment before the events; hire an art director to create the outdoor displays; selecting the proper location in each park is critical to obtaining a large number of people; use media and www sites to promote these events; have backup equipment for failures; use multiple telescopes with multiple targets; and project a live image or a video programme to deal with large crowds of kids and adults.

Starting a Music and Astronomy Under the Stars programme : Parks are administered by different governmental organisations (federal, state, county, district, city, village, town, etc.) Months before the concerts contact the organisation that administers the park or arranges concerts in the park for permission to set up telescopes. Usually if there is no cost to the park, the administrator will probably approve your project. Become part of the park programme for the public. Park administrators want to have multiple use programmes as it is good public relations and shows that they are working for the public good. Determine what is the estimated number of people expected to attend the concert and participate in the astronomy activities (usually 25% — 50% but can be higher). Determine what resources you have and what resources you will need. People will go to the largest telescopes even if it is not the best telescopes for a given observations. Select a concert where there will be interesting and bright celestial objects in the sky (Sun, Moon, planets, bright star clusters, or nebulae) as most people will not have looked through a telescope and there will be light pollution in the park. Similar astronomy programmes may be started in amusement parks or sporting events.

Comments:
Music and Astronomy Under the Stars had some of the largest outreach and largest children's outreach events in the US in 2009. Because there are outdoor concerts and events throughout the US and in most countries, this programme can be easily adapted for different countries or cultures and is an IYA2009 activity should be continued after 2009. In 2010 this programme will expanded to 150 000 people with 50 000 participating in astronomy activities and will include jazz, folk, country-western, blues, and opera concerts. A telescope will be set up on the boardwalk of Jones Beach State Park near the music band shell attended by 10 000 people weekly.

## NASA at Columbia IYA2009 event

NASA Scientists, Dr. Mario Perez and Dr. Adriana Ocampo, made multiple video presentations in Spanish on rocket technology, planetary geology and exoplanets, at the Aventura Espacial event in Barranquilla, Colombia on 6-8 May 2009. This was the largest gathering (24 000 students) in South America as a celebration of the IYA2009. Students and teachers from more than 150 schools from the Atlantic region of Colombia attended. A space passport was issued to all attendees.

Estimated number of people who attended or were reached by this activity:
24 000.

## Sun-Earth Day 2009

Sun-Earth Day 2009 Webcast brought the mysteries of the Sun to the public. Students monitored the Sun and prepared their own space weather forecast. Eight missions and projects contributed to the Sun-Earth Day 2008 packets, which were distributed to students and educators.

Organisers: NASA Goddard Space Flight Center.

Website: http://sunearthday.nasa.gov/2009/webcast.php

Estimated number of people who attended or were reached by this activity:250 000.



## SOFIA's IYA2009 Efforts and Collaboration with FETTU

SOFIA contributed to IYA2009 in two ways. First, SOFIA exhibited in IYA2009 specified events throughout the country. Usually, in cities where SOFIA science instruments are located, i.e., our HIPO instrument is located at the Lowell Observatory. In May Lowell held an IYA2009 event that included exhibits and a star party. Second, SOFIA partnered with E&PO teams from the Kepler and Wise missions, the NASA Lunar Science Institute, the SETI Institute, and a several of other NASA programmes to bring FETTU to the San Francisco Bay Area. The exhibit came in two formats: a 50-image exhibit for large venues with long display times (typically three months), and a 14-image travelling exhibit for short-duration and/or outdoor exhibits.

Organisers:
Darlene V. Mendoza (SETI /SOFIA) dmendoza@sofia.usra.edu
N. Veronico (ASP/SOFIA) nveronico@sofia.usra.edu
Dana E. Backman (SETI/SOFIA) dbackman@sofia.usra.edu

Website: http://www.sofia.usra.edu/Edu/FETTU/

Budget: ~4000 €, without Brazil IYA2009 trip. Budget includes: cost of shipment, cost of travel. Cost of producing and maintaining FETTU were ~8000 € (FETTU paid by Wise Mission and maintenance by SETI).

Lessons Learned:
To save money and time needed to organise an IYA2009 effort in Northern California we collaborated with eight EPO organisations, in which each organisation had a few designated points of contact. In the long run it was much easier to have one organisation that everyone reports to.

Comments:
If there was one thing missing about IYA2009, it was its placement in mass media. I watch a sitcom called the Big Bang Theory, which was a great opportunity to talk about IYA2009. Maybe we should start meeting screen writers.

## NASA Lunar Space Institute

1. From Earth to the Universe Exhibit in the Bay Area 2009 and in 2010
2. MoonFest July 20, 2009, Attendance: 12 000 people
3. International Observe the Moon Day/Night

Organiser: Doris Daou (Doris.Daou-1@nasa.gov)

## Lessons Learned

What worked:

- Start planning early and engage all partners in meetings and workshops such as the CAP meetings.
- Spreading the word to get support of national governments to participate.
- Central office with dedicated personnel for the job.
- Regular communication.

(e) Identification of overall themes and Cornerstone projects.

What could be better:

- Start fundraising earlier with professional fundraisers.
- Better interaction between SPoCs
- Arrange meeting of SPoCs at Opening Ceremony; identify them with badges of a different colour from rest of participants so that they can introduce themselves.
- Try and identify some projects where nations can jointly plan events — more targeted than Cornerstone projects.

## Comments

The year 2009 brought the world together under one umbrella, when nations put aside their differences to share the excitement of astronomy. 2009 has been a landmark year for NASA, which together with its international partners currently has 15 operating space astronomy missions. We plan to build on the successes of IYA2009 and continue to share the new knowledge from our space missions with the public. In the spirit of IYA2009, we hope to make new partnerships with developing nations, as we all continue to discover the Universe together. From the Earth to the Universe, humans are united by the common bond of astronomy.



# Radionet

## Organisational Node

Corina Vogt
vogt@astron.nl
http://www.radionet-eu.org/

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## Main Activities

Support the .Astronomy 2009: Workshop on Astronomy and the New Media (http://dotastronomy.com/)

Organisation of the Young Radio Astronomers Meeting in Porto, Portugal.

## Organisational Node

Alejandra Leon-Castella
RED POP Network / CIENTEC
leonale@racsa.co.cr
http://www.cientec.or.cr/

Number of organising committee members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by RED POP Network / CIENTEC

Working for RedPop, the Latin American Network for the Popularization of Science and Technology and also for CIENTEC, the Costa Rican Foundation for the promotion of S&T, our activities in to celebrate IYA centered around (1) informing, joining efforts with others through the web to exchange information and ideas, (2) organizing a great conference and some public outreach activities during the year, (3) organizing a teacher course, and (4) producing materials that could be easily distributed and later accessed through the web.

## Main Activities

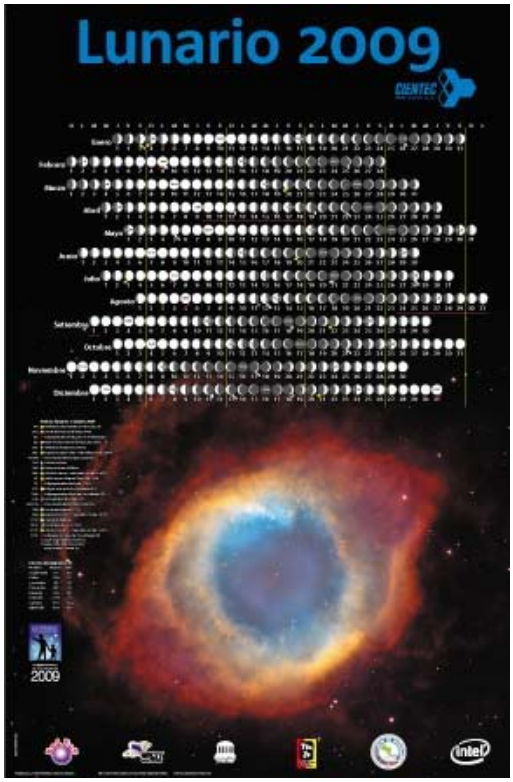
List of Activities:

RedPop E-Bulletin dedicated many of its editions to astronomy.
http://www.cientec.or.cr/mhonarc/redpop/doc/index.shtml
Distribution: 627 registered recipients
Digital Archive freely accessible through the Internet.

CIENTEC's E-bulletin dedicated many of its editions to astronomy
http://www.cientec.or.cr/mhonarc/boletincientec/doc/index.shtml
Distribution: 3122 registered recipients
Digital Archive freely accessible through the Internet.

I Congreso Internacional de Astronomía-Liberia 2009
Liberia, Guanacaste, Costa Rica
January 18, 19 & 20, 2009. Sede de Guanacaste, Universidad de Costa Rica.
http://www.cientec.or.cr/astronomia/IConAstro.html
Photo Album: http://www.flickr.com/photos/cientec/sets/72157612866781690/
Poster: http://www.flickr.com/photos/cientec/3498005959/in/set-72157622996811153/

### Lunar Calendar 2009, dedicated to the International Year of Astronomy.




Number of people reached: 4.000

Budget: $2 400

Lunar Calendar 2009 in 2 parts, dedicated to the International Year of Astronomy. in Cereal Boxes to be distributed in four countries: Nicaragua, Costa Rica, Panamá and Dominican Republic.







Number of people reached: Tens of thousands.

Budget: $1000

## I Congreso International de Astronomía-Liberia 2009

Liberia, Guanacaste, Costa Rica
January 18, 19 & 20, 2009. Sede de Guanacaste, Universidad de Costa Rica.
Website: http://www.cientec.or.cr/astronomia/IConAstro.html









Number of people reached: 400

Budget: $3000

## Astronomy in the Park

Conferences offered: Gallileo and the Moon, Women astronomers, Saturn rings, Observing the sky with binoculars. Three Public Parks and 5 schools visited from January to April.



Number of people reached: 950

Organiser: CIENTEC

Website: http://www.cientec.or.cr/astronomia/astroparque/index.html

Budget: $3000

## Field trip and deep sky astronomical course in Palo Verde, Guanacaste.

February, 2009.
Organiser: CIENTEC



Number of people reached: 12

Budget: $1000

## Course for teachers. Science and Math in Astronomy by Lori Lambertson, Exploratorium.

15 and 16 May 2009




Number of people reached: 50 teachers.
More information: http://www.flickr.com/photos/cientec/sets/72157618261851892/

Budget: $2000

## Stellar Bingo

A bingo game designed by CIENTEC was distributed printed on the back cover of Jack's cereal boxes and distributed in four countries: Nicaragua, Costa Rica, Panamá and the Dominican Republic. The boards and cards can be downloaded in digital format through the Internet:




Website: http://www.cientec.or.cr/mhonarc/boletincientec/doc/msg00804.shtml
Number of people reached: Tens of thousands.

Budget: $3000
to the International Year and one was dedicated to the 40th Anniversary of the Moon Landing.

## Legacy

We will continue with public outreach programs, teacher courses and the production of memorabilia each year.

## Organisational Node

Yasser Omar
siw@siw.pt
www.siw.pt

Number of organising committee members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

Educational activities during the 90th anniversary of the 1919 Solar Eclipse expedition to Príncipe.




Society of Amateur Radio Astronomers

## Organisational Node

Tom Crowley
president@radio-astronomy.org
http://www.radio-astronomy.org/

Number of organising committee members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

Information not available.

## Organisational Node

Halit Mirahmetoglu
halit@uzaybilim.com
http://www.spacegeneration.org/

Number of organising committee members:N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## Main Activities

### ToAP — Training of Astronomy Promoters

SGAC and Uludag University Project Office in Turkey organised "ToAP — Training of Astronomy Promoters. ToAP was specially designed for young people who want to communicate Astronomy with the public. Training courses were held in Bursa-Turkey between 18th-24th May 2009. ToAP was not a 'one way information-flow' but required an active participation from participants.

ToAP Aims and Objectives:

- To reflect on the content of a youth exchange (how to develop a thematic as a tool for intercultural learning;
- How to promote the active participation of young people before, during and after the exchange;
- How to include evaluation and follow-up in a youth exchange);
- Defining quality elements of a good cooperation.

ToAP Sessions:

- Brainstorm on IYA2009 activities.
- To deepen knowledge, skills and attitude in order to better organise astronomy related youth projects.
- Importance of an effective partnership to ensure Visibility and Valorisation in Youth Projects.
- Amateur Telescope Making Workshop
- *Youth Sessions: Detailed information on European Union Youth and Education
- *Astronomy Sessions: As a part of pro-active character of the training course
- *Communication Sessions: How to teach astronomy in public? Different methods for different age groups? How to communicate?
- Intercultural Sessions:
- Partnership Building Sessions:

# The Planetary Society

## Organisational Node

Emily Stewart Lakdawalla
emily.lakdawalla@planetary.org
Web

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by the Planetary Society

For The Planetary Society, the International Year of Astronomy was a continuation of the mission we have pursued since 1980. The International Year of Astronomy gave us an opportunity to bring our message to people around the world, to involve them in the increasingly international fleet of planetary exploration missions, and to encourage more people to take action to increase peaceful space exploration and decrease the risk posed to the inhabitants of Earth by threats from space.

We hope that the worldwide events of the International Year of Astronomy in 2009 didn't focus public attention only on distant stars and galaxies but also on our own solar system. Space is not just what we see at the other end of a telescope; we live in space, too, and it is as important to study our own neighborhood as it is to examine the universe beyond.

## Main Activities

### 365 Days of Astronomy Podcast




365 Days of Astronomy is a daily podcast about space, recorded and produced by people around the world; there will be one podcast for each day of 2009. It is organised by the New Media Working Group of the International Year of Astronomy, and The Planetary Society's Emily Lakdawalla and Mat Kaplan are among the organisers and contributors.

365 Days Podcasts by Planetary Society people:

- December 6: Emily Lakdawalla on “Galileo and the Moons of Jupiter “
- November 9:Mat Kaplan: “Celebrate Carl Sagan’s 75th with Longtime Collaborator Ann Druyan”
- September 27: Mat Kaplan and Bruce Betts on “The Phobos LIFE experiment”
- September 4: Emily Lakdawalla on “Happy Saturn Ring Plane Crossing Day!”
- August 11: Emily Lakdawalla on “Happy Saturn Equinox Day!”
- July 19: Mat Kaplan has “A Visit with Ray Bradbury”
- February 16: Emily Lakdawalla on “Steering by the Planets”
- January 24: Jim Bell on “Five Years of Living Vicariously on Mars”
- January 23: Emily Lakdawalla on “Voyage Past the Sideways Planet”
- January 3: Emily Lakdawalla on “Five Years of Spirit on Mars”

## Involving the Public Directly in Space Missions



The Phoenix DVD before installation.Billy Jones of Lockheed Martin holds the Phoenix DVD in his hand prior to installing it on the spacecraft. The Planetary Society provided the DVD to the mission for flight to Mars. Credit: KUAT-TV, University of Arizona



The Phoenix DVD on Mars.This image, from sol 8 of Phoenix’ mission to the Martian northern plains, shows the Phoenix DVD sitting on the deck of the lander. The robotic arm scoop, visible in the top of the image, has inadvertently dropped a clod of dirt onto the DVD. Credit: NASA / JPL / UA

During 2009, the International Year of Astronomy, nearly twenty spacecraft were exploring the planets and smaller bodies of the solar system or on their way to their destinations, and three more are planned to launch toward Mars and two to the Moon. Every one of these spacecraft has been paid for out of the pockets of the taxpayers of spacefaring nations, not only Americans and Europeans, but increasingly Asians as well. The Planetary Society strongly believes that the world’s public should not only be told about the lessons learned from these missions, but also be invited to ride along for the adventure. To that end, we have sponsored projects large and small to facilitate public participation in space exploration.

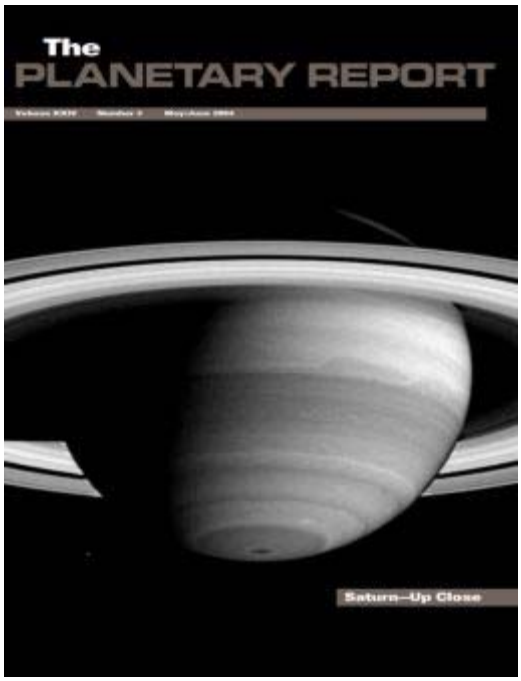
One small way we have helped the public feel a sense of ownership of space missions is to facilitate “Messages from Earth” opportunities for the public to send their names and, sometimes, well wishes along with planetary

missions. The oldest of these is still in orbit at Saturn: Cassini carries a DVD with 616,400 handwritten signatures from people in 81 countries, scanned to digital format by Planetary Society volunteers. The advent of the Internet has made names collection easier, so we sent two DVDs containing four million names each to Mars with the Mars Exploration Rovers, and helped to collect names and messages for many other missions, including Hayabusa, Kaguya, Phoenix, and Lunar Reconnaissance Orbiter. With Phoenix, the DVD also contained "Visions of Mars," a collection of Mars-inspired literature and art and personal greetings from leading space visionaries of our time.

People who sign up to add their names are offered a printable certificate acknowledging that their name has been logged on to the spacecraft. It may seem like a small thing, but members of the public who may otherwise have little contact with news and events in space often attach a great deal of emotional significance to the fact that their names (and the names of their family members or pets) are being sent out into the unknown along with a robotic spacecraft.

We have also invited the public to help scientists analyze data sets that are too large for one research group to handle. We helped to pioneer the practice of distributed computing with the SETI@home project; members of the public were asked to download a "screen saver" for their computers, which would take advantage of computers' idle time to help analyze data from radio telescopes to look for alien signals from space. We are inviting the public to take a more active role in data analysis through the Stardust@home project. After completing a short online training session, members of the public are asked to help examine more than 700,000 microscopic scans of the Stardust spacecraft's interstellar dust collection plates, searching for a few dozen micron-sized grains of dust. To date, only a quarter of the collection plates have been scanned, so plenty more work remains on this project for 2009.

## Educating the Public about Space Exploration




The Planetary Report. The Planetary Society's member magazine, The Planetary Report, has been published bimonthly since The Society's founding in 1980. Image credit: JPL / NASA / Space Science Institute

The International Year of Astronomy was, foremost, about raising awareness about our place in space among the general public. The Planetary Society has many vehicles for providing information about space exploration to the public. Our bimonthly journal, The Planetary Report, features articles written by the scientists, engineers, and policymakers at the forefront of space exploration. Our website features news, images, and background information on the solar system, extrasolar planets, the search for extraterrestrial life, and threats to Earth from space. The latest news can be found in The Planetary Society Blog, updated daily, and on our weekly half-hour radio show, Planetary Radio, available on more than 120 stations and via podcast. All of these resources will be active through 2009.

The Planetary Report, the Blog, and Planetary Radio are traditional media forms, with the experts sending out information to the public. However, in recent years, the Internet has become a place where the flow of information is no longer so one-way; instead, online communities of enthusiasts freely exchange ideas, often creating and sharing their own content. At the same time, more and more space missions have provided better access to the data returned from space, making space images available quickly (sometimes, as with the Mars Exploration Rover and Cassini missions, within hours of their receipt on Earth) and in formats (such as JPEG) that are easy for the interested public to download and manipulate. There is now an online community of space enthusiasts who create stunningly beautiful image products from public data, and The Planetary Society is exploring ways to encourage this community to grow, both by facilitating online exchange and by encouraging space agencies to improve public access to their data.

We also organised local events, where supporters of space exploration assembled to share the thrill of an exciting event in planetary exploration, or where they can add their voices to the public debate on space policy. Our "Planetfest" event, held on the day of the Phoenix landing on Mars, included more than 20 distributed events in various cities, and we hope to take advantage of this network for another distributed event to watch NASA's LCROSS impactor and Japan's Kaguya orbiter make a splash on the Moon in the summer of 2009. We are also co-sponsored a series of "Town Hall" meetings to engage the public in charting a Roadmap for human space exploration beyond Earth orbit, an activity that will continue into 2009. Our events were made possible in part by the local support and hard work of Planetary Society volunteers worldwide.

## Protecting Earth from Space Hazards



The Chicxulub Impact. An artist's depiction of the Chicxulub impact, 65 million years ago. A giant space rock, about 10 kilometers in diameter, slammed into Earth near the Yucatan peninsula. The impact created the Chicxulub crater and sent vast amounts of ashes and debris into the atmosphere. The long winter that resulted lasted years and brought about a mass extinction of life on Earth, including the demise of the dinosaurs. Credit: Don Davis

The Planetary Society used the International Year of Astronomy to warn the public about the threat that Earth faces from a potentially catastrophic asteroid impact. One of our longest-running projects seeks help from members of the public to help understand the threat posed by near-Earth objects. The Shoemaker Near Earth Object Grant Programme has, since 1997, awarded 29 grants totaling more than $184,000 to amateur or underfunded professional observers to participate in the search for and follow-up tracking of the potentially hazardous near-Earth asteroid population.

The hunt for potentially hazardous asteroids has been very successful; it is estimated than more than 70% of the one-kilometer or larger asteroids that cross Earth's orbit have now been discovered. But government support for searches and follow-up programs remains modest, so programs like The Planetary Society's Gene Shoemaker Near Earth Object Grants fill a vital niche. Grant winners are especially critical for carefully measuring positions of

recently discovered objects. Once we know a near-Earth object is out there, we need to learn whether or not it will hit Earth. Shoemaker grant winners, past and present, operate many of the most successful asteroid follow-up observatories in the world.

No asteroid has yet been discovered that is definitely on a collision course with Earth. That is very good news, because Earth is not yet prepared, technically or politically, to respond to an imminent impact threat. The Planetary Society is sponsoring activities designed to address both the technical and the political challenges that we will face when we have to choose how to mitigate the threat of an impending impact.

With the Apophis Mission Design Competition, we challenged the world to consider what to do if an asteroid were found to be on course for a possible impact. We received 37 mission proposals from 20 countries on 6 continents, from private individuals, university teams, and the space industry, proposing a variety of scenarios that would permit us to track such an asteroid accurately enough to determine whether it will impact Earth, thus providing governments with the information they would need to decide whether or not to mount a deflection mission. In 2008 we also worked with the Space Generation organization on Move an Asteroid 2008, a competition to propose how to deflect an asteroid. We will build on these efforts throughout the International Year of Astronomy to encourage both the public and private sector to develop strategies for detecting and mitigating the threat of an asteroid impact.

Although we are now addressing the technical challenges of mitigating the threat of an impact, governments have not yet faced the difficult political and ethical issues that surround impact threat mitigation. Is it ethical to mitigate a potential catastrophe of an impact in a heavily populated area by deflecting an asteroid toward a different area, not originally under threat? What if, by deflecting an asteroid away from land, it lands in an ocean and causes a tsunami that threatens people in many nations? What if deflection is impossible, but disruption is not? Which is worse, a large impact to one area or many small impacts over a much wider area? And what is the disaster plan for an impact from an asteroid or comet that we discover too late either to deflect or disrupt it? Whose job is it to support the search and mitigate the threat — space agencies or defense departments?

The Planetary Society has joined the Association of Space Explorers and the B612 Foundation in their efforts to develop an international framework for planetary defense, and we plan to hold both an invited workshop and a public meeting on these issues in the summer of 2009. When the time is right, we will push for action on this issue from the United Nations' Committee on the Peaceful Uses of Outer Space.

## Advancing International Cooperation

The International Year of Astronomy provided an opportunity to highlight the cultural shift that has taken place in planetary exploration over the past two decades. The frontier days of space exploration, once a battle for bragging rights between two superpowers, are history. Although national pride is still unquestionably an important reason that governments fund missions, space exploration is an increasingly international activity. Many of the next steps in the exploration of our neighborhood in the solar system are so challenging that they seem daunting without the commitment and cooperation of many (if not all) of Earth's spacefaring nations. Establishing a permanent presence on the Moon — advancing the scientific study of the mini-solar systems and ocean-filled moons of Jupiter, Saturn, and beyond — returning scientifically useful samples of rocks from the surface of Mars — extending the presence of humans beyond Earth orbit to the Moon, asteroids, and Mars — all of these will require billions of dollars and the kind of effort that only seems to be sustainable when departments of state, not just space agencies, commit to working together toward common goals.

As an organization with international membership, The Planetary Society is positioned to speak for the interests of the world's public in advocating for progress on international missions. Past experience would indicate that constant vigilance of and support by the taxpayers of

But space exploration is now more than just NASA, ESA, and Russia. More and more nations are seeking to participate in the exploration of the solar system, particularly our nearest neighbor, the Moon. Japan, China, India, the United States, Germany, the United Kingdom, and Russia are all now planning or operating missions at the Moon, a confluence of effort that inspired The Planetary Society to declare the "International Lunar Decade" beginning with the launch of Japan's Kaguya orbiter in 2007, and continuing with the launches of China's Chang'e 1 and India's Chandrayaan-1 in 2008. We hope that the International Lunar Decade will serve as a framework for

cooperation among the international organizations and nations conducting lunar missions, and also that it will provide a mechanism for scientists and engineers from developing nations and other countries not directly involved in space missions to participate in science programs or smaller engineering developments.

To further advance international cooperation, The Planetary Society is supporting the development of the Global Exploration Strategy. Fourteen space agencies (including ESA, NASA, and the agencies of Italy, the UK, France, China, Canada, Australia, Germany, India, Japan, South Korea, the Ukraine, and Russia) have signed on to the first Global Exploration Strategy document, published by ESA in 2007. It presents a broad global consensus and concise rationale for human exploration of the solar system, beginning with our nearest neighbor, the Moon. We hope that by the end of the International Lunar Decade, humans will have returned to the Moon and begun looking outward, to asteroids or Mars.

## Planetary Missions Active in 2009

There have never been so many planetary missions active at once as there are today. In 2009, spacecraft explored the Moon, Mars, Venus, Mercury, and Saturn; many others are on their way to explore comets, asteroids, the cold worlds of the Kuiper belt, and beyond. The year saw the launches of three more spacecraft toward Mars and two toward the Moon. In all, 25 spacecraft have been actively touring the solar system, and beyond, during the International Year of Astronomy 2009.

### Overview

- MESSENGER (NASA)
- Venus Express (ESA)
- Kaguya (JAXA)
- Chang'e 1 (China)
- Chandrayaan-1 (India)
- Lunar Reconnaissance Orbiter (NASA)
- Lunar Crater Observation and Sensing Satellite (LCROSS) (NASA)
- 2001 Mars Odyssey (NASA)
- Mars Express (ESA)
- Mars Reconnaissance Orbiter (NASA)
- Mars Exploration Rovers (NASA)
- Mars Science Laboratory (NASA)
- Phobos-Grunt (Russia)
- Yinghuo-1 (China)
- Cassini-Huygens (NASA/ESA/ASI)
- Dawn (NASA)
- Deep Impact (NASA)
- Hayabusa (JAXA)
- International Cometary Explorer (ICE) (NASA)
- New Horizons (NASA)
- Rosetta (ESA)
- Stardust (NASA)
- Voyager 1 and 2 (NASA)

## Organisational Node

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http://www.unesco.org.uy/ciencias-naturales/es/areas-de-trabajo/ciencias-naturales/2009-ano-internacional-de-la-astronomia/2009-ano-internacional-de-la-astronomia.html

Number of organising committee members: 20
- Volunteers: 20
- Paid: 0

Number of people reached by IYA2009: 620

Budget: 60 000 €

Sources:
- UNESCO
- TWAS
- OAS
- Instituto Argentino de Radioastronomía (Argentina)
- PEDECIBA (Uruguay)
- Universidad de la República (Uruguay)
- Other universities

## General Overview of IYA2009 activities by the Regional Bureau for Science in Latin America and the Caribbean




## Main Activities

### List of Activities

- Second Ibero American School of Astrobiology: From the Big Bang to the Civilizations
- Open Conference: Origin of Life on Earth and other worlds
- Open Conference: New theories about the origin of the universe
- Open Conference: The search for extra-solar planets and about life in extreme environments
- Workshop for teachers in general and science teachers of MERCOSUR

### Second Ibero American School of Astrobiology: From the Big Bang to the Civilizations

The School was attended by 80 doctoral students from 16 countries namely Argentina, Brazil, Colombia, Chile, Cuba, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, USA, Spain, Peru, Dominican Republic, Uruguay and Venezuela.

All classes were conducted in accordance with the provisions of the programme presented by the previous report. Keynotes were delivered by the Rector of the University of the Republic (UDELAR), Dr. Rodrigo Arocena, the Dean of the Faculty of Sciences of UDELAR, Dr. Julio A. Fernandez, the Director of the National Body for Science and Technology (DICYT), Dr. Omar Macadar, the Director of the Regional Bureau for Science of UNESCO, Dr. Jorge Grandi, the President of the Local Organizing Committee, Dr. Gonzalo Tancredi and President of the Scientific Committee, Guillermo A. Lemarchand.

Organisers: UNESCO, TWAS, OAS, Instituto Argentino de Radioastronomía (Argentina), PEDECIBA (Uruguay), Universidad de la República (Uruguay)

Website: http://www.astronomia.edu.uy/astrobiologia2009/

## Open Conference: Origin of Life on Earth and Other Worlds

Tuesday 8 September, 07:30 PM, at the Hall for Conferences of the Municipality of Montevideo, by Dr. Antonio Lazcano (UNAM, Mexico), title: “Origin of Life on Earth and other worlds .

Organisers: UNESCO, TWAS, OAS, Instituto Argentino de Radioastronomía (Argentina), PEDECIBA (Uruguay), Universidad de la República (Uruguay)

## Open Conference: New theories about the origin of the universe

Thursday 10 September, 08:00 PM, at the Planetarium of the City of Montevideo, by Dr. Martin Makler (CBPF, Rio de Janeiro), title: New theories about the origin of the universe

Organisers: UNESCO, TWAS, OAS, Instituto Argentino de Radioastronomía (Argentina), PEDECIBA (Uruguay), Universidad de la República (Uruguay)

## Open Conference: The search for extra-solar planets and about life in extreme environments

Friday 11 September, 07:00 PM, at the Cultural Center of Spain (Centro Cultural de España), by Dr. Alvaro Gimenez (director of the Center for Astrobiology in Madrid, CSIC-INTA) and Dr. Ricardo Amils (Center for Astrobiology in Madrid). The conference focused on the center’s activities, in particular the search for extra-solar planets and about life in extreme environments.

Organisers: UNESCO, TWAS, OAS, Instituto Argentino de Radioastronomía (Argentina), PEDECIBA (Uruguay), Universidad de la República (Uruguay)

## Workshop for teachers in general and science teachers of MERCOSUR

On Saturday 12 September, from 9:00 AM to 6:00 PM, over 240 teachers from secondary schools throughout Uruguay participated in the Workshop on Life in the Universe: a way to encourage the teaching of the basic sciences in the classroom. It was held at the auditorium of the Faculty of Sciences of UDELAR. Speakers were the following: Sonia Scaffo (UNESCO Montevideo-Education Sector), Alvaro Gimenez (Director, Center for Astrobiology, Madrid); Alicia Massarini (FCEN-UBA and CONICET, Argentina), Antonio Lazcano (UNAM, Mexico), Martin Makler (CBPF, Brazil), Guillermo Lemarchand, Gonzalo Tancredi (Faculty of Sciences, UDELAR) and Andrea Sánchez (Faculty of Sciences, UDELAR).

Organisers: UNESCO, TWAS, OAS, Instituto Argentino de Radioastronomía (Argentina), PEDECIBA (Uruguay), Universidad de la República (Uruguay)






## Lessons Learned

Links were strengthened with the Centro de Astrobiología, INTA-CSIC and the Departament de Física Aplica, UPC, both of Spain; with the University of Alaska at Fairbanks; NASA Headquarters; Universidad Nacional Autónoma de Mexico (UNAM); Observatório do Valongo, Universidade Federal do Rio de Janeiro, both from Brazil; Instituto de Astronomía y Física del Espacio (CONICET), Argentina.

Local institutions involved include the State University, Universidad de la República (UDELAR, Uruguay), through the participation of the Rector and the Dean of the Faculty of Sciences; and the Municipality of Montevideo (the

local Planetarium and the Town Hall premises hosted the simultaneous Astrobiology popularisation conferences). The National Directorate for Science and Technology (DICYT, Ministry of Education and Culture) and the National Deparment of Public Education Inspectors (National Administration for Education) also took part. Finally, the Programa de Desarrollo de las Ciencias Básicas (PEDECIBA, Uruguay) also supported the initiative. At the international level, mention owes to be made to the support received from the TWAS, the OAS, the Cultural Centre of Spain (Spanish Cooperation), and the Radioastronomy Institute of Argentina (Instituto Argentino de Radioastronomía, IAR)

## Legacy

The Third Ibero American School of Astrobiology is programmed to take place in Colombia (dates to be confirmed). Additionally, each of the professors that participated in the Graduate School of Astrobiology was committed to write a chapter for a textbook in Spanish (there are none in this language) for undergraduate and graduate university courses in the region. It could be published in 2010-11. It will also include short papers selected from participating undergraduate students that presented their poster during the event

# United Nations Office for Outer Space Affairs

## Organisational Node

Hans J. Haubold
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http://www.unoosa.org

Number of organising committee members:

- Volunteers:
- Paid:

Number of people reached by IYA2009: N/A

Budget: N/A

Sources:

- Voluntary in-cash
- In-kind contributions from UN Member States

## General Overview of IYA2009 activities by UNOOSA

UNOOSA has reported on the UNBSSI (BSS+IHY+IYA+ISWI) in journals/proceedings of COSPAR and IAU and has issued UN GA documents for each of the workshops organised. UNOOSA has also announced IYA on its world-wide UN internal electronic information network. Four printed IYA brochures, received each 1000 from the IYA secretariat, have been distributed to 192 Permanent Missions of Member States to the UN, 178 United Nations Development Programme (UNDP) Offices and to the 69 UN member States of the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) and its subsidiary bodies.

More information:

- http://neutrino.aquaphoenix.com/un-esa/
- http://www.unoosa.org/oosa/en/SAP/bss/index.html
- http://www.unoosa.org/oosa/en/SAP/bss/ihy2007/index.html
- http://www.ihy2007.org/
- http://www.iswi-secretariat.org/

## Main Activities

UN/ESA/NASA/JAXA Workshops on Basic Space Science and the International Heliophysical Year 2007, including issues of IYA2009, hosted by the United Arab Emirates (2005), India (2006), Japan (2007), Bulgaria (2008), and the republic of Korea (2009)

## UN/ESA/NASA/JAXA Workshop on Basic Space Science and the International Heliophysical Year 2007

Daejeo, Republic of Korea, 21-25 September 2009

Since 1990, the UN Programme on Space Applications leads the United Nations Basic Space Science Initiative (UNBSSI) by contributing to the international and regional development of astronomy and space science through annual UN/ESA/NASA/JAXA workshops on basic space science, International Heliophysical Year 2007, the International Year of Astronomy 2009 and the International Space Weather Initiative. These workshops facilitated the establishment of astronomical telescope facilities, planetariums, ADS mirror sites, and arrays of world-wide, ground-based space weather instruments in developing nations.

Organisers: UN, ESA, NASA, JAXA, workshop host countries

Website: http://bssihy.kasi.re.kr

## Legacy

BSS, IHY, and IYA issues will be addressed through the International Space Weather Initiative in workshops hosted by Egypt (2010)for Western Asia, Nigeria (2011)for Africa, Ecuador (2012) for Latin America and the Caribbean and beyond.

Space weather is the conditions on the Sun and in the solar wind, magnetosphere, ionosphere and thermosphere that can influence the performance and reliability of space-borne and ground-based technological systems and can endanger human life or health.

IYA2009 was reaching outstandingly for the stars and galaxies and clusters of them. Congratulations! Now let's see what happens beyond.

# Universe Awareness

## Organisational Node

Carolina Ödman
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Task Group Members: N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview

See Universe Awareness: one place in the Universe section under Global projects.



World Space Week Association

## Organisational Node

Sethu N. Menon
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http://www.worldspaceweek.org/

Number of organising committee members:N/A

Number of people reached by IYA2009:N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by World Space Week

World Space Week, held annually from October 4 to 10, was declared in 1999 by the United Nations General Assembly in response to a recommendation from the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III). The goal of World Space Week (WSW) is to celebrate the contribution of space science and technology to the good of humankind. Its dates commemorate two key events:

- October 4, 1957: Launch of the first artificial Earth satellite, Sputnik 1, opening space for exploration
- October 10, 1967: Entry into force of the Treaty on Principles Governing the Activities of States in the
- Exploration and Peaceful Uses of Outer Space, including the Moon and Other Celestial Bodies
- There are many benefits which result from the synchronization of space outreach activities globally during World
- Space Week. These include:
- Building the workforce of tomorrow by inspiring students
- Visibly demonstrating public support for space programs
- Educating the public and government leaders about the benefits of space activities
- Promoting institutions which are involved in space
- Fostering international cooperation in space outreach and education

In 2009, World Space Week celebrated its 10th anniversary, with events in some 55 nations. The 2009 theme, “Space for Education,” focused on the unique value of using space to inspire students to pursue studies in science, technology, engineering, and mathematics.

## Main Activities

This section illustrates some highlights of the United Nations declared World Space Week 2009.

- Tenth anniversary of World Space Week, declared by the United
- Nations General Assembly in 1999
- U.S. President Obama hosted a star party at the White House
- Ukraine Prime Minister Tymoshenko congratulated space workers on occasion of World Space Week
- Astronauts on the International Space Station sent a World Space Week message
- Events celebrated the International Year of Astronomy
- 225 EADS Astrium employees gave programs for students in the UK, Spain, Germany, France and the Netherlands
- NASA Administrator Bolden sent a World Space Week message to all NASA employees
- Cirque du Soleil founder Guy Laliberté broadcasted from space
- The Great World Wide Star Count began
- A Space Festival and International Astronautical Congress was held in the Republic of Korea
- Week-long space celebrations were held across the Hawaiian Islands in the U.S.

- Students and the general public sent messages into space via SentForever
- NASA's LCROSS mission impacted the Moon on October 9

This section also contains summaries of World Space Week 2009 from national coordinators. For details on WSW 2009 activities in all participating nations, please see the on-line calendar at www.worldspaceweek.org/calendar_2009.




## Afghanistan

World Space Week was celebrated in Afghanistan for the second time in 2009. The National Coordinator organised an event at his school. The Afghanistan Astronomy Association held a celebration for the general public in Kabul on October 9. This event was attended by approximately 100 people.

## Algeria

As usual, World Space Week was celebrated this year with fervour in the Constantine area. The National Fair organizing committee chose "Astronomy and Public Enlightenment" given the celebration of the International Year of Astronomy 2009 (IYA2009) and events focused on the educational and entertainment aspects of space sciences. World Space Week celebrations were held on October 10 at the Ahmed Saadi Cultural Centre in the Constantine centre city and featured the following segments:

- Several lectures on space and astronomy at the main auditorium.
- Exposition of space related material and space art
- Piece Theatre on Mars from the Sirius theatre group
- Cirta FM radio station featured live coverage of the evening

World Space Week activities were also cantered around the annual National Fair in Popular Astronomy. Since its inception in 2002, the Popular Astronomy fair has become one of the most sought after scientific "rendezvous" of the year for amateur astronomers all over Algeria. This fair consists of a large astronomy exhibition and a series of lectures and workshops for the benefit of the public and the astronomy community nationwide. This year's events

benefited from increased international associations, including the AUASS (Arab Union for Astronomy and Space Sciences) from Jordan, the SAF (Societe Astronomique de France), the Societe Astronomique de Tunisie, and others from the United Arab Emirates, Iraq, Egypt, and Syria. The following national agencies also participated: ASAL (L'Agence Spatiale Algérienne), CNTS (Centre National des Techniques Spatiales) from Arzew, CRAAG (Bouzaréah), ONM (L'Office National de la Météorologie), ENNA (Entreprise Nationale de la Navigation Aérienne).

Furthermore, a growing number of astronomy clubs and associations from all over the country were represented via exposition stands. His Excellency the Mayor of Constantine and also the head of the Executive Office of the State were present at the opening ceremony. Further details are available at http://siriusalgeria.net/salon09.

Algerian World Space Week celebration and fair received an excellent coverage from the national media, and was featured in print, radio, and on television. A large number of national newspapers (both Arabic and French speaking) picked up our press release.

## Austria

On October 7-11, ÖWF performed at "Adventure Cosmos," a special exhibition about the exploration of space which took place in Innsbruck, Tyrol. The exhibit covered over 600 square meters and featured numerous objects, posters, 3D animations, and fast motion videos of stars, planets, space crafts, and satellites. Numerous talks about space and astronomy completed the exhibition, which was attended by an estimated 90,000 visitors. The event was sponsored by the European Space Agency, the University of Innsbruck, the European Southern Observatory, the RUAG Space GmbH, the FFG/ALR, the Global Communication & Services GmbH, the Wagnersche Universitätsbuchhandlung and the Planetarium Schwaz.

An event called "Watching the Sun" was organised by the Bundes- Oberstufenrealgymnasium Linz (BORG Linz) in Upper Austria. This was a project of a secondary school in Linz Hagenberg and involved 150 pupils who observed the sun October 4-9.

## Bangladesh

World Space Week was celebrated with great enthusiasm in Enayetpur, the Space Village of Bangladesh, from October 9-10. About 24 local schools, consisting of 3,000 students, teachers and space enthusiasts, participated in the annual event. On October 9, there were contests that involved space arts, air rockets and balloon rockets on the Mohakash Bhaban (Space House) lawn and a water rocket contest was held on the Jamuna river. In the evening, a huge fireworks show was arranged on the rooftop of Mohakash Bhaban to welcome the 10th Anniversary of World Space Week. It was followed by a cultural show in which students and teachers sang a number of Bengali songs. On October 10, a space rally with thousands of students hoisting WSW 2009 placards in their hands set out from Balur Math and reached Mohakash Bhaban, the venue of the Celebration. About six children holding models of Saturn-V rockets strolled on the street in front of the rally. The main event included a space debate, a space dance, a space drama, comics, lectures by local teachers and students, and space quizzes. The most spectacular of all was the Kid Astronauts Parade, in which five children wearing space suits paraded on the stage showing their eagerness to become astronauts. World Space Week-was celebrated at Kalihati College in Bangladesh on October 10. The Principal, Vice-principal and many teachers participated. A seminar about the formation and the current situation of space was held in the College-Hall-Room with all students participating.

## Bolivia

Bolivia has participated in World Space Week every year since 2002. National coordination is the responsibility of the National Astronomical Observatory, which organised activities in different cities including Tarija, La Paz, Santa Cruz, Cochabamba, Sucre and El Alto. Events included the following: the "XVI National Astronomy Meeting," a photographic exhibition entitled "From the Earth to the Universe" and "Travelling the Universe", and the presentation of a model scale 1/1 of Sputnik by the College Kindergarten Palazón Brother Felipe. Other activities included astronomical observations with telescopes, conferences, outreach activities, screenings of videos and DVDs alluding to space exploration, drawing competitions, photo exhibitions, presentations and demonstrations in the Planetarium.

All activities in the various cities were coordinated by the National Astronomical Observatory, with the participation and support of the Universidad Autonoma Juan Misael Saracho Tarija Department Tarija Prefecture, La Asociacion

Boliviana Astronomy, Planetarium Max Schreier (La Paz), the Astronomical Association of Santa Cruz, Ronald Muyzert Centre City High School, Charcas Astronomical Society of the City of Sucre and others.

## Bulgaria

The celebrations of World Space Week 2009 in Bulgaria occurred in three cities: Varna, Sliven, and Pleven. In Varna, the public astronomical observatory and planetarium were the centre of the celebrations. At the Observatory, there were interesting astronomical observations of the Sun (during the day) and Moon/planets/stars (at night) over the course of the entire week. The Mathematical school organised two interesting interdisciplinary lessons: one focused on space exploration, the other involved a study of the planets in our solar system. In the private IT high school, students from the space club organised an exhibition of drawings, posters, and presentations of space rockets. In the city of Sliven, many students and teachers got acquainted with space telescopes and presented their posters in various schools throughout the city. In Pleven, students prepared models of space rockets at the Center for extracurricular activities. Many of the children's' activities were publicized on local televisions and newspapers.

## Cameroon

World Space Week programme activities in Cameroon started on October 7 with the distribution of application letters and posters to schools and colleges in the Limbe municipality. Lectures on the topic of the solar system, satellites, and their application to climate change were held at the Kofele Luma Memorial Academy, the Government Bilingual High School Limbe, and the National Comprehensive High School. Interactive questioning and answer sessions were also carried out after the lectures. Attendance for the World Space Week celebration was considerable in the schools, thanks to the World Space Week fliers provided by the National Coordinator for Cameroon. These were distributed to staff and students and some were also posted in classroom buildings.

## Canada

World Space Week was celebrated with events across the country and at all levels in 2009. Many of the events held in Canada focused either on Canada's first-expedition astronaut Dr. Robert Thirsk or on celebrating the International Year of Astronomy 2009. In total, seven events were reported via the World Space Week website, with an additional eight events being reported directly to the Canadian Space Agency (CSA). The events ranged from amateur radio contacts with Dr. Thirsk on the International Space Station (ISS) to CSA representatives hosting workshops and presentations for students from primary school to university on topics such as astronomy and planetary exploration. One primary school in British Columbia developed a song and accompanying video for Dr. Thirsk which was posted on his personal page on the CSA website. In total, 3,000 students participated in World Space Week 2009 events in Canada. An estimated 1,000,500 media impressions were reported.

## Colombia

During 2009, World Space Week was a great experience in Colombia. Many organizations held activities that taught both children and adults more about the related topics. The participating organizations were:

- Planetario de Medellín (Medellín — Antioquia)
- Colegio Distrital Pablo Neruda (Barranquilla — Atlántico)
- Fundación Grupo de Astronomía Apolo (Barranquilla — Atlántico)
- Fundación Voz Infantil — Hola Juventud (Barranquilla — Atlántico)
- Emisora La Voz de la Costa
- Foro Intercolegial Astronómico — Andrea Vega (Atlántico)
- Fundación Astronomía ORION (Barranquilla — Atlántico)
- Colegios Arquidiocesanos (Atlántico)
- Oficina de Prensa Secretaría de Cultura, Recreación y Deportes (Atlántico)
- Unidad Porteña de Aprendizaje — UPA (Puerto Colombia — Atlántico)
- Colegio Esclavas del Sagrado Corazón de Jesús (Bogotá — Cundinamarca)
- Planetario de Bogotá (Bogotá — Cundinamarca)
- Red de Astronomía de Colombia-RAC (Bogotá — Cundinamarca)
- Universidad Sergio Arboleda (Bogotá — Cundinamarca)
- CAFAM (Bogotá — Cundinamarca)

Conferences, video conferences, workshops, sky observations, water rocket launchings, photographic and art exhibitions, radio programs, and special classroom activities were dedicated to astronomy and space technology. In all, thousands of youngsters and adults gathered to celebrate the International Year of Astronomy 2009 and the 10th anniversary of World Space Week.

## Cuba

The VIII National Workshop entitled “The Outer Space and its Pacific Use” was held at the National Capitol on October 8 and included 23 presentations by several scientific institutions across the country. A meeting with the Group of Fond COSMOS of the Technical Juvenile Brigades of UJC took place with directors and investigators of the Institute of Geophysics and Astronomy to discuss the activities that are developing on the Bulletin “Zenith”. The media covered numerous programs regarding the World Space Week, with an emphasis on the International Year of the Astronomy 2009. The television programme Fotogramas presented a documentary, “Journey to the End of the Universe,” as part of World Space Week celebrations.
An event called “Postal Cuban: Rocket, Patrimony and Astronomy” was held to promote knowledge about and the study of the Postal Cuban Rocket, and to relate astronomy in the postal and philatelic topics.

World Space Week culminated with the installation and construction of the Cultural Planetarium-Centre for the Science and the Technology in the heart of Old Havana. The purpose of this project, which was developed by the City Historian with the support of the Ministry of Science, Technology and Environment, is to engage common citizens in the study and appreciation of astronomy, physics, and mathematics.

## Cyprus

World Space Week 2009 was coordinated and celebrated in Cyprus by the Kition Planetarium and Observatory with enthusiasm. The celebrations included various events and activities that aimed to bring astronomy and space science to the public. Several lectures about astronomy, space exploration and science were held and were supplemented by numerous other events which included planetarium shows, an astronomy camp, star parties with astronomical observations, solar observations, workshops, and astrophotography exhibitions. 2009 marked the first World Space Week celebrations in Cyprus and public interest was very satisfying. Our aim is to increase it in the coming years. World Space Week received coverage in a broad range of media outlets, including websites, radio stations and print. Cyprus and the Kition Planetarium and Observatory are looking forward to World Space Week 2010 with more events and greater promotion of space education through increased participation.

## Czech Republic

The Czech Republic participated in the World Space Week 2009 celebrations by hosting space-related events with a particular emphasis on educational institutions. The Czech Space Office (CSO) and its Centre of Student Activities served as WSW National Coordinators. Forty-one activities were held for students and the general public. These consisted of lectures, exhibitions, observations of satellites and ISS overflies, observatory and planetarium programs, a space day programme in schools, and discussions of space articles in school magazines. A number of school competitions were awarded by the Czech Space Office.

The traditional activities held at observatories were the most popular of all WSW activities in the Czech Republic. The observatories prepared a number of lectures, discussions, and exhibitions for the general public by professionals, semi-professionals, and also amateur organizations. Most of them cooperated actively with local schools. There was also a focus on other projects, such as the Mars 2009 Expedition, for students who showed interest in cosmonautics and modern sciences.

In summary, WSW celebrations were hosted by 23 organizations and attracted an audience of over 9,500 people. The WSW programme and its targets were made known to the public via five nationwide broadcasts and on two television programs. For more details, see www.czechspace.cz/en/education/world-space-week.

## Ecuador

In order to participate in World Space Week 2009, primary school students downloaded live NOAA satellite images through the HERMES ground station in Guayaquil, Ecuador. The result was posted on the newly created Project Agora website, which included participants from six continents (http://sites.google.com/site/projagora/). It was also posted on the University of Michigan website at http://raxlab.blogspot.com/. As an international American school, the information was also published on Academia Cotopaxi website to share with the community

(http://www.cotopaxi.k12.ec). Progress with Project Agora will also be shared with educators at the Association of American Schools in South America (AASSA). Through ongoing communication with the students, parents, teachers, and community members, we hope that this creative use of space in the classroom will inspire many. As an extension, one student became so thrilled with the ongoing space activities that he submitted a video to a NASA webpage describing his personal view on the relevance of space exploration. The video is available at: https://sites.google.com/site/projagora/announcements/projectagorastudentsforspaceexploration.

## India

World Space Week 2009 celebrations in India took off to a great start, as the astronomy community was already involved in the IYA activities and the WSW theme "Space for Education" struck the right cord in the spirits of students across the nation. Twelve states in India were extensively involved with astronomy educators and the public during WSW 2009. More than 80 events were planned throughout India, covering almost every major city as well as towns where astronomy is being religiously followed by students. Activities included painting competitions, quizzes, slogan writing, water rocketry, lectures, film shows on space travel and astronomy, Eratosthenes experiments, and finding local noon by various methods were organised for students and the general public.

It is the first time that so many space events have occurred simultaneously at various places across India. Involvement of the general public was at its maximum at most of the events involving the observations of heavenly bodies as well as the talks. India as a whole saw the WSW 2009 celebrations as a great opportunity to promote astronomy outreach activities. Events were covered by national TV channels as well as the local electronic and print media. WSW 2009 figured prominently in all the major newspapers as well as online. The lives of more than 100,000 people were touched by the 80 astronomy events across the country.

"Space for education" was the key theme for the observations of Iridium flares and ISS passes to promote astronomy through actual observation of these simple events. SPACE (Science Popularisation Association of Communicators and Educators) and its school coordinators utilized these events to help people understand the concepts of orbits and space station basics. Activities that were coordinated under Sachin Bahmba and implemented in school curricula across Delhi, Hyderabad and Kolkata were extensively covered by national television and print media. Schools working with SPACE enthusiastically celebrated WSW events for the whole week. WSW 2009 was a good catalyst for further outreach in astronomy education activities which will be planned for WSW 2010.

## Indonesia

Indonesia held two major activities to celebrate WSW 2009, which included a seminar and talk show on astronomy and space science. It took place on October 10 at the Multimedia Laboratory of "Assalaam," a modern boarding school, and attracted 54 participants (mostly high school seniors). Special presentations on space science and astronomy, the application of these technologies, open source astronomy and also Starrynight planetarium software, were presented. Students of Students Astronomy Club of Assalaam (CASA) were given free airplane simulation software. There were two model simulations: Flying Model Simulator and Flying Simulator by Google Earth. The latter included interactive question and answer sessions and was also carried out after lectures by students and teachers. Attendance for the World Space Week celebration was massive, particularly among students. World Space Week 2009 was organised by the CASA, Pabelan Surakarta, Central Java Indonesia. For more information about our 2009 WSW activities, please visit http://blogcasa.wordpress.com/2009/10/11/pekanantariksa-dunia-2009-di-solo/.

## Kazakhstan

World Space Week 2009 was marked by major contracts signed between Kazakhstan and the space company Astrium during French President Sarkozy's visit to Astana on October 5 — 6. This followed the commencement of a strategic partnership between the Republic of Kazakhstan, France, and Astrium for the development of Kazakhstan's space activities. This year World Space Week coincided with the opening of the Samara Aerospace University (Russia) branch in Uralsk, Kazakhstan. The opening ceremony was attended by representatives of SAU (the National Space Agency of Kazakhstan) and the University assisted students who showed interest in space education. Another traditional event was the International Competition of Water Rocket Models which took place at the Baikonur International Space School. Young students showed their best rocket models and presented technical and scientific reports on different topics of space exploration.

Libya

The Libyan Centre for Remote Sensing and Space included arrangements to commemorate World Space Week 2009 in its programmes. The Centre and other participants celebrated this international event starting on October 5. The Centre organised "The International Conference on the Application of Remote Sensing and Geographic Information Systems" with the theme of "Partners in Development and Space." On this special occasion, it opened the Direct Reception Station of multiple distinct capacity of satellites' images. This station is the cornerstone of the Libyan space programme and was established to serve the requirements of Great Jamahiriya and African space. It aims to provide data from earth imaging satellites which have different space capabilities. Conference delegates also visited the Murzuq region to officially open the direct receiving station for earth images. Explanations and data were given regarding the station work by engineers, researchers, specialists from the Centre.

Also during the WSW celebration, engineers and space specialists from the Centre visited schools and institutes to talk about WSW and to provide information about space and its peaceful applications. All schools and institutes visited the Center to learn more about the techniques of space science. Publications, periodicals about the Centre, and WSW posters were distributed during the celebration. An exhibition of the Centre's research projects, activities, and achievements was held in commemoration of WSW and was very popular among guests. Many researchers from other centres have learned about WSW through the annual celebration that takes place at the Libyan Centre for Remote Sensing and Space.

## Malaysia

World Space Week 2009 was celebrated with a distribution of posters and stickers to space-related organizations, universities, and throughout public places in Malaysia. This instilled the awareness among Malaysian citizens. In addition, all the schools in Malaysia were provided with information about WSW and were encouraged to organise their own space- or earth-related activities during the month of October. With the support of the Ministry of Education, the "National Space Challenge" was organised. This was a competition which involved 10-year-old students who represented 16 states.

During World Space Week, the general public was also invited to take part in an online quiz which aimed to increase public awareness about space and science. On October 10, a space carnival was held at a remote area. It included exhibitions on meteorology, remote sensing and space science, and activities such as a space colouring competition and Jupiter observations. As many as 5,000 visitors took part in the activities.

## Pakistan

The Space and Upper Atmosphere Research Commission (SUPARCO) of Pakistan organised a number of events and activities to celebrate World Space Week 2009 in Pakistan's two largest cities, Karachi and Lahore, as well as some rural areas in the south of the country. The salient activities which took place included:

- Inauguration ceremony
- Panel discussion on the theme of WSW 2009
- Sky Simulation show at a planetarium
- Space awareness lectures for school teachers
- Space awareness programme for school students
- Quiz competition amongst students
- Declamation contest amongst students
- Model making competition among students
- Poster making competition amongst students
- Sky observation through telescope
- Space family fair

The Inaugural ceremony of World Space Week 2009, organised by SUPARCO, was held on October 5 at the National Centre for Remote Sensing & Geo Informatics (NCRG), SUPARCO, Karachi and at Gulshan-e-Iqbal Park, Lahore simultaneously. Dr Peerzada Qasim, Vice Chancellor of the University of Karachi, was the chief guest at the Inaugural ceremony in Karachi and Dr Riaz Suddle, Member of Space Electronics (SE), presided over the ceremony in Lahore. Dr. Qasim lauded the efforts made by SUPARCO, saying that the national space agency is doing an admirable job particularly in the applications of satellite technology for the social and economic development of the country.

The WSW 2009 celebrations in Pakistan culminated in a Space Family Fair on October 10 at the National Centre for Remote Sensing & Geo Informatics (NCRG) and on October 5-6 at Gulshan-e-Iqbal Park in Lahore. Apart from the colourful fun activities at the fair, SUPARCO organised stalls providing information about different applications of space technologies. Model-making competition and finals of the declamation and quiz competitions were also held at the fair. Highlights of the event were the space-related documentaries, Telemedicine Unit and its working and demonstration of water rockets. Overall, World Space Week 2009 in Pakistan was very successful with a wide variety of events, and excellent attendance and media coverage.

## Romania

The Romanian Space Agency has participated in World Space Week celebrations since the year 2000. This event has grown into one of the chief vehicles for space education and outreach in Romania. More than 100 World Space Week events took place in Romania in 2009, making it one of the hot spots for the WSW celebrations. Given the theme of this year — Space for Education — most of the events took place in schools and kindergartens, where the diminutive size of the participants was counterbalanced by their enthusiasm.

Events took place in half of all Romanian counties, including many in rural areas. The most active participants, in terms of number of events organised, included teachers from the Cluj, Hunedoara, and Constanta counties. As in the previous years, most of the event organisers were women. Both national and local media once again promoted many of the events to the public, and it was also publicized via the national online report, available at http://wswromania.blogspot.com. The beauty of space and the enthusiasm of the teachers are a guarantee that a new generation of Romanian space scientists and engineers is being inspired and informed.

## Russian Federation

World Space Week was widely celebrated across Russia on October 4-10, 2009. Several thousands of high school students, university students and space enthusiasts took part in celebrating this event. This year, high schools demonstrated a great interest in celebrating WSW. Many schools conducted Space Festivals.

Celebrations included interactive games, space drawing contests, and presentations about space. A number of high school students visited the Memorial Museum of Cosmonautics, the Valley of Cosmonauts, and the Gagarin Cosmonaut Training Centre during World Space Week.

Several high schools conducted special presentations about the development of our solar system. Students from one Moscow school had a meeting with Valentin Esipov, a scientist from Sternberg State Astronomy Institute. Writing a space-related essay is also a tradition for many schools during the World Space Week celebrations and several educational centres conducted space logo contests. More than 500 high school students and cadets took part in the Space Festival, which featured a rocket and space model exhibition and activities such as a drawing contest on “Children’s View on Space” organised by “Buran” Youth Aerospace Centre in Ulyanovsk. High school students from Troitsk received signals from several microsatellites currently in operation (Tatyana-2 and OSCAR-51) through their amateur radio station. Students from Moscow designed spacecraft models using the origami technique. Many schools had space related book exhibitions at their school libraries.

Technical Universities also took part in celebrating World Space Week. For example, on October 7 a round table on “Problems and the Future of the Space Industry” was conducted at Bauman Moscow State Technical University. Asteroid hazards and future-technology microsatellite projects were also discussed by Bauman University graduates and cosmonaut Oleg Skripochkas. More than 160 Bauman University students and high school students participated in this event. On October 10, more than 500 high school students had a chance to visit the scientific laboratories of the Moscow Aviation Institute, which was opened for the public for one day. High school students met with key people of the Russian Aviation and Space Industry, including Chief Designer of Kamov Design Bureau Sergey Mikheev and Russian cosmonaut Mikhail Tyurin. Students also visited a number of scientific laboratories and demonstrated a great interest towards spacecrafts and robots, power plants and engines. It has also become a popular tradition to celebrate World Space Week in Kaliningrad Museum of World Oceans. During World Space Week 2009, the Museum organised meetings with aerospace specialists, various presentations and exhibitions. Operational Space Communication Vessel “Cosmonaut Victor Patsaev” was open for public for the whole week. Space-related movies were screened and an “Earth from Space” photo exhibition was displayed.

## Slovakia

The celebration of World Space Week 2009 was coordinated by the Slovak Space Club, and was especially successful because it coincided with the 10th anniversary of Ivan Bella's space flight. During World Space Week 2009 at least 56 public and school events were organised by 31 institutions in 18 Slovak towns and villages. Observatories and planetariums as well as regional centres for education, centres for leisure activities, libraries and museums held activities during World Space Week. Many events were organised at nursery, primary and secondary schools all over the Slovak Republic. The activities included lectures, exhibitions, astronomical observations, observations of satellites and ISS flyby, creative workshops, and activities for children. The biggest event was an exhibition entitled "Our Universe: The Adventure of Discoveries," located in the beautiful historical Centre of Kosice. This exhibition was visited by more than 25,000 people. Information about the ideas, goals and event details of World Space Week were released through three of the most read daily newspapers in the Slovak Republic, SME, Pravda and Novy Cas, as well as two popular journals for science, technology and astronomy, Quark and Kozmos. Radio Regina Banska Bystrica and Radio Lumen broadcasting also informed people about WSW programmes. This first WSW celebration in Slovakia was highly successful and we believe that the enthusiasm will continue to grow over the years.

## South Africa

Below is a summary of the events that took place during World Space Week 2009 in South Africa:

- Launch of the South African Space Association. This is an association of space professionals in academia, industry and research institutions. Further information about the Association may be found at http://www.spacesa.org/.
- Launch of the South African Foundation for Space Development. This is an entity whose aim is to promote and support the development of the South African space arena. The Foundation is a non-profit entity that focuses on education in space, math and science, development and support of research, and public space awareness. More information on the Foundation is available at http://www.developspacesa.com/.

The National Youth Development Trust officially launched their World Space Week programme on October 2. The high point was the virtual, reciprocal interactive lecture that consisted of a presentation on satellites by Mr. Francois Visser and a presentation on robotics by Prof Abdelouahab Zaatri of LATA, Algeria. The lectures were broadcast via broadband-based Internet to various countries, including South Africa, Algeria, Saudi Arabia, Syria, Jordan, Iraq and Kuwait. They also had interactive broadband-based lectures on various space related topics between schools in the USA, France and Romania.

## Turkey

Under the coordination of Turksat, several activities to promote the peaceful uses of outer space were held in schools in various cities in the country. Activities were also carried out in some other places such as Cebit International Eurasia, which is a prestigious international fair. Turksat A.S. made industrious work in order to spread the awareness of peaceful uses of outer space. Many WSW events were organised at primary and secondary schools all over the country. They were in the form of lectures, exhibitions, competitions, observations, and planetarium-based programs for children and adults.

Events which occurred can be summarized as follows:

- During the WSW 2009 celebration, a total of 2,966 spacecraft models were made by students and were exhibited publicly in the school halls and cultural centers in 23 cities.
- 2,023 Cacabey Spacecrafts Painting Contests and Fairs took place in 27 cities. There were seminars in 11 cities on "From Cacabey to 2023."
- Composition contests about space were held in 5 cities.
- Observation festivals took place in 9 cities.
- Large conferences were held in academic areas.
- WSW events were announced in newspapers and on Tukrsat's web page (http://www.turksat.com.tr) in addition to other media outlets. There were a total of 102 local media links during WSW celebrations.
- Planetarium shows took place in 5 major cities.
- A number of school competition winners were awarded with small promotion presents provided by Turksat.
- One of the most popular activities was held in CEBIT-Istanbul at the WSW Social Responsibility Stand, which was visited by approximately 16,000 people, mostly students.

## Ukraine

On October 5 there was a meeting of the officials of the National Space Agency of Ukraine with engineers, scientists, young people and veterans of aerospace industry devoted to launching the first satellite. About 30 participants took part in this event.

On October 5-6, the Ukrainian Youth Aerospace Association "Suzirya" organised two meetings of Kiev school students with veterans of Baikonur and Plesetsk space centers to share their knowledge and experience in the aerospace field. The main lecturer was Sergey Dyachkov, Director of Suzirya. About 40 young people participated in the events.

On October 7-8, three lectures devoted to the launching of the first Ukrainian satellite were provided by veterans of Ukrainian aerospace industry for students of Kiev Polytechnic Institute and other schools. The main lecturer was Alexander Boltenko, Head of the Airspace Section of the State Polytechnic Museum, the veteran of Baikonur space centre. There were approximately 50 attendees.

The presentation of a recent book "Ukraine and Space" was held on October 8 at Ukrinform, the Ukrainian information agency. About 30 young people, students, university teachers and professors, scientists, engineers and workers of the Ukrainian space industry, and veterans of aerospace industry were present. The first Ukrainian cosmonaut Leonyd Kadenyuk was an honourable guest at this event.

On October 8-9, two round tables were devoted to the history of space exploration and a meeting with veterans of the State Design Bureau Yuzhnoye were organised by The National Aerospace Educational Centre of Ukrainian Youth for students from Dnepropetrovsk and local universities. About 40 young people participated in the events.

The main lecturer was Viktor Hutornoi, Director General of the National Aerospace Educational Centre of Ukrainian Youth.

## Vietnam

Many activities were held in Vietnam in celebration of WSW 2009. On October 4, the Hanoi Amateur Astronomy Society and Space Satellite Manufacturing project group coordinated a festival called "Astronomy for education," which was attended by nearly 100 students and high school pupils. This event introduced the history and achievements of space research and some basic information about astronomy. Information about this event was also mentioned in several newspapers in Vietnam.

On October 11, hundreds of youths from Ho Chi Minh City and nearby region such as Phan Thiet, Vung Tau, Tay Ninh participated an exciting and memorable astronomy festival organised by the Ho Chi Minh Amateur Astronomy Club and District 5 Children's House. The theme of this festival was "Space for education" and "International Year of Astronomy 2009". Visitors enjoyed displays of spacecraft models, pictures, and posters that portrayed the history of mankind and the universe. Copies of 400-year-old telescopes were especially popular.

Youths were also guided to make a simple refractor telescope and water rocket. They also had an opportunity to take part in an astronomy conversation with Professor Dr. Nguyễn Mộng Giao, a prestigious physicist in Vietnam. In the afternoon, the special event was a water rocket contest between five teams from Ho Chi Minh city, Vung Tau and Phan Thiet. The Astronomy festival was published in many major newspapers in Vietnam such as Tuoi tre and Thanh nien newspapers. Moreover, Vietnam national television channel VTV9 recorded and broadcasted information about this festival.

Other major events were held in Hanoi and Ho Chi Minh City, where space related activities were organised by various local groups and astronomy clubs throughout the country such as Da Nang, Pleiku, and Vung Tau.

## Zambia

World Space Week in Zambia was organised by the Copperbelt University in partnership with the University of Zambia and the Lechwe Trust School. Funding was provided by the Copperbelt University through the School of Mathematics and Natural Sciences. Two school-based events were organised:

- An International Year of Astronomy talk at Lechwe Trust School took place on October 2 and was attended by an audience of about 200 pupils and teachers.

- A one-day seminar on space science and astronomy attracted participation from 91 people, including 16 Kitwe-based high school JETS, JETS coordinators, and Copperbelt University students and faculty members.
- Motivating presentations were conducted by university lecturers on astronomy, space science and technology. Interactive activities were also included in this seminar, thanks to collaboration from the Physics Department of the University of Zambia, which allowed the use of their planetarium dome and telescope.

# Yuri's Night

## Organisational Node

Brice Russ
rbruss@gmail.com
http://yurisnight.net/

Number of organising committee members: N/A

Number of people reached by IYA2009: N/A

Budget: N/A

Sources: N/A

## General Overview of IYA2009 activities by Yuri's Night




Yuri's Night was proud to be involved with IYA2009, and suggested that all interested Yuri's Nigth parties to work with local IYA2009 efforts such as the 100 Hours of Astronomy.

### Yuri's Night at the South African Astronomical Observatory

With telescopes available on the lawn and people gathering inside the Auditorium for presentations, Yuri's Night felt almost like one of the SAAO Open Nights... And there was more than that: A bring-braai ensured nobody had to go hungry, and space exhibits as well as some rocket testing kept people busy.



The presentations ranged from the South African involvement in space dating back to the Apollo missions and the execution thereof over Space Science in South Africa to the soon to be launched Sombandila Satellite. It was fascinating to see young people so attentive and curious to know more about the extent of our involvement in the Apollo missions, not to mention the future of Space Science in South Africa. The Sombandila Model became more popular compared to other exhibits and the presentation thereafter received positive enthusiasm!

As much as older people were in attendance, it became crystal clear that the youth was in control of the proceedings, they controlled how the questions were answered by asking questions relevant to their interests and it was one after the other. All the presenters were really kept on their toes!

Space Science in general seems to be attention grabbing for young people, and one can foresee a lot of young people following in the footsteps of Yuri Gagarin or Mark Shuttleworth!

Impressions from Yuri's Night 2009




松浦晋也


YURIS NIGHT



# IYA2009 Global Conferences, Sessions, Workshops and Seminars

## Meetings & Global Events

- 08 — 12 September 2008: JENAM2008, New Challenges to European Astronomy. Vienna, Austria.
- 15 — 16 January 2009: IYA2009 Opening Event. UNESCO, Paris, France.
- 19 — 23 January 2009: IAU Symposium 260: "The Rôle of Astronomy in Society and Culture". UNESCO, Paris, France.
- 20 — 23 April 2009: European Week of Astronomy and Space Science, University of Hertfordshire, UK
- 03 — 14 August 2009: IAU`s XXVII General Assembly, Rio de Janeiro, Brazil
- 10 — 13 August 2009: Conference "Astronomy and Civilization", Budapest, Hungary
- 24 — 27 August 2009: Conference: Kepler's Heritage in the Space Age, Prague, Czech Republic
- 25 — 31 October 2009: The European Society for Astronomy in Culture 17th Annual Meeting, Alexandria, Egypt
- 9 — 10 January 2010: Astronomy Beyond 2009 — Closing Ceremony of the IYA2009

## National Opening Ceremonies

- Republic of Korea: 15 January 2009
- Belgium: 16 January 2009
- Taiwan: 18 January
- Philippines: 19 January 2009
- Germany: 20 January 2009
- Brazil: 20-28 January 2009 (The opening events of IYA2009 in Brazil took place in 50 different cities)
- Spain:
- 27 January 2009: Official Openning of IYA2009 (Madrid)
- 19 February 2009: Openning for the general public (Cuenca)
- Slovenia: 27 January 2009
- Malta: 27 January 2009
- Portugal: 31 January 2009
- Switzerland: 5 February
- Hong Kong: 7 February 2009
- Morocco: 14 February 2009
- Nicaragua: 12 February 2009
- Macedonia: 26 February 2009
- Argentina: 20 March 2009

## Organised by UNESCO

### Conference

"Invisible Universe", 29 June-10 July 2009, UNESCO Headquarters (Organised by UNESCO, Laboratoire Univers et Théories, Observatoire de Paris/Meudon, Centre national de la recherche scientifique (CNRS).

### Seminars

"At the Edge of Solar System",20 May 2009, UNESCO Headquarters (Organised by UNESCOand the Observatoire de Paris)
Guest speaker: Alain Doressoundiram
Followed by a film screening of Jean-Charles Cuillandre"s "Hawaiian Starlight" (abridged version)

"Big-Bang and the creation of the Universe", 16 November 2009
UNESCO Headquarters (Organised by the Delegation of Poland to UNESCO)
Guest speaker: Fr. Prof. Michal Heller (awardee of the Templeton Prize 2008)

## Symposiums

12th Marcel Grosmann meeting on gravitation and general relativity with major emphasis on mathematical foundations and physical predictions, 13 - 18 July 2009, UNESCO Headquarters (Organised by UNESCO, ICRANet and ICTP).

“L’Univers Outre Noir: Energie Noire et Matière Sombre », 6–10 July 2009, UNESCO Headquarters (Organised by UNESCO, Laboratoire Univers et Théories, Observatoire de Paris/Meudon, Centre national de la recherche scientifique (CNRS).

## Colloquium

“Dark Side of the Universe: Toward a New Cosmological Paradigm”, 29 June–3 July 2009, UNESCO Headquarters (Organised by UNESCO, Laboratoire Univers et Théories, Observatoire de Paris/Meudon, Centre national de la recherche scientifique (CNRS).

## Cultural activity

Play “La Vie de Galilée” by Bertolt Brecht, 12 - 13 December 2009, UNESCO Headquarters (Organised by UNESCO and Cité des Sciences et de l’Industrie in collaboration with the theatre association “Ça tourne pas rond”).

## Exhibitions

“Exploring the Invisible Universe”, 29 June–10 July 2009, UNESCO Headquarters

“Astronomy: Crossroads of Science and Culture”, 15-16 January 2009, UNESCO Headquarters

# Legacy

The International Year of Astronomy 2009 was never foreseen to be a “one-off” event for one year, but a means to creating lasting structures for collaboration, lasting self-sustaining activities and innovative concepts for communication of astronomy. Within the IYA2009 project this “living heritage” goes under the name “IYA2009 Legacy”. This section aims at giving, already in the last month of IYA2009, an overview of this legacy to the thousands of involved participants in IYA2009 at all levels — from SPoCs/project chairs/stakeholders and onwards. It will serve as a way to communicate the ideas for the future to everyone and will hopefully inspire nations and projects to find ways for the continuation of the activities and collaborations that have a long-term potential.

## Beyond IYA2009 logo

It is important to maintain the common branding beyond 2009, with the logo figures in particular having become iconic. The “Beyond IYA2009” identity can be used in the different products beyond 2009.
The new legacy logo will be soon available on: http:/ /www.astronomy2009.org/resources/branding/

## IYA2009 online resources

The online resources produced during IYA2009 by the Secretariat, the various projects and stakeholders will be preserved after 2009. The main IYA2009 website will be maintained by ESO and a commitment from the ESO education and Public Outreach Department exists. The individual countries should find ways to keep their national websites and resources, following some guidelines from the IYA2009 Secretariat. Tools like webZIP[6] or HTTrack[7] can be used to download entire websites and keep them available for offline use. The IYA2009 Secretariat can also provide support for this task, if needed.

## Copyrights and permissions for mages, videos and other multimedia resources

Besides the public domain astronomical images, numerous pictures have been used and produced during IYA2009, namely images from the Cornerstone project From Earth to the Universe, photographs on the IYA2009 Flickr group, and the images available on the main IYA2009 website. The permissions and copyrights of the images are in the process of being cleared by the Secretariat, for the community to be able to use them in the framework of astronomy EPO activities in the future. The images, videos and other multimedia resources must be protected by one of the following Creative Commons Licenses: http://creativecommons.org/about/licenses/

## Future of the networks created for IYA2009

A considerable network of stakeholders in Education and Public Outreach was established for IYA2009:

- National Nodes
- Organisational Nodes
- Organisational Associates
- Cornerstone projects
- Special Projects
- Media partners
- Task Groups

The maintenance of these networks is one of the priorities of the IYA2009 legacy and should be carefully considered. The central hub for the network could for instance be transferred from the IYA2009 Secretariat in the second half of 2010 to the new IAU Global Astronomy for Development Office.

## Single Points of Contact

In some the countries the SPoCs will cease their EPO activities and in these cases, it is recommended to find new contacts to keep an open channel between the IAU and the national/organisational stakeholders for communication of astronomy with the public. These contacts, for instance called “IAU EPO contacts”, could be of paramount importance in order to keep a permanent and systematic contact between the IAU and the different countries.

## Amateur Astronomers

Considerable momentum of coordination among amateurs was achieved thanks to different global projects, namely the 100 Hours of Astronomy and Galilean Nights. These networks and a list of associations, organisations, and institutions needs to be preserved, maintained and updated. A natural repository for a global list of amateurs could be the Portal to the Universe, where a comprehensive easy-to-maintain list can be hosted and sustained. IAU Commission 55 Pro-Am WG could possibly play a role as well. Discussions have taken place between the stakeholders, but due to the manpower demands of this task, no commitments have been made.

[6] http://www.spidersoft.com/webzip/default.asp
[7] http://www.httrack.com/

## Professional Astronomical Facilities

During the project Around the World in 80 Telescopes an unprecedented number of professional facilities took part in a world-wide event. Much outreach material was produced, including multimedia presentations for the individual observatories. These videos are already hosted on the ESO website, but a list of facilities along with press information and outreach contacts could also be maintained on the Portal to the Universe web site. Together with the list of amateur astronomers, this will become a comprehensive directory, very useful for journalists and the public alike.

# Future of IYA2009 global projects

The IYA2009 global projects and official products have been producing different material and resources, as well as creating infrastructures and networks. The IYA2009 Secretariat is discussing with the different chairs and task groups the different possibilities to keep this momentum.

## Cornerstones

### 100 Hours of Astronomy

The network created in the framework of 100HA is probably the most important legacy of 100HA. 100HA made it easier to build this network, and AWB now has a greater network than it otherwise would have at this point. This includes the awareness of public outreach among amateur astronomers who hadn't been regularly involved in outreach before but will now be more likely to take part in future global programs. This network will also be useful in creating a database of amateur astronomy clubs worldwide, a goal of both AWB and PTTU, and that effort is being discussed.

The line between professional and amateur is now blurrier than ever before. Both the amateur and professional communities took part in the most important parts of 100HA, often working together. The 100HA Task Group and organizational effort was an unusual blend of experienced informal outreach people and professional astronomers dedicated to outreach and education. The professional community has come to recognize that amateurs do more outreach than the professional community ever could, to everyone's benefit. This relationship between communities that share common goals should continue to grow after IYA2009.

A follow-up of 100 Hours of Astronomy (100HA) is planned for April 2010 led by Astronomers Without Borders (AWB), one of the organizations that organised 100HA. Instead of a small number of activities during a short time frame, the entire month of April will be used. This allows many more people and groups to participate, gives more chances for events affected by weather, allows for many more types of events and activities and provides a platform for innovative new activities. Details will be announced beginning late December 2009 or early January 2010.

Commercial sponsorships should be easier to come by the second time around now that it has been shown what is possible. A lot of interest in sponsorships arose as 100HA grew closer and companies saw that it would be much more than just another event. This time they will know ahead of time what the event might be like. While not having the cache an IYA2009 cornerstone project with endorsement from the IAU and UNESCO will probably negatively impact possible fundraising, AWB's increasingly high profile and growing list of outreach projects will at least partially compensate for that. There will be fewer sponsorship opportunities once IYA2009 is over so maybe there will be fewer outstretched hands.

AWB is planning many programs that will overlap with each other, including the event in April 2010. For example, AWB is using video conferencing to more effectively connect groups around the world in a way that is exciting and educational. The video conferencing is itself a tool that can be used in other programs as well. The first AWB remote observing session was a great success with people using a chat box to discuss the objects and ask questions but having video participation will be even better. Thus funding for the 100HA follow-up will be helped by the larger overall AWB programme as it generates support as well. All of these programs will be included in April 2010 events, with all the tools developed for them brought into play.

### Cosmic Diary

#### The blog

The Cosmic Diary blog has reached a point where it practically runs itself, requiring only a minimum of maintenance. As predicted initially, not all the astronomers who agreed to take part in the project (more than 60), have been actively posting. At the end of 2009, those who did not have an active participation will be excluded from the blog. Those who have actually contributed will be asked if they want to remain on the blog and depending on the replies, the blog can go on for an undetermined time. New people can then be invited to join. All that was written for the Cosmic Diary, both posts and feature articles, will still be available on line. Regarding the future management of this blog, there are a few options: Some of the bigger scientific institutions taking part in the

project, like ESO, ESA, JAXA or NASA can be asked to take it on. The way the blog is running now, one person working on it for 2 or 3 hours a week should be enough. Another option would be to ask one of IYA2009's Media Partners to take the project on. Sky & telescope, Astronomy Now or Physics World would be the most obvious choices, considering their international scope and theirs strong online presence.

### The book

The Cosmic Diary book, titled "Postcards from the Edge of the Universe" is an anthology of the feature articles written by the bloggers for the blog throughout 2009. It is a perfect illustration of the spirit of the Cosmic Diary: the different people, scientific background, fields of research, ages and genders, and the places in the world where professional astronomers live and work. It will be the perfect legacy of the Cosmic Diary project.

## Dark Skies Awareness

Programme Updates and Which Will Be Sustained

- One of the most productive "DSA" programmes that can hopefully be sustained is the GLOBE at Night program.
- Also the Second Life presence for Dark Skies Awareness will continue for as long as the IYA Island is open
- and the social networking sites will continue at least as they are now.
- The Great Switch Out: A Homeowner's Guide to Quality Outdoor Lighting, posters, brochures and displays will continue to be downloadable from the International Dark Sky Association website for the foreseeable future. Parts of the planetarium programme and the resources on the 2 DVD set will be placed online to also be downloadable. The DVDs and educational kit will be available until resources run out.
- Earth Hour has its own source of funding so will continue after 2009. Dark Skies Awareness has been involved in promoting the campaign, getting communities to organise and participate in it. We will continue to support Earth Hour without any need for funding.
- Similarly, Dark Skies Awareness will continue to promote World Night in Defence of Starlight and the International Dark Sky Week without any need for funding.
- The U.S. National Parks Service will attempt to secure its own funding to continue some aspects of Nights in the National Parks. Right now the U.S. NPS has started a Sky Ranger programme in this regard.
- The Dark Skies Discovery Sites in Scotland is expanding throughout the United Kingdom this coming year and has secured funding to do so.
- The U.S. Dark Skies Discovery Sites program, led by the Astronomical League is not faring as well and is in need of funding to continue.
- UNESCO, the IAU and colleagues been instrumental in creating a formal Starlight Declaration to recognize that the ability to view a dark sky has been an inspiration to all throughout time and that necessary measures should be implemented to raise public awareness. As such the IYA2009 Dark Skies Awareness Cornerstone Project has helped to promote the declaration through initiating the IAU B5 resolution under Pedro Russo's suggestion. And during the year, Dark Skies Awareness (DSA) has also supported the Starlight Reserve Concept (i.e., a site where a commitment has been made to defend and preserve the night sky quality). In the same vein, DSA has also supported IDA in terms of their International Dark-Sky Communities, Parks and Reserves (i.e., a certification programme to promote the establishment of special protection areas for natural night skies). (See www.starlight2007.net/StarlightReserves.html and www.darksky.org under "Policy/Programs", then "IDSCommunities, Parks and Reserves".) For Dark Skies Awareness to continue promoting the Dark Skies Places, no funding is needed.

Some recommendations on how to sustain Dark Skies Awareness Programmes:

1) Help find funding to continue:
    a. Improvements and expansion of the GLOBE at Night website
    b. The new Dark Skies Ranger programme with the Galileo Teacher Training Programme and hopefully UNAWE.
    c. The Dark Skies Education Kits
    d. Improvement on the programme to analyze the data from GLOBE at Night
    e. The How Many Stars Program
    f. The Great World Wide Star Count Program
    g. Dark Skies Discovery Sites (led by the Astronomical League)
2) Help with networking: access to contacting different communities available through IYA2009.
3) Help with advertising and marketing all of the Dark Skies Programs listed above as programs continuing beyond IYA2009.
4) Continue to keep the IYA leaders posted with updates.

## Galileo Teachers Training Program

As possible sources of funding to continue the GTTP activities, we point out national contributions, European FP7 and local support of national contact institutions as the most plausible.
The resources created in the framework of GTTP will be freely available to the community. The majority of the training sessions are for free. It might happen that some nations will charge for the training but we intend to have e-learning material and online training sessions available for free.

The network created in the framework of GTPP will embrace the newcomers and guarantee the continuation and enhancement of the newly built GTTP community

As an evaluation method of the project, we are planning to create an online evaluation form to be used by all trained teachers and promoters.

As the main lessons learned in the last months of work we can highlight:

It is important to produce training material to be available online

English language can be a barrier in some nations (mostly for the teachers and educators)

We must train students for the future as quick as we can, especially in developing nations were young people are being left behind

It is paramount for success to join hands with other similar projects. There is an urgent need for these types of efforts and we are only a hand full of promoters.

The network created under IYA2009 and the possibility to use all the fantastic resources created in 2009 will redefine the way things are done in the future. For GTTP it was extremely important to have the back up and support of the IYA2009 Secretariat and the endorsement and support of IAU. The continuation of institutional support and/or influential individual public recognition of the programme are decisive for the successful accomplishment of the GTTP mission.

## From Earth to the Universe

The goal of the From Earth to the Universe" (FETTU) project has been to engage the largest possible populations, in particular those who might not seek out science or have the opportunity to be engaged in astronomy. Based on the preliminary results of the evaluations, this project — the first of its kind as a large-scale, worldwide astronomy outreach in non-traditional locations — has been a tremendous success. This single series of images, with captions now translated into dozens of languages, has appeared in nearly 70 countries and on every continent except Antarctica.

With some 300 separate exhibitions over the course of IYA2009, it can be said that the presence of astronomy has been felt in countries of all sizes, regions, and politics through FETTU. This includes recent displays in halls of the Iranian Parliament, in the heart of Moscow, in a prison in Portugal, and across Bolivia. From public parks to airports to art festivals, to shopping malls, to even prisons, FETTU has found its way into incredibly exciting places.

Planning beyond 2009

From the outset of this project, we, the organisers, have made provisions to allow FETTU to continue beyond 2009. For example, we ensured that the images from the telescopes and astrophotographers in the FETTU collection could be used through 2010. (This is with the understanding that the exhibits will continue to be used in free-access locations while they are in good physical status.) We plan to also add a small collection of astronomical images that have been released since late 2008 to keep the content available to FETTU organisers 'fresh'.

At the conclusion of IYA2009, there will be thousands of large-format astronomical images around the world that have been created for FETTU. We believe it would be a terrible waste for them to go into storage, or, even worse, be discarded. To avoid this to the extent possible, we have established an online prototype "FETTU swap" (http://www.fromearthtotheuniverse.org/blog/).

Our experience with FETTU has provided us with new insights and experiences in the realm of astronomy's inherent connection and appeal to the general public. We have also gained valuable knowledge with how lay audiences react to science in various settings — especially those considered to be "non-traditional" such as public parks, art festivals, and metro stations.

The most important lesson, which is difficult to sum up effectively in such a small space, is that there is an appetite around the world for us to do more. By honing our approach and working on more innovative content, we believe that the FETTU model could be used for other astronomy and outreach projects.
In particular, we are investigating ways to apply the FETTU model for other science festivals, informal science learning organizations, and the upcoming International Year of Chemistry 2011.

We consider FETTU to be a success as both an IYA2009 global cornerstone project, but, perhaps more importantly, as a vehicle for a variety of free-choice science learning opportunities. We believe the content as well as the model of distribution are "evergreen". We look forward to continuing this type of science outreach as a legacy to IYA2009 and all of the important and profound impact it has had across the globe.

## The Portal to the Universe

In its first 6 months of operation, the Portal to the Universe (PTTU) had more than 250 000 visitors, featured more than 3500 press releases, almost 2100 podcast episodes and 21 000 blog posts.

Among the latest developments for the Portal is that we now have a real Editor-in-Chief, Adam Had-hazy, who will be taking the lead in exploiting the Portal's potential. A new section for astronomy twitter feeds has been made, as well as an intelligent algorithm to sort astronomy-content from non-astronomy content. The latter turned out to be very important as much good astronomy content is produced by "mixed" channels that include social science and many other non-astronomy stories.

ESO, together with ESA/Hubble, is providing the portal infrastructure and has been partly sponsoring the first part of the project. For the future of PTTU, ESO's education and Public Outreach Department has agreed to continue funding the operation of the portal at least for 2010. This includes the salary for the Editor-in-Chief, infrastructure, tehnical improvements etc. There are still many ideas for improvements of the PTTU, and these will be initiated with other IYA2009 and ESO infrastructure projects have been completed.

## She is an Astronomer

Regarding funding to continue activities of project, She is An Astronomer (SIAA) will be able, thanks to funding from IYA2009, to keep the website and the forum running until end March 2010 with active management. It is possible that it may be able to keep it active for longer. The resources created in the framework of SIAA will be freely available and accessible to the community on the website, hosted by the Royal Astronomical Society. It would be helpful to keep the www.sheisanastronomer.org label if that is possible. There are 3 people looking after the website, and 3 people moderating the web forum. We believe that they will be willing to continue supporting She is an Astronomer as long as there is an interest from the community. The forum cannot remain active once the moderators cease work; it is targeted by too much spam and inappropriate content. The website can remain with minimal maintenance. At the moment, SIAA is being evaluated by using standard web tools.
As the most important lessons learned so far, we can point:

- We needed active researchers to find material and generate material for the resources pages. The Task Group needed to be more proactive in finding and generating content.
- A lot of people are 'interested' but they want to receive content (such as talks they can give) rather than supply it.
- I still hope we can work on 'good practice' ideas to build on the IAU Resolution.
- No-one thinks their country is doing enough to get/keep women at senior levels.

Recommendations for similar endeavours: there is a lot of interest in this area, and a lot of goodwill. The project manager is very surprised (and very pleased) that a lot of countries had done something for She is an Astronomer, even though they had not told the Task Group.
This interest shows that countries and groups do care enough to do something to raise the profile of women in astronomy when they are made aware of the situation. One legacy from She is an Astronomer will be to gather together these ideas, to help groups plan activities and events in the future. It will be a resource that organisers can check from time-to-time for new ideas. There will be a final conference for She is an Astronomer at the end of April 2010, participants will be challenged to think of solutions to help improve the situation, and of ways to support and encourage female astronomers in their careers. These will be used to help the IAU fulfil the resolution passed in Rio to 'encourage and support female astronomers'.

## Galileoscope

The Galileoscope Cornerstone Project was designed to solve a long-standing problem in astronomy education and outreach: the lack of a high-quality but inexpensive telescope for student observations that is available worldwide. The project successfully addressed this problem through the design and production of the Galileoscope kit and the creation of educational and outreach materials localized in various countries on how to effectively use the Galileoscope.

The project was designed from the start to present a long-term solution to earlier telescope kit problems and to put largely self-sustaining and lasting structures in place. Because the project was built upon organizations committed in the long-term to astronomy education (e.g., American Astronomical Society, National Optical Astronomy Observatory, Astronomical Society of the Pacific), education efforts with the Galileoscope will be sensibly maintained.

Through the end of 2009 the Galileoscope cornerstone project will have delivered 110,000 telescope kits to recipients in more than 70 countries worldwide; another 70,000 kits are in production for delivery during the first quarter of 2010. We have worked hard to develop, produce, and distribute Galileoscopes so that people everywhere can experience the thrill of observing lunar mountains and craters, Jupiter's Galilean satellites, the rings of Saturn, and bright star clusters like the Pleiades through a telescope that they will be proud to own and that offers superior optics and mechanics, and demonstrable educational value, at an astoundingly low cost.
Our research on existing telescope kits did not identify a model suitable for the goals of the program. Thus, our team designed its own telescope kit superior to those available on the market at a production cost that allows sale at a very economical price. An extensive design effort was undertaken to optimize the optical and mechanical capabilities of the telescope and to make assembly by the user as easy as possible. In order to manage the effort, and having been unable to develop a manufacturing partnership with an existing telescope company, we had to form a new company, Galileoscope, LLC, to execute the project. Galileoscope, LLC, partnered with Merit Models of Racine, Wisconsin, for manufacturing and with LemanUSA of Sturtevant, Wisconsin, for distribution and shipping. Galileoscope, LLC, has had revenues and expenses through IYA2009 of approximately $2.5 million. Very careful management of company financials and contributions of personal funds by members of the Galileoscope team, combined with the volunteer effort from the participants, have made the venture financially viable and resulted in the success of the project.

It is very important to the Galileoscope team, and to the wider astronomical community, that this project continues beyond IYA2009. Accordingly, we are working on a plan to transition manufacturing and order processing to a new company led by our current manufacturer, Merit Models, of Racine, Wisconsin. Under this plan, the Galileoscope will be offered much as it is now, with the website (www.galileoscope.org) as the primary point of sale, and with our distribution system still relying on Leman USA and their Wisconsin, Copenhagen, and Hong Kong warehouses for distribution to all continents. As the project evolves from a volunteer effort to a professional, commercial enterprise, there will be notable improvements in customer service and reductions in wait time from order to delivery.

Importantly, the donation programme — which has distributed about 6,000 telescopes to underserved youth worldwide, in cooperation with our IYA2009 sister project Developing Astronomy Globally — will continue under the new company, though with modifications to make it more effective. We recently received a donation for thousands more Galileoscopes for U.S. classroom teachers; this will enable us to augment our current educational efforts.

The educational networks where Galileoscopes have been distributed remain largely unchanged and intact. For example, in the U.S. Galileoscopes have been distributed through networks of small science centers, through the Association of Science-Technology Centers, through outreach centers of observatories, and through teacher professional organizations. Online training has been offered to many of these organizations, and the National Optical Astronomy Observatory will consolidate the newly created training resources online in January 2010.

## Special Projects Legacy

### StarPeace

When joining the IYA2009 as a Special Project, the StarPeace core team claimed that it would satisfy four goals of the IYA2009 goals and that StarPeace is aligned with the IYA2009 vision:

- StarPeace project will cause the astronomy groups to cooperate with their neighbour countries and this leads to make the relationship and to strengthen the relationships between both groups and also to make network of active astronomy groups in that region. (Facilitate new networks and strengthen existing ones)
- Cooperation of astronomy groups in countries with non-free land border is notable, because many of these countries are developing and cooperation between these groups and countries around them causes to strengthen power and survival of astronomy groups in developing countries. (Empower astronomical communities in developing countries)
- Besides the star party, speech and astronomy photos fair can help to improve knowledge and scientific insight of residents of both countries and prepare a durable peace between them, also. (Increase scientific awareness)
- StarPeace is a project based on the sky observation by tools and this is memorable experience for people worldwide. (Promote widespread access to new knowledge and observing experiences)

Presently, StarPeace has 34 active astronomical clubs from 25 countries and, after holding more than 20 joint Star parties near the borders, certainly is a network of active astronomical clubs across the world to promote peace and astronomy. StarPeace also empowered astronomical communities in some developing countries.
So IYA2009 is a beginning of StarPeace project and it will continue after 2009.

### Naming Pluto

Naming Pluto has held a prestigious position within the IYA2009 Special Project global platform and Father Films is proud to have had the endorsement of the IYA2009 Working Group Committee in furthering global awareness of Venetia's story.

As a continuation of this support and during 2010 we are placing our efforts in approaching Science Education Departments for 9 -11 year olds and hope that IYA2009 may be able to join this initiative with the support of each National Node and through the networks and media channels made available the IYA2009's organisational associates.

With the secondary support of cross platform science publications who promote educational resources to educators we believe Naming Pluto can reach the next generation of astronomers, scientists and astronomy educators by the time the New Horizons probe reaches Pluto in 2015.

In 2010 we celebrate the 80th anniversary of Pluto's discovery so there's no better time to add this extraordinary true human story to Science History DVD collections in classrooms around the world and succeed in making Venetia's story accessible to those who will be truly inspired by it.

## BLAST!

2009 has been a very busy and successful year for BLAST! As a special project of the International Year of Astronomy 2009, BLAST! started the year by screening at the prestigious UNESCO sponsored IYA2009 opening ceremonies in France. Throughout 2009, BLAST! screened in 13 film festivals around the world, as well as at over 20+ alt-theatrical venues including universities, high schools, science centers, special events and meetings. In June, BLAST! enjoyed a successful NYC theatrical premiere which garnered plenty of positive reviews and press — including The New York Times, NPR's Science Friday, and The Colbert Report. BLAST! has also been broadcast world wide on networks like BBC, Discovery Canada, and NHK Japan. The BLAST! Educational DVD was released independently in the fall.
BLAST! will continue to play across the country and around the world throughout 2010 and beyond. Many screenings are already scheduled for early 2010, including the American Astronomical Society's annual meeting in Washington, DC. The home DVD is slated to be released in the fall of 2010. BLAST! will carry the spirit of the IYA2009 well into the future by inspiring and encouraging young people to peruse careers in astronomy.

## GalileoMobile

GalileoMobile (GM) will soon start a fundraising campaign to follow-up the project, perform its evaluation and prepare a forthcoming trip.
The GM started as a project to bring the Year of Astronomy to Latin America, where it can further grow, thanks to new contacts with various institutions in Argentina, Brazil, Colombia, Chile, Mexico, Paraguay and Uruguay (in which some of them we have ideas of founding). But the project has, in the long run, also the inspiration of reaching countries in other continents (such as Asia and Oceania).Some resources are being created and they will be available to the community, such as:

- The GalileoMobile documentary;
- Activities (*cartilla*) possibly available on our website and in website of ESO, maybe on demand so that we can record how many downloads there are and thus evaluate. There may be some copyrights issue that we still have to solve before making the materials available.

GM will keep all contacts of teachers and people who helped us during the project. GM will also use new contacts (from other countries or cities that where not included in the original roadmap), and make them interact.

Evaluation strategy:

- Make use of the networks of teachers like Explora in Chile and keep contact with the teachers;
- Collect press releases and articles on GalileoMobiles released by various newspapers and online-websites to access the impact in local and global media;
- Evaluate the success of the distribution of the documentary;
- Use the feedback that we keep with communities/teachers/children that we visit;
- GalileoMobile will prepare a book log with a summary of the actions taken, money spent, how the project was organised and how many people it reached directly (eg. schools visited) and indirectly (through the documentary, "open doors" at the institutes, press releases ...)
- As other legacy aspects, we are considering making the appellation (label) GalileoMobile, and possibly create a non-profit organization.

## Future of National Structures and Activities

A few ideas for Beyond 2009 for countries:

- Create astronomical clubs in schools, universities and communities.
- Create a national wide network, built on top of the existing IYA2009 network
- Establish a web portal for national or regional astronomy activities, maybe a joint initiative of research institutions and amateur astronomers organisations.
- Update and renew old observatories for public outreach.
- Regular observing nights.
- Public events and talks.
- Practical courses in astronomy for university students.
- Astronomy Week and Day.
- Astronomy festivals.
- Global projects, like 100 Hours of Astronomy.
- Teacher training.
- Educational activities by professionals in schools.
- Introductory astronomy courses at university level.
- Coordination between amateur and professional astronomers.
- Olympiads of Astronomy.
- UNAWE activities.
- Establishment of National Astronomical Networks.
- Translate and publish seminal book in astronomy.
- Publish handouts, DVDs, CDs.
- Distribute Galileoscopes in schools.

# Conclusions

Since its inception, the International Year of Astronomy 2009 was planned to be more than just a series of activities occurring over 12 months. It has been designed and implemented as a springboard for the popularisation of astronomy with a much longer timeframe in mind.

Perhaps the most impressive statistic from IYA2009 is the sheer size and scale of the astronomy network that has been created: the largest in history. 148 countries, from Afghanistan to Zimbabwe, have joined together to work toward the common goal of making astronomy accessible to all; the International Year of Astronomy 2009 truly has been international! Individuals and groups in all of these countries have been collaborating both internally and across borders on projects beneficial to us all. The relationships forged between scientists, communicators, teachers, and enthusiasts during IYA2009 should remain far into the future, and it is hoped they will only become stronger with time. Sharing resources and expertise is a win-win situation, as IYA2009 has shown.

Some of the Cornerstones have been incorporated into IAU plans. A prime example is Dark Skies Awareness, since participation in the protection of the sky is an essential duty of the IAU. Thanks to Developing Astronomy Globally and also to the general networking effort, developing nations have enjoyed increased links with astronomy groups and organisations at home and abroad. New openings and opportunities at both the professional and amateur level instigated during IYA2009 are set to continue, allowing expertise within these countries to be maximised, and helping global astronomy research and science communication. The IAU has been at the forefront of these efforts, and consolidating links between the IAU and developing nations is seen as a priority in the brand new IAU Strategic Plan for Astronomy Development. From the IYA2009 networks, we know that efficient organisation is the foundation of success. This is when having an organisation like the IAU to coordinate efforts really comes into its own. Education was a strong theme during the Year, emphasised in particular by the Galileo Teacher Training Cornerstone, and there is much potential in building on the existing efforts to extend the reach of science in general and astronomy in particular, on a world level. Thus, IYA2009 is a springboard for the enhancement of IAU educational activities as set in the Strategic Plan.

Combining increased opportunities for developing nations with improved education, the Universe Awareness project (UNAWE) tackled difficult issues head-on during IYA2009. Its aim of creating internationally an awareness of our place in the Universe and on Earth, targeted at children in underprivileged environments, has inspired many. Clearly this programme must continue in 2010 and beyond.

Providing a wealth of educational material is a factor that deserves to be highlighted. During IYA2009 resources were disseminated and put to good use. Celestron and Japanese “You are Galileo” telescopes, as well as large numbers of Galileoscopes have been donated, mainly to developing countries. The Galileoscopes, low-cost telescope kits, result from one of the IYA2009 Cornerstones, allowing educators to utilise excellent quality, but accessible tools to improve their astronomy communication. Galileoscopes will continue to be sold after 2009, but at a higher price.

Many other astronomy-related products have been developed during 2009. As an example, consider the Cosmic Diary, an IYA2009 Cornerstone. Throughout the year professional astronomers have been keeping blogs about their lives and work, allowing the public to see what life as a scientist is really like. As part of the initiative these bloggers have produced feature articles about their areas of expertise, explaining complex ideas in easy-to-understand language. These features formed the basis of a book published, Postcards from the Edge of the Universe, providing both a legacy and an additional avenue of communication. More information: http://www.postcardsfromuniverse.org/

Several movies, often accompanied by books, have been produced and shown on TV. 400 years of the Telescope, the most extensively shown, has also given rise to a widely distributed, splendid planetarium show. Eyes on the Skies, an IAU-produced, highly educational DVD movie celebrating the 400th anniversary of the telescope, subtitled in many languages, can look forward to an extended career in classrooms, astronomy clubs and homes, while Tours du Monde, Tours du Ciel flies its viewers all over the world and beyond to visit observatories at all wavelengths, including cosmic ray experiments; an unforgettable experience. Blast! has also been extremely popular with audiences of all kinds. Theatre productions and music have all been successful as well. All of these products provide a foundation to build upon for years to come.

Other Cornerstones, and most of the Special projects, have also survived 2009. Large steps forward have been made for the designation of astronomical sites by the UNESCO World Heritage programme. These give historical sites prominence and prestige, and help ensure that the public is aware of their importance. More work remains to be done in the coming years. Protecting and preserving our astronomical cultural heritage for future generations to appreciate must remain a priority.

Other ventures are set to continue, such as the Special project, The World At Night, which shows stunning images above landmarks worldwide. In the same vein, From Earth to the Universe, a set of astronomical images ready with captions for exhibits, which has been displayed all over the world, will be kept up-to-date and available. Another IYA2009 Cornerstone project, the Portal to the Universe, is entrenched in the area of astronomy news and is expected to expand further. Its long-term aim is to become the ultimate source of astronomical updates for the public, allowing anyone and everyone to have easy access to the latest developments in this science.

She Is An Astronomer, which promotes gender-equality, has gathered much interesting material on its website.In conjunction with the Cosmic Diary, this Cornerstone can help to present a modern image of astronomers to the public. The stereotype of oddball figures with long beards in towering observatories is not only inaccurate, but also damaging. Helping to reshape preconceptions and expectations is notoriously difficult, but also necessary. The extent to which IYA2009 has had a positive impact in this area will only be known with time.

Last but not least, large-scale public observing programmes, following the model of the famous worldwide events, 100 Hours of Astronomy and the Galilean Nights, will continue to be organised.

In conclusion, with IYA2009 we hope to have fostered: an increased awareness by society that we are living in an extraordinary era of discoveries about the Universe; a modern image of astronomers in the eyes of the public; a clear demonstration that a career in astronomy is also for women and minorities; the creation of international networks of scientists, communicators, teachers and amateurs, which should remain in existence far beyond 2009; a wealth of educational material on astronomy, books, films, movies for television, DVDs, theatre, planetarium shows, and music related to astronomy; the inception of a new set of goals for the IAU embedded in the Strategic Plan, of a partnership between IYA2009 and UNESCO; and the birth of many vocations at the professional and amateur level.

It is evident that there are many strands to astronomy popularisation. IYA2009 has put the wheels in motion, but in many ways the work is only just beginning. For the Year to have a lasting legacy, the momentum gained must be effectively utilised to keep pushing forward, breaking barriers and keeping this most dynamic of sciences at the forefront of people's imaginations.

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Secretary of the IYA2009 Executive Committee Working Group & IYA2009 Secretariat Manager

# Appendix 1. Press Clipping and News Round-Up

IYA2009 generated much media interest, particularly in online sources such as webmagazines and blogs. A A comprehensive press clipping is available on-line: http://www.astronomy2009.org/pressclipping/

These mentions were so numerous that casual readers had no hope of keeping track of them, let alone gaining a flavour of how IYA2009 was being reported in these forms.

To remedy this, the IYA2009 Secretariat compiled weekly news round-up which were released every Friday. Rather than simply being bullet-pointed lists of links, they adopted a rather more causal and often humorous writing style. The content of articles in question were summarised along with links for readers to find the original source. By altering the style of reporting, these news round-ups provided an additional element to the IYA2009 website's information dissemination strategy.

Below you can find the compilation of the news roud-up sorted from the most recent to the oldest:

## 22 January 2010

It seemed like this day would never arrive. It's the final . Stop cheering, it's a sad day. A SAD DAY.

Let's keep it a) brief and b) about the Closing Ceremony. IYA2009 officially ended on the weekend of the 9/10 January during a meeting in Padova, Italy. Obviously you know this already, having followed the LiveBlog avidly. NEWS reported on it as well, as the following links will indicate.

Sky and Telescope have an excellent article, complete with frankly superb images. Life-defining photographs, some may say. Article author Mike Simmons mentions many of the talks given, and includes quotes from new IAU President Robert Williams. Science Newspaper is overflowing with facts, most likely as a result of taking inspiration from the press release. As the Ceremony was hosted in Italy, it's only fair we have an Italian news story. Il Denaro have one written by none other than the famous Dr. Claudia Mignone.

Blogs made the most of the video streaming to offer write-ups. For examples, see Astronomy Sri Lanka, Science Blog, and Science Buzz. And the Sri Lankan site again. Oh, and Tuttidentro. Haven't come across that one before. The Italians ran their own LiveBlog in their native tongue if you're feeling adventurous and want to give that a go.

For video-lovers out there, the Astronomy Beyond 2009 site has recorded coverage of the Ceremony, as does Astroblogger's YouTube channel. For photo-fans, check out Flickr for pics.

Well, that's it. The Round-up Rocket has crashed on Planet News, and here it shall remain forever more. There there, dry those tears. You can always sift through the archive when Fridays arrive and you have nothing to read.

## 28 December 2009

JoonAng Daily have a letter from Seoul National University's Prof. Hong Seung-soo. He's been to one of the last IYA2009 meetings, and decided to write about it along with reflecting on 400 years of human triumph. Prof. Seung-soo hopes that soon we'll have the "Cosmological Year of Astronomy". Do you have any idea how hard that would be to organise?!

Now to The Daily Times which has news from Farmington. Isn't that the setting for gritty US cop drama The Shield, which provided entertainment at an airport once? Let's hope so. Anyway, the E3 Children's Museum and Science Center have been celebrating IYA2009 with educational programmes featuring PLAY-DOH! "I thought Earth would be bigger than it is compared to Jupiter" said the amazingly-named Mistery Miller, who is a volunteer at the museum.

Have you been following the German Aerospace Center's Astronomy Question of the Week as avidly as you've kept up with the s? Probably yes, to be fair. The final instalment answers the question "How old is the universe?" They write four lengthy paragraphs before concluding "13.7 billion years". Oops, I just spoiled the ending for you.

Miller-McCune turn research into solutions, or so they claim. They've turned their eye to the ever-recurring theme of light pollution. They say that "the end of 2009 does not find astronomers in a celebratory mood" because of all these pesky street lights. Maybe 2010 could be the International Year of Finally Actually Doing Something About Light Pollution Please. Just expand Dark Skies Awareness. Easy as!

Hello, Public Radio of Armenia! Your story was high up on the Google News listing, so congrats. Looks like Armenia has been summing up IYA2009. Ooh, 18 September has been declared as a Day of Astronomy. Nice! The Armenian President has set up an astronomy award, and-- OH NO! "Coordinator of the international astrology year Areg Mikayelyan told reporters that astrology has glorious traditions and brilliant perspectives in our country." Astrology year? Epic fail!

Now I'm going to have to find another story to finish on. Thanks a bunch, Public Radio of Armenia. Ummm... Well there's one from Tenerife News, but it's quite short. And there's one in foreign, so no use in asking me what it's actually about. Oh oh oh, this one will do. Thanks muchly, The Roanoke Times, for providing an article about celebrating the 400th anniversary of modern astronomy. It goes through Galileo's discoveries, gives some interesting facts, and even uses the phrase "calendar juggling". Marvellous.

## 19 December 2009

It's still IYA2009, which means that it's news round-up time. Hoooo-rah!

Story of the Week must surely go to Physics World's feature on Pakistani astronomers. Written by the president of the Khwarizmi Science Society, it looks at how IYA2009 events have boosted the public's interest. We shouldn't be surprised, given that they built a roving observatory to go to rural schools. That'd spark anyone's interest. Apparently "...older people were particularly delighted as they were shown various stellar constellations that matched their horoscopes." Hmm!

Why is astronomy so great? Big numbers, nice pictures. Bad Astronomy at Discover Blogs is going down this second route with its article on the top ten astronomy pictures of 2009. They are all corkers.

Fancy a laugh? Give the Science Comedian Brian Malow a chance, courtesy of Fora.tv. He mentions IYA2009 (to a bit of a cheer), and also talks about the Cosmic Diary's very own Brother Guy.

To Yahoo! now, for their 2009 Year in Review article. IYA2009 has prompted them to make it an astronomy-inspired feature which talks about meteor showers, Galileo, NASA, and the upcoming Blue Moon. Plenty of hyperlinks are scattered around the text, should your insatiable curiosity get the better of you.

Attention astrophotographers! Actually, attention Indian astrophotographers! You should run over to The Times of India who are advertising a competition to mark the end of IYA2009. Called "Snap the vibrant universe", some entries will be displayed in an exhibition and it sounds like there will be awards. Although it's a bit vague on that point. Fingers crossed.

This one is a bit different. The Gilroy Dispatch have written a seasonal article about the connections between Christmas and astronomy. Apparently "It goes far beyond the Gospel of Matthew's Nativity star." There are 11 paragraphs and IYA2009 is mentioned in number three, which isn't bad going.

Let's pay a visit to AlphaGalileo who have a news release about events marking IYA2009's end. The biggie is astronomers an archaeologists celebrating five millennia of astronomical heritage at Stonehenge in the UK. IYA2009 UK chair Ian Robson is involved, giving tours and things. Oh, and From Earth To The Universe have an exhibition there as well. Nice!

That's it. You'll miss these news round-ups when they're over, won't you? Your silence is taken as a "yes".

## 13 December 2009

When enough news gathers in the same place, a critical mass is obtained and an  is born.

What has been blazing forth this week? Congratulations are in order, say Physorg.com. Astrophysicist Ray Jayawardhana of the University of Toronto has been awarded the 2009 Steacie Prize, one of Canada's most prestigious honours for rising stars in science and engineering. We should all be very happy for Ray, because he mentions IYA2009: "It's been tremendous fun to be part of that endeavor together with the postdoctoral fellows and students in my group, and to share our discoveries with the public, especially during this International Year of Astronomy."

MyOzarksOutdoors.com is a strange name for a website, but we'll gloss over that fact because they've been plugging IYA2009-aplenty. As they say, Discovery Center of Springfield, the Springfield Astronomical Society and stargazers around the globe are wrapping up a yearlong celebration of the International Year of Astronomy 2009. It sounds like the astronomers in that area have run a lot of events, so pats on the back for them.

A quick mention next of Canada's Telegraph Journal who talk about the upcoming Geminid meteor shower, but not before mentioning IYA2009. And finishing with it, too.

To express buzz now (lack of capitalisation is their decision). Students from the Indian town of Thiruvananthapuram have visited nearby areas, spreading the word of astronomy and IYA2009. They even performed a science play about the Earth and Moon. Ace! LINE OF THE WEEK: "At Perakom, even the fish-vendors rose from their seats to have a look at the students' programme and to interact with them."

Here's a different one. AZCentral have interviewed a local science teacher. His students participated in the Cassini Scientist for a Day programme, and did very well. The teacher talks about science education and the importance of IYA2009. The interviewer seems more interested in sussing out where the teacher goes for lunch. Take it easy, question three establishes that he's got a wife.

Ok, one more story. Bradenton Herald have the honour of finishing this week's round-up with their article about a drama piece called "The Life of Galileo". No prizes for guessing the theme. “It’s kind of an adventure story in a way,” said Paul Whitworth, who stars as Galileo. “These things took place in 1610 but the issues are absolutely contemporary.” If you're in Florida, check it out.

Critical mass has now been relieved, but next week another news round-up will be born. See you then.

## 4 December 2009

THE NEWS doesn't slack off on Friday afternoons, so we can't either.

30 telescopes have been donated to students in the Greater Victoria school district, reports the Times Colonist. Gifted by the Victoria Centre of the Royal Astronomical Society of Canada, the description makes them sound like Galileoscopes, but that may be wishful thinking. The next headline for the area reads "Grants offered to local farmers". Maybe they'll use the cash for telescopes, too.

Let's all shake the Le Défi Media Group's hand, because they've written about an astronomy exhibition in Mauritius, but *begin* the article with THREE (3) paragraphs about IYA2009. Take note, all other publications in the world. The exhibition will run until mid-2010, and the Minister of Industry, Science and Research was present for the unveiling. Mauritius, you've done well!

Is there life on nearby worlds? No use asking me, I don't know. But why not attend UNH Durham's Physics Department lecture series about life in our Solar System, if you really want to know the answer. Fosters has details, including WHEN, WHERE, and whether LIGHT REFRESHMENTS will be available.

Run along now, to the Bournemouth Daily Echo. This British town was home to famous astrophysicist Sir Fred Hoyle. Councillor Ron Cooper wanted a blue plaque to be placed by Hoyle's former home so people would know the significance. This was put on the back burner, but Bournemouth's mayor has now announced that it will be unveiled on Thursday, so the event will occur during IYA2009. That's a result.

Zenit is the world seen from Rome. What have they been seeing this week? A Galileo-themed conference held by the Pontifical Lateran University. It's part of IYA2009 celebrations, and aims to clear up some myths that surround Galileo and his relationship with the Church.

If you want to parteeeee, then head to Germany. At least, that's the message that Canada.com is spreading. Just outside Essen is an exhibition called Out of this World, apparently to celebrate "Germany's Year of Astronomy". We've been dramatically downsized? Must have missed that e-mail. The article says "Suspended in the middle of the darkened Gasometer is the world's largest replica moon with a diameter of 25 metres." So if you want to see the world's largest replica Moon in the middle of a darkened Gasometer, get there NOW.

## 27 November 2009

Almost December. Then there will only be *checks calendar* four news round-ups left in the whole world. The final one will be on Christmas day. Joy.

But let's not get ahead of our ourselves. It's still only November, after all. A series of IYA2009 posters designed by Simon Page and as featured on our very own site have been making the rounds. A New York Times blog is very complimentary about them. But the site says, "2009 has officially been designated the International Year of Astronomy (who knew?)". Trust us, we blimmin' well knew. Creative Review is more respectful, so thanks to them. Although a comment on that page reads "Wow it's the international year of astronomy? No one told me." Sad face :(

Courier Journal has what must be photo of the week: Sinister scientist Crabolo and Galileo in Madcap Productions Puppet Theatre's "Look Out Galileo!" Yes that's right, Muppet-esque puppets celebrating IYA2009 with a stage show. "More than a dozen puppets are in the show, some of which are 7 feet tall, including the ancient Egyptian sun god Ra." We should *all* see that.

Aimed a slightly older audience is Philip Glass' new opera, Kepler. See if you can guess what it's about. New Scientist's CultureLab blog has the details, including a video.

What have you got for us, Springfield News-Sun? An exhibition of never-before-seen photos from Hubble and Spitzer, to be shown at Urbana University to celebrate IYA2009? Most excellent! Maybe they're linked to the Margaret C. Woodson Planetarium at Horizons Unlimited pictures, as highlighted by Salisbury Post.

Hello, Bridgeport News. They say that planetary astronomer Heidi Hammel will be giving a lecture at their Discovery Museum on 10 December. There will also be *more* image unveilings. This certainly seems to be the year for unveiling images. Maybe it's the International Year of Unveiling Images 2009.

Did you see any Leonid meteors last week? This writer didn't - it looked a bit chilly out. Imprint, the University of Waterloo's official student paper (do they have an unofficial one, too?) has some coverage. The science staff put a bit of effort in, and set up an observing session. Apparently "Also, 2009 is the International Year of Astronomy, which reached its peak after midnight on November 17." Do they mean the meteors peaked or IYA2009 did? Maybe both. TIP FOR THE STUDENT REPORTER: don't start your article with a dictionary definition. That's awfully... studenty.

Talking of awfully studenty, remember that the next news round-up will be out on Friday 4 December. Note that in your diary. Then circle it. Now use a highlighter. Sorted.

## 20 November 2009

Have you heard the rumour? Have you have you have you? It's the talk of the town: the  is here!

Well done Galloway Forest Park, for achieving Dark Sky status. BBC Online has commendable coverage, including a video. You know the publicity machine is doing its job when BBC Online includes a video. It features an interview with Steve Owens, from the UK IYA2009 effort. Says Steve, "you step out of your car on a dark night and the car just vanishes behind you." Sounds like thieves are making use of the darkness, too. The Galloway story even inspired an article for BBC Magazine. Steve Owens gets quotes in that, too. All hail Steve, the Media Machine! Alas he doesn't feature in the Daily Mail Online story. Next time aim for the hat trick, mate.

To The American Association for the Advancement of Science next, as they're making the world aware of their Caribbean Division's conference. Public engagement was a strong theme so it's only fair that they gave talks on IYA2009. I wonder if these were more or less popular than the "flashing colorful slides of Martians".

India is a good place to be now as an IYA2009-inspired astro-fortnight is kicking off. Press Trust of India has the details, but here's a synopsis: it had a scintillating start (good word, must use more often), Galileo is the main theme, and there are exhibitions and concerts.

Still in that part of the world, Indian Express reports that Punjab University is organising astronomy and astrophysics workshops, happening NOW. Speakers are delivering lectures on observational astronomy, star formation and evolution, galaxies, and practical astronomy. Run along to it if you're close by.

Star Bulletin was star struck this week as they've been investigating amateur astronomy in Hawaii. They've obviously taken it seriously, as it's a lengthy article and has two photos taken specially. Read it all and show that you appreciate the effort. A bit like what you should be doing with these round-ups.

STORY OF THE WEEK! "The planetarium at Raritan Valley Community College is featured in an episode of Cake Boss to be aired on Monday, Nov. 23 at 10:30 p.m. on the cable television network TLC. In the episode, ‘Cake Boss' Buddy Valastro and his team create a space-themed cake at Carlo's Bake Shop in Hoboken for a celebration of the International Year of Astronomy at the RVCC planetarium." Thanks to nj.com for that gem.

Now if you'll excuse me, I'm off to find out how to become a "cake boss". Until the next scintillating round-up, keep checking local sources for stories in your own language.

## 13 November 2009

It's almost 2010. What will we all do when there are no more news round-ups? Weep freely, most likely.

Best make the most of them while we still can, then. The US's Museum of Science & Technology is holding astronomy-themed art contests for children in the area, says cnylink. There will be lots of hands-on activities, and even a competition to create a logo and slogan for IYA2009. Hang on, we already have those. Maybe someone should tell the children that and CANCEL their fun.

SpaceRef.com says that the Pope has been praising IYA2009 in an event attended by high-profile astronomers, including the European Southern Observatory's Director General. The Pope said ""The International Year of Astronomy is meant not least to recapture for people throughout our world the extraordinary wonder and amazement which characterised the great age of discovery in the sixteenth century." The news round-ups are all for recapturing people, although the Pope did not highlight this fact.

More Vatican-related IYA2009 news comes from Syracuse.com, which has posted an interview with the one, the only, the crowd-pleasing Brother Guy Consolmagno. You may know him from such blogs as the Cosmic Diary.

The Leonid meteor shower is almost upon us, so let's visit AccuWeather.com for some information. They talk about IYA2009, so they deserve the immense publicity boost that comes from a round-up mention. To spot the shooting stars, head out before dawn on 17 November, when they'll be at their peak. A common question is "where should I look?" The answer is UP. Visit the official IYA2009 site for even more useful snippets of information.

To Tunisia Online News, next. Tunis planetarium is marking IYA2009 with a programme under the theme of galaxies. Astronomical observations are front and centre. They've also hosted a conference titled "the scientific influence of Kairouan and its contribution to Mediterranean civilization".

One more to finish with. The digital newspaper Escrambray has run a story about UNESCO recognising the contributions of Cuban science. In particular their IYA2009 activities were applauded. That was a sensible one to end on, wasn't it?

Until next week, remember to check local sources for IYA2009 news in your own languages. If that sounds like an order, it's because it is.

## 7 November 2009

Boing Boing is promoting the first ever Carl Sagan day tomorrow (7 November). Those in the Florida area will be able to enjoy planetarium shows, stargazing, a "Cosmos" marathon, and even appearances from the "Bad Astronomer" Phil Plait and James "The Amazing" Randi. The article has ideas for how you can mark the day if you're not in that area, along with linking to a video of Carl Sagan's last interview.

The UW-Whitewater physics department is celebrating IYA2009 with a lecture series and exhibits, or so Royal Purple would have us believe. They're wheeling out a From Earth To The Universe exhibit as well. They're always crowd-pleasers. What does Physics Department Chair Steven Sahyun have to say? "Astronomy is neat." Right on, Steve.

Examiner.com again? They can always be relied upon to bulk out the news round-ups. This story is about how Pope Benedict XVI received participants in a conference sponsored by the Specola Vaticana (Vatican Observatory) for IYA2009. Looks like it was part of the Catholic Church's move to make peace with the past and Galileo's legacy. Noble aim. Metro Catholic has run the same story, so you can read it there as well if you fancy.

Congratulations, Greenwich! The Royal Observatory has picked up Gold in a prestigious tourism category for its IYA2009 programmes. This paragraph is short, reflecting the article's length.

The Reporter has a longer article, along with a rather nice (albeit stock, most likely) photo. Even better, the reporter has a great name: Brian Bingaman. Universities and colleges in the North Penn, PA area are running free observing projects, as part of the No Night Without a Telescope initiative. They're also teaching people how to use telescopes that they may already own, but are unsure how to operate. "Point up" would be my advice.

Trak has some news from India. Professor Yash Pal has won the annual Kalinga Prize for the popularisation of science. He's known for presenting Indian science TV shows, and he also helped establish the Inter-University Centre for Astronomy and Astrophysics in Pune.

## 31 October 2009

The Examiner often has good astronomy articles, and they've stepped up this week too. Their latest offering describes the background of IYA2009 and then goes on to give some useful practical tips on how to get involved, such as night sky objects worthy of attention and websites with more information.

Alohaaa! Big Island Video News has released a video about the Hawaiian community's contribution to astronomy, as part of IYA2009. It was filmed during an event where scientists and prominent Hawaiians spoke about the science of astronomy and their local culture, while members of the public had the opportunity to tour research facilities and use telescopes to get all inspired.

TransWorldNews is a-calling. To help out with the Galilean Nights Cornerstone project, the DeepSkyDivas hosted a special show on Astronomy.FM Radio. It was about "all things Galileo", apparently.

We all know that WisBusiness.com is the source for Wisnonsin's business news. But what you might not know is that the 66th annual Holiday Folk Fair International, 20 - 22 Nov, at the Wisconsin Exposition Center at State Fair Park in West Allis, will be featuring a The World At Night exhibition. The photographs will have to compete for people's attentions against four Uzbekistan artists, a 1776 army camp, and a whole lot of food sampling.

We haven't had anything from News-Record.com before, and they've produced a good ‘un to start off. It's about North Carolina-based astronomy teacher Tom English, and his popular observing sessions. They often attract a crowd, and this year IYA2009 has spurred even more people on to visit Tom and his "humongous telescope, housed in a rotating dome".

TheWeek have an opening paragraph that demands nothing less than copy and paste treatment. "Danse e-Toile: Nata-raja et le Cosmos (Dance of stars: Nataraja and the Cosmos) was the first ever live, internet-streamed interactive dance and music programme between India and Europe." That's quite a claim to fame. Held in Bangalore on 17 October, it was a creative celebration of IYA2009. It sounds awesome! Listen: "Emrith did her own impressive interpretation of the cosmos, her lissome figure and lithe, superbly controlled movements providing a perfect complement."

President Obama's White House Star Party is still getting some coverage, as The Gov Monitor proves. Its article features both words and a video, mentions IYA2009, and talks about how YOU can discover things in the Universe. So all in all, a good effort.

That's it for this week. Check local sources for news stories in your own language, and all that.

## 23 October 2009

This News Round-up Day is super-special, as it falls within Galilean Nights, the IYA2009 Cornerstone project fantastico. It's been popular in the news, as evidenced by the fact that it's number one in the Yahoo News listings. It beat fierce competition from "Motorola Droid", "Metallica", and "Jackie Chan".

redOrbit has a brief mention of this mega-star-party. The Professor Astronomy blog has a very effective introduction and tips on how to get involved. The Marquette Journal Online has a more in-depth effort, complete with some interviews with enthusiasts. And, of course, the Cosmic Diary is running a LiveBlog, as has become tradition.

Now a piece from TransWorldNews. Revelling in Galilean Nights is simple as can be, thanks to Astronomy.FM and Global Rent-A-Scope. The article reports that these organisations are offering free telescopic imaging time to internet users around the world. Their Twitter feed is worth keeping an eye on, if you want alerts to make the most of this deal.

iloubnan.info have a story from Lebanon about a small community of five astrophysicists deciding to use IYA2009 as a springboard to introducing astronomy to the local population. The motive is to tackle superstitions and familiarise people with the science of the stars. These enthusiasts are running events for Galilean Nights, so best of luck to them.

Media Newswire are spreading a press release about a talk to be given at The University of Texas at El Paso. Taking place this very News Round-up Day, the host is astronomer and Galileo-scholar Mary Kay Hemenway. 5pm in room 302 of the Education Building is when and where the action will be at.

SFGate, home of the San Francisco Chronicle, are providing good examples of Galilean Nights events happening in their area. The Manawatu Standard, Vineland Daily Journal, Cape Gateway, MagicValley.com and a whoooooole lot more are doing the same. To see what's happening near you, click here à here.

That's enough for this News Round-up Day. Now go and do some Galilean Nights stuff.

## 17 October 2009

All hail the news round-up, for it is good.

Let's get some news at the source, via pr.com. Celestron, global sponsors of IYA2009, have given the big ol' thumbs up to President Barack Obama for his support of astronomy and science education. This is a result of the recent and very successful White House Star Party. No wonder Celestron are happy, Obama used one of their telescopes and, what's more, was photographed doing it. Goal!

BBC News must have been reading astronomy2009.org, for they are running the story about the Vatican hosting a Galileo exhibit. The BBC have taken the angle of the Catholic Church having once labelled Galileo a heretic, although the exhibit actually avoids that aspect. Still, good to see the event getting some coverage.

Next we visit projo.com, and Rhode Island News. Brown Library with the Brown Department of Physics, and the Ladd Observatory have joined together to make an exhibit displaying texts and images hundreds of years old, celebrating astronomy and things. The exhibit will be on display in the Main Gallery and lobby of the John Hay Library at 20 Prospect St. but only until 31 October, so you'd better get your skates on. The article has been penned by Journal Staff Writer Thomas J. Morgan. That middle initial certainly gives him more weight.

The catchily-named iol.co.za reports the happy story of undergraduate student Michelle Knights, of Joburg, winning the European Space Agency's "Be an INTEGRAL astronomer" competition, run as part of IYA2009. Says

the article, "She doesn't have a particular recollection of her very first sighting through a telescope..." Don't you just *hate* it when the interviewee doesn't give you the answer you want? The wider story was written up on astronomy2009.org and it's good to see local sources taking up this success story. So well done iol.ca.za.

Oooh, here's a good one from The Daily Courier. They're the trusted news leader for Prescott, Arizona communities since 1882, don'tcha know? The Prescott Astronomy Club have invited the local community to help participate in the Great Worldwide Star Count. The article plugs IYA2009 and Dark Skies Awareness a lot, and for this they get our thanks, the greatest reward we can offer.

Time for a short but sweet one, courtesy of HeartlandConnection.com. Several schools in the Ottumwa School District had a visit from a local astronomer, as part of IYA2009 celebrations. Apparently the event didn't warrant a photographer so instead a stock image has been used-of some chemistry equipment? For shaaaaame, HeartlandConnection.com.

## 10 October 2009

President Obama's starparty made headlines, so let's link to some of those stories. The Washington Post gives a good overview, including a video of the President's speech. USA Today also has lots of details, as does The Boston Globe and Examiner.com. Looks like it was a good event!

Physorg.com are spreading the word about the GalileoMobile IYA2009 Special project. Touring around South America, the aim is to bring astronomy education to isolated communities, via the gift of hands-on activities. You can follow this venture via their blog, available on the Cosmic Diary website.

Penticton Western News has a good story, about how the Okanagan Astronomical Society want to help visitors to Munson Mountain better appreciate the sunset by placing markets at specific points, showing where the Sun will meet the horizon at different times during the year. They also say that the markers will be erected to commemorate IYA2009. The last paragraph is the best: "City staff had voiced concerns surrounding the safety and liability of having markers located on top of a mountain but the astronomical society representatives said they would work to minimize the concerns."

Videos make for a nice change of pace from words, so it's with relief that an Arizona Illustrated feature about the Galileoscope made it online. The video in question shows a Galileoscope being made, as well as hearing about the project from those working on it, and a real-life user! They're all awfully impressed with it.

Check out this daily Bangla newspaper article, called the Daily Prothom Alo. Even if you can't read the text, you can marvel at the page - click on the articles to make them bigger. It's like a form of tech-magic. The piece to be most interested in is actually about Galilean Nights, the imminent astro-fest. If you haven't organised an event for this, go and do so NOW. Well, after you finish reading the round-up.

Canada's Napanee Guide are kindly publicising an event happening over Galilean Nights. Held at the Lennox & Addington County Museum and Archives, visitors will get the chance to see astronomical sights through a telescope, as well as asking experts questions about all things spacey. The accompanying photo looks like the guy is balancing a telescope on his head. Also in Canada, The Camrose Canadian has highlights of the night sky during October, and mentions IYA2009 in both the opening and closing paragraphs. Thanks, guys.

## 2 October 2009

All hail Sky & Telescope, for they have gone and done good by writing an article about the upcoming astronomy-fest that is Galilean Nights. Penned by Kelly Beatty, he gets the main points across: observe between 22 and 24 October, organize (organise) an event, register it, enter the photo competition. SORTED.

Examiner.com has an article aimed at the home-school market of Denver, U.S.A, but the educational tips and tricks are applicable to all those wanting to help children make the most of IYA2009. The constellation flashlight (torch) in particular sounds like it's worth a go.

Where do discoveries begin? The National Science Foundation, according to their tagline. Let's give them the benefit of the doubt, as they've made an excellent article and video about the Universe Quest project. This venture taught a group of girls all about astronomy during a week-long summer camp. There are some good quotes along

with the message that building confidence in science, engineering, technology and math (maths) is definitely worthwhile.

Let's wheel back round to Sky & Telescope, as they have another story worth flagging up. The World At Night (TWAN) superstar Babak Tafreshi is joint-winner of the 2009 Lennart Nilsson award, given for outstanding work in scientific photography. TWAN is an IYA2009 Special project, and Babak is its founder. He also serves as a member of the Board of Trustees for TWAN's parent organization (organisation), Astronomers Without Borders. Nice one, Babak.

The Time of India often writes about IYA2009-related stories, and they've not disappointed this week. The ancient observatory of Jantar Mantar is moving ever-closer to becoming an UNESCO World Heritage Site, after an official team of representatives "did the round of the monument." Doesn't sound very official or thorough, but hey. The article says that getting this far in the selection process is very difficult, but IYA2009 has helped a lot. So that's nice.

Joburg has taken a moment to look at the stars this week and encourages all residents of Johannesburg to do the same. It's a fairly detailed article, and certainly worth perusing as it covers many aspects of IYA2009.

That's your lot. If you're hungry for more, hunt down news stories in your own language from local sources, and gorge until satisfied.

## 25 September 2009

Just how much IYA2009 news is there in the world, anyway? The answer would appear to be "lots".

New York Times blog TierneyLab has an astronomy quiz featuring some stunning images from all reaches of the cosmos. The article gets a bonus point for pointing readers in the direction of From Earth To The Universe.

There's an excellent column on the San Saba News and Star ("pecan capital of the world"). Amateur astronomer Paul Derrick brings together important characters from the history of astronomy, such as Copernicus, Kepler, and of course Galileo, into a narrative that neatly explains how their work all combined. The importance of IYA2009 is highlighted (nice one, Paul), and to finish there are some things for hobby stargazers to look out for. All in all, an excellent contribution.

Hindustantimes has an equally good albeit slightly "heavier" article that begins, "Of the many issues that torment the human mind, like the refusal to accept the inevitability of death, is the question if life, like us on Earth, exists anywhere else in this colossal cosmos." That issue tormented me yesterday, but I'm taking a break from it today. The article says that IYA2009 means that "the search has assumed higher levels of endeavour." Yeeeah! The whole piece is well worth a read. Some people obviously think it's a bit controversial, so look out for the "personal views" disclaimer at the end.

To The Atlantic, who have a fascinating story (and video!) about a pair of students who used $148 to send a camera high into the sky, photographing the curvature of the Earth. Says the article, "The inventive future of the world is clearly still in good hands, as long as there are students taping cameras inside of styrofoam coolers and sending them into the stratosphere." The final paragraph brings it round to IYA2009, and argues that the students' inventive natures would have made Galileo proud.

Here's a quick mention for NAZtoday. The wonderfully-named Jennifer Buzzard has plugged the Flagstaff Science Festival, celebrating IYA2009. The guest speaker is not the first, second, or third, but fourth man to walk on the Moon. STOP PRESS: he'll be giving a PowerPoint presentation! The festival starts on Friday, the same day as this news round-up goes out. Coincidence? I very much doubt it.

It's Night of the Scientists, says astronomy2009.org and, now, Radio Bulgaria. In Bulgaria, Sofia and other major cities in the country like Plovdiv, Russe, Stara Zagora, Varna, Shumen, Yambol, Silistra, Pleven, Haskovo and Dimitrovgrad will be celebrating IYA2009 by opening astronomy institutions to the public. 2009 also marks 30 years since the flight of the first Bulgarian astronaut Georgi Ivanov, so it's a good year for Bulgarians to get into astronomy.

The "FUN" section of 2theadvocate.com has some event listings happening in the Baton Rouge USA (near New Orleans) area this coming week. There's plenty of astronomy to keep the locals engaged with IYA2009, including an observatory lecture, Starry Messenger exhibit, and so-called Science Saturday. Unfortunately, these will be facing stiff competition from the likes of "WOMEN! A WEEKLONG CELEBRATION KICKOFF LUNCHEON", "BAYOU HAYSTACKERS PADDLING CLUB", and "OPENING RECEPTION FOR THE ABRAHAM LINCOLN COMMEMORATIVE QUILTS - A CHALLENGE QUILT SHOW EXHIBIT".

Nothing can top that, so let's not even try. Until next week, remember to check local news sources for stories in your own language. Assuming that language isn't English.

## 18 September 2009

Matador Trips is honouring IYA2009 by listing the best places to go stargazing. If you want an astronomically-themed holiday, why not check out their recommendations. Look, it's even been mentioned on astronomy2009.org.

Let's hand over to Upamanyu Morita's blog. This dedicated IYA2009 supporter has posted the full version of a video made for the 100 Hours of Astronomy Awards Ceremony. Click "play" and be impressed.

STOP PRESS! Tenerife News has the story of the year, about the village of Tegueste's Farmers' Market Association and local artists holding a "Stellar Street Market". Kicking off on 23 September, the market will (somehow) "pay tribute" to the stars and constellations which have been used for farmers' agricultural needs.

The Anglo-Celt reports that Shercock youth Paul Smith has won the Astronomy Photographer of the Year Youth Award. Congratulations Paul, you've done Shercock proud. For some reason the website hasn't been allowed to publish the winning image, so the journalist has found himself in the strange position of having to describe it. Nightmare scenario!

Next up on our whistle-stop tour is the University of Florida News. They say that the annual Starry Night event, run by the Florida Museum of Natural History and local astronomy groups, is taking place on 25 September. There will be activities for all the family, including Galileoscope building. Ooooh, this event actually has its own website!

Last week the news round-up plugged an article by The Comet, and it's happening again now! The news site advertised a public star party held at Letchworth. According to the new article, the event was given a big boost by the publicity provided by The Comet. Reading between the lines, this is *obviously* a veiled nod to the news round-up.

We'll end this week with a visit to the Hi-Desert Star. The IYA2009 event they're advertising is the Yucca Valley's 13th annual Starry Nights Festival. There will be astronomers on hand to give talks and answer questions, a raffle, and even a kids' fancy-dress fun day. Why is that only open to children?

## 12 Sep 2009

The BBC has made another video about IYA2009. Called "She's an astronomer: A typical day", it follows a day in the life of Dr Catherine Heymans, from the Royal Observatory at Edinburgh University's Institute of Astronomy. Go to 1:03 and note her novel monitor stand. She's an innovative one! Watch the video NOW.

Next to SFGate, apparently home of the San Francisco Chronicle. Astronomers of both professional and amateur variety are meeting in Millbrae for public observing through telescopes and also talks about hot topics in space science. Respect to the article for mentioning IYA2009 in the opening paragraph. No footnotes for IYA2009 when SFGate is concerned!

Appropriately named The Comet has run a story about the UK's Letchworth and District Astronomical Society holding a public star party, featuring their very own observatory. Tantalisingly, "refreshments" will be on sale. Specifics aren't given, but we can only hope for a killer cake / pie combination.

Across the pond and in the States, YourWestValley is advertising an astrophoto exhibition called ""Focus on the Universe: A Photographic Exhibit Celebrating the International Year of Astronomy". There are 35 images in total,

enough to cover some of the most interesting phenomena out there in the depths of spaaaace. The accompanying picture shows a man who is *very* happy to be pointing at a picture of a nebula.

Congratulations to the 365 Days of Astronomy podcast, who have won the 2009 Parsec Award for the Best "Infotainment" podcast. And congratulations to Universe Today for covering this story. There were 50 nominated shows but 365DoA beat the competition to win first place. Is that the best picture they have of the trophy? Looks like they've laid it out flat on the carpet and snapped it with a mobile phone.

Finally, Shetland Times has a rather lovely walkthrough of the night sky for beginner stargazers. What to see and how to observe is discussed, along with a plug for Shetland Astronomical Society's IYA2009 activities. "Specifically this month, on the 21st, at the Asta Golf Clubhouse, there is an observing session be tween 7pm and 10pm - remember to take your telescope or binoculars." It's not clear whether golf clubs are also needed.

Well, that's your weekly fix of news snippets. Remember to check local news outlets for non-English language stories.

## 4 September 2009

Welcome to the round-up, this week written at the same time as consuming a full English breakfast in a Bristol cafe. All is well with the world.

And all is well with Space.com too, as they've pumped out an article about IYA2009. It gives an historical grounding by explaining Galileo's discoveries, and how important his telescopic observations were.

Rock on, UniverseToday! They've been reporting on a live webcast run by Israel's Bareket Observatory, to celebrate IYA2009. Special explanations by an astronomer and musical accompaniments helped to bring the event to a wide audience. Live observation sessions also get them bonus points. Nicely done, Barekat Observatory.

ThisisDerbyshire.co.uk has posted an article about space-themed outdoor classical concert in the UK. It links with IYA2009, but the journalist obviously thought that this was secondary to the story, as the main point of interest is the musicians' use of clothes pegs. Seriously. "'It's the wind," he [the conductor] says. ‘That's our chief enemy. We always have to bring a large supply of clothes pegs, as there's nothing better for keeping sheets of music on the stand.'" See?

BBC News were obviously interested in last week's The Great Look Up, as they've gone one better than writing just words, and have made a video about it. Watch it HERE. Hmm, news round-up videos... actually, some ideas are better left unrealised.

Attention all photographers. The Times has written about an astronomy photographer of the year competition, and it sounds worth getting involved in. The article has some useful tips for getting good shots. Definitely worth reading, especially as a warm-up to the upcoming Galilean Nights astrophoto competition.

Still on the photo theme, over to yourwestvalley.com, which is probably an American site, going by their spelling of the word "colour". An exhibit called "Focus on the Universe: A Photographic Exhibit Celebrating the International Year of Astronomy" will be on display, and on the final day the artists themselves will be present to talk with the public. Great idea, more places should do that.

So that's the round-up and breakfast done. Conclusion: the sausage was good, the fried egg superb, the beans as expected, and the bacon disappointing.

## 28 Aug 2009

The weekly news round-up is relentless, tireless, unforgiving, and coming right for you every Friday. So let's crack on with it.

Quite a few countries have commissioned official IYA2009 coins and now Romania is in on the action, says Wall Street. A special silver medal celebrating this astronomical year is now in circulation. They feature the logo and inscription "DESCOPERA SINGUR UNIVERSUL" (The Universe, Yours to Discover).

Do you like your science with a side of scandal? The Prague Post certainly does, and to prove it they've written an excellent article with "tales of murder, sex and excess." And astronomy. The aim is to publicise a conference and museum dedicated to the life and times of Kepler, who published the landmark Astronomia nova 400 years ago.

Astronomy.com's blog has had a go at picking the top space-themed news stories from the year so far. It makes for interesting reading and shows just how much cutting-edge science has taken place during IYA2009. Says the article, "And we can't forget that 2009 was the International Year of Astronomy." No, we can't.

Schaumberg Review is generously spreading the word about public night sky viewings and talks about all things astronomical, happening at Harper College every other Saturday during November. You'll need to scroll down quite a way to find the text, but the level of detail makes up for that. Also at Harper College is a new "Welding for Women" course, so why not combine that with astronomy for a fun-filled day (and night)?

IYA2009 has reached Derby in the UK with force. Up to 50,000 people are expected to join in the annual Feste celebrations. The live music and street parades will feature an astronomy theme, with pieces from Strauss, Mozart, Hayman, Sousa, Williams, Dvorak and Mancini, and from 2001: A Space Odyssey, The Magic Flute, ET, and even Star Wars. Oh yes, the article is on ThisIsDerbyshire.co.uk.

The Calgary Herald have outdone themselves this week, with a story about how amateur astronomers have been building their own telescopes and racing to find faint fuzzy objects that are scattered around the night sky.

## 21 August 2009

Another Friday means a new IYA2009 news round-up. If only everything in life were this predictable.

Readers of the IYA2009 updates will have read a story about The World At Night exhibiting astronomical images at shopping centres across the U.S. The magazine Astronomy has gotten in on the action by writing a blog entry with the marvellous title "Popularizing the heck out of astronomy". The author, Bill Andrews, outlines the idea and then offers his support, stating why he thinks it's a good idea. Nicely done, Bill Andrews. oneindia also has an offering about this story, including a quote from project director and skilled photographer Babak Tafreshi.

Next, news from Pakistan. The Nation has run a story about the Perseid meteor shower. It specially plugs The Society of the Sun, and a star party at their Jati Umra headquarters. The same website also has a slightly more depressing story about the Pakistan International Airlines Planetarium at Chauburji being rather run-down and neglected. Says the article, "The deplorable and outdated standards of imparting knowledge and entertainment are proved by the fact that no innovation or up-gradation has been introduced since its inauguration in 1987." That's a bit insulting to the designers of 1987.

The Missouri University of Science and Technology is opening its observatory doors to the public on 28 August. Their 16-inch telescope will be used to look at the Moon and Jupiter and probably some other things too.

KeremeosReview.cooooom! They've been harkin' on about The Dominion Radio Astrophysical Observatory holding an open house to help the public learn about radio astronomy, as part of IYA2009. It's happening on 26 September, so you have officially been given plenty of notice.

New snippet! Kingston This Week has some short text - and a photo! - about astronomers from the Royal Military College, Queen's University, Canada, volunteering to help the public view celestial sights though telescopes in Market Square.

The Southgate Amateur Radio Club have a scoop about a troop of Swiss girl and boy scouts planning an interview with space people. Apparently the Scouts will ask astronauts on board the International Space Station questions such as "What is dangerous in space?", "Do you feel homesick?", and "Is your family in fear?" Pretty intense stuff, the astronauts had better be prepared. Wow, the Scouts are even going to make a telescope out of a drain. Swiss Scouts are the best!

Ok, one more. MyNews.in is encouraging people to organise astronomy events to get the public, and in particular young people, interested in science. Says the article, "According to Wikipedia, IYA2009 is a year-long celebration of astronomy, taking place in 2009"-great investigative journalism there!

We're all done here. Until next week, of course.

## 14 August 2009

Hitting the headlines HARD this week has been the International Astronomical Union's General Assembly in Brazil. Economist.com has an in-depth look at how individual astronomers are being drowned out as big projects keep getting bigger, and possible solutions. EurekAlert! has featured a press release issued from the Assembly, about the successor to IYA2009 and new resolutions, including boosting astronomy in the developing world. Important stuff! The General Assembly is also about SCIENCE, and i09 has a taste.

Did you see them? Did you? Eh? The shooting stars? The Perseids? This writer was clouded out, but at least the Guardian's Science Blog wrote some good stuff. They plugged Newbury Astronomical Society's Twitter meteorwatch, an internet observing plan in support of IYA2009. The media obviously liked the story, as it was also mentioned on BBC News and Times Online. Ansa.it also has coverage of the meteor shower, with an interesting twist: drinking lots of wine as you observe. Even SoccorBlog.com got in on the action. Really, check it out!

IYA2009 has been mentioned in a Times & Transcript article. If you're thinking of getting into observational astronomy then it's worth a look. Binoculars, telescopes, and light pollution are mentioned, along with the merits of astronomy clubs.

It's time for one of the semi-regular IYA2009 in Second Life features, woop! This one is from Examiner.com, who report that in the virtual world you can visit the courtyard of the house where Galileo was kept under arrest and "climb through the mammoth gothic stone arches and wooden scaffolding that housed the Leviathan of Parsonstown". Apparently IYA2009 is being celebrated on a collection of virtual islands called SciLands. How high-tech!

Hello, Times of India. You like IYA2009, don't you? That must be why you've written about Jupiter coming close to Earth (relatively speaking) and so being a good object for amateur and professional astronomers to observe. It's like a warm-up for Galilean Nights.

## 7 August 2009

UK newspaper The Guardian has mentioned IYA2009 in an op-ed called In praise of... astronomers. A short but sweet piece, it highlights the work done by stargazing scientists, beginning with using the heavens as a calendar, up to the Hubble Space Telescope.

Attention, young astronomers! The news round-up has some information for you. SpaceRef.com is reporting that more than 200 astronomers from around the world will gather for the first International Conference of Young Astronomers (ICYA) at the Jagiellonian University, Krakow, Poland, from Monday, 7 September to Saturday, 13 September 2009. So if you can get together enough cash from ma / pa / pocket money / paper round / student loan / however it is kids get money these days, why not head over and do some so-called "networking".

Hello, JoongAng Daily. What's that? You've been promoting a joint Korea Foundation for the Advancement of Science & Creativity and Korea Institute of Science & Technology Evaluation and Planning event to promote science, technology and green growth featuring a special exhibition about IYA2009? Good on you.

BBC TV's The One Show has a clip about astronomy and things on its website. At the time of writing it isn't actually working, but if memory serves the presenter does mention IYA2009.

IYA2009 events have been taken to the next level in the Indian city of Kochi, says express buzz. Research scholars of Inter-University Centre for Astronomy and Astrophysics at the Department of Physics, Cusat, have been taking high-quality images of the Moon and using them to perform calculations. Students have also been involved, giving them the chance to contribute to real research. Says the article, "The year 2009 being the International Year of Astronomy, it has been the endeavour of every researcher and student to work on something new in this area of specialisation." Yeeeah!

Here's a story from Cohn Marketing. Families in 24 United States communities will be introduced to The World At Night project as the exhibition is being introduced to shopping centres around the country. Will the prints be for sale, then?

Let's finish up with an unusual one, courtesy of Physorg.com. To bring astronomy to the masses for IYA2009, the Max Planck Institute for Astrophysics has a released a comic on the internet explaining just what happened during the first 40,000 years after the Big Bang.

Well that's another news round-up done and dusted. Remember to check local sources for stories in your own language.

## 31 July 2009

With the rest of the world attending the International Astronomical Union's General Assembly in Brazil, one plucky staff writer keeps things ticking over, wielding the news round-up like a mighty sabre. What has it been cutting swathes through this week?

Taiwan News has been promoting an astrophotography exhibition at the National Museum of Natural Science. Over 90 works from professional and amateur astrophotographers across Taiwan are on display, conveying "the impressive beauty of atmospheric phenomena and human's concern about the universe." The article doesn't say how much tickets cost. Atmospheric phenomena seem more impressive when they're free to view.

Congratulations, Steamboat Pilot & Today! Your article has made it into the news round-up! It's a good ‘un about the IYA2009 project to observe mysterious star Epsilon Aurigae. Details about the star and why it's so special are given, along with a serving of history and science for good measure. Delicious.

And now, a musical interlude. Of sorts. Times Colonist reports that a classical concert in Canada is bringing out a selection of tunes from Holst's The Planets to act as a crowd-pleaser and to honour IYA2009. The article also provides us with rhetorical question of the week: "Who wants to sit outside on a warm summer evening and sob?"

For space-related snippets, every week German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt) is asking one of its experts to answer an astronomy question, to support IYA2009. This week you can learn about colliding galaxies.

Now it's time to sheath the sabre once more, until it is called upon to bring news to the masses again. Which will be next week.

## 24 July 2009

What's been making the headlines this week? ASTRONOMY! And IYA2009! Yay!

The eclipse has been big news, so we'll begin with that. Over to the strangely-named The Nut Graph who have not only covered the eclipse, but also gone one better and included a diagram of how these celestial coincidences occur. They also give mentions to 100 Hours of Astronomy and Dark Skies Awareness, so they definitely deserve top spot in this week's round-up. Bet that makes it all worth it eh, Nut Graph? The Times of India also talks about the eclipse, and says that it was particularly special because it fell within IYA2009. Thanks, Times of India! Double-thanks actually, because you talk about the eclipse and IYA2009 again, in this article. You kind-of get top billing too, as you're in the first paragraph.

More eclipse fever comes courtesy of Express Buzz and their delightful tale of children in the Indian city of Thiruvananthapuram. 375 students celebrated the eclipse and IYA2009 by using solar filters they had made in school to observe the Sun. Another novel way to safely observe the spectacle was through a "sooryadarshini", which has a lens pasted to a coconut shell, filled with mud, and fixed over a lunch box. The Sun's rays are caught in a screen and then using an ice-cream ball fixed to a straw, an eclipse is re-created. Think I'll stick with my safety filters, if it's all the same to you. The children also kept a diary of their experiences and some shared these with their colleagues during assembly.

Malta is a country that has embraced IYA2009, so we should let them know our appreciation. And what better way than highlighting an article by The Malta Independent Online. It gives a whistle-stop tour of modern astronomy, with emphasis on the Moon landings and Maltese astronomy activities taking place this year.

To Canada, where Canada.com report that a "goodwill Moon rock" is going back on display. The piece of lunar landscape was gifted to Canada in 1972, but has been sitting in the Canadian Museum of Nature's archives and storage facility for nearly 30 years. Talk about ungrateful! But it's going on display because of the Moon landing anniversary and IYA2009. Observant readers will notice that the first paragraph of the article is just the image caption copied and pasted. It wouldn't be so bad, but they're right next to each other. Shoddy.

Finally, Galileoscope news, this week from The Journal Times. Taking a local perspective of our favourite low-cost telescope (they were designed within The Journal Times' geographic catchment area), there are plenty of facts and figures are given. Great if you like that sort of thing.

Ok, that's your lot. Check local sources for news in your own language, y'hear?

## 17 Jul 2009

It's that time again, when we leaf through pages of the internet and see what killer IYA009 stories have been making headlines. And what a week it's been, with the 100 Hours of Astronomy sidewalk astronomy and star party awards announcements. 100HA has also been in the blogs this week, so let's highlight a prime example, courtesy of Upamanyu Moitra's post 100 Hours of Astronomy: The Final Word. Upamanyu flew the flag for West Bengal during 100HA, and it was, as he says, AWESOME! Here's something to bear in mind though, astrodudes: the 100HA follow-up, called Galilean Nights, is currently being put together by a crack team of astronomers and communicators. It's taking place on October 23/24, and will be radical.

To Time now, who recommend celebrating IYA2009 in style with a stay in the Pic du Midi, atop the French Pyrenees. They say this is "one of the best places on earth to join the star-gazing fraternity", and it certainly sounds it. The swanky hotel's prices include telescope tours, but for 280 bucks a night, that's the least they could do.

Yo! Let's rock on over to typicallyspanish.com who have been celebrating Spain's contribution to the IYA2009 Moon for All Mankind project. This scheme got together people from many nations to each image a section of the Moon, which were then complied into a groovy mosaic. Says Typically Spanish, "Spain's segment, number 33, is by Antonio Torres Montojo, and includes, EFE reports, the crater Alphonsus, 2.7 kms deep and 108 km across, named for Alfonso X el Sabio, the king who ruled Castilla y León in the 13th Century." Hang on, they're categorised it under "Spanish Oddities". Huh! Universe Today have posted a story about Moon For All Mankind too, which includes some great images.

Astronomy at university isn't just for young, hip frat boys - grandparents can also involved, say the University of Wisconsin-Madison. To mark IYA2009, astronomy features in their ninth annual Grandparents University. Sessions are taking place on July 16/17 and 23/24. The courses are also open to grandchildren, aged between 7 and 14, which will give lessons an interesting twist. According to the itinerary, there is the opportunity to "attend a Badger picnic"... sounds like the grandparents will be entering into the grand frat boy tradition of "doin' sumthin' crazeee!"

Not to be outdone, the University of New Mexico has announced that two of its faculty members are helping out with the She is an Astronomer IYA2009 Cornerstone project. They'll be present at a free public astronomy event for girls aged 8 - 18, taking place Sunday 9 August from 1 to 6pm at the Open Space Visitor Center on Albuquerque's west side.

Before we part ways dear reader, let's whizz over to The Australian, for it would be remiss not to mention the excellent article they have there. All about IYA2009 and Australian events, it's written with a positively charming tone, and gets one hundred bonus points for this line: "This is the International Year of Astronomy -- a far more interesting topic than 2008's International Year of the Potato, which was big only in Peru and Ireland, apparently -- as 2009 coincides with the 400th year since Italian physicist Galileo turned a telescope to the skies to look at the stars." Go and read the rest of the article! After skimming the final round-up paragraph:

Remember that these summaries are English language-based, so check local sources for headlines in your own languages. Like El Pais and El Mundo in Spain, to give just two examples.

## 10 July 2009

Galileo is the scientist that just keeps on giving. His discoveries 400 years ago inspired the International Year of Astronomy 2009, and now a new theory says that Galileo knew he found a new planet in 1613, a staggering 234 years before its official discovery date. This corker of a story is up on Science Daily and is required reading. The gist is that Galileo's notebooks show he noticed Neptune while observing Jupiter, but further analysis could reveal that he realised it was a planet. Blimey!

Still on the theme of Galileo, his telescope is still on display at the Franklin Institute, says Central Jersey. Follow that link for lots of into about the astronomer himself, and other features of the exhibition.

Black Hills Portal is a vaguely ominous name for a website, but they've come up trumps with a story about a NASA Challenger Learning Center fundraising starparty. Taking place at the Daly Ranch North of the Gillette, Wyoming Airport off Hwy (which I assume but cannot guarantee means "highway") 14 - 16, on 10 July, the proceeds will go toward building the Center. Attendees must bring blankets, chairs, binoculars, telescopes, and torches. And presumably cash, too.

More IYA2009-themed coins have been produced, this time by the Royal Canadian Mint, says Resource Investor. Called the $30 Sterling Silver International Year of Astronomy collector coin, it's being released with a playing-card one, something to do with autumn raindrops, a train one, and a pure-gold coin. I'll have the gold one please. Coin News has more details, including pictures. The astronomy one is clearly the best although "autumn showers crystal raindrop" also looks really good, but is obviously let down by the name.

Oelwein "fortunate" to get library exhibit is the headline from the Daily Register. The Daily Register separates its stories into the following sections: "news, sports, special, guestbook, services, CRIME AND COURTS." Let's hope that IYA2009 is special. So what's the story? Oelwein library (in the States) has been celebrating the arrival of a new exhibit called "Visions of the Universe; Four Centuries of Discovery", which marks IYA2009. The accompanying photo is hard to make out, but it looks like three people are cutting the ribbon. That's overkill, surely? It certainly seems like the organisers put lots of time and effort into this event, so IYA2009 formally passes on its thanks. Hopefully that makes it all worth it, citizens of Oelwein.

Here's a good opinion article, from Canada's The Globe And Mail. It's about the recurring topic of light pollution, and how IYA2009 is boosting Canada's Dark Sky Preserve Program. The article gives a very good overview of the current situation, and is an excellent introduction to anyone wanting to learn more about the evils of excessive lighting.

And finally, headline of the week: "Wet weather spoils sky watching." Times & Transcript have provided that one, along with a story about how bad the weather has been in New Brunswick of late. Fair play to the journalist, it's better than writing "it's been raining a lot."

That's your weekly dose of English-language news out of the way. Check local sources for stories in other languages, ok?

## 3 July 2009

Space.com has a frankly marvellous story about a Scottish schoolgirl winning a competition to make a new constellation. Don't fret, it's only temporary. Called "Wee Sleekit Beastie", it is a cosmic mouse whose name means "Ode to a Mouse". The creator is Laura, a year 7 pupil at Dalmeny Primary School in Edinburgh. Laura beat entries from over 200 other pupils and received an award from Liz Lochead, the Scottish Poet Laureate. Says Laura, "Science is fun and extremely fascinating. There is so much to learn. Astronomy is my main interest now and I will stick with it for life I hope."

Happy six-month birthday, IYA2009! Little About is celebrating in style, by running through the Year's achievements to date. There are lots of impressive statistics to sift through, but an apostrophe error near the end limits the enjoyment somewhat.

To the US now, where a Montauk Observatory star party featuring author Dava Sobel is scheduled for 5 July, says 27 East News. Dava wrote the bestselling historic memoir "Galileo's Daughter" and will be discussing our favourite

Italian astronomer from times-past, as well as talking about IYA2009. There are three images to accompany the article, the second of which is puzzling - is it really really good, or accidentally a bit blurry?

Next is a story from UK's Norwich Evening News 24. More than 600 youngsters from across the region have been flexing their intellectual muscles as part of the Science Olympiad held at the University of East Anglia. The participants, aged between eight and 17, completed space-themed challenges as part of IYA2009. Quote of the weeeeek! Miss Nayani, eight, said: "We won because we used all of the material and had marshmallows at the bottom, then spaghetti, and jelly babies in the middle - not many people thought of that."

IYA2009 isn't just about amateur astronomy. Professionals are also involved, as evidenced by an article from The State. It says that a veritable bonanza of new and improved cutting-edge instruments are being readied for use, 400 years after Galileo spied craters on the moon through the world's first telescope. It's a good time to be an astronomer.

To the Vatican! Zenit reports that a new edition of the investigations into the Galileo case has been released by the AMAZINGLY NAMED "Vatican Secret Archives". The article warns that is has a 208-page introduction. Here's the solid IYA2009 link: "The prefect of the Vatican Secret Archives, Bishop Sergio Pagano, oversaw this newest volume, which was presented today in a briefing at the Vatican press office. Its publication comes in the context of the International Year of Astronomy"

Finally, a quick look at the University of Wisconsin-Madison News, where a From Earth To The Universe exhibition is sure to impress all visitors. Each image has multi-lingual captions and children can even participate in a scavenger hunt game to discover a secret message.

That's it. Thanks for visiting.

## 26 June 2009

Question: what has been making headlines this week?

Answer: IYA2009 has been making headlines this week!

You've probably had a hard few days so we'll begin with a video, which is easier to digest than words. Science Comedian and IYA2009 supporter Brian Malow has turned his attentions to our favourite astronomy-themed year, in a video for TIME.com. Be sure to give it a go, for the quality is high.

Now let's pass over to the New York Times which has run a story about astronomers from the Vatican. Apparently they're "seeking not angels but data", which probably helps with their funding applications. The Vatican is keen to draw a line under its old gripes with Galileo, and IYA2009 is the perfect opportunity to publically do this. For an insider's view of working at the Vatican Observatory, be sure to check out Brother Guy Consolmagno's blog at the Cosmic Diary.

ALIENS! That always gets people's attention. Killeen Daily Herald reports that astrobiologist Seth Shostak will be the featured guest speaker at Longhorn Conference Center at the Stagecoach Inn in Salado (US). The lecture and accompanying reception are in recognition of IYA2009. Maybe they'll donate some of the $20 entrance fee to us?

Well done to IrishTimes.com for its well-written story about observing the planet Saturn. Carolyn Porco, NASA's head of Cassini spacecraft imaging, will be giving guided tours of the ringed planet in Dublin, Cork, and Armagh. The presentations are in aid of IYA2009, which automatically means they'll be top notch.

The Canary Islands may be well-known for their sunny weather but Tenerife News says that science is also on the up. Tenerife's Museum of Science and the Cosmic at La Laguna is running summer courses where children will learn all about astronomy. There will be scientific games and live experiments, all bringing IYA2009 to the participants. Sounds fun!

Off to India with us, to give a heads-up about an imminent conference called "Indian Astronomy, Ancience & Modern" to be held in Ahmedabad. Indian Express has the details, including notable speakers and mentions of

special interactive sessions for 500 students that are expected. DeshGujerat.com has an excellent feature on the conference too, so you've no excuse for not being clued up.

And finally, the marvellously-named North Bay Nugget has a surprisingly detailed account of astronomy books which can be found in the Children's Department of North Bay Public Library. IYA2009 formally salutes your dedication, Nugget!

And on that note, this writer's dedication has run out. Until next week!

## 19 June 2009

Let's open with an excellent feature courtesy of Canada.com. It's all about experiencing "Galileo moments", and certainly conveys the enthusiasm of astronomers. Here's the best paragraph: "This is the year to start looking up once more. There is a big party going on to celebrate the 400th anniversary of the telescope's coming of age, and everyone around the planet is invited." The party is IYA2009, in case you didn't get that. Looks like the same article has been reproduced in The Montreal Gazette, so you have options for where to read it.

Scientific American has an IYA2009-centred article which begins by looking at the significance of 1609. It then discusses modern astronomy, in particular extrasolar planets. Nice one, SciAm.

The upcoming solar eclipse on 22 July will definitely spark the media's interest, and the beginnings of this can already be seen as Taiwan News has a story about an astronomer enthusing people in anticipation of the imminent spectacle. Talking of stories that will be building to a crescendo, word of the International Astronomical Union's General Assembly, taking place in August, is filtering out if SatNews.com is anything to go by.

To Hong Kong next, where The Standard has been covering news of a stargazing theme area called AstroPark. Scheduled to open later this year, IYA2009 Hong Kong League convenor Leung Kam-cheung has been praising the government for its efforts in promoting star-watching. According to the article, AstroPark will be in an area protected from light pollution, and will feature three zones: an observation area for amateur astronomers, a naked-eye observation area, and an education zone which will house replicas of ancient Chinese astronomical instruments.

What's been happening in the UK, eh? Science Centric says that a new state-of-the-art mobile planetarium is being "launched" (so to speak) next week. Boasting a high-definition digital projector, it will be taken to schools in the local area as part of the University of Kent's IYA2009 celebrations.

We've all seen scale models of the Solar System before, but few are as impressive as the Planet Trek Dane County. The Wisconsin State Journal has the story of how astronomer Jim Lattis has created a 37km-long cycle route to represent the Solar System, from the Sun to dwarf planet Pluto. The scale is 200 million to one and there are signs at significant points along the route giving facts about the planets. Impressively, it's designed so that walking at a moderate pace is the equivalent of moving at the speed of light. So, it should take participants eight minutes to walk from the Sun to the Earth. Jim Lattis, you are a clever man.

Tune in next week for more IYA2009 news!

## 12 June 2009

Batten down the hatches, news is upon us!

CITIZEN ASTRONOMERS UNITE is the rallying call of a superlative article from Cosmic Log about how "regular folks" can get involved in IYA2009. The comprehensive and hyperlink-laden feature lists projects and events, from the Galileoscope to kooky favourite Second Life. The comments section at the bottom of the page is also worth a look, as people highlight a few things that were missed in the main text. The IYA2009 Secretariat hereby declares the article to be required reading.

What's this then, EurekAlert? Looks like an astronomer has been championing the use of solar eclipses to solve modern problems. Nature journal has made his work the cover story of the latest issue, as part of its IYA2009 coverage. The accompanying image would look lovely hanging on the wall. See to that, please.

ABC 7 News from Chicago has an article about amateur astronomers getting involved in telescopic observations during IYA2009. It even includes a VIDEO where two presenters interview an enthusiast about his hobby. You have to feel for him, especially when at 01:49 a presenter asks if you need a "really strong microscope" to observe Saturn.

Now let's run as fast as our feet will carry us toward IYA2009 mainstay Astronomy Now, who have posted an article marrying the popular topics Galaxy Zoo and 100 Hours of Astronomy. The Zoo project is all about involving the public in scientific work by asking people to classify images of galaxies. For 100HA the aim was to analyse one million, but they smashed this and actually classified 2.5 million. Shall we steal a quote from the article? "With the Zoo 2 target of 40 million classifications in sight, participants in this IYA project will soon truly have made the Universe theirs to discover," says project principal investigator Chris Lintott. Thanks, Chris and Astronomy Now.

Attention! Galileo Teacher Training Program incoming! redOrbit has details about this new Cornerstone project, and how it will help teachers to successfully bring astronomy into the curriculum.

Astronomy in Mozambique may be on the rise, according to a SpaceRef.com report. As a proposed host for a future Square Kilometre Array and an active country in IYA2009 events, there has been a strong drive to create an astronomy university department. Says the article, Mozambique lacks funds but possesses a strong will. Good luck, Mozambique: "Descobre o teu Universo!"

Snippet time! Science Careers has an interview with astronomer Maggie Aderin-Pocock, supporting She Is An Astronomer's aims of promoting gender equality. 4NI.co.uk informs us that Belfast's Lord Mayor is encouraging people to get involved with IYA2009 activities by supporting a carnival with the theme "look up", to mark this special year. And Whyy.org has a lovely audio feature about our Sun and IYA2009.

Surely that's enough news to keep you going until next Friday?

Congratulations to Australian astronomy professor Jeremy Mould and his colleagues, who have won the 2009 Gruber Prize for Cosmology. News.com.au has the full story, reporting that the award recognises work done for definitively measuring the Hubble constant, which explains the Universe's expansion. Jeremy Mould, Wendy Freeman, and Robert Kennicutt share a big pot of cash: around 350,000 Euros. Lend us a fiver, guys?

Regular readers of the news round-ups (there must be some, surely?) may remember last week's story about the UK's Society for Popular Astronomy donating telescopes. Their good work has been continuing at pace says Chronicle Live, as Newcastle Church High School has been presented with a telescope to celebrate IYA2009. The school even started its own astronomy club, where pupils can achieve certificates to show their dedication to the science. Anna Richardson, 11, from the fabulously-named town Seaton Sluice, says: "Ever since I looked through my dad's telescope and saw Saturn when I was four I have been especially interested in learning more about astronomy." 2009 is *your* year, Anna!

To Science Daily now, who have a fascinating story about an IYA2009 Special Project called Celebrating the 1919 Eclipse at Príncipe. The article begins, "In 1919, the Royal Astronomical Society (RAS) launched an expedition to the West African island of Príncipe, to observe a total solar eclipse and prove or disprove Einstein's General Theory of Relativity. Now, in a new RAS-funded expedition for the International Year of Astronomy (IYA2009), scientists are back." The history of the exhibition and recent celebration are fascinating, and has even been deemed worthy of an article on the IYA2009 site.

BREAKING NEWS from The Shields Gazette. This year's Face of 2009 and Search For A Catwalk Star finalists (based in the UK) have been announced! And YES it's relevant to this news round-up, because the theme is... you guessed it, IYA2009. Although after watching the accompanying video, it must be said that the theme is not evident. Says the article, "Out of This World is on at the Customs House, in South Shields, on July 13 and 14, when all the models will hit the runway in a bid to impress model scouts and scoop the coveted title of Face of 2009." Do they need someone from IYA2009 to be a judge? Maybe..?

Time for some shorter stories that have been in the media this week. Herladsun.com.au has a slightly bizarre tale about an astronomy-themed poetry session initially inspired by a 15 year-old finding the words "Gutterpirates, ahoy" scrawled in a toilet cubicle, and being "overcome by the images the words evoked". Seriously. CNW Group has been promoting an upcoming Canadian festival in Montreal, which boasts star-finding workshops and

astronomy presentations. Also in Canada, KBS Radio says that an event hosted by the Kootenay Association for Science & Technology will be showcasing the stars and Solar System. Project coordinator Terry VanHorn says "2009 is the year of astronomy", so it must be true,

Ok, that's your lot. See you next week!

## 29 May 2009

Have you been wondering what kind of IYA2009 stories have been in the news over the past week? Read on to find out...

Roll up! Roll up! Get your Galileoscopes now! That's the message being given over at the Bad Astronomy blog (which despite the name is very good). These low-cost telescopes are shipping, so get your orders in as soon as possible to avoid disappointment. The message is being spread by the Asymptotia blog, too. Phil Plait, author of the Bad Astronomy blog recommends you donate some Galileoscopes to friends, schools, or kids in a "faraway land". Perhaps he gained inspiration from this story on the IYA2009 site.

Plait will also be in attendance for Kalmazoo's Astronomy Day, says mlive.com. Educator and actor Michael Francis will be portraying Galileo, complete with costume and telescope. It's hoped that he, along with other presenters, talks, planetarium shows, and a book signing from Plait, will attract at least 500 people. This story is in the section reserved for "Health, Religion, Food, Weddings, Engagements, Births, Anniversaries, & More." Presumably IYA2009 falls into the "& More" sub-category.

Incoming story from the Paisley Daily Express! Pupils from Gryffe High (UK) have been gifted with a free telescope. The instrument is a present from the Society for Popular Astronomy, and is intended to mark IYA2009. The new owners will use it to study the rings of Saturn and moons of Jupiter, as well as participating in a Moonwatch programme.

To California next, where a new astronomy exhibit has been very well received, says The Desert Sun. The La Quinta Museum is hosting "400 years of astronomy" to celebrate IYA2009. The exhibition includes large photos from the NASA/ESA Hubble Space Telescope, a 3D panoramic poster of a Mars rover, and other space artefacts. It's all on display until 30 September, so if you live in that area be sure to visit before then.

In these modern times it's easy to forget the traditional tales associated with the stars and constellations so it's good to hear from the Cape Breton Post about the 13th annual Cape Breton University Storytelling Symposium early next month. This year's theme is astronomy, in honour of IYA2009. Taking place in Sydney (Canada), Jim Hesser, Canada's IYA2009 Single Point of Contact, will be speaking to the assembled storytellers.

Still in Canada, let's give a plug to a star party set for Friday night at Win Del Park in Windham Centre. The Expositor has all the details, but for a quick overview here are the facts: celebrating IYA2009. Bring a torch. Eat hot dogs.

And finally, congratulations to the Hubble team on the successful Servicing Mission 4. An update has been given by Science Daily, which includes this lovely quote from David Southwood, ESA Director of Science and Robotic Exploration: "The addition of Hubble's renewed capabilities to those just brought to space by ESA's Herschel and Planck telescopes, launched last week, puts an impressive array of complementary and powerful tools at the disposal of scientists, and makes this a great moment for the International Year of Astronomy."

## 22 May 2009

IYA2009 seeks to promote amateur astronomers, so we enjoy coming across stories like this one from KTAR.com. Keen stargazer David Healy has a private observatory which he's used to discover more than 500 asteroids. "This was a hobby that got out of control," says Helay. Too right mate, but IYA2009 applauds you! Especially as he's now teamed up fellow enthusiast Tom Kaye, in an attempt to become the first amateurs to discover an extra-solar planet. Aim high, guys!

Are you a modern type? Do you use Twitter? You do? Great! That means you can get involved in a competition celebrating the launch of the full-dome digital planetarium show "We are Astronomers", which, incidentally, has a lovely trailer. The competition is to win four tickets for the show, and all you have do to be in with a chance of

winning is write a Twitter astronomy haiku. Then send it to @astronomy2009.uk. Simple, really. Talking of Twitter, IYA2009's official page, http://twitter.com/astronomy2009, is certainly worth a look-see.

Agencia AngolaPress has been reporting on words of support from the Angolan minister of Science and Technology, Candida Teixeira. She has called on private and public institutions to cooperate with IYA2009 activities, which should help to "re-launch this science in the country." IYA2009 approves!

"Astronomy booming in Bombala" is the wonderful headline of a Bombala Times article. Residents of this Australian district have embraced astronomy, and have even formed the Bombala Astronomy Guild to cater for the interest. The article says they meet every two weeks at the local airstrip, but it's not made clear whether they have to watch out for low-flying aircraft.

If armchair stargazing is more your thing, then an Australian PC Authority article about viewing the cosmos using your computer should be required reading. Software such as Stellarium, Google Sky, Starry Night, and Microsoft's WorldWide Telescope are all discussed, and then it's onto methods of controlling telescopes from the comfort (and warmth) of your living room.

The Southgate Amateur Radio Club has a nifty little story about the UK's Normal Lockyer Observatory having been given special permission to use the callsign GB400IYA throughout the year. Come in GB400IYA, do you read me? Over!

The Times of India reports that students have been shying away from areas of study such as astronomy. They say that particularly in India, courses like engineering and medicine are more popular. The article gives some sound advice to people considering their academic options, and helpfully mentions IYA2009 at the end, as a sweetener. So go on folks, we want more stargazers.

Now, remember to follow the IYA2009 Twitter Feed for even more frequent updates. How's that for a world-class service?

## 15 May 2009

It's Friday which means it's news round-up time! What a week it's been for astronomy, in large part because of the latest ESA/NASA Hubble Space Telescope servicing mission and the the launch of ESA's missions Herschel and Planck. The Scotsman has some coverage, and handily mentions IYA2009, albeit as a footnote in the very final paragraph. For the latest news on the servicing mission, ESA/Hubble Outreach Coordinator Colleen "The Shark" Sharkey is keeping a liveblog which you are hereby ordered to read.

Let's go Beyond the Universe to an astrofest being organised by the Brigham Young University (U.S.) Hang on, didn't they do stuff last week? Obviously their news round-up mentions have spurred them on. The astrofest will be held in the Eyring Science Center and at the Wilkinson Student Center terrace. According to the article, it's to honour "the 400th anniversary of Galileo's first glance through the telescope". I'd argue that it was a bit more than a glance.

Where would we be without telescopes? Probably not enjoying The International Year of Astronomy 2009, that's for sure. So it's good that New Scientist has a flick-through feature about the most important telescopes in history. The last one is an owl, but I think that's actually an advert or something. In its favour, it is a very good owl.

To Ottowa now, where OttowaFocus.com is kindly informing us of a show and star party at the Cube Gallery. They're combining fine art, refreshments, music and telescopes into an event which includes paintings and sculptures. Alongside these will be lectures and star parties during the run of the show.

Staying in Canada, and Science North in partnership with Laurentian University and the Sudbury Astronomy Club, will be holding a series of free star parties and public presentations at Science North over the next 12 months. Northern Life has an article about this, and Science North's website is worth a look-see if you're planning a visit.

Keen amateur astronomers may have been following the GLOBE At Night project, which encourages members of the public to help combat light pollution by keeping track of how dark their local skies actually are. Sky and Telescope has an excellent feature on 2009's efforts. This year was the most successful ever, no doubt in part due

to IYA2009's support by making Dark Skies Awareness one of the Cornerstone Projects. Not that we want to take all the credit, or anything.

That's it! If you've read this far, thanks.

## 8 May 2009

It's Friday, and the Sun is shining! It's a perfect day for a) going to the zoo, b) eating pretzels and raspberry jam sandwiches in the park, and c) reading an IYA2009 news round-up!

We shall begin with Huliq News, as they've been promoting a new National Portrait Gallery (London) exhibition named Portraits of Astronomers. Paintings and photographs of the world's stargazers will be dominating the (possibly) esteemed Room 38a from 12 July. It's the place to be!

The Daily Herald has kindly plugged an Astrofest day being organised by an astronomy professor from the wonderfully named town Spanish Fork, in the U.S. We are promised fun for the whole family with activities including planetarium shows and observing with solar telescopes. More information can be found on the Brigham Young University site. Go go go!

Petaluma360.com has a brief story about members of the Sonoma County Astronomical Society sharing their knowledge and telescopes with eighth-grade students from Kenilworth Junior High School. Unfortunately, this tale has been overshadowed on the site by a story about a sprinkler malfunctioning and getting an antique book dealer a bit wet.

Do you have one of those flashy iPhone gadgets? Would you like a groovy application for it? Cult of Mac recommends Star Walk, a mobile astronomy guide to the night sky. It's also an official IYA2009 product, so go and download it! After finishing the news round-up.

The Inner West Courier is flying the flag for Australia this week by advertising what sounds like an excellent exhibition from The Nicholson Museum, at Sydney University. Called "The Sky's The Limit: Astronomy in Antiquity", it explains about ancient myths, calendars, and superstition, among other topics. A selection of artefacts will be on show, including ancient Greek pots celebrating celestial goddesses. We should make a pot celebrating IYA2009.

Also Down Under, the land of kangaroos and sunnies, is an astronomy-themed exhibition opening at the National Gallery of Victoria, artdaily.org reliably informs us. Focussing on photographs taken during the 1960s and ‘70s, the exhibition celebrates IYA2009 and the 40th anniversary of the first Moon walk. But mostly IYA2009, we like to think.

Here's a good one! The San Diego Space Society is running a presentation from California, called "The International Year of Astronomy and You". You'll learn all about the Cornerstone Projects, and other IYA2009 events happening in the area. If you're in the vicinity, be sure to attend and show your support.

Now let's tune into Elites TV. They've been talking about NASA's Great Observatories (Hubble, Spitzer, Chandra) providing superb images which have been printed on large scales by NASA and sent to more than 100 institutions such as planetariums and schools.

Educators interested in astronomy may like to consider attending a conference currently being advertised by redOrbit. Held at the Jet Propulsion Laboratory in California, the IYA2009 theme means that topics are centred on ways to convey the inspirational aspects of astronomy to the public. WARNING: there is an apostrophe error in the second sentence. Be prepared for it.

Remember that these news round-ups are English-language based, so for wider coverage be sure to check local news sites.

That's all for this week! Once again, the IYA2009 news coverage has surprised us beyond our wildest imagination.

## 2 May 2009

Another day, another dollar. Another Friday, another weekly IYA2009 news round-up!

The Belfast Telegraph has a feel-good story about pupils in Northern Ireland participating in a science project. Called "Stargazers", it's been designed by Newspapers in Education at the Belfast Telegraph for Key Stage 2 pupils to celebrate IYA2009. Participating classes receive workbooks with fun astronomy activities, and there are certificates for those who complete the project. Schools even get a digital camera for every 25 pupils they register. I'll find 25 kids and sign them up if there's a Nikon D700 in it for me. Still on the theme of astronomy for children, Examiner.com has listed seven websites designed to inspire future stargazers.

National Astronomy Day is the focus of the Cleveland Museum of Natural History on 2 May, says The Morning Journal. There will be presentations and demonstrations, while kiddies can make sundials and design their own constellations. Also mentioned are planetarium shows most weekends at the Sidney Frohman Planetarium, at 2130 Hayes Avenue, Sandusky.

Dundas Star News wins the award for shortest mention of an IYA2009 event. Apparently the Hamilton Amateur Astronomers will be holding public observing events on 2 May, in the Lakeland Community Centre on Van Wagners Beach Road. That's in Canada, incidentally. The University of Texas at San Antonio dedicated more words and a generic photo to their article about the third instalment of the "Friday Nights, Celestial Lights" series. There will be the usual night-sky observations, but people are more likely to be lured in by the promise of seeing "the campy sci-fi film, ‘Queen of Outer Space,' starring Zsa Zsa Gabor." IMPORTANT: "Seating will be available on a first-come, first-served basis."

TD Monthly has recommended Celestron's FirstScope as an ideal entry-level astronomical telescope. These things are positively nifty, and they're an official product of IYA2009, so it's good all round.

Do you like astronomy? Do you like pots? Would you like to combine these interests? Obviously the answer is yes, so it's fortunate that NWI.com's Guide to Local Potpourri listings is on hand to help. This United States-based activities listing has an impressive variety of events. Let's highlight "Watch the Stars" in which Valparaiso University Observatory staff allow the public to use computer-controlled telescopes to observe the stars, and "Satellites and Space Probes", a presentation by the Merriville Community Planetarium. After attending those, why not go along to the "Plant Sale" in Hobart, pick up some ceramic pots, and decorate them with astronomically-themed images...

...which certainly isn't as strange as the ninth edition of the International Contest of Chocolate Figures choosing astronomy as its theme. Pasterleria.com has the details in Spanish, Astronomy2009.org has a summary in English. Never before has the Solar System looked so delicious.

## 24 April 2009

Question: what is the best thing about Fridays?
Answer: the IYA2009 news round-ups, of course!

We’ll begin our journey in the UK, as Somerset Stargazer (and top bloke) Ben Wilkes has been flying the flag for IYA2009, says the Weston and Somerset Mercury. Ben is working to get a 19-inch telescope plonked atop the Mendip hills up and running, and is also hosting astronomy events for beginners. Ben, the IYA2009 team salutes you!

More public events are being organised by the University of New Hampshire’s Physics Department, according to ECEBlogger. Lectures from staff and students will be taking place once a month, with the next one being on 16 May. Clear your diary, ok?

Den News was present for a University of Wisconsin-Madison public lecture which, by their account, was very successful. The enthusiasm of the presentation comes across in the write-up, and it also contains a memorable quote from an art professor: “Anyone who can explain astrophysics to an art major isn't too bad."

Another noteworthy article about an outreach event comes courtesy of the Iosco County News Herald (United States). Plans were to observe the cosmos using a 25-inch Dobsonian telescope nicknamed “DobZilla”, but cloud defeated this beast. Instead, a lecture, meteorite collection, and discussions on varied topics from life in the Universe to light pollution kept people entertained. The event was hosted by the Iosco-Arenac District Library,

Great Lakes Star Gaze, and Sunset Astronomical Society (SAS) who should not be confused with Britain's elite counter-terrorism force the Special Air Service, with whom they share the acronym.

The Portal To The Universe has been released! This IYA2009 Cornerstone Project acts as a one-stop-shop for astronomy news and content. Space Ref and YubaNet.com have posted the press release as way of a synopsis and Cosmic Diary blogger Sotira was there for the launch. YubaNet.com get another mention this week, as they've also posted the She Is An Astronomer release. Thanks, YubaNet.com. redOrbit have performed a similar service.

Next, Press TV reports that Iranian astronomers are planning on holding a public star party near the Iran-Pakistan border, as part of the StarPeace project. The article says astronomers will set up in Goatr village in Chabahar on the coast of the Gulf of Oman on 1May, 2009. A group of amateurs will also hold a star party in Pakistan's Gwadar Port.

Are you poor? If so, no need to fret. The Daily Record has suggestions for free family fun activities, with astronomy coming in at number two, being beaten only by "Hike, bike or picnic". I would choose "picnic".

That's all for now, which means you can start looking forward to next week's news round-up!

## 17 April 2009

The weekly IYA2009 news round-up has arrived, bringing you the latest media coverage of everyone's favourite astronomically-themed year. Let's gallivant around some choice morsels!

We'll open with a corker, courtesy of Physics Today. Written by Toni Feder, the feature talks about IYA2009 in general before delving into specific projects such as She is an Astronomer, 100 Hours of Astronomy, and the Cosmic Diary. Then Second Life crops up (as it often does), in particular the virtual Astronomy 2009 island, modelled on a spiral galaxy. Check the article to see a Second Life avatar sporting an IYA2009 t-shirt. To finish off, there's a diagram teaching you how to say "quasar" in sign language. You learn something new every day!

Attention, residents of New York. Buffalo Rising says that the Buffalo Museum of Science is running an impressive programme of events for IYA2009. These include telescope training, constellation spotting, and even a tutorial about the conversion of light energy into heat and mechanical energies. Buffalo Museum of Science, you efforts are dazzling.

Explorer bagged an interview with IYA2009 and Galileoscope guru Doug Isbell. He talks about the Year from a U.S. perspective, and mentions various outreach efforts such as the 365 Days of Astronomy podcast, Today in Astronomy blog, and Astronomy Discovery Guides.

As the global recession bites ever-harder, free events are appreciated by more people than ever before. At least, that's the premise of a Fosters.com article suggesting low-cost activities, especially to entertain children. Astronomy features high on the list, and they recommend visiting observatories, attending star parties, and generally looking in an upward direction during the night.

Great Falls Tribune reports that the Central Montana Astronomy Society, U.S. Forest Service, and educators from Great Falls Public Schools are ready to hold a Spring Star Party Extravaganza. There will be observing if the weather is clear, but also contingency activities in the event of rain, which include decorating Hubble Space Telescope-shaped cookies. Best. Idea. Ever. Unfortunately when I read the article the advert on the left of the page was for shotguns, which made the article seem vaguely ominous.

News snippets time! Astro Nuts has found out about Canadian IYA2009-themed stamps, and has put a photo up to prove it. New Stamps has done the same for the Ukraine. Ada Evening News is advertising a free public astronomy lecture at East Central University, Oklahoma. The Malta Independent Online is also plugging astronomy talks, but this batch will be held at the University of Malta, and presented by United States Senator Harrison Schmitt. Again, free and open to the public.

## 10 April 2009

The 100 Hours of Astronomy project is over. Phew! But it will have a lasting effect far into the future. Videos from the "Around the World in 80 Telescopes" are currently online for all to see. There were three Cosmic Diary

LiveBlogs run during the event, which are still available to read. The 100HA Blog is also a great place to get more information, and for lots of photos, click here and here.

Parkes Champion Post has reported on 100HA from an Australian perspective, Tuscalooso News for the USA, The Hindu for India, and many others are on the web too. Sites such as WBBM News Radio 780, SpaceRef.com, and SpaceDaily are also headlining 100HA. And congratulations to the Galaxy Zoo Project, which had an incredible 2.6 million classifications.

But it wasn't just 100HA that was in the news. Radio Netherlands Worldwide has featured an article written by IYA2009-mainstay Kevin Govendar. He talks about the relevance of astronomy to developing countries, and describes the success story of SALT, the South African Large Telescope.

Over to Pakistan, where Science and Religion has a nicely-written account of IYA2009 events in that part of the world. Plenty of hyperlinks have been dotted around and there is also a generous portion of photos, which always helps.

The Pink Elephant describes an aim of IYA2009 as offering as many people as possible a "Galileo moment". These engaging astronomy experiences have the ability to change lives, and the theme is developed in the article, with focus on events for Canadians.

Plus Maths Magazine is running an online poll where the public can vote for a question to be answered by top astronomers. So if you'd like to know what the future of the Universe is, what black holes are, or if the constants of nature are really constant, go there and vote! Or use Google.

And finally, EC Plaza News has been highlighting IYA2009 activities in Korea, including the Kumdori Science Festival 2009, From Earth To The Universe exhibitions, and the 60th International Astronautical Congress. In December there are even plans to plant a time capsule containing present information about astronomy, to be unearthed in 2019. Maybe these weekly round-ups should be included?

## 3 April 2009

Happy News-Day!

Even though the Around the World in 80 Telescopes webcast is in full swing, there's always time for news.

The 100 Hours of Astronomy (100HA) Cornerstone project is underway! So it's no surprise that the media have picked up on 100HA related stories. VOA News has made 100 Hours of Astronomy their website of the week. They also give a good overview of the project, so will be useful reading for anyone that wants to know what the fuss is all about.

More information about the webcast can be found on Gaea News and SmasHits. Spacestation-Shuttle Blog is highlighting NASA's participation, and Space Exploration Blog is doing the same for ESA. An excellent LiveBlog is covering the webcast, too. And it has made Astronomy Picture of the Day.

100HA is about popularising astronomy and encouraging people to look at the Universe themselves. With this is mind, it's good to see so many star parties planned. See Mercury News, Indiana's News Center, Western News, Hickory Record, and The Huntsville Item for some examples. To find events in your area, remember to check the official 100HA site.

Next, a story from Commercial Appeal. The From Earth to the Universe Cornerstone has reached Memphis, and will be on display at the Benjamin L. Hooks Central Library, 3030 Poplar, until April 30. Organiser and friend of IYA2009, Amit Kapadia, has furnished the article with some quotes. Try to make it along and see the exhibition, if you live in the area.

And now for something completely different. Do you fancy an astronomy-themed holiday? If so, you should read the Paradizio Blog which have found getaways suited to the International Year of Astronomy 2009. For example, Orient Express‘ "Closer to the Stars" package includes breakfast, a candlelit dinner, tickets to the Galileo Galilei

exhibition at Palazzo, and exclusive access to the swimming pool for a midnight swim with a bottle of champagne. Sounds perfect! Except for the exhibition bit.

Now stop reading this and get involved in 100 Hours of Astronomy!

Don't forget to follow the webcast: "Around the World in 80 Telescopes": http://www.ustream.tv/channel/100-hours-of-astronomy

## 27 March 2009

It's stopped raining *and* it's time for a news round-up. It is a good day!

The IYA2009 Cornerstone Project She is an Astronomer is moving up a gear, as evidenced by an Astronomy Now Online article. It documents a UK event, "She is an Astronomer, She is a Rocket Scientist", hosted by the Guildford Astronomical Society. Three female scientists discussed their astronomy careers with an interested audience, including students considering dedicating their lives to the best science ever.

Another Astronomy Now feature has delved into the Cosmic Diary: Greenwich 1894 sub-blog. It provides a concise yet comprehensive overview of the project, and is definitely worthy of attention. Look out for the photo of former Astronomer Royal William Christie, who has wonderful hair and a spiffing moustache. The Cosmic Diary has been listed on the CSS Based site for good design, but no-one has commented on it yet. You'd like to write some good things there, wouldn't you?

And now, time for a public outreach event. Get Wokingham has alerted us to a star party this weekend at Dinton Pastures Country Park (UK). The theme is "staring into space", which is surely the theme of every star party? The event sounds very well organised, and is clearly the pride of Reading Astronomical Society's Gerry Bond. Maybe the photo is of him, looking happy as can be next to his telescope. There are even talks, exhibitions and photographs in case it rains. STOP PRESS! The final line includes a quote saying "It's amazing to think we have a wide range of people, who all share an interest in astrology." Astrology? That must be a mistake, surely. Gerry, get on the case!

JSOnline has just mentioned a new series of shows at the University of Wisconsin-Milwaukee's Manfred Olson Planetarium, hosted by astronomer Jean Creighton (of Cosmic Diary fame). The planetarium is also participating in 100 Hours of Astronomy, which is coming very very soon! One of the 100HA events is a 24-hour webcast, called "Around the World in 80 Telescopes". Observatories around the world will be featured, finishing up at Palomar, says the National Science Foundation.

Important news now, especially for dark skies enthusiasts and Scottish folks. Astronomy reports that the world's first Dark Sky Discovery Sites have been announced as Newbattle Abbey College in Dalkeith and Highland Council's Glen Nevis Visitor Centre grounds, near Fort William (UK). They will be excellent places to go stargazing away from artificial lighting. Quote of the Week, from the communities and green spaces officer: "This might seem to be an odd thing for Scottish Natural Heritage, along with the Scottish government, to fund, but it isn't."

Because you've been good this week and have read to the end, you deserve a video-based treat. RTE.ie provides, with a news report on the Cork Parade in Ireland. The theme was "Cosmic Chaos" and over 2000 people joined in the festivities. Here's a brief review of the clip, with timestamps:

00:07: Presenter fluffs the word "astronauts". Not a good start.
00:31: Namechecking IYA2009. Redeemed.
00:45: NASA astronaut Dan Tani, probably a bit baffled by it all.
01:00: Cork's Indian community is involved. IYA2009 brings people together!
01:09: Ming the Merciless? What's he doing there?
01:19: Great green alien costume. I want one.
01:21: How do pirates fit into the theme? Put some effort in, girls.
01:23: Should the video be repeating?

That's it for now, so go and prepare for 100 Hours of Astronomy!

## 20 March 2009

We want to spend much of 2009 looking up at the stars, but to do that sometimes we must pay attention to what's happening closer to home. 28 March will bring us Earth Hour, as mentioned on the 100 Hours of Astronomy blog, when as many as one billion people will be turning off their lights to promote global sustainability. But don't worry, there's an astronomical motive as well: preserving dark skies. Nevada News reports that their local Fleischmann Planetarium and Science Center at the University of Nevada will be celebrating Earth Hour from 7-10pm. So they're three times as enthusiastic as most. Similar events are occurring in the Homer Glen (US) region, reports Neighborhood Star, and GenQ is hopeful that all Australians will participate. If you're near any Earth Hour events, try to make it along to show your support. Bring a torch though, it'll probably be dark.

If you are lucky enough to have lovely dark skies, what should you look out for? Knox News has a commendable article about observing the planet Saturn, complete with tips from an astronomer. Nicely done, Knox News.

The News Herald (serving Burke County, NC, apparently) has a reassuringly lengthy article about an upcoming series of astronomy events held in Lake James State Park. Monthly star parties will be run by a Park Ranger assisted by the Catawba Valley Astronomy Club. There's a specially taken photo to illustrate the text, and they've included a link to astronomy2009.org in a prominent position. News Herald, you are setting an example for others to follow.

To the UK next, and This is Exeter has been advertising a special event hosted by the University of Exeter Astrophysics Group. It will be held on 1 April, and features hands-on demonstrations and talks from the astronomers. Dr Jennifer Hatchell, of the university's School of Physics, said: "The International Year of Astronomy is a chance for everyone to experience these things, and we look forward to sharing them with our visitors." I couldn't have put it better myself.

Not many articles begin with the line "What do the International Year of Astronomy and jazz music have in common?" To find out the answer, strut over to University of Guelph and read! But if your clicking finger is too tired, I'll tell you: a physics professor and singer/songwriter has produced a new album of songs inspired by people's fascination with the sky. Maclean's Magazine has written an article about her, which has got to be a good sign. If your curiosity has been sparked, there are music previews online.

That is all for now.

## 13 March 2009

Ladies and gentlemen, please stand for the weekly English-language IYA2009 news round-up.

There are many pressing issues which may be brought to the fore thanks to IYA2009. One of these, according to eWorldVu is the danger of space debris. Colliding satellites and abandoned junk cause real hazards in orbit around the Earth. Could IYA2009 be the golden opportunity to make policy makers pay attention to the risks?

The 100 Hours of Astronomy blog is focussing on science this week, as Rick Fienberg looks at the planet Saturn. He explains that it will be well placed in the evening sky for observing during 100HA in early April, but its rings are tilted at an unfavourable angle. You can't have it all.

The UK's Wrexham Chronicle has been outlining a series of IYA2009 activities taking place in that part of the world. The 11th annual Wrexham Science Festival will be tied closely with astronomy themes. All events are free as well, which is no bad thing.

The Sheffield Telegraph is promoting IYA2009 this week, and emphasising local efforts to get the public interested in astronomy. Dark Sky Yorkshire, led by the University of Sheffield, is running a roadshow offering a mix of workshops, cinema presentations, photography talks, and lectures.

Still in the land of fish ‘n' chips and dangerously unhealthy breakfasts, the Whitchurch Herald says that local schools are engaging in activities with a cosmic twist, including using radio telescopes at Jodrell Bank.

To India next, and Express Buzz has a feel-good story about the Kerala State Science and Technology Museum popularising astronomy. They are planning to open astronomy centres across the state. Telescopes are also going to be given to schools, letting pupils explore the night sky for themselves.

Money money money! What's the one thing better than cash? Astronomy-themed cash! That's a theory that the Austrian Mint is putting to the test, report Coin News. Their new €25 coin displays pictures of Galileo and the Moon, among other things. Apparently there is heavy demand for these, so you'd best get a move on if you want one.

If you're a late-comer to IYA2009, fear not as there are others in the same boat as you. Slice of SciFi has a good article which will get you up to speed in no time at all.

And finally, for a different look at the Galileoscope Cornerstone, check out Jacksonville Business Journal. The site is running a story on the financial side of the project, and as such has lots of facts and figures.

Remember that these updates are almost exclusively English-language based. Check local sources and your favourite news aggregator sites as well (e.g.: http://news.google.com), to complement these overviews.

That's it. You may be seated once more.

## 6 March 2009

Another news round-up already? Fridays are definitely getting closer together. Fact.

The 100 Hours of Astronomy Cornerstone Project is nearing fever-pitch, with kick-off occurring in under a month. Their official blog is a great place to see what's going on, and get a feel for the initiative. To be up to speed with a single click, consider People's Weekly World.

SciLands Virtual Continent has been advertising perhaps the most unusual IYA2009 event reported in these updates so far. On Friday 6 March, participants in the Second Life virtual world will be able to see two lectures, streamed from Chicago's Adler Planetarium. The first is from the Cosmic Diary's Brother Guy Consolmagno, who will be talking about "the Galileo affair". Following him, Ohio State University Prof of Astronomy Scott Gaudi will be discussing exoplanets and life in the Universe. I'm a bit vague on the whole Second Life thing, so just follow the link for more details, ok?

More Adler Planetarium news! They're pulling out the stops this week as they're also showing two new astronomy movies and announcing an exhibition about 400 years of the telescope. Medill and Chicago Breaking News have more information, so get clicking.

Physics World have just released an IYA2009 special issue, available to download free of charge for a short period of time. It boasts features on Earth-like planets, giant telescopes, and returning to the Moon. They've also written a review of the Cosmic Diary on their website. The content has even been mentioned on other sites, such as Tech News Watch. Congratulations, Physics World!

Light pollution is a recurring theme during IYA2009. Artificial lighting drowning out the stars is becoming ever-more of a problem. The Canberra Times is helping to keep momentum up by reporting about the wasted light frustrating astronomers and the public alike in the Australian city of Sydney.

Staying Down Under, Impulse Gamer (news they insist is "not just about games", maybe they should change their name then) has posted the programme of events coming up at the Melbourne Planetarium. Topics range from backyard astronomy to travelling throughout the Universe. Apparently visitors will have the opportunity to a chat with the planetarium's astronomer, enjoy wine and cheese, and be immersed in a planetarium experience. So in case you missed that, BOOZE.

That's plenty to tide you over until next week.

Remember that these updates are almost exclusively English-language based. Check local sources and your favourite news aggregator sites as well (e.g.: http://news.google.com), to complement these overviews.

## 27 February 2009

It's time for the weekly launch of the Round-up Rocket, blasting its way to Planet News!

A project begun two years ago in preparation for IYA2009 has finally come to fruition, UPI.com and Ansa.it bring to our attention. An Italian team of astronomers, scientists and historians have been building a telescope using Galileo's original design. I wonder if it has a computerised GOTO mount.

IYA2009 has begun in Scotland! Edinburgh Guide has outlined some important notes, including the fact that the Scottish Government is providing over £100 000 to help fund a range of public astronomy events during the year. Meanwhile, Prensa Latina has given a little bit of headline space to Cuban IYA2009 celebrations, which will include contests, workshops, and campaigns.

The mural-sized astronomical images being exhibited in the US are making their way to MiraCosta College, reports Village News. The grand unveiling is accompanied by a free public talk, sweetening the deal. The wonderfully-named town South Bend has also been gifted with mural images from NASA, according to local news source WSBT.com.

The Shreveport Times says that Lousiana's Science Centre is celebrating IYA2009 with a series of programs and activities. These include looks at the Messenger space probe, and studying the electromagnetic spectrum. The article is titled "Sci-Port to celebrate astronomy Friday" which is certainly cheerier than the site's latest headline, "Shreveport police investigate overnight stabbing".

A key aim of IYA2009 is boosting astronomy education, so it's excellent seeing positive moves in that direction reported by the media. Take Clarion University for example, which has been running a programme called "Integrating Astronomy into the Curriculum". The project has been inspired by IYA2009's goal of ensuring that every person has an astronomy related educational experience in 2009.

Over to India now, and Express Buzz has run an interesting story about renowned science writer and State Institute of Encyclopaedic Publications Director K Pappootty. He has been saying that "the knowledge of astronomy is a vital necessity for the development of new generation". He has also spoken out against the misuse of astronomy by astrologers, so he deserves an extra point.

Many astronomy clubs are running events to mark IYA2009. This is the theme of an article by The Punekar, which includes some quotes from people organising activities. Remember that if you're an amateur astronomer, you can do something similar!

Remember that these updates are almost exclusively English-language based. Check local sources and your favourite news aggregator sites as well (e.g.: http://news.google.com), to complement these overviews.

## 23 February 2009

It's time to hop aboard the news train. Choo-choo!

But before we depart, remember that these updates are almost exclusively English-language based. Check local sources and your favourite news aggregator sites as well (e.g.: http://news.google.com), to complement these overviews. Ok, let's go!

One of the most exciting projects this year is the Galileoscope, low-cost and easily-available telescopes. MSNBC.com's Cosmic Log has a feature article about the ‘scopes going on sale. It highlights the relevant details, and even boasts a video of US SPoC Doug Isbell explaining the ins and outs of a Galileoscope. Good job Doug, Hollywood awaits!

The UK launch of IYA2009 was held this week at Greenwich Observatory. To mark the event, the Royal Astronomical Society, Institute of Physics, and Science and Technology Facilities Council asked people in the UK what Galileo actually did. Astronomy, Science Daily, Albuquerque Express, Thaindian News and NewKerala reveal that the answers were a little less than accurate, with 73% crediting him with discovering objects including Neptune. Let's hope that these misconceptions are tackled during IYA2009...

Back to Galileo now, because The Lindsay Post (Ontario, Canada) is advertising a Lindsay Concert Foundation show, called "The Galileo Project: Music of the Spheres", a co-production of Tafelmusik Baroque Orchestra and the Banff Centre. This show combines music and art, commemorating IYA2009. How modern!

NASA has been marking IYA2009 this week with image unveilings at several sites across the US, comments Public Opinion and The Journal. The University of Arizona reports that its Biosphere 2 and Mount Lemmon SkyCenter will be used to unveil their exhibits. The pictures look very impressive so try to see them if you live in the vicinity.

And finally, astronomy is one of the few fields of science in which enthusiasts can make real contributions. This fact is central to the Galaxy Zoo project, recently updated and featured on Scientific Blogging. Sign up and help study 250 000 galaxies, searching for the strange and unusual. You can do that NOW. That's why I put this one last, see?

## 13 February 2009

It's news round-up time! Brought to you today from an internet cafe, as I was made promises about internet instillation times that were not kept. But fear not, there's no stopping the IYA2009 updates!

It's always good to see local stories about IYA2009 events get some coverage in the media, so let's show our appreciation by hyperlinking to Chronicle-Tribune which is advertising a free show at the Marion Public Library, Grant County, Indiana. The programme in question is entitled "Visions of the Universe: Four Centuries of Discovery", and we are informed that it was created in honour of IYA2009. So it definitely deserves a mention here. The Mail Tribune has also been highlighting IYA2009 activities in the Southern Oregon area.

The Hindu reports that The State unit of Jana Vignana Vedika and Birla Science Centre is gearing up for two-day long activities to mark the quarter-centenary celebrations of invention of telescope by Galileo Galilei. The actual article is very short, and most of it has just been reproduced here.

Astronomy.com has posted a brief article about NASA releasing images from its great observatories (Hubble, Spitzer, Chandra) to more than 100 planetariums, museums, nature centres and schools. The photos will be out of this world, ahaha.

2009 is an excellent time for amateur astronomers, as Mark Thompson would agree. His hobby has been under the spotlight in a feature for Norwich Evening News. Apparently, the home of Alan Partridge is also a centre for astronomy enthusiasts, as evidenced by the great number of activities planned in the area for IYA2009. Seeing conditions must be pretty good, if Mark's photos are anything to go by.

And finally, WRS Radio have kindly uploaded an audio file about astronomy in Switzerland, which is deserving of your attention if you are a) Swiss and b) fed up of reading words.

That's all there's time for this week. Quite literally, I'm about to be kicked out of the internet cafe for making my single drink last over two hours.

## 6 February 2009

News, glorious news!

IYA2009 has an official patron, Dr. Mani Bhaumik. This talented individual is helping IYA2009 to achieve its aims and his appointment has not gone unnoticed, as IBN Live, Mangalorean.com, The Times of India, Thaindian News and Nhatky.in report.

Here's one for all you keen amateur astronomers: Comet Lulin is getting ever-brighter in the night sky, and is attracting some deserving attention. Let's give a shout-out to IYA2009.com which has a short article with some useful maps outlining where to locate this object. Perhaps the author was inspired by the IYA2009 site update.

Astronomers are often asked why studying the heavens is beneficial to society. Business Daily Africa has written about the sometimes overlooked but very important economic benefits of astronomy, and claims that countries that don't invest are missing out.

Stamp collecting astronomy enthusiasts will be pleased to hear that a plethora of themed stamps will be released during 2009, commemorating our favourite branch of science. For a sneak-preview of what to expect, head on over to the Rainbow Stamp Club.

The Christian Science Monitor has given a mention to both IYA2009 and the 200th birthday of Charles Darwin. This has also been noticed by Open Parachute, who go one better by putting the logo next to the text. Thanks!

And finally, what has IYA2009 got to do with the Dewey Decimal Classification System? Only one site dares answer that: The Dewey blog!

## 30 January 2009

It's Friday! The week is almost over, and two days of relaxation are imminent. But not before the weekly IYA2009 news round-up!

The big news story this week was NASA announcing that members of the public can vote for an object to be imaged by the Hubble Space Telescope during 100 Hours of Astronomy. Predictably this story has been picked up by many sites, including Discovery, Fox News, About.com, Aero-News, Examiner, iTWire, and countless others. Even more coverage can be expected during 100 Hours.

Our very own New Media Task Group Chair Pamela Gay was the subject of a story on DenNews.com. Pamela gave an amateur astronomy lecture titled "The Once and Future Role of Citizen Science: The Great Discoveries of Public Astronomers Across History" and impressed those in attendance.

MSNBC.com contributor Dan Roach has put together an informative article about From Earth To The Universe. Spanning ten pages, it shows a healthy sample of FETTU images, along with captions. It's a good taster of FETTU. Seed Magazine have done something similar, albeit with a snazzier interface.

GizMag mentions IYA2009 in the very first sentence of its article about the work of Thomas Harriot and Galileo Galilei. It describes how some historians believe that Harriot may have beaten Galileo by observing sights through a telescope first, and even created excellent maps of the Moon.

The ever-popular Astronomy Picture of the Day adopted an IYA2009-themed image this week. It was mentioned on the Cosmic Diary, and everything.

And finally, a quick plug for the excellent (and free) Communicating Astronomy with the Public Journal, which has just released issue five. Read, and be impressed. That's an order.

## 23 January 2009

Welcome to the third IYA2009 round-up, where we take a whistle-stop tour of news coverage from the world of cyberspace.

Waves from the IYA2009 Opening Ceremony are still being felt, and this report courtesy of the US node contains some interesting information, including mentions of the Galileoscope project and the documentary production BLAST!

The Oklahoma Daily has dedicated a few paragraphs to local news about the Year, pointing out an upcoming series of astronomy lectures at the Sam Noble Oklahoma Museum of Natural History, followed by public observing sessions using telescopes. A similar situation is occurring in Clanfield Observatory, reports the UK's Portsmouth Today site. The author says that the events will coincide with "the first International Year of Astronomy". There's going to be another? Yay!

For those telescope-buffs out there, you may like to read the Popular Mechanics article about the most powerful telescopes today, as well as a sneak-preview of the future of giant observatories.

Inquirer.net published a good article about IYA2009 from a Filipino-perspective, and is noteworthy for containing a section on how light pollution not only disrupts our view of the stars, but also stresses ecological systems.

A Johannesburg site has a feature on the upcoming solar eclipse that will be visible from South Africa. Where to go and how to safely view it are outlined. Note the banner image, which appears to be a photo of a photo. Australia's South Western Times also discusses the eclipse, and suggests using a pinhole camera to observe it.

A short but interesting story was recounted by The Guardian about scientists trying to conduct genetic testing on the remains of Galileo, with the aim of learning more about his poor eyesight, and whether that influenced the observations he made. The article politely mentions IYA2009 at the very very end.

CNW Telbec reports that The Montréal Planetarium will be celebrating IYA2009 in style, by hosting a great number of events. Astronomers will be taking their shows beyond the planetarium doors to local parks, guaranteeing a greater number of people will learn about our Universe. Over 70 events have been planned, including observing sessions, contests, workshops and discussions.

And last but not least, Gerard van Belle's blog on the Cosmic Diary has announced a major development in the world of astronomy: the European Southern Observatory HQ's coffee machine has broken down. Until it's fixed, the world's scientific output will be severely hampered. Let's hope it's repaired double-time!

## 19 January 2009

Hello and welcome to the second news round-up! It's been an exciting week for IYA2009, in no small part because of the official Opening Ceremony in Paris. Not unexpectedly, this event was reported by many outlets. Innovations Report, Kansas City info Zine (with focus on the National Science Foundation's contributions), OneIndia, Space.Ref.com, and Kazakhstan-based Kazinform are examples of the international coverage that the Opening Ceremony attained. Of course, this is just a sample; there are countless more mentions on other websites and blogs in cyberspace. And I'd be remiss if I didn't mention the Cosmic Diary LiveBlog, which contains on-the-scenes accounts of the event, and photos to accompany the text.

In other news, The Philadelphia Inquirer has run an article outlining upcoming developments in the world of big telescopes. 400 years after Galileo's first observations, the technology we have is incredible. A well-written overview of the Year has been provided by The Skeptic Detective, which promises to post updates when new astronomical discoveries are made. And Hannah Lally from The Wire has produced an article about IYA2009, which features opinions from astronomers and astronomy communicators. It's well worth a read.

Kent News in the UK has run a story about events occurring in that part of the world, particularly during an opening ceremony on 20 January. The article contains some good quotes from Prof. Michael Smith, the local coordinator.

The Westmoreland Gazette talks about light pollution, and how it can obscure valuable views of the heavens. It includes the lovely closing line "This year, the sky is definitely not the limit. " There's also mention of light pollution on the NZCity, which reports that there is a push for an area in New Zealand to become a night sky reserve. And excellent news from AboutMyArea, which says that the Exmoor (UK) National Park Authority has been awarded £3500 from the Royal Astronomical Society in support of IYA2009 and dark sky programmes. These will occur throughout the year, so keep an eye out for them if you happen to live in that part of the world.

Until next week, continue celebrating IYA2009, and fingers crossed for clear skies!

## 9 January 2009

Astronomy captures the attention of not just the public, but also the media. IYA2009 has been featuring prominently on news websites and blogs, leading to a veritable explosion of coverage since New Year's Day. Gathered here are some selected highlights, giving a taste of what is out there.

Let's start with an article from India PR Wire, all about the Goa-based Association of Friends of Astronomy (AFA). The AFA have a commendable range of activities planned for 2009, with enthusiasm that sets an example to all. One particularly active member is described as being "possessed by astronomy", which certainly conjures an interesting image. They may have their eyes to the skies, but their feet are firmly on the ground, as they realise the need to capture an audience before unleashing scientific facts. How will they do this? A public screening of the film "Aliens". Sign me up!

Italy next, and Lab Spaces have been writing about how a team of astronomers and museum creators from the Arcetri Observatory and the Institute and Museum of the History of Science, both in Florence, are trying to recreate the telescope and conditions that led to Galileo's observations. They have already checked the Moon and Saturn, and will soon move onto Jupiter's moons and the phases of Venus. Taking the aim of "seeing what Galileo would have seen" rather literally, the team want to open Galileo's tomb and obtain DNA evidence to determine the medical reason he died blind.

Moving swiftly on to The Columbus Dispatch, which gives a United States-centred overview of IYA2009. It is a short but sweet article, and the author generously gives a plug to his colleagues' exhibit, "Planet Panorama". Also in that part of the world is news courtesy of Media Newswire that the University of Michigan's College of Literature, Science, and the Arts aim to bring astronomy down to Earth with the Winter 2009 Theme Semester "The Universe: Yours to Discover." There will be high-profile lectures, star-gazing parties, science cafes, concerts, and much more, most of which are free and open to the public. And at the University of Wyoming, student Dan Lyons has been selected as a NASA IYA2009 Graduate Student Ambassador. He will receive a $2,000 grant and up to $700 for materials and travel reimbursement. Don't spend it all at once, Dan!

The marvellous astronomy magazine Sky & Telescope has a note about IYA2009 written by the editors and released on the website. Their dedication to the Year has even led them to post a superb article about IYA2009 online, free of charge. Thanks!

Now a notably fine article by Andrew Stephens from The Age about his discovery of observational astronomy and the science that surrounds it. Hopefully his experiences will be mirrored by many more during 2009. Half the length and including a significant section copied and pasted from the UNESCO website is an iTWire overview of IYA2009. It is informative and contains many useful hyperlinks, so gets some bonus points.

Torontoist has run an article about IYA2009 posters on Toronto public transport. The posters are well designed and clever, making commuters think about astronomy in novel ways. Bringing science to the people is an aim of IYA2009, and the project organisers are certainly achieving that. The same can be said of local planetarium staff, according to Tallahasee.com. The site has given some coverage to free events, where attendees are shown the constellations and then told mythology behind them.

Off to Oz next, and The Australian has featured a well-written article about how IYA2009 can help Australia. It serves as a warning of how neglecting science can negatively impact society, and so is a timely reminder that IYA2009 can go much deeper than simply showing people sights through telescopes. Not that that is a bad thing of course, as demonstrated by astronomy enthusiasts also in Australia, as reported on Sunshine Coast Daily Online. Four telescopes from the Wappa Falls Observatory were used to show passers-by what our nearest star is really like. Let's hope they remembered the solar filters.

More telescope news was provided by Contra Costa Times, which bagged an interview with Stephen Pompea, an astronomer working with Galileoscopes. These little instruments certainly impress, and will give many people excellent views of the heavens during 2009, and long beyond.

Light pollution is a growing concern, reports The Scotsman. Stating that a fifth of the world's population can no longer see the Milky Way with the naked eye due to artificial lighting, it sees the Dark Skies Awareness programme as a good way of turning the situation around. They also argue that sensible lighting could conserve energy, protect wildlife, and benefit human health. The report says that there are plans to create a "dark sky park" in Scotland, specifically for visitors to enjoy the night sky.

The blogs at Wired have been talking about IYA2009, and given special mention to the Cosmic Diary Cornerstone Project. Says author Todd Dailey, "If your geeklet is interested in astronomy as a career, the site is a great place to find out more about what astronomers do day-by-day." The Vatican also supports the Cosmic Diary, reports the Catholic News Service. Vatican astronomer Jesuit Brother Guy Consolmagno is one of more than 50 scientists from around the world contributing to the blog (see his entries here). The Vatican Observatory is also helping to organise a week on astrobiology at the Pontifical Academy of Sciences in November, among many other projects. Church leaders hope that "the celebrations finally will put to rest the long suspicion that the church is hostile toward science."

And finally, hot off the press, AthenaWeb has just posted an announcement expressing their support and dedication to IYA2009. Astronomy films will be hosted and readily available on the site all year long. To make things even easier, you can subscribe to their monthly newsletter.

That's all the news there's time for, but this is just a sample of coverage. For even more stories, check out the press section of the official IYA2009 website. Expect another news round-up next week, so you can keep up to date with how the media are tracking IYA2009 developments.

See you then!

# Appendix 2. Feedback and comments from around the world

"*The pleasure was mine working with IYA last year — what a fun time.*" Davin Flateau

"*It was my pleasure to collaborate from Puerto Rico with the International Year of Astronomy 2009 celebration.*" Carlos Malave

"*It was a great pleasure to be involved in such a hugely successful endeavour. Congratulations to all of you at the IAU.*" Chris Riley, British writer, broadcaster and film maker specialising in science and history of science.

"*I would like to thank IAU for giving us the impetus. If you are looking for success stories of IYA, ours is the one. During this year, we held our first elections of the association, elected an executive body and started holding regular sessions. Currently, we are pursuing on getting our association registered — and that concept also started during the IYA.*" Omer Aziz

"*It was really great to work for IYA2009 activities in Pakistan.*" Rafi Ullah

"*This will get a place next to my desk! Now my wife will know why I spend so much time with my hobby*" Patrick Jaecques

"*We are also doing all we can to insure that children throughout the world are able to continue learning with educational telescopes and equipment. We have started a new venture named Learning Encounters. We are currently making modifications to our telescope kit to make it more viewer friendly as well as create scope more affordable to all. Thank you for the wonderful year and Learning Encounters will keep the legacy of learning alive.*" Tom Smith

"*Thank you very much for your appreciation of my and my team (from school and Astroclub ) little contribution to this global celebration of astronomy during IYA2009. You don't know but it is the most beautiful present I ever received on my Birthday*" Nicole Pazmany

"*Thank you for the honour. I enjoy doing what I do because it goes back to the concept of 'oral tradition' of story telling about the stars and constellations.*" Ray Wong

"*Thank you for gave us all a chance to participate in IYA2009. It was a wonderful year and it will continue to build awareness and share astronomy with the public.*" Avivah Yamani

"*I am indeed very proud of the contributions that I made in the year. And this certificate ratifies my endeavors. I will always cherish this certificate. Please accept my gratitude and if there is more that I could do for astronomy in Pakistan, please feel free to contact me*" Khalid Marwat, Pakistan

"*It is really motivating and invite us to keep going in the development of Astronomy in Mexico.*" Alejandro Arnal Lehfeld, Victorinox México

"*It was totally unexpected but an honour to receive it. Being involved in the IYA2009 activities was an incredibly rewarding experience.*" Michael White, New Zeland

"*I am so proud :)) I did all my best to promote IYA everywhere and we had fantastic project :)*" Halina Bednarz, iEARN Poland

"*It's a great stimulus for our Association to continue in the spreading the Astronomy and exact sciences.*" Roberto Franco, Mexico

"*This is wonderful and I will treasure it forever! You just made my day (which just started here in New Zealand).*"Haritina Mogosanu, New Zealand

"*Last year was a very good year for all of us and a pleasure in collaborating with IYA2009.*" Ruxandra Popa

"*It's been a great year. I've learnt a lot because of the interesting activities from 2009. We are doing much more things, as an exhibition about women and astronomy that finished today. I hope dark skyes will let us continue with observations.*" Sílvia de Cambra, Andorra

"*In the year 2009 there were many beautiful and IYA2009 in Slovenia will leave some traces. We convince the government that almost all schools were equipped with telescopes. But nothing happens in one night, we have to give to "time and astronomy" a chance. Thank you for your efforts in year 2009.*" Vicar Zorko

"*Congratulations on a great achievement for astronomy!*" Chris Corbally, Vatican Observatory

"*We really honored with this! Thank you very much and we will be in touch with Beyond IYA2009 too. We are very proud on you and pleased to present even simple events in Iraq during IYA2009.*" Azhy Hasan, Iraq

"*Thank you for the Certificate of Appreciation, and please thank everyone who made IYA2009 possible. Can we do it again sometime?*"Gerard Gilligan, UK

"*Thank you for this token of appreciation! It was our pleasure and honour to participate in this yearlong worldwide event. Thanks to the IYA2009 we got to know a lot of interesting people and had collaborations all over the world. It has created an inspiring atmosphere, thanks to which new ideas and projects have taken shape. How can we limit ourselves to our own nations/organisations, when we are reaching for the furthest reaches of the Universe together?*" Robrecht Lenaerts

"*Everyone here thinks IYA2009 was a great success and we are pleased that we were associated with it.*" Paul Murdin, Royal Astronomical Society

"*It has been a huge pleasure working on the Dark Sky Park project and has and is bringing great things to Scotland. I am delighted to be part of the Astronomy movement and as I said immensely proud to be a part of the 2009 events.*" Keith Muir, Head of Tourism, Recreation & Environment Galloway Forest District, UK

"*Thanks so much for this as it mean a lot to me.*" Mponda Malozo

"*I survived but I might have suffered permanent injuries.*" Mike Simmons, Astronomers without Borders

"*Congratulations for all the activities and all the good things that happened during IYA2009.*"Fernanda Freitas

"*It was exciting working on IYA. The effort certainly helped us take astronomy to a larger audience. NASA astronomy got a boost from IYA — even a visit to the White House!*" Hashima Hasan, NASA

"*Many thanks for your email and our certificate. It's gratefully received and displayed on the company notice board with pride.*" Adam Jennings, Red Box New Media

"*This was an amazing year for us as amateur astronomers and surpassed our expectations in our abilities and opportunities for Public Astronomy Outreach programs.*" Umair Asim, Pakistan

"*It was an immense pleasure supporting this important project. How wonderful to see so many people, from all over the planet, happily participating in astronomy.*" Meredith Mengel, NASA

"*I greatly thank you on my behave and all the others to whom this rewarding appreciation certificate has been issued. I would also like to thank the IAU in behave of my society, ESSS, for being considering the collaboration of ESSS in promoting and developing Astronomy in Ethiopia.*" Tolu Biressa, Ethiopia

"*IYA2009 was an exceptional year.*" Jon Elvert, IPS

"*Although the work itself was extremely rewarding it is also nice to receive additional appreciation. I am glad that I was able to contribute to the IYA and I am honoured that I was part of the successful world-wide effort to promote astronomy.*" Aram Karalič, Serbia

"*And what a great year it was — with all the amazing people involved and their efforts.*" Bob Crelin, Author

"*I will try to do more this year*" Adrian West

"*We are extremely happy to receive these certificates .They are simply awesome and carry a great value.*" Jayshree Mane and Neel Pathak

"*On behalf of the Ethiopian Space Science Society, I would like to convey our appreciation and thanks for the kind support and encouragement IAU provided to us in the framework of IYA2009. We look forward to stronger cooperation and partnership with IAU in our common endevours.*" Gezahegn Yirgu

"*It was a great pleasure for me to take part in the celebration of the International Year of Astronomy 2009.*" Milica Zivadinovic, Artist

"*It was a great pleasure and a worthwhile experience!*" Michael Schmidt

"*I hope that in the future to participate again in the context of an International Year of Astronomy, and to collaborate with the organization of activities related to it in my country, Costa Rica.*" Milton Fernandez, Costa Rica

"*IYA was the best year yet in my 29 years in astronomy, and I thouroughly enjoyed every moment of every public event we facillitated here. I will print out that certificate and hang it on my office wall with pride.*" Sherry. VP2 Royal Astronomical Society of Canada-Victoria Centre.'

"*Thank you for sending the certificate of appreciation to my father, Paul Rodmell. He passed away on February the 12th this year and our family will appreciate this recognition of his work in the astronomical community.*" Stephanie Ladbrook (nee Rodmell)

# Appendix 3. IYA2009 Reports Figures Overview

| | Budget (Euros) | Number of people reached by IYA2009 |
|---|---|---|
| National Nodes (148) | | |
| Afghanistan | — | 500 |
| Albania | 1,500 | 500 |
| Andorra | 20,000 | 8,000 |
| Armenia | 8,000 | 15,000 |
| Austria | 82,000 | 1,000,000 |
| Azerbaijan | 10,000 | 1,600 |
| Belgium | 96,500 | 30,000 |
| Bolivia | 500 | 70,000 |
| Bosnia-Herzegovina | 15,000 | 1,000 |
| Brazil | 2,000,000 | 2,017,927 |
| Bulgaria | 20,000 | 14,000 |
| Canada | 350,000 | 2,000,000 |
| Chile | 100,000 | 400,000 |
| China | 200,000 | 10,000,000 |
| Colombia | — | 100,000 |
| Côte d'Ivoire | 6,200 | 5,000 |
| Cuba | | 2,500 |
| Czech Republic | 100,000 | 600,000 |
| Denmark | 150,000 | 200,000 |
| Egypt | 15,000 | 4,000 |
| El Salvador | | 613,400 |
| Estonia | 2,000 | 26,500 |
| Finland | 30,000 | 100,000 |
| France | 100,000 | 1,500,000 |
| Gabon | 2,500 | 400 |
| Germany | 10,000 | 2,000,000 |
| Ghana | 5,000 | 3,000 |
| Guatemala | | 7,000 |
| Honduras | | 350,000 |
| Hong-Kong | 70,000 | 1,000,000 |
| Hungary | 41,000 | 62,000 |
| India | | 710,244,200 |
| Indonesia | 15,000 | 100,000 |
| Iraq | — | 8,000 |
| Ireland | 100,000 | 3,000,000 |
| Italy | 1,000,000 | 400,000 |
| Jamaica | 200 | 3,000 |
| Japan | 160,000 | 6,000,000 |
| Kazakhstan | — | 5,000 |
| Kenya | 8,000 | 1,000,000 |
| Latvia | 500 | 5,000 |
| Lebanon | 22,000 | 25,000 |
| Lithuania | 20,000 | 15,000 |
| Luxembourg | 80,000 | 30,000 |
| Macedonia | 3,000 | 12,000 |
| Maldives | 2,500 | 1,000 |

| | | |
|---|---|---|
| Malta | — | 100,000 |
| Mexico | 300,000 | 250,000 |
| Morocco | | 1,000 |
| Mozambique | 5,000 | 5,000 |
| Nepal | 1,000 | 2,000 |
| Netherlands | 100,000 | 100,000 |
| New Zealand | — | 200,000 |
| Nicaragua | 4,000 | 4,000 |
| Norway | 375,000 | 1,000,000 |
| Pakistan | 10,000 | 6,000 |
| Panama | 37,000 | 1,000,000 |
| Paraguay | | 15,000 |
| Philippines | 76,700 | 32,000 |
| Portugal | 500,000 | 2,000,000 |
| Puerto Rico | 70,000 | 45,000 |
| Romania | 2,440 | 50,000 |
| Russia | 50,000 | 20,000 |
| Rwanda | 2,100 | 120,000 |
| Sao Tome Principe | 1,500 | 3,000 |
| Serbia | 25,000 | 35,000 |
| Singapore | | 119,722 |
| Slovakia | 35,000 | 300,000 |
| Slovenia | 430,000 | 300,000 |
| South Korea | 826,000 | 11,700,000 |
| Spain | 280,000 | 10,000,000 |
| Sweden | 60,000 | 2,000,000 |
| Syria | 7,000 | 30,000 |
| Tanzania | 7,700 | 100,000 |
| Thailand | 50,000 | 500,000 |
| Trinidad Tobago | 5,000 | 6,000 |
| Tunisia | 124,000 | 200,000 |
| Turkey | 100,000 | 100,000 |
| UAE | — | 5,000 |
| UK | 1,175,000 | 1,000,000 |
| Ukraine | 50,000 | 5,000,000 |
| Uruguay | 60,000 | 200,000 |
| USA | 810,000 | 1,500,000 |
| Uzbekistan | — | 1,000 |
| Vatican | 40,000 | |
| Venezuela | 400,000 | 75,000 |
| Vietnam | 1,000 | 1,000 |
| Zambia | 4,500 | 500,000 |
| Total Countries | 10,871,340 | 791,606,249 |
| | | |
| Organisational Nodes (40) | | |
| ESA | 500,000 | 450,000 |
| ESCOnet | | 12 |
| ESO | 322,500 | 8,000,000 |
| EurAstro | 45,000 | 2,500 |
| Europlanet | | 1,000 |
| International Planetarium Society | | |
| IOAA | 1,200,000 | 600 |
| NASA | 600,000 | 700,000 |

| | | |
|---|---|---|
| UNESCO Latin America | 60,000 | 620 |
| United Nations Office for Outer Space Affairs | | 700 |
| | | |
| Total Organisational Nodes | 2,727,500 | 9,155,432 |
| | | |
| Global Projects (27) | | |
| 100 Hours of Astronomy | 30,000 | 2,000,000 |
| 400 Years of the Telescope | 1,823,000 | 10,000,000 |
| Blast! | 385,870 | 1,125,000 |
| Dark Skies | 11,000 | 200,000 |
| Developing Astronomy Globally | 35,000 | |
| FETTU | 238,000 | 10,000,000 |
| Galilean Nights | | 1,000,000 |
| Galileo Teacher Training Programme | 50,000 | 5,500 |
| GalileoMobile | 70,000 | 3,200 |
| Galileoscope | 2,200,000 | 1,800,000 |
| Naming Pluto | 17,000 | 5,000 |
| Phemu09 — Observations of the mutual events of the Galilean satellites | 50,000 | |
| Pictures World Tour | | 125,000 |
| PTTU | 20,000 | 165,000 |
| She is an Astronomer | 15,000 | 30,000 |
| Sky — Yours to Discover | 2,000 | |
| Solar Physics Task Group | 50 | |
| StarPeace | 60,000 | 10,000 |
| | | |
| Total Global Projects | 5,006,920 | 26,468,700 |

# Appendix 4. IAU 2003 Resolution No B.3

Resolution No B.3.
*« 2009 The Year of Astronomy »*

THE INTERNATIONAL ASTRONOMICAL UNION

**Recalling**

that the introduction of the telescope in astronomical observations brought about a fundamental revolution in humankind's perception of the world outside the Earth

**Recognizing**

that the series of developments initiated by this event led, in time, not only to the vast and richly detailed view of the Universe and humankind's place in it which is modern cosmology, but to the entire framework of fact-based empirical investigation and analysis which underlies contemporary science and technology, and

**Considering**

that the immediate appeal of astronomy to the imagination of humans in all walks of life remains one of the most powerful ways to kindle the interest of young people everywhere in scientific research and education, and thus to contribute to the progress of the quality of human life,

**Recommends**

that the year 2009, the 400th anniversary of Galileo's accomplishments and the real birth of modern telescopic astronomy, be declared the "Year World of Astronomy", in which the potential astronomy to enlighten and enrich humans will be brought to the largest possible audience all over the world, and

**Requests**

that the Officers and Executive Committee with support from Commission 41 initiate prompt and effective action to organize this important worldwide event, in collaboration with all appropriate national and international organizations.

# Appendix 5. UNESCO 2005 Proclamation

United Nations Educational,
Scientific and Cultural Organization

**Executive Board** ex

**Hundred and seventy-second session**

172 EX/51
PARIS, 11 August 2005
Original: French

Item 57 of the provisional agenda

**PROCLAMATION OF 2009 AS INTERNATIONAL YEAR OF ASTRONOMY**


**SUMMARY**

This item has been included in the provisional agenda of the 172nd session of the Executive Board at the request of Italy.

An explanatory note is attached.

Decision proposed: paragraph 13

## EXPLANATORY NOTE

## PROCLAMATION OF 2009 AS INTERNATIONAL YEAR OF ASTRONOMY

### Introduction

1. The sky, our common and universal heritage, is an integral part of the environment perceived by humanity. Humankind has always observed the sky either to interpret it or to understand the physical laws that govern the universe. This interest in astronomy has had profound implications for science, philosophy, religion, culture and our general conception of the universe.

2. Scientific discoveries by astronomers have not only had an influence on our understanding of the universe but also on technology, mathematics, physics and social development in general.

3. Today astronomy is studied by a small number of researchers. Although there is general interest in astronomy, it is difficult for the general public to gain access to information and knowledge on the subject.

4. The institution of the International Year of Astronomy could provide a solution to the problem by providing a scientific basis for the traditional and cultural perception of the sky. It could also encourage scientific research in the field.

5. The year 2009 marks the 400th anniversary of the first use of the telescope for astronomical observation by the Italian scientist Galileo Galilei in 1609. For the first time in history, people became aware of the fact that the earth was not isolated in space but surrounded by other worlds and other celestial bodies. That observation was a milestone in the development of astronomy and the history of humanity as it led to the expansion of the boundaries of the "known universe", not only in terms of the physical world but also in terms of humanity's own vision of the limits to be surpassed.

### Background

6. The International Astronomical Union (IAU, founded in 1919, composed of approximately 9,000 professionals from 70 countries), at its General Assembly on 23 July 2003 in Sydney (Australia), unanimously approved a resolution in favour of the proclamation of 2009 as the Year of Astronomy, marking the 400th anniversary of Galileo's discoveries (1609). Following the vote by the General Assembly, the IAU Executive Committee requested the Government of Italy, Galileo's native country, to submit a formal request to UNESCO and the United Nations to proclaim 2009 Year of Astronomy. An IAU working group was established to promote these events.

7. UNESCO has already undertaken activities for the safeguarding of cultural heritage related to astronomy under the "Astronomy and World Heritage" project launched by the World Heritage Centre in 2003. A group of international experts met in Venice in March 2004 to draw up a support and implementation strategy for the project. The initiative was backed by UNESCO's Regional Bureau for Science in Europe (ROSTE), the Royal Astronomical Society (United Kingdom) and the Governments of the Netherlands and the United Kingdom.

8. At the meeting in Venice, Ambassador Francesco Caruso, Permanent Delegate of Italy to UNESCO, announced that the Italian Government had decided to request UNESCO to proclaim 2009 as International Year of Astronomy. The request was confirmed by a letter sent to the Director-General of UNESCO.

9. ROSTE has recently provided its support for a series of astronomy-related activities in South-East Europe, such as the establishment of a European subregional committee on astronomy to establish cooperation among observatories in the region. ROSTE has also allocated funds to improve the quality of research and technical instruments. In particular, a CCD camera has been provided to the Rohzen Observatory in Bulgaria to permit optimum use of the Observatory's telescope (the largest in Southern Europe), from which all researchers in the region may benefit.

**Conclusion**

10. International Years may be proclaimed by the United Nations only during the annual General Assembly meetings in autumn at the request of one (or more) Member States, one year in advance. With regard to the International Year of Astronomy 2009, the proclamation must be approved by the General Conference of UNESCO at its 33rd session and brought to the attention of the United Nations General Assembly in autumn 2006.

11. UNESCO played a fundamental role in the celebration of the International Year of Physics 2005 and in the request concerning the proclamation of the International Year of Planet Earth. International Year of Astronomy 2009 could strengthen the visibility within public opinion of UNESCO's competence in the field of science and the importance of international scientific cooperation to the development of knowledge in the field. Furthermore, in view of the implications of astronomy for culture, cultural diversity and philosophy – areas in which the Organization has a clear mandate as a specialized agency of the United Nations – the International Year of Astronomy constitutes a requisite step.

12. Italy is at the forefront in promoting this event and relies, of course, on the support of other Member States. France and Japan have already expressed support for this initiative.

**Proposed draft decision**

13. In the light of the above, the Executive Board may wish to adopt a decision along the following lines:

The Executive Board,

1. Recognizing that astronomical observations have profound implications for the development of science, philosophy, religion, culture and the general conception of the universe,

2. Aware that the discoveries of astronomers in the field of science have had an influence not only on our understanding of the universe but also on technology, mathematics, physics and social development in general,

3. Noting that the cultural impact of astronomy has been marginalized and confined to a specialized public,

4. Having examined document 172 EX/51,

5. Taking into account the crucial role UNESCO could play in shaping public opinion and raising its awareness of the importance of astronomy to social development through the establishment of links between scientific research networks and the cultural perception of the universe,

6. Invites the Director-General to support all efforts leading to the United Nations General Assembly proclaiming 2009 as International Year of Astronomy;

7. Recommends to the General Conference at its 33rd session to adopt a resolution concerning this subject.

# Appendix 6. United Nations 2007 Resolution in English

United Nations A/RES/62/200

General Assembly

Distr.: General
29 February 2008

**Sixty-second session**
Agenda item 56 (*b*)

## Resolution adopted by the General Assembly

[*on the report of the Second Committee (A/62/421/Add.2)*]

### 62/200. International Year of Astronomy, 2009

*The General Assembly*,

*Recalling* its resolution 61/185 of 20 December 2006 on the proclamation of international years,

*Aware* that astronomy is one of the oldest basic sciences and that it has contributed and still contributes fundamentally to the evolution of other sciences and applications in a wide range of fields,

*Recognizing* that astronomical observations have profound implications for the development of science, philosophy, culture and the general conception of the universe,

*Noting* that, although there is a general interest in astronomy, it is often difficult for the general public to gain access to information and knowledge on the subject,

*Conscious* that each society has developed legends, myths and traditions concerning the sky, the planets and the stars which form part of its cultural heritage,

*Welcoming* resolution 33 C/25 adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization on 19 October 2005[1] to express its support for the declaration of 2009 as the International Year of Astronomy, with a view to highlighting the importance of astronomical sciences and their contribution to knowledge and development,

*Noting* that the International Astronomical Union has been supporting the initiative since 2003 and that it will act to grant the project the widest impact,

*Convinced* that the Year could play a crucial role, inter alia, in raising public awareness of the importance of astronomy and basic sciences for sustainable development, promoting access to the universal knowledge of fundamental science through the excitement generated by the subject of astronomy, supporting formal and informal science education in schools as well as through science centres and

[1] United Nations Educational, Scientific and Cultural Organization, *Records of the General Conference, 33rd session, Paris, 3-21 October 2005*, vol. 1: *Resolutions*, chap. V.

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museums and other relevant means, stimulating a long-term increase in student enrolment in the fields of science and technology, and supporting scientific literacy,

1. *Decides* to declare 2009 the International Year of Astronomy;

2. *Designates* the United Nations Educational, Scientific and Cultural Organization as the lead agency and focal point for the Year, and invites it to organize, in this capacity, activities to be realized during the Year, in collaboration with other relevant entities of the United Nations system, the International Astronomical Union, the European Southern Observatory and astronomical societies and groups throughout the world, and, in this regard, notes that the activities of the Year will be funded from voluntary contributions, including from the private sector;

3. *Encourages* all Member States, the United Nations system and all other actors to take advantage of the Year to promote actions at all levels aimed at increasing awareness among the public of the importance of astronomical sciences and promoting widespread access to new knowledge and experiences of astronomical observation.

*78th plenary meeting*
*19 December 2007*

# Appendix 7. United Nations 2007 Resolution in Spanish

Asamblea General

Distr. general
29 de febrero de 2008

**Sexagésimo segundo período de sesiones**
Tema 56 *b*) del programa

# Resolución aprobada por la Asamblea General

[*sobre la base del informe de la Segunda Comisión (A/62/421/Add.2)*]

## 62/200. Año Internacional de la Astronomía, 2009

*La Asamblea General*,

*Recordando* su resolución 61/185, de 20 de diciembre de 2006, sobre la proclamación de años internacionales,

*Consciente* de que la astronomía es una de las ciencias puras más antiguas y que ha contribuido y sigue contribuyendo fundamentalmente a la evolución de otras ciencias y aplicaciones en una gran variedad de ámbitos,

*Reconociendo* que las observaciones astronómicas tienen profundas repercusiones para el desarrollo de la ciencia, la filosofía, la cultura y la concepción general del universo,

*Observando* que, a pesar de que existe un interés general en la astronomía, con frecuencia es difícil que el gran público tenga acceso a la información y a los conocimientos sobre la materia,

*Consciente* de que todas las sociedades han creado leyendas, mitos y tradiciones relacionados con el cielo, los planetas y las estrellas que forman parte de su patrimonio cultural,

*Acogiendo con satisfacción* la resolución 33 C/25 aprobada por la Conferencia General de la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura el 19 de octubre de 2005[1] para expresar su apoyo a la proclamación de 2009 Año Internacional de la Astronomía, con objeto de resaltar la importancia de las ciencias astronómicas y su contribución a los conocimientos y al desarrollo,

*Señalando* que la Unión Astronómica Internacional ha estado apoyando la iniciativa desde 2003 y que procurará que el proyecto tenga las repercusiones más amplias posibles,

*Convencida* de que el Año podría contribuir decisivamente, entre otras cosas, a aumentar la conciencia pública de la importancia de la astronomía y las ciencias puras para el desarrollo sostenible, promover el acceso al conocimiento universal de las ciencias fundamentales gracias al entusiasmo generado por la materia de la

[1] Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura, *Actas de la Conferencia General, 33ª reunión, París, 3 a 21 de octubre de 2005*, vol. 1: *Resoluciones*, cap. V.

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astronomía, apoyar la enseñanza académica y no académica de las ciencias en las escuelas y también con centros y museos científicos y otros medios pertinentes, fomentar a largo plazo la matriculación de alumnos en las materias de la ciencia y la tecnología y apoyar la formación científica,

1. *Decide* proclamar 2009 Año Internacional de la Astronomía;

2. *Designa* a la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura organismo rector y centro de coordinación del Año, y la invita a organizar, en esta capacidad, las actividades que han de realizarse durante el Año, en colaboración con otras entidades competentes del sistema de las Naciones Unidas, la Unión Astronómica Internacional, el Observatorio Europeo Austral y las sociedades y los grupos astronómicos en todo el mundo y, a este respecto, señala que las actividades del Año se financiarán con contribuciones voluntarias, en particular del sector privado;

3. *Alienta* a todos los Estados Miembros, al sistema de las Naciones Unidas y a todos los demás agentes a que aprovechen el Año para promover a todos los niveles iniciativas destinadas a aumentar la conciencia pública de la importancia de las ciencias astronómicas y promover un amplio acceso a los nuevos conocimientos y experiencias de la observación astronómica.

*78ª sesión plenaria*
*19 de diciembre de 2007*

# Appendix 8. United Nations 2007 Resolution in Arabic

الأمم المتحدة

A/RES/62/200

Distr.: General
29 February 2008

# الجمعية العامة

**الدورة الثانية والستون**
البند ٥٦ (ب) من جدول الأعمال

## قرار اتخذته الجمعية العامة

[بناء على تقرير اللجنة الثانية (*A/62/421/Add.2*)]

### ٦٢/٢٠٠ – السنة الدولية لعلم الفلك، ٢٠٠٩

**إن الجمعية العامة،**

**إذ تشير** إلى قرارها ٦١/١٨٥ المؤرخ ٢٠ كانون الأول/ديسمبر ٢٠٠٦ المتعلق بإعلان سنوات دولية،

**وإدراكا منها** أن علم الفلك هو أحد أقدم العلوم الأساسية وأنه قدم ولا يزال يقدم إسهامات أساسية في تطور العلوم والتطبيقات الأخرى في طائفة واسعة من الميادين،

**وإذ تسلم** بأن الأرصاد الفلكية تؤثر إلى حد كبير في تطور العلم والفلسفة والثقافة والتصور العام السائد عن الكون،

**وإذ تلاحظ** أنه غالبا ما يصعب على عامة الناس، على الرغم من الاهتمام العام بعلم الفلك، الحصول على معلومات ومعارف عن هذا الموضوع،

**وإدراكا منها** أن كل مجتمع له أساطير وخرافات وتقاليد تتعلق بالسماء والكواكب والنجوم، تشكل جزءا من تراثه الثقافي،

**وإذ ترحب** بالقرار ٣٣ م/٢٥ الذي اتخذه المؤتمر العام لمنظمة الأمم المتحدة للتربية والعلم والثقافة في ١٩ تشرين الأول/أكتوبر ٢٠٠٥[(١)] للإعراب عن تأييده لإعلان عام ٢٠٠٩ سنة دولية لعلم الفلك، بهدف تسليط الأضواء على أهمية العلوم الفلكية وإسهامها في المعرفة والتطور،

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(١) منظمة الأمم المتحدة للتربية والعلم والثقافة، وثائق المؤتمر العام، الدورة الثالثة والثلاثون، باريس، ٣-٢١ تشرين الأول/أكتوبر ٢٠٠٥، المجلد الأول والتصويبان: القرارات، الفصل الخامس.

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**وإذ تلاحظ** أن الاتحاد الفلكي الدولي ما برح يؤيد هذه المبادرة منذ عام ٢٠٠٣، وأنه يعتزم العمل على أن يخول لهذا المشروع ممارسة أوسع الأثر،

**واقتناعا منها** بأنه يمكن للسنة أن تؤدي دورا حاسما في جملة مجالات، من بينها إذكاء الوعي العام بما لعلم الفلك والعلوم الأساسية من أهمية لتحقيق التنمية المستدامة، وتشجيع الحصول على المعارف العالمية المتعلقة بالعلوم الأساسية عبر الإثارة التي يولدها موضوع علم الفلك، ودعم تدريس العلوم في المدارس بشكل رسمي وغير رسمي وكذلك عن طريق مراكز ومتاحف العلوم وغير ذلك من الوسائل ذات الصلة، وحفز الزيادة على المدى الطويل في معدل تسجيل الطلاب في ميداني العلوم والتكنولوجيا، ودعم محو الأمية العلمية،

١ - **تقرر** إعلان عام ٢٠٠٩ سنة دولية لعلم الفلك؛

٢ - **تعين** منظمة الأمم المتحدة للتربية والعلم والثقافة لتكون الوكالة الرائدة والجهة التنسيقية لهذه السنة، وتدعوها إلى أن تتولى، بصفتها هذه، تنظيم الأنشطة التي ستنفذ خلال السنة، بالتعاون مع كيانات منظومة الأمم المتحدة الأخرى المعنية والاتحاد الفلكي الدولي والمرصد الجنوبي الأوروبي والجمعيات والمجموعات الفلكية في جميع أنحاء العالم، وتلاحظ، في هذا الصدد، أن أنشطة السنة ستمول من التبرعات، بما فيها التبرعات التي ترد من القطاع الخاص؛

٣ - **تشجع** جميع الدول الأعضاء ومنظومة الأمم المتحدة وجميع الجهات الفاعلة الأخرى على الاستفادة من السنة للتشجيع على اتخاذ إجراءات على جميع المستويات ترمي إلى إذكاء الوعي العام بأهمية العلوم الفلكية، وتشجيع الحصول، على نطاق واسع، على معارف وخبرات جديدة تتعلق بالأرصاد الفلكية.

الجلسة العامة ٧٨
١٩ كانون الأول/ديسمبر ٢٠٠٧

# Appendix 9. United Nations 2007 Resolution in Chinese

联 合 国 A/RES/62/200

大 会

Distr.: General
29 February 2008

第六十二届会议
议程项目 56(b)

# 大会决议

[根据第二委员会的报告(A/62/421/Add.2)通过]

## 62/200. 2009 年国际天文年

**大会**，

**回顾**其关于宣布国际年问题的 2006 年 12 月 20 日第 61/185 号决议，

**意识到**天文学是历史最悠久的基础科学之一，对其他学科的发展和广泛应用做出了而且仍在做出根本性的贡献，

**认识到**天文观测对科学、哲学、文化和对宇宙普遍认识的发展都具有深刻影响，

**注意到**虽然对天文学的兴趣普遍存在，但是普通民众通常难以获得有关这一学科的信息和知识，

**意识到**每个社会都形成了关于星空的传说、神话和传统，这些都构成了各个社会文化遗产的一部分，

**欢迎**联合国教育、科学及文化组织大会 2005 年 10 月 19 日通过的第 33 C/25 号决议[1] 表示支持宣布 2009 年为国际天文年，以彰显天文学的重要性及其对知识和发展所做的贡献，

**注意到**国际天文联合会自 2003 年以来一直支持这项倡议，并注意到联合会将努力使这一项目产生最广泛的影响，

**深信**国际天文年将在下列方面发挥关键作用：让公众进一步认识天文学和基础科学对可持续发展的重要性，利用天文学所激发出来的热情促进对基础科学普

[1] 联合国教育、科学及文化组织，《大会记录，第三十三届会议，2005 年 10 月 3 日至 21 日，巴黎》，第 1 卷，《决议》，第五章。

07-47576

遍知识的了解，通过学校以及科学中心、博物馆和其他有关手段支持正规和非正规的科学教育，刺激科技领域招生人数的长期增长，支持科学普及活动，

1. **决定**宣布 2009 年为国际天文年；

2. **指定**联合国教育、科学及文化组织担任国际天文年牵头机构和协调单位，请教科文组织以这一身份会同联合国系统的其他有关实体、国际天文联合会、欧洲南半球天文台及世界各地的天文学会和团体，在天文年组织相关活动，在这一方面指出天文年的活动资金将来源于自愿捐款，包括私营部门的自愿捐款；

3. **鼓励**全体会员国、联合国系统和其他所有有关方面通过天文年推动在各级采取行动，以使公众进一步认识到天文学的重要性，促进天文观测新知识和新经验的广泛普及。

2007 年 12 月 19 日
第 78 次全体会议

# Appendix 10. United Nations 2007 Resolution in French

# Assemblée générale

Distr. générale
29 février 2008

**Soixante-deuxième session**
Point 56, *b*, de l'ordre du jour

## Résolution adoptée par l'Assemblée générale

[*sur la base du rapport de la Deuxième Commission (A/62/421/Add.2)*]

### 62/200. 2009, Année internationale de l'astronomie

*L'Assemblée générale*,

*Rappelant* sa résolution 61/185 du 20 décembre 2006 relative à la proclamation d'années internationales,

*Consciente* du fait que l'astronomie est l'une des sciences fondamentales les plus anciennes et qu'elle a apporté et apporte encore une contribution essentielle à l'avancement d'autres sciences et applications dans toute une série de disciplines,

*Considérant* que les observations astronomiques influent profondément sur l'évolution de la science, de la philosophie, de la culture et de la conception générale de l'univers,

*Notant* que, malgré l'intérêt général que suscite l'astronomie, le grand public a du mal à avoir accès aux informations et connaissances concernant cette discipline,

*Consciente* que chaque société a construit, en ce qui concerne le ciel, les planètes et les étoiles, des légendes, des mythes et des traditions qui font partie de son patrimoine culturel,

*Accueillant avec satisfaction* la résolution 33 C/25 que la Conférence générale de l'Organisation des Nations Unies pour l'éducation, la science et la culture a adoptée le 19 octobre 2005[1] pour exprimer son soutien à l'initiative tendant à proclamer 2009 Année internationale de l'astronomie, afin de souligner l'importance des sciences astronomiques et de leur contribution à la connaissance et au développement,

*Notant* que l'Union astronomique internationale appuie cette initiative depuis 2003 et qu'elle s'emploiera à lui donner le plus grand retentissement,

*Convaincue* que l'Année pourrait jouer un rôle crucial, notamment en faisant davantage prendre conscience au public de l'importance de l'astronomie et des sciences fondamentales pour le développement durable, en facilitant l'accès à la connaissance universelle des sciences fondamentales grâce à l'enthousiasme suscité par l'astronomie, en appuyant l'éducation scientifique formelle et informelle dans

[1] Organisation des Nations Unies pour l'éducation, la science et la culture, *Actes de la Conférence générale, trente-troisième session, Paris, 3-21 octobre 2005*, vol. 1 : *Résolutions*, chap. V.

07-47578

les écoles ainsi que par l'intermédiaire des centres et musées scientifiques et d'autres moyens appropriés, en entraînant une augmentation durable du nombre d'étudiants dans les filières scientifiques et technologiques et en encourageant l'acquisition de connaissances scientifiques de base,

1. *Décide* de proclamer 2009 Année internationale de l'astronomie ;

2. *Désigne* l'Organisation des Nations Unies pour l'éducation, la science et la culture comme organisme chef de file et centre de coordination de l'Année et l'invite à organiser, à ce titre, les activités à entreprendre durant l'Année, en collaboration avec les autres entités compétentes du système des Nations Unies, l'Union astronomique internationale, l'Observatoire astronomique européen dans l'hémisphère austral et les associations et groupes astronomiques du monde entier, et note à cet égard que les activités de l'Année seront financées au moyen de contributions volontaires, y compris du secteur privé ;

3. *Encourage* les États Membres, les organismes des Nations Unies et les autres parties intéressées à mettre à profit l'Année pour promouvoir à tous les niveaux des initiatives visant à faire prendre davantage conscience au public de l'importance des sciences astronomiques et assurer un large accès aux connaissances et observations astronomiques nouvelles.

*78e séance plénière*
*19 décembre 2007*

# Appendix 11. United Nations 2007 Resolution in Russian

# Генеральная Ассамблея

Distr.: General
29 February 2008

**Шестьдесят вторая сессия**
Пункт 56 *b* повестки дня

## Резолюция, принятая Генеральной Ассамблеей

[*по докладу Второго комитета (A/62/421/Add.2)*]

### 62/200. Международный год астрономии, 2009 год

*Генеральная Ассамблея*,

*ссылаясь* на свою резолюцию 61/185 от 20 декабря 2006 года о провозглашении международных годов,

*учитывая*, что астрономия является одной из старейших фундаментальных наук и что она вносила и продолжает вносить существенный вклад в развитие других наук и прикладных исследований в широком круге областей,

*признавая*, что астрономические наблюдения оказывают глубокое влияние на развитие науки, философии, культуры и общей концепции Вселенной,

*отмечая*, что, хотя астрономия вызывает всеобщий интерес, широкой общественности часто трудно получить доступ к информации и знаниям по этой дисциплине,

*сознавая*, что в каждом обществе сложились легенды, мифы и традиции, связанные с небом, планетами и звездами и являющиеся частью его культурного наследия,

*приветствуя* резолюцию 33 C/25, принятую Генеральной конференцией Организации Объединенных Наций по вопросам образования, науки и культуры 19 октября 2005 года[1], в которой Генеральная конференция выразила поддержку провозглашению 2009 года Международным годом астрономии в целях привлечения внимания к важности астрономических наук и их вкладу в формирование знаний и развитие,

*отмечая*, что Международный астрономический союз поддерживает эту инициативу с 2003 года и что он будет принимать меры для обеспечения как можно более широкой отдачи от нее,

[1] Организация Объединенных Наций по вопросам образования, науки и культуры, *Акты Генеральной конференции, тридцать третья сессия, Париж, 3–21 октября 2005 года*, том 1: *Резолюции*, глава V.

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*будучи убеждена* в том, что проведение этого года могло бы сыграть чрезвычайно важную роль, в частности, в повышении информированности общественности о значении астрономии и фундаментальных наук для устойчивого развития, в содействии расширению доступа к фундаментальным научным знаниям универсального значения благодаря живому интересу к астрономии, в оказании поддержки формальному и неформальному преподаванию научных дисциплин в школах, а также — благодаря использованию возможностей научных центров и музеев и других соответствующих средств — в стимулировании долгосрочного увеличения числа учащихся, специализирующихся на научных и технических дисциплинах, и в содействии обеспечению научной грамотности,

1. *постановляет* провозгласить 2009 год Международным годом астрономии;

2. *назначает* Организацию Объединенных Наций по вопросам образования, науки и культуры ведущим учреждением и координатором проведения Года и предлагает ей заняться в этом качестве организацией мероприятий, подлежащих осуществлению в ходе проведения Года, действуя в сотрудничестве с другими соответствующими подразделениями системы Организации Объединенных Наций, Международным астрономическим союзом, Европейской южной обсерваторией и астрономическими обществами и группами различных стран мира, и в этой связи отмечает, что мероприятия в рамках Года будут финансироваться за счет добровольных взносов, в том числе поступающих от частного сектора;

3. *рекомендует* всем государствам-членам, системе Организации Объединенных Наций и всем другим сторонам воспользоваться проведением Года для содействия принятию на всех уровнях мер, направленных на повышение информированности общественности о важности астрономических наук, и для содействия обеспечению широкого доступа к новым знаниям и информации о результатах астрономических наблюдений.

*78-е пленарное заседание,*
*19 декабря 2007 года*

# Appendix 12. UNESCO and IAU Joint Statement

**Joint Statement on the occasion**
**of the International Year of Astronomy 2009**

The Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the President of the International Astronomical Union (IAU) are pleased to announce the decision of the General Assembly of the United Nations at its 62nd session to declare 2009 as the International Year of Astronomy, and the designation by the United Nations of UNESCO as the lead agency, in collaboration with IAU, in the implementation of scientific, educational and cultural activities during the Year.

They further

*Emphasize* the importance of the potential contribution of the International Year of Astronomy (2009) to achieving the Millennium Development Goals and the objectives of the UN Decade of Education for Sustainable Development, and

*Consider* that UNESCO, through its successful partnership with IAU and other relevant entities involved in the international coordination of astronomical activities, provides excellent opportunities for cooperation among professional and amateur astronomers worldwide to promote astronomy education and help safeguard natural and cultural heritage connected with astronomical observations.

Convinced that financial contributions from donor agencies, industries and foundations are crucial for the implementation of the activities of the International Year, they

*Recognize* that astronomical observations have profound implications for the development of science, philosophy, culture and the general conception of the universe,

*Share* the view that the Year could play a crucial role, *inter alia*, in raising public awareness of the importance of astronomy and the basic sciences for sustainable development, in promoting access to the universal knowledge of fundamental science, and in increasing scientific literacy, and

1. *Encourage* the astronomical community to take advantage of the International Year of Astronomy 2009 to promote action at all levels aimed at increasing awareness among the public of the importance of astronomy, in terms of its scientific value, its educational role, its cultural importance and its power as a gateway to understanding science and its methods ;

2. *Invite* planetariums, observatories, science centres, museums and astronomical societies to share their resources and expertise among like-minded bodies and to make these resources available to the general public in support of this initiative; and,

3. *Encourage* industries, foundations and private entities to join and support this initiative by providing opportunities that will promote and enhance the appreciation of astronomy and its important scientific, educational and cultural implications for the development and advancement of humankind.

Koïchiro Matsuura
Director-General
of the United Nations Educational,
Scientific and Cultural Organisation
(UNESCO)

Catherine Cesarsky
President of the International
Astronomical Union (IAU)

# Appendix 13. IAU 2009 Resolution on Supporting Women in Astronomy

**IAU 2009 RESOLUTION B4**
**On Supporting Women in Astronomy**

The International Astronomical Union XXVII General Assembly,

*recalling*

1. the UN Millennium Development Goal 3: promote gender equality and empower women,
2. the IAU/UNESCO International Year of Astronomy 2009 goal 7: improve the gender-balanced representation of scientists at all levels and promote greater involvement by underrepresented minorities in scientific and engineering careers,

*recognizing*

1. that individual excellence in science and astronomy is independent of gender,
2. that gender equality is a fundamental principle of human rights.

*considering*

1. the role of the IAU Working Group for Women in Astronomy,
2. the role of the IYA2009 Cornerstone Project She is an Astronomer,

*Resolves*

1. that IAU members should encourage and support the female astronomers in their communities,
2. that IAU members and National Representatives should encourage national organisations to break down barriers and ensure that men and women are given equal opportunities to pursue a successful career in astronomy at all levels and career steps.

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# Appendix 14. IAU 2009 Resolution in Defence of the night sky and the right to starlight

**IAU 2009 RESOLUTION B5**

**in Defence of the night sky and the right to starlight**

The International Astronomical Union XXVII General Assembly,

*Recalling*

1. the IAU/UNESCO International Year of Astronomy 2009 goal 8: facilitate the preservation and protection of the world's cultural and natural heritage of dark skies in places such as urban oases, national parks and astronomical sites,

*2.* the Declaration approved during the International Conference in Defence of the Quality of the Night Sky and the Right to Observe Stars (La Palma, Canary Islands, 2007),

*Recognising that*

1. the night sky has been and continues to be an inspiration of humankind, and that its contemplation represents an essential element in the development of scientific thought in all civilisations,

2. the dissemination of astronomy and associated scientific and cultural values should be considered as basic content to be included in educational activities,

3. the view of the night sky over most of the populated areas of the Earth is already compromised by light pollution, and is under further threat in this respect,

4. the intelligent use of unobtrusive artificial lighting that minimises sky glow involves a more efficient use of energy, thus meeting the wider commitments made on climate change, and for the protection of the environment,

5. tourism, among other players, can become a major instrument for a new alliance in defence of the quality of the nocturnal skyscape.

*considering*

1. the role of the IAU Division XII Commission 50 and its WG Controlling Light Pollution,

2. the role of the IYA2009 Cornerstone Project Dark Skies Awareness,

*resolves that*

1. An unpolluted night sky that allows the enjoyment and contemplation of the firmament should be considered a fundamental socio-cultural and environmental right, and that the progressive degradation of the night sky should be regarded as a fundamental loss.

2. Control of obtrusive and sky glow-enhancing lighting should be a basic element of nature conservation policies since it has adverse impacts on humans and wildlife, habitats, ecosystems, and landscapes.

3. Responsible tourism, in its many forms, should be encouraged to take on board the night sky as a resource to protect and value in all destinations.

4. IAU members be encouraged to take all necessary measures to involve the parties related to skyscape protection in raising public awareness – be it at local, regional, national, or international level – about the contents and objectives of the International Conference in Defence of the Quality of the Night Sky and the Right to Observe Stars [http://www.starlight2007.net/], in particular the educational, scientific, cultural, health and recreational importance of preserving access to an unpolluted night sky for all humankind.

*further resolves that*

# Appendix 15. IAU 2009 Resolution on IAU Strategic Plan: Astronomy for the Developing World

**IAU 2009 RESOLUTION B1**

**on**

**IAU Strategic Plan: Astronomy for the Developing World**

The XXVII General Assembly of the International Astronomical Union,

*recognizing*

1. the goal of the IAU to encourage the development of astronomy and facilitate better understanding of the universe,

2. that the current activities of the International Year of Astronomy 2009 have made great strides in advancing knowledge of astronomy among citizens of all nations and awareness of its value to society,

3. that science education and research is an essential component of modern technological and economic development,

*therefore resolves that the IAU should*

1. place increasing emphasis on programs that advance astronomy education in developing countries,

2. approve the goals specified in the Strategic Plan "Astronomy for the Developing World" as objectives for the IAU in the coming decade.

3. assess programs undertaken during the IYA to determine which activities are most effective in advancing astronomy.

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Name of person/organisation to be awarded

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Springer
Athenaweb-The European Science Films Portal
Science Newspaper
Popular Mechanics
History
Astronomy & Astrophysics
Astrocast.TV
Medea Awards
Cambridge University Press
Cosmos
Ahmad Shah Hakimyar
Mimoza Hafizi
Seghouani Nassim
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Anna Sidorenko-Dulom
Cyrille Baudouin
Anny-Chantal Levasseur-Regourd
Patrice Okouma
Giorgi Javakhishvili
Michael Geffert
Bernhard Fuhrmann
Manuela Welzel
Jean-Luc L. J. Dighaye
Jürgen Rendtel, President
Martin Asplund
Stephan Paul
Jacob Ashong
Christos Goudis
Eugene Gittens
Edgar Anibal Cifuentes
Duarte Varela Neto
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Eric Buttini
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