# ASTRONOMY 2000 ASTRONOMY Control ASTRONOMY ASTRONOMY ASTRONOMY



THE UNIVERSE. YOURS TO DISCOVER

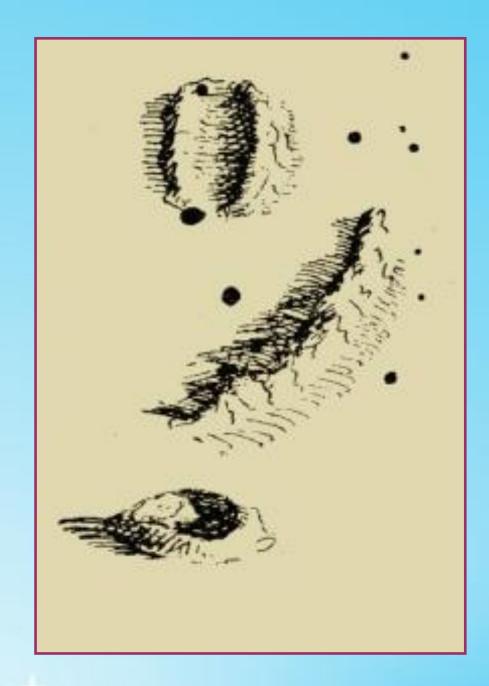


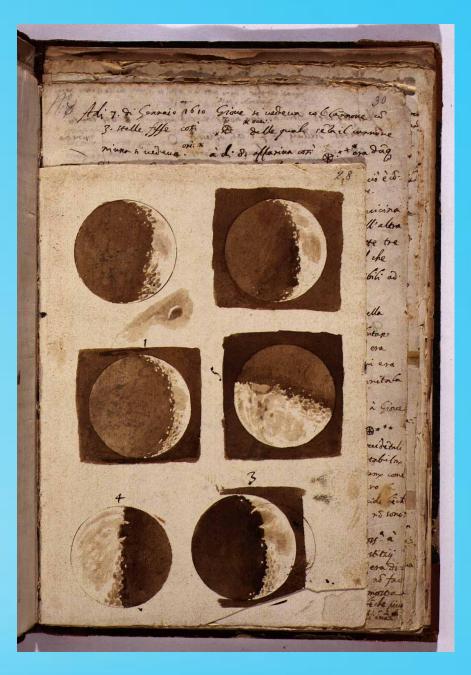


United Nations Internation tional, Scientific and Astronomic altural Organization Union

# International year of Astronomy 2009

- 400 years since first observation of Galileo with telescope (mountains on the Moon)
- Launched by IAU at the General Assembly in Sydney, on the suggestion of the President, Franco Pacini, in August 2003







### In 2009, we would like that:

Everybody on earth thinks, at least once, about the wonders of the sky,

shares the human wish to reach to the stars and to comprehend them,

feels part of the universe.

As many people as possible get to gaze through a telescope, be it a cheap Galileoscope aimed at the moon or Saturn

hear/read about: astronomy's contribution to culture, the history of astronomy,

recent successes of astronomy, future prospects

# Broad concept

Global celebration in developed and developing countries alike, of astronomy and its contributions to society and culture, stimulating worldwide interest not only in astronomy, but in science in general, with a particular slant towards young people and education at all levels.

In unison with UN millennium development goals

### Where?

**Everywhere!** 

### For whom?

People of all ages (but particularly young people), all continents, all paths of life

# By whom?

Mobilizing;
Professional astronomers (+ physicists, historians...)
Science writers, journalists
Planetariums, science museums
Amateur astronomers
School teachers



### How?

- The IYA2009 activities to take place at the global and regional levels, and especially at the national and local levels. National Nodes in each country to be formed to prepare activities for 2009. These Nodes to establish collaborations between professional and amateur astronomers, science centers, educators, and science communicators.
- IAU IYA2009 WG to create an IYA2009 secretariat to conduct global activities, monitor and coordinate the nodes



# Steps towards present organization

- Following presentation by the Italian delegation, IYA2009 was endorsed by UNESCO, in October 2005. UNESCO is now a coorganizer of IYA, with IAU
- IYA2009 Working Group of the IAU Executive committee was put in place in Prague GA, August 2006
- First international meeting of SPoCs at ESO (Garching, Germany), 3-4 March 2007: adoption of the logo and the motto, statement of vision and goals, first round of definition of cornerstones
- The IYA2009 Secretariat was opened, in Garching, in the summer of 2007



### **IAU IYA2009 Executive Committee**

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

### Members:

- Catherine Cesarsky (Chair) (France),
- Ian Robson (UK),
- Dennis Crabtree (Canada),
- Lars Lindberg Christensen (Denmark ESA/ESO),
- Claus Madsen (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),
  - landa Berenguer (UNESCO),

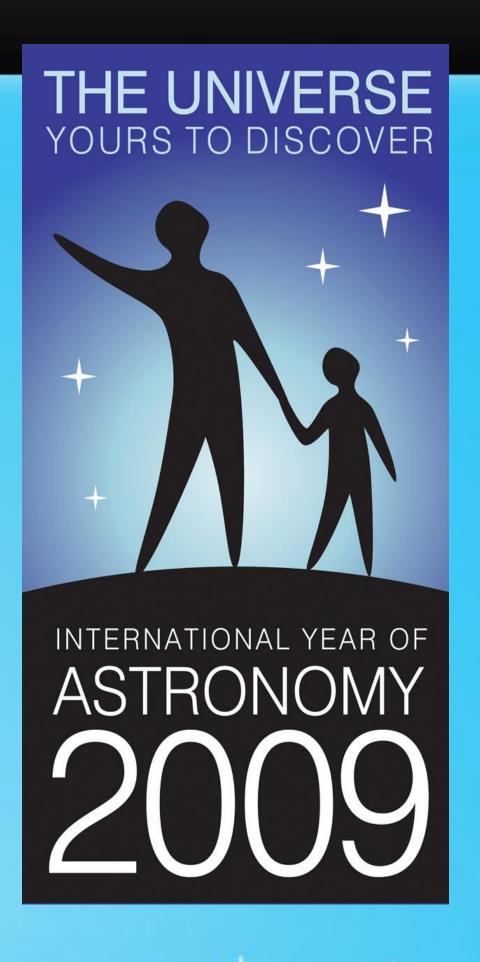
### The International Year of Astronomy

### Vision

To help the citizens of the world rediscover their place in the Universe through the day- and night time sky, and thereby engage a personal sense of wonder and discovery.

### Celebration

A global celebration of astronomy and its contributions to society and culture. The aim of the Year is to stimulate worldwide interest, especially among young people, in astronomy and science under the central theme "The Universe, Yours to Discover"





# Goals & Objectives

- Increase scientific awareness.
- Promote widespread access to new knowledge and observing experiences.
- Empower astronomical communities in developing countries.
- Support and improve formal and informal science education.
- Provide a modern image of science and scientists.



# Goals & Objectives

- Facilitate new networks and strengthen existing ones.
- Improve the gender-balanced representation of scientists at all levels and promote greater involvement by underrepresented minorities in scientific and engineering careers.
- Facilitate the preservation and protection of the world's cultural and natural heritage of dark skies and historical astronomical sites.



### **IYA2009 Secretariat**

- The central hub of the global IYA2009 activities is the Secretariat established at ESO/ESA/Hubble by the IAU to coordinate the IYA2009 activities during the planning, execution and evaluation of the Year, overseen by the IYA2009 WG and supervised by Lars Lindberg Christensen, IAU Press Officer and IYA2009 WG secretary:
- Pedro Russo, IYA2009 Coordinator
- and Mariana Barrosa, IYA2009 Assistant Coordinator

### International Year of Astronomy (IYA2009) and the UN

### Criteria for international Years

- Consistent with the purposes and principles of the UN Charter;
- contribute to the development of international cooperation, in solving global problems, with special attention to problems affecting the developing world;
- generate significant follow-up at both the national and the international level in the form of new activities or the strengthening of existing ones;
- organisation, timing, budget, evaluation, etc.



### International Year of Astronomy (IYA2009) and the UN

### Sustainable development...

Science contributes vitally to *sustainable development*. Astronomy, as one of the oldest basic sciences had and still has a fundamental role in the *evolution* of other sciences and applications.

- New Technologies
- Inspirational source (Science education, awareness of science)
- The Millenium Goals



### International Year of Astronomy (IYA2009) and the UN

### Promote gender equality and empower women

Gender equality is a problem for the whole scientific community, regardless the geographic location. The difficulties and challenges are different in all regions. Demonstrating solutions and showcasing examples of good practice can foster increased participation of women in science.

# Develop a global partnership for development

Development relies on several factors, among others on the use of basic sciences to develop the appropriate applications. IYA2009 will connect the professional and amateur astronomers, astrophysicists, teachers, pupils from all over the world providing a opportunity to share all the valuable knowledge they have. These networks are meant to last last well beyond 2009.



### **IYA2009** and United Nations

 The Italian delegation at United Nations submitted a resolution, which was enthusiastically adopted by the UN General Assembly in December 2007:

### The General Assembly

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 museums and other relevant means, stimulating a long-term increase in student enrolment in the fields of science and technology, and supporting scientific literacy...

Decides to declare 2009 the International Year of Astronomy

# Current Status (7 months to go...)

o 115 National Nodes have established national committees and appointed Single Points of Contact (SPoCs)

63 National Websites

- <sub>o</sub>20 Organisational Nodes
- o14 Organisational Associates
- 11 Cornerstone Projects
- Old Task Groups
  - 1 Special project





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# 12 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. The IYA2009 Organisational Associates enjoy full involvement in the IYA2009 with outstanding rights and benefits.

- 1. European Southern Observatory
- 2. American Astronomical Society
- 3. L'Institut National des Sciences de l'Univers
- 4. Canadian Astronomical Society
- 5. Sterrewacht Leiden
- 6. Nederlandse Onderzoekschool Voor Astronomie (NOVA)
- 7. Science & Technology Facilities Council
- 8. Swiss Academy of Sciences
- 9. The Society for Popular Astronomy
- 10. National Research Council Canada
- 11. Ministerio de Educación y Ciencia (Spain)
- 12. Centre National d'Études Spatiales
- 13. Deutches Zentrum fur Luft und Raumfahrt
   European Space Agency (+>7 to come...)

- 115 National Nodes
- Aim: 140 Nations
- The largest astronomical (Educational and Public Outreach) network ever!





### 115 IYA2009 National Nodes in 111 participating countries

- 1. Austria
- 2. Bahrain
- 3. Belgium
- 4. Bosnia and Herzegovina
- 5. Bulgaria
- 6. Croatia, the Republic of
- 7. Cyprus
- 8. Czech Republic
- 9. Denmark
- 10. Estonia
- 11. Ethiopia
- 12. Finland
- 13. France
- 14. Germany
- 15. Greece
- 16. Hungary
- 17. Iceland
- 18. Iraq
- 19. Ireland
- O. Italy • Kuwait

- 22. Latvia
- 23. Lithuania
- 24. Malta
- 25. Mongolia
- 26. Netherlands
- 27. Norway
- 28. Poland
- 29. Portugal
- 30. Romania
- 31. Russian Federation
- 32. Saudi Arabia
- 33. Serbia, Republic of
- 34. Slovakia
- 35. Spain
- 36. Sweden
- 37. Switzerland
- 38. Turkey
- 39. Ukraine
- 40. United Kingdom
- 41. Algeria
- 42. Angola
- 43. Argentina

### More National Nodes

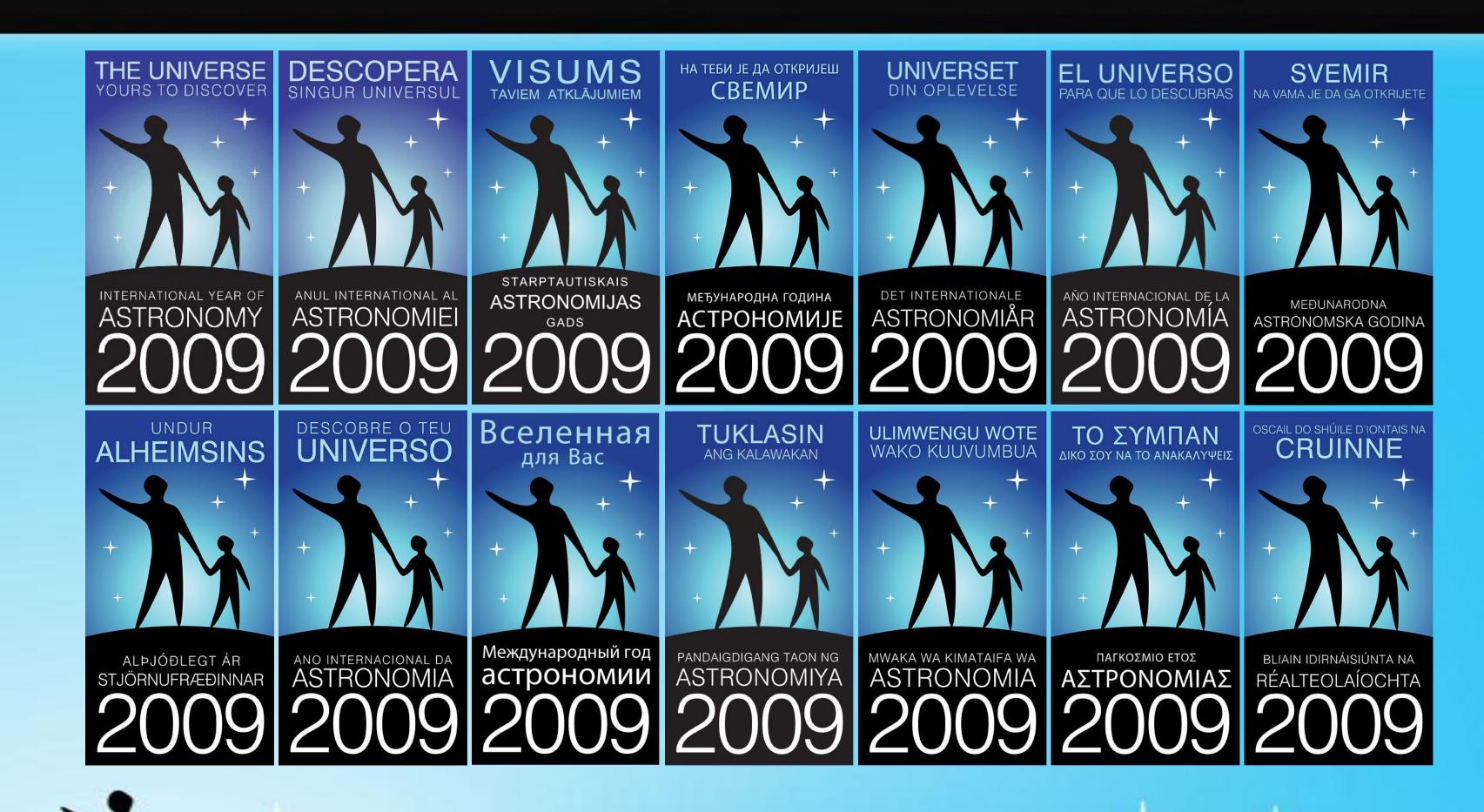
- 44. Armenia
- 45. Australia
- 46. Bangladesh
- 47. Benin
- 48. Bolivia
- 49. Brazil
- 50. Canada
- 51. Chile
- 52. China
- - China Nanjing
- - China Taipei
- - Hong Kong
- 53. Colombia
- 54. Congo, Republic of the
- 55. Costa Rica
- 56. Cuba
- 57. Ecuador
- 58. Egypt
- 59. El Salvador
- 60. Ethiopia
- 61. Gabon
- 62. Georgia
- 63. Guatemala
- 64. Honduras
- 65. India
- 6. Indonesia

- 67. Iran, Islamic Republic of
- 68. Israel
- 69. Japan
- 70. Jordan
- 71. Kazakhstan
- 72. Kenya
- 73. Korea, Republic of
- 74. Lesotho
- 75. Macedonia, the Former Yugoslav Republic of
- 76. Malaysia
- 77. Mauritius
- 78. Mexico
- 79. Morocco
- 80. Mozambique
- 81. Namibia
- 82. Nepal
- 83. New Zealand
- 84. Nicaragua
- 85. Nigeria
- 86. Oman
- 87. Pakistan
- 88. Panama
- 89. Paraguay
- 90. Peru
- 91. Philippines
- 92. Qatar
- 93. Rwanda
- 94. Senegal
- 95. Singapore
- 96. South Africa
- 97. Sri Lanka
- 98. Sudan
- 99 Taiikistan

### and more...

- 100. Thailand
- 101. Tunisia
- 102. Uganda
- 103. United Republic of Tanzania
- 104. United Arab Emirates
- 105. United States
- - Puerto Rico
- 106. Uruguay
- 107. Uzbekistan
- 108. Vatican City State
- 109. Venezuela, Bolivarian Republic of
- 110. VietNam
- 111. Yemen





### e.g.:

- Sidewalk Astronomy
- Astronomy Olympiads
- Open Doors
- Star parties
- Public Talks
- Exhibitions
- Stamps
- Science Cafés
- Websites
- Documentaries

- - -





**Sidewalk Astronomy** 



**Science Fairs** 

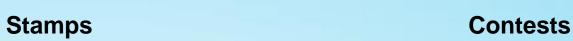


**Exhibits** 



**Planetarium Shows** 











**Schools** 



**Movies** 





**Statues** 

# 100 Hours of Astronomy

# A 100-hour, round-the-clock, round-the-globe event, including

- 24 hours of live webcasts from research observatories
- Public observing events, star parties, and other activities

The 100 Hours of Astronomy will take place from 2–5 April.

Chairs: Douglas Pierce-Price (ESO) and Mike Simmons (Astronomers without Borders)

www.100hoursofastronomy.org







# 100 Hours of Astronomy

# Part I: 24 hours of live webcasts from research observatories:

- A unique live webcast over 24 hours
- Follow night and day around the globe, visiting large research observatories
- Follow the nighttime for optical/infrared, but also include solar/radio/space observatories
- Find out what astronomers are doing now
  - Who is observing?
  - What are they researching?
  - What do they hope to discover?
  - What are the conditions like tonight?
- Ask the astronomers questions
- See exclusive astronomical images from each observatory





# 100 Hours of Astronomy

Part II: Public observing events, star parties, and other activities:

- 1. Street astronomy, in which telescopes are made available to the public
- 2. School programmes, in which groups of astronomy enthusiasts such as astronomy clubs conduct educational sessions that include observing and other educational opportunities.
- 3. Science centers (planetariums and science museums) will feature enhanced outreach programs.

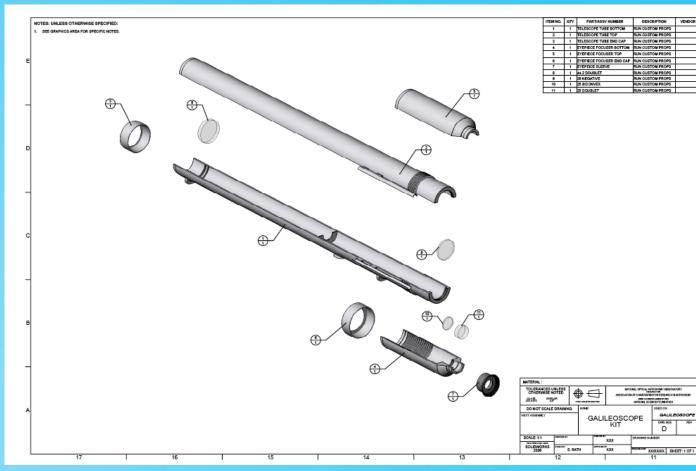


# Galileoscope

### Millions looking at the sky

- Design a telescope kit of high educational utility and optical quality
- Manufacture and distribute one million inexpensive but high-quality telescope kits
- Build in maximum educational value and utility: Integrate kits into basic inquiry-based educational material on image formation and telescopes for more extended education programs.
- Design a professional development programme for educators to increase the reach of the kit
- Chair: Rick Fienberg (USA)
- US/IYA2009 Telescope Kits Chair: Stephan Pompea (NOAO)







www.galileoscope.org

# **Cosmic Diary**

### The life of an astronomer

### **The Cosmic Diary - Blog**

- Astronomers will blog about their life, families, friends, hobbies, and interests, as well as their latest research findings and the challenges that face them in their research.
- They represent a vibrant cross-section of female and male working astronomers from around the world
- 24 bloggers from 24 countries.

### **Cosmic Diary - Book**

- Blogger's Profile
- Institution's Profile
- Feature Article

### **Cosmic Diary - Documentary**

 Documentary featuring some of the bloggers, in collaboration with National Geographic Europe.

**Chair: Mariana Barrosa (IAU/ESA/Hubble)** 

www.cosmicdiary.org







# The Portal to the Universe

### A one-stop universe of news

- **1.Enabling access**: To aggregate (pull) from content providers incl. all astronomy-related dynamic content (e.g. RSS feeds of blogs, images, news, etc) and distribute (push) to the users;
- **2.Index and archive**: To collect and maintain a central repository of useful information, including resources such as educational materials and more, addresses for all astronomy stakeholders such as amateur clubs, planetariums, observatories etc.
- **3.Enabling communication and collaboration**: Create and maintain a network of all stakeholders incl. establishing a social network for all astronomy interested.

**Chair: Lars Lindberg Christensen (ESA/Hubble)** 

www.portaltotheuniverse.org







# Astronomy and World Heritage

**Universal treasures** 

IAU is collaborating with UNESCO in the Astronomy and World Heritage project.

This programme provides an opportunity to identify properties related to astronomy located around the world, to preserve their memory and save them from progressive deterioration.

Chair: Anna Sidorenko-Dulom(UNESCO)







# Universe Awareness

### One place in the Universe

Universe Awareness is an international outreach activity that aims to inspire young disadvantaged children with the beauty and grandeur 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.

Chair: Carolina Ödman (NL)





www.unawe.org



# She is an Astronomer

### **Breaking down misconceptions**

Promoting gender quality and empowering women is one of the United Nations Millennium Development Goals. The IYA2009 Cornerstone project, She is an Astronomer, will promote gender equality in astronomy (and in science in general) and tackle gender bias issues by providing a web platform where neutral information and links about gender balance and other related useful resources are collected.



Chairs: Francesca Primas (ESO) & Enikö Patkos(ESO)

www.sheisanastronomer.org



# Dark Skies Awareness

### Seeing in the dark

### 3 Main Programmes:

- GLOBE at Night (in March)
- Great World Wide Star Count (in October)
- How Many Stars (January, February, April through September, November and December).

# Partnering with Other Programs on Dark Skies Related Events:

- World Night in Defence of Starlight (April 20)
- Earth Hour (March 28)
- (Inter)national Dark Sky Week
- International Sidewalk Astronomy Night,
- IYA2009 Cornerstone Projects:
  - ■100 Hours of Astronomy
  - Galileo Teachers Training Programme.

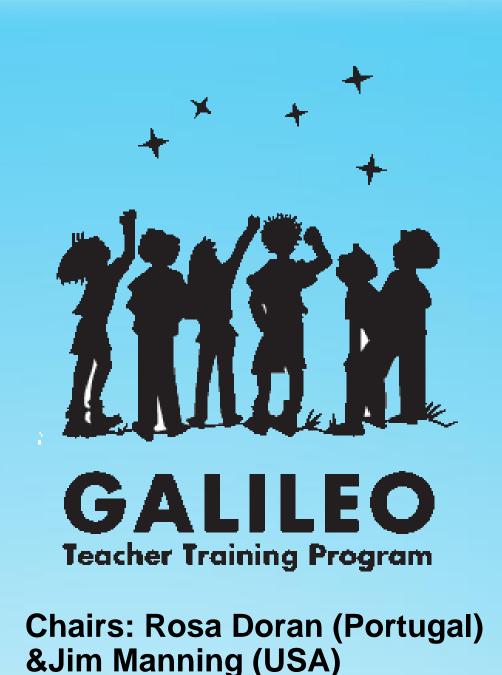


www.darkskiesawareness.org

**Chairs: Connie Walker (NOAO)** 



# Galileo Teachers Training Programme



www.galileoteachers.org

- Global network of global coordinator and six regional nodes for coordinating teacher professional development using astronomy education tools.
- IYA2009-related astronomy **resource kit**, with both physical and online elements, for adaptation as necessary around the world.
- Web-based repository of project resources, both educational and network-related.
- Professional development teacher workshop created with Galileo Trainers and executed by same and coordinated through the network.

# From Earth to the Universe



From Earth to the Universe endeavors bring the wonderful astronomical images to a wide audience in non-traditional venues. In delivering these images (and the science behind them) to public parks, metro stations, art centers, and other locations, we wish to engage individuals who might normally ignore or even dislike astronomy, or science in general.

**Chairs: Kimberly Kowal Arcand & Megan Watzke (USA)** 

www.fromearthtotheuniverse.org







# Developing Astronomy Globally

Astronomy needs to be developed, both professionally (universities, research), publicly (communication, media) and educationally (schools) in various countries that do not have strong astronomy communities. It will include such activities as research exchange programmes, young astronomer development programmes, astronomy communication training including workshops and resource sharing, infrastructure development where possible.

**Chair: Kevin Govender (South Africa)** 







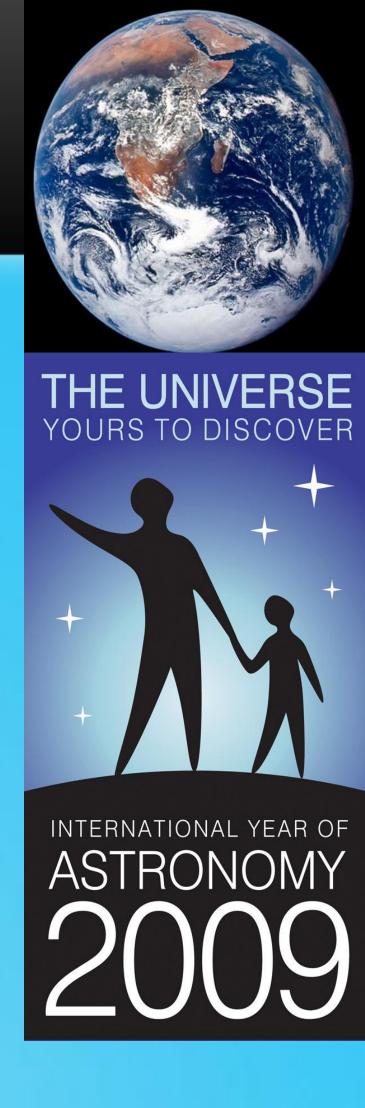
### A Plan for Africa

### Theme

**Astronomy for Education** 

### Vision

The continent of Africa, with an evergrowing astronomy research community, united in the fields of education and outreach, working together and sharing resources, such that the people of Africa are educated, especially in the fields of science, engineering and technology.

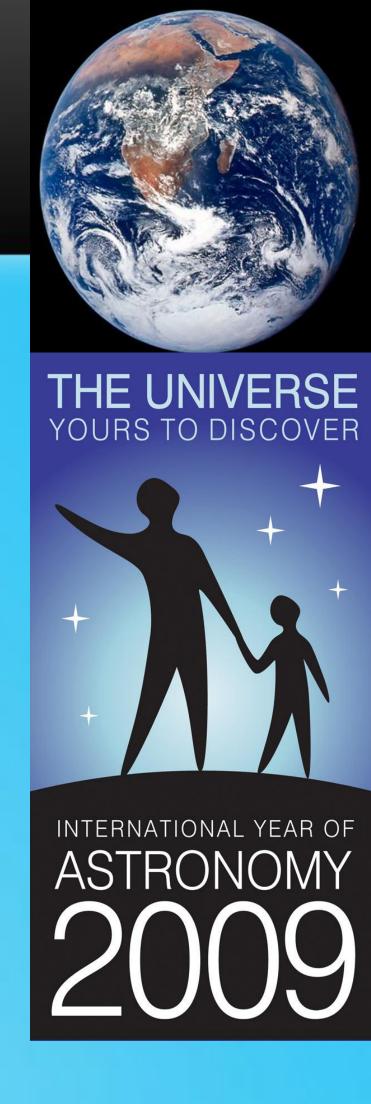




### A Plan for Africa

### **Core Missions**

- Enhance the teaching and interest in Maths and Science in schools
- Enhance the teaching and research in astronomy in universities
- Increase the awareness and knowledge of science amongst the public
- Support and encourage an African network





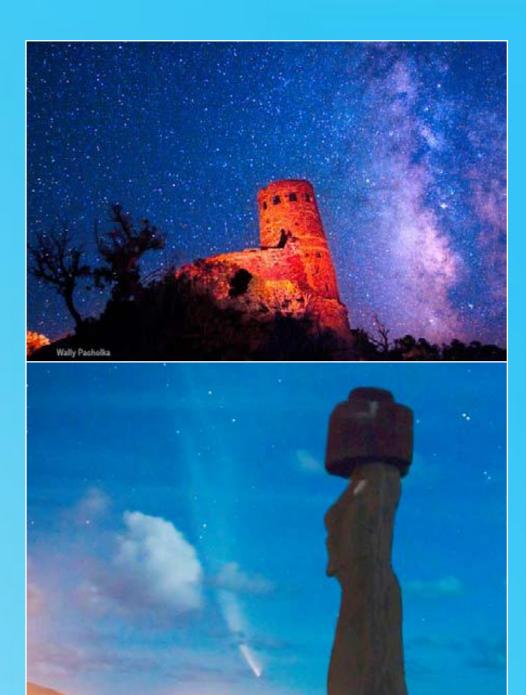
# Special Project

### The World At Night

The World At Night is a new programme to create and exhibit a collection of stunning photographs of the world's most beautiful and historic sites against a night time backdrop of stars, planets and celestial events. The eternally peaceful sky looks the same above all the landmarks and symbols of different nations and regions, attesting to the truly unified nature of Earth as a planet rather than an amalgam of human-designated territories.

Links with some IYA2009 Cornerstone Projects: From Earth to the Universe, Dark Skies Awareness and IAU/UNESCO Astronomy and World Heritage

Chair: Babak Tafreshi (Iran)



@ 2007 Dennis Mammana



# Task Groups

- Opening event at UNESCO, January 15 and 16, Chair: Francoise Combes (France)
- Closing Event (in Padova, January 2010, under establishment)
- EU Seventh Framework Programme, Chair: Claus Madsen (ESO)
- Kepler, Chair: Terry Mahoney (UK)
- Galileo, Chair: Paolo Galluzzi (Italy)
- IYA2009 New Year's Eve Events, Chair: Helen Sim (Australia)
- Solar Physics, Chair: Bruno Sánchez-Andrade Nuño (Spain)
- Evaluation Chairs: Pedro Russo and Mariana Barrosa (ESO)
- Philatelic, Chair: Michael C. Howell (USA)
- New Media, Chair: Pamela Gay (USA)

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Extra solar Planets, Chair: Jean Schneider (France)

### **Precursors**

Many events already to take place in 2008, e.g.

- "Astronomical Pictures at an Exhibition" by Jose Francisco Salgado had its premiere in Chicago three weeks ago
- First show of "The Universe from the Earth" in Liverpool, June
- "Newvision 400" in Beijing, October
- "400 years of astronomical telescopes" in Noordwijk,
   in October





### IAU General Assembly in Rio

At the IAU General Assembly in Rio, In August 2009:

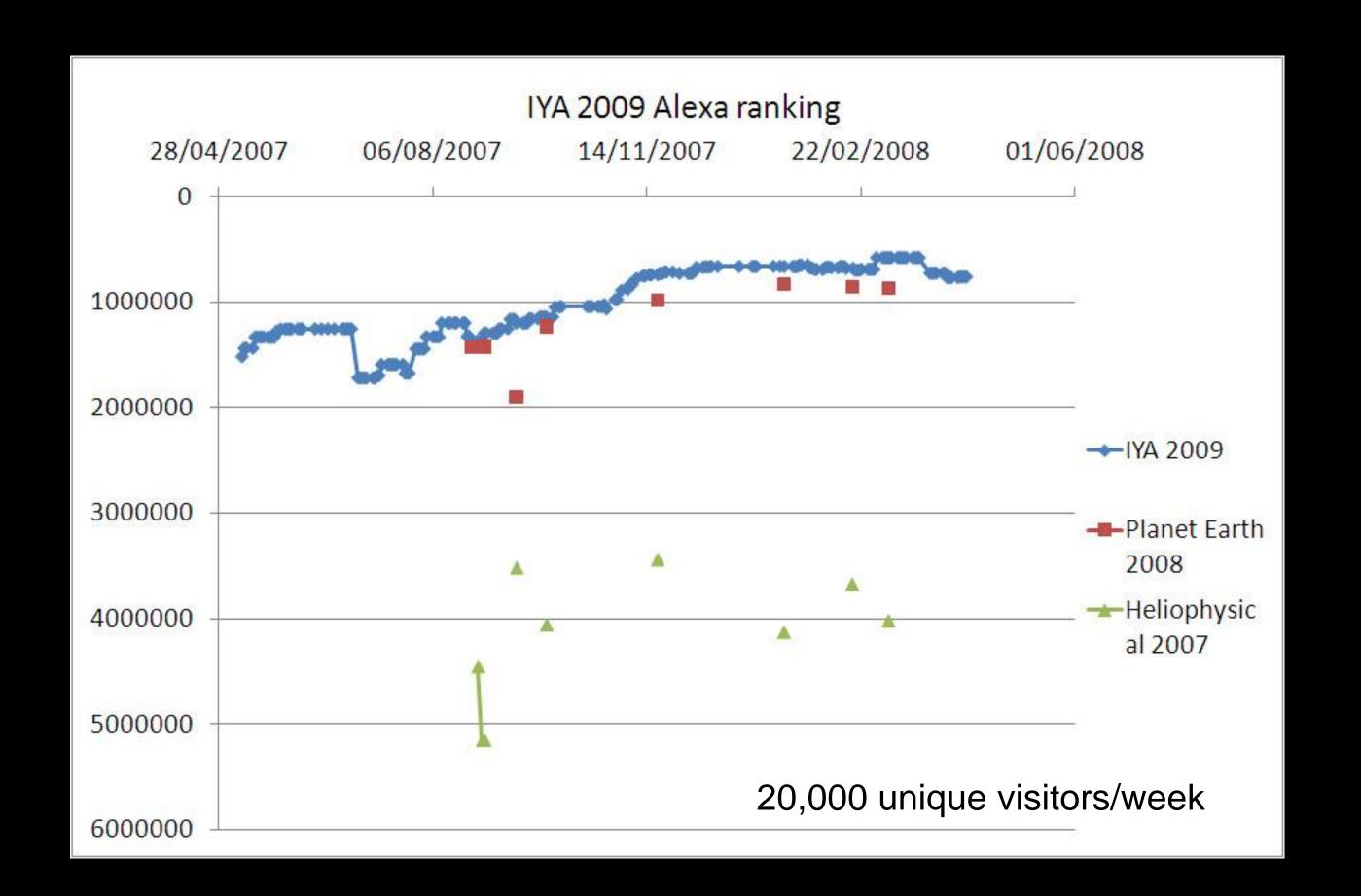
- Special session on IYA2009 (including "400 years of the telescope "documentary)
- Joint session on history and education
- Special session on Kepler, to celebrate 400 years since "Astronomia Nova"
- Plenary lecture on Galileo...
   and many other IYA2009 related events



## IYA2009 legacy

In 2010, the IYA2009 Secretariat, with external assessors, will carry out an evaluation of 2009. We can anticipate some lasting benefits:

- The creation of international networks of scientists, communicators, teachers and amateurs, which should remain in existence much beyond 2009
- Openings for astronomy in developing countries, at the professional and amateur level, and consolidation of links with IAU
- Organized efforts to improve teaching of astronomy in particular, and science in general, at the world level
- A wealth of educational material on astronomy (e.g. Galileoscope)
- IYA2009 is a springboard for the enhancement of IAU educational activities (strategic plan)
- and the beginning of UNAWE, a program to create an international awareness of our place in the universe and on Earth, addressed to children in underprivileged environments
- A step forward in the designation of astronomical sites by the UNESCO Word Heritage program
- Books, films, movies for television, DVDs and IMAX (Cosmic Diary, She is an astronomer, Eyes on the skies, The World at Night, 400 years of the telescope, Tours du monde tours du ciel...), theater and music related to astronomy
- "Portal to the Universe" is meant to continue in existence, as the ultimate source of astronomical news for the public
- 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
   d the fostering of many vocations, at the professional and the amateur level



# Powered by ThalesAlenia A Theles / Finmeccanica Company Space





















# www.astronomy2009.org

- IYA2009 Trailer
- IYA2009 Brochure

# Thales Alenia A Thales / Finmeccanics Company Space

### Organisational Associates













