



400 YEARS of the TELESCOPE

A JOURNEY OF SCIENCE, TECHNOLOGY AND THOUGHT

A publication of the
US IYA2009 Program



February 2009



Kimberly White, Kris Koenig and Adam Hawkey, colorist, working on the post-production of 400 Years of the Telescope at IO Film in Hollywood

Producer Notes

Now The Work Really Begins

By Kris Koenig

Over the past few weeks, several people not directly involved with the International Year of Astronomy, or our productions, have asked me “What are you going to do now that you’re finished with the documentary and planetarium show?” The short answer is, “Keep

working to reach our goals.” The International Year of Astronomy has just begun and even after the premiere of the documentary at the 213th AAS meeting in Long Beach on January 6, our calendar is filled with activities and events related to the objectives we established for the National Science Foundation. They include:

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February’s Featured IYA Theme

Our Solar System

By Vivian White
Astronomical Society of the Pacific

The Solar System – the Sun and everything in orbit around it – is full of mystery and intrigue. Some planets spin backwards; Mars has polar ice caps that harbor water ice; and blazing volcanoes spew hot magma on Jupiter’s moon, Io. Thanks to innovative NASA space missions, scientists have been busy making discoveries and finding clues to understanding Earth’s planetary neighbors.

Early observers and philosophers believed that the Sun and all the other ce-



NASA is scheduled to begin two new lunar exploration missions in April

lestial bodies traveled around Earth. Four hundred years ago, Galileo Galilei’s discoveries using a small refracting telescope supported the concept of a “solar system” in

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IYA2009 International Update

www.astronomy2009.org

Organizational Matters

The 5th issue of Communicating Astronomy with the Public Journal is now available for free download at www.capjournal.org/issues/05/index.php

People around the world are being given the opportunity to select the next object the Hubble Space Telescope will view. Choose from a list of objects Hubble has never

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US IYA2009 Update

IYA2009 Officially Underway With Creative Events in Long Beach, Paris

By Douglas Isbell
US SPOC IYA2009

The United States and the international community kicked off IYA2009 with creative and colorful opening ceremonies in January.

First, the U.S. IYA Committee held a fun public evening event in Long Beach, California on Tuesday evening, January 6, during the winter meeting of the American Astronomical Society (AAS). The opening events were also broadcast live on the Internet over U-Stream.

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GLOBE at Night: Dark Skies for Everyone

By Connie Walker

Spread the word! The Globe Program (www.globe.gov) will once again conduct its Globe at Night (GaN) campaign in 2009. GaN is an enjoyable, internationally-based citizen-science event that encourages people all over the world — students, educators, dark sky advocates and the general public — to measure the darkness of their local skies, and contribute their observations to an online world map. The program is a centerpiece of the *Dark Skies Awareness Global Cornerstone Project* for the International Year of Astronomy (IYA) 2009. GaN's goal is to raise public awareness of the impact of artificial lighting on local environments by getting people worldwide to look up and measure, either visually or with a light meter, exactly what they can see. The program has been designed to keep data collection and online reporting simple and user-friendly.

Led by the educational outreach staffs at the National Optical Astronomy Observatory, and at The University Corporation for Atmospheric Research (UCAR) Globe Program, the fourth annual GLOBE at Night campaign will take place March 16 - 28, 2009. Over the past three years, tens of thousands of citizen-scientists around the world have contributed measurements of their local sky brightness to a growing global database in two ways. The first method utilizes simple unaided-eye observations of the stars in and around the constellation Orion. The second method involves quan-

titative digital measurements using handheld, well-calibrated sky-brightness meters.

For the first method, citizen-scientists make observations on light pollution levels by comparing the number of stars they see in and around Orion by using GaN-developed star maps showing different stellar brightness limits with the unaided eye. The methodology involves observing the faintest stars visible at the observer's location, and matching the observation to one of seven star maps showing progressively fainter limiting magnitudes.

In the second method, digital sky-brightness meters are used for more precise measurements. The low-cost digital Sky Quality Meters (SQMs), manufactured by Unihedron, make repeatable, direct measurements of integrated sky brightness. The newly available second-generation SQM-Ls being used this year by several GLOBE at Night sites have a cone-shaped field of view that is three times narrower than the previous model. This new feature specifically aids the meter's use in city environments, where surrounding lights or buildings may affect the readings. Like the unaided eye observers, meter users report their findings online at the GaN website.

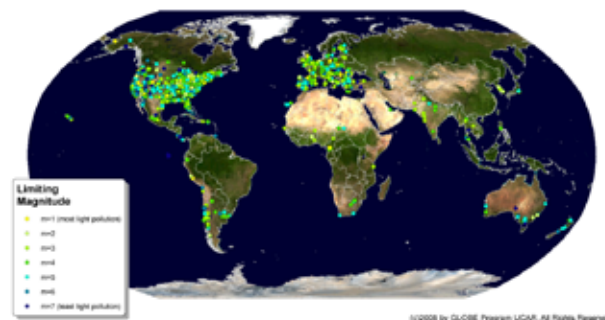
To learn the five easy steps to participate in either type of GLOBE at Night measurement program, and to obtain activity guides, important information on light pollution, stellar magnitudes, the mythology of Orion, how to find Orion, how to obtain your latitude and longitude, and how to use a SQM, visit www.globe.gov/globeat-night. Observations will be available online via Google Earth, and as downloadable datasets.

Utilizing the international networks of its partners, GLOBE at Night engages people in the study and analysis of light pollution from around the world. In the spring of 2006, 2007 and 2008, GLOBE at Night successfully conducted two-week campaigns during which a total of 20,000 observations were submitted online from 100 countries. Measurements obtained so

far can be compared year to year, and also compared with data from satellite and population density studies. Data from multiple locations in one city or region are especially interesting, and can be used as the basis of a class project or science fair experiment, or even to help form public policy on light pollution abatement programs.

Going forward, new measurements will allow for more in-depth analysis. More measurements within large population centers will provide higher resolution maps. Comparisons between years will allow investigators to monitor changes. Monitoring our environment will allow us as citizen-scientists to identify and preserve dark sky oases in highly populated areas. Continued measurement in the coming years will also help to identify rapidly developing areas, and assist residents and business owners in making intelligent lighting choices. Moni-

GLOBE at Night
Visual Observations from the 2008 Campaign



toring our environment could allow us to track the habitats of animal species endangered by excessive lighting.

Consider devoting a small amount of your time to the March 2009 campaign. Measure sky brightness in your backyard, either with visual observations of Orion and the unaided-eye, or toward the zenith with a Sky Quality Meter – or both! Your efforts can help us to make a world of difference in slowing, and even reversing, the detrimental effects of light pollution on our view of the night-time sky.

For more information, visit the GLOBE at Night website at www.globe.gov/globeat-night.

Happy star-hunting!

Getting Astronomers Involved in the IYA: The Astronomer in the Classroom Program

By Kris Koenig

Interstellar Studios and University of Hawaii Institution of Astronomy will be facilitating the exciting new program, Astronomer in the Classroom, in support of the International Year of Astronomy 2009 (IYA2009).

The Astronomer in the Classroom program will provide students with an opportunity to directly interface with astronomers around the world during IYA2009. Live lectures will feature scien-

tists, graduate students and astronomers who are passionate about astronomy, their research and who enjoy sharing their discoveries. Using Abode® Connect, a web conferencing solution, Interstellar Studios will host three 20-minute webcasts every school day beginning in April.

The webcasts will be conducted at the same time each weekday to accommodate national time zone differences and grade levels (3-5, 7-8, 9-12) allowing educators to login as their curriculum and testing schedules allow. The flexible scheduling will afford convenience to teachers and students while avoiding bandwidth congestion.

A schedule of participating astronomers will be posted at www.AstronomerInTheClassroom.org with brief descriptions of the lectures allowing a student or a teacher the opportunity to schedule the best webcasts for their needs.

The Adobe® Connect program allows astronomers to be viewed and heard over the Internet and to use PowerPoint® in a live presentation. Students can interact by posting their typed questions for all conference participants to view. A moderator will be provided to help facilitate the follow-up Q&A period.

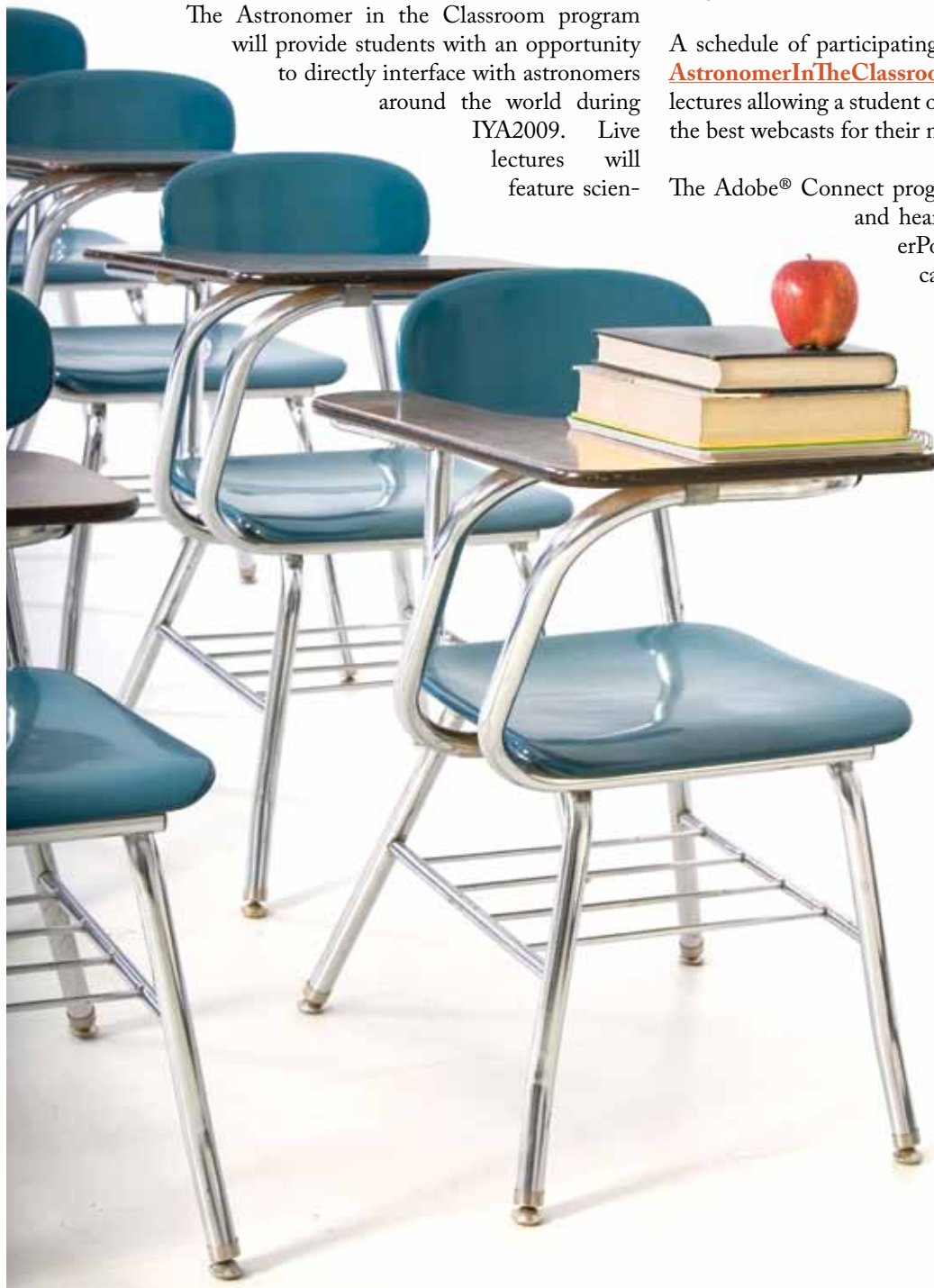
Make a difference during the IYA 2009! Inspire a child to look up and ask why?

System requirements:

PC/Mac

DSL Internet Connection

Audio Speakers



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US IYA continued from page 1



US IYA2009 Project Director Dr. Stephen Pompea (NOAO), a key member of the Galileoscope design team, showed off a prototype of the new kit-based telescope to attendees at the official IYA2009 opening ceremony in Paris by pointing it at the top of the Eiffel Tower.
Photo Credit: Douglas Isbell

With sponsorship from Celestron and the Microsoft WorldWide Telescope, the event featured live music, the virtual opening of the IYA2009 presence in Second Life, a raffle of telescopes and books, the debut of

In particular, George Hrab's acoustic guitar-based sing-along rendition of an extended version of his theme song for the *365 Days of Astronomy* podcast was a big hit with the crowd. The catchy lyrics continued to reverberate through the rest of the AAS meeting whenever science talks mentioned astronomical objects that are "really, really far away." Pamela Gay and Adrienne Gauthier led a talented team of volunteers and students who produced the U.S. event.

Two weeks later, the United States was well represented at the official IYA2009 opening event in Paris by several U.S. IYA2009 leaders, working group chairs and group members, as well as two NASA IYA2009 student ambassadors, astronomers, filmmakers, and a secondary school science teacher. Over 50 people attended from the extended U.S. team, including a delegation from Puerto Rico.

U.S. IYA2009 Single-Point-of-Contact Doug Isbell and U.S. IYA2009 Project Director Steve Pompea focused on promoting

tional handouts for people interested in purchasing one. An early morning session on the front sidewalk of the UNESCO building, with the Galileoscope providing



Johannes Kepler checks a view of the top of the Eiffel Tower through the Galileoscope prototype outside the international IYA2009 opening ceremony in Paris, with Denise Smith (NASA/STScI), Leslie Lowes (NASA/JPL) and Steve Pompea (NOAO/U.S. IYA2009 project director) in the background.
Credit: Douglas Isbell

a sharp view of top of the Eiffel Tower, was perhaps the most memorable.

Paris was also the first official appearance of new IYA2009 national spokesperson Derrick Pitts, chief astronomer at the Franklin Institute in Philadelphia. Derrick interacted with numerous meeting participants and began developing lots of creative ideas for promoting IYA2009 throughout the year.

The next major U.S. IYA2009 events will be an active presence at the American Association for the Advancement of Science (AAAS)/American Association of Physics Teachers (AAPT) joint meeting in Chicago February 13 - 16, followed by the first worldwide dark-skies awareness activity of the year, GLOBE at Night 2009, March 16-28.

Thanks to Jarita C. Holbrook (University of Arizona) for contributing to this report. Contact Doug with any questions at disbell@astronomy2009.us.



The production crew of "400 Years of the Telescope" on stage at the U.S. opening event for IYA2009 at the Long Beach Convention Center. Credit: AAS Photo by Kelley Knight Heins © 2009 AAS

a multiwavelength image of galaxy M101 from NASA's Great Observatories, and the world premiere of *400 Years of the Telescope, A Journey of Science, Technology and Thought*.

the Galileoscope cornerstone project. They set up a Galileoscope prototype in various parts of the UNESCO complex for public viewing and distributed many informa-

More IYA News

By Andrea Schweitzer

FETTU News

Please see the latest list of FETTU updates on the project at: www.fromearthtotheuniverse.org/updates.php

Highlights include:

The opening of the “For Visitors” section which contains image tours, maps and other “fun stuff”: www.fromearthtotheuniverse.org/learn_more.php

A new online Events Calendar with dates and locations listed for all events that are underway. If you have corrections or additions to this list, please email Kim or Megan as soon as possible. www.org/table_events.php

Digital FETTU is now available for request on DVD. A short preview version has been posted to the FETTU web site. www.fromearthtotheuniverse.org/DigitalFETTU.php

Coming soon: A press release template for your FETTU events and FETTU evaluation sheets.

NASA News

The itinerary for *Visions of the Universe* is listed here: www.ala.org/visionsoftheuniverse

Poster-size versions of the exhibit panels are available here: amazing-space.stsci.edu/visions/

For the Great Observatories Image Unveiling, the list of participating institutions is here: hubblesource.stsci.edu/events/iya/

ASP News

Over 3,000 IYA Discovery Guides have already been downloaded! www.astrosociety.org/iya/guides.html

Choose where to point HST for IYA *Hub-*

ble's Next Discovery — You Decide is part of the International Year of Astronomy (IYA), the celebration of the 400th anniversary of Galileo's observations. People around the world can vote to select the next object the Hubble Space Telescope will view. Choose from a list of objects Hubble has never observed before and enter a drawing for one of 100 new Hubble pictures of the winning object. The winning image will be released between April 2 and 5, during the IYA's 100 Hours of Astronomy, a global astronomy event geared toward encouraging as many people as possible to experience the night sky. Vote by March 1 to swing Hubble toward your favorite target at: youdecide.hubble-site.org/

An IYA Comet

Comet Lulin will be visible before dawn in January (look toward Libra), you will need a telescope to view it. However, in February, it should be visible with binoculars as it will be closer to the earth. Visit www.spaceweather.com for more information or: www.spaceweather.com/comet/gallery_lulin.htm?PHPSESSID=cir61e0hltat71upd50iocsg40

Astronomy Picture of the Day

IYA2009 was featured in the Astronomy Picture of the Day for Thursday, 29 January. antwrp.gsfc.nasa.gov/apod/astropix.html

2009 January 29: Eclipse Shirt 2009

IYA2009 on the Jeopardy Game Show

On Jan 8, 2009 the International Year of Astronomy was a question on the popular Jeopardy game show. The category was “This Just In” and it was a \$400 question: “Calling all stargazers: 2009 is the International Year of this science?” Answer: “Astronomy” (of course!) Click here to see: www.j-archive.com/showgame.php?game_id=2858&highlight=International+Year+of+Astronomy

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observed before, and enter a drawing for a picture of the winning object. The winning image will be released during 100 Hours of Astronomy in April. Go [here](#) more information, and to vote.

The website for IYA2009 Special Project *Celebrating the 1919 Eclipse at Príncipe*, is now finished. Go [here](#) to learn about this significant historical event.

History and IYA2009 have announced a special collaboration. As an IYA2009 Media Partner, History will contribute to promoting IYA2009 and raise awareness of its global activities and events through promotional clips and interstitials that will be aired throughout 2009. Go [here](#) to read the official press release.

The IYA2009 Opening Ceremony held in Paris was a great success, and has launched the Year on its journey of discovery and empowerment. The opening ceremony website is [here](#).

Janez Potocnik (European Commissioner for Science and Research) has given a speech entitled *Not just stargazing: Europe builds on centuries of cooperation in astronomical research*. Find a transcript of his presentation [here](#).

The IYA2009 Secretariat has been producing news round-ups of stories reported on websites and blogs:

[23 January](#)

[19 January](#)

[9 January](#)

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Solar system continued from page 1

which all the planets, including Earth, orbit the Sun. When Galileo pointed his telescope at Jupiter, he saw that Jupiter was not a star, but a sphere with orbiting moons. In the centuries since his revolutionary discoveries we have come a long way in understanding our planetary neighborhood.

NASA has sent space probes to explore all eight planets, as well as some comets and asteroids. **Recent Mars missions** have uncovered secrets of the Martian terrain and soil. **The Cassini spacecraft** has been sending back breathtaking images of Saturn and its moons. In the realm of icy bodies that lie beyond the orbit of Neptune, the recently reclassified “dwarf planet” or “plutoid” we’ve known for decades as the planet Pluto will be visited by **the New Horizons spacecraft** in 2015. And, there are many NASA and international missions planned

for the future that promise to expand our knowledge of the solar system even further.

But before humans travel to other planets in our solar system, we will return to our own Moon to explore it anew. **The Lunar Reconnaissance Orbiter (LRO)** and **Lunar Crater Observation and Sending Satellite (LCROSS)** missions are scheduled to launch in April 2009. LRO will spend a year orbiting and mapping the surface of the Moon and analyzing possible landing sites. LCROSS may soon find a source of water for human lunar colonists in the bottom of some lunar craters when it impacts the Moon’s surface later in the year.

Use the **February IYA Discovery Guide** to learn about craters on the Moon and the best times to view them. Happy IYA to all you Luna-tics!

Work begins continued from page 1

Special screening events of the documentary, star parties with NASA Night Sky Network and debuts of the planetarium show, *Two Small Pieces of Glass* with our PBS affiliate partners, including WTTW in Chicago, WNPT in Nashville, NET in Nebraska, WQED in Pittsburg, KOPB in Portland, WHYY in Philadelphia, KRMA Rocky Mountain PBS in Denver, and Maryland Public Television, WMPT, in Baltimore. Check with these affiliates, or your local station, for IYA activities in your area.

We are planning to attend film festivals in the US and Canada including the Sonoma (CA) International Film Festival; the Sacramento Film and Music Festival; Hot Docs in Toronto; the Jacksonville (FL) Film Festival; Silverdocs in Silver Springs, MD; the Seattle International Film Festival; the TriMedia Film Festival in Ft. Collins, CO; DocuFest in Atlanta; the Hot Springs (AR) Documentary Film Festival; and the San Francisco Documentary Festival. Two foreign festivals are under consideration that we will announce in next month’s newsletter.

We are also distributing a free screening copy of the program (on DVD) for science centers and planetariums. Please email me (kris@

interstellarstudios.com) if your facility would like a copy. More information on screening opportunities for educational institutions will also be announced next month.

The University of Hawaii Institute for Astronomy will partner with us to bring Astronomer in the Classroom online, beginning in April. We will host three webcasts per day that will enable astronomers to highlight their research and institution activities for students around the U.S. The daily programs will allow students to engage with astronomers during a Q & A session following each presentation. Astronomers and teachers can sign-up to participate in the free webcasts at www.astronomerintheclassroom.org. See the accompanying article in this issue for more information.

And finally, Friday, April 10, 2009, 10:00 PM ET/PT, 9:00 PM CT/MT (check local listings) is the time-slot for our PBS premiere!

About the US IYA2009 Logo

US IYA2009 has created a new logo specifically for national events and activities. (Please use the international logo for programs related to the major IYA cornerstone projects or other international ventures.) Please contact the US IYA program for permission for use. The US IYA project has also created a new giant postcard (2.8 MB PDF) that summarizes the major themes and programs that are being developed.

400 Years *of the* Telescope

A Journey of Science, Technology & Thought

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Please click [here](#) to subscribe.