

The Year to Celebrate Astronomy

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We aim to inspire the entire world to reflect upon and participate in astronomy throughout 2009. And we want you to help.

Astronomy is an international science. For centuries astronomers have collaborated across difficult boundaries of geography, language, culture, and politics. Today, teams of far-flung researchers routinely work together to understand the cosmos using facilities scattered all around the globe, as well as orbiting above it and beyond.

Take this concept and then imagine a truly international collaboration with participants from nearly every country on Earth, all with one objective: to expose as many as possible of the world's 6.8 billion citizens to the universe's wonders.

You have just imagined the International Year of Astronomy 2009.

Sharing the Excitement of Space

As a reader of *Sky & Telescope*, you know that of all the sciences, astronomy has special mind-expanding potential. Space is full of spectacular, mystifying, and awesome phenomena — and our very world is a part of it. Cosmic exploration is one of the greatest adventures in the history of humankind.

Every culture in the world has marveled at the Sun, Moon, and stars. For as long as humans have walked the Earth, we have looked up at the night sky and wondered about what we saw. The allure of discovery continues to drive astronomy rapidly, delivering new results daily. Astronomy addresses, and answers, some of the biggest philosophical questions: Where did everything come from? How did life arise? When will we end?

All nations at the vanguard of science have strong astronomical research communities. And these communities generally feel obliged to share what they learn with the public.

With this in mind, the International Astronomical Union (IAU) has designated 2009 to be the International Year of Astronomy (IYA2009), with the theme “The universe, yours to discover.”

Endorsed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the UN General Assembly, IYA2009 marks the 400th anniversary of Galileo's first telescopic observations. It will be a global endeavor with an emphasis on education, public engage-



BABAK TAFRESHI / TWAN

ment, and youth involvement. Events will be organized at national, regional, and world levels all year.

And there will be many opportunities for amateur and professional astronomers, as well as enthusiasts and educators, to get involved.

A Truly Global Event

Thousands of people in more than 125 nations and 50 organizations around the world are already involved with IYA2009 activities. This is already the largest-ever astronomy network, and it will forge new lines of communication to link far-flung participants. The global community of amateur and professional astronomers will combine to produce ideas and resources for each other, as well as getting locally involved by introducing newcomers to the wonders of the cosmos. This network, we intend, will last far beyond 2009.

But IYA2009 has the potential to stretch further

than just educating people about astronomy. The UN as a whole has specified eight Millennium Development Goals to achieve by 2015. These include halving extreme poverty and promoting gender equality. Although it may not be obvious at first glance, IYA2009 events will mesh with several of these objectives. For example, countless young children will have their education boosted by good astronomy-education programs available for free, helping the goal of providing primary education to all.

Another Millennium Development Goal is to develop global volunteer partnerships, which will certainly happen thanks to the international networks of astronomers and enthusiasts. Those who argue that astronomy doesn't have real-world relevance should take note!

IYA2009 Needs You!

What exactly will be happening throughout 2009? Although most activities will take place locally and nationally, 11 Cornerstone Projects form the year's backbone. These global programs — summarized on the following page — are based on specific themes that cover the IYA2009's main bases.

But there's much more to IYA2009 than the Cornerstones. Amateur and professional astronomers will be the real backbone, creating and managing a host of activities.

★ STARSCAPES
Byurakan Astrophysical Observatory in Armenia stands in silhouette against city sky glow. This view is part of The World at Night (TWAN), which aims to collect beautiful, starry vistas from landmarks around the globe. Visit twanight.org for more images and details.

★ THE CELEBRATION BEGINS
Although New Year's Day 2009 will technically be the start of IYA2009, dignitaries will gather in Paris on January 15th for an official opening ceremony.

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The 11 Cornerstone Projects ✦

100 Hours of Astronomy: 400 Years in the Making. On April 2–5, a 100-hour, round-the-clock, round-the-globe outreach marathon will include live webcasts from research observatories, public observing events, and other activities. The goal is to encourage as many people as possible to look through a telescope for the first time.

The Galileoscope: Millions of People Eyeing the Sky. Who doesn't remember the first time they looked at the Moon through a telescope and were amazed by the detail they could see? This program will share that experience by distributing an easy-to-assemble and easy-to-use telescope, roughly matching the capability of Galileo's, that can be distributed by the millions. Ideally, every participant in an IYA2009 event will take home one of these little scopes.

Cosmic Diary: The Life of an Astronomer. What's it like to be a working astronomer? Professionals will blog in text and images about their lives, families, friends, hobbies, and interests, as well as their research and the challenges they face. This will become the basis of a book to be published in 2009.

Portal to the Universe: A One-stop Universe of News. This website will provide a global nexus for online astronomy content, serving as an index and social-networking site for the public, educators, media, decision-makers, and scientists. Using the latest technologies, it should be *the* place to go for up-to-date astronomy information.

She Is an Astronomer: Breaking Down Misconceptions. Promoting gender equity and empowering women is a United Nations Millennium Development Goal. A website will provide information and links about gender-bias issues in astronomy and science in general, and ways to address these problems.

Dark Skies Awareness: Seeing in the Dark. The Milky Way seen from a truly dark site is part of the world's natural and cultural heritage. It's more urgent than ever to curb light pollution in places like national parks and areas connected with astronomical observing. Aspects will include star-counting exercises and education about good-lighting techniques.

Astronomy and World Heritage: Universal Treasures. Establishing a link between science and culture, this program will identify important astronomy locations and resources, preserving their memory and saving them from deterioration. It will also help the international community to nominate sites that celebrate achievements in science.

Galileo Teacher Training Program. IYA2009 provides an opportunity to engage schools in the excitement of astronomical discovery. As a vehicle for improving science teaching, this Cornerstone will host a rich store of astronomy-education content, much of it freely available on the Internet.

Universe Awareness: One Place in the Cosmos. This program aims to introduce very young children in underprivileged environments to the scale and beauty of the universe. It will illustrate 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.

From Earth to the Universe: The Beauty of Science. Spectacular astronomical images will be brought to the public in nontraditional venues. Pictures and the science behind them could be displayed in public parks, transit stations, art centers, and other locations, so that individuals who might not otherwise encounter astronomy will have doors opened to appreciation and understanding.

Developing Astronomy Globally: Astronomy for All. Boosting training, development, and networking in regions that don't have strong astronomical communities is a priority. This project will reach out professionally, publicly, and educationally to ensure that IYA2009 will help such regions benefit from other Cornerstone projects.



COSMIC EXHIBIT To bring astronomy to the public, Kimberly Kowal Arcand and Megan Watzke (Chandra Science Center) led an effort to prepare an exhibit-ready gallery of the 100 greatest astronomy images. The “From Earth to the Universe” exhibit comes with pictures and captions ready for local installations. A highly successful tryout was conducted in Liverpool, England, last June. Many of the images appear in the 2009 edition of *Beautiful Universe* (SkyandTelescope.com/BU2009).

This is where *you* come in. Without contributions of time, experience, and enthusiasm from enlightened citizens, the grand ambitions won't be met.

If you're an astronomy newcomer and would like to get some advice on how you can help, contact your IYA2009 National Node (via www.astronomy2009.org), a local planetarium, astronomy club, or science museum.

Amateurs will certainly be a key element of success. After all, for every professional astronomer there are at least 20 amateurs. Such legions will be needed to plan and run outreach events. For ideas, visit IYA2009's “activities” Web pages. Don't be afraid to adapt these to your own personal ideas and strengths, or your particular country's history and culture.

Why not get in touch with local science teachers and propose some practical activities for students involving observation of the sky? The 100 Hours of Astronomy Cornerstone slated for early April is a global event that all amateur astronomers should take part in — so start planning now!

Of course, professionals can do all of the above and more. Contact your IYA2009 National Node or national astronomical societies for advice on what you can do to promote astronomy in your region. Efforts can include coordinating activities with amateur astronomers, helping to publicize research, and enhancing the public's appreciation of science.

For educators, you can find inspiration and guidance for activities through the Galileo Teacher Training Program. Exciting lesson plans will take your students to other worlds.



The American Effort

By Douglas Isbell

The United States is preparing a variety of programs and activities for IYA2009, led by many of the most active and creative astronomy outreach professionals.

The adopted U.S. goals for IYA2009 are simple but ambitious: To offer an engaging astronomy experience of some sort to every American; to nurture existing partnerships; and to sustain public interest in science.

At the behest of the international IYA2009 group, the design of the Galileoscope kit is being led by Stephen Pompea (National Optical Astronomy Observatory) and Rick Fienberg (former *S&T* editor in chief, now at Phillips Academy), with input from Douglas Arion (Carthage College) and Thomas Smith (Merit Models). The goal is to make a good-quality plastic telescope kit costing \$10, and place thousands

of them in the hands of people around the world. *Sky & Telescope* will take a closer look at this project in an upcoming issue.

Based on past success with star-hunting programs such as GLOBE at Night and the Great World Wide Star Count, the U.S. branch is also leading international efforts to inform the public about the value of dark skies. This program will highlight how everyone can help reduce light pollution and save wasted electricity. Connie Walker (NOAO) chairs both the American and international working groups on this effort. GLOBE at Night will be held from March 16–28, which overlaps the international Earth Hour “lights out” event on March 28th.

A talented U.S. working group, led by Pamela Gay (Southern Illinois University at Edwardsville), has been drafted to lead the development of the Portal to

the Universe website, in addition to 365 days of podcasts and adventures on MySpace, Facebook, and Second Life.

The Astronomical Society of the Pacific (ASP) is playing a central role in several American IYA2009 programs and is helping to guide the Galileo Teacher Training Program. It’s also forging connections between the major themes of IYA2009 and existing ASP-fostered projects, such as its NASA-funded Night Sky Network of astronomy clubs.

Almost every U.S. astronomical institution is making a contribution. For example, the American Association of Variable Star Observers (AAVSO) is leading a citizen-science campaign to help variable-star researchers follow the unusual naked-eye eclipsing-binary system Epsilon Aurigae. The National Radio Astronomy Observatory (NRAO) is bringing “radio-quiet skies” into the

mix of dark-skies programs.

Please stay in touch! Check for updates to the U.S. National Node website, listed on the following page. In addition, the American program has partnered with Interstellar Studios, the production team behind the forthcoming documentary *400 Years of the Telescope* (to air on PBS in early 2009) and planetarium show, to e-mail a monthly newsletter. Visit www.400years.org to subscribe.

Finally, we encourage you to use the IYA logo in your handouts and on your Web pages. It’s the astronomy enthusiasts who will make IYA2009 happen in a big way!

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HAROLD DORWIN (SMITHSONIAN INSTITUTION)

LET'S EXPLORE An overarching aim of IYA2009 is to introduce people of all ages — even youngsters like these — to the wonders of the night sky and celestial discovery. Astronomy clubs around the world are encouraged to host programs to welcome the public to give everyone a view through a telescope.

And if you have a grand idea about how to help, contact your IYA2009 National Node, where someone will be happy to accept suggestions. You're only a few steps away from joining the largest astronomy network ever.

Throughout 2009, the excitement of space will be shared like never before. Looking at how astronomers around the world are already pulling together, it's sure to be a success celebrated for years to come. ♦

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BOOKMARKS OF NOTE

Many projects were in the development stages as this issue went to press. You'll find the latest information, programs, and resources at these websites:

www.astronomy2009.org
astronomy2009.nasa.gov

www.astronomy2009.us
SkyandTelescope.com/IYA2009