

Global Astronomy Month: Astronomy around the World

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For six years Global Astronomy Month has taken place each April, growing into a wide-ranging and diverse array of programmes comprising the world's largest worldwide, annual celebration of astronomy. Innovative programmes developed through partnerships, along with the availability of this novel platform, have allowed an expansion of what the month has to offer. Beginning with familiar observing programmes that engage amateur astronomers, programmes have become increasingly inclusive, extending to non-astronomy fields inspired by space. This article explores the development of Global Astronomy Month, the lessons learnt and how the project has provided a stage for expanding existing programmes and testing new ideas.

Introduction

Global Astronomy Month (GAM) was created as a follow-up to the highly successful 100 Hours of Astronomy (100HA), a Cornerstone project of the International Year of Astronomy 2009 (IYA2009)^{1,2,3}. The public observing programmes of 100HA, led by Astronomers Without Borders (AWB) founder Mike Simmons, achieved an unprecedented participation by amateur astronomers and astronomy institutions⁴. AWB sought not only to continue this momentum, but to expand the programmes, making Global Astronomy Month even more diverse and inclusive.

The first programmes organised by Astronomers Without Borders involved observing and public outreach events similar to those in 100HA, such as the Global Star Party and SunDay^{5,6}. Public star parties are the most common events that amateur astronomers participate in as a group regardless of location, culture or nationality, and the same objects are observed around the world. Sharing the sky with the public fits perfectly with sharing activities with each other, in tune with AWB's motto, "One People, One Sky".

Sharing is central to both Astronomers Without Borders and Global Astronomy Month. The AWB website, through its sub-site dedicated to GAM each April, provides not only programme information

and resources, but tools for sharing events, event reports, and photos¹.

Programme management

There have been six Global Astronomy Months to date, spanning 2010 to 2015, which have provided many lessons in running global programmes and adapting to the changing landscape of astronomy outreach and education. New programmes have been added to the schedule each year as GAM's popularity has increased worldwide.

Programme management and responsibilities fall into three categories:

1. Programmes organised and managed entirely by AWB.
2. Programmes organised jointly by AWB and one or more partner organisations.
3. Programmes organised and managed entirely by partner organisations.

Programmes with shared responsibilities between AWB and a partner organisation may use the resources of either or both, such as networks, websites, social media and management personnel. Often each partner brings resources that the other lacks, allowing more to be done together than either could accomplish alone. For example, partner organisations that want to increase their international visibility often leverage AWB's global reach during Global

Astronomy Month and the AWB and Global Astronomy Month brands have benefited from well-known partners such as NASA. No one organisation ever has it all.

Lessons learned

The size and scope of Global Astronomy Month have made it a vehicle for trying new programmes and activities, with varying results. Partner organisations may use Global Astronomy Month not only to expand programmes internationally, but also to increase awareness or scale up existing programmes. Pilot programmes test new ideas and gather data for making adjustments. In addition, reaching out to developing countries allows the transferability of programmes and resources from the higher income nations to be tested.

Unfortunately, there are always more new ideas than can be managed. After GAM 2011, when almost forty programmes were scheduled, the number of programmes was scaled back. Due to the difficulty of managing so many programmes on a limited budget, only the highest-profile programmes receive the attention they deserve in such a crowded schedule. Even if programmes are marketed to appropriate audience niches, the array of programmes presented to website visitors can still be overwhelming. With too large a menu of programmes to choose from,

many are missed by those who might have participated.

Community-based observing programmes, such as the continuations of 100HA's Global Star Party and SunDay, are perennial favourites. In these activities astronomy clubs that do outreach all year have a chance to interact with others and be a part of something larger through global programmes. GAM also schedules observing programmes based on current astronomical events such as the conjunctions of major planets or eclipses.

Astronomy across borders of all kinds

Some of the most accessible and popular GAM programmes are the online observing sessions conducted each GAM by Doctor Gianluca Masi of the Virtual Telescope project⁷. Five sessions were successfully held during GAM 2015, with two more cancelled due to poor weather. Two further sessions were added to the schedule when near-Earth asteroids were discovered passing close to Earth during April. In total, 70 000 viewers from 174 countries attended these online sessions, many of

whom may not have been able to attend a live session. A chat box is available to the audience during the sessions to allow questions to be posed to Masi, and discussions to be held among the participants.

An example of innovation during GAM was the project, *Stars for All*, which made real-time online observing accessible to the visually impaired alongside sighted people. This project, which we believe to be a first, was run through a collaboration with Astronomers Without Borders, the Virtual Telescope, the Galileo Teacher Training Program, and the Astronomical Observatory at the University of Valencia link. During *Stars for All* images were processed for special devices that create tactile versions. At schools for the visually impaired with these devices the students could experience the wonder of observing with the Virtual Telescope and follow the narration in real time.

Stars for All received a great deal of attention from the media and AWB is now working with partners to develop a year-round programme for the visually impaired using the remote telescope network of Las Cumbres Observatory Global Telescope Network⁸.

Combining astronomy with art has become a big segment of the Astronomers Without Borders programme. Special events organised by GAM encourage the crossing of the border between art and science by both artists who do science, and scientists who do art.

Daniela De Paulis, founder of the AWB AstroArts project, sent artworks to the Moon and back during her OPTICKS programme⁹. This was achieved with help from radio amateurs who encoded the images, and transmitted and received the images bounced off the Moon. Several artists contributed to the images, from schoolchildren to professionals. For GAM 2015, two *Apollo* Moon-walkers took part, with a painting by astronaut-artist Alan Bean (*Apollo 12*) making the round trip, and a family photo left on the Moon during Charlie Duke's visit (*Apollo 16*) making the trip from Earth again — and back this time — at the speed of light. Both images were used with permission from the astronauts. Duke even scanned his original photo to provide a higher resolution, and previously unpublished, version for this event.

There is also a Cosmic Concert performed each year by the Italian composer Giovanni Renzo against a backdrop of space images that has a large following.

Contests

Contests are always popular, and the unique global platform that Global Astronomy Month creates has been used to launch two annual contests with broad participation.

The AstroPoetry Contest, based on AWB's popular year-round Astropoetry Blog, is an example of adjusting to the needs of the target audience. Classrooms around the world took part, but the submission dates had to be adjusted to accommodate various school years based on early feedback. New resources also help teachers to structure lessons around writing poems.

The International Earth and Sky Photo Contest, introduced in the inaugural GAM, has become a major event. More than 1000 images were submitted from 54 countries in GAM 2015. Winning images, in categories highlighting the beauty of the night sky and the battle against light pollution, are



Figure 1. Giovanni Renzo performs his original composition against a backdrop of astronomical images and videos during the annual Cosmic Concert broadcast live from Rome, Italy. Credit: Giovanni Renzo



Figure 2. Observing the Sun on SunDay during GAM 2010 in Romania. Credit: Romanian Society for Meteors and Astronomy

published by National Geographic Online and the BBC, among others. The contest is organised by The World at Night and the U.S. National Optical Astronomical Observatory as part of GAM's slate of dark skies awareness programmes.

New online tools

The growth of social media since 2010 has changed the way that Astronomers Without Borders interacts with the community during Global Astronomy Month. Reports and images are shared on the AWB website but groups increasingly use social media to organise observing events, share photos and stories, and attract new members. The choice of medium depends on the type of content. More complete reports are still posted on the website, but simple photo sharing with brief descriptions is often done on the Global Astronomy Month Facebook page.

While social media limits the amount of information shared, its ease of use has increased sharing and interaction through likes, shares and hashtags like #GAM2015. This sharing has important benefits for community-based programmes. Posts on social media publicise events that the community would not otherwise have been aware of and the event organisers are then urged to register their events and post reports on the GAM website.

While social media is useful for announcements and reminders, more complete information and news is still shared via the website and biweekly GAM newsletter, including the complete programme schedule, detailed programme information, and resources. Events registered on the website appear on the world map of events, which is an important social incentive. Astronomers Without Borders is now using Geographic Information Systems (GIS) software to display results, particularly a new, interactive platform from Esri called Story Maps¹⁰. Registered events are also eligible for personalised certificates created for download for anyone taking part in the local events. Event registration is allowed even after GAM ends to help fill in the map, and also to stay in contact with organisers and engage them on the website, particularly for event reports. These reports are more in-depth than on social media, are easily accessible and

searchable, and serve as a permanent archive of that year's GAM activities. Event reports are regularly featured on the website and in newsletters, another social incentive for posting.

Conclusion

The success of Global Astronomy Month is largely due to it being community-driven. For clubs and organisations around the world that organise events and activities as part of the larger GAM programmes, the added value comes from having an event that is part of something much larger, something they're doing with others around the world. The outreach programmes, with local events organised by astronomy clubs as part of the larger programme, attract, engage, and inspire the public. Browsing images from these events, it is strikingly obvious just how universal the joy of discovery and exploration is, with the same excited look on the faces of all those looking through a telescope for the first time; regardless of the country, culture, or age. GAM inspires people to learn more, try something new, and share their passion with others. Every year we see stories shared via member reports from people who held their first star party, saw something new for the first time, inspired someone or were inspired themselves. GAM is driven by the enthusiastic amateur astronomers who take part and the reason for its global acceptance is its success in sharing the joy and excitement of astronomy with the world.

Notes

- ¹ More about Global Astronomy Month: <http://astronomerswithoutborders.org/global-astronomy-month-2015/280-gam2015/global-astronomy-month/2609-global-astronomy-month-2015.html>
- ² More about 100 Hours of Astronomy: <http://www.eso.org/public/events/special-evt/100ha/>
- ³ More about the International Year of Astronomy 2009: <http://www.astronomy2009.org/>
- ⁴ More about Astronomers Without Borders: <http://astronomerswithoutborders.org/>
- ⁵ More about the Global Star Party: <http://astronomerswithoutborders.org/gam2015-programs/observing/1558-global-star-party-for-gam-2015.html>

- ⁶ More about the SunDay project: <http://astronomerswithoutborders.org/member-reports/2705-april-12-2015-alp-global-sunday-report.html>
- ⁷ More about the Virtual Telescope Project: <http://www.virtualtelescope.eu/>
- ⁸ More information on the Stars for All project: <http://astronomerswithoutborders.org/gam2014-programs/online/1471-stars-for-all.html>
- ⁹ More about the AWB AstroArts programme: <http://astronomerswithoutborders.org/projects/13-current-projects/1259-astroarts.html>
- ¹⁰ More about StoryMaps and how it can be used here: <http://storymaps.arcgis.com/en/>

Biographies

Christie McMonigal is the Science Outreach and Promotions Officer at the University of Technology Sydney, Australia, and has been the Coordinator of Global Astronomy Month at Astronomers Without Borders since January 2014. She completed her Bachelor of Advanced Science with honours in Physics at the University of Sydney and has worked as a science communicator and educator at a number of organisations including Questacon, The National Science and Technology Centre, and Sydney Observatory.

Mike Simmons is the founder and President of Astronomers Without Borders. He was co-chair of the 100 Hours of Astronomy Cornerstone project of the International Year of Astronomy 2009. He has been an amateur astronomer doing outreach for more than 40 years, has worked in outreach at Griffith Observatory in Los Angeles and Mount Wilson Observatory nearby, and is a writer who is currently a Contributing Editor of *Sky and Telescope* magazine.