

The IYA2009 Legacy

- Roadmap to IYA2009's Living Heritage

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Ver 4.0 (31.12.2009)

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## Introduction

The International Year of Astronomy 2009 was never foreseen to be a “one-off” event for one year, but a means to creating structures for collaboration, lasting self-sustaining activities and innovative concepts for the communication of astronomy. Within the IYA2009 project this “living heritage” goes under the name “IYA2009 Legacy”. This paper 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 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 activities and collaborations that have long-term potential.

## Books and reports

For the final “official” deliverables of IYA2009, the Secretariat will collect and analyse inputs from the nodes and projects, including quantitative information and evaluation metrics. Some of the information and metrics to be gathered will include: organisational structures, main achievements, most successful events, and budgets.

With the information gathered, different products will be produced, namely:

1. A comprehensive final online-only report, addressing the origin of IYA2009, the organisational structure, national and organisational nodes, global projects, resources, highlights and, of course, lessons learned and recommendations. Number of pages: 1000 – 1500.
2. An Executive Summary printed brochure extracted from the final report: main achievements, lessons learned, and recommendations.
3. A coffee table book with a digest of the highlights of the final report with a strong visual component and simple, clear text, illustrating the global celebration of IYA2009 around the world. A partnership with a publisher will be sought.

Similar products can be produced by the participant organisations and countries.

## Legacy Resources

### 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 beyond logo is available on:

[http://www.astronomy2009.org/resources/multimedia/images/detail/iya\\_logo\\_beyond/](http://www.astronomy2009.org/resources/multimedia/images/detail/iya_logo_beyond/)

### IYA2009 online resources

The online resources produced during IYA2009 by the Secretariat for 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<sup>1</sup> or HTTrack<sup>2</sup> can be used to download entire

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<sup>1</sup> <http://www.spidersoft.com/webzip/default.asp>

websites and keep them available for offline use. The IYA2009 Secretariat can also provide support for this task, if needed.

## Copyrights and permissions for images, 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 of 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

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<sup>2</sup> <http://www.httrack.com/>

as well. Discussions have taken place between the stakeholders, but due to the manpower demands of this task, no commitments have been made.

## **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 website. 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 materials 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 Astronomers Without Borders (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 programmes. 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 organisational effort was an unusual blend of experienced informal outreach people and professional astronomers dedicated to outreach and education. The professional community has come to recognise 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 AWB, one of the organisations behind 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 of 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 programmes 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 programmes 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 programmes 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 online.

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 their 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 backgrounds, fields of research, ages, genders, and the places in the world where professional astronomers live and work.

The book will be published by Wiley and will have international distribution. It will be the perfect legacy of the Cosmic Diary project.

### **Evaluation**

Between February and March 2010, the Cosmic Diary Task Group will present an evaluation report centred mainly on the analysis of [www.cosmicdiary.org](http://www.cosmicdiary.org) visits, budget and partnerships with other IYA2009 Cornerstones and partners.

### **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 programme.
- Also the Second Life presence for Dark Skies Awareness will continue for as long as the IYA2009 Island is open.
- 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 two 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 programme, 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 recognise 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](http://www.starlight2007.net/StarlightReserves.html) and [www.darksky.org](http://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 Program and hopefully UNAWAWE.
  - c. The Dark Skies Education Kits.
  - d. Improvement on the programme to analyse the data from GLOBE at Night.
  - e. The How Many Stars Programme.
  - f. The Great World Wide Star Count Programme.
  - 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 Programmes listed above as programmes continuing beyond IYA2009.
- 4) Continue to keep the IYA2009 leaders posted with updates.

### **Galileo Teacher 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 quickly as we can, especially in developing nations where 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 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. 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 program 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/>).

The concept behind this is very simple: local organisers with panels who are finished with their FETTU exhibits could advertise the availability of their materials. Likewise, aspiring local organisers could post their needs. The “FETTU swap” would serve as a venue for these groups to connect, and hopefully establish plans to share materials. Ideally, enough funds could be raised to make this swap possible for developing countries that could not pay for transportation of a unit. Plans to advertise the swap and put it into action are still in development.

The “FETTU swap” is designed to serve the worldwide community, though it will be a relatively passive effort. In other words, we will not be able to actively pursue connections from one group to another globally due to lack of funds and staff at the top-level of the FETTU project. (We will certainly try in whatever capacity we can, but this should be noted in its limitations.)

However, we are trying to find new sources of support that would allow us to take a more active role in the continuation of FETTU in select areas. For example, in the United States, we have proposed to some federal funding agencies to create a smaller FETTU exhibit that would be cheaper and even easier to disseminate in more rural or under-served areas of the US for 2010 and beyond. We are finding long-term homes for the NASA anchor exhibits (such as the Children's Hospital in Chicago). We also hope to propose for additional monies to keep the current version of the NASA-funded travelling FETTU exhibits (for sighted and non-sighted communities) distributed throughout the US.

### **Maintenance of networks**

Over the course of the FETTU project, we have found an incredible and diverse network of individuals and organisations that have worked diligently to make this project such a success. As with virtually all of the IYA2009 efforts, this network was volunteer-based. We were able to establish connections via FETTU with major agencies such as IAU, NASA, AAS, ESO, etc., as well as many smaller, regional organisations and individuals. In other words, we now have a “standing army” of people who have experience and interest in participating in this type of astronomy and science outreach.

One exciting aspect of this network is that it has created smaller pockets of networks within regional and local pockets. For example, the FETTU project in the Bay Area of California (US) allowed for several different organisations to collaborate in a way they never had before. They plan to continue this collaboration in the future and are actively seeking projects to do so with. According to one participant, the collaboration of those involved in this local network was the most valuable item to come out of the project. It opened doors to new connections and new avenues of sharing in a highly-specialised community.

### **Project evaluation methods**

We have been interviewing FETTU organisers world-wide for a first tier of information on the perspectives of the host communities and participants. These preliminary results are being included in papers and conference proceedings as we share our experiences with the astronomy outreach community. The FETTU website currently hosts a survey for exhibit attendees, though driving traffic to take that survey is always a challenge (about 25 surveys have been completed to date out of the millions of people who have viewed the exhibits across the globe).

A few countries are conducting formal evaluations on a more local scale. Through the NASA grant, we have a multi-tiered evaluation plan already underway. Example overviews on the data collection are included in appendix 1.2. The formal evaluation of the observations of and interviews with participants will begin in November 2009. The UK also arranged for formal evaluation of the exhibition in their country

through a master's student. Other countries such as Argentina have utilised the evaluation materials we provided on the FETTU website, but language and fiscal barriers are in the way of concatenating their results with the international Cornerstone.

### **Possible sources of future funding**

The Chandra X-ray Center, where FETTU was conceived, designed, and run, has committed much in the way of in-kind contributions so far to the logistic support of the Cornerstone project. Support from the IAU has also been key to keeping the FETTU website replete with the materials and information for exhibits and also keeping the site up to date with the constant influx of exhibition results. We hope to find funds to support staff that will be able to keep the logistical issues and web presence going, but additional funding to keep the “evidence” of the reach of the exhibit through the web site is imperative. Additional outside sources will need to be found for the short term. We will actively seek funds to continue FETTU and related projects from federal agencies in the US, as well as private foundations around the globe.

### **Lessons learned**

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 organisations, and the upcoming International Year of Chemistry 2011.

### **Summary**

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 six 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 Hadhazy, 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, technical 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](http://www.sheisanastronomer.org) label if that is possible.

There are three people looking after the website, and three 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:

1. 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.
2. A lot of people are "interested" but they want to receive content (such as talks they can give) rather than supply it.
3. I still hope we can work on "good practice" ideas to build on the IAU Resolution.
4. 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 localised 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 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 programme. 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 optimise 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 LemnUSA 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](http://www.galileoscope.org)) as the primary point of sale, and with our distribution system still relying on Lemn 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 centres, through the Association of Science-Technology centres, through outreach centres of observatories, and through teacher professional organisations. Online training has been offered to many of these organisations, and the National Optical Astronomy Observatory will consolidate the newly created training resources online in January 2010.

## Special Projects Legacy

## StarPeace

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. The idea that the dream of a world without war will come true by looking through the sky profoundly lead us to hold StarPeace public star parties in border towns around the world and make the sky a bridge of friendship between nations and mind.

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 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.

- "WHEREVER I AM, LET ME BE, THE SKY IS MINE." Sohrab Sepehri, Iranian Contemporary Poet

## 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 centres, 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 worldwide on networks like BBC, Discovery Canada, and NHK Japan. The BLAST! Educational DVD was released independently in the autumn.

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 spring of 2010. BLAST! will carry the spirit of the IYA2009 well into the future by inspiring and encouraging young people to pursue 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 IYA2009 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 copyright issues 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 were 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 (e.g. 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 organisation.

## Future of National Structures and Activities

Some preliminary ideas 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.



## **U.S. and Worldwide IYA2009 Programmes Continuing into 2010**

Galileoscope Educational Telescope Kit & Donation Programme  
[www.galileoscope.org](http://www.galileoscope.org)

365 Days of Astronomy Podcasts  
[www.365daysofastronomy.org](http://www.365daysofastronomy.org)

Astronomy in Second Life  
[www.secondastronomy.org](http://www.secondastronomy.org)

UNESCO Astronomy & World Heritage Initiative  
[whc.unesco.org/en/astronomy](http://whc.unesco.org/en/astronomy)

Galileo Teacher Training Program in the U.S.  
[www.gttputusa.org](http://www.gttputusa.org)

Dark Skies Awareness  
[www.darkskiesawareness.org](http://www.darkskiesawareness.org)  
[www.globeatnight.org](http://www.globeatnight.org)

“Dark Skies Rangers” is a new programme being adopted internationally by the Galileo Teacher Training Program.

The National Park Service will continue to host star parties & Dark Skies events:  
[www.darkskiesawareness.org/night-in-park.php](http://www.darkskiesawareness.org/night-in-park.php)

From Earth to the Universe  
[www.fromearthtotheuniverse.org](http://www.fromearthtotheuniverse.org)

Listing of upcoming U.S. events and locations, continuing through at least 2010:  
[www.fromearthtotheuniverse.org/table\\_events.php](http://www.fromearthtotheuniverse.org/table_events.php)

Visions of the Universe: Four Centuries of Discovery  
[www.ala.org/visionsoftheuniverse](http://www.ala.org/visionsoftheuniverse)

Library exhibits will continue to tour through at least March 2010.

The World at Night: One People, One Sky (Astrophotography exhibits)  
[www.twanight.org](http://www.twanight.org)

Astronomers Without Borders  
[www.astronomerswithoutborders.org](http://www.astronomerswithoutborders.org)

AWB will support World Astronomy Month in April 2010.

### **IYA2009-Related Media Programmes**

Two Small Pieces of Glass (planetarium programme)  
[www.400years.org](http://www.400years.org) and click Planetarium Program

Let There Be Night (Planetarium Program for Small and Portable Domes)  
[www.LetThereBeNight.org](http://www.LetThereBeNight.org)

Hubble's Diverse Universe (Documentary Film)  
Public screenings and DVD (website TBA)

The Skies Alive! (Film Competition)  
[ursa.as.arizona.edu/~iya2009cast/SkiesAlive.htm](http://ursa.as.arizona.edu/~iya2009cast/SkiesAlive.htm)  
(The website will be updated with a new submission deadline of June 15, 2010.)

Tour of the Universe by Children of the World (Music Video, DVD, and Calendar)  
[www.starpals.org](http://www.starpals.org)

### **Additional IYA2009-Related Education Programmes**

Astronomical Society of the Pacific's IYA2009 education programmes including Discovery Guides and Cosmic Clearinghouse  
[www.astrosociety.org/iya/](http://www.astrosociety.org/iya/)

An Introduction to Astronomy Education Resources  
[www.manyone.net/cosmicclearinghouse/articles/view/139822/](http://www.manyone.net/cosmicclearinghouse/articles/view/139822/)

Cultural Astronomy Summer School, continuing at summer AAS meetings

### **IYA2009 Citizen Science Programmes**

Epsilon Aurigae (Variable Star Observing Programme)  
[www.citizensky.org](http://www.citizensky.org)

Second Citizen Sky workshop will be held at California Academy of Sciences in San Francisco, September 3-5, 2010. Programme is funded through August 2012.

Galaxy Zoo  
[www.galaxyzoo.org](http://www.galaxyzoo.org)

GLOBE at Night  
[www.globeatnight.org](http://www.globeatnight.org)

Great World Wide Star Count  
[www.starcount.org](http://www.starcount.org)

NASA's Mars Science Programme  
[beamartian.jpl.nasa.gov](http://beamartian.jpl.nasa.gov)

### **Beyond IYA Calendar (2010+)**

GLOBE at Night, March 3-16, 2010, [www.globeatnight.org](http://www.globeatnight.org)

Earth Hour, in March, [www.earthhour.org](http://www.earthhour.org)

International Sidewalk Astronomy Night, March 20, 2010, [www.sidewalkastronomers.us](http://www.sidewalkastronomers.us)

Sun-Earth Day, on or near the spring equinox, approx. March 21, [www.sunearthday.nasa.gov](http://www.sunearthday.nasa.gov)

World Astronomy Month, April 2010, details and web site TBA

International Dark Skies Week, April 4-10, 2010, [www.darks skiesawareness.org/idsw.php](http://www.darks skiesawareness.org/idsw.php)

Yuri's Night, on or near April 12. Anniversary of Yuri Gagarin's first flight into space (in 1961) and the first launch of the U.S. Space Shuttle (in 1981), [www.yurisnight.net](http://www.yurisnight.net)

World Night In Defense of Starlight, in April, [www.starlight2007.net](http://www.starlight2007.net)

Earth Day, April 22, [www.earthday.net](http://www.earthday.net)

Astronomy Week, late April or early May with one day (usually a Saturday) chosen as Astronomy Day  
Both are organised by the Astronomical League, [www.astroleague.org](http://www.astroleague.org)

Space Day, the first Friday each May, [www.spaceday.org](http://www.spaceday.org)

National Park programmes, summer. Many national parks all across the country will continue celebrating IYA2009 by having stargazing events and dark skies programmes. [www.darks skiesawareness.org/night-in-park.php](http://www.darks skiesawareness.org/night-in-park.php)

Cosmos in the Classroom 2010 (and the annual meeting of the Astronomical Society of the Pacific) in Boulder, CO July 31 - Aug. 4, 2010, [www.astrosociety.org/events/meeting.html](http://www.astrosociety.org/events/meeting.html)

Citizen Sky Workshop II, September 3-5 2010, [www.citizensky.org](http://www.citizensky.org)

World Space Week, October 4-10 each year, [www.worldspaceweek.org](http://www.worldspaceweek.org)

Great World Wide Star Count, in October, [www.starcount.org](http://www.starcount.org)