



## **Galileo Teacher Training Program (GTTP) An IAU IYA2009 Cornerstone Program**

**Notes from the Task Force Meeting conducted at CAP 2007, Athens, Greece  
- DRAFT -**

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In attendance: approximately 30 CAP meeting participants.

During the October 11 lunch break, task force members attending the conference lead a discussion about the IAU IYA2009 cornerstone project to create an international teacher professional development program in astronomy for the International Year of Astronomy. The following comprises notes from the meeting and a preliminary schedule for action.

### **Primary points that emerged from the discussion:**

- There is a clear need for teacher training and professional development at a basic level.
- There are excellent and very valuable astronomy education networks and resources around the world that need to be involved and empowered for the GTTP.
- In countries and regions without such educational networks, the GTTP must create and support new networks.
- The IYA2009 is an excellent opportunity to link all of these networks and resources with a common theme.
- The different cornerstone projects provide different educational possibilities, and links between other projects and the GTTP must be identified.
- The GTTP must provide guidelines to meet different educational needs (from training to resources validation) and be adaptable for different situations and levels of resources.
- A common unifying theme must be identified: for example, "Look up!"
- There needs to be a simple, coordinated organizational structure that links efforts across the world.
- The "Galileo Teachers" trained to provide astronomy professional development in their regions should be called Galileo Ambassadors.

### **Some specific remarks and input:**

- It's important to communicate that we are creating professional development opportunities.
- The main objective is to train teachers with a focus on tools that can be applied to varying situations.
- We don't need new resources but to use well the good ones already in existence.
- We must identify networks, resources and key people, and invite them to collaborate.
- We should help to give participants recognition by their local governments.
- We should link this effort to other cornerstone programs.
- Can we develop an IAU accreditation scheme for teachers?
- We must establish evaluation mechanisms (pre- and post effort) to gauge outcomes.
- We should introduce an education component in other cornerstone projects
- Focus on teaching tools and techniques that can be adapted according to varied curricula.
- Target teachers through training.
- Build in flexibility (astronomy is not in all curricula, and requirements vary).

- Create a database of resources – classified and rated.
- Use simple procedures, basic unifying concepts that can serve as a “common denominator” on which more advanced efforts can be built as regions have the resources.
- Use astronomy as a means to teach other things—look for connections with other sciences, for example.
- There will be a need for a global coordination office and regional coordinators.
- Focus on skills development in using math and science and new technologies.
- Develop an inexpensive “astronomy box” of basic activities that can be accomplished anywhere, including in underdeveloped countries with limited resources.
- Use astronomy as a tool to engage teachers and students in science and math.
- build a common umbrella and regional leaders on the ground
- Include “e-learning” opportunities and networks.
- Define learning strategies and be able to accommodate different styles.
- Produce a guideline on how to include astronomy in the curriculum.
- Base the program on a simple unifying principle (for example, “look up and seek a better understanding of the universe and your place in it.”)
- Develop a cross-curricular approach of the Universe.
- Consider solutions for language issues.
- Keep the needs of the teachers themselves in mind.
- Use the excitement and appeal of astronomy as a tool to engage teachers and students in science concepts and other topics.
- How can we use this program to get educational networks working together for the longer term?
- Develop an “umbrella” structure to coordinate and support the effort.
- Point out that you don’t have to be an astronomer to do astronomy.

#### **Tentative structure for the program:**

- An organization provides the “umbrella” or global coordination for “global centers”—regional organizations or entities that report to and coordinate with the global coordinator, and coordinate the program in their regions of the globe.
- Galileo Trainers (a few in number) designated by the global coordinator work with the global centers to train a set of Galileo Ambassadors in the details of the program.
- Each regional set of Galileo Ambassadors in turn train a set of Galileo Teachers (approximately ten each) covering the countries of the region.
- The Galileo Teachers are then prepared to conduct teacher professional development and training via the program through IYA2009 and beyond.
- The GTTP provides resources and training through the Galileo Ambassadors level and the initial training of the Galileo Teachers; the program is then infused by the Galileo Teachers into regional education efforts supported by their localities.
- The program is sustained by maintaining the connections forged between the global centers to continue development of Ambassadors using the best of the program (as determined by evaluation of outcomes) and by sustaining the Ambassadors and Galileo Teachers as “communities of practice” that can continue their efforts as resources are available.

#### **Initial “Next Steps” Preliminary Planning:**

- Definition of tasks - This should be ready by mid November or early December. Define structure of the network (How will it work now and in the future). This structure should be created taking into account our intention to have a long lasting teacher training web, one that can be solid enough to last far beyond 2009.
- Determine Global Centers - Centers that will be responsible for resources distribution and first ambassadors training. Accomplished by January 2008.
- Definition of Global Centers structure for GTTP by March 2008
- Selection of partners (Institutions willing to share resources for GTTP) by December 2007.
- Selection of resources and tools during January 2008.

- Adaptation of the resources to a common structure by March 2008.
- Preparation of Galileo Training Package tentatively named **LOOK UP** by April 2008. ( Important to be adapted to each region's needs)
- E-learning Material Preparation - ready by August 2008
- Construction of a Website (the same structure of EU Hands On Universe is suggested to diminish considerably the expenses by May 08. (Incorporation into the existing IUA IYA2009 web site structure would be advisable if possible to be cost effective.) The resources should be classified by their content in terms of applicability and rated by teachers
- Press policy definition and deliverables determination and distribution scheme definition by May 2008.
- Trainers selection in June 2008). Two primary trainers are suggested, spending two months in each continental center training Ambassadors and eventually helping the Ambassadors in the Master Teacher Training. (This assumes a ratio of one Galileo Ambassador per ten million habitants). The Ambassadors would be in charge of 10 Galileo Teachers, each country appointing one master teacher to train teachers all through the year.
- At the same time there will have to be an appointment of the Ambassadors and Galileo Teachers by the SPOCs. We might define the pre-requisites of such Ambassadors and Teachers to assist in this process.
- Pre-evaluation on teacher knowledge of this materials and their possibilities and teachers needs (it's very important to adapt the package to each continent in April – June 2008.
- Press policy implementation (Jun 20008 - January 2010).
- First round of deliverables distribution (June and July 2008) - end of school year.
- It's vital for the SPOCs to have a plan to promote the teacher training sessions established in order for the plan to work. This means that each SPOC will have to contact teachers associations, municipalities, universities that form teachers, etc. We might want to give them some guidelines on this. There should also be a Galileo package for sponsors.
- Prepare trainers (June – Aug 2008).
- Ambassadors Training Session (September 2008 – December 2009). The number of sessions depends on number of Ambassadors on each continent.
- Second round of deliverables distribution (September 20008 - start of school year).
- Galileo Teachers Training (October 2008- December 2009) - This training should be ministered by the ambassadors, and the funding should be found by each country. However, we strongly suggest that we provide **e-learning** sessions to the masters; this may help prevent countries with low resources from dropping out. Even if a country does not want to do this, teachers can still benefit from this training.
- Teachers Training at a regional level ( November 08 - December 09)
- Galileo Teachers Results Presentation ( September 09 - December 09)
- Evaluation (January - March 2010)

#### **Resources needed:**

- Money
- Coordination
- Trainers
- Website
- Resources Adaptation
- E-learning material preparation
- Galileo Package
- Communication Plan
- Deliverables (?)
- Training Sessions ( Travel and accommodation expenses, materials, rooms for training)
- Administrative expenses

#### **Possible evaluation metrics**

- Number of countries enrolled
- Number of Ambassadors trained.
- Number of Galileo Teachers trained.

- Number of teachers trained per country.
- Number of Galileo Packages distributed.
- Number of press clippings.
- Number of people visiting national, regional and global webpages (webstats).