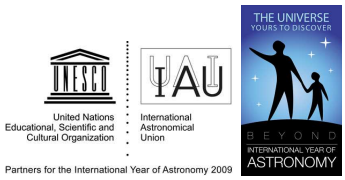
The GalileoMobile project

2009-2011 Report

A special project of the *International Year of Astronomy 2009*

Supported by *UNESCO*



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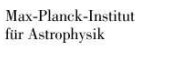

www.galileo-mobile.org
Contact us: contact@galileo-mobile.org

The present report describes the first GalileoMobile expedition, which took place during the International Year of Astronomy 2009 (IYA2009), with a special emphasis on its preparation and follow-up. For a more focused description of the trip and school activities themselves, we refer to the GalileoMobile section of the "IYA2009 Final Report" (see ref. 5 in Sect. 7.1).

The GalileoMobile vision

GalileoMobile is an itinerant science education project that brings astronomy closer to young people in developing countries, particularly in areas that have little access to outreach programs. By organizing astronomy-related activities in schools and villages, we aim at fostering a will of learning through the exciting wonders of our Universe while exchanging different cultural views of the cosmos.

GalileoMobile also extends its impact globally by constant outreach efforts as well as the production and diffusion of a documentary movie about the first project expedition, in order to create a feeling of "unity under the same sky", raise awareness for the diversity of human cultures and ultimately inspire similar initiatives.

Because South America was chosen as destination for the first GalileoMobile trip, the vision of the project was synthesized in the slogan: "Everyone's Sky through South American Eyes". In future trips, however, GalileoMobile plans to develop its activities and impact in other continents as well. A brief outlook of the project is given in Sect. 5.

GalileoMobile is a purely non-profit initiative.

1 Introduction to the 2009 experience

In the frame of the IYA2009, GalileoMobile organized an astronomy outreach expedition in the Andean high plateau, shared by the north of Chile, the west of Bolivia and the south of Peru. During this trip, the team visited mostly primary and a few secondary schools to work with students and teachers, organizing astronomy activities and hands-on experiments (see Sects. 2.4 and 3.2). The team also set up night observations for the schools as well as the general public and in two occasions offered astronomy workshops for teachers (see Sect. 3.3). Moreover, the team encouraged the local teachers and educators to continue astronomy activities, using a small educational telescope as well as other materials (DVD's, posters, books) that were donated to each school (see Sects. 3.2 and 4.1.4).

The project was initiated in 2008 by a team of young astronomers inspired by the IYA2009. In the year preceding the trip, the team members gathered funds, planned the expedition and the educational activities. The journey itself took place in October and November 2009, during which the team stopped in 23 places and visited 33 schools in 3 countries, thus reaching a total of around 3000 people.

An important aspect of the project is its interest in the local culture as well as its effort to communicate different visions of the sky to the rest of the world. To diffuse to a wider public the Andean astronomical heritage as well as the activities run during the 2009 trip, the GalileoMobile team was accompanied by a filming crew to produce a documentary subtitled in several languages, which will be freely available for educational purposes (see Sect. 2.5).

In the following sections the preparation of the journey (Sect. 2), the trip and the educational achievements (Sect. 3), as well as our follow-up efforts (Sect. 4) will be presented in details.

1.1 Choice of time and location

The first trip of the GalileoMobile took place during the International Year of Astronomy 2009 (IYA2009)[1], a UNESCO-IAU initiative to promote astronomy to the wider public, in honour of the 400th anniversary of the first sky observation by Galileo Galilei with his own self-made telescope. During this entire year, astronomy research institutions and outreach organizations all around the world made a tremendous effort to realize activities for schools and the general public (see IYA2009 Final Report, ref. in Sect. 7.1). It is within this framework that GalileoMobile started its activities. With the name we want to reflect the itinerant character as well as to pay tribute to the genius of Galileo Galilei.

The particular period of the trip, i.e. October and November, was chosen in accordance to the schools' schedules and the availability of the team. As destination, we chose the high plateau of the Andes (Altiplano) because of the high sky quality and its rich archeo-astronomical heritage (see refs. in Sect. 7.3). At an altitude of more than 3000 meters above sea level, this area provides one of the clearest skies of the planet and the southern hemisphere offers a number of very exciting targets for astronomical observations. Moreover, this is a region where the access to science outreach initiatives is scarce. Finally, the three chosen countries share the Spanish language, making it possible to organize activities for an itinerant project working "across-borders". In the few cases Quechua was the primary language, the team was helped by an interpreter (usually one of the teachers). Note that these three countries were classified as "emerging" and "developing" astronomy countries[2], thus containing a basic astronomy infrastructure of amateurs and professionals to collaborate with and help the follow-up of the project.

1.2 Primary objectives

At the birthplace of the Tiwanaku civilization and Inca empire, where astronomy used to drive important government decisions, religious ceremonies, as well as everyday life, this expedition

[1] www.astronomy2009.org.

[2] See Hearnshaw, in "Astronomy for the developing world", 2006 (ed. Hearnshaw and Martinez).

	Name	Profession	Country of Origin
1	Aida del Pilar Becerra Becerra	Social Investigator	Colombia
2	Evangelia Ntormousi	Astronomer	Greece
3	Fabio del Sordo	Astronomer	Italy
4	Federico Stasyszyn	Astronomer	Argentina
5	Jesús Zendejas	Astronomer	Mexico
6	Jorge Rivero González	Astronomer	Spain
7	María Dasí Espuig	Astronomer	Spain
8	Miriam Campos	Journalist	Argentina
9	Patricia Figueiro Spinelli	Astronomer	Brazil
10	Philippe Kobel	Astronomer	Switzerland
11	Nuno Gomes	Astronomer	Portugal
12	Silvia Bonoli	Astronomer	Italy
13	Víctor Silva Aguirre	Astronomer	Chile

Table 1: GalileoMobile team members during 2009-2011 (who participated in the trip and/or follow-up).

aimed at awaking in children the will of learning and the curiosity about the sky, while sharing astronomical traditions with people who live mostly in rural areas, and thus have access to a very clear sky.

Specifically, through experiments designed to teach basic scientific concepts, discussions and night observations, GalileoMobile wanted to transmit to the young people of the visited schools:

- The joy of discovery;
- A lasting will of learning and curiosity;
- An awareness of the grandeur of the Universe;
- A critical way of thinking and the scientific method of questioning and experimenting;
- A feeling of unity of the mankind under the same sky, through the idea that people of different cultural backgrounds share the same fundamental curiosity about the Universe.

While fostering curiosity and scientific thinking, the team members were careful to never contradict the traditional beliefs about the cosmos. Rather, the approach of GalileoMobile was to always preserve and give value to the local traditions, astronomical heritage and the view of the Universe inherited from the ancient pre-Columbian civilizations.

By involving local astronomers in the visits as well as by offering low-cost telescopes and educational materials to the schools, the project also encouraged sustainable follow-up activities (see Sects. 4.1.3 and 4.1.4).

Finally, to provide a global dimension to the project, GalileoMobile made extensive use of new media (website, blog, facebook, twitter, youtube, see Sect. 7.1) and conventional media like local press (see Sect. 7.2). The multilingual documentary filmed during the 2009 trip also aims at reaching a global audience. This movie does not only tell the story of this exciting journey, but also transmits the main objectives of the project, thus creating a feeling of unity between cultures and inspiring future similar initiatives (see Sect. 2.5).

1.3 The team

The GalileoMobile team that prepared and took part in this first trip was composed of young volunteers from different backgrounds, who were primarily based in Germany. The team members were mainly professional astronomers (PhD students from different Max-Planck-Institutes as well

as from ESO, the Munich Observatory and Nordita), but also included a journalist and a social investigator, thus bringing a complementary perspective to the project (see Table 1).

The team was originally brought together by a proposal from Philippe Kobel that was passed on through PhD student mailing networks. Those who responded to that first call were gathered in Munich, Germany, to exchange ideas and finalize the goals of the project. 12 members joined the team during most of the preparation phase as well as the trip and one more member participated in the post-trip activities.[3] Valuable contributions also came from many more people, whom we gratefully acknowledge in Sect. 8. In particular, Sebastian Berning (Germany) designed the project web page and José Luis Pinar (Spain) helped maintaining it and provided important technical advice throughout the project.

[3]Note that in 2012, the team expanded to about 20 members.

2 The preparation

2.1 Team structure and communication

The preparation of the project lasted approximately one year, from the first team meeting in Munich in November 2008 to the beginning of the trip in October 2009. During this preparation phase, the team was subdivided in different "working groups" with specific tasks, as summarized in Fig. 1 and described in more details in the next sections. Some of these groups were partly overlapping in their objectives. Together with the fact that most of the participants were belonging to more than one group, it fostered interaction within the team.

Each working group designated a spokesperson who was responsible for communicating the progress of the group to the rest of the team and to a central coordinator. In order to synchronize the working groups and keep everyone informed on their status, we set up a wiki page, where every member of the team could create and edit articles related to their work. An important part of our internal communication was also achieved through weekly Skype conferences, allowing the spokespersons of the different working groups to report and discuss their progress. The coordinator was then sending "update reports" to the entire team. In addition, every two months approximately, the entire team was gathering for a plenary meeting in Munich. Seven such meetings were necessary to finalize the preparation of the trip.

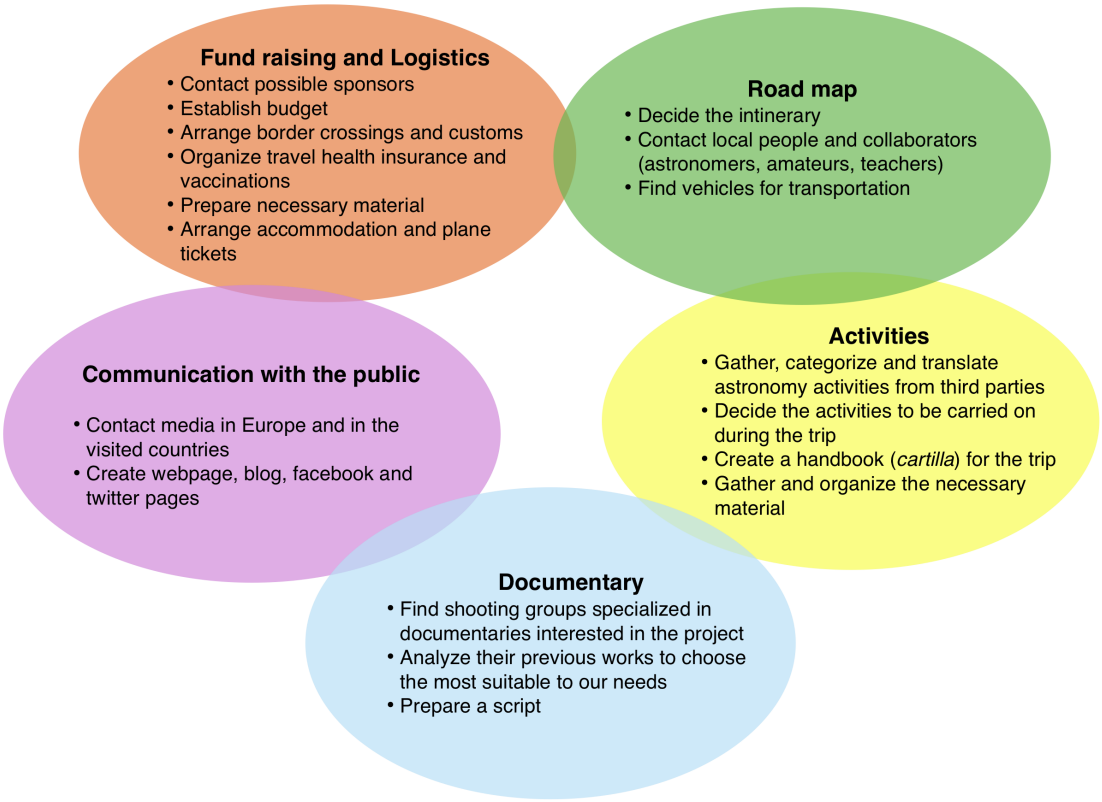

Figure 1: Summary of the working groups and their tasks during the preparation phase.

2.2 Fund raising and logistics

The first task of this working group was to establish a budget for the trip and contact possible sponsors to raise the necessary funds.

Institution	Donation in Euros	Percentage over total
ESO	20000	29.5%
MPE+MPA+MPS	17500	25.8%
Nordita	3000	4.4%
Regione Molise Italy	10000	14.7%
MPG	16000	23.6%
OSA	1000	1.5%
Donations	350	0.5%
Total	67850	100%

Table 2: Summary of the GalileoMobile funding sources. (we have abbreviated the European Southern Observatory as ESO, the Max-Planck Institute for Extraterrestrial Physics as MPE, the Max- Planck Institute for Astrophysics as MPA, the Max-Planck Institute for Solar Physics as MPS, the Max-Planck Society as MPG and the Optical Society of America as OSA.)

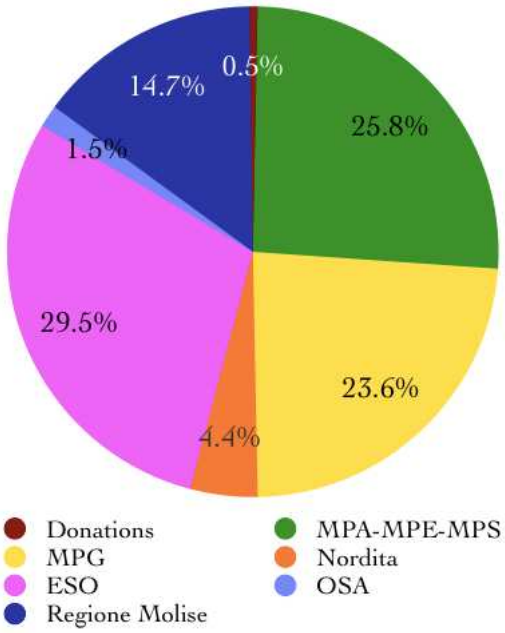

Figure 2: Pie chart of the funding sources.

As a non-profit project, the philosophy of GalileoMobile was to primarily look for funding sources outside the private industry and to focus mainly on research-oriented institutes and organizations (with the exception of Regione Molise, Italy, see cover page). The group also created a Paypal account for accepting private donations through the GalileoMobile website. Table 2 and Fig. 2 summarize our income sources. As reflected by their major funding contribution, ESO was both the prime sponsor and collaborator for the 2009 expedition, notably helping much with the diffusion of our project to the media (see Sect. 2.6).

Apart from financial contributions, we benefitted from many in-kind donations of materials and help with human resources. Among others, the IYA2009 Secretariat (represented by P. Russo and M. Barrosa) lent us the main telescopes and provided logistical help, the Galileoscope[4] project

[4]Galileoscope is a cornerstone project of the IYA2009 that created educational telescopes with a similar power as Galileo's, see www.galileoscope.org.

donated Galileoscopes to leave at the schools, ESO and UNAWE[5] provided give-away materials (posters, CDs, postals etc.), the MPA and ESO lent us laptops and a beamer for the trip and the IATE arranged for the availability of drivers.

On the logistical side, this working group had to organize all the paperwork that was necessary for the trip, such as visas (Bolivia requires a visa for volunteering work), list of material for the customs, list of participants, health insurances, material insurance, invitation letters from cultural ministries and official project attestations from the ESO and the IYA2009 secretariat. This group prepared a list of medical supplies and arranged for the group's vaccination. They chose the means of communication in each country we were traveling, e.g. they arranged cheap mobile phone contracts for long-distance calls. They were also in charge of booking the airplane tickets and, together with our "local collaborators" (see Sect. 2.3), arranging accommodation in each place we visited.

2.3 Road map

The definition of the road map was the result of a synergy between the corresponding working group of our team and local collaborators. These were typically amateur or professional astronomers promoting astronomy outreach in their regions (they are listed in Sect. 6.3), whom we contacted through the IYA2009 national nodes, Universities, Embassies and amateur astronomer groups. These local collaborators provided useful advice concerning practically everything, from the optimal route to follow, the optimal time of the year for the project, material needed to be carried, weather conditions, as well as contacts directly with the schools and information about the level of the students at each age in each country. Together with the road map group, they made a list of schools and communities that would mostly benefit from the project and contacted their teachers. As many of the schools did not have a landline phone, the local contacts went personally to these schools to arrange the details of the visit.

The final itinerary is sketched in Fig. 3. It was designed as a loop for various practical reasons, in particular the difficulty of dropping-off vehicles. Its total length is over 7000 km. Following the advice of our local collaborators, we chose to stop mainly in medium-sized localities that could be used as a base to visit several schools including rural ones. Given the cultural character of the project, in particular for the documentary, priority was also given to cultural and archaeological sites connected to astronomy, like the Tiwanaku ruins and the "Isla del Sol" in Bolivia, or Cuzco and the Machu Picchu in Peru.

According to the answers of the pre-contacted schools, the total duration of two months between the three countries was divided as follows: two first weeks in Chile, then two weeks in Bolivia, three weeks in Peru and the last week in Chile. To maximize the number of schools to be visited in the limited time of the trip, the team opted for one-day stays at each school while typically staying 2 to 5 days at a given site to visit different schools. Despite the unequivocal benefit of few days of activities for a single school, the team privileged the importance of just planting a small seed of curiosity to a maximum number of children, giving them all a small glimpse at the Universe. Taking into account the time needed for relocation, the total number of visited sites summed up to 23 and the total number of schools to 33 (considering events with joint schools).

Another factor that greatly affected the timetable and the itinerary was the necessity to operate changes in the traveling team. According to each participant's availability and the needs of the project, different people traveled in different stages of the journey (see Sect. 3.1). This implied many transports from and to airports and required the project to remain relatively close to urban centers during certain periods.

One more task of the road map working group was to find the means of transportation. Among other options, the team finally chose to rent two "pickup trucks", that were able to circulate in difficult roads and appropriate for carrying heavy and bulky material, food, water and fuel supplies. From our experience, we conclude that this was the best choice for this kind of roadmap, since in

[5] UNiverse AWEreness is a cornerstone project of the IYA2009 and a partner of us, see www.unawe.org.

Figure 3: The GalileoMobile route map

some parts of the trip it would have been impossible to go further with other types of vehicles less prepared for rough terrains.

The choice of two vehicles was made for security reasons, because large parts of our route featured no mobile phone network or any other means of communication. The team contracted experienced drivers, used to work in the area.

2.4 Activities

The activities were at the core of the project, as they were the means by which we interacted with the children. Therefore, they had to be carefully selected and planned as to both communicate basic astronomy concepts to the students and encourage them to share their opinions and views of the Universe.

The activities working group first gathered about 20 astronomy activities from various online sources, among others the UNAWE, GTTP[6], both partners of us (see Sect. 6.2), the NASA (National Aeronautics and Space Administration) web pages and the Galileoscope activities guide. These activities were then categorized according to the way of interaction with the students (experiment, creation, game or multimedia) and the particular age group. They were chosen to be suitable to children between 6 and 14 years old. Once formed this database of activities, the working group created a handbook for the traveling team, translating the activities into Spanish (most of the original activities were in English), editing and putting the description and scientific content of the activities in a standard format. The compiled handbook (also referred to as "Cartilla de actividades GalileoMobile") contained a total of 20 activities. This handbook was expanded and re-edited after the trip and is now publicly available (see Sect. 4.3.1).

The most challenging part of the activities planning was selecting and gathering the material. We chose activities that required cheap and easy-to-find materials (e.g. cardboards, various types of papers, water, magnifier lens etc.). Thereby we wanted to erase the prejudice that science can only be done with expensive instruments, and show that simple material can lead to exciting discoveries. This material also had to be easily transportable and endure a two-month trip.

[6]Galileo Teachers Training Program, www.galileoteachers.org.

Apart from the material for the day-time experiments, GalileoMobile was lent two telescopes (a Celestron C8 reflector of 8" and a BOSMA Beta refractor of 3.5") and a Celestron SkyScout for the star parties at night, a valuable loan from the IAU and UNESCO through the IYA2009 Secretariat.

Finally, the team carried Galileoscopes to leave as a present to each school visited (a kind donation of the Galileoscope project), together with tripods and other educational materials (see Sect. 3.2), so that the teachers could continue astronomical activities independently.

2.5 The documentary

The documentary "Under a same sky" wants to be not only a record of the project itself, of the journey and the activities, but also the means through which people in different countries, especially children, can see the sky through the eyes of the Andean children and experience their excitement. In this sense, this documentary is an essential part of this project as the trip itself and makes GalileoMobile special among similar projects.

For the realization of the movie GalileoMobile chose to collaborate with La Ventana productions from Argentina on the basis of a legal contract.[7] Two people from La Ventana productions, Diego Seppi and Maria Eugenia Ferrer accompanied by the sound technician Juan Darío Almagro traveled together with the GalileoMobile team during the two months. We refer to Sect. 4.3.2 for details about the content and post-production of the documentary.

2.6 Media and Public Outreach

An essential part of this project was also to communicate the GalileoMobile vision and goals to the public as well as to develop an enthusiastic contact network.

For this purpose, the team created an official web page, a blog, a facebook page, a youtube channel, and a twitter account (see refs. in Sect. 7.1 for all web links). While the web page was giving a more formal presentation the project, the blog became the diary of the journey. Facebook and youtube helped reaching the project among the younger public, giving a more informal image of GalileoMobile with pictures and videos of the trip. Finally, during the trip, twitter helped keeping the non-traveling team members and the rest of the followers up-to-date on the activities on a day-to-day basis.

Before and after the trip, but most importantly during the trip, the team maintained communication with the media, especially in the countries visited. Prior to the trip, with the help of ESO professionals, we produced a promotional video that was published on Youtube, as well as on our web page. The beginning of our journey was promoted by a press release from ESO, articles on the International Astronomical Union website, the Cosmic Diary[8] and our own blog. During the trip we stayed in contact with local newspapers, radios and televisions, giving interviews whenever possible. On one occasion, two members of the traveling team gave a television interview for a local network in Puno, Peru. At the end of this document we append a list of all articles that mention GalileoMobile and reached our attention (see Sect. 7.2). To further give local visibility to our project, ESO also organized an official opening event in Antofagasta (mainly for the Universtiy and political personalities) and a closing event on the main square of Taltal (mainly dedicated to children and schools), the Paranal Observatorys host municipality.

[7] La Ventana is a young producer specialized in cultural documentaries and itinerant projects, see www.cinealaintemperie.com.ar.

[8] A cornerstone project of the IYA2009 consisting in a worldwide blog of astronomers, see www.cosmicdiary.org.

3 The trip

In the following Section, we describe the trip experience from the point of view of the "base team" (i.e. the group of people based in Germany at a given time of the trip), focusing on the logistics, and from the point of view of the "traveling team" (i.e. the group of people that were traveling at a given time of the trip), focusing on the experience with the children and the teachers. Besides the school visits and teacher workshops, the trip started by an opening ceremony and a closing event organized by ESO (see Sect. 2.6).

3.1 Traveling and logistics

Due to their limited travel time availability, most team members were only part of the traveling team for a few weeks before returning to the base team in Germany and being replaced by another member. Two team members were present throughout the trip and the rest stayed for periods varying from one to six weeks. In total, 11 members traveled and a maximum of 5 members were present at each time. With the addition of the two drivers and the filming crew, the traveling team was composed of a maximum of 10 people at each given time of the trip.

Logistically, we had to coordinate the schedule of the trip with the arriving and departing of the team members. A careful planning was necessary to achieve a smooth schedule for both the traveling and the base team. In particular, we ensured that the people that arrived in South America and had to be picked up by the traveling team had the means to communicate with both the base and the traveling teams. For this reason, we managed multiple mobile phone accounts, both European with roaming options and local for each country. In addition, the traveling team was equipped with a radio for communication between the vehicles, since large parts of the route were out of the range of mobile networks.

The traveling team was meeting every afternoon after the activities in the schools to discuss the status of the project and plan the following days. A strict division of duties and responsabilities among the team members, a daily review of the activities and a careful planning of the logistics proved to be essential for a smooth flow of the trip.

Both the base team and the traveling team designated one person reponsible for sending and receiving all communications. This helped maintaining the external communication up-to-date, since the traveling team had to write articles for the blog and send them back to the base team for publication. Of course, the circumstances were sometimes such (lack of internet connection, or even telephone and electricity) that communication had to be interrupted but, overall, the teams maintained contact on an almost daily basis.

3.2 The experience in the schools

The GalileoMobile activities as well as the handbook were primarily intended for primary schools (age between 6 and 13). However, GalileoMobile did visit some secondary schools because of the special interest they manifested for astronomy and our project. The team also organized activities in special-need schools in Peru. Most of the visited schools were public (less privileged than private ones) and the team prioritized rural schools or non-privileged areas in cities. All the schools were contacted ahead of time, mainly through our local collaborators and the ProEd[9] network in Chile.

The first task of the team once arrived in a school was to select and adapt the activities according to the level and interest of the students, according to the directions of the teachers. Depending on the size of the school, the team would work either with all students or only a subpart of them, prioritizing the ages between 8 and 12 (the total number of participating children would then vary between 30 and 70).

After the first contact with the teachers, the day at the school was planned according to the schedule of the children. In an ideal case, the program consisted in solar observations and experiments during the day (either morning or afternoon, total activity time of $\sim$ 4 hours) with

[9]Network to foster astronomy teaching in Chilean schools, see www.proed.cl/astronomia-2/.

groups of different ages, and sky observations at night, which could also involve the families of the students and/or an enlarged community.

An activity day usually started by "breaking the ice" with the children, introducing ourselves and our film-maker colleagues and explaining our project. We would then give to all the students a slide-show presentation of an exciting virtual journey starting from their village or town, scaling up to the solar system, stars and galaxies. This inaugural talk was the opportunity to not only build a personal connection with the children, but also to introduce basic astronomy concepts (e.g. the origin of day and night, the difference between planets and stars, the source of the luminosity of the stars, the reason for the different colours of stars, an overview of the various scales and distances in the Universe). The level of interest of the children could thereby be evaluated in order to adapt the rest of our activities. This talk was concluded by showing the video "Flight to the Virgo cluster" by Brad P. Tully[10] with a background music, that children would watch through a rolled paper to mimic a telescope and create the effect of a reduced field of view[11] (See figure 4). This video was making the children "feel" this astronomical journey and they would often scream of excitement as they had the impression of flying into space, nearby a planetary nebula or another galaxy! This opening activity had also the objective of introducing Galileo Galilei and the telescope to make the children feel part of the International Year of Astronomy.

The inaugural talk usually lasted about 45', after which we split the students into three to five subgroups of 10-20 children to perform in parallel hands-on activities from our "Cartilla". This practical session would last approximately 3h. Besides, the team always needed about 1.5h to prepare everything (set up the classroom for the projection and the different activity stands) and 1h to unmount. Hence, our day-time work would sum up to a total duration of about 5.5h (excluding the night-time star parties). Note that, the total activity time could often not be extended any longer as the children would typically be at school only half the day.

GalileoMobile values a lot the participation of the teachers and we tried to involve them as much as possible during the activities sessions. In a few places we also organized a few workshops for teachers and parents, introducing them to basic astronomy concepts and encouraging them to stay in contact with us for educational resources related to the teaching of astronomy (see Sect. 3.3). Yet we believe that for future trips, special sessions should be dedicated to teachers with the objective of better preparing them for follow-up activities (see Sect. 4.1).

At the end of each visit, we left a Galileoscope, together with its instructions, its observing guide and a tripod, as well as an inflatable Earth globe ("Earth ball"[12], kind donation of UNAWE), astronomy posters, postcards and DVDs of the movie "Eyes on the Skies"[13] (mainly donations of ESO). This material was meant to help the interested teachers to continue teaching astronomy after our visit. Note that some schools could not receive a Galileoscope during our visits for logistical reasons (the Galileoscopes were actually shipped to La Paz, Bolivia). However, thanks to ESO, we could send a "You are Galileo"[14] telescope to the schools which did not receive a Galileoscope during the trip.

Based on our records of the number of students attending our activities in each school, we estimate the total number of students reached to about 1600. If we add the extra number of children present during night-time observations and at the closing event in Taltal, the total number of children reached is close to 1800. For a list of all participating schools and communities, we refer to our final report for the IYA2009 in "List of Activities" (see ref. in Sect. 7.1).

[10]This video and others are to be found on the educational website of R. Brent Tully: www.ifa.hawaii.edu/ tully/outreach/.

[11]The video with background music can be found on our youtube channel: http://www.youtube.com/watch?v=sLwY0UW8kIw.

[12]A glow-at-night realistic replica of our planet for educational purposes, www.earthball.com.

[13]EOS narrates the history of the telescope, an educational movie produced by ESO ePOD (Education and Public Outreach department) for the IYA2009, see www.eyesontheskies.org.

[14]YAG is another low-cost educational telescope project of the IYA2009, see www-irc.mtk.nao.ac.jp/ webadm/Galileo-E/.

Figure 4: An image of one class viewing the video "Flight to the Virgo cluster".

3.3 Workshop for teachers

Although it was not our prime focus, we took part in two teacher workshops in Peru co-organized by SPACE (Seminario Permanente de Astronomía y Ciencias Espaciales)[15]. These workshops had the common goal to present our project and our practical activities to regional teachers, discuss with them and share our trip experiences in order to stimulate future astronomy-based outreach activities. Both these workshops took place toward the end of our trip, so that we could tell the many school experiences we had lived so far.

The first workshop was in Marangani and involved about 50 invited regional school teachers. They were witnesses of various hands-on activities realized by their students before sitting around with us for an hour of discussion, questions and answers about astronomy and science in general.

The second workshop was called "Encuentros de Astronomía" and took place in Sicuani at the Instituto Superior Pedagógico "Gregoria Santos" (ISP) during three consecutive days. This workshop was dedicated both to professional teachers as well as future ones (students of the ISP). On top of showing different practical activities and performing solar observations, we also gave several talks about the Sun, the Stars, Black Holes and the life of Galileo Galilei. Professors of the ISP and SPACE also talked about the history of astronomy, the astronomy in Peru and the Andean archeo-astronomy, which made this workshop very comprehensive and diverse. A description of this particular event can be found in the Section "Main Activities" of our IYA2009 Final Report.

We mention that we also offered a joint teacher-and-parents evening session in Iquique, Chile, relatively at the beginning of our trip. Although this experience was not repeated (mainly because parents were working during our school visits), we received great attention from the parents. We believe that making the parents interested in the topic of astronomy has a very positive impact on the development of the children's curiosity at their homes. Adding up the number of teachers reached in Iquique (about 80), in ISP (some 100 teachers and 300 teachers in formation), plus a couple of teachers per visited school makes a total of about 600 teachers.

[15] www.concytec.gob.pe/space

4 After the Trip

In the course of the years 2010 and 2011, the team kept working on the evaluation and follow-up of our 2009 expedition, in the post-production of the documentary movie, the public release of the handbook of activities as well as in the diffusion of our project.

4.1 Evaluation: lessons learned and good practices

In this Section we present an evaluation of our school visits and activities. For complementary lessons learned and practical tips about the trip logistics, its schedule, the team structure and communication, we refer to our IYA2009 final report (see ref. in Sect. 7.1).

To obtain feedback on the organization of our school visits, the quality of our on-site performance (e.g. activities, social interaction) as well as the impact of our activities during and after our visits, we realized an evaluation questionnaire to be filled in by our local collaborators and the visited schools. To fill in the forms, we arranged phone-interviews with 14 schools (over the 33 that we visited in total), mainly speaking with the school directors and in some cases with teachers who were present during our activities. We closed the evaluation process after 14 interviews as they were converging toward similar conclusions and most of the remaining schools did not have a contact phone. In parallel, the same questionnaire was filled in electronically by 5 of our local collaborators.

Here we will present the main comments and remarks that came out of the analysis of the questionnaires. As the questionnaire itself, these feedbacks are divided in four categories: the preparation of our visits, the stay at the school and the activities, the follow-up of the activities and the use of the donated material.

4.1.1 Preparation

Lessons learned:

1. More information should be given in advance to the schools for the teachers to prepare the students. In particular, the teachers would have appreciated to know the main topics that we were going to cover as well as to have some details about the organization of the activities and the structure of our visits. Such anticipatory information would allow the teachers to better prepare and motivate the students.

2. The team should arrive in the school one day in advance to plan the activity day directly with the director and interested teachers (determine which teachers will participate, with which classes, in which classrooms, etc). In the few cases where we could "prepare the terrain" in that way, we saved time during the activity day and also avoided possible organizational/schedule conflicts.

3. The events should be organized directly with the school and not through the mediation of a department of education (as we once did to prevent delayed transmission of information or missing information). During the phase of organization at distance, the communication should be held preferentially with the school director so that he/she can transmit the proper information to the people concerned.

4.1.2 Stay at the schools and activities

Lessons learned:

1. Special sessions should be dedicated to the teachers. Except in the two occasions where we organized workshops for the teachers (see Sect. 3.3), we did not have enough time to work with the teachers separately. Having the teachers watching the activities is not enough, as their attention is focused on controlling the students. Yet to create the best conditions for

the follow-up of activities in the schools it is important to dedicate a private session to the teachers, especially concerning the manipulation of the telescope and donated resources (e.g. our activity handbook).

2. Time should be given for building social interaction with students, teachers and local people. Establishing trust and social bonds with the people is an essential ingredient to achieve a more interactive teaching and thus to pass on concepts more efficiently. This requires to overcome cultural barriers, to understand the living style, traditions and social conditions of the locals. From our experience, we felt that demonstrating interest in understanding and sharing the local traditions and cosmovisions was an essential ingredient for the quality of our visits. It created a more lively and interpersonal atmosphere, opening up the children to learn new concepts from us. However, we believe that our one-day stays in schools were not sufficient in this respect.

3. The stays at schools should last *at least* two days. To satisfy the two points above, all the interviewed schools expressed the need of a longer stay. Our 2009 expedition was indeed tailored to reach the highest number of places within two months and therefore we could only afford one-day visits to the schools (typically with a morning or afternoon of activities and observations at night). Besides, a longer stay increases the activity-to-travel time ratio, raises the chances of good observing conditions for star parties and gives the flexibility to either realize more activities with the same students or reach more classes. In this respect, we were told that the students were left with many questions and would have thus appreciated to learn more and do more activities, while the teachers did not feel like having the capacities to respond to their needs (which points at the item 1. above).

The interviewed directors and professors unanimously claimed that we successfully raised a high interest of the students during the activities, especially for the youngsters with ages below approximately 13 years. They enjoyed the practical aspect of our activities and perceived the topic of astronomy and our interactive activities as novelties.

Also, they expressed that being composed of mostly foreigners added a special value to the venue of our team. It made the school students even more curious and motivated. They felt like their village and school were worth a visit from far abroad, and that it made the ensuing multicultural interaction between them and us especially enriching.

4.1.3 Follow-up and impact in the schools

We also succeeded in fostering a high will of learning among the students. In the days following the visits, the interest of the kids for astronomy-related topics had increased and they were asking for more information, books, etc. In Calama (Chile), the number of subscriptions to the astronomy club went up, and so did the number of subscriptions to the school of Anansaya (Peru).

Most interviewed schools organized some astronomy-related event posterior to our visits. As the students themselves were asking to use the Galileoscope we offered, these events often made use of it. However, in many cases the Galileoscope was not used to observe the stars because the teachers did not feel confident with it. The teachers also included more astronomy during lectures, with elements of Andean astronomy as well.

We believe that the best way to ensure the follow-up of activities in a school is to create a follow-up hub, by establishing a strong communication link between the school and some local astronomer(s) willing to care about/endorse that school. The endorser(s) would help the school teachers organizing events, provide/suggest them with new learning materials, directly answer enquiries about general astronomy or the use of materials, and simply keep the momentum high. In this sense, our local collaborators would have been perfect candidates, but again the restricted amount of time prevented us to do so.

4.1.4 Use of the material

Here we list the main educational materials we donated to the schools and how they were used after our leave.

- Galileoscopes: They were mainly used to observe the landscape and in few cases, to observe stars. Organizing evening/night observing sessions can be complicated in rural schools, because classes are generally held during the morning and teachers as well as students can live far from the school (difficulty to come back). Another issue is that teachers did not feel as having the necessary training to manipulate the telescope despite the given manuals and sometimes short training explanations (see Sect. 4.1.2 above).
- Posters (Hubble, VLT images, etc.): They were very much appreciated and often used in classes of geography and Earth sciences.
- Earthball (inflatable Earth globe): It was mostly used to locate countries and how our planet looks like during geography classes. Explanations for possible other activities using the Earthball would have been probably useful, but were not available in Spanish at that moment.
- CDs/DVDs : They were rarely used, because most schools do not have the equipment to read and display them.

4.1.5 Summary

To conclude, our evaluation interviews revealed that our 2009 expedition was aligned with our project vision and goals (see p. 1) in the following aspects:

- We fostered a will of learning among the students.
- We were able to reach rural places where our activities were perceived as a novelty.
- The schools made use of the telescope and the inflatable Earth globe, while several of them organized astronomy-related events.

However, we shall improve the next points in our future expeditions:

- Organize specifically-dedicated sessions to the teachers for them to feel comfortable with the donated telescope and organize future observing activities.
- Stay longer in the schools to allow deeper scientific and social interaction with the students and the teachers.
- Create follow-up hubs by linking the schools with local collaborators to facilitate the organization of future events, answer questions and in general ensure the follow-up of activities locally.

4.2 Budget Analysis

The actual expenses of the 2009 expedition are listed and displayed as a pie chart in Table 4.2 and Fig. 5, respectively. They closely correspond to the amount of cash funds provided by our different sponsors (cf. Table 2 and Fig. 2). Note some slight discrepancies with the budget presented in the IYA2009 Final Report as the latter was only an approximate budget while the herein presented expenses were calculated based upon our bank account transactions.

Thanks to the various in-kind contributions and donations of materials (see Sect. 2.2), our "effective" expenses in material for activities was very low. It should be bared in mind, however, that adding the value of the main telescopes (about 1500 EUR for the Celestron C8 and 400 for

Category	Cost in Euros	Percentage over total
Vehicles	24000	35.6%
Material	1000	1.5%
Flights	13742	20.4%
Accommodation and living expenses	12000	17.8%
Documentary	8182	12.1%
Logistics	5652	8.4%
Communication	500	0.7%
Other	2330	3.4%
Total	67406	100%

Table 3: GalileoMobile expenses.

the Bosma Beta), the donated Galileoscopes (about 20 EUR each), Earth Balls (about 10 EUR each) and other educational materials would raise this cost by a factor of four, i.e. to about 4000 EUR.

Note that the expenses of the documentary include both the production (in field) and post-production (after the trip). On the other hand, part of the production cost is also included in the accommodation and living expenses (about 4800 EUR for the filming crew plus driver) as well as in the vehicles (12000 EUR for the extra vehicle) as we agreed to cover those costs for the documentary team.

To assess the "cost efficiency" of such an expedition, it is useful to look at the effective cost-per-student reached during our school visits and cost-per-person reached during the trip (which include teachers and communities). To do so, the cost of the documentary shall be subtracted from the total since its impact is only posterior to the trip. Without all costs related to the documentary, the effective cost of the preparation and the expedition proper then reduces to about 42400 EUR. Dividing by the estimated number of students reached during our school visits (about 1600) and the number of people reached (about 3000) yields an effective cost-per-student of 26.5 EUR and an effective cost-per-person reached of 14.1 EUR. In spite of the apparent high total cost, these costs "per head" are still acceptable, even for future expeditions outside the frame of major events such as the IYA2009.

We present here some ideas to render such an expedition least dependent on cash funds and to further decrease the effective costs and the cash funds that need to be raised. Firstly, the cost for vehicles remains a considerable amount of about 12000 EUR even by subtracting the documentary-related part. If possible, the cost of renting vehicles and paying for drivers could be avoided and replaced by in-kind contributions from a collaborating institute or car company operating in the country visited, willing to freely lend vehicles and provide a driver. Secondly, when subtracting the cost of the documentary for the vehicles, we realize that the major cost becomes the flight tickets for the traveling team members. This was so high because only two team members were available to travel during two months in a row, while all the other team members had to take turns. This cost could be reasonably reduced by a factor 2 by having less traveling team members (preferably the ones available to travel for a long period straight), and by replacing team members by traveling locals, i.e. local amateur astronomers/University students/educators etc. Moreover, this goes in line with the conclusions of the evaluation (see Sect. 4.1), as it favors local capacity building in astronomy education and the creation of GalileoMobile hubs to follow-up our efforts. Applying these measures to spare on vehicles and flights would reduce the total cost to only about 23400 EUR, the cost-per-student to 14.6 EUR and the cost-per-person reached to 7.8 EUR.

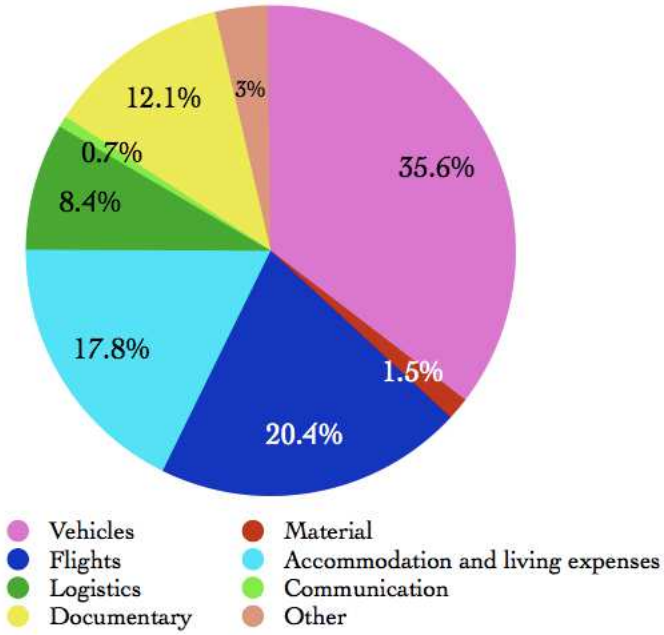

Figure 5: Pie chart of the expenses.

4.3 Deliverable products

4.3.1 Handbook of activities

The Activities working group (see Sect. 2.4) compiled all the teaching material of the 2009 expedition in a handbook called "Cartilla de Actividades GalileoMobile", which includes the instructions for the hands-on activities and the explanations of the physical phenomena studied in each of them (see the cover of the handbook in Fig. 6).

This handbook includes a total of 20 practical activities compiled from various educational sources (see Sect. 2.4), subsequently classified in different topical categories (stars, solar system, galaxies and beyond, optics), translated into spanish and adapted to a common didactical format. Our methodology is to convey basic physical concepts in an interactive and playful way. Therefore, each activity explains a single physical concept through a game or an experiment, while providing the background theoretical framework. Much of the work realized during 2010-2011 by the Activities group was thus dedicated to expand the theoretical framework of each activity as well as their introductory and conclusion parts, so that the Cartilla becomes a self-explained product that can be used by teachers in an independent way.

To erase the prejudice that science can only be achieved through costly technical means, our hands-on experiments rely on low-cost materials and resources to demonstrate that science is accessible to everyone, and that the sky is a free and precious resource for all to learn from.

This handbook can be downloaded freely from our website (under "Links") and print-outs will be sent to each of the schools visited in 2009.

4.3.2 Documentary movie

The movie is named "Under a same sky/Bajo un mismo cielo" to reflect the multicultural vision of the project and the wish to communicate a feeling of unity under the same sky (see the cover of the DVD in Figure 7). It will be freely available online.

The movie rotates around the following four themes:

Figure 6: Image of one page of the GalileoMobile handbook of activities.

1. The GalileoMobile project: describing how the project was born and how it developed, its members, its spirit, the activities and the road trip.

2. The curiosity and excitement of the children while discovering new concepts, looking through a telescope, asking questions.

3. The local culture: how the children of the different visited countries see the Universe, their customs and living styles.

4. The Andean archeo-astronomy: mainly through interviews with specialists, showing the two main civilizations that lived in the Andes, the Tiwanaku and Inca, that left a particular cosmovision in nowadays' Andean culture.

The movie opens with five minutes of "stop-motion animation" to introduce what the science and cultural history of astronomy is throughout the world, culminating with Galileo viewing the sky through his telescope. The animation engages the public in astronomy and ultimately gives meaning to the GalileoMobile initiative. It smoothly shifts into the documentary part of the movie showing our efforts in the frame of the International Year of Astronomy 2009.

The variety of aspects covered in "Under the same sky" makes it a product for a broad audience. For children and teenagers, the movie essentially wants to stimulate their scientific curiosity, open their minds to different cultures and inspire them to undertake similar initiatives in the future. For adults, this emotional movie demonstrates the inspirational power of astronomy and constitutes a presentation card of our project.

The working group in charge of the documentary (see Sect. 2.5) collaborated at distance with La Ventana productions (in Argentina) on the post-production of the movie throughout the year 2010 until April 2011. They refined the script according to the sequences shot during the trip and selected, with the help of the entire team, the best scenes to fit the script and documentary vision. From a total of 60 hours of footage collected during the trip, the movie was progressively shortened to its target duration of 52 minutes (standard for TV broadcasting).

To achieve the widest possible diffusion, the team invested considerable efforts to subtitle all the documentary narration and dialogues in the different languages spoken by the team members: Spanish, English, Italian, French, German, Greek and Portuguese. The team also managed the proper time synchronization of the subtitles with the movie. The documentary working group also took the responsibility of choosing the appropriate music to match the movie scenes. To accompany the animations, the music and sound effects were especially composed by two Portuguese musicians,

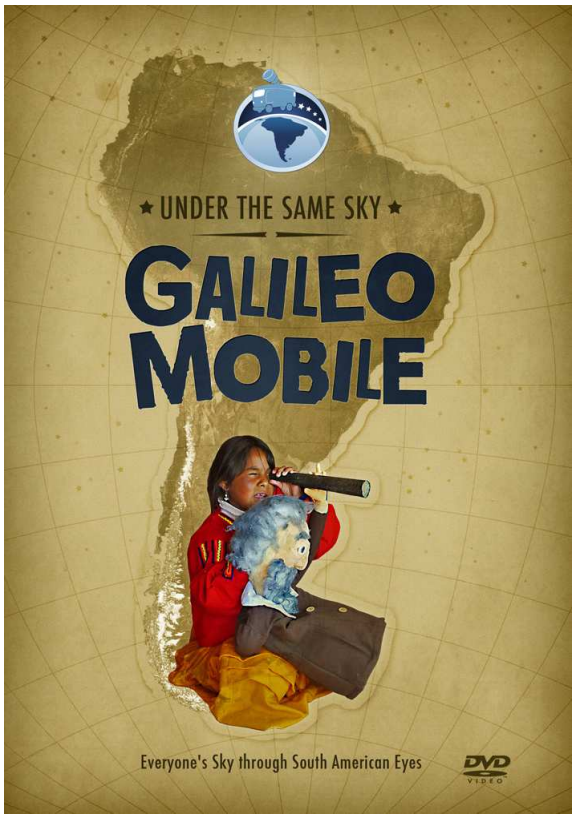

Figure 7: Cover of the DVD of the GalileoMobile movie.

José Manuel Pinheiro and Nuno Costa. The DVD tree-structure was mounted by André Roquette from the ESO ePOD group in Garching and UNAWE.

Towards the middle-end of 2011, the documentary was screened in avant-première in a variety of public events: at the European center of the NGO "Objectif Sciences International" in St-Anthème, France (June), at the Communicating Astronomy with the Public conference in Beijing, China, (October), at the international movie festival "Filmar en America Latina"[16] in Geneva (November, a joint event with "Nostalgia de la luz" of P. Guzman), at the Cinema Alphaville in Campobasso (December), Italy, and at the kick-off workshop of the IAU Office of Astronomy for Development in Cape Town, South Africa (December). The movie was also screened in research institutes, accompanied with presentation talks about our project (see list in Sect. 6.4).

4.4 Outreach and networking

We invested efforts in maintaining and expanding our contact network as well as keeping our blog and facebook alive to show that GalileoMobile was working continuously, even though not directly in the preparation of educational expeditions.

To expand our network of contacts and diffuse the project within the international educational community, we participated to several conferences/meetings/workshops in 2010: the official closure ceremony of the IYA2009 (Padova, Italia), the "Communicating Astronomy to the Public" conference (Cape Town, South Africa), the meeting of "She is an astronomer" (UK) and the "Global Hands-On Universe" workshop (Garching).

We wrote a 15 pages-report as part of the "IYA2009 Final Report" (see ref. in Sect. 7.1) and an article in the Max-Planck Society PhD-net magazine ("Offspring"). Note that our IYA2009

[16] www.filmar.ch

report is complementary to this one as it mainly focuses on the description of our on-site activities and on lessons learned/practical tips related to the logistical aspects, the organization of the trip as well as the team structure and communication.

Acknowledgement letters and official certificates of appreciation from the IYA2009 were sent to all our local collaborators as well as our sponsors.

4.5 Follow-up activities

Apart from keeping contact with the schools throughout the year 2010 for the post-facto evaluation of our activities, we also sent a "You are Galileo" educational telescope to the schools which did not receive a Galileoscope during the trip (see Sect. 3.2, shipping arranged and performed by ESO).

In addition, we organized several activities in countries where some of us were present in the field, e.g. visiting a school in Salta (December 2009), going back to the school "U.E. Rosario" in La Paz (giving a small Galileoscope workshop, March 2010), organizing several activities in the framework of the Global Astronomy month in Colombia (April 2010) and during a science summer camp in France (organized by the NGO Objectif Sciences International, June 2011). The description of these activities can be found on our blog. Moreover, a number of talks were given in various research institutes and conferences to present and promote our project among the scientific and educational community (see Sect. 6.4 for an exhaustive list of Talks and posters). When possible, these talks were accompanied by a screening of our documentary movie.

5 Outlook

GalileoMobile is an on-going initiative that wants to establish itself as a sustainable project, running future activities and expeditions in different parts of the world. Our achievements during 2009 and 2010 gave us the means to reach this objective :

- Our handbook of activities ("Cartilla"), our contact network and our project evaluation constitute solid bases and resources for GalileoMobile to become a sustainable project in the long run.
- The documentary movie, our reports (the present one and the IYA2009 Final Report) and our web pages (main website, blog, facebook etc.) represent the "visible face" of our project, besides sharing our vision.

In the near future, we plan to work on bith the diffusion of our products, and on the preparation of future expeditions. The "Cartilla" is our main educational resource and starting point to develop the GalileoMobile project all around the world. Future work will thus involve translation to other languages, starting with English. For the documentary, we plan to diffuse it online, but also in documentary festivals and on TV channels, while shipping DVDs on demand.

Parallel to these diffusion efforts, we will prepare new expeditions, not only in South America, but also towards other continents according to the possibilities and our contact network.

Finally, in order to gain an official character, help the sustainability of the project and be helped in administrative matters, GalileoMobile is establishing a partnership with the UNAWE, and shall become a "international collaboration with the UNAWE project".

6 Appendix

6.1 GalileoMobile in numbers

Some numbers regarding our 2009 expedition, its preparation and follow-up:

- 12 team members during most of the preparation, 13 after the trip.
- 11 months of preparation.
- 2 months of trip.
- 3 countries visited: Chile, Bolivia and Peru.
- over 7000 km of itinerary.
- 23 visited locations.
- 33 schools reached.
- about 1600 children reached during school visits.
- about 1800 children reached in total (including star parties and closing event).
- about 600 teachers reached (in schools and during workshops).
- some 3000 people reached in total (children, teachers, communities).
- 20 hands-on activities compiled to a common format and translated into Spanish in the handbook "Cartilla de Actividades GalileoMobile" (freely available on our website under 'Links').
- a documentary subtitled in 8 languages.
- over 2 years of follow-up: contact with schools and evaluation, finishing products, developing our network, performing activities and writing articles and reports.

6.2 Partner projects

GalileoMobile benefited from the help of the following partner projects in receiving materials or advice:

- UNiverse AWEreness (UNAWE), an international project started in 2006 that became a cornerstone project of the IYA2009, with the vision of broadening the minds of young children by exposing them to the grandeur of the Universe, see www.unawe.org.
- Galileo Teacher Training Programme (GTTP), a cornerstone project of the IYA2009 with the goal of developing a worldwide network of qualified "Galileo" teachers, see www.galileoteachers.org.
- Developing Astronomy Globally (DAG), a cornerstone project of the IYA2009 to foster the development of astronomy in the countries of the world according to their current development and needs, see www.developingastronomy.org.

6.3 Local collaborators

In Chile:

- Prof. Luis Barrera, Universidad Metropolitana de Ciencias de la Educación, Santiago.
- Elías Mella Medel, amateur astronomer and educator, Iquique.
- Mauricio Gonzales Coronado, school teacher, Colchane.
- Farhid Char, amateur astronomer, see www.austrinus.com.
- Patricio Contador, school teacher, Tocopilla.

In Bolivia:

- Prof. Manuel de la Torre, archeo-astronomer, Universidad Mayor de San Andrías, la Paz.

In Peru:

- Prof. Erwin Salazar Garcés, specialist in Andean archeoastronomy and scientific director of the planetarium of Cuzco, see www.planetariumcusco.com.
- Ana María Milla, sales manager, planetarium Cuzco.
- Barthelemy d'Ans, president of the Instituto Peruano de Astronomia, see www.concytec.gob.pe/ipa.
- Prof. María Luisa Aguilar Hurtado, Universidad Nacional Mayor de San Marcos (UNMSM).
- Reina Mercedes Quiroz Quiroz, Arequipa.
- Luz Marina Suaquita Quispe, Puno.
- José Walter Chafloque Millones, director of the Instituto Superior de Pedagogia Gregaria Santos, Sicuani.

6.4 List of Talks, Posters and Documentary Screenings

- Instituto Nacional de Pesquisas Espaciais (INPE), So José dos Campos, Brazil, December 2009 Institute Talk (Philippe Kobel).
- ESO/ESA/IAU/Excellence Cluster Universe, Astronomy Communication Seminars, Garching, Germany, December 2009 Institute Talk (Nuno Gomes, Silvia Bonoli, Victor Silva Aguirre).
- Centro de Astrofsica da Universidade do Porto (CAUP), Porto, Portugal, January 2010 - Institute Talk (Nuno Gomes).
- Communicating Astronomy with the Public (CAP), Cape Town, South Africa, March 2010 - Talk (Nuno Gomes).
- Max Planck Institute for Extraterrestrial Physics(MPE), Garching, Germany, May 2010 - Institute Talk (Silvia Bonoli, Eva Ntormousi).
- University of California, Los Angeles (UCLA), Los Angeles, United States, July 2010 - Institute Talk (Philippe Kobel).
- She is an Astronomer Conference, London, England, April 2010 - Poster (Silvia Bonoli).
- Colombia Vive la Ciencia vive la Astronoma, Bogot, Colombia, August 2010 - Talk and Poster (Pilar Becerra).

- Global Hands-on Universe, Garching, Germany, August 2010 - Talk (Patricia F. Spinelli).
- Congreso Colombiano de Astronoma (COCOA), Bogot, Colombia, August 20120 - Talk (Pilar Becerra).
- Encuentro de la Red de Astronoma de Colombia (RAC), Medellin, Colombia, August 2010 - Talk and Poster (Pilar Becerra).
- NGO Objectif Sciences International, Saint-Anthème, France, June 2011 - Documentary Screening (Philippe Kobel).
- Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany, October 2011 - Institute Talk (Philippe Kobel and Maria Das Espuig).
- Communicating Astronomy with the Public, Beijing, China, October 2011- Documentary Screening.
- Festival Filmar en América Latina, Geneva, Switzerland, November 2011 - Documentary Screening.
- Office of Astronomy for Development (OAD) workshop, Cape Town, South Africa, December 2011 - Talk and Documentary Screening (Maria Das Espuig).
- Cinema Alphaville, Campobasso, Italy, December 2011 - Documentary Screening (Fabio del Sordo).
- Nordita, Stocholm, Sweden, January 2012 - Documentary Screening and Talk (Fabio del Sordo).
- Ecole Polytechnique Fdrale de Lausanne (EPFL), Lausanne, Switzerland, March 2012 - Talk and Documentary Screening (Philippe Kobel).
- Universe Awareness (UNAWE) Workshop, Leiden, The Netherlands, March 2012 - Workshop participation (Pilar Becerra).

7 References

7.1 Information on the GalileoMobile project

- GalileoMobile web page: www.galileo-mobile.org.
- GalileoMobile blog: www.galileomobile.wordpress.com.
- GalileoMobile on twitter: twitter.com/galileomobile.
- GalileoMobile on youtube: www.youtube.com/user/GalileoMobile.
- GalileoMobile on facebook.
- IYA2009 Final Report (GalileoMobile part): www.galileo-mobile.org, under 'Links'.
- IYA2009 Final Report (entire report): www.astronomy2009.org/resources/documents/detail/.

7.2 GalileoMobile in the media

Press, magazines and information websites:

- Article in Max-Planck PhD-net magazine "Offspring" (English), issue 05/2010.
- Article in "Ciel & Space" (France - French).
- Article in "Mercurio de Antofagasta" (Chile - Spanish).
- Article in the magazine of "Municipalidad de Tocopilla" (Chile-Spanish).
- Article in "Le petit journal" (Chile-French).
- Article in the magazine of "Municipalidad de Taltal" (Chile-Spanish).
- Article in "El Nortero" (Chile-Spanish).
- Article in "Diario 21 de Iquique" (Chile-Spanish).
- Article in "El Mercurio de Calama" (Chile-Spanish).
- Article in "La estrella de Iquique" (Chile - Spanish).
- Mentioned in "Radio Patria Nueva" (Bolivia - Spanish).
- Mentioned in "Informamolise.com" (Italy - Italian).
- Article in "Meneame.net" (Worldwide - Spanish).
- Article in "Universia.cl" (Chile - Spanish).
- Article in the page of "Observatorio de Valencia" (Spain - Spanish).

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- http://angelrls.blogalia.com/historias/65230 - Spanish.
- http://etudociencia.wordpress.com/2009/10/09/projeto-galileu-movel-na-america-do-sul/ - Portuguese.
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- http://angelrls.blogalia.com/historias/64817 - Spanish.
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- http://www.nasawatch.com/archives/2009/10/the-galileomobi.html - English.
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- http://planetariumcusco.blogspot.com/2009/11/galileo-mobile-en-cusco-asociacion-pasa.html - Spanish.

Press releases:

- Press release from ESO http://www.eso.org/public/news/eso0937/.
- http://www.physorg.com/news173966055.html.
- http://www.noticiasdelcosmos.com/2009/10/el-galileomobile-comienza-su-viaje-por.html.

7.3 Archeo-astronomy

- "Arqueoastronomia andina", website of Prof. Manuel de la Torre, http://astronomiaandina.260mb.com/.
- "Qoyllur", blog of Erwin Salazar about Inca astronomy, http://qoyllur.blogspot.com/.
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- Mariana Barrosa, IYA2009 Secretariat;
- Chile IYA2009 national node;
- Bolivia IYA2009 national node;
- Peru IYA2009 national node.

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- André Roquette, ESO ePOD;
- Laura Ventura, ESO ePOD, Chile;
- Gonzalo Gargandoña, ESO ePOD Chile;
- Karina Celedon, ESO ePOD Chile;
- Gabriela Gajardo, ESO Chile;
- Herbert Zodet, ESO.

The chairs of our partner projects:

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- Kevin Govender, Developping Astronomy Globally (DAG);
- Rosa Doran, GalileoTeacher Training Programme (GTTP).

Former team members:

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