

ESO Education and Public Outreach for IYA2009

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Abstract

ESO, the European Organisation for Astronomical Research in the Southern Hemisphere, is planning a range of education and public outreach activities for the International Year of Astronomy 2009 (IYA2009). In addition to support for IYA2009 global Cornerstone Projects, these will include local, national, and international activities, aimed at the general public, the interested public, and school students.

Introduction

ESO is the European Organisation for Astronomical Research in the Southern Hemisphere. It currently has 13 member-states, and has its headquarters in Garching, near Munich, Germany. It runs three observatory sites in Chile: La Silla at 2400 m, Paranal at 2600 m, home of the Very Large Telescope (VLT) array, and Chajnantor at 5000 m, where ESO is the European partner in the global collaboration to build ALMA, the Atacama Large Millimeter/submillimeter Array. In addition, ESO is currently engaged in the design of the future European Extremely Large Telescope (E-ELT).

For the International Year of Astronomy in 2009 (IYA2009), ESO is planning a range of education and public outreach projects. These will range in geographical scope from local to global, and will be aimed at a range of groups including the general public, the interested public and amateur astronomers, and school students. ESO is also willing to work, where appropriate and feasible, with national nodes in ESO member-states and other countries.

ESO will also support various IYA2009 Global Cornerstone Projects. The IYA2009-specific events will take place in addition to ESO's normal education and public outreach activities.

Global Cornerstone Projects

A number of Cornerstone Projects¹ will be organised for IYA2009 at a global level, and ESO plans to take part in and support some of these. For example, ESO participation is planned in the *100 Hours of Astronomy* (previously *24 Hours of Astronomy*) project, a round-the-clock, round-the-world event linking large observatories around the planet. Some of the stunning images from

¹ <http://www.astronomy2009.org/content/view/292/80/>

ESO telescopes such as the VLT will appear in the *Universe from the Earth* exhibit of astronomical images. Furthermore, ESO is supporting the *Universe Awareness (UNAWA)* project.

Local events in the Garching/Munich area

ESO is also planning various activities around its headquarters, in the Garching and Munich areas in Germany. One such activity is a local image exhibition, showcasing the images produced by and associated with ESO telescopes and observatories. There are possible links with the *Universe from the Earth* global Cornerstone Project.

Another plan is a series of “Astronomy Cafés”, in the style of “Café Scientifique”². ESO astronomers will engage with the public, discussing astronomical topics in an informal setting such as a café. By taking the astronomers out of a more traditional “lecture theatre” setting, we aim to reach people who may not visit a formal venue, and to engage in two-way dialogue with the public. A pilot scheme will be run in Garching, with the aim to expand this to Munich.

National level events in Chile

The events in Chile are organised and coordinated by the ESO Public Affairs Department in Chile. They include a series of “Science Cafés”, similar to the Astronomy Cafés described above, which are a continuation of an ongoing project. There will also be a travelling exhibit, featuring observations of the sky in different cultures, from historical times, including Native American cultures, to the present, and using modern instruments.

A series of national videolinks to Paranal, the site of the VLT, will give people in cities across the country a chance to experience the VLT first-hand without the difficulty of visiting this remote site. Afterwards, these videos will be provided on the internet. There will also be a virtual tour of Paranal, with a simulation of night observations. ESO is working with EXPLORA (a national programme for popularisation of science among young people, from the Chilean Ministry of Education), in order to have astronomy and observations of the sky as the main theme for all the activities during 2009 including the National Science Week. This will provide extremely high visibility for astronomy during 2009.

During the International Year of Physics in 2005, ESO supported *100 Años, 100 Colegios* (100 Years, 100 Schools), where schools from the north to the south of the country made scientific measurements of levels of solar radiation. For 2009, the follow-up will be *400 Años, 400 Colegios*, which will create a network of astronomy clubs and teams at schools throughout the country.

International ESO projects

ESO is producing a planetarium show about ALMA, in collaboration with the Association of French-Language Planetariums and the German Planetarium of Augsburg, as described by Boffin and Acker (2007).

² <http://cafescientifique.org/>

Many of ESO's other international projects will use the web to reach their audience. We plan an *Astronomy Web Quest*, in the form of an interactive website where people can answer quizzes and solve puzzles, with prizes available. This will be a way for the general public to learn about astronomy and ESO.

The Life of an Astronomer will feature blogs, podcasts, and more from selected ESO astronomers. This will be an opportunity to follow individuals for all or part of the year, and see what the life of an astronomer is really like. There is the possibility of links with the *Cosmic Diary* global Cornerstone Project.

Catch a Star

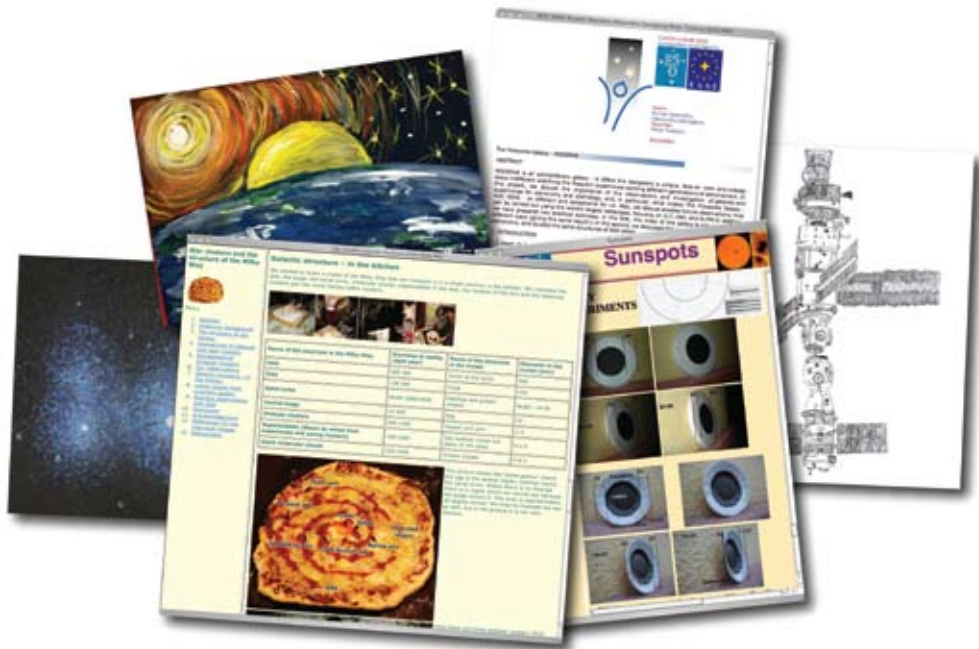


Figure 1 – Some previous "Catch a Star" written project and artwork winners. Clockwise from left: Yuriy Baluk; Karolis Markauskas; Rumen Stamatov, Alexandra Georgieva, with Petar Todorov; Gilles Backes; Denitsa Georgieva, Rositsa Zhekova, Tanya Nikolova, with Dimitar Kokotanekov; Edina Budai, Andrea Szabo, Judit Szulagyi, with Akos Kereszturi.

*Catch a Star*³ is an international competition for school students, organised by ESO and the European Association for Astronomy Education (EAAE). Students from all over the world can take part, to win prizes such as astronomy DVD-ROMs, posters, and T-shirts. Furthermore, students from Europe and Chile are eligible to win major travel prizes, including a trip to the VLT on Cerro Paranal in Chile.

³ <http://www.eso.org/catchastar/>

The competition is divided into three categories: “Researchers”, “Adventurers”, and “Artists”, to ensure that there is an appropriate activity available for all levels. As “Researchers”, up to three students plus a teacher will write about a topic of their choice in astronomy, and discuss how large research telescopes such as those of ESO can be used to study it. In this category, entries must be written in English, and are judged by an international jury. The “Catch a Star Adventurers” category is similar to “Researchers”, but entries do not need to be in English, and prizes are awarded with a lottery. This is a deliberate decision, to avoid a sense of elitism, and to get students interested in and thinking about astronomy, no matter what their level.

The third category, “Artists” is an art competition. Students create artworks with an astronomical theme, and these are displayed in a gallery on the web. The winners are chosen with the help of a public web-based vote. In 2008, for the first time, there will also be a special prize awarded by an astronomical artist. The “Artists” competition allows students of all ages to take part, and has the interdisciplinary effect of bringing astronomy into art lessons, or vice versa.

Catch a Star is run annually. In the 2007 competition, hundreds of students from over 20 countries submitted written projects and artwork. There will be a special *Catch a Star 2009* linked with the International Year of Astronomy.

Future astronomers of Europe

ESO is also planning a somewhat higher-level competition, to introduce keen school students to professional astronomy. Called *The Future Astronomers of Europe*, it is based on an earlier competition of the same name, which took place in 1993 (see West, 1994). In that competition, students were invited to write about an observing night on the (then future) Very Large Telescope (VLT), with the winners developing observing projects and travelling to La Silla to carry out their observations. In 2009, the design phase of the European Extremely Large Telescope (E-ELT) will be coming to an end, and the construction phase will be approaching. This means that the school students of 2009 may be among the first users of the E-ELT. Therefore, the timing is appropriate for a similar *Future Astronomers of Europe* competition where we ask school students to think about observing with the future E-ELT.

Competition entrants from across Europe will be asked to write an essay about *An observing night with the E-ELT*. The winners of this contest will travel to the ESO headquarters in Garching, where they will receive an intensive course in astronomical concepts and observing techniques from ESO astronomers. In Garching, they will work in teams to develop their own observing projects and proposals. There may, at this stage, be an additional level of competition to decide the winning proposals, and these teams will travel on to Chile. Here they will visit the ESO telescopes, to learn more and to make their astronomical observations.

We aim to publicise both the competition and the winners’ adventures to Garching and Chile, both online using the web, and also in other media such as television and astronomy magazines.



Figure 2 — The Very Large Telescope (VLT) array at Paranal.

ESO

Conclusions

ESO will have a wide range of its own education and public outreach activities for the International Year of Astronomy 2009, as well as participating in various global Cornerstone Projects. ESO-specific projects will include local (for example in the Munich area), national (for example in Chile), and international activities, aimed at audiences from the general public to school students. As well as new projects, such as a travelling exhibit in Chile and an ALMA planetarium show, there will be follow-up projects based on previous activities, such as *Future Astronomers of Europe*, and continuations of existing programmes such as the science cafés in Chile and the international *Catch a Star* competition for school students.

To find out more, please contact Douglas Pierce-Price, who is the ESO Single Point of Contact (SPoC) for IYA2009.

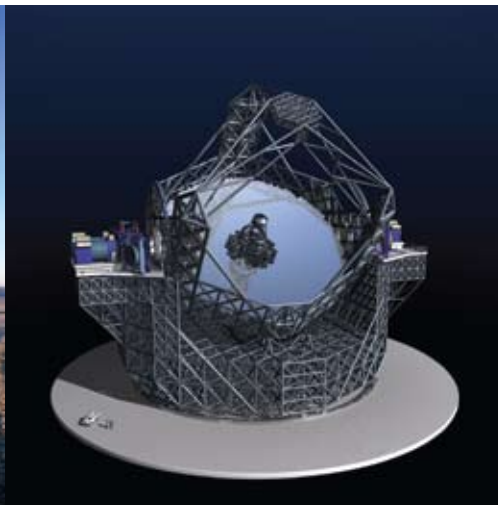
References

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- West R. (1994), Future Astronomers of Europe. *Sky and Telescope*, volume 87, number 3, pp 28-32



Composing, ESO

Figure 3 — A composite image of how the Atacama Large Millimeter/submillimeter Array (ALMA) may look on Chajnantor, northern Chile.



Rendering, ESO

Figure 4 — Computer rendering of the 3-dimensional model of the European Extremely Large Telescope (E-ELT).