

# EAAE and Astronomy for European schools

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## **Abstract:**

The aim of the European Association for Astronomy Education (EAAE) is to promote astronomy education in schools and to stimulate the interest of pupils and students for astronomy. European projects for students and teachers such as Catch a Star, Sea and Space Life in the Universe, Physics on Stage and EAAE-Summer Schools show the different EAAE activities. Science on Stage 2005 and the European Astronomy Day 2007, two joint European projects with EAAE involvement are presented.

## **1 The History and the role of EAAE**

Astronomy-oriented high-school physics teachers from approximately 20 countries met in 1994 at the ESO Headquarters for a workshop about Astronomy Teaching in European Secondary Schools and decided the creation of the European Association for Astronomy Education. The activities of the European Association for Astronomy Education (EAAE), officially founded in 1995 in Athens, are best described by an excerpt of its statutes.

The purpose of the European Association for Astronomy Education is to improve and promote astronomical education at all levels in all institutions involved in teaching astronomy in Europe.

AAE may be considered as a network of teachers coming from more than 25 European countries, who are acting as a link between high level research and education, between the professional scientists and the students. EAAE brings students from all over Europe directly in contact with various astronomical subjects, independently of their national curricula, offers the possibility to collaborate in European wide projects and enables the contact between students from different nations interested in astronomy.

Motivation of students and teachers for astronomy and support for teaching astronomy is achieved by different kinds of EAAE activities, such as the participation in joint European projects and the organisation of EAAE summer schools.

## **2 Promoting Astronomy Education by joint European projects**

### **2.1 Astronomy On-Line**

Astronomy On-Line was organised in 1996 in the frame of the 4th. European Week for Scientific and Technological Culture by ESO (European Southern Observatory) and EAAE. Astronomy On-Line was the first programme in the world to bring together more than 5000 students from 39 countries to explore challenging scientific questions, using modern communication tools, both for obtaining and for communicating information. The world's biggest astronomy event on the world-wide-web offered to the student groups a great variety of interesting and educational activities. These ranged from collaborative projects which require astronomical observations made by many groups all over Europe, to the opportunity to contact professional astronomers, from simple astronomical observations guided by teachers to the possibility of submitting observing programmes for telescopes at 10 major observatories. Many side benefits were registered, such as stimulating schools to go on-line or prompting international cooperation among young people.

### **2.2 Sea & Space**

Sea & Space was a collaborative project between ESA (European Space Agency), ESO and EAAE including a contest. A poster and a newspaper contest for pupils and students allowed to select a winning team in each of the 22 participating countries. All these winning teams were invited to the final event of Sea & Space that took place at the EXPO 98 in Lisbon in August 1998. Many astronomy related topics could be treated by the student groups in the different parts of the programme, for instance astronomical measurements, historical methods, navigation with astronomical methods and with GPS, the Moon and the tides, water detection in space with telescopes and satellites. An important effect of the Sea & Space programme was the fostering of interdisciplinary awareness of all the participants.

### **2.3 Life in the Universe**

Life in the Universe is an educational outreach programme organised in 2001 by ESA, ESO and CERN (The European Organisation for Nuclear Research). An important basic information package was produced by some of the world's leading scientific experts in collaboration with educators, and made available on the web. 14 to 19 years old students from 22 countries were joining in a contest and preparing projects representing their ideas on Life in Universe. The contributions to the contest could be scientific or artistic. The winners were invited to present their work at CERN in Geneva, where the best presentations were awarded with an invitation to an Ariane launch at the ESA Spaceport in Kourou and visit of the ESO Very Large Telescope at Paranal in Chile.

### **2.4 Catch a Star!**

The web-based programme "Catch a Star!" organised jointly by ESO and EAAE within the context of the European Science and Technology Week 2002 was centred on an astronomy competition for European students not older than 18 years. Groups of up to three students and one teacher had to select an astronomical object, to collect information about this object,

to compare it to similar objects and to submit a report (in HTML format with images and text). The winning team invited to visit the Very Large Telescope (VLT) at the ESO Paranal Observatory in Chile. All the accepted reports, which represent a huge amount of astronomical information and of useful material for students and teachers, are available on the web. Further editions of “Catch a Star!” were organized every year with a growing success. “Catch a Star!-4” starts in October 2005.

## **2.5 Physics on Stage**

Physics on Stage is an initiative for European science educators and was first set up in 2000 by ESA, ESO and CERN with the participation of EPS and EAAE. This year the fourth edition is enlarged to Science on Stage and it is run by a consortium of seven large research organisations called EIROforum. Science on Stage, with national activities and events in 29 participating countries culminates in a European science teaching festival at CERN in November 2005. Science on Stage provides teachers with opportunities to exchange innovative ideas, successful educational tools and good practice. It also offers the teaching community a direct link to the combined expertise of Europe’s leading scientists and allows to identify exceptional teaching projects and outstanding educators in each country.

## **2.6 EAAE Summer Schools**

Since 1997 the European Association for Astronomy Education (EAAE) organises a teacher training course every year during the summer holidays, which aims at improving and promoting scientific and astronomical education in schools all over Europe. The Summer School, one of the important EAAE projects, gathers European teachers (members and not members of EAAE) interested in astronomy and astronomy teaching. The Summer School is hosted every year by another European country and the participants (45-100 teachers), which come from more than 20 European countries, have the opportunity to share their experiences during one full week. At least 14-16 countries are represented at the Summer School events and about 25% of the participants come from the respective host country. The tenth edition of the EAAE Summer School will be held in July 2006 in Tenerife.

## **2.7 The European Astronomy Day.**

After the Venus Transit 2004 final event in Paris, the national representatives of the 25 participating countries agreed to initiate a European Astronomy Day that may serve as an umbrella under which different European-wide, national and local activities related to astronomy may be organised. Some of the main activities could be: a central website, solar observations, night observations, public showings, teaching programmes, actions aimed at different target groups including primary and secondary schools, exhibitions, competitions, cultural activities, media coverage. The first European Astronomy Day is supposed to be organized in 2007.