

The ESA Education Office and Some Current Projects

I. Duvaux-Béchon & P. Messina

Education Office, ESA Directorate of Administration, Paris

Introduction

ESA's European Space Education Programme is aimed at:

- challenging and motivating a large number of young people through active involvement in exciting projects in order to enhance their literacy in science and technology in general, and space-related matters in particular
- identifying competent and creative students in order to foster a highly talented workforce for the 21st century.

ESA has recently reinforced its policy with respect to education and outreach, which was presented to Council in June 2001 in a document titled 'The European Space Education Programme'. Education is one of the mandatory activities foreseen by the ESA Convention, and the Long-Term Policy Committee proposed two actions directly linked to education in its latest report. The Education Office and its mandate have therefore been enlarged and several new initiatives have been launched. This article puts the Agency's increased commitment to educational activities into perspective, brings you up-to-date with the latest news, and introduces some of the projects currently under development.

Such ambitious goals call for a pro-active and innovative approach with a strong 'marketing' slant, i.e. making ourselves and our initiatives appealing to our target groups.

To achieve these two objectives we need an effective strategy relying on, among other things, internal and external networks. Such an external network will comprise European academic institutions, national and local authorities, teacher and students associations, other European organisations as well as representatives from ESA's industrial partners. The role of such a network will be to provide inputs, opportunities, and exchanges of information for the benefit of the ESA Educational Programme and thereby constitute the ideal complement for its successful implementation.

External co-ordination

The Advisory Committee on Education (ACE) forms the first element of the external network. This Committee brings together representatives

from the ESA Member States and additional national experts to advise the Director General on education policy and initiatives. It also serves as primary chain of transmission for information between ESA and the national agencies. The Secretariat to the ACE is provided by the Education Office. There are points of contact in each ESA Directorate, so that ACE will also become a useful tool for all ESA groups that carry out educational activities in their own specific fields of interest. ACE also welcomes representatives of the European Commission and European industry in order to foster a forum in which to discuss and define a truly European policy for education both in space-related matters and in science and technology in general.

The first meeting of ACE was held in Paris on 24 October 2001 and was opened by Antonio Rodotà, ESA's Director General. The second meeting was held on 29 January 2002.

Internal co-ordination

The second meeting of the internal Education Team (E-Team) was held in December 2001. This team consists of representatives from the various ESA Directorates involved in educational activities. These meetings (two per year) promote fruitful discussions and an easy exchange of information within the Agency, bringing together the various ideas and projects and thereby making better use of the resources available within ESA. At this meeting, the various plans and projects for 2002 were presented, together with the new publication 'EDUnews' (see below) and the future ESA Education Web Site (see ESA Bulletin No. 108, November 2001).

The Education Office is creating a database of volunteers from ESA who are willing to participate in education activities, by giving presentations at schools and universities, tutoring young visitors, preparing educational material, participating in video-conferences with schools, providing useful addresses or forwarding documentation, or translating small texts into their mother tongue. By the end of 2001, more than 100 staff from all ESA

Establishments had already volunteered. We are now structuring this database of volunteers so that requests for help can be quickly satisfied and all potential needs are covered (covering each programme domain and each Member State language, for example).

Current activities and projects

Prior to taking on its new co-ordination role through its enlarged mandate, the Education Office has already organized numerous successful projects and activities. Many of them have already proved very popular over the past years, such as the IAF Congress Outreach Programme, through which several hundreds of European students have had the opportunity to participate in this annual International Astronautical Federation event.

Through its Student Parabolic Flight Campaign, a project that has already been running successfully for several years, the Education Office gives several student teams drawn from all over Europe the opportunity to design,

develop and finally fly a microgravity experiment during a two-week flight campaign every year in Bordeaux. The best student experiments subsequently get the chance to fly on professional parabolic flights and may one day end up on the International Space Station (ISS).

The Education Office has also teamed up with colleagues from other European research organisations, namely CERN and ESO, to make the 'Physics on Stage' event happen. The first festival took place at CERN in Geneva (CH) in November 2000 and attracted hundreds of European teachers and other educators. The EC Commissioner for Research and Technology, Philippe Busquin, was among those who attended. This year, the Education Office is organizing Physics on Stage 2 at ESTEC in Noordwijk (NL) from 2 to 6 April (see below).

Another example of an appealing project for students is SSETI. It is a challenging and innovative way for teams drawn from universities all over Europe to design a spacecraft using a web-based platform. It has led to the creation of a very active 'virtual community' of space-interested students.

EDUnews

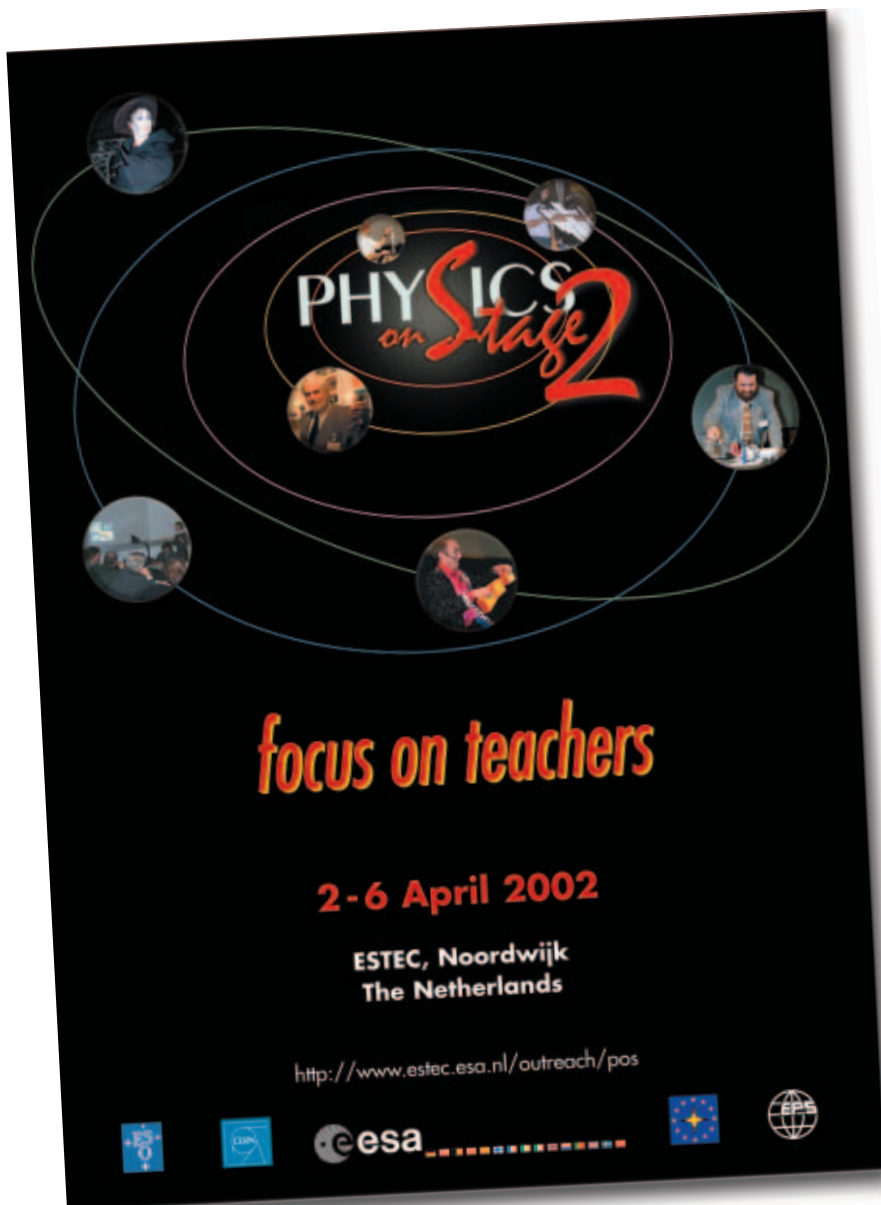
The 'marketing' approach being pursued by the Education Office requires several ways of communicating and getting our message across in the most effective way. Along with the new web site that is being developed, the need for an education newsletter was strongly felt. We therefore enlisted the help of the ESA Publications Division to launch 'EDUnews' as a communications tool for all ESA entities and individuals dealing with educational matters.

We believe that EDUnews will prove a very effective means of informing interested individuals, raising awareness and establishing new contacts throughout the Member States and beyond. It will provide the possibility for our partners to promote their space-related education events and initiatives also.

EDUnews will be made available from the ESA Education portal by e-mail, as well as being distributed by e-mail or in hard copy to our mailing list and during appropriate events.

ESA external traineeships and relations with European universities

The Education Office and the Human Resources Department will share responsibilities with respect to the revision of the ESA external traineeship policies



and the Young Graduate Trainee (YGT) scheme. Human Resources will remain the actual recruiter and the counsellor for recruitment matters vis-a-vis the ESA Directorates, whilst the Education Office will be responsible for the upstream part of the programme, such as defining and promoting the YGT Scheme and integrating it fully and coherently into the ESA educational policy.

One improvement that is being developed is to give interested young Europeans the opportunity to apply for the YGT scheme via an interactive Internet-based system, known as the 'Young Friends of the Agency Database'. Apart from being a modern promotional and information-gathering tool, an important feature of this database will be the ability to create an updated roster of YGT candidates for browsing and pre-selection by ESA's line managers. It will help in matching the flow of applications from specific groups (e.g. young graduates with systems-engineering skills/experience) with ESA's future needs, as well as providing a snapshot of young people interested in a career in space.

Along with the traineeship policy review, the Education Office has started thinking about how to improve relations with academia for educational purposes. Even though extensive ties already exist between ESA and European Universities, there are still gaps and a lack of coordination. The rationale is to fill these gaps (a new PhD grants programme is about to be launched) and provide interested ESA parties with a framework for carrying out projects with, and thereby enhancing their relations with, universities.

Projects for primary and secondary schools *Physics on Stage*

During 'Physics on Stage 2', from 2 to 6 April 2002, ESTEC will play host to more than 300 physics teachers from 22 European countries (selected by national steering committees) who will discuss new ways of teaching physics in order to make it more attractive for children, and show and share the educational materials that they have developed. They will also select what they believe to be the best examples, which ESA will then help to disseminate as widely as possible. These teachers will be taking home a lot of new methods and ideas for interesting more young Europeans in studying and pursuing a career science. Further details can be found at: <http://www.estec.esa.nl/outreach/pos/pos2.htm>.

From 2003, the event will be extended to more disciplines (like biology) and will be called



'Science on Stage'. It will be organised by a foundation that is part of EIRO (European Inter-governmental Research Organisations), which groups together the main Research Organisations in Europe like CERN, ESO, EMBL, ESA, etc., and is supported by the European Commission.

Netdays

'Netdays' is an event organised every November by the Directorate of Education and Culture of the European Commission. Education Office participated in the event of 2001, when the main subject was 'Youth on the Net'. We asked young Europeans to send us their ideas about space as texts, poems or drawings. ESA staff replied to questions posted on the Internet.

Netdays 2002 will include a question-and-answer forum on the Education website. There will be links to space images and videos on the Internet, and we will show specially developed films to help children learn about space.

Learning materials

The material available within ESA, at the moment mainly CD-ROMs, is being reviewed and adapted for primary and secondary school use. Translations are being prepared for special items so that material for younger children is available in all Member State languages. Materials that have already been developed in the Member States will also be translated, in order to make as much interesting material as possible available to everybody. Initially, priority



L'espace est un univers très vaste : j'ai l'impression que les hommes n'arriveront jamais à tout connaître sur sa dimension et ses secrets. Mais l'espace est pour moi un spectacle grandiose, parce que quand nous contemplons l'univers, nous sommes spectateurs de merveilleux paysages, cela est très agréable. Les satellites nous apportent les télécommunications et cela permet de créer des emplois. Grâce à l'espace nous apprenons beaucoup et nous avançons plus loin dans la technologie. Mais ce que je préfère malgré tout, c'est cette impression d'être si petite, presque rien par rapport à l'univers qui, lui, est immense. J'aime l'espace parce que rien que d'y rêver me procure un grand bien !
Myriam, Paris

Aélia Voisin, Loiret, France

is being given to adapting existing material rather than developing a lot of new material.

Partnerships with publishers

Partnerships with publishers for youth publications have been started, initially in France, to ensure that information on space matters in these publications is accurate and of the right level and that ESA and its programmes are well-represented. It is planned to extend this initiative to working also with editors in the other Member States.

ESA material in schools

Another important task for the Education Office is to assess where space topics can be introduced into the school curriculum. We are trying to help teachers by putting at their disposal information, material, fact sheets, and projects for the classroom. In this way we can help to increase European children's – and parents' – knowledge of science in general and space-related science and technology in particular.

'L'Enfant du Cosmos'

This project, proposed by Pierre Comte and the Aéro Club de France, links art and space technology. About 32 000 children in Europe will make an imprint of their hands on large plastic squares, which will then be assembled to form the shape of a child (300 m x 400 m). Helicopters, aircraft and satellites (SPOT and ERS or Envisat) will take pictures and radar images of the figure, which will then be

sent to the children. The children will also receive basic information and practical exercises relating to Earth Observation. CNES and ESA will provide the satellite images and help with the educational material. The ESA Member States will help with the translation and dissemination of the material.

Participation in World Space Week

This week, organised by the United Nations, takes place every year between 4 and 10 October. The theme for 2002 is 'Space and Daily Life'. The Education Office is proposing one project titled 'Space and Daily Life in 45 Years, the case of the Martian Base'. Information to be provided to the teachers and children could include basic data on Mars, a list of life-sustaining needs for man, and a guide for the teachers to help them to grade the children's proposals. The best projects selected and submitted to ESA will be rewarded and presented on the ESA web site. The children will be encouraged not only to draw or build a model of a Martian base, but also to explain the various parts of it and why and how man would be able to live there.

The above are just a sample of the many projects that are in progress or under development within the ESA Education Office. If you have education-related questions, or if you wish to subscribe to EDUnews, please write to: education@esa.int and visit <http://www.esa.int/education>.

