

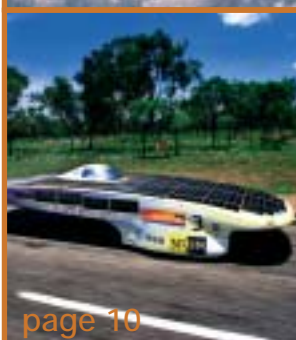
EDUnews




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Welcome to the World Space Congress!



This third issue of ESA's newsletter on education is a special World Space Congress issue. It is a great pleasure to welcome the students selected for the ESA/IAF Outreach Programme to this year's World Space Congress with the theme "The New Face of Space".

ESA's Student Outreach Programme to the IAF is an annual programme that started in 1999, giving the possibility to attend the Congress in Amsterdam to more than 450 students from all across Europe. By now, a total of over 1000 students have enjoyed this unique outreach programme and participated in the numerous congress sessions and social events – all with the aim of facilitating a smooth "generation handover" of space expertise.

The student participation at the Congress also provides the opportunity to create valuable contacts with their peers and with senior professionals. For many, this will be a lifetime experience and highly motivating with regard to their professional development and careers. The regular professional participants to the IAF congress regard the influx of young engineers and scientists as very positive. Sixty student papers originally submitted to ESA for selection have been accepted in the Congress Technical Sessions.

Wonderful images from space and the experience of astronauts and cosmonauts have made us acutely aware of the fragility of our Earth system. We can predict natural disasters with the aid of weather satellites; observational satellites monitor the state of health of the Earth. High-resolution satellite images assist us in creating peace around our planet. Technology spin-offs are being applied to our daily existence, thus improving the quality of life of millions of people.

There are all reasons enough to become part of the space community.

I wish all participants a wonderful experience at the World Space Congress and hope to see even more students at the IAF Congress in Bremen in 2003!

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...3... 2... 1... ignition and lift-off to Houston!



On October 7 2002, 220 European university students will join the European Student Outreach Programme to the IAC'02 for two weeks. They will first visit ESTEC in the Netherlands and then leave for Houston to take part in the World Space Congress (WSC).

The European Student Outreach Programme to the IAC is an annual programme that started in 1999. It brought more than 450 students from all across Europe to the IAF congress in Amsterdam. A total of 900 students (100 to Rio de Janeiro in 2000, 350 to Toulouse in 2001) have by now participated in the numerous congress sessions and social events. This year, more than 220 students will go to the World Space Congress in Houston, Texas.

Students can make good contacts during the week, and also space professionals see the advantage of the programme. They regard the youngsters as a welcome stimulus. The initiative has also been warmly welcomed by the IAF. An influx of this size of young scientists and engineers forms the basis for a refreshing and stimulating element essential for a successful future of Space. The students attend the congress like normal participants, so the "generation handover" of the existing expertise and knowledge is guaranteed.

The congress mainly attracts students majoring in space studies. However, also a large fraction of students who are not studying core space topics but subjects in related fields (e.g. electrical engineering, law, medicine, etc.) are participating. Many students at the congress are almost overwhelmed by the wide diversity of space activities.

Student projects

According to the long-term strategy defined by the IAF programme committee: "stimulate and increase fraction of student participation for submitting papers and presenting their research", the ESA Education Office has asked the students to submit an abstract. We received almost 700 applications with either an

abstract or a poster. Some of the students are going to present their projects during the IAF Technical Sessions. 130 student abstracts were submitted to the IAF selection committee, and more than 60 were accepted. This is a tangible result of the evolution of this programme and of the success of the close collaboration between IAF and ESA Education Office.

The students will present their research during the Student Conference, some also during the professionals Technical Sessions. A long-term positive effect is created this way, leading to a renewed cadre of young professionals that will form an important basis for the future success of the space sector in general and of the IAF in particular.

European Student Stand

In the WSC exhibition hall, the student stand is the gathering point for all young people. There will be information about the different projects related to space for young people. Educational materials and videos will also be presented at the stand. Each student presents a poster to explain his or her personal project. On Tuesday 15 October between 12:40 and 14:00 the students invite all congress delegates to have a look at their projects. All students will be present at this special moment to answer the questions and to share their vision of the "New Face of Space".

The selection of the participants is a thorough process including ESA staff volunteers evaluating the content of the students' applications, and the comments from ESA staff were very enthusiastic. Another guideline in the selection process is a country quota.

A book presenting the works of the students will be distributed to every

**Tuesday 15
October,
12:40 - 14:00 h:**
Students present
their projects at
the European
student stand!

section of ESA as well as to the main space European companies.

To get a better idea of what ESA is and does, the students will visit ESTEC in Noordwijk, the Netherlands, on 8 October 2002. They will follow lectures on Earth Observation, Science, Navigation and the International Space Station and will have the opportunity to visit the main facilities: the Test Centre, the Erasmus ISS User Centre, the Concurrent Design Facility and the Space Expo. The day will end at the Space Expo where a reception will be held for the students to meet with ESA professionals.

Detailed student program during the WSC

This year, 220 European and 2 Canadian university/college students will attend the 53rd IAF Congress in Houston. Once every decade, the world's space community assembles to take stock of the present and chart new directions for humanity's next ten years in space.

The World Space Congress 2002 combines the 34th Scientific Assembly of the Committee on Space Research (COSPAR) and the 53rd International Astronautical Congress (IAC) of the International Astronautical Federation (IAF), International Academy of Astronautics (IAA), and International Institute of Space Law (IISL). From 10-19 October 2002 in Houston, Texas, the core scientific and technical Congress will feature an unprecedented 44 parallel sessions over 10 days.

IAC Technical Sessions and COSPAR Scientific Sessions

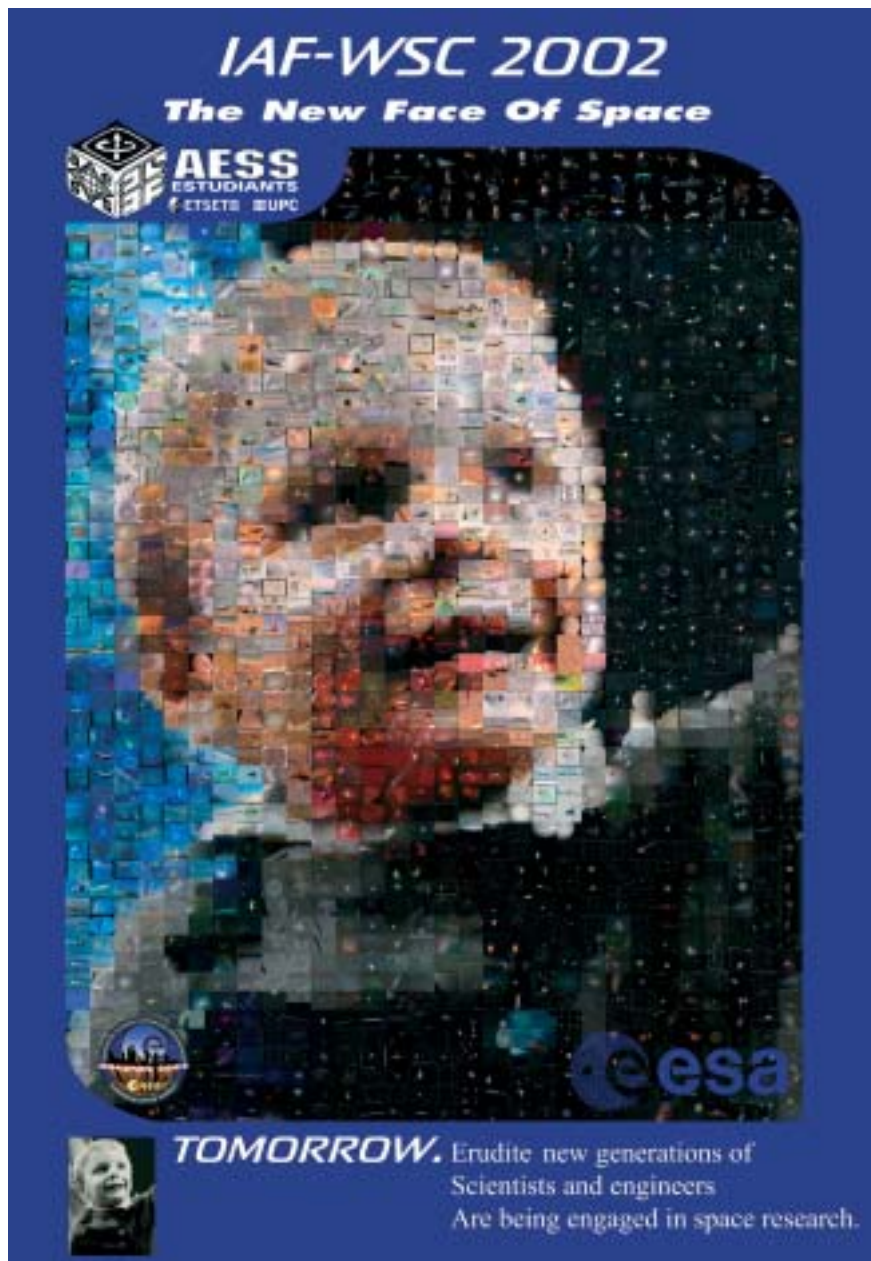
Speakers will highlight advances in the space science and engineering communities. The Congress will cover a wide range of space topics within:

- Science
- Technology
- Infrastructure
- Missions
- Legal & Policy
- Business & Applications
- Education & History

Students are invited to attend the IAC Technical Sessions and the COSPAR Scientific Sessions.

Associated and Special Events

There are many new faces of space today.



Consequently, the WSC forms a central venue for a wide diversity of space-related activities. Special and associated events include:

- Space Generation Summit
- Space Operations 2002 Conference
- Japan Forum Satellite Communications Colloquium
- AIAA Space Architecture Symposium
- NASA Glenn Microgravity Environment on the ISS
- UN/IAF and UN/IAA workshops

40 students will write recommendations on how to "Accelerate Our Pace in Space" during the Space Generation Summit, together with 210 other young people coming from around the world.

After the congress, the students will come back to their universities. As representa-

Ivan Lloro Boada's interpretation of the theme "The New Face of Space", was selected to be the logo of this year's programme. Boada is 22 years old and comes from Spain.

**Thursday 17
October:**
International
Student Party!

tives of the Space Community, they will give presentations to share their experience at ESA and at the IAF Congress. The information will therefore be multiplied to a larger community in many universities all over Europe.

Student Social Program

The WSC will offer a dynamic social program that includes receptions and other social activities:

14 October: Inaugural Night Congress Reception in exhibit hall

15 October: Reception in exhibit hall (hosted by Snecma)

17 October: International Student Party

All students in the European Student Outreach Programme to the 53rd IAC are cordially invited by ESA to an informal social event hosted by the University of Houston on Thursday 17 October 2002. After a tour of the University facilities, ESA students with invited students from NASDA's outreach project and SGAC students will gather together for this International Student Party. ESA's Director General, Mr. Antonio Rodotà, will address the students and present the European Student Outreach Programme lottery prizes. Important members of the space community are invited. This party is a good opportunity for students to interact with their colleagues from Japan, the US and the rest of the world, and of course to have fun too!

See you next year in Bremen?

After the success of the last programmes, ESA's Education Office will organise the European Student Outreach Programme to the 54th IAF Congress in Bremen, September 29 – October 3, 2003. ESA will sponsor the transport and the accommodation of between 300 and 400 students to take part in the congress in Bremen.

The "European Student Outreach Programme at the IAF Congress" is a positive, pro-active initiative that has stimulated the creation of an active student network in Europe that brings about a long lasting support of the Agency

For more information on this programme, please visit
<http://www.estec.esa.nl/outreach/iaf/>
 or send us an email at
student.iaf@esa.int or
caroline.pujol@esa.int

1st EDUSPACE Teachers Workshop
 preceded by the
 ESA - Eurlis EDUSPACE Handover Ceremony
 31st October – 2nd November 2002
 ESA/ESRIN, Frascati, Italy

The European Space Agency (ESA) and Eurlis are pleased to inform European geography teachers that a three-day educational event related to EDUSPACE will be held at ESA/ESRIN in Italy from 31st October to 2nd November 2002.

31st October 2002
 ESA – Eurlis EDUSPACE Handover Ceremony
 (By invitation only)
 Official handover of the EDUSPACE website from Eurlis to ESA.

Friday 1st November – Saturday 2nd November
1st EDUSPACE Teachers Workshop
 (Only selected registered participants)

DAY 1
 ➤ Introduction to the EDUSPACE website
 ➤ Use of EDUSPACE material and hands-on sessions for digital image processing

DAY 2
 ➤ Fieldtrip in the Alban Hills
 ➤ Integration of EO in the classroom (discussion)

EDUSPACE is a source of ideas, material and data to learn and practice Earth Observation from satellites in the classroom. It not only supports geographical and environmental issues, but also Physics, Computer Sciences and even the Arts.
 (See EDU NEWS Issue No2, March 2002)

ESA and Eurlis kindly invite geography teachers who are interested in space and computer technologies and already have experience in multimedia teaching, computer image processing or related areas, to participate to these events.

For more information, please contact the EDUSPACE team at: eduspace@esa.int

EDUSPACE website: <http://www.eduspace.esa.int/>

The Academia Workshop in support of the AURORA Programme

At the latest Ministerial Council, held in Edinburgh in December 2001, the European Space Exploration Programme Aurora was approved as an optional ESA Programme as part of the European Space Strategy. The aim of the programme is to formulate and implement a European long-term plan for the robotic and human exploration of the Solar System bodies, in particular those holding promise for traces of life. Such an ambitious objective will require developing and demonstrating new technologies and innovative mission concepts. The Aurora programme aims at creating a coherent European Framework for Space Exploration. One of the specificities of the Aurora Programme Declaration is the explicit provision for co-operation with European Technical Universities. This is in recognition of the expertise and knowledge possessed by the European Academia as well as the importance that the motivation and the vision of students and young researchers can have in proposing new innovative concepts. Education and outreach, with constant attention towards the youngsters with effective communication and involvement, will also be present throughout the Programme.

To pursue this educational objective and to lay the foundation for a sound participation of European Universities in the Programme execution there have been contacts with many Institutions and their networks. These efforts have led from one side to the grouping of several Technical Universities in a newly established network called Future Space Exploration (FUSE) Network, and from the other side to a first event to inform the academic institutions and launch a first series of initiatives targeted at university students.

This event – the Aurora Academia Workshop – took place in Barcelona from 9 to 10 September and was hosted by the Universitat Politècnica de Catalunya. It

saw the participation of over 30 representatives from several University Networks and from all the major European Technical Universities, the International Space University, a Canadian technology and innovation centre as well as student representatives from Euroavia.

At the workshop representatives from the ESA Aurora Programme and the Education Office informed about the programmatic status of Aurora, its technology and scientific priorities and present the framework for cooperating with Universities.

Each University Network was given the opportunity to present itself, its activities and how it could participate to Aurora. The Euroavia students, in addition to present their Association that regroups the European Aerospace students, also presented their “Mission to Mars Symposium” that will be held from 4 to 7 November in Leuven, Belgium.

The Aurora Design Contest for University students was launched at the event. The design contest will be open to all European universities and aims at identifying innovative mission concepts. The best proposals will be presented and awarded a prize in a similar event to be held at the end of next year.

The workshop fulfilled the objective of promoting Aurora among a large number of European Higher Education Institutions and gave the start to the first concrete initiative for students under the Aurora Exploration Programme.

More information will be available in the near future on the ESA Education Web site, including the details of the Aurora Design Contest.

SGAC: Harnessing the Vision of Youth

SGAC Europe

VISION

"The vision of the Space Generation Advisory Council (SGAC) is to enable and promote a continuous and interactive dialogue on space-related issues between the United Nations and young people of the world. To engage the creativity, enthusiasm and vigour of youth that shall be used to advance humankind through the peaceful uses of outer space."

Today, a new generation of inspired and driven people shares the passion and awe of exploring space. This generation, born and raised after the Apollo mission, first met during the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in Vienna in 1999. A special technical forum was organised by Alumni of the International Space University (ISU), called "Space Generation Forum" (SGF). The Space Generation Forum became an unprecedented opportunity for young space professionals to bring their vision and perspective on what should be the focus of space activities in the next century to the current leaders and decision makers in the space arena, as well as contribute to shaping humankind's future in outer space.

The SGF recommendations (the bold ones are included in the Vienna Declaration):

- **Global Space Education Curriculum**
- **Priority Access to Mobile Satcom Network for Disaster Emergency Management**
- International Space Authority
- SGF Follow-up
- Establishment of an International Centre for Space Medicine
- International Space Chamber of Commerce
- Action Plan for Meeting the World's Basic Needs through Technology
- **Nobel Space Prize**
- **UN Youth Space Advisory Council**
- **Planetary Defense/Protection**

The recommendations of the Space Generation Forum complemented the governmental discussions in the UNISPACE III Committees. Fresh ideas, alternative scenarios and new insights from the viewpoint of highly skilled young people were generated. The Vienna Declaration (which is the executive summary of the conference and issues ten recommendations) contains five recommendations from the SGF – a remarkable success.

SGAC was formed as a result of this Space Generation Forum in Vienna in July 1999. In 2001, the SGAC was granted permanent observer status with the UN Committee on the Peaceful Uses of Outer Space (COPUOS). SGAC supports the work of COPUOS through raising awareness and exchanging fresh ideas among young professionals and students as well as by implementing some of the recommendations of UNISPACE III and providing inputs to the Committee. The main objective of SGAC is an increase of participation and representation of the world youth, especially in developing countries and young women, in space activities.

One of the main outcomes for the SGF/UNISPACE III was the approved recommendation:

"Create, within the framework of the Committee on the Peaceful Uses of Outer Space, a consultative mechanism to facilitate the continued participation of young people from all over the world, especially young people from developing countries and young women, in cooperative space-related activities." This mechanism is now known as the Space Generation Advisory



Council in Support of the United Nations Programme on Space Applications (SGAC). The vision of SGAC is to enable and promote a continuous and interactive dialogue on space-related issues between the United Nations and young people of the world, and to further enable creativity, enthusiasm and vigour of youth that shall be used to advance humankind through the peaceful uses of outer space. The primary goals of the SGAC are to:

- Provide advice regarding the status of activities and ideas of youth space organisations to both UNCOPUOS and the Office for Outer Space Affairs (OOSA).
- Facilitate continuous dialogue between these United Nations bodies, the United Nations Program on Space Applications - Space Generation Advisory Council and youth space activists throughout the world.
- Facilitate and lead the implementation of the Space Generation Forum and UNISPACE-III recommendations through continuously developing and applying the implementation strategies set forth in the Technical Report, and by mobilising the youth of the world and their associated organisations to achieve these outcomes.
- Increase the international cooperation and visibility of youth space activities and events.

SGAC is implementing portions of the UNISPACE III recommendations through fostering and promoting a variety of highly successful projects. To name all projects that are worked on is too much for this article. We refer you to our website for more details. To highlight a couple of SGAC projects:

Global Space Education Curriculum

A strong international team of young people is working towards the vision of having space included in educational programmes around the world.

Yuri's Night – The Global Space Party [<http://www.yurisnight.net>]

Yuri's Night is a global celebration of human excellence and is organised in honour of the first man in space, Yuri Gagarin. In 2002 there were 120 parties in 45 countries on 7 continents and 2 orbiting space vehicles

Under African Skies [<http://www.cosmoseducation.org>]

Annually, a group of SGAC members undertake an expedition to sub-Saharan Africa to teach about science and technology in primary and secondary schools.

SGAC – Europe is convening its first AGM at the Third United Nations/ Austria/ ESA Symposium on "Enhancing the Participation of Youth in Space Activities" that will be held in Graz, Austria, from September 9-12. SGAC has been an instrumental part since the first symposium. SGAC is organising the Space Generation Summit in Houston. It is being held over the weekend of October 11-13 in conjunction with the World Space Congress – the largest gathering of space scientists – and builds on the work of the Space Generation Forum.

How to get involved

There are a number of ways for you to get involved in the Space Generation Advisory Council. First, log on to our website to learn more about us and our activities and contribute to our online discussion groups. Second, contact one of your regional or state representatives as listed on our website. We are looking for young minds that have something to say and are willing to help and give shape to SGAC. You can participate in or help organise one of our many programmes.

We challenge you to speak up and actively change the world into a better place for us

SGAC is organising the Space Generation Summit (SGS) at the WSC in Houston

For more info on SGAC Europe please visit <http://www.unsgac.org>

"Water on Planet Earth"

Summer university for teachers



The summer university is organised every two years in partnership between the French Space Agency CNES and the French "Ministère de la Jeunesse, de l'Éducation Nationale et de la Recherche". This year it took place in La Londe Les Maures in France from 15 to 27 July.

This year the objectives of the summer university were to provide the 75 participants – 70 teachers from France and 5 from the rest of Europe – with a global view of the different processes and phenomena linked to water on planet Earth. Other goals were to demonstrate how remote sensing can contribute to a better understanding of the water cycle in order to improve its management; to propose scientific material, tools and techniques for the classroom and to offer teachers the opportunity to acquire knowledge on the present state of research in the proposed field. The programme of the university took an integrated view of water issues including topics such as the water cycle, water in the atmosphere, oceans and ice continental waters, water strategies and politics. A series of talks, case studies, practical exercises, etc. was organised consequently.

ESA was involved in the event by funding non-French teachers and presenting its own educational involvement. During the summer university, ESA educational activities, events and materials, with a special emphasis on the Eduspace website, were presented to the participants. The teachers were enthusiastic about the website and requested more material and tools to be available to teach space related topics in the classroom. Also, participants manifested a real interest for LEOWorks (the Eduspace free image processing tool) and for the numerous satellite images available on the website. The next step for making Eduspace fully profitable for them would be a French version. Translations into French, German, Italian and Spanish are underway.

About 70 teachers from France and 5 French-speaking ones from Belgium, Spain, Italy, Morocco and Norway participated to that event. Congratulations to the organisation committee and participants for making this educative event a success!



Eduspace website:
www.eduspace.esa.int

Education at ESA:
www.esa.int/educa-

For more information on the summer university, see also: <http://www.carte-blanche.fr/~ue-cnec/>

All about space law

The European Centre for Space Law (ECSL) was established in 1989, at the initiative and under the auspices of the European Space Agency, with the support of a number of pioneers in the field of space law.

The ECSL aims to develop and improve the knowledge of space law and policy in Europe. Exchange of information, promotion of education, organisation of events and of a network of experts and universities are the main ECSL's goals.

One of the most important ECSL activities is the Summer Course on Space Law and Policy. The Summer Course is organised each year between August and September with the support of a host university (1992: Messina; 1993: Toulouse; 1994: Granada; 1995: Aberdeen; 1996: Leiden; 1997: Rovaniemi, 1998: Brest, 1999: Geneva; 2000: Cologne; 2001: Nice). During the two-week course, about 45 students from European Universities attend intensive lectures on space law and on other legal issues as well as on technical and economic aspects relevant to space activities and policy. Students will also be able to meet professionals from the private sector and to visit industries involved directly in space activities. The Course's main objective is to provide students with a solid knowledge of different space issues.

The 11th European Summer Course on Space Law and Policy will take place at the University of La Rochelle, Law Faculty, (France) from 2 to 13 September 2002. The programme will cover the UN Space Treaties and other major international space agreements, European Union Space Regulation, the commercialisation of space activities, telecommunications, remote-sensing, manned space missions, space transportation, launch services, intellectual property rights and much more. Students will work on a case study



and at the end of the course, will have to draft a Code of Conduct on a given issue.

The ECSL Summer Course is a unique occasion for students around Europe to study space-related topics with acclaimed teachers, to meet highly qualified professionals from the industry sector and international organisations and to acquire analytical and practical skills important for their future careers.

For further information,
contact the ECSL
Secretariat:
Alberto.Marchini@esa.int
Tel.:0033 01 53 69 76 05
Fax: 0033 01 53 69 0

Solar car on European tour!

Nuna exhibited in European secondary schools and museums from November 2002 to January 2003



The Nuna car during the race in Australia

The Dutch solar car Nuna finished first in the World Solar Challenge 2001, a 3010 km race right across Australia for cars powered by solar energy. On 21 November 2001, when crossing the finish line with Nuna, the eight students of the Alpha Centauri team did not only reach the objective of winning the race but also broke a time record.

An important factor in the outstanding performance of Nuna is the space technology used to build it. It included the finest solar cells currently available. In addition Nuna's aerodynamically optimised outer shell was built from space-age plastics to keep it light and strong and the main body made from carbon fibre, reinforced with kevlar, a material previously used only in satellites.

To give youngsters the opportunity to see the spectacular Nuna and to discover the space technology aboard, ESA organises a

tour of the solar car to European secondary schools and museums from November 2002 to January 2003. The high number of requests from teachers clearly indicates that the initiative is enthusiastically welcomed and regarded as a great possibility to show the benefits of science and technology in general and space in particular with the help of a real example. It is also considered an ideal occasion to learn more about solar energy and to address issues of renewable energies.

The Nuna car and members of the Alpha Centauri team will visit approximately 30 schools and 5 museums in 13 different ESA Member States. The adventure will start early November 2002 in the north of the Netherlands and move on to other northern European countries. After having crossed the Channel in December 2002, it will tour the south of Europe in January 2003.

For more information on the tour please send an e-mail to corinne.flandy@esa.int

For more details on solar car Nuna please consult:
<http://www.alpha-centauri.nl/index.e.php3>

The International Space Station Education Kit

ESA's directorate of Manned Spaceflight and Microgravity is developing educational material about the International Space Station (ISS). The first ISS pilot education kit, aimed at pupils from 12 to 15, will be ready by the end of October 2002 and is part of the directorates' educational programme for primary and secondary education: the ISS Education Initiative.

The ISS pilot kit consists of text and explanations about the International Space Station with related interdisciplinary exercises. A teachers' guide, glossary, references as well as supporting material will also be provided. Initially it will only be published in English.

The ISS pilot kit is based on input from teachers, including feedback to the TEACH SPACE 2001 conference. From this, ESA concluded that the content of the kit has to be:

- simple, practical and modular,
- of high quality and developed together with teachers,
- based on existing European curricula,
- presenting relevant topics to which the pupils can relate,
- interdisciplinary.

The educational material in the ISS pilot kit is divided into five chapters:

- What is the ISS?
- Building the ISS
- Living on board the ISS
- Working on board the ISS
- Future voyages

Each chapter will include a general introduction to the topic, followed by exercise units. The units contain experiments and practical tasks that challenge the students' creativity, stimulate their curiosity and encourage them to discuss the topics presented. Follow-up units will be produced over the coming years, offering a more in-depth approach to the existing topics.

The different topics highlight the important contribution being made by space technology to society. The aims are to use space to introduce several topics into the



classroom in an understandable and fascinating way and to increase the pupils' general knowledge, awareness and interest in a future in space research and technology.

The ISS pilot kit introduces space as a motivating and interesting tool for teachers of all subjects. Different topics and pedagogical methods make the kit relevant to existing curricula and teaching practices in Europe. This pilot kit will be followed up by an extensive evaluation after which the final ISS kit will be produced and translated into several languages.

At the end of October, 1000 English ISS pilot kits will be available. If you are interested in receiving a kit and are prepared to give your feedback on its content please contact: Solveig.Pettersen@esa.int

For further information about the ISS Education Initiative and other ISS programmes please visit <http://www.esa.int/spaceflight>

An educational Odissea to the ISS

Marie Claud Limburg
Stephanie Fratta
Tim Somers
Belgian User Support and
Operation Centre
OSTC/BIRA-IASB

Belgian ESA-astronaut Frank De Winne, member of the European Space Agency's Astronaut Corps, will fly on a Soyuz spacecraft to the International Space Station on 28 October. His mission, Odissea, involves important scientific research, but as Frank De Winne is the first Belgian astronaut to set foot on the Station, several educational activities are also planned while he is up there.

Amateur Radio Contacts

The working group Amateur Radio on board the International Space Station (ARISS) will organise amateur radio contact between Frank De Winne on board the ISS and students of the Belgian Air Force School (Saffraenberg) in Sint-Truiden, De Winne's hometown. Another planned event is an amateur radio contact between the astronaut and the winners of a Belgian contest for schools. The two French-speaking and two Dutch-speaking classes win a 5-day training in the Euro Space Centre of Redu. The contest is organised by the European Space Foundation.

Physical phenomena on board

This educational experiment aims at collecting video footage of demonstrations of simple physical phenomena for educational purposes. Frank De Winne will show a number of physical effects linked to microgravity. The video will afterwards be shown in Belgian and European Schools, and in several exhibition venues in Belgium.

Altogether Frank will demonstrate five different physical phenomena for about 5 minutes each, filmed by a second crewmember.

- "Air bubbles in water":

What happens if you mix air and water in a transparent bag in microgravity? Frank will fill a transparent bag half with water and half with air. The goal is to illustrate the dynamics of air bubbles in a liquid under microgravity conditions.

- "Trajectories of solid items":

How do things behave in microgravity? Frank will throw little things like mascots



The Odissea mission logo



ESA astronaut Frank De Winne in the Soyuz simulator during training at Star City in Russia.

and balls in different directions with different forces and see what happens. The goal is to illustrate how things do not fall but float freely in microgravity.

- *"Free-floating water droplets":*

This is an experiment of the dynamics of water drops. The astronauts will play tennis with water!

- *"Water drops on solid surfaces":*

The experiment shows how water behaves on a solid surface, like drops of water on a book surface cover.

- *"Light paper glider":*

Frank will show how a paper glider behaves under microgravity conditions.

Round Tables

The Belgian User and Support an Operation Centre (B.USOC) and the Euro

Space Center organise an event called "round tables" in which all the Belgian scientists involved in the Odissea-mission get the opportunity to explain their experiments and their research on national radio. The written press will be asked to participate actively as well. The conversations will be divided in three groups: Life Sciences, Physical Sciences and educational activities. Planned date: first week of October.

Educational Film and Interactive CD-ROM

The Belgian User and Support an Operation Centre (B.USOC) is working on an educational film and an interactive CD-ROM about the Belgian scientists involved in the mission of Frank De Winne. This educational material will be used in Belgium at exhibitions and educational events all over the country.

Students on a trip to Kourou



For the third year in a row, a group of students and young graduates in space-related disciplines made a trip to Europe's Spaceport: the Guiana Space Centre (CSG) in Kourou, French Guiana. 25 participants from 12 different countries followed a comprehensive series of briefings and visits at the CSG, and met with senior management as well as with young professionals currently working there.

The 5-day visit from 21 to 25 May was organised by the International Space University and the main partners at the CSG: ESA, CNES and Arianespace. Some of the industrial companies present on site also offered support and sent young employees from their European centres to join the visit: MAN Technologie, ASTRIUM Space (both Germany) and EADS Launch Vehicles (France). The main objective of organisers and sponsors is to offer to the

young visitors an insight into the operational activities at the Centre and to motivate them to pursue careers in the space sector, possibly even in Kourou.

Because no launch was scheduled for the week of the visit, the group had access to almost all facilities: the Jupiter mission control centre, the Ariane 4 and Ariane 5 launch complexes (ELA2 and ELA3), the new spacecraft preparation complex (EPCU-S5) and the Ariane 5 solid propellant booster manufacturing and assembly facilities. The guided tours were given by senior engineers from the companies involved in running the facilities: Arianespace, Astrium Space, CNES, EADS L/V, ESA, Europropulsion, MAN Technologie, Regulus, etc.

A special evening was organised with talks on the working and living conditions in French Guiana, on the history of space activities as well as future programmes at the CSG. The young participants had the chance to have informal discussions on career opportunities with some of the human resources and other senior management of the CSG partners.

The programme also included a canoe excursion through the dense, humid and incredibly rich rainforest, and a visit to Devil's islands, famous for its history during the years as penal colony.

To be eligible to sponsorship, applicants had to demonstrate their interest or experience in the space sector. Once selected, they were offered financial help covering approximately two-thirds of the actual cost of the trip, and were asked to write an article or make a presentation about the trip once back at home. The 2004 visit is planned for January February. More information will be posted on www.isunet.edu and on www.esa.int/education



The ESA Education Office

Education is one of the mandatory activities of the Agency, and the Education Office tries to reach out to students, teachers and the general public in all of Europe.

Wubbo J. Ockels is the head of the Education Office

Isabelle Duvaux-Bechon is responsible for primary and secondary school education, the ESA internal co-ordination and the new ESA Education Web site development;

Piero Messina deals with universities and other higher education institutions as well as education-related organisations (e.g. Eurisy);

Corinne Flandy keeps a professional eye on our budgets, commitments, contractual arrangements etc.

Llierni Arana looks after the SSETI virtual community;

Micaela Bracciaferri contributes to the organisation and implementation of the different initiatives and projects towards European Universities and students,

Samuel Buisan Sanz will be feeding the ESA Education Web Portal with news, information and other contributions to make it always interesting and up to date,

Dorothea Czernik will be preparing the next ESA/IAF Student Outreach Programme that will take European students to Bremen in 2003,

Neil Melville looks after and maintains the Education Office project related web site and gives IT support to the other staff in ESTEC,

Caroline Pujol organises the IAF Outreach Programme that will take some 200 European students to Houston for the World Space Congress in October this year,

Inaki Rodriguez Rebollo maintains contacts with European Students Organisations and organizes the Foton flight opportunity for students,

José Sanchez Troncoso is the expert in IT, web and database,

Nicole Sentse is in charge of the Student Parabolic Flights Campaign that will take place in Bordeaux next July;

Helen Wilson co-ordinates Physics on Stage. She is also involved with the educational activities of EIROForum.

What is ESA?

The European Space Agency is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the people of Europe.

ESA has 15 Member States: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Canada has special status and participates in some projects under a cooperation agreement. By coordinating the financial and intellectual resources of its members, ESA can undertake programmes and activities far beyond the scope of any single European country. ESA is an entirely independent organisation, although it maintains close ties with the European Union with whom it shares a joint space strategy.

ESA's job is to draw up the European space plan and carry it through. The Agency's projects are designed to find out more about the Earth, its immediate space environment, the Solar System and the Universe, as well as to develop satellite-based technologies and promote European industries. ESA also works closely with space organisations outside Europe to share the benefits of space with the whole of mankind.

ESA has its headquarters in Paris and it is here that future projects are decided upon. However, ESA also has centres throughout Europe, each of which has different responsibilities:

- ESTEC, the European Space Research and Technology Centre, is the design hub for most ESA spacecraft and is situated in Noordwijk, the Netherlands.
- ESOC, the European Space Operations Centre, is responsible for controlling ESA satellites in orbit, and is in Darmstadt, Germany.
- EAC, the European Astronaut Centre, trains astronauts for future missions and is situated in Cologne, Germany.
- ESRIN, the European Space Research Institute, is situated in Frascati, near Rome in Italy. Its responsibilities include collecting, storing and distributing satellite data to ESA's partners and acting as the Agency's information technology centre.

In addition, ESA has liaison offices in the United States, Russia and Belgium, a launch base in French Guiana, and ground and tracking stations in various parts of the world.

ESA's mandatory activities (Science Programme and the general budget) are funded by a financial contribution from all the Agency's Member States, calculated in accordance with each country's gross national product. In addition, ESA conducts a number of optional programmes. Each country decides in which optional programme it wishes to participate and the amount of its contribution.

What's coming up:

The ESA Education Office is supporting the **World Space Week** that will take place from 4 to 10 October 2002. More information at <http://www.spaceweek.org/> and <http://www.esa.int/education/Worldspaceweek>

ESA is inviting European students to the **World Space Congress** in Houston, Texas, USA from 10 to 19 October 2002. For more information and application please visit <http://www.estec.esa.nl/outreach/iaf>

Events associated with the **World Space Congress**:

The **Space Generation Summit (SGS)** will gather young international delegates to refine a youth vision on space activities from 11 to 13 October 11-13. More information at <http://www.unsgac.org/sgs/>

Leaders, specialists and young professionals will meet from 12 to 13 October for an interactive workshop on "**Space Education and Workforce Development**". Please check http://www.aiaa.org/wsc2002/special_other.cfm

EUROAVIA organises a "**Mission to Mars Symposium**" from 4 to 7 November in Leuven, Belgium. Details at: <http://people.mech.kuleuven.ac.be/~euroavia/index.html>

On November 1-2 ESA invites geography teachers to familiarise themselves with EDU-SPACE at the **1st EDUSPACE Teachers Workshop**. Contact education@esa.int for further information.

If you would like to sign up for or inform us about a specific event please send an e-mail to education@esa.int



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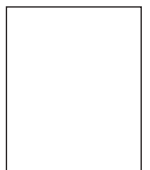
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