In Brief

ESA Council Meeting at Ministerial Level Charts Europe's Future Direction in Space

On 5 and 6 December in Berlin, the objectives and priorities for Europe in space for the coming years were discussed at a Meeting of the ESA Council at Ministerial Level, chaired by Minister Brinkhorst of The Netherlands.

The Ministers in charge of space activities in the Agency's 17 Member States and Canada met to deliberate on a plan for discovery and competitiveness for Europe in space, and to decide on the relevant future programmes. They came together to take decisions that will provide Europe and its citizens with a competitive space sector able to lead the search for new discoveries, guarantee access to strategic data and new services, and consolidate Europe's share of the worldwide commercial market.

With that aim firmly in mind, during their two-day meeting they endorsed the continuation of a set of ongoing programmes and agreed to undertake major new initiatives designed to give Europe a clear vision and tangible means to strengthen its space exploration and exploitation activities.

The Ministers appreciated the efforts already made to heighten European citizens' awareness of space activities and their benefits, thanks in particular to the success of recent ESA scientific missions such as Huygens and Mars Express. These missions, together with a series of successful Ariane-5 launches, have confirmed once again that by combining its skills and efforts Europe is able to succeed in the most challenging of enterprises and achieve a level of excellence for discovery and innovation in the global arena.

The Ministers also noted the increase in the scale and quality of the Agency's relations with its international partners. They recognised that the global scenario in the space sector is evolving rapidly, in particular with increasing numbers of players

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mastering major space technologies and offering competitive conditions for civil and dual-use applications.

The Ministers reaffirmed the strategic importance of Europe continuously improving its scientific, technological and industrial capabilities in the space field, to enable it to better respond to the expectations of its citizens concerning the environment, quality of life and security. They noted that European industry has encountered considerable difficulties in recent years, resulting from a significant downturn in the commercial market, as well as competition from industries operating on the basis of lower production costs. They also took note of the measures taken by industry to improve its position, through difficult reorganisational and consolidation processes, which have led to a reduction in the volume and distribution of European capabilities.

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A major political step was achieved with the approval of an overall European launcher policy ensuring coherence between the launcher and satellite fields.

The Ministers recognised that it is crucial to continuously foster European cooperation on space activities by further developing an overall European Space Policy encompassing ESA, the European Union, plus national and industrial programmes, and to allocate the available resources and capabilities to common European initiatives, so as to achieve the critical mass needed to face the worldwide competition.

Decisions Taken on Programmes and Activities

On the programmatic side, the Ministers took decisions concerning the Agency's mandatory activities (scientific and basic) and optional programmes (Earth observation, telecommunications, satellite navigation, human spaceflight, microgravity, exploration, launchers). Those decisions confirm the ESA countries' commitment to boosting progress in space science and to being at the leading edge of discovery, thus supporting the development of competitive services and future applications for the people of Europe.

The specific decisions taken concern:

– The Agency's Mandatory Activities: the Level of Resources for 2006-2010 (Scientific Programme and basic activities)

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....a successful conclusion

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....and the closing Press Conference

A detailed report on the Berlin Ministerial Meeting, and the six Resolutions that were passed, will appear in ESA Bulletin No. 125

– Continuation of Ongoing Programmes, with subscriptions for:
  - the Earth Observation Envelope Programme
  - the International Space Station Exploitation Programme Period-2 and the European ELIPS Programme Period-2
  - launcher evolution
  - Advanced Research in Telecommunications Systems (ARTES), focusing on technologies, applications and mission demonstrations.

– New Programmes, with subscriptions for:
  - the Global Monitoring for Environment and Security (GMES) space component, which is a key European contribution to the Global Earth Observation System of Systems (GEOSS) initiative
  - the European Space Exploration Programme 'Aurora', comprising its first Exploration mission ExoMars and a Core Programme to prepare for future exploration missions
  - the preparation of future launchers
  - the General Support Technology Programme (GSTP), for the preparation of new dedicated technology programmes, focusing on the development of technologies with a view to non-dependence and security, and aimed at preparing and demonstrating new concepts such as formation-flying satellites in order to carry out missions of strategic and economic value to space science, Earth observation and new – in particular security-related – areas.

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Third Space Council Focuses on Environment and Security

The third meeting of the Space Council – a joint and meeting of the ESA Council at Ministerial Level and the European Union Competitiveness Council (Internal Market/ Industry/ Research) – took place in Brussels on 28 November. The Space Council was established to coordinate and facilitate cooperative activities between the European Community and ESA through their Framework Agreement, which was adopted in 2003 and entered into force in May 2004. The first meeting of the Space Council took place in Brussels on 25 November 2004, the second in Luxembourg on 7 June 2005.

At this third meeting, chaired jointly by Lord Sainsbury of Turville, UK Minister for Science and current Chair of the EU Competitiveness Council, and German Secretary of State Georg Wilhelm Adamowitsch, representing the German Minister for Economy and Technology Michael Glos, then Chair of the ESA Council at Ministerial Level, the Ministers stressed the strategic importance of the initiative for Global Monitoring for Environment and Security (GMES).

GMES is an EU-led initiative, the space component of which will be developed by ESA. The objective is to provide Europe with timely and reliable information on environmental and security issues on a sustainable basis, in support of public policy-makers' needs. Its implementation will see the early deployment of three fast-track services for emergency response, land monitoring, and marine services, which are due to enter into operation by 2008. Other services will follow based on a deployment plan covering the years 2009-2013.

At their Brussels meeting, the Ministers emphasised the importance of maintaining an autonomous European Earth-observation capacity to support political decision-making, and the significance of the international dimension of GMES and its status as the main European contribution to the worldwide Global Earth Observation System of Systems (GEOSS).

To ensure the continuity of data needed to establish the GMES operational services and to avoid duplication, the Ministers requested that the best use be made of existing and planned satellite and in-situ systems at European and national level. To this end, they invited national Agencies and European organisations (such as Eumetsat), which already have or are in the process of building up assets and capacities that could be valuable for GMES, to make those capacities available for the initiative under appropriate conditions.

After the meeting, Lord Sainsbury remarked that:
"Environmental monitoring is more important than ever before. GMES has the potential to bring together existing and new technology - helping us to better understand and protect our planet. Today, Europe's space Ministers took a significant step towards achieving this."

The German State Secretary, Georg Wilhelm Adamowitsch, said:
"With the Global Monitoring for Environment and Security Initiative (GMES), the second EU flagship programme, after the satellite navigation system Galileo, Europe is building up a strategic global monitoring capacity. This will allow Europe to decide, on the basis of independent information, on issues such as the environment, sustainable development, natural resources and the security of its citizens. Germany will contribute to GMES not only via the EU and ESA, but also through national satellite missions and data-processing structures."

European Commission Vice-President Günter Verheugen, in charge of enterprise, industry, competitiveness and space matters, added:
"I am very happy that at this meeting of the Space Council the directions the Commission proposed for the global monitoring system GMES were endorsed. GMES is the result of excellent cooperation between the Commission and ESA. This demonstrates our capacity to build an effective European Space Policy".

ESA's Member States were due to subscribe to the Agency's contribution to the programme covering the development of the GMES space component at the ESA Council Meeting at Ministerial Level in Berlin on 5/6 December (see page 82 for latest news), while the Commission intends to allocate a major portion of its Seventh Framework Programme funding earmarked for space to GMES.

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Hunting dark matter in the Alps

Fifty-one students from ESA's Member States attended the 29th annual Alpbach Summer School on the theme "Dark Energy and Dark Matter", held from 19 to 28 July.

Scientists think that dark matter and energy represent about 95% of our Universe. Confronted with this astonishing figure, research laboratories and space agencies are busy studying the means to make progress in this field.

The 2005 Alpbach Summer School was devoted to this topic. Lectures provided students with the scientific results and theories, the science goals of planned missions and other technical details. Workshops were organised with teams working to identify a specific astrophysical problem linked with dark matter and energy and develop technical concepts to address it. In this way, participants could find practical applications for the knowledge gained from the lectures and develop organisational and team skills as well as creativity. They had to learn to work as a group, to use the best capabilities of each member, and to propose an exciting mission, in order to learn more about the "dark" side of the Universe.

Participants were divided into four teams. By the end of the workshop, the teams had addressed the instrumentation, showing that it could meet the scientific requirements, but also the spacecraft's construction, its subsystems, its orbit and its launch, together with a cost estimate. The results of these mission studies were presented to an expert review panel during the final day.

Teamwork is an integral part of the workshop

The four missions defined and developed by the students concentrated on:

- B-mode polarisation measurement of the cosmic microwave background and the Sunyaev Zeldovich Effect as a probe of matter distribution via clusters of galaxies.
- IR-optical observations of weak lensing and cosmic shear and the mass function of galaxy clusters using X-rays and IR-optical data.
- High-precision measurements of the w parameter using large X-ray, optical and IR telescopes.
- High-redshift gamma-ray-burst afterglows as a probe of the Lyman-α forest and hence the matter distribution over redshift.

An international jury chaired by Catherine Turon, Professor at the Observatoire Paris-Meudon and Chair of ESA's Astronomy Working Group, assessed the work of the teams.

The Alpbach Summer School is organised by the Austrian Aeronautics and Space Agency in cooperation with ESA and the national space authorities of its Member States, with the support of the International Space Science Institute (ISSI). esa

Participants of the 29th Alpbach Summer School

By 'GIOVE'

Dutch Minister Karla Peijs and the freshly christened GIOVE satellite

The first two Galileo satellites are going to be called GIOVE - standing for 'Galileo In-Orbit Validation Element'. The satellites are currently being prepared to take the first step of the In-Orbit Validation phase, leading to the full deployment of Galileo, the European satellite navigation system. The name GIOVE was announced by Karla Peijs, the Dutch Minister of Transport, Public Works and Water Management, on Wednesday 9 November, at ESA's ESTEC centre in Noordwijk (The Netherlands).

GIOVE A is currently undergoing final preparations in the ESTEC test facilities prior to being sent to the Baikonur cosmodrome in Kazakhstan, from where it will be launched by a Soyuz rocket at the end of December 2005. The second satellite, GIOVE B, is currently undergoing final integration testing in the Alenia Spazio facilities in Rome (Italy) and will be launched later in 2006, also from Baikonur.

Naming the satellites GIOVE pays fitting tribute to the achievements of Galileo Galilei (1564-1642) not only in the field of astronomy, but also navigation. On 7 January 1610, as one of the first to turn his telescope skywards, the famous scientist discovered the first four satellites of the planet Jupiter - "Giove" in Italian. These were later named Io, Europa, Ganymede and Callisto. Galileo realised that the formation of these four satellites, whose eclipses are frequent and visible, provided a clock whose face could be seen from every point on the Earth.

Tables describing the motion of the first four Jovian satellites to be discovered were used to determine longitude at sea and on land. Galileo's method of determining longitude by observing the eclipses of Jovian satellites heralded a revolution in navigation, geodesy and cartography in the 17th and 18th Centuries.

Almost 400 years on, another revolution in navigation is on its way, with the advent of Europe's Galileo positioning infrastructure. GIOVE satellites A and B mark the start of in-orbit validation of this new system. They will be followed by four other satellites, to be launched in 2008.

This first step in the Galileo programme, known as the Galileo System Test Bed (GSTB), involves the launch of two satellites for in-orbit testing of critical technologies such as atomic clocks and novel navigation signals specifically developed for the programme. It will also secure the frequencies allocated to Galileo by the International Telecommunications Union (ITU).

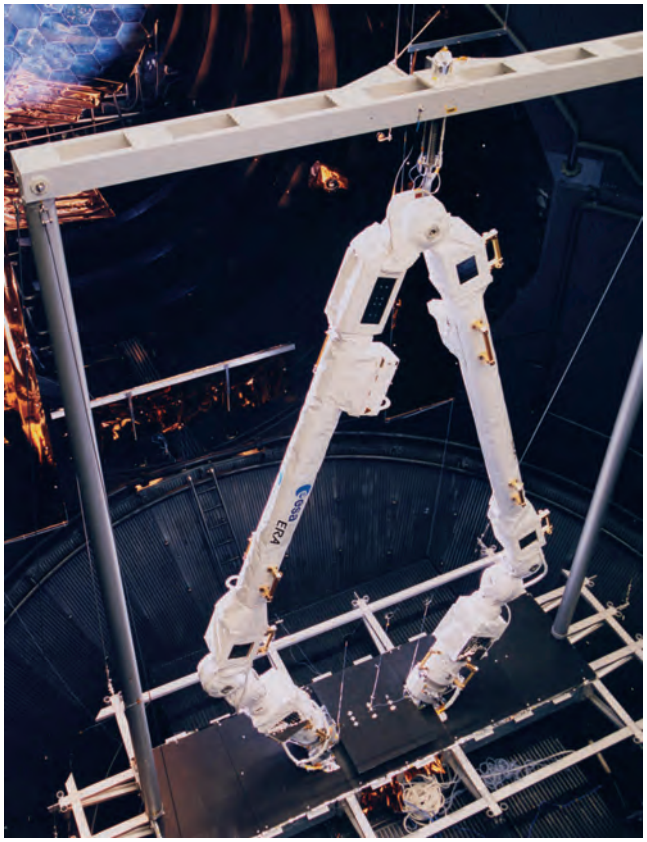
GIOVE A is being developed by Surrey Satellite Technology Ltd. (UK). It is designed to fulfil the following main objectives: secure frequency filings, validate key technologies such as rubidium clocks, characterise the orbital environment and deliver signal broadcasting using two transmission channels in parallel.

GIOVE B, which is designed to fulfil similar objectives, is being developed by Galileo Industries, a European consortium comprising Alcatel Space Industries (F), Alenia Spazio (I), Astrium GmbH (D), Astrium Ltd. (UK) and Galileo Sistemas y Servicios (E). This satellite also provides complementary features such as a passive hydrogen-maser clock and simultaneous three-channel transmission.

European Robotic Arm to be launched on Proton

On 27 October, ESA's Director of Human Spaceflight, Microgravity and Exploration, Mr Daniel Sacotte, signed a contract for the launch preparations and first operations of the European Robotic Arm (ERA) on the International Space Station (ISS). The contract, worth 20 million Euro, was signed with Dutch Space, the Industrial Prime Contractor leading an industrial consortium of European companies.

Mr Daniel Sacotte (left), ESA's Director of Human Spaceflight, Microgravity and Exploration, and Mr Ben Spee, Director of Dutch Space, sign the ERA contract



The European Robotic Arm in ESTEC's Large Space Simulator

Originally ERA was scheduled for launch on a Space Shuttle, together with the Russian Science and Power Platform, which was intended to become its home base for operations on the station. Last year Russia introduced the Multipurpose Laboratory Module (MLM) as a new module to be added to the ISS and proposed that ERA could also be installed, launched and operated on the MLM. Since the MLM is designed for launch on a Russian Proton rocket, ERA will no longer be carried into space on a US Space Shuttle, but aboard Proton. This requires some technical, operational and contractual re-arrangements between the parties involved.

Under the contract now signed, the consortium led by Dutch Space will requalify the ERA flight and ground segment for a launch on Proton, and will deliver the ERA hardware to Russia. The consortium will also implement ERA training for the Russian cosmonaut instructors and will support the training of the Russian cosmonauts in ERA operations. It will also support ground processing and launch preparations in Russia. This will take place at various locations: at the Khrunichev premises, where the Proton launcher is built; at Energia, which together with Khrunichev builds the Multipurpose Laboratory Module; at the Gagarin Cosmonaut Training Centre in Star City; and at the launch site in Baikonur.

Under the new contract, in-orbit validation of the robotic arm is the final activity to be performed by the consortium. This involves participation in, and analysis of, the first operation of ERA after launch when the arm's performance will be validated under real space and operational conditions.

The European Robotic Arm is over 11 metres long and weighs 630 kg. It is capable of moving payloads weighing up to 8000 kg and is able to position them with an accuracy of 5 mm. It will be launched from Baikonur to the ISS on a Russian Proton rocket in November 2007.

With its seven joints and an impressive concentration of tools and electronics, the arm can move hand-over-hand between fixed base points around the Russian ISS segments and will be used for a wide variety of tasks.

ERA can be used to install, remove and deploy solar arrays and radiators and, via the new Russian equipment airlock, can transfer small payloads from inside to outside the ISS and vice versa. This will reduce the time needed for extravehicular activities (EVAs) to the absolute minimum, and save the crew from having to perform preparatory tasks like carrying payloads out of or into the ISS. Another important task for ERA will be to transport astronauts from the airlock to the positions where they have to perform their work, which again saves time and effort. ERA is equipped with four cameras and lighting units, which provide for thorough inspection of the ISS.

The European Robotic Arm can be operated from inside the ISS. However, an astronaut outside the Station can also drive the arm while performing an EVA.

ERA will be operated in the harsh environment of space for at least 10 years. esa

CryoSat Mission lost due to launch failure

On 8 October Yuri Bakhvalov, First Deputy Director General of the Khrunichev Space Centre officially confirmed on behalf of the Russian State Commission that the launch of CryoSat ended in a failure due to an anomaly in the launch sequence.

Preliminary analysis of the telemetry data indicates that the first stage performed nominally. The second stage performed nominally until main engine cut-off was to occur. Due to a missing command from the onboard flight control system the main engine continued to operate until depletion of the remaining fuel. As a consequence, the separation of the second stage from the upper stage did not occur. Thus, the combined stack of the two stages and the CryoSat satellite fell into the sea in the nominal drop zone north of Greenland with no consequences for populated areas.

An investigating commission has been established by the Russian State authorities to further analyse the reasons for the failure, and the results are expected within the next weeks. This commission will work in close cooperation with a failure investigation board consisting of Eurockot, ESA and Khrunichev representatives.

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CryoSat never made it to space

PROBA going strong for four years

PROBA 1, ESA's Project for On-Board Autonomy and one of the most advanced small satellites ever flown in space, completed four successful years in orbit on 22 October 2005. All of its functions and equipment are performing nominally.

PROBA 1 has supported earth-observation campaigns with its main instruments CHRIS (Compact High Resolution Spectrometer) and the HRC (High Resolution Camera). Data on radiation and in-orbit debris environments are also routinely provided by its SREM and DEBIE instruments. A further extension of 1 year for the operations of PROBA 1 from the ESA Operations Centre in Redu (B) is envisaged.

PROBA performs autonomous guidance, navigation, control, onboard scheduling and payload resources. Management measuring just 60x60x80 cm^3 and weighing only 94 kg, PROBA aims to use and demonstrate a variety of automatic functions, both onboard the spacecraft and in the mission's ground segment.

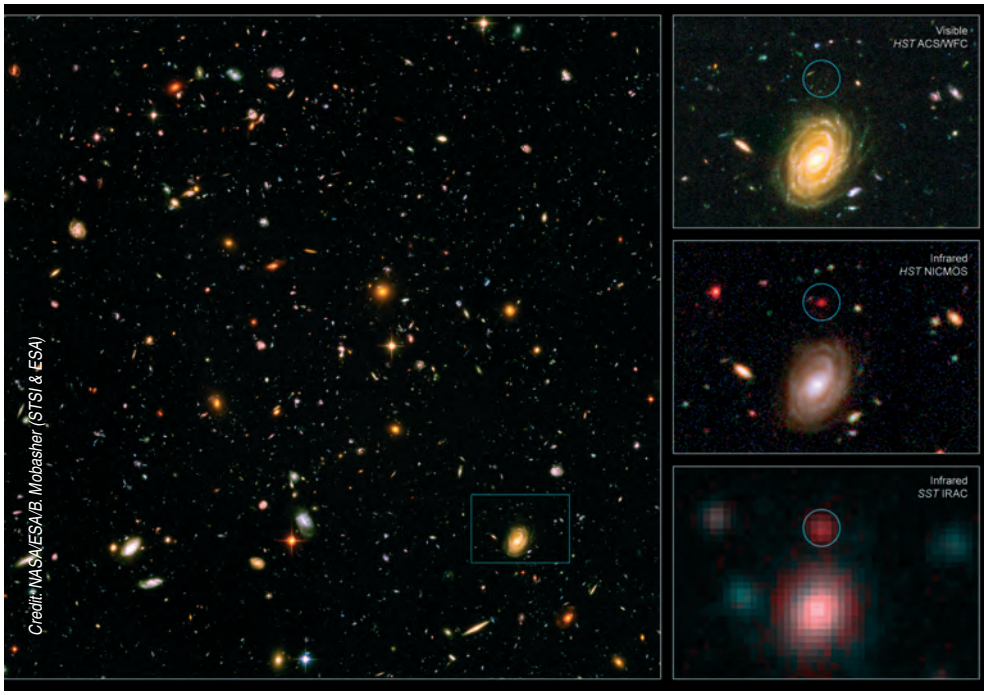
Two other ESA missions celebrated their anniversaries in October: the scientific solar observatory SOHO looks back on 10 highly successful years and the Ulysses mission celebrated its 15th anniversary in space. esa

Recent CHRIS image of Liverpool in the UK

'Big baby' galaxy found in newborn Universe

The NASA/ESA Hubble Space Telescope and NASA's Spitzer Space Telescope have teamed up to 'weigh' the stars in distant galaxies. One of these galaxies is not only one of the most distant ever seen, but it appears to be unusually massive and mature for its place in the young Universe.

This has surprised astronomers because the earliest galaxies in the Universe are commonly thought to have been much smaller agglomerations of stars that gradually merged together later to build the large majestic galaxies like our Milky Way. *"This galaxy appears to have 'bulked up' amazingly quickly, within a few hundred million years after the Big Bang,"* said Bahram Mobasher of the European Space Agency and the Space Telescope Science Institute, a member of the team that discovered the galaxy. *"It made about eight times more mass in terms of stars than are found in our own Milky Way today, and then, just as suddenly, it stopped forming new stars. It appears to have grown old prematurely."*



The NASA/ESA Hubble Ultra-Deep Field image with the 'big baby' galaxy HUDF-JD2 at lower right. The three insets on the right show the galaxy, marked with a circle, at different wavelengths from Hubble and Spitzer observations

The galaxy, HUDF-JD2, was pinpointed among approximately 10 000 others in a small patch of sky called the Hubble Ultra-Deep Field (HUDF). Thanks to the Hubble Space Telescope, this area is captured in the deepest images of the Universe ever made by mankind at optical and near-infrared wavelengths.

The galaxy was detected using Hubble's Near-Infrared Camera and Multi-Object Spectrometer (NICMOS), but at near-infrared wavelengths it is very faint and red. It is also within the deepest survey from the Spitzer Space Telescope, the Great Observatories Origins Deep Survey (or GOODS). The galaxy is believed to be about as far away as the most distant galaxies and quasars now known. The light reaching us today began its journey when the Universe was only about 800 million years old.

Scientists studying the HUDF found this galaxy in Hubble's infrared images and expected it to be a very young 'baby' galaxy, similar to others known at comparable distances. Instead, they found a 'teenager', much bigger than other galaxies known from this early cosmic era, and already very mature.

Hubble's Advanced Camera for Surveys (ACS) does not see the galaxy at all, despite the fact that the HUDF is the deepest image ever taken in optical light. This indicates that the galaxy's blue light has been absorbed by travelling for millions of light-years through intervening hydrogen gas. However, the big surprise was how much brighter the galaxy is in images from Spitzer's Infrared Array Camera (IRAC), which easily detects it at wavelengths as much as 15 times longer than those seen by Hubble.

Spitzer's IRAC is sensitive to the light from older, redder stars, which should make up most of the mass in a galaxy, and the brightness of the galaxy suggests that it is very massive indeed. Previous observations have revealed evidence for mature stars in more ordinary, less massive galaxies at similar distances. Other joint Spitzer and Hubble analyses identify more galaxies nearly as massive as the Milky Way, seen when the Universe was less than one thousand million years old.

The new observations by Mobasher and his colleagues dramatically extend this notion of surprisingly mature 'baby galaxies' to an object which is perhaps ten times more massive, and seems to have formed its stars even earlier in the history of the Universe. esa

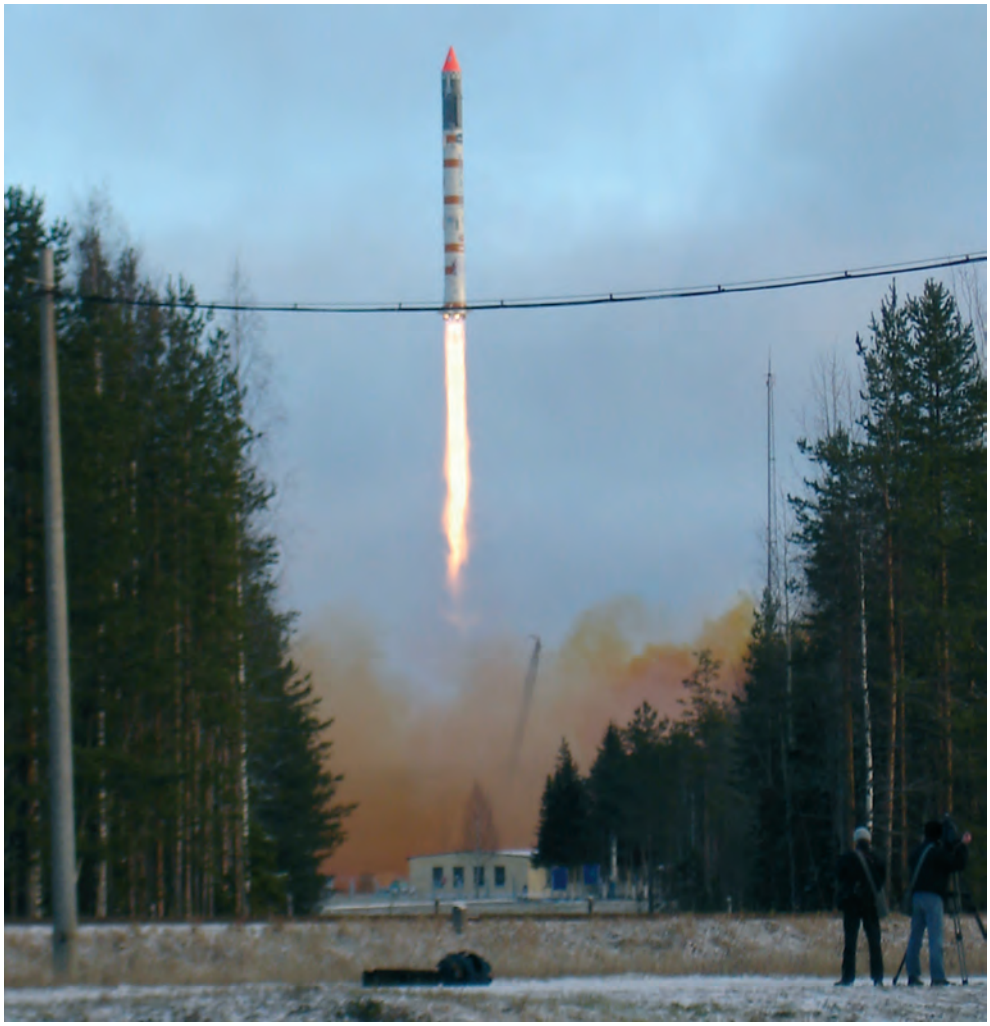
SSETI launched but lost

SSETI Express, a low-Earth-orbit spacecraft designed and built by European university students under the supervision of ESA's Education Department, was successfully launched on 27 October from the Plesetsk Cosmodrome on a Russian Kosmos 3M launcher and sent its first signals to the ground control centre at the University of Aalborg (DK). It successfully deployed two of its three cube sats before going into safe mode because of a failure in the electrical power system onboard the spacecraft that prevents the batteries from charging, resulting in shutdown of the satellite.

Currently, the student teams continue to investigate the situation and assess the chances of recovery.

"Even if we don't recover contact with SSETI Express, it was still a very worthwhile mission for everyone. We will take many lessons learned on to our next educational satellite project, SSETI ESEO", said Roger Elaerts, Head of ESA's Education Department.

SSETI Express (SSETI being the acronym for Student Space Exploration and Technology Initiative) is a small spacecraft, similar in size and shape to a washing machine, weighing about 62 kg and with a 24 kg payload. Onboard the student-built spacecraft were three pico-satellites. In addition to acting as a test bed for many designs, including a cold-gas attitude-control system, SSETI Express was also designed to take pictures of the Earth and to function as a radio transponder.



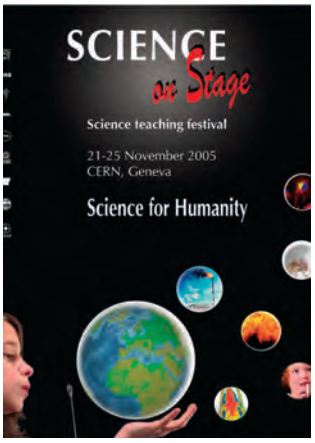
The first European student satellite blasting off into low-Earth orbit from Plesetsk

More than a hundred students from 14 countries and 23 universities worked together via the Internet to jointly design, build and test the satellite. The Student Space Exploration and Technology Initiative, launched by ESA's Education Department in 2000 to get European students involved in real space missions, gives students practical hands-on experience and encourages them to take up careers in space technology and science.

"Naturally, the SSETI teams are disappointed that we lost contact, but the mission has still been a success from both an educational and a technical standpoint", said Project Manager Neil Melville. *"The main goal of the mission was to educate students by having them involved hands-on in all the different aspects of a space mission, and now we really have experienced everything".*

The CubeSats Xi-V and UWE-1 are alive and well; the status of NCube-2 has yet to be confirmed. Stable two-way communications between the ground station and SSETI Express was established and both the Aalborg University as well as many radio amateurs all over the world downloaded a significant amount of house-keeping data.

Science teachers take centre stage



Science on Stage shows are always hands-on.....

Would you know how to turn a bucket into a seismograph, how to make a model of a DNA double helix from cans and bottles – all to scale – or simulate a human eye with the help of a shampoo bottle? More than 500 science teachers from 29 countries across Europe left with hundreds of new ideas for their classroom after a week of experiments, shows and workshops at Science on

Stage at CERN, the European Organization for Nuclear Research in Geneva, Switzerland. They are probably trying them out in class at this very moment.

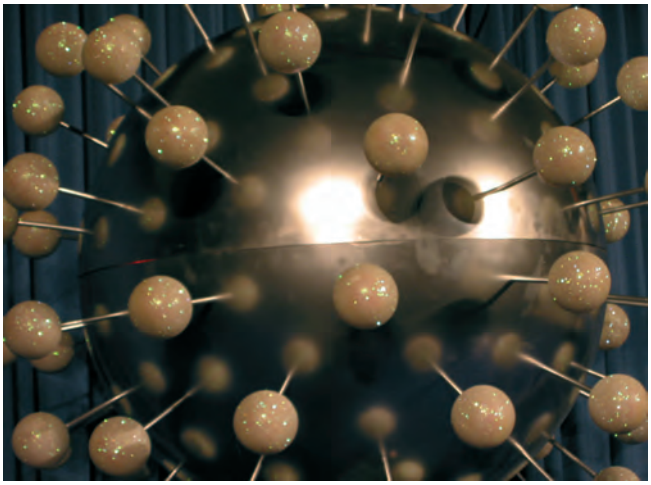
Science on Stage is the follow-up project to Physics on Stage, a science teaching festival organised by the seven research organisations of the EIROforum and supported by the European Commission. While the first three events concentrated on making physics teaching more attractive, the festival now also covers biology, chemistry and mathematics. Its formula hasn't changed however. The heart and soul of the 5-day festival is the "science teaching fair", a big marketplace where every country has a booth and teachers could spend all day showing their experiments and projects and getting inspired by their colleagues. They also meet in workshops to discuss trends in teaching science, learn more about current research topics or exchange ideas for school projects, and every day there are performances and presentations that approach science from a theatrical or artistic point of view.

British delegate David Featonby shows magic tricks based on physics.

"Stacks of maths", a Spanish maths show, proves that $(a+b)^2$ is indeed $a^2 + 2ab + b^2$

Two Austrian delegates demonstrate the physics of cooking

"This is wonderful," said Melanie Sondershaus, a teacher from Germany who came to Geneva to present her interdisciplinary project on Einstein. *"Five days are not enough to see everything!" "It's a great opportunity to meet other teachers and get inspired,"* agreed a Romanian colleague. For the first time, Science on Stage had themed days ranging from Space and Astronomy Day, Einstein Day and Life Sciences Day to Sustainability and Technology and Science Day. Many countries



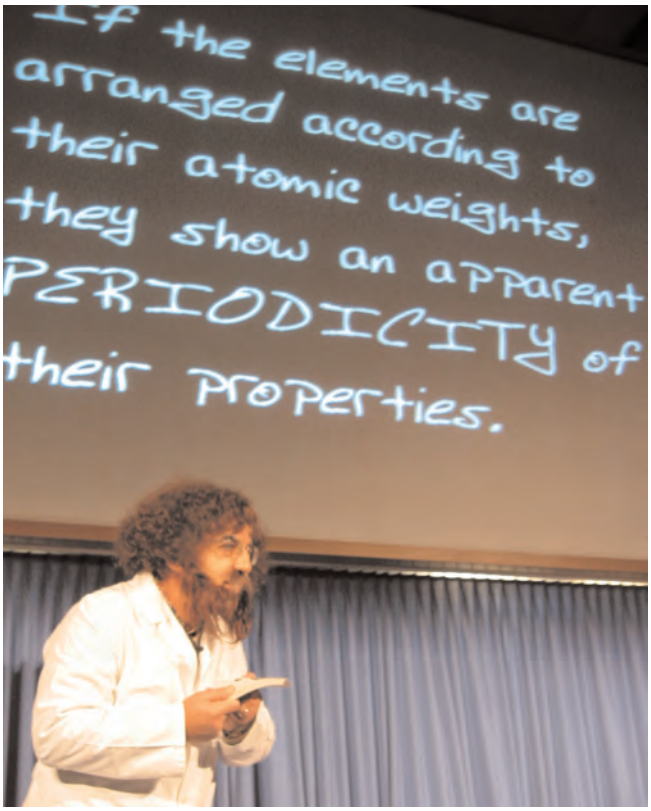
A model of a virus

A student on the Hungarian stand demonstrates their model of the nervous system

organised their booths accordingly, and at the end of each day science journalist Myc Riggulsford got the most inspiring projects up on a demonstration stage to wrap up the day's theme in an hour-long show.

An international jury selected the most inspiring projects for the European Science Teaching Awards: Seven teachers won visits to organisations or book vouchers, each donated by one of the seven EIROforum oganisations; the four winners of Euro prizes – money that will go into developing the project further and making it more widely known – went to Tobias Kirschbaum and Ulrich Janzen from Germany, who received 1000 Euros for his reconstruction of an ancient Chinese Seismograph, and to Jerzy Jarosz and Aneta Szczygielska from Poland, who got 2000 Euros to develop their model of the human cardio-vascular system. The project " Physics is cool!" - The Box of Experiments, presented by Wim Peeters from Belgium, won 3000 Euros. The overall winner with a prize of 4000 Euros was French teacher Catherine Garcia-Maisonnier with "Building a Weather Balloon at School".

The next Science on Stage will take place in Grenoble in April 2007. esa



The Italian performance "Elements: a Magic Chemical Show".

Nanna Kristensen from Denmark won a prize for her project "Jewellery is Chemistry".

Key ESA/EC agreement on Earth Observation data signed

An agreement on space-based information services and access to, and provision of, Earth Observation data was signed on 26 October by ESA and the Joint Research Centre of the European Commission. The signature took place at ESRIN, the ESA Earth Observation Centre in Frascati, Italy.

Volker Liebig, Director of ESA's Earth Observation Programme, signed the agreement on the 'Specific arrangement concerning the development of space-based information services and the access to and provision of Earth Observation data' on behalf of the ESA Director General, Jean-Jacques Dordain, while Freddy Dezeure, Director of Programme and Resource Management of the EC Joint Research Centre (JRC), signed on behalf of the Commission.

"This document defines the respective tasks and responsibilities of ESA and the JRC for a strong coordinated approach to the use of Earth Observation data in support of the information services of the EU. This will strengthen cooperation with the EU and secure the GMES (the joint EC-ESA initiative for Global Monitoring for Environment and Security) as a major information management and policy support tool for Europe," said Volker Liebig.

There are four fields in which ESA and the JRC undertake to work together in close cooperation:

- coordinating the use of Earth Observation satellite missions, in which they have a common interest
- developing services aimed at meeting the specific needs of end users (in particular in EU services)
- optimising access to support information for EC actions
- coordinating and providing technical support with regard to Earth Observation activities within the European initiative INSPIRE (INfrastructure for SPatial InfoRmation in the European Union), whose objective is to harmonise the methods employed by Member States to collect data on the geographical characteristics of their own territories.

This agreement gives JRC, a key partner in implementing the European GMES initiative, access to a wider and more continuous data set from a large variety of Earth Observation satellites. As a provider of technical support to the services of the EC, JRC is ideally placed to foster pre-operational and operational services, in support of the EU policies and services being developed through GMES. ESA is playing the role of lead agency in the development of space systems, particularly in support of the GMES initiative.

The document signed at ESRIN puts into effect many of the actions envisaged in the 'Framework Agreement between the European Union and the European Space Agency' in the field of Earth Observation.
This agreement, signed on 25 November 2003, laid the foundations for significant strengthening of the European space sector, by promoting the implementation of a global space policy to secure independent and cost-effective space capabilities for Europe, to be developed in line with EU policies on sustainable development, economic growth and employment. esa

Volker Liebig, Director of ESA's Earth Observation Programme and Freddy Dezeure, Director of Programme and Resource Management at the EC Joint Research Centre (JRC)