

## Ariane – Passes Two Hundred Launches



Arianespace's first mission of the year successfully launched the second ATV (Automated Transfer Vehicle), simultaneously marking the two hundredth launch with the Ariane launcher. Additionally, it was also the 56th Ariane 5 launch and the 42nd success in a row.

The first Ariane was launched in 1979. The launcher has constantly been improved since then and today's version Ariane 5 has an enormous capacity and reliability compared to the first versions. The launch site is Kourou in French Guiana, only five degrees from the equator, and therefore a very favourable place for launch to geostationary orbits.

Arianespace was founded in 1980 as the world's first satellite launching company in order to commercialise the services.

Today, it has 24 shareholders from 10 European countries included all European companies participating in the production of Ariane 5 launchers. Since its creation, Arianespace has signed contracts with 78 customers and launched 285 payloads, accounting for more than half of the commercial satellites now in service.

Norway and Sweden have both small shares in Arianespace, and industrial companies in the two countries are also suppliers to the launcher.

Read more: [www.arianespace.com](http://www.arianespace.com)

## Student Rockets from Esrange. Successful Launch of REXUS 9 and 10



The student rocket REXUS 9 was launched from Esrange Space Center in the northern part of Sweden, 22 February. The rocket, with its four experiments, reached an altitude of 80.6 km and landed after 11 minutes' flight 40 km north of Esrange. The payload was recovered and was back at the base for analysis within one hour.

The four experiments on board dealt with testing new technical systems developed and built by students from universities all over Europe.

The second student rocket in two days, REXUS 10, was successfully launched the day after. The rocket, which also had four experiments, reached an altitude of 82 km and landed after 14 minutes' flight 40 km north of Esrange. This payload is also back at the base and undergoing studies performed by the students.

"To be part of a space project already during the student phase is invaluable", says Gustav Casselbrant, one of the students from one of the experimental teams. "We have learned how a real space project is run from start to finish, and, in addition, we have established an international network of fellow students from all over Europe", Mr. Casselbrant concludes.

Read more:

About REXUS at the REXUS/BEXUS website: [www.rexusbexus.net](http://www.rexusbexus.net),  
Swedish Space Corporation and ESRANGE. [www.ssc.se](http://www.ssc.se)

## Optimize the Spacecraft Tests



The Proba 2 satellite.  
Photo: ESA

The Danish high-tech group Terma and the Engineering College of Aarhus (IHA) recently signed a contract with the European Space Agency (ESA) for optimizing the test period for new spacecrafts. Together, they plan to develop a new method which will speed up the process and lower the costs when launching satellite missions into space.

"Today, ESA spends more resources on the testing of spacecraft and software than on development. A considerable demand prevails to find methods and solutions which will make the development and test procedures more efficient," says Senior Analyst Poul Hougaard head of the project at Terma.

Humans control and make sure the equipment is safely checked and cleared for space purposes. In the future, ESA hopes to obtain a procedure which is systematized and protected from faults via advanced software.

In one year the team will deliver the first system which ESA can use to evaluate the new technology to test and approve space software.

According to ESA, it takes more than ten years from the decision to develop a spacecraft is made until it starts returning data from space. According to ESA, this is not acceptable, thus, ESA is constantly working on ways to reduce that time limit, in particular through the reuse of software and by making control procedures more efficient.

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## Promotes Satellite Services for the Baltic Sea



The Baltic region.  
Photo: ESA/Envisat/Meris

The Baltic Sea Action Group (BSAG) and the Finnish Funding Agency for Technology and Innovation (Tekes) have agreed to promote satellite services related to the environment, safety and transport in the Baltic Sea region. Tekes represents Finland in the European Space Agency (ESA).

The contract is linked to the Integrated Applications Promotion (IAP) program of ESA. The IAP program is dedicated to the development, implementation and pilot operations of integrated applications that will lead to sustainable services. The goal is to provide innovative added value to services by combining various space assets, such as telecommunications, earth observation, navigation, and human spaceflight technologies, integrated with existing terrestrial assets.

Read more: [www.bsag.fi](http://www.bsag.fi)

## Space Systems Finland Develops the Software Verification Facility of the Small-GEO Satellite



Small - GEO in orbit.  
Figure: ESA

SSF has been awarded a contract by ESA/ESTEC to develop a Software Verification Facility (SVF) for the Small-GEO satellite's on-board software. The SVF will allow automated testing of the flight SW in faster than real-time fashion, with realistic simulation of the environment and of the devices connected to the Central Data Management Unit. The ESA SGEO SVF will be used by the ESA project team for flight software functional verification and validation.

### Small GEO

The Small GEO system is a small geostationary telecommunications satellite being developed under ESA's ARTES 11 programme.

Small GEO is a satellite that, in partnership with Hispasat, will fly the Luxor Platform developed by OHB and its partners. In the developing consortium Swedish Space Corporation is one of the partners.

Read more at: <http://telecom.esa.int/telecom/www/area/index.cfm?fareaid=55>

### Space Systems Finland

Space Systems Finland is a software engineering company specialized in high reliability embedded software. Throughout our 20- year history, Space Systems Finland has worked with software that is subject to the strictest safety and reliability requirements.

Read more at: [www.ssf.fi/](http://www.ssf.fi/)

## Space Camp Andøya 2011

If you are a student in the secondary school, have chosen natural science and you are very interested in the field of space research, you can be a rocket researcher at the European Space Camp at Andøya, Norway for a week.

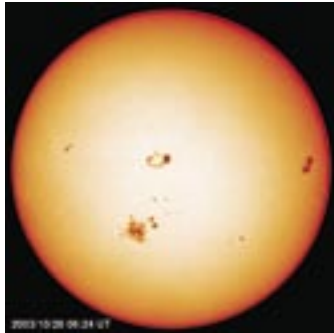
This year the Space Camp will be arranged from 26 June to 4 July. The deadline for applying is 1 April 2011.

European Space Camp is a week where pupils within natural science and with an interest for space research build their own measuring instruments and their own sounding rocket. During this week the pupils meet real space researchers and become familiar with other youths that have the same interests.

The arrangement gathers twenty four participants, mostly Norwegians, but the event is open for all.

You will find more information at the website [www.romsenter.no](http://www.romsenter.no), but remember – the deadline for applying is 1 April 2011.

## Celebrating 400 Years of Sunspot Observations



In March of 1611, a German medical student named Johannes Fabricius left school at Leiden in Holland carrying several of the new-fangled telescopes that were beginning to appear in the Netherlands. He was off to visit his father – the well-known astronomer and astrologer David Fabricius who had had a heralded career working with Europe’s celebrity astronomers, Tycho Brahe and Johannes Kepler.

In 1611, David Fabricius lived in Osteel, a town in the northwest part of Germany where, in addition to his celestial studies, he was a Protestant preacher. Once in Osteel, Johannes Fabricius hauled out his telescopes for his father, and on March 9 he began to observe the sun.

To their surprise, Johannes spotted black spots on the sun’s surface. Sunspots had been seen before: the Chinese had records of them, and indeed England’s Thomas Harriot saw them through telescopes in December of 1610. But having seen them 400 years ago this March, Johannes Fabricius was the first to publish a scientific treatise on the subject several months later.

Johannes Fabricius unfortunately died in 1616 at the young age of 29, so he barely saw even the early stages of sun research. However, four centuries after his sighting, the legacy of the sunspot mystery he discovered lives on.

Karen C. Fox. NASA’s Goddard Space Flight Center

Read the whole article at: [www.nasa.gov/centers/goddard/news/](http://www.nasa.gov/centers/goddard/news/)

## Telenor Expands the Satellite Fleet

The Telenor ASA Board has approved an investment in a new expansion satellite. The satellite will be named THOR 7 and is expected to be ready for launch towards the end of 2013 with a lifespan of 15-20 years. The satellite is intended to provide capacity for broadcasting requirements within Central and Eastern Europe and an additional capacity for maritime services.

THOR 7 will join the established THOR fleet at the orbital position of 1 degree West together with Thor 5 and 6, and will provide much-needed growth capacity for TV services, specifically in Central and Eastern Europe, where HDTV is rapidly becoming accepted and 3DTV is expected to play a key role in the future. The new satellite will also be equipped with additional capacity that allows Telenor Satellite Broadcasting (TSBc) to strengthen its maritime service proposition, providing data communication services in areas including the North Sea, the Baltic Sea and the Mediterranean. Telenor Satellite Broadcasting is now selecting a suitable satellite manufacturer and expects to award the contract before this summer. THOR 7 represents both an expansion path supporting customer’s requirements within these growth markets and a commitment to the satellite sector. Telenor’s new satellite will be equipped with both Ku- and Ka-band capacity for the provision of broadcasting services and data communications.

Over the years, Telenor Satellite Broadcasting (TSBc) has expanded its position beyond the Nordic region, establishing a leading broadcasting platform in Central and Eastern Europe and creating a strong data communications business, delivering satellite communication services to land-based and maritime customers throughout Europe, the Middle East and Africa.

Read more at: [www.telenorsbs.com/](http://www.telenorsbs.com/)