

## Who can participate?

The programme is targeted towards students of science, engineering and technology-related disciplines, who have a good idea for a rocket or balloon experiment.

Since the students themselves are responsible for designing, building and carrying out their experiment, they are advised to form an interdisciplinary team, which includes knowledge of mechanics, electronics and experimental methods, alongside scientific expertise. Technical guidance from a professor or an institute is recommended.

Details of the eligibility criteria for sponsorship are published with the annual call for proposals by ESA and DLR.

## Further information

Project website  
[www.rexusbexus.net](http://www.rexusbexus.net)

ESA Education Office point of contact  
[rexus-bexus@esa.int](mailto:rexus-bexus@esa.int)



## ESA Education projects

ESA's Education Office aims to provide university students with practical experience in real space projects and to enhance their motivation to work in the fields of space technology and science, thus helping to ensure the availability of a suitable and talented workforce in the future.

Other projects offered by ESA and its partners include: the ESEO and ESMO student-built microsatellites; launch opportunities for university CubeSats; the GENSO ground station network; the Fly Your Thesis! research campaigns on parabolic flights; and sponsorship for student participation in conferences.

Find out more about the application process for REXUS/BEXUS and other ESA Education projects:  
[www.esa.int/education](http://www.esa.int/education)



## → REXUS/BEXUS

Rocket and balloon experiments  
for university students

# Rocket and balloon experiments for university students

## The programme

The REXUS/BEXUS programme allows students from universities and higher education colleges across Europe to carry out scientific and technological experiments on research rockets and balloons. Each year, two rockets and two balloons are launched, carrying up to 20 experiments designed and built by student teams.

The application process for participation in the flights opens at the beginning of September each year, with the selection being finalised the following February. Preparation time for the experiments is around seven months for BEXUS and 12 months for REXUS.

Sponsorship is available for the student teams to attend reviews and launch campaigns. Financial support for the development of experiments is possible to a limited extent.

## The organisers

The REXUS/BEXUS programme is realised under a bilateral Agency Agreement between the German Aerospace Center (DLR) and the Swedish National Space Board (SNSB). The Swedish share of the payload has been made available to students from other European countries through collaboration with the European Space Agency (ESA).

EuroLaunch, a cooperation between the Esrange Space Center of the Swedish Space Corporation (SSC) and the Mobile Rocket Base (MORABA) of DLR, is responsible for the campaign management and operations of the launch vehicles. Experts from ESA, SSC and DLR provide technical support to the student teams throughout the project.

## Esrange Space Center

The REXUS rockets and BEXUS balloons are launched from the European launch site Esrange, which is situated near the town of Kiruna in Sweden, 200 kilometres north of the Arctic Circle. The students travel there to prepare their experiments for launch and operate them during the flight. After the landing, a helicopter brings the experiments back to Esrange for analysis. A typical launch campaign lasts for approximately ten days.



A REXUS sounding rocket on the launch pad

## REXUS

The REXUS vehicles are unguided, solid-propellant, single-stage rockets which reach an altitude of up to 100 kilometres.

Five experiments can be accommodated, with a total mass of 30 kilograms. REXUS offers experiment time of up to three minutes during the ballistic flight.

With the use of a yo-yo despin system, it is possible for experiments to experience around 90 seconds of reduced gravity. In this configuration, it is also possible to eject the nosecone of the rocket during the flight, thereby exposing the experiment beneath it to the upper atmosphere.

REXUS launches normally take place in March each year.

## BEXUS

A BEXUS stratospheric balloon can reach an altitude of up to 35 kilometres. The flight lasts for two to five hours, depending on the wind speed.

Experiments are carried beneath the balloon in a gondola, which can carry between 40 and 100 kilograms of payload.

BEXUS launches are generally scheduled in September or October each year.



A BEXUS balloon inflated and ready to fly

## The experience

Students experience the full lifecycle of a space project, from design and development, to building and testing, to data analysis and reporting. Throughout the project, they receive guidance from experts and document their progress.

The possibility to participate in a launch campaign with teams from across Europe is a unique and unforgettable opportunity. Many students choose to base their university projects or theses on their REXUS and BEXUS experiments.

Students are also encouraged to develop an outreach programme and present their experiment to the public, for instance on the internet or through their local press.

