

The Student Space Exploration and Technology Initiative



The Student Space Exploration and Technology Initiative (SSETI) was created by the ESA Education Department in 2000, in order to actively involve European students in real space missions. The aim is to give students practical experience 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 for the future.

The ultimate goal of the SSETI Programme is to become a support and facilitation network for all student spacecraft-related activity and education throughout Europe, focusing primarily on hands-on involvement of students in real space missions, including micro-, nano- and pico-satellites and various payload opportunities.

From work performed so far, it is clear that high levels of academic expertise in specific space-related fields exist throughout European universities. However, these units currently operate independently of each other. The SSETI Programme has the potential to combine these isolated centres of expertise, offering students access to a powerful network, capable of designing, constructing and operating intricate and interesting student spacecraft and payloads.

The aim of the SSETI Programme is realised through team-based student work on specific satellite projects, under the leadership of the ESA Education Department (which provides technical and managerial coordination) and with support from many ESA and industry experts. A dedicated website has been implemented together with specific Internet-based communication tools, all of which are extremely efficient in facilitating coherence and permanent contact among the student teams.

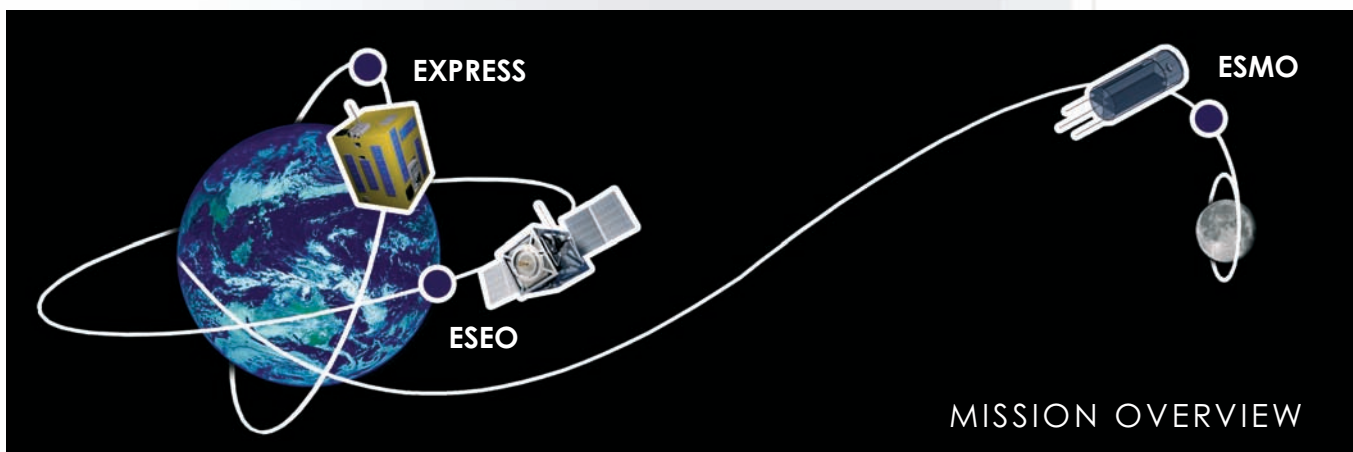
Since its creation, the SSETI Programme has developed a network of students, educational institutions and organisations to facilitate work on the various spacecraft projects. More than 400 European students have made an active, long-term contribution to these spacecraft, either as an official part of their degree or in their spare time. In addition, many hundreds more have been involved with or inspired by SSETI.

The continued interaction of SSETI alumni with the SSETI network will act for the mutual benefit of themselves, ESA, European industry and the SSETI Programme. The experience and knowledge gained by the students will ensure a rich and fruitful recruitment ground for ESA and the space sector in general.

THE PROJECTS

SSETI students are currently working on three main projects:

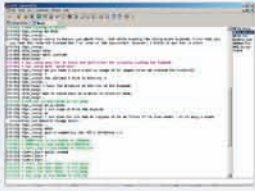
- **SSETI Express:** A low Earth orbit, 60kg spacecraft prepared for launch on 25th August 2005 by a COSMOS 3M launcher from Plesetsk, on the DMC-3 flight of Surrey Satellite Technology Limited.
- **SSETI ESEO:** The European Student Earth Orbiter, a 120kg spacecraft designed for Ariane 5. It is planned for launch into geostationary transfer orbit in 2008. By summer 2005, all teams were nearing phase C, critical design.
- **SSETI ESMO:** The European Student Moon Orbiter, planned for launch in 2010-2012. It will conduct experiments on its way to the moon as well as when lunar orbit is achieved. Some moon probes are also envisaged. In its initial phases, the project has been entirely led by students performing a feasibility study.



WORKING

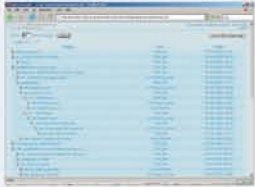
The Tools

Due to the distributed nature of the team, SSETI students have to find new ways to communicate, using modern techniques. Currently the following tools are used every day:



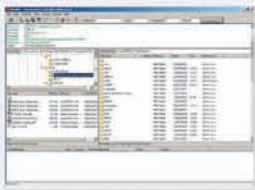
↳ IRC

An Internet Relay Chat (IRC) server is used for the team to keep in touch, to exchange information, and to discuss problems, solutions, deadlines and events. Weekly meetings for each project are organised here, moderated by the project leaders.



↳ Newsgroup

In order to hold and track long-term discussions and decisions, a news server is used. This works just like email but is much more visible, so that everyone in the programme can follow.



↳ FTP

The programme and projects generate many documents which are stored and exchanged via a File Transfer Protocol (FTP) server.

The Workshops



Two meetings per year are organised in ESTEC for each SSETI project. Around 60 participants attend from all over Europe; usually two representatives of each team. The workshops are a great chance for students to meet face-to-face and they have proved to be extremely productive, facilitating quick and efficient interaction on technical issues.

Another important aspect of the workshops is the interface between the students and ESA experts: their work is reviewed, advice is given for future steps and new tools are suggested.

The workshops also promote team-building and allow individual university teams to develop better and more coherent high-level perspectives. They strengthen the team spirit and boost morale, as well as allowing the project leaders to organise the next 6 months of work.