

The STRATospheric PLatform EXperiment (STRAPLEX)

A low-cost solution for near-space experiments

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The Student STRATospheric PLatform EXperiment is a programme developed by the University of Porto (Portugal) in collaboration with the ESA Education Department. STRAPLEX offers European students the possibility to send experiments for educational purposes into the stratosphere using balloons filled with Helium. Depending on the mass of the experiment, STRAPLEX can reach up to 40 km altitude. Two balloon campaigns, each involving six flights, are envisaged every year, in June and September, starting in 2006. The capsule is designed to carry small educational experiments, targeted on a payload lift capacity of 3.5 kg to a maximum altitude of 35 km.

This platform is a low-cost solution for placing payloads in a near-space environment. Students are also invited to participate in further capsule developments, including:

- Increase of the payload capability up to 25 kg,
- Introduction of a time slot of microgravity, by the means of free fall, and
- Introduction of a floating phase providing longer mission duration.

Currently, the project involves a team of 15 students supervised by professors and technical experts. The scientific experiments that will fly on board STRAPLEX are to be developed by students from European universities in the fields of engineering, physics, biology, etc, promoting in this way the cooperation between European universities and giving the opportunity to students to be part of an ambitious project. The payloads are entirely funded by the participating universities. The Education Projects Division selects the payload, organises and sponsors a Workshop at ESTEC and covers the modest expenses for the balloons, parachutes and payload accommodation capsules. The ESA Education Projects Division and the University of Porto will operate STRAPLEX from Évora (Portugal). Launches from Madeira (Portugal), and Esrange (Sweden) are being planned for future missions. The STRAPLEX programme passed successfully a major milestone with the completion of the first qualification flight on 20 December 2005. A second qualification flight is scheduled for 17 April 2006, prior to the first student launch campaign scheduled for 21-23 June 2006.