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Author: Dr. Kristine Dannenberg
Swedish National Space Board (SNSB), Sweden

THE HEMERA BALLOON INFRASTRUCTURE – NEW, INNOVATIVE AND LOW-COST
APPROACH FOR SCIENCE AND TECHNOLOGY, SATELLITE DATA VALIDATION AND
PREPARATION OF NEW EARTH OBSERVATION AND SPACE MISSIONS

Abstract

Stratospheric balloons are highly useful platforms for science and technology, as self-standing tools for e.g. atmospheric research and astrophysics or as complementary platforms for validation of satellite data and preparation of new space and Earth Observation missions and instruments. Typically, stratospheric balloons fly at altitudes of 20-40 km with flight durations from a few hours to several weeks. Compared to satellites, balloons possess relatively low cost and shorter lead times from the experiment idea to the flight, thus being particularly attractive to young researchers and students.

In January 2018, a new balloon infrastructure called HEMERA was launched. The HEMERA project is funded by Horizon 2020, the Framework Programme for Research and Innovation of the European Union. The project is coordinated by the French space agency CNES and involves 13 partners from several European space agencies, universities and companies as well as the Canadian Space Agency, CSA. One of the objectives of HEMERA is to enlarge the user community within research and technology related to stratospheric balloons and to coordinate activities within the field. The HEMERA activities involve balloon flights carrying experiments from various countries, development of generic atmospheric sensors and virtual access to the data collected.

Six major balloon campaigns are foreseen within HEMERA offering free of charge balloon flights to users and scientists from various science fields and/or for technology tests. Each balloon will carry several experiments thus contributing to efficient usage of the infrastructure and promoting international cooperation among the users. The launch sites are Esrange in Sweden and Timmins in Canada as well as Aire Sur L'Adour in France, the latter for smaller sounding balloons. In addition to the balloon flight campaigns, various outreach and education activities are foreseen such as dedicated workshops for users and summer school for students and new users of balloon platforms.

The first HEMERA Call for Proposals closed in October 2018 and the first batch of science and technology experiments will fly in August 2019. The presentation will deal with the first results of the HEMERA project, future possibilities and examples on how the low-cost balloon-born infrastructure can be used for various science and technology needs.