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HEMERA: A EUROPEAN STRATOSPHERIC BALLOON RESEARCH INFRASTRUCTURE

Abstract

Stratospheric balloons are useful platforms for various research and technology needs. They allow to collect valuable data in many science fields, e.g. atmospheric science, astrophysics, biology etc, and they can be used for demonstrations in preparation of new space and Earth observation missions. The HEMERA Research Infrastructure program started in 2018 within the European Horizon 2020 program. Its objectives are to: provide better and coordinated balloon access to the troposphere and stratosphere for scientific and technological research; attract new users to enlarge the community accessing the balloon infrastructure and foster scientific and technical collaboration; enlarge the fields of science and technology research conducted with balloons; improve the balloon service offered to scientific and technical users through innovative developments; favour standardization, synergy, complementarities and industrialization through joint developments with greater cost-effectiveness. The project is coordinated by CNES and involves 13 partners in total, from various European entities and Canada. Six ZPB flights with a target payload mass of at least 150 kg are foreseen within HEMERA, offering free of charge access to users and scientists for various science measurements and/or for technology tests. In addition, several SB flights are foreseen. The launch sites will be Esrange in Sweden, Timmins in Canada, for the ZPB and Aire sur l'Adour in France for the SB. The selected experiments not yet flown will be launched by end of 2022. Two Calls for Proposals were planned by the HEMERA project: the first was launched in 2018 and 39 answers from 12 countries have been received: 23 experiments were selected. In the framework of the second call

31 answers have been received from 10 different countries. The selected experiments would have been launched in summer 2020 but due to COVID pandemic, this campaign has been postponed to summer 2021 from Kiruna and Timmins. In addition, Open Access to balloon data will be organized in the frame of the Data Center, giving access to science data collected during the flights. Networking activities are planned in order to promote the Infrastructure in the European countries, and Joint Research activities are conducted in order to improve as far as possible the balloon offer in the view of the user needs. This work is in the framework of the HEMERA EU funded infrastructural Program.