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SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Extended Mission (9)

Author: Mr. Cory Hodgson
University of Alberta, Canada, crhodgso@ualberta.ca

Prof. Ian Mann
University of Alberta, Canada, imann@ualberta.ca
Mr. Wyatt Johnson
University of Alberta, Canada, wyattjoh@gmail.com
Mr. Andreas Buttenschoen
University of Alberta, Canada, andreas.buttenschoen@ualberta.ca
Mrs. Laura Mazzino
Canada, mazzino@ualberta.ca
Mr. Quinton Farr
Canada, qfarr@ualberta.ca
Dr. Jonathan Rae
Canada, Jonathan.Rae@ualberta.ca
Mr. David Miles
University of Alberta, Canada, dmmiles@ualberta.ca

THE UNIVERSITY OF ALBERTA – HIGH-ALTITUDE BALLOON (UA-HAB) PROJECT

Abstract

The University of Alberta – High-Altitude Balloon (UA-HAB) Project funded by the Canadian Space Agency's (CSA) Space Learning Program to design, build, test and fly a student payload onboard the NASA-funded High-Altitude Student Platform (HASP). The High Altitude Student Platform HASP) is designed to carry up to twelve student payloads, including the UA-HAB payload. The HASP payload was launched from Fort Sumner, New Mexico, to an altitude of about 36 kilometers with a flight duration of about 16 hours using a small volume, zero pressure balloon. The UA-HAB payload was an experiment designed to detect the signatures of cosmic rays entering the atmosphere. Using three Geiger-Muller tubes under different amounts of shielding, this Maple Leaf Particle Detector was able to provide both timing and energy information of these cosmic rays.

The UA-HAB provides a unique opportunity for both undergraduate and graduate students to gain hands-on experience in all phases of a space-related mission. The primary goal of UA-HAB is to build knowledge and skill amongst Canadian students in experimental space science using low-cost mechanisms to access space. The detailed design, build and test of the payload provide a unique insight into the processes required for a space mission to proceed through the conceptual (Phase 0 and A), design (Phase B and C), and build and flight (Phases D and E) of a space mission – including through the NASA reporting and test requirements experience with the quality and flight assurance of such a mission, Finally, the students experience and develop scientific methods and hypothesis testing through the analysis of the flight data.