HASP Monthly Status Report - July 2014

Balloons over Volcanoes Team

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1 Synopsis

- Constructed payload box
- Mounted payload box on HASP interface plate
- Performed laboratory and field tests to verify correct array operation
- Submitted FLOP

2 Activity Summary

We purchased an acrylic box and modified it for use as a payload box. We mounted the acrylic box on the HASP interface plate using threaded eyes as described in the PSIP, but decided to put the Data Cube connectors on the side, facing the EDAC connector, rather than pointing up. Thermal control is provided by isolating the Data Cube logger from the interface plate and sides of the payload with Styrofoam blocks, and covering the acrylic box with an insulated reflective bag. Once the payload was mounted on the interface plate, we tested the acoustic array and data logger by providing a 36 V power source (3 car batteries in series) clipped to the appropriate pins in the EDAC. The UNC payload acquired data in the laboratory for three days without any problems, and the test was deemed a success. Then, we installed the array outside, with the acoustic array stretched to its full 150 ft length. This test lasted 24 hours. Data were acquired continuously through periods of sunshine and light rain (see Figure 1).

3 Issues Encountered

The UNC machine shop was unable to build an acrylic box in the requested time frame, so we resorted to ordering a ballot box off of Amazon. However, the box is sturdy and is stable even when the payload plate is shaken vigorously. Other minor issues included the reflective box liner being slightly too small to cover the entire payload box without modification. We observed strong 60 Hz interference from electric lines near the microphone cables during the outside test. However, this should not be an issue during flight as all power will be DC.

4 Milestones Achieved

The UNC HASP payload is complete and the FLOP has been written. All components work correctly at the Earth's surface both in the lab and outside.

5 Team

The student team consists of Daniel C. Bowman and Rebecca Rodd (University of North Carolina at Chapel Hill), Jacob F. Anderson (Boise State University), Aaron Curtis (New Mexico Tech), and Tierney Larson (Yale University). Jonathan M. Lees (UNC Chapel Hill) serves as Faculty Advisor. Paul Norman and Kyle Jones are outside advisors.

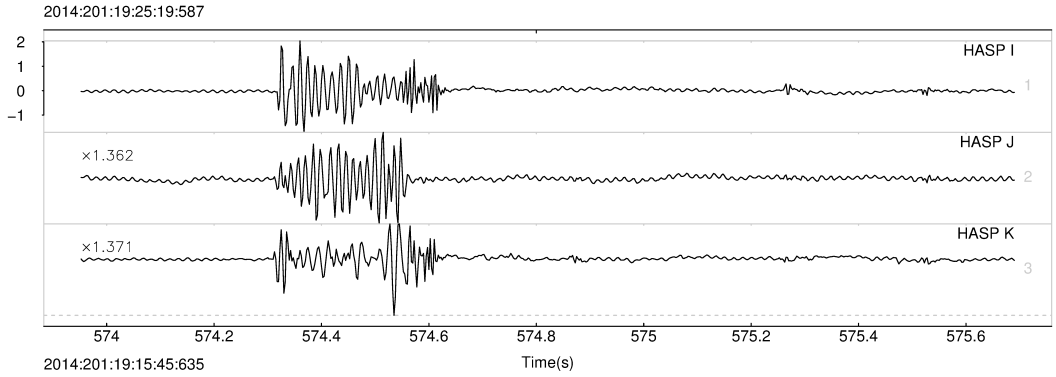

Figure 1: The HASP acoustic array recorded this signal during a 24 hour outside test.