

HASP Monthly Status Report - August 2014

Balloons over Volcanoes Team

August 29, 2014

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1 Synopsis

- Payload passed thermal/vacuum test
- Payload flew on HASP on August 9
- Data were recovered successfully and microphones operated for the duration of the flight
- Team structure changed

2 Activity Summary

Daniel Bowman traveled to Palestine, Texas and Ft. Sumner, NM for payload testing and launch. The payload operated throughout the thermal/vacuum test, picking up strong signals from the vacuum pump. In Ft. Sumner, CSBF installed the microphones on the flight ladder and a hang test was performed. The payload was launched on August 9th, and the microphones operated throughout the flight and landing (Figure 1). The payload was received in mid August. Waveform data were extracted, scaled to physical units, and saved on UNC computers. Initial analysis indicates a variety of harmonic waveforms of unknown origin (Figure 2). Undergraduate Patrick Gouge has joined the UNC HASP team, and he will be attempting to determine which signals originate from the balloon and which signals come from elsewhere.

3 Issues Encountered

One microphone was destroyed on landing. Microphones cannot equilibrate rapidly enough to remain in dynamic range during ascent and descent, although the middle microphone stayed in range longer than the top and bottom one. This is probably because the middle microphone had a different filter.

4 Milestones Achieved

The flight was a complete success, and we look forward to interpreting the signals we have.

5 Team

The student team consists of Daniel C. Bowman and Patrick Gouge (University of North Carolina at Chapel Hill), Jacob F. Anderson (Boise State University), and Tierney Larson (Yale University). Rebecca Rodd and

Aaron Curtis are no longer working with the HASP team, and Patrick Gouge has joined the team. Jonathan M. Lees (UNC Chapel Hill) serves as Faculty Advisor. Paul Norman and Kyle Jones are outside advisors.

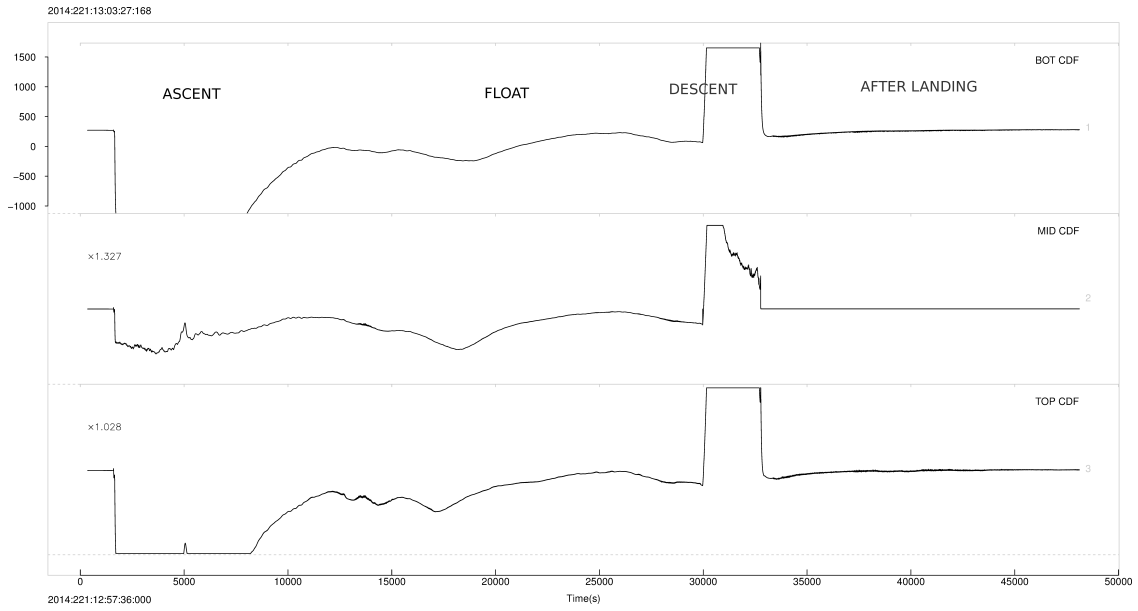


Figure 1: Unfiltered pressure time series recorded during the flight and after landing.

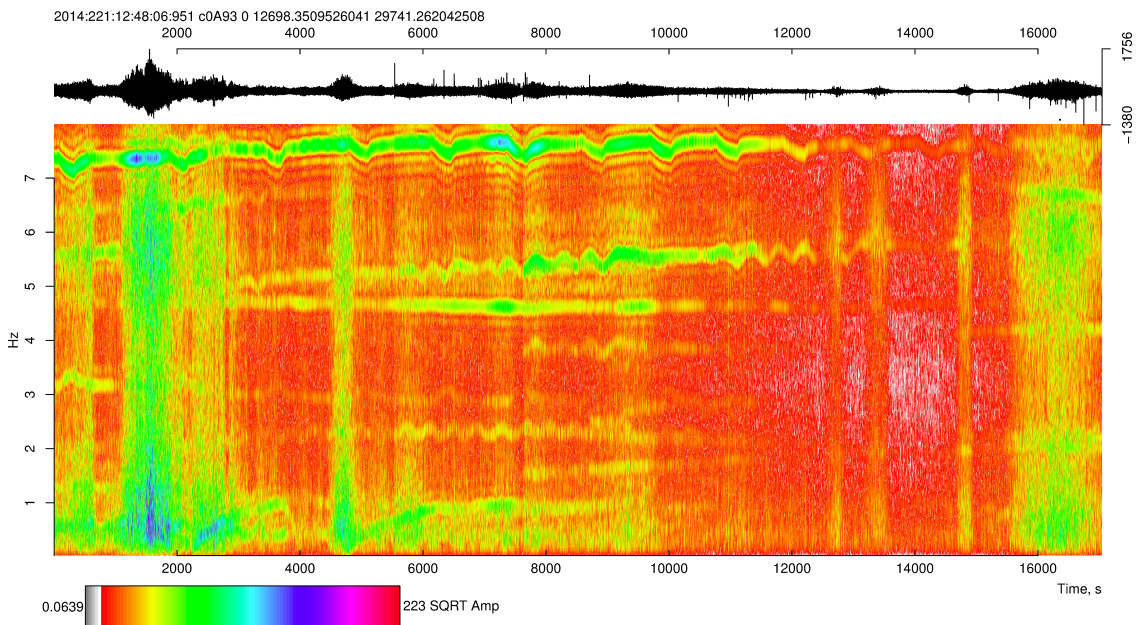


Figure 2: Fourier spectrogram of signals recorded on the middle microphone. A 1 Hz high pass filter was performed prior to plotting.