

HASP Monthly Status Report – September 2016

North Carolina Infrasound

30 September 2016

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1 Synopsis

- Successful flight for both stations.
- Data sorting and preliminary analysis have begun.

2 Activity Summary

Ethan and Kayla travelled to Fort Sumner for flight operations. While there, Daniel, Ethan and Kayla worked to deploy an acoustic ground array, with the intent to compare ground signals to simultaneous atmospheric signals. The morning of the launch, Ethan and Kayla ensured successful data collection during flight for both payloads. Though the flight ladder payload was damaged upon termination, a preliminary browse through the data suggested both payloads were successful. The damaged RefTek has been sent to the supplier, Trimble, for repair. Trimble is very interested in how their data logger functioned in the air as this is the first documented launch attempt.

Since the recovery of the payloads, the team has organised the data and begun to sort through the signals. Though we are still analysing the source of these signals, Figure 1 suggests the chosen filtering method confirms the sensing of infrasonic signals on the gondola. Figure 2 is spectrograms from the gondola and the flight ladder for an hour including launch. The signal resemblance between the stations in Figure 2 and long period signals support that both stations were functioning as expected.

3 Issues Encountered

The RefTek was damaged upon impact, though to what extent is to be determined by Trimble.

4 Milestones Achieved

Both stations had a successful flight!

5 Figures

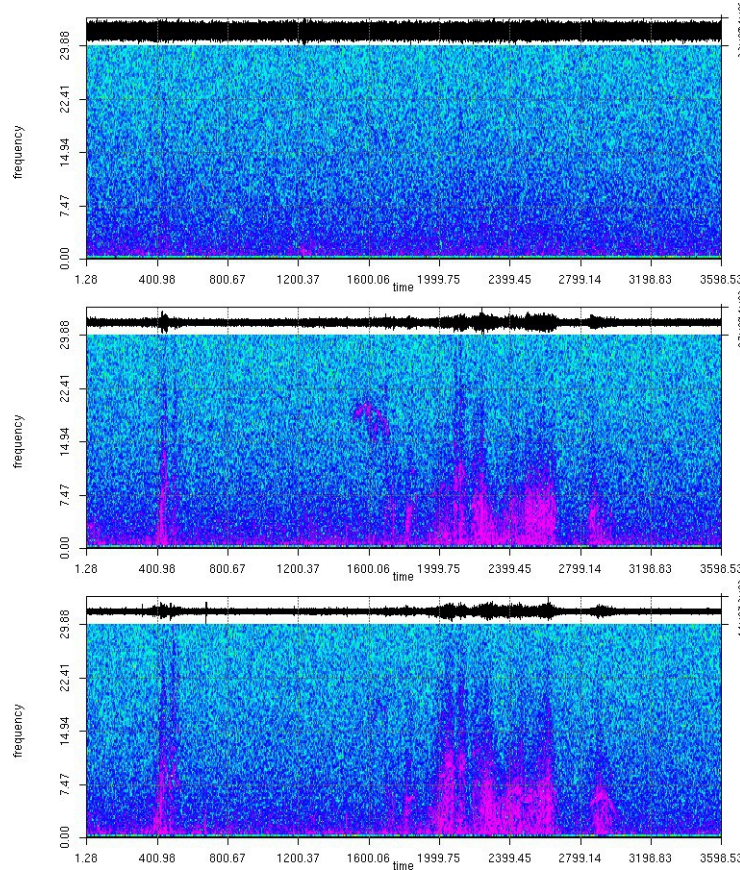


Figure 1. Spectrograms for three gondola channels. The top channel was unfiltered during the flight, whilst the bottom two channels were filtered. The presence of signals on the bottom channels but not the top channel suggests the station is recording real signals.

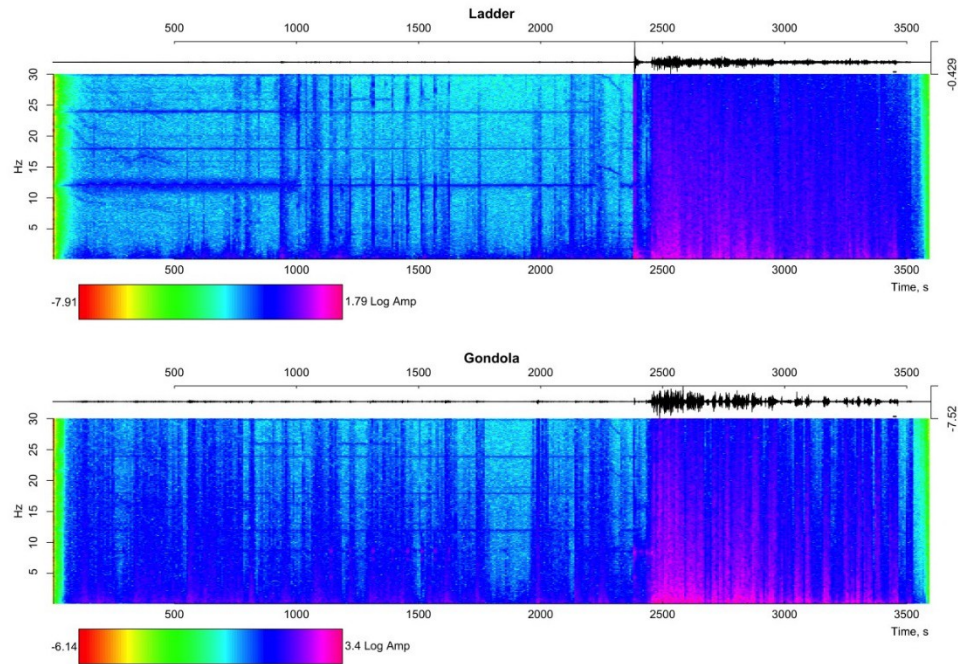


Figure 2. Spectrograms for the flight ladder station (top) and the gondola station (bottom) over the course of an hour. The first 2500s show the stations waiting to be launched. Though the gondola data appears noisier than the flight ladder data, both stations are recording similar signals. The noisier nature of the gondola data could either be due to the closer proximity of the station to flight operations, or it could be due to a more sensitive data logger. Around 2500s, both stations respond to the launch.

6 Team

Name	Male/Female	Race	Position	School/Organisation
Jacob F. Anderson	Male	Caucasian	Student Team Member	Boise State University
Jordan W. Bishop	Male	Caucasian	Student Team Member	UNC-Chapel Hill
Daniel C. Bowman	Male	Caucasian	Outside Advisor	UNC/Sandia National Lab
Ethan C. Dinwiddie	Male	Caucasian	Student Team Member	UNC-Chapel Hill
Jonathan M. Lees	Male	Caucasian	Faculty Advisor	UNC-Chapel Hill
Rebecca L. Rodd	Female	Caucasian	Team Member	UNC-Chapel Hill
Timothy J. Ronan	Male	Caucasian	Student Team Member	UNC-Chapel Hill
Kayla T. Seiffert	Female	Caucasian	Student Leader	UNC-Chapel Hill