

November Status Report Maple Leaf Particle Detector

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November 29, 2011

1 Activities

This month, the UA-HAB team have focused on two aspects of the program, educational and public outreach and investigating the potential reasons behind the non-conformance found with the payload during HASP launch. One of the team members (Cory Hodgson) travelled to Calgary, Alberta to give a presentation on UA-HAB at the Canadian Space Society Annual Summit. Another team member (Andreas Buttenschoen) presented a poster on the project at the University of Alberta Students Union Undergraduate Research Symposium.

Data analysis is well underway with work being divided among the team between investigating the possible reasons for the non-conformance, whilst also trying to determine whether there are small correction factors applicable to the data to compensate for the temperature, pressure and high-voltage effects on the count rates observed by the instrument. Cory Hodgson is investigating possible relationships between high voltage and environmental factors and their effect on the count rate. This is to validate the data measured and to adjust for any possible environmental factors or sensitivities in our payload. Wyatt Johnson is verifying the timing accuracy of the data transmitted by the payload and investigating possible missing data. So far, we have found evidence that our payload timer may be running slower than expected. Initially we believed the failure caused the CPU to run slower and caused data to be transmitted less than every 10 seconds, which is the expected transmission rate. Evidence now points toward our payload consistently transmitting at a slower rate and that it was never the 10 seconds as expected. We will detail the results of this investigation in full in the Final Report. Andreas Buttenschoen is currently investigating possible causes of the failure experienced during flight due to the firmware written for the payload, and the potential relationship between count spikes and drops in the high voltage line. He is also investigating the processing capabilities of the CPU to see if it is possible for its processing time to be affected by the failure.

2 Design / Development Issues

See Activities for data analysis issues. No further issues to report.

3 Milestones

Milestone	Date of Completion
Presentation at SU Undergraduate Research Symposium	November 17th
Presentation at Canadian Space Society Annual Summit	November 29th

Table 1: Completed (September) Milestones

Milestone	Date of Completion
Finish Data analysis	Early December
Draft of Final Scientific Report	December 9th
Final Scientific Report Completed	December 16th

Table 2: Upcoming (December) Milestones

4 Personnel

Laura Mazzino (Team Leader) is studying for her Ph.d candidacy exam, and is therefore less available for the project this month. Jonathan Rae (project advisor) has taken the lead of data analysis, overseeing the undergraduate members' progress and advising them where possible.