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High Altitude Ballooning with CCC Students

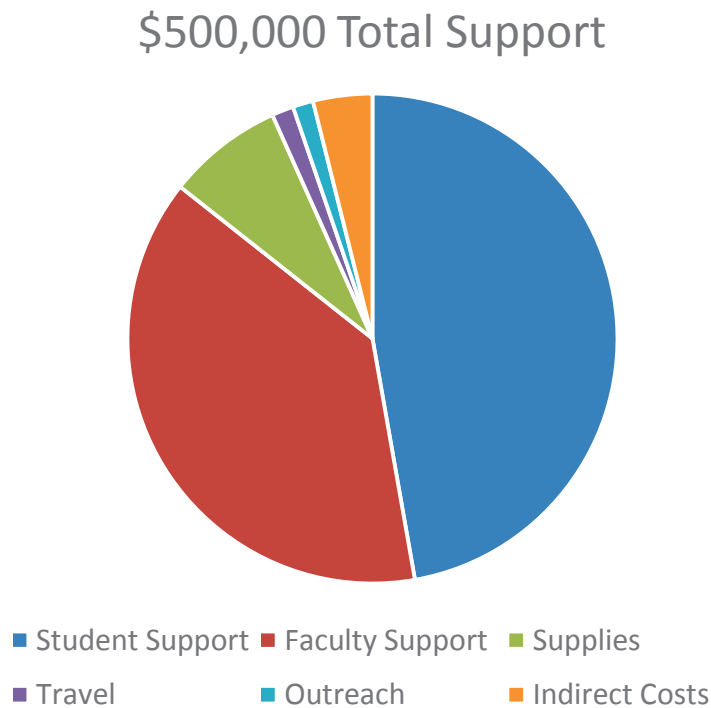
Mike Davis, Thomas Trizpt, Beatriz Barrera

Tuesday, September 01, 2015



Funding from NASA and CCC Goals for the Program.

Summary of Grant Funds



Goals of the Program

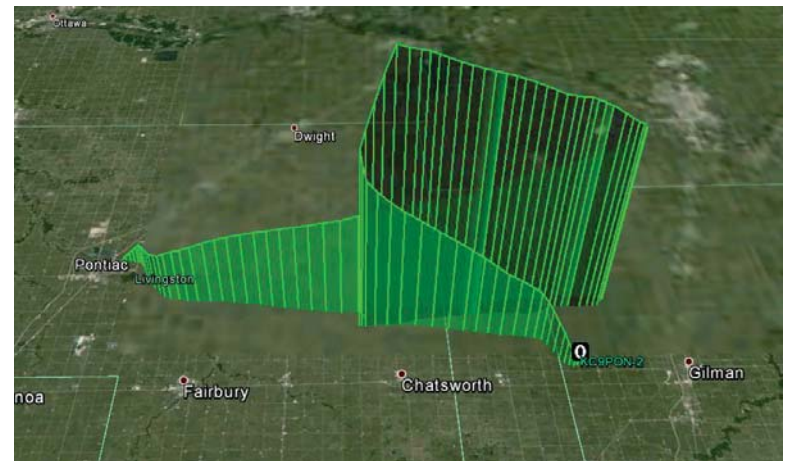
1. Prepare students for graduation/transfer (REI Goal 1).
2. Connect College and Career activities with professional engineers and scientists. (REI Goal 2)
3. Add this activity to the college culture through clubs and general education.

Brief Overview of High Altitude Ballooning with CCC Students

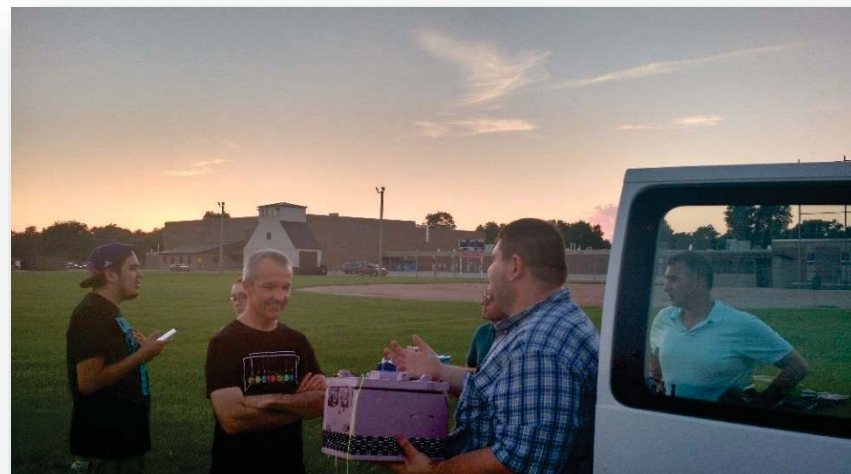
Overall Process

- Design / build / test payloads in the laboratory space.
- Run prediction model for a few sites in central IL.
- Launch balloon.
- Track balloon through HAM Radio network. (1.5 - 2 hours)
- Balloon lands in a field.

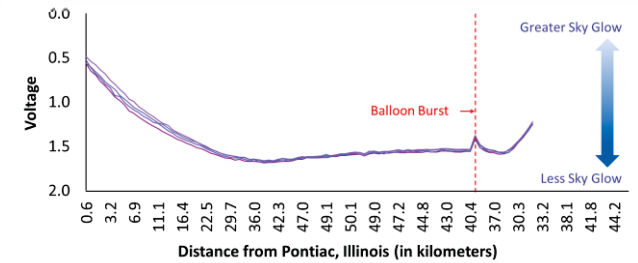
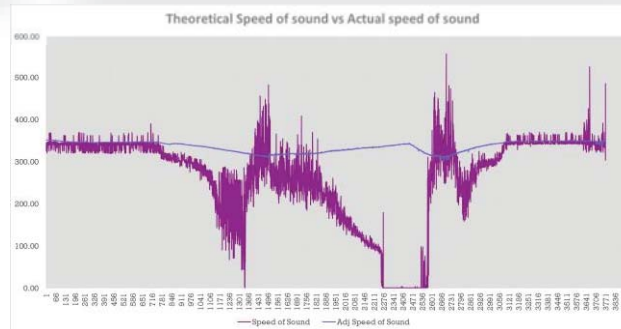
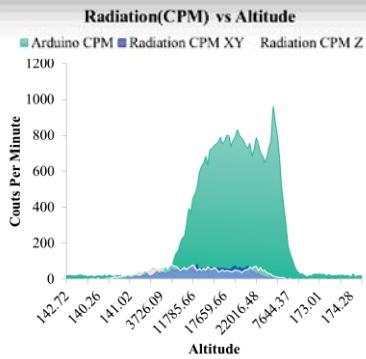
Flight Path



Pre-Flight: Students Prepare Experiments and Do Launch Logistics

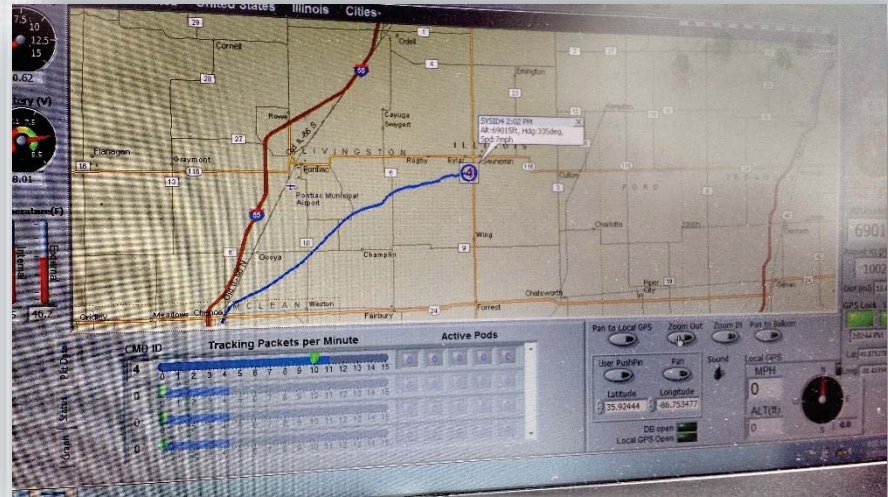


Students Build Payloads that Collect Images and Data During the Flight



Radiation – Heather Nelson / Speed of Sound - Giovanni Martinez / Sky Glow – Thomas Trzipt

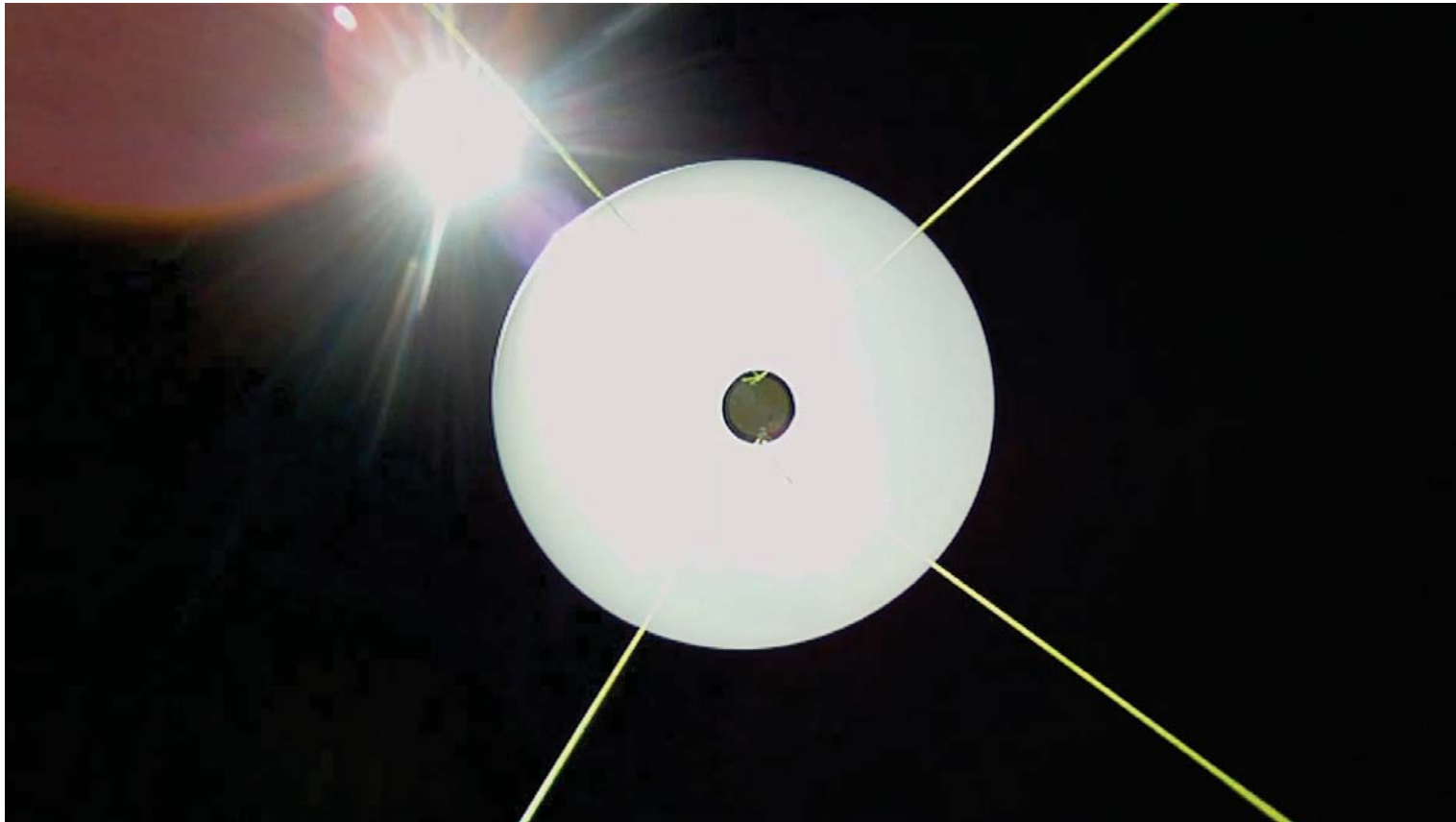
Retrieval: Our Goal is to See the Balloon Land in Front of Us



Retrieval: Some Landing Sites are Better than Others.



Video of a Balloon Burst



Video of a Tethered Launch



Interacting with Professional Engineers and Innovators is a Strong Student Benefit

Charles Adler: Co-Founder of Kickstarter



David Finch: New York Times Essayist and Engineer with Element14.



Success of the Program Increases Community Awareness of CCC-HAB Program

July 22nd Google GeekStreet Event



June 6th, STEM Bridges with IIT



Future Work & Opportunities

Leveraged Funding

- Secured \$5,000 in funding from Motorola Solutions Foundation to support ballooning Teacher Professional Development.
- Will support at least 2 launches for 30-40 CPS teachers.

Goals for the Coming Year

- Accept another cohort of 20 students into the HAB program from all 7 colleges.
- Increase outreach to CCC students through clubs.
- Launch for local teachers/engineers on November 14th.

Thomas Trizpt (Graduated Spring 2015, AS)

What I learned with CCC / NASA HAB

- It was a capstone to my two years of study in STEM
- Failure leads to discovery
- Give students their own lab and they instantly become scientists



Because of CCC and Daley College:

- My engineering group started a STEM mentorship program
- I met brilliant teachers, scientists, and engineers who will inspire me well into the future
- I went from a college dropout with few prospects to setting on the path to being the first person in my family to have a doctorate
- **I got accepted to Stanford University with a full ride!!!**

Current Student – Beatriz Barrera

- Attending Harold Washington College.
- Transferring to a University with a major in Chemical Engineering.
- Favorite parts of the program.
 - Going on launches.
 - Interacting with students.
 - Getting data!
- Skills from this Program
 - Better people skills.
 - Confidence in myself and my ideas.
 - No longer afraid of being wrong. I can recover from mistakes.
 - Stronger research skills.
 - Better organization.
 - Programming skills (Raspberry Pi and Arduino)



Closing and Acknowledgements

Lessons Learned

- Difficult things worked.
- Students flourished in an open environment.
- You are invited to upcoming launches (Nov. 14th).

Thank You!

- The students of the HAB Project
- Professors Thomas Higgins, Bernhard Beck-Winchatz, Mark Potosnak
- The faculty, administration, and staff of the City Colleges of Chicago
- The Illinois Space Grant Consortium (NNX14AR13A)

