Workshop “Beta Testers”

- Workshop lasted 5 days at Montana State University (MSU), in May 2016. Our group was at the Pre-Workshop with several other teams.
- The team consists of an electrical, mechanical, and mechatronics engineering major. The team was developed without any of the members knowing each other.
- During the workshop the team assembled three pods (Still Image, Video, and Iridium) and the tracking Ground Station, while learning the operating procedures.
- After the workshop at MSU was completed the team had an opportunity presented by Dr. Kissel to go to Yellowstone National Park.

Lessons Learned - Take Away

- Through the process the team gained interpersonal communication skills by networking with other Eclipse teams.
- The process allowed the team members to understand what a engineering project consisted of.
- Time management skills were acquired during the numerous launches - given the project was during semesters and due to normal logistical/communication problems.
- Learning how to troubleshoot a problem and rapidly coming up with a solution in the field.

Eclipse Day (August 21st 2017)

- Pod Stack
  - Same pod stack as used on the National Dry Run Day.
- Flight Specifics
  - The GS and launch site were 5 miles apart.
  - The GS utilized the WiFi extender.
  - At the GS there were multiple computers running the software.
- Results
  - The team had live video until the WiFi extender was unplugged from the Ethernet connection
  - The tracking was fully functional
  - No images were transmitted

National Dry Run (June 20th 2017)

- Pod stack
  - Iridium | - Video
  - Still Image| - APRS
- Flight Specifics
  - All 53 teams across the US tested their pod setup.
  - MSU sent a software update for the Ground Station (GS) two weeks before the National Dry Run.
  - The server crashed at MSU.
- Results
  - Team members nearly caught the balloon at the landing site.
  - The GS would spin 180 degrees randomly through the flight due to software errors.

First Flight (August 27th, 2016)

- Pod stack
  - Iridium and Video (in one pod)
  - Still Image | - APRS
- Flight Specifics
  - This was the first flight with the entire system, as well as our first flight as a team.
  - The Ground Station was located at the launch site near a building and power lines were above
- Results
  - Video connection lasted until ~20,000 feet and we obtained pictures during the entire flight.
  - We believe the Iridium and video antennae caused interference – which resulted in no video.

Second Flight (October 22nd, 2016)

- Pod stack
  - Iridium | - Video
  - Still Image| - CubeSat Prototype
  - APRS
- Flight Specifics
  - The Ground Support software Spyder didn’t appear due to a Windows 10 update, which caused properties to change.
  - Ground station was located within a 20 mile radius of launch site.
  - Attached the grounding rod to the dish antenna.
- Results
  - MSU server crashed – caused intermittent tracking
  - We had to hand track the balloon because Spyder had failed

Third Flight (April 1st, 2017)

- Pod stack
  - Iridium | - Video
  - Still Image| - CubeSat Prototype
  - APRS
- Flight Specifics
  - Adam manually started the video streaming software by SSH into the PI.
  - The Ground Station team utilized a WiFi extender instead of hard connection.
  - Cut-down was not used on this flight
- Results
  - We had RFD lock the entire flight, but no images were transmitted
  - No video was obtained in this flight

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