**University of Colorado at Boulder HELIOS V Team July Status Report**

The month of July was devoted to testing the HELIOS V payload. By the end of July, the team completed a total of 12 systems tests and 2 day in the life tests. The also presented the results of these tests to other Space Grant students and staff in their Test Readiness Review on July 25th. This review was to show the progress the team has made in the summer and their plans for integration and later flight of the payload.

**Team Demographics**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Student** | **Ethnicity** | **Gender** | **Year** | **Major** | **Start Time** | **End Time** | **Grad/ Undergrad** |
| Haleigh Flaherty | Caucasian | Female | Junior | Aerospace Engineering | January 2016 | Current | Undergrad |
| Paige Arthur | Caucasian | Female | Senior | Aerospace Engineering | January 2016 | May 6th 2016 | Undergrad |
| Ryan Cutter | Caucasian | Male | Senior | Aerospace Engineering | January 2016 | May 6th 2016 | Undergrad |
| Erin Shimoda | Caucasian/ Asian | Female | Sophomore | Aerospace Engineering | February 2016 | Current | Undergrad |
| Virginia Nystrom | Caucasian | Female | Sophomore | Aerospace/ Applied Math | February 2016 | Current | Undergrad |
| Joseph Frank | Caucasian | Male | Sophomore | Engineering Physics | February 2016 | Current | Undergrad |
| Severyn Polakiewicz | Caucasian | Male | Junior | Aerospace Engineering | February 2016 | May 6th 2016 | Undergrad |
| Rebekah Haysley | Caucasian | Female | Sophomore | Mechanical Engineering | February 2016 | June 1st 2016 | Undergrad |
| Colin Sullivan | Caucasian | Male | Sophomore | Aerospace Engineering | February 2016 | Current | Undergrad |
| Samantha Palma | Caucasian/ Asian | Female | Sophomore | Mechanical Engineering | February 2016 | Current | Undergrad |
| Ross Kloetzel | Caucasian | Male | Sophomore | Aerospace Engineering | February 2016 | Current | Undergrad |
| Michael Catchen | Caucasian | Male | Sophomore | Aerospace Engineering | February 2016 | May 6th 2016 | Undergrad |
| Alex Mulvaney | Caucasian | Male | Sophomore | Aerospace Engineering | February 2016 | Current | Undergrad |
| Logan Thompson | Caucasian | Male | Sophomore | Aerospace Engineering | February 2016 | Current | Undergrad |
| Dawson Beatty | Caucasian | Male | Sophomore | Aerospace Engineering | February 2016 | Current | Undergrad |
| Gage Froelich | Caucasian | Male | Junior | Mechanical Engineering | February 2016 | March 2015 | Undergrad |
| Daniel Green | Caucasian | Male | Junior | Mechanical Engineering | February 2016 | Current | Undergrad |
| Emma Cooper | Caucasian | Female | Sophomore | Aerospace Engineering | March 2016 | Current | Undergrad |

**Team Organization**

**C:\Users\Haleigh\Downloads\HELIOS V Team Organizational Chart.png**

**Accomplishments of July**

**Structures:** Structures did not have many individual team tests to complete, but they did assist in all of the systems testing that the team completed. One of their major challenges of July was to reduce the weight of the payload as it started to get too close to the weight limit. This included adding additional lightening cuts to parts of the payload.

**Optics:** The optics team worked closely with the ADCS team to ensure the alignment of the two cameras. The team’s main focus of July was to write and improve their image analysis code that will quantify the quality of the pictures taken by the payload.

**CDH:** The CDH team used the systems tests as an opportunity to check all of their commands to the payload. This helped with troubleshooting as well when problems arose in the tests.

**ADCS:** The ADCS team was faced with the largest challenge of all the teams. During the early systems tests, it was clear that the elevation diode was not operating correctly. Despite replacing it several times and checking all of its electrical connections, the source of the problem could not be found. This lead to a slight change in the ADCS tracking method. Now, the elevation diode has been removed and the payload now uses the azimuth diode and a panning motion with the ADCS camera to track the Sun. All systems tests after this change have had successful tracking with the new method.

**EPS:** The EPS team worked closely with ADCS and Systems to troubleshoot problems that arose during tests. This often included resoldering wires and checking electrical connections.

**Systems:** The systems team lead all of the systems tests for the payload. They were able to complete many more tests than expected which resulted in many improvements to the payload.

**Plans for August**

The HELIOS V has shipped and should be arriving in Texas soon. The team is eager for T-Vac testing and, if all goes well, are prepared for flight in late August. Outside of T-Vac and flight, the team will use this month to improve the data analysis codes so that the team is prepared for after flight.