Development of a Multistage High-Power Rocket

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Project Objectives
The primary objective of Project URSA was for undergraduate students to design, build, and fly a high-power multistage rocket. The secondary objective of Project URSA was to serve as an educational tool for club members, primarily freshmen, who were new to the club’s rocketry program.

Design and Manufacturing
The entire URSA rocket system was student designed and/or assembled. The team leveraged UAH’s advanced manufacturing capabilities to create many custom aluminum, carbon fiber, and additively manufactured parts.

Validation Tests
In order to prove the validity of URSA’s design, numerous ground tests and two flight tests were conducted. The ground tests consisted of component-level or subsystem-level tests, while the flight tests served as validation tests of systems. The data from these tests revealed defects in the design which were corrected prior to the final launch.

Results
After nearly a year of work, the members of Project URSA traveled to the Kloudbusters Airfest in Argonia, Kansas to launch the full system. On September 3rd, 2017 the rocket underwent successful launch and staging operations. However, an in-flight anomaly prevented the recovery of the upper stage.

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