Introduction

UNH Students for the Exploration and Development of Space is a new Rocketry Organization here at the University of New Hampshire. Over the past few months, we have been working to design, manufacture and fly a high altitude, multi-stage rocket in the University Student Rocketry Competition. In these short few months, we have tested several rockets, starting with simple single stage design to more complex multi-stage dual-deploy designs. Here is the compilation of our flight videos from February to April.

Goals for Rocket 1

To successfully launch a single stage rocket with the deployment of a main parachute at apogee

Results:

The Engine ejected from body tube due to improper aft retirement. This resulted in a failure to launch from the launch pad.

Goals for Rocket 2

To successfully launch a single stage rocket with the deployment of a main parachute at apogee

Results:

Ascent was successful, but parachute depoyed at a high speed, shearing the parachute lines. The Rocket was lost.

Next we move onto our Aether class, utilizing dual deployment through electronics.

Goals for Aether 1

To successfully launch a single stage rocket with parachute dual deployment.

Results:

Ascent was successful, but drogue parachute was tangled during descent. Main parachute ignition was unsuccessful.

Goals for Aether 2

To successfully launch a single stage rocket with parachute dual deployment.

Results:

Ascent was successful and drogue parachute opened at apogee, but main parachute opened too early due to descent forces opening the nose cone. The rocket drifted into the forest and was recovered a few days later.

Aether 3

Goals for Aether 3

To successfully launch a two stage rocket with parachute dual deployment.

Results:

Ascent of booster and sustainer successful. Recovery parachutes in the sustainer did not deploy due to incorrect packing and black powder charge.

Aether 4

Goals for Aether 4

To successfully launch a two stage rocket testing only the booster.

Results:

Successful ascent and separation. Deployment of booster parachute was a success. The deployment of sustainer drogue chute locked up due to sustainer igniter length.

Future Goals:

We are continuing to test our multi-stage building techniques and electronic configuration. We will soon move onto a carbon fiber model that will minimize weight and maximize our altitude.