

the North Seattle College Rocketry Club

Tracy Furutani, North Seattle College, November 2019

The purpose of the North Seattle College Rocketry Club is to nurture interest in space sciences and engineering among the students at North Seattle College.



The team rocket Aquilla being readied for launch at IREC 2017 in New Mexico

Origin



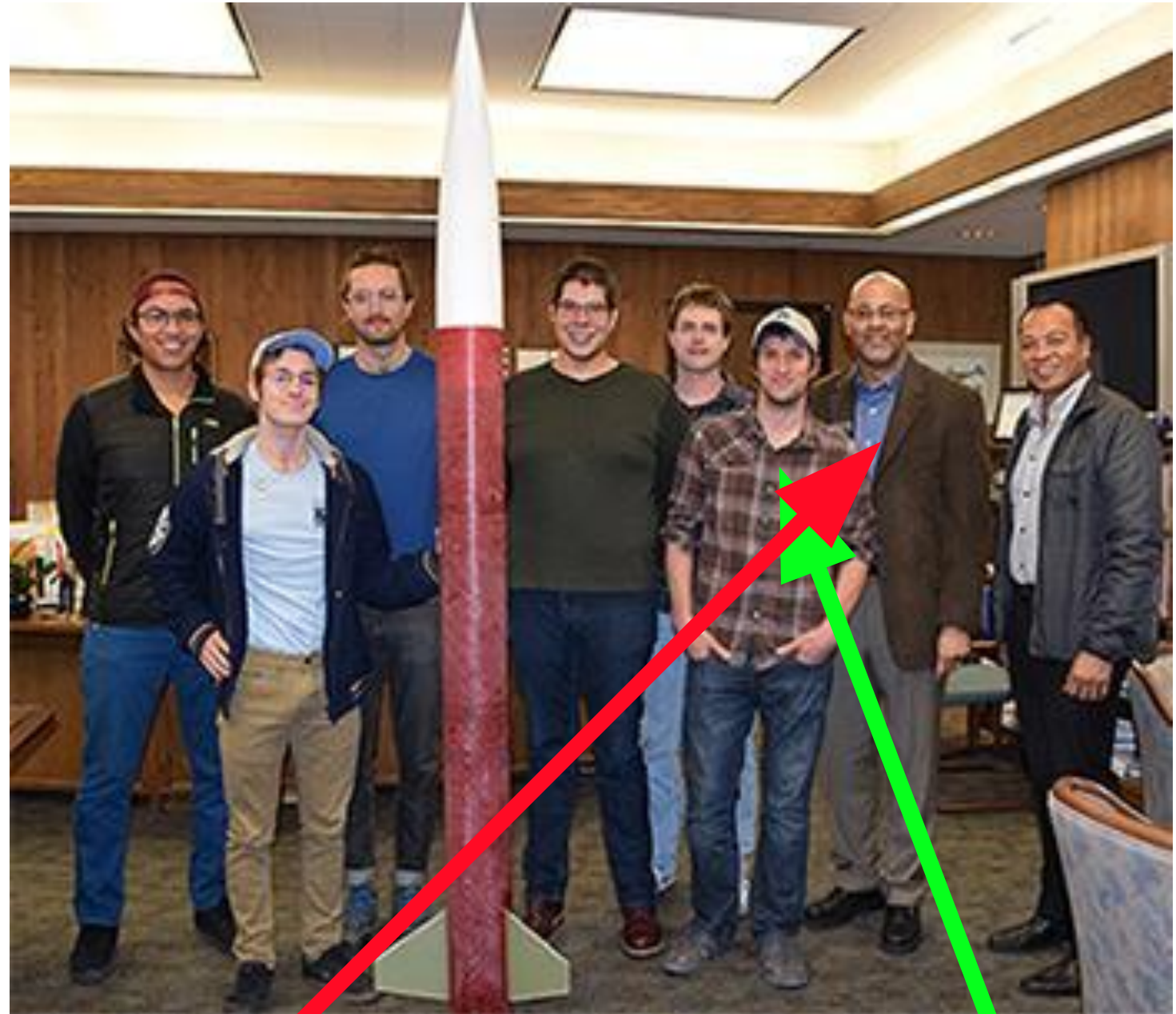
The club has been in existence for about **five years**. NASA, a US government agency, gives grants to each of the 50 states in the US to set up a statewide outreach effort to keep students in elementary, middle and high schools, as well as colleges and universities, interested in becoming engineers and scientists.

In 2014, the **Washington NASA Space Grant Program** gave North Seattle College \$10,000 to buy rocketry equipment and award scholarships.



Origin

At first, there were not many club members – perhaps six or seven. We’ve had as many as thirty members, but this year the club has only **five members** that are committed to working on the major projects.



This is the club from 2017. College president Warren Brown has always been a strong supporter of the club. Current IREC lead Matt Ehresman was a member of the club

Origin

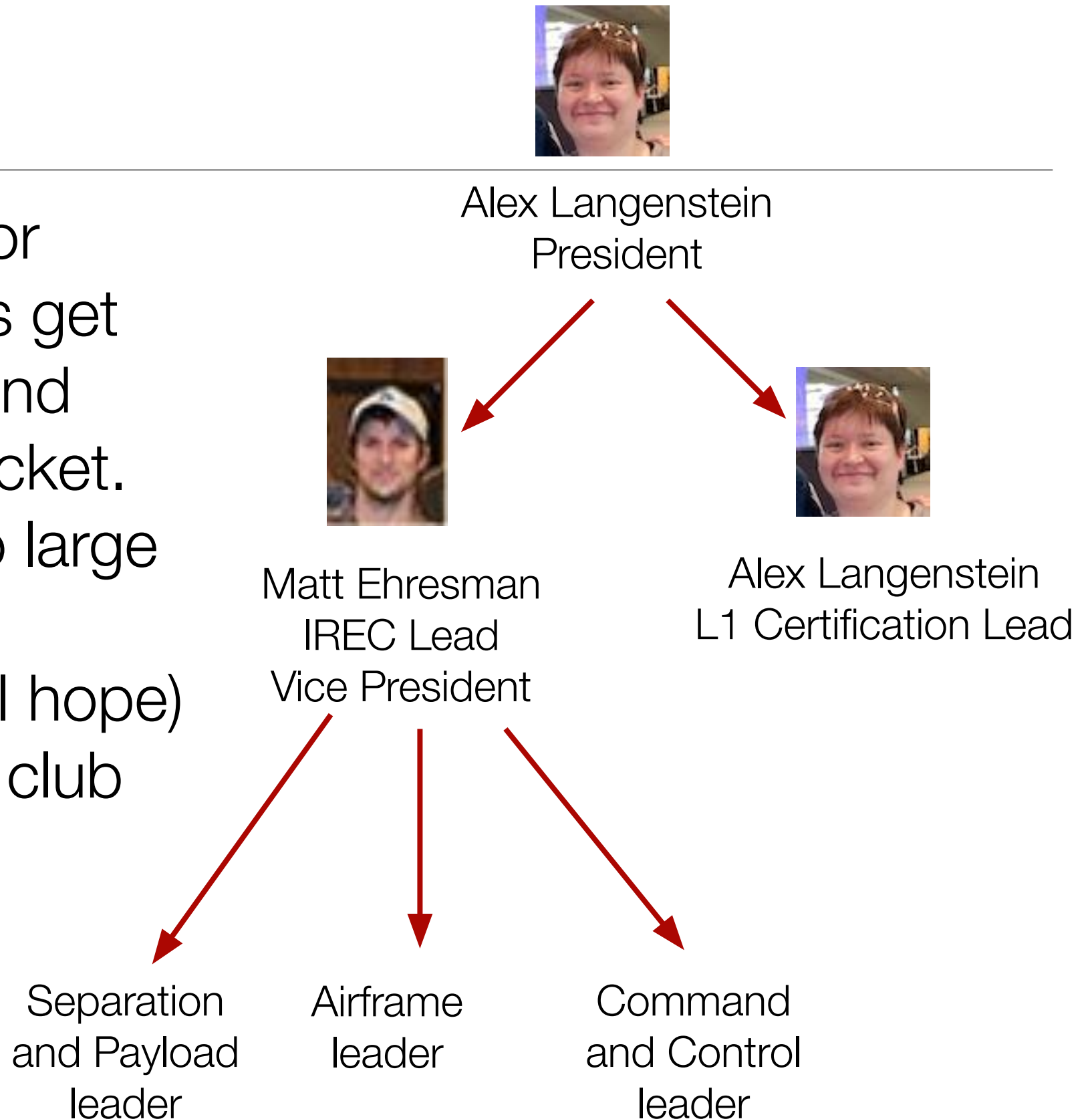


The Astronomy 102 class built class rockets (like you are doing this week) to launch at the Washington Aerospace Club's (WAC) site in Mansfield, Washington. That was part of the requirements for completing the course.

The initial funding also provided for the creation of the course "Space and Space Travel" (Astronomy 102), which introduced students to solar system astronomy, rocketry and rocketry history, and celestial mechanics – and a great way to recruit students for the club!

Organization

The club has two major aims: helping students get their L1 certification, and launching the IREC rocket. The IREC project is so large that there are different section leaders, who (I hope) next year will become club leaders.



Activities



A club meeting from 2018. Here, club members are discussing what separation mechanism for the IREC rocket should be used.

The club holds weekly meetings on Friday afternoons for general club announcements and decisions (such as which launches to attend). We meet in the rocketry shop, which is formerly a drama scene shop.

Activities

The weekly club meeting includes a lecture, sometimes from an engineer from a space company, but usually one of our club members.



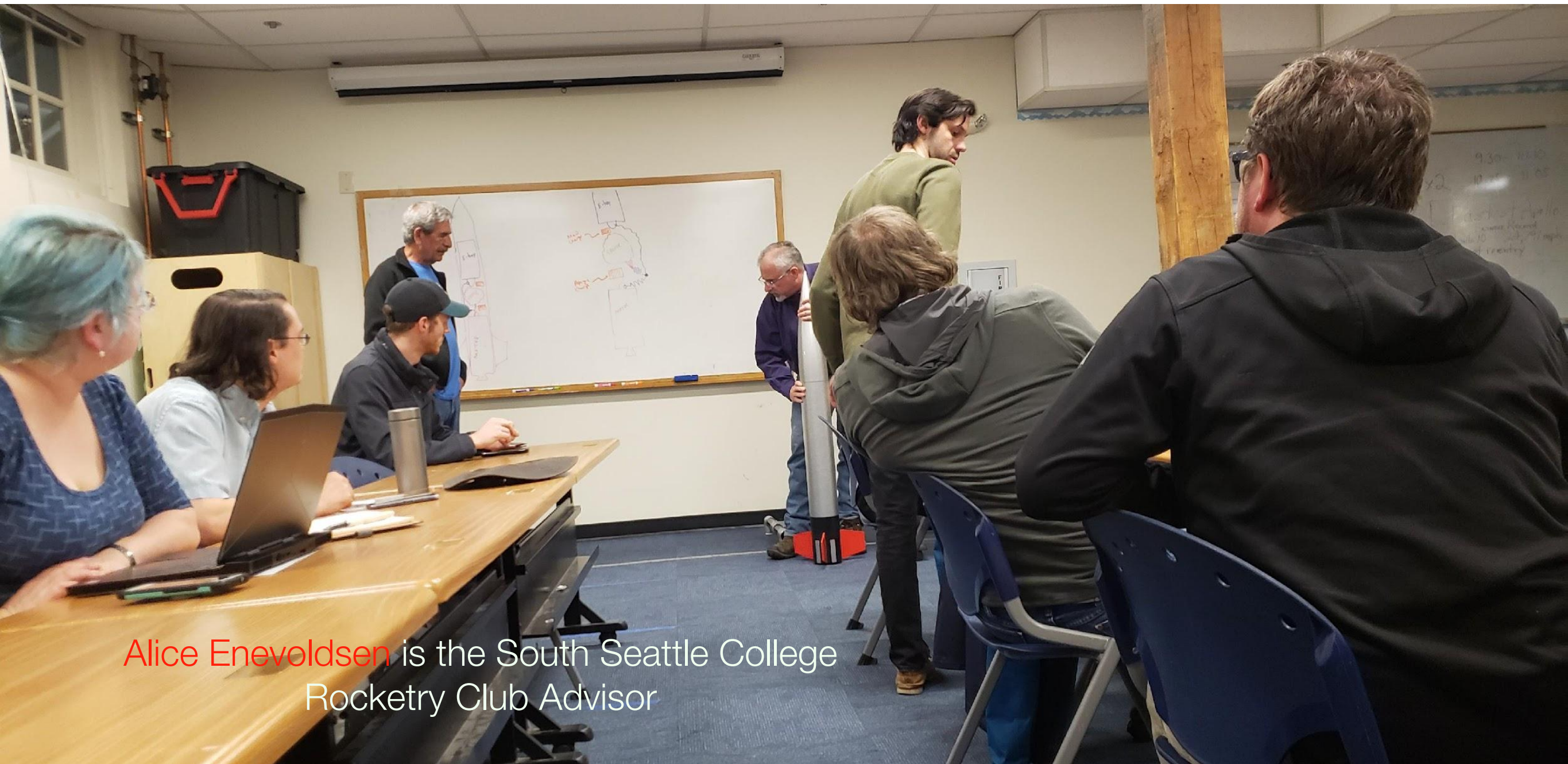
Activities

The club attends the Washington NASA Space Grant symposium with other nearby college rocketry clubs to learn what other clubs are doing, and to share our experiences with launching various rockets.



Activities

The club attends the monthly meeting of the local National Association of Rocketry (NAR) chapter, the Washington Aerospace Club (WAC). The WAC offers NAR Level 1, 2 and 3 certification opportunities for our club.



Alice Enevoldsen is the South Seattle College Rocketry Club Advisor

Activities

The club organizes tours of local space companies, like Blue Origin.



Activities

The club's president
Alex Langenstein



We attend space-themed events at the Boeing Museum of Flight.

Activities

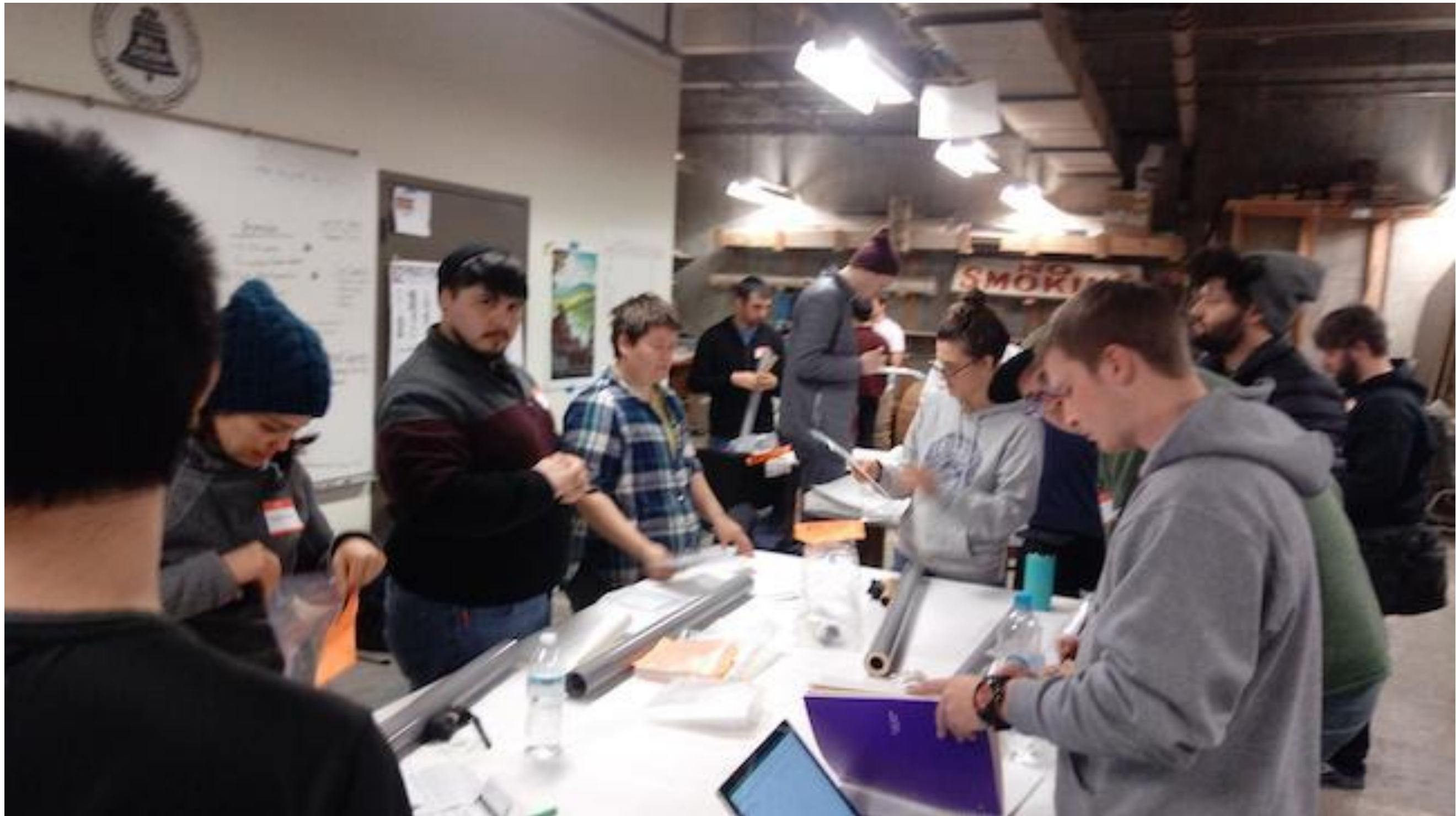
And, of course, the club launches high-power rockets (HPR). We lost access to our usual site in Mansfield, Washington, so we go to Pasco, Washington, which is about a 4.5 hour drive east from campus. The ceiling for flights there is approximately **1500 m**, which is high enough for Level 1 and 2 NAR certifications.

Last month, three faculty members (physics, math and chemistry) earned their Level 1 certification at Pasco. It is important to engage many faculty for the health of a student club!



Activities

The club supplies Public Missiles Limited “Callisto” HPR kits, as well as an Aerotech H128 motor, for all the Level 1 NAR certificants.



Activities

The pay-off for your hard work!



old site at Mansfield, Washington

Activities

The Club also attends the International Rocket Engineering Competition annually in mid-June, at Spaceport America near Las Cruces, New Mexico. It attracts many colleges and universities; this year, the organization that runs the competition had to cap the number of colleges and universities at 125.



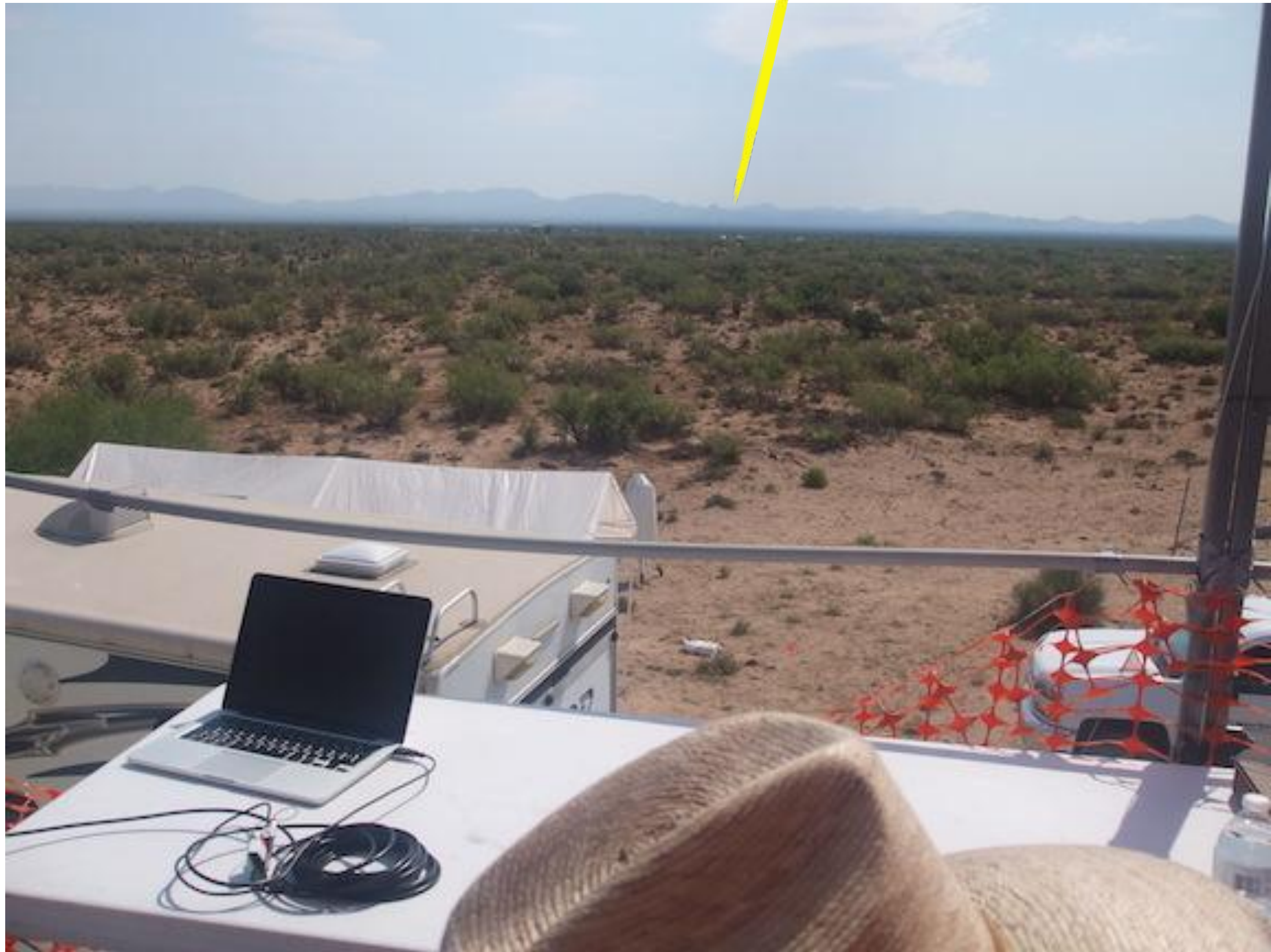
Activities

Launch control is the only permanent building on site!



Activities

The launch rails are 0.5 km away



Activities



The 2017 launch was a success! Aquilla achieved 3300 m, within 10% of the goal.

Activities



The team was very happy when they saw the apogee separation.

Activities



But they knew something went wrong, when the main chute appeared right away. That meant the drogue chute had failed to deploy...

Activities



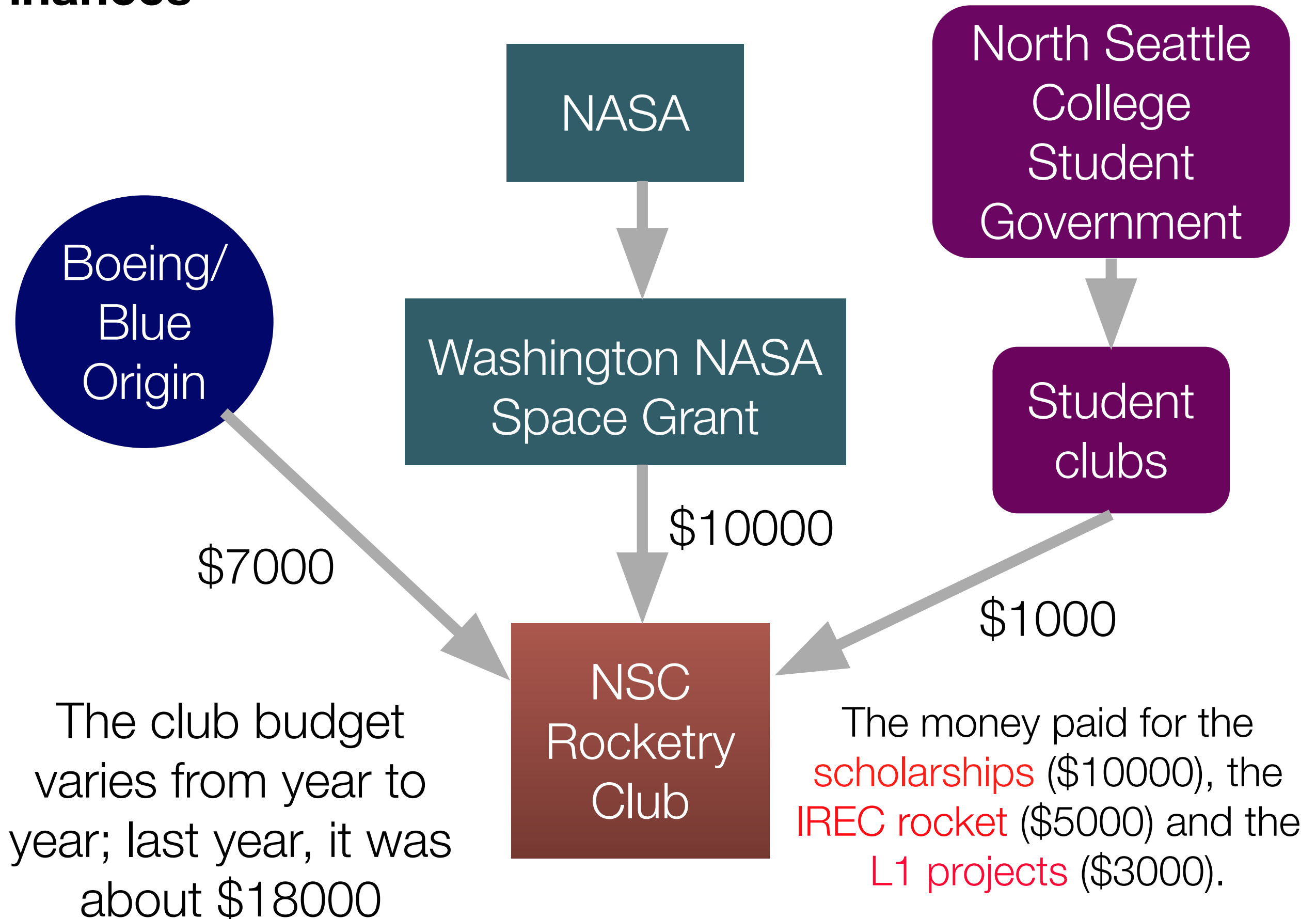
...the rocket landed intact several km away from the launch site. A couple of our team members were treated for heat exhaustion after walking for hours in the desert sun.

Activities



But everyone recovered, and we all had a very good experience, which is why we keep going back.

Finances

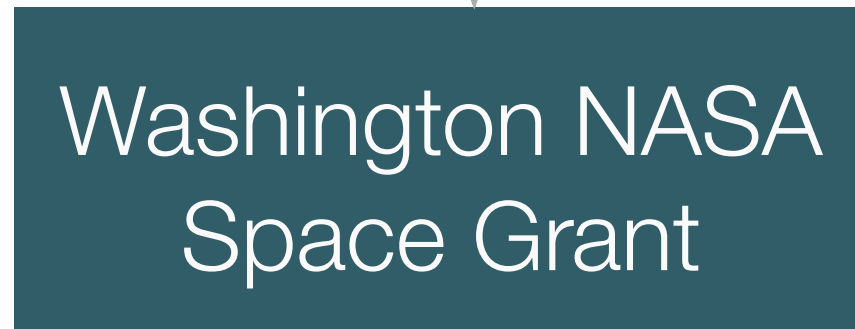
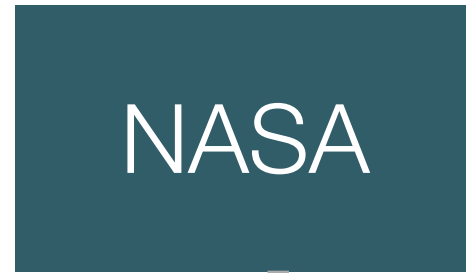


Finances

This year, many sources of funding were cut back.



~~\$1000
\$7000~~



~~\$10000
\$3000?~~



\$1000



Our budget this year may be as low as \$5000.

How will be pay for all the club projects? We are actively seeking other sources of funds, including GoFundMe.

The future

The club plans:

- To compete at IREC, and accomplish a successful payload deployment
- To begin the design of the 2021 IREC rocket this year
- To form stronger ties with other rocketry clubs at colleges and universities, and to other organizations such as WAC
- To include students who are not necessarily majoring in science or engineering – photography and business majors can build rockets, too!



For a successful club:

Many interested students = healthy club

- Plan for the year after this one — what will students who return next year **do**? Who would be a good **leader**?
- **Recruit** in obvious classes, like aerospace engineering or engineering physics
- But don't ignore the rest of campus — **diversity** leads to better ideas and unexpected pockets of expertise
- Leave campus! Develop **relationships** with amateur and professional organizations, other colleges, companies — they can help with funding and advice