

## **Competition Announcement: Unique NASA Opportunity to Design, Build, and Launch High-Power Rockets**

The Minnesota Space Grant Consortium (MnSGC) announces its intention to run a **Space Grant Midwest High-Power Rocket Competition**, held in the Midwest but open to college/ university student teams from across the nation, during the 2016-2017 academic year. This competition is an opportunity for students to design and construct high-power rockets to be launched in May of 2017 from a Tripoli MN launch site near Minneapolis, MN.

### **No previous experience in high-power rocketry is necessary to compete!**

Up to twenty teams sponsored by their state's Space Grants will be allowed to take part in this competition. Interested teams from any state, not just those in the Space Grant Midwest Region, are required to garner local Space Grant "sponsorship" (this might or might not involve financial support, depending on the state) then submit a non-binding "Notice of Intent to Compete" to the MnSGC by October 3, 2016, in which they list their team members, team name, and a committed faculty adviser. (Note – institutions not planning to assemble a student team until spring 2017 still need to submit a Notice of Intent to Compete by Oct. 3, 2016, at least naming a faculty adviser.) Teams are also required to consult with a mentor with high-power rocketry experience.

Informational telecons will be held from 7 to 8 p.m. CST on both Sept. 27, 2016 (for teams planning to spend a full academic year on this project) and on Jan. 19, 2017 (for teams working on this project just for the winter/spring semester). A registration fee of \$400 per team, due by Jan. 27, 2017, will be charged to cover costs, including two competition motors (up to \$100 total) per rocket. States sponsoring more than one rocket team will be expected to provide one judge for written reports and the (in-person) competition.

**2016-2017 Competition goals:** *Student teams will design and construct an "adaptable" single stage, dual deploy high-power rocket system that will fly to the same highest possible altitude on two motors (one I-class and one J-class, or else one J-class and one K-class) that are as different as possible from one another. The rocket must be recovered safely and in flyable condition. The students must predict the rocket's flight performance (with each selected motor) and construct a non-commercial on-board data collection package for the rocket that will directly measure velocity versus time, for comparison with data collected by a commercial rocketry altimeter, as well as sense and log airframe separation and parachute extration from the airframe for both drogue and main parachute deployments, and also collect up and down video from outside the airframe to certify expected (i.e. primary, not backup) drogue and main parachute full deployment.*

The competition will include two written reports about the design, analysis, simulation, build, and test flight results of the rocket, an oral presentation, plus a written assessment of competition flight data results. These will be scored by a panel of professional engineers from both academia and industry. Scoring of the pre-competition reports and the post-flight report will focus on the system design and its performance. More details about the competition motor, reports, deadlines, etc. are in the competition handbook – posted and discussed in the informational telecons.

[http://www.aem.umn.edu/mnsgc/Space\\_Grant\\_Midwest\\_Rocketry\\_Competition\\_2016\\_2017/](http://www.aem.umn.edu/mnsgc/Space_Grant_Midwest_Rocketry_Competition_2016_2017/)

Logistical questions may be directed to James Flaten, MN Space Grant, U of MN, [flate001@umn.edu](mailto:flate001@umn.edu). Technical questions may be directed to Gary Stroick, Tripoli MN, [president@offwegorocketry.com](mailto:president@offwegorocketry.com).

### **IMPORTANT DATES:**

- **Informational telecon: Sept. 27, 2016 (repeated Jan. 19, 2017) from 7 to 8 p.m. CST** (contact James Flaten, MN Space Grant, for call-in information)
- **Garner your state's Space Grant sponsorship and submit a (Non-binding) "Notice of Intent to Compete" due: Oct. 3, 2016**
- **\$400 Registration Fee Due: Jan. 27, 2017 (must pay extra if 2 motors cost more than \$100)**
- **Launch Competition Dates: Saturday (mid-afternoon & evening) and Sunday (all day, including the evening), May 20-21, 2017**
- **Alternate (Weather-delay) Date: Monday (all day), May 22, 2017**