

An aerial photograph of a mountain range, likely the Sierra Nevada, showing snow-capped peaks and a clear blue sky. The text is overlaid on the image.

National Space Grant Directors Meeting Fall 2012

**NATIONAL SPACE
GRANT STUDENT
SATELLITE PROGRAM**

Flight Projects Survey

- Why: communicate to key players to build opportunities; ascertain progress; assist new programs
- What: same questions as in 2008 survey plus additional key questions
- When: summer 2012, focused on FY 2011 activity; if your state hasn't responded, still would like a response
- Who: Results requests - ask Angela
- Where: <http://spacegrant.montana.edu/survey.htm>

Survey Results

- 41 states responded
- Comparison between 2008 to 2012
- Priority, tracking statistics
- Number of projects by category
- Ballooning statistics
- CubeSat statistics

Survey: Comparison

Comparison of surveys 2008 to 2012

| | 2008 | 2012 |
|---------------------------------------|--------|--------|
| <i># of responses</i> | 51 | 41 |
| % Conosrtia engaged in flight project | 86% | 93% |
| # of student-led projects | 200 | 264 |
| # of Insitutiouns of Higher Ed | 180 | 179 |
| # of Industry partners | 90 | 93 |
| # of college students | 2200 | 2565 |
| # of precollege students | ? | 7632 |
| # of precollege educators | 115 | 223 |
| NASA SG investment | \$1.7M | \$2.3M |
| non-NASA SG funding | \$2.7M | 3.7M |

Survey: Priority, tracking

- On a scale of 1 to 5, with 1 being the most important, average priority amongst all programs was 2.4, or the top 1/3
- 27% of longitudinally tracked students who went on to an advanced degree or STEM employment participated in a student-led flight project

Survey: # of projects

Number of projects by category

| | |
|------------------------------------|----|
| Goundstation | 45 |
| Aircraft design, testing, payloads | 82 |
| Small balloon flights | 91 |
| Small balloon payloads | 91 |
| Large balloon payloads | 14 |
| Rocketry | 86 |
| Sounding rocket payloads | 26 |
| Pico/nano Sats | 49 |
| MicroSats | 5 |
| SmallSats | 1 |
| ISS, etc. experiments | 14 |
| Beyond LEO | 3 |

Survey: Ballooning

- 61% do ballooning
- Of the states that do ballooning:
 - Tracking
 - Nearly all use GPS-Ham radio for tracking
 - 32% also use 900 MHz unrestricted band
 - 24% also use Spot
 - Communication with the FAA
 - 72% notify the FAA days prior to flight
 - 52% file a NOTAM
 - 28% communicate with the FAA verbally during flight
 - 32% communicate with the FAA via the internet

Survey: CubeSats

- 64% do CubeSats
- Of the states that do CubeSats:
 - Locations for building
 - 40% clean room on campus; 8% clean room off campus
 - 84% science lab on campus; 8% science lab off campus
 - Testing
 - 6 states have testing available for a negotiated fee
 - Several states work with NASA centers for testing
 - On-line support materials
 - Two states (LA, AL) have materials now
 - Two states have materials in development

Launch Opportunities

- CubeSat Launch Initiative (CSLI) opportunity now open; proposals due November 12th
- From the first three launch initiatives, 64 payloads made the short list for launch opportunities between 2011 and 2014.
- CSLI remains the most cost effective way to launch
- Expected to launch at least 30 CubeSats a year for the next several years
- ELaNa 4&5 anticipated to launch in summer 2013
- University CubeSat challenges have reversed

Launch Opportunities

- High Altitude Student Platform (HASP)
 - RockSat
 - ISS payloads
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- Nanosat launch Centennial Challenge still open but under review
 - aimed at getting CubeSats primary payload status
 - Asked us for information about Space Grant needs (survey helped!) - see us as a key player

Future NSGSSP work

1. Clearinghouse web page with launch opportunities, links to active groups, on-line course and tutorial materials
2. Space Grant collaborative project - 12U
CubeSat? Swarm? Mars? Asteroid?