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

<table>
<thead>
<tr>
<th>Comparison of surveys 2008 to 2012</th>
<th>2008</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td># of responses</td>
<td>51</td>
<td>41</td>
</tr>
<tr>
<td>% Consortia engaged in flight project</td>
<td>86%</td>
<td>93%</td>
</tr>
<tr>
<td># of student-led projects</td>
<td>200</td>
<td>264</td>
</tr>
<tr>
<td># of Institutions of Higher Ed</td>
<td>180</td>
<td>179</td>
</tr>
<tr>
<td># of Industry partners</td>
<td>90</td>
<td>93</td>
</tr>
<tr>
<td># of college students</td>
<td>2200</td>
<td>2565</td>
</tr>
<tr>
<td># of precollege students</td>
<td>?</td>
<td>7632</td>
</tr>
<tr>
<td># of precollege educators</td>
<td>115</td>
<td>223</td>
</tr>
<tr>
<td>NASA SG investment</td>
<td>$1.7M</td>
<td>$2.3M</td>
</tr>
<tr>
<td>non-NASA SG funding</td>
<td>$2.7M</td>
<td>3.7M</td>
</tr>
</tbody>
</table>
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.
## Number of projects by category

<table>
<thead>
<tr>
<th>Category</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundstation</td>
<td>45</td>
</tr>
<tr>
<td>Aircraft design, testing, payloads</td>
<td>82</td>
</tr>
<tr>
<td>Small balloon flights</td>
<td>91</td>
</tr>
<tr>
<td>Small balloon payloads</td>
<td>91</td>
</tr>
<tr>
<td>Large balloon payloads</td>
<td>14</td>
</tr>
<tr>
<td>Rocketry</td>
<td>86</td>
</tr>
<tr>
<td>Sounding rocket payloads</td>
<td>26</td>
</tr>
<tr>
<td>Pico/nano Sats</td>
<td>49</td>
</tr>
<tr>
<td>MicroSats</td>
<td>5</td>
</tr>
<tr>
<td>SmallSats</td>
<td>1</td>
</tr>
<tr>
<td>ISS, etc. experiments</td>
<td>14</td>
</tr>
<tr>
<td>Beyond LEO</td>
<td>3</td>
</tr>
</tbody>
</table>
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

- 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?