National Space Grant College and Fellowship Program

Spring 2011
National Council of Space Grant Directors
March 4, 2011

Diane D. DeTroye
Katie Pruzan
Agenda

- 2011 Budget situation
- Education Design Team status
- Access to NASA IT Systems
- OSSI:SOLAR Training
- Unexpended Funds
- Solicitation updates
- Space Grant Outcomes and Results
2011 Budget Situation
National Space Grant College and Fellowship Program

- National network that expands opportunities for students, educators, and faculty to understand and participate in NASA missions.
- Composed of 52 consortia in 50 states, the District of Columbia, and the Commonwealth of Puerto Rico. Space Grant leverages the resources of over 950 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies.
- Space Grant supports STEM education and research in higher education, K-12, and informal education. NASA establishes training grants with consortia, aligning activities with Agency priority performance goals.
Education Design Team Update

• The Team appreciated the input from the Space Grant community -- Diane DeTroye and the consolidated input from the directors.
• The co-leads for the Team, Jim Stofan and Trish Pengra, held a series of telecons with key stakeholders in January.
  – Jim and Trish briefed Chris Koehler on January 14th.
• The Team presented its finalized recommendations in a briefing to Charlie Bolden and Lori Garver on Friday, January 21st.
• The recommendations remain pre-decisional, awaiting review and acceptance for implementation by Leland Melvin, Associate Administrator for Education.
• Diane DeTroye participated in the Education Coordinating Committee meeting on January 25-26 when the recommendations were discussed by the members of that group.
• Several Working Groups have been organized to address the recommendations and Diane is a member of at least two of them.
Access to NASA IT Systems
Multi-step Process

1. Establish your “identity” through the Identity Management and Account Exchange (IdMAX) system
   • You will receive a “Remote User” Identity

2. Once your identity is established, then access to specific applications and systems is approved
   • Office of Education Performance Measurement (OEPM) System
     – At least 2 contacts/consortium
   • One-Stop Shopping Initiative: Student On-line Applications for Recruiting Interns, Fellows, and Scholars (OSSI:SOLAR) System
     – 1 contact/consortium assigned the “Space Grant User” role
• Will occur during the Consortium Coordination session on Saturday, March 5
• We are still working on establishing the identities for the 52 “Space Grant User” roles through IdMAX before we can establish OSSI:SOLAR access
• The training on Saturday will cover parallel efforts
  1. The standard OSSI:SOLAR process, if user has system access
  2. The workaround processes that have been established for the summer session, if user does not have system access
Unexpended/Uncosted Funds

• Drawing down funds from awards is critically important
• One of the overall performance metrics tracked by the Agency
  – Implications from Congress that large amounts of unexpended funds will reduce future budget appropriations
• We are currently doing an analysis of the unexpended funds for all Space Grant and EPSCoR awards
  – Will take into consideration the size, scope, and period of performance for the award
• Work with your business/billing office to insure appropriate and timely draw-down of funds
Solicitation Updates

- Ralph Steckler/Space Grant Space Colonization Research and Technology Development Opportunity Phase II
  - Proposals were due January 12, 2011
  - Review process in progress
- “Grant Us Space” – exclusive Space Grant Reduced Gravity Week
  - Proposals were due February 2, 2011
  - Review process in progress – anticipate selection announcement in mid-March
- Experimental Program to Stimulate Competitive Research (EPSCoR) Research Announcement
  - Proposals are due March 11, 2011
- CubeSat Launch Initiative
  - 20 CubeSat Education Launch of Nanosatellites (ElaNa) selections announced on February 8, 2011
  - Several with Space Grant sponsorship or strong Space Grant connections!
- Competitive Program for Science Museums and Planetariums (CP4SMP)
  - NASA anticipates issuing a FY 2011 CP4SMP NRA (call for proposals) as soon as practicable.
  - NASA Education estimates the CP4SMP NRA will be available on NSPIRES no later than 60 days from Congress appropriating and the President signing a NASA budget that funds CP4SMP beyond FY 2010.
# Solicitation Updates
## Summer of Innovation 2011

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Implementation Strategy</th>
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<tbody>
<tr>
<td><strong>Build the capacity of community- and school-based organizations to engage underserved and underrepresented students in high quality STEM content in summer and extended learning experiences tailored to meet local needs</strong></td>
<td><strong>Cooperative Agreement</strong>&lt;br&gt;<strong>Duration:</strong> Up to 4 years&lt;br&gt;<strong>Budget:</strong> Up to $750k/awardee&lt;br&gt; Awards that support major efforts to build the capacity of high quality or promising efforts targeted at underserved and underrepresented populations to either take to successful efforts to scale or incorporate NASA content into STEM education efforts</td>
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<td><strong>Support the infusion of NASA themes and resources in summer and extended learning</strong></td>
<td><strong>NASA Centers</strong>&lt;br&gt;<strong>Duration:</strong> Ongoing&lt;br&gt; NASA Centers’ supporting the building of capacity through collaborations with individual organizations or consortiums to develop and implement innovative strategies that can benefit from the use of NASA resources, facilities and opportunities for the sustained engagement of underserved and underrepresented students in summer and extended learning settings</td>
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<td><strong>Facilitate the alignment of summer and extended programming with the formal education community to support coordinated and sustained engagement in STEM content</strong></td>
<td><strong>Mini-Grants</strong>&lt;br&gt;<strong>Duration:</strong> One time&lt;br&gt;<strong>Budget:</strong> Up to $2,500/awardee&lt;br&gt; Awards that support student engagement and teacher training in Sol resources for small and non-traditional audiences</td>
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<td><strong>Organizations that are not awarded financial support or cannot meet project funding or sustained engagement requirements will still have full access to Sol educational content through the Sol website</strong></td>
<td><strong>Website</strong>&lt;br&gt;<strong>Duration:</strong> Ongoing</td>
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Education Opportunities in NASA STEM (EONS)

Overview:

- A pilot NASA Research Announcement (NRA) that solicits education opportunities in support of NASA’s Office of Education under the Minority University Research and Education Program (MUREP).
- EONS is an umbrella solicitation with multiple individual opportunities available including the following MUREP projects:
  - Curriculum Improvement Partnership Award for the Integration of Research (CIPAIR)
  - Innovations in Global Climate Change Education (IGCCE)
  - MUREP Small Projects (MSP) Transformational Performance in STEM Using Innovative Solutions
- Solicitation released on January 7, 2011
  - Available on NASA NSPIRES
  - Proposal due dates vary – depends on the opportunity
Overview:

- Also, included in this opportunity are Marshall Space Flight Center (MSFC) and Stennis Space Center (SSC) MUREP-specific projects. These projects address MUREP goals and objectives but are funded by other NASA sources. They include:
  - Hispanic Scholars Summer Internship Project
  - Minorities in Science and Engineering
  - Michael P. Anderson STEM Project
  - MSFC Pre-service Teacher Institute
  - SSC Pre-service Teacher Institute
Education Opportunities in NASA STEM (EONS)

• The future plan for the EONS announcement is to include all MUREP announcement opportunities
  – To consolidate and simplify interested parties’ access to this information;
  – To enhance NASA’s ability to obligate funding earlier in the Fiscal Year; and
  – To ensure that grantees are able to begin costing their funds during the Fiscal Year of funding.

• EONS will be posted once a year; amendments (including new opportunities) will be posted throughout the year
Outcomes and Results
Annual Performance Documents (APD)

• 2009 Annual Performance Documents posted on the NASA website in compliance with OMB government transparency requirements

• 2010 Progress Reports/Annual Performance Document instructions sent on January 31, 2011
  – Serves as your narrative progress report this year
  – Report on the comprehensive accomplishments from the base and augmentation funds provided in FY 2010
  – Should clearly identify accomplishments based on the goals, objectives, and targets proposed in your base and augmentation proposals
  – If you wish to make changes to the Year Two budget submitted in your 2010 proposal, this request must accompany the submission of your Progress Report/Annual Performance Document
  – Upon acceptable review of your APD and, if required, your revised budget, we will be able to initiate FY 2011 base funding
Outcomes and Results
2010 Performance Results Data Collection

– OEPM will not be available
– Additional instructions will be provided later in the year for the:
  • “Survey Monkey”
  • Expenditure Summary
  • Student Data Table Inputs
– You should begin to aggregate those data in anticipation of that data call.
– Timing will be much earlier in the year – anticipate April/May.
– Do you want another “training” telecon?
National Space Grant College and Fellowship Program

Colorado and Virginia Space Grant RockOn at Wallops

Vermont Space Grant Student working on Autonomous Underwater Vehicle Design Team

Louisiana Space Grant “Physics & Aerospace Catalyst Experiences in Research (PACER)” project

Summary of Performance Results

New York Space Grant student at NASA KSC

Whitney Lohmeyer North Carolina Space Grant receives inaugural Women in Aerospace Foundation Scholarship
Cultivate Diversity of Workforce Disciplines and Practitioners

Office of Education Strategic Framework

Elementary/Secondary Education
Outcome 2: Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers and faculty.

Higher Education
Outcome 1: Contribute to the development of the STEM workforce in disciplines needed to achieve NASA’s strategic goals, through a portfolio of investments.

Informal Education
Outcome 3: Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA’s mission.

Principles/Criteria
Relevance | NASA Content | Diversity | Evaluation | Continuity | Partnerships/Sustainability

* Science, Technology, Engineering and Mathematics (STEM)
52 state-based consortia comprise the National Network and involve 987 affiliate partners which include 652 institutions of higher education, 87 industries, 83 governmental entities (Federal/State/Local), 76 museum/science centers, and 89 other local partners.

**Outcome 1 Results**
- 21,000 direct higher education student participants
- 2,800 faculty (mentors/researchers)
- National Space Grant Student Satellite Program (Ballooning, Rocketry, Ground Station, and Reduced Gravity Student-led Missions)

**Undergraduate Opportunities**
- 87% undergraduate level
- 39% of the undergraduates are funded

**Diversity**
- 39% female participation
- 29% underrepresented minority participation
- 21% of IHE affiliates are MSI
- 16% of IHE affiliates are 2-Year Colleges

**Workforce Development**
- 93% of longitudinally tracked students employed in STEM or retained in STEM academia
- 179 new or revised higher education courses

**Outcome 2 Results**
- 342 Short-Duration Educator Workshops
- 217 Long-Duration Educator Workshops
- 14,400 Precollege Educators
- 125,000 Precollege Students

**Agency Leverage**
- Summer of Innovation Pilot
- NASA Explorer Schools
- Resource/Opportunity Dissemination
- State-based Mission Directorate Initiatives (ESMD, SMD)
- NASA Academy Programs (ARC, GRC, GSFC, MSFC)
- Student Internship Programs (JSC, JPL, MSFC)
- Student Flight Projects (RockOn, RockSat, HASP, CubeSat, Reduced Gravity, SPHERES-ISS National Laboratory)
- Steckler Bequest for Space Colonization
- NASA 50th Anniversary Future Forums
- GLOBE
- Linking Leaders

**Outcome 3 Results**
- 251 Short-Duration Educator Workshops
- 35 Long-Duration Educator Workshops
- 1,900 Informal Educators
- 19,800 Parents/Guardians

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_Funds Leveraged by NASA Funding Support 80%_

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_Space Grant expands opportunities for Americans to understand and participate in NASA’s aeronautics and space programs._
**Goal**
Contribute to the nation's science enterprise by funding education, research, and public engagement projects through a national network of university-based Space Grant consortia.

**Objectives**
- Establish and maintain a national network of universities.
- Encourage cooperative programs among universities, aerospace industry, and Federal, state, and local governments.
- Encourage interdisciplinary education, research, and public service programs related to aerospace.
- Recruit and train U.S. citizens, especially women, underrepresented minorities, and persons with disabilities.
- Promote a strong science, mathematics, and technology education base from elementary through secondary levels.
The Space Grant National Network: Composition and Leverage

<table>
<thead>
<tr>
<th>Affiliate Partner Type</th>
<th>Number</th>
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<tbody>
<tr>
<td>IHE- Bachelors and/or Graduate Degree</td>
<td>546</td>
</tr>
<tr>
<td>IHE- Community/2-Year Institutions</td>
<td>106</td>
</tr>
<tr>
<td><strong>Total Academic Affiliate Partners</strong></td>
<td>652</td>
</tr>
<tr>
<td>Government (Federal/State/Local)</td>
<td>83</td>
</tr>
<tr>
<td>Industry</td>
<td>87</td>
</tr>
<tr>
<td>Museum/Science Center/Planetarium</td>
<td>76</td>
</tr>
<tr>
<td>Other and Other Non-Profit Organizations</td>
<td>89</td>
</tr>
<tr>
<td><strong>Total Non-Academic Affiliate Partners</strong></td>
<td>335</td>
</tr>
<tr>
<td><strong>Total Affiliate Partners</strong></td>
<td>987</td>
</tr>
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Diversity of Academic Affiliates is a Key Emphasis of the Program*:  
- 40 Hispanic Serving Institutions  
- 48 Historically Black Colleges or Universities  
- 23 Tribal Colleges or Universities  
- 20 Other Minority Universities  

* MSIs = 20% of the total academic affiliates

“My institution is a historically black college/university. Over the past 20 years or so, fellowships and scholarships from Space Grant awards have served as the backbone of our recruitment efforts for our physics and chemistry programs.” 2008 National Affiliate Survey quote
Comprehensive Distribution of NASA and Cost Share Funds

- Consortium management and/or administrative costs that are not attributable to a specific project(s).
Space Grant consortia annually fund fellowships and scholarships to support the participation of students and faculty in authentic NASA-related research, emphasize diversity of participants, institutions and human resources, support curriculum enhancement, and communicate the benefits of STEM disciplines through public engagement activities in their states.

Involvement of Higher Education Community in NASA Missions
- 21,000 direct higher education student participants
- 5,487 receive direct financial support
- 2,800 faculty (mentors/researchers)

Undergraduate Opportunities
- 87% of participants are undergraduate level
- 39% of the undergraduates are funded

Diversity
- 39% female participation
- 29% underrepresented minority participation

Workforce Development
- 93% of longitudinally tracked students employed in STEM or retained in STEM academia
- 4,024 students added to longitudinal tracking database
- 179 new or revised higher education courses

Winston-Salem State University (WSSU) undergraduates at the University of Wyoming for a summer research fellowship - Protein Assays
Space Grant Longitudinal Tracking*  
2006-2009

N = 4,666 graduates  
(Four Year Cumulative Total)

- **NASA/JPL**: 47%
- **Aero Industry**: 11%
- **STEM Industry**: 21%
- **STEM Academia**: 10%
- **Advanced STEM Degree**: 8%
- **Non STEM**: 3%

* "significant" awards = "$: > $5,000, > 160$ hours, or cost-benefit

There are currently nearly 7,000 students in the Longitudinal Tracking Pool. Space Grant consortia will continue to track and report the status of these students until they make their “Next Step” following graduation.
Outcome 2 Results

Space Grant emphasizes educator preparation and development, and student-focused projects that demonstrate increased enrollment in STEM disciplines or interest in STEM careers; and collaborates with colleges of education and other STEM pipeline projects.

Camp Owyhee Students – Robotics
Idaho Space Grant

Wind Turbine Educator Professional Development – Wyoming Space Grant

Outcome 2 Results
- 342 Short-Duration Educator Workshops
- 217 Long-Duration Educator Workshops
- 14,400 Precollege Educators
- 2,705 Pre-Service Educators
- 125,000 Precollege Students*

* Represents 20% of the OEd PAR results reported
Example:
“ViewSpace” Exhibit from NASA
This one-of-a-kind exhibit connects Museum visitors with the latest and the best images from NASA’s Hubble Space Telescope and its successor, the James Webb Space Telescope.

ViewSpace is an internet-fed, self-updating, permanent exhibit from the Space Telescope Science Institute. The daily live updates include an in-depth and highly visual explorations of intriguing astronomical subjects; mission updates from Mars Exploration Rovers, Saturn orbiter and Titan lander; introductions to the constellations, planets, deep sky objects, and special astronomical events of the night sky; new discoveries about extra-solar planets and their environs; and much more.

Significant funding for this exhibit provided by the Michigan Space Grant Consortium

Outcome 3 Results
✓ 251 Short-Duration Educator Workshops
✓ 35 Long-Duration Educator Workshops
✓ 1,900 Informal Educators
✓ 19,800 Parents/Guardians

Example:
McAuliffe-Shepard Discovery Center Exhibit
The discovery center created an exhibit on living and working in space, drawing on artifacts from prior space grant activities and from items obtained through NASA’s de-accessioning program.

Support provided by New Hampshire Space Grant
## Space Grant Performance Metrics
### OEd APGs – 2010 Reporting

<table>
<thead>
<tr>
<th>Performance Metric</th>
<th>Office of Education Result</th>
<th>Space Grant Result</th>
<th>Office of Education Result</th>
<th>Space Grant Result</th>
<th>Space Grant Contribution to OEd Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of graduates employed by NASA, aerospace contractors, universities, and other ed. Institutions (&quot;significant awards&quot;: &gt; $5,000, &gt; 160 hours, or cost-benefit)</td>
<td>46%</td>
<td>42%</td>
<td>Total Students 1,380</td>
<td>Total Students 1,166</td>
<td>84%</td>
</tr>
<tr>
<td>Percent of students moving to advanced education (&quot;significant awards&quot;)</td>
<td>42%</td>
<td>44%</td>
<td>Total Students 1,236</td>
<td>Total Students 1,086</td>
<td>88%</td>
</tr>
<tr>
<td>Percentage and Number of underrepresented students in higher education programs</td>
<td>39%</td>
<td>29%</td>
<td>Total Students 6,415</td>
<td>Total Students 3,884</td>
<td>61%</td>
</tr>
<tr>
<td>Percentage and Number of female students in higher education programs</td>
<td>42%</td>
<td>39%</td>
<td>Total Students 6,950</td>
<td>Total Students 5,128</td>
<td>74%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Metric</th>
<th>Office of Education Target</th>
<th>Office of Education Result</th>
<th>Space Grant Result</th>
<th>Space Grant Contribution to OEd Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Institutions served in EPSCoR States</td>
<td>200</td>
<td>234</td>
<td>217</td>
<td>93%</td>
</tr>
<tr>
<td>Ratio of funds leveraged by NASA funding support</td>
<td>80%</td>
<td>83%</td>
<td>80%</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of New or Revised Courses</td>
<td>60</td>
<td>320</td>
<td>179</td>
<td>56%</td>
</tr>
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Agency Education Programs Collaborations

- **Summer of Innovation** – Utilized by the Agency to implement the 2010 pilot (4,700 Students and 436 Educators); will be involved in mini-grant portion for 2011.
- **NASA Explorer Schools** – provide mentoring and professional development for students and educators, assistance with sustainability plans, mentoring and involvement in family and outreach activities
- **Aerospace Education Service Project (AESP)** – mini-grant program to deliver curriculum toolkits
- **Interdisciplinary National Science Program Incorporating Research and Education Experiences (INSPIRE)** – Tier 2A component: two week on-campus, residential experience for rising 11th grade students
- **Ralph Steckler Bequest** – Space Grant network utilized to meet the intent of the bequest to NASA (Human Space Colonization)
- **NASA 50th Anniversary Future Forums** - Partnered with NASA to provide support for special events and activities
- **GLOBE** – Space Grant hosted the first GLOBE workshops and took a leadership role in statewide implementation of US Partners
- **Linking Leaders** – Space Grant Directors took a leadership role to convene and facilitate interactions between state-based STEM stakeholders and state-based NASA assets
- **Disseminates information on NASA and the Office of Education using national list-serve**

NASA Center & Mission Directorate Collaborations

- **Implementing partner for state-based Mission Directorate initiatives:**
  - SMD International Year of Astronomy & Space Science Student Ambassadors Programs
  - SMD Internships (Pilot Effort 2011)
  - ESMD Space Grant Innovative Projects
  - ESMD Senior Design Course Development
  - ESMD Faculty Workshop and Fellowship
  - ESMD Systems Engineering Education Initiative
  - ESMD eXploration Habitat (X-HAB) Academic Innovation Challenge
- **NASA Academy Programs** – Primary funding source for student participants (Ames Research Center, Glenn Research Center, Goddard Space Flight Center, and Marshall Space Flight Center)
- **Builds network/state infrastructure to compete for federal funds** – EPSCoR, USRP, LARSS, VASTS, K-12 Competitive Grants, Sol Capacity Building Grants
- **Collaborates with NASA Centers and Mission Directorates to create regional and discipline-specific communities:**
  - 4 Mission Directorate Working Groups
  - 5 Regional Space Grant Consortia
  - Student Internship Programs (JSC, JPL, MSFC)
- **Student-led Flight Projects** – RockOn, RockSat, HASP, CubeSat, Reduced Gravity, and SPHERES-ISS National Laboratory