

Minutes - National Council of Space Directors Meeting

Atlanta, Georgia, October 26 - 28, 2008

A. Sunday, October 26, 2008, 1:00 – 5:30 PM

1. Chris Koehler, Executive Committee Chair, gave a summary of the topics discussed during the Executive Committee meeting that took place earlier in the morning (see minutes of Executive Committee meeting for details).
2. Treasurer's Report, Peter Sukanek, Treasurer

The account transfer to NSGF was completed, as agreed in the last meeting.

Checking account previous balance (as of 25 February 2008): \$ 5,802.90

Transfer to NSGF: \$ 5,802.90

Current balance (as of 31 March 2008): \$ 0.00

On deposit with NSGF:

	ACTIVITY	PREVIOUS BALANCE (as of 31 Dec 07)	CURRENT AMOUNT (as of 31 Aug 08)
Endowment		\$6,014.13	
Income	Interest/Gifts		\$547.98
Total Endowment			\$6,562.11
Expendable		\$13,734.49	
Income	Interest/Gifts		\$142.21
Transfer	From Checking		\$5,802.90
Expense	Transition Meeting (Aug 08)		(\$1,830.89)
Total Expendable			\$17,848.71
Total		\$19,748.62	\$26,030.26

3. Consideration of the Minutes, Gerardo Morell, secretary. The minutes of the spring 2008 meeting and the fall 2007 were considered and approved without changes.
4. Nominating Committee Update and Elections, Bill Byrd, Committee Chair. Peter Sukanek (MS) and Mike Wiskersen (CA) were elected for the National Space Grant Foundation Board of Directors.
5. Program Update, Diane DeTroye, National Space Grant Program Director.
 - The SG directors will be peer-reviewers of the 20th year Program Progress Report evaluation. The PPR evaluation training will be done here tomorrow. The evaluation process starts on November 5, 2008 and should be completed by December 2008. The SG

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Foundation is helping with the website to do the evaluations online. An executive panel will compile/analyze the results. The final results will be released in March 2009.

- PART (performance assessment rating tool) considered the following: % of students employed by NASA, % of undergrads who move to advanced degrees, Number of minority students, Number of new or revised courses targeted at STEM skills needed by NASA, Number of institutions served in designated EPSCoR states, % of higher education participants who participated in NASA elementary or secondary programs.
- PART results: Employed by NASA/JPL: 2%; Pursuing advanced degrees: 42%; Employed by NASA contractor: 12%; Employed STEM Academia: 12%; Employed STEM non-aereo position: 14%; Seeking STEM employment: 9%; All non-STEM next step: 9%.
- NASA hiring avenues: student career experience program or coop, federal career intern program, term appointment, permanent for “freshouts” who become civil servants. (These data do not include JPL.)
- USAJOBS: There are four ads for NASA-sponsored education program participants (also in the ESMD). They close on December 31, 2009. Those who participated in NASA-education programs between 2006-2008 are eligible to apply: (www.usajobs.com)
 - NA09N0008 - Professional Engineering Positions
<http://jobsearch.usajobs.gov/ftva.asp?opmcontrol=1428808>
 - NA09N0009 - Physical Sciences/Biological Sciences
<http://jobsearch.usajobs.gov/ftva.asp?opmcontrol=1428816>
 - NA09N0010 - Accounting & Budget/Business and Ind/Administration/HR
<http://jobsearch.usajobs.gov/ftva.asp?opmcontrol=1428820>
 - NA09N0011 - Computer Engineer/Computer Scientist
<http://jobsearch.usajobs.gov/ftva.asp?opmcontrol=1428831>
- Recognition of outstanding participation in the NASA Future Forum: WA, OH, MI, FL, CA, MA, IL. This helped bring the accomplishments of SG to the attention of senior managers.
- FY09 budget: There is a CR until March 1, 2009. So we don't know the final budget of SG. Progress reports will be requested early on. Most likely, incremental funding will be sent to consortia. The NASA comptroller wants to expedite funding, and they are working together to find ways to streamline funding to consortia.
- The 2009 EPSCoR CAN will be out in mid-November 2008, with a due date of mid-February 2009. It will be basically the same CAN as in the previous NASA EPSCoR competition.
- Future NASA EPSCoR data reporting will be done using the new NASA Education database.
- There is a new solicitation under development in conjunction with ESMD Ralph Steckler/Space Grant Space Colonization Research and Technology Development Opportunity. It will be available in NSPIRES.
- Working together with Science Mission Directorate, we were able to select an astronomy ambassador in every state, as part of the activities of the International Year of Astronomy (IYA). These students will go to Paris for the IYA inauguration.

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- It is anticipated that there will be a new ESMD solicitation for SG soon. The program has been very successful.
 - Diane offered to plan a workshop on SMART goals development, measurement, and assessment for the spring 2009 meeting. Many people raised their hand indicating interest in this workshop.
 - Diane turned it over to Katie Pruzan to talk about the results from student-led flight projects survey corresponding to 2007:
 - 86% (n=44) of Consortia indicated that in 2007 they were engaged in a student-led flight project.
 - There were more than 200 student-led flight projects involving 180+ Institutions of Higher Education and nearly 90 Industry partners.
 - These projects engaged nearly 2,200 college students, more than 275 faculty, and 115+ pre-college educators.
 - NASA Center involvement was cited by 64% (n=28) of Consortia who indicated engagement in student-led flight projects.
 - The 2007 NASA Space Grant investment supporting student-led flight projects totaled approximately \$1.7 million. Additionally, \$2.75 million in non-NASA Space Grant funding was utilized to support student-led flight projects.
 - More than 60% of the Ballooning projects were reported as “ongoing”.
 - Results: 30% suborbital payloads (ballooning), 7% suborbital payloads (sounding rockets), 10% suborbital vehicles (rocketry), 16% suborbital vehicles (ballooning), 12% aeronautics (aircraft), 8% ground station, 5% low earth orbit < 5 kg, 4% low earth orbit > 5 kg, 1% orbital launch vehicle, 2% ISS/STS/CEV experiments, 4% beyond low earth orbit (GEO, Moon, Mars, Beyond).
6. Consortium Coordination (NASA HQ, Directors, Coordinators), Karlene Rose, NASA HQ:
- A new Education Performance Measurement (EPM) system will replace CMIS.
 - Purpose: provide single data collection and reporting system that will help NASA improve data collection and assessment [and Program/Project management]
 - 3 tier approach: PART, Office of Education Strategic Goals, and Project-Specific goals.
 - The new EPM system will have more functionality than CMIS: more streamlined, upload capability, report building, privileges/access.
 - The EPM system will go live on Oct 31 for the Office of Education, but not for SG until 2009.
 - NASA EPSCoR will also report using the new EPM system.
7. University Space Competition (U-Space) – Brian Gilchrist, Professor University of Michigan, sponsored by Alec Gallimore (MISGC)
- Goal: attract, excite, train new generations of multidisciplinary aerospace professionals
 - Approach: create exciting in-space student experience opportunities with broad access
 - Solar Car Model: students build and privately fund million-dollar class solar cars for national and international competitions; they spend \$100K-200K in solar panels.
 - Fund raising, design, fabrication, test, operation/logistics, strategy, outreach.
 - Longevity: bi-annual

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- Nano-sat (1 kg, 10x10x10 cm) called cubesats: launch cost \$40-50K, flying multiple cubesats is feasible (max \$24-30K). This is a cost level where private funding of launch costs is feasible.
 - Spacecraft mass and volume constrains mean that innovation, miniaturization, and sophistication are essential to win.
 - Annual costs estimated at \$200-250K.
8. National Space Grant Foundation Update, Mark Fischer, Executive Director
- NASA Education Associates Program (CA / Ames)
 - Student and Faculty Internship Program at NASA/Ames
 - Prime Contractor with Subcontract to CASG Foundation
 - Contact: Bill Byrd (IA) or Mike Wiskerchen (CA)
 - Aerospace Education Services Project (PA / Langley)
 - Bringing NASA to K-12 Education
 - Subcontractor to Penn State to Implement Professional Development
 - Contact: Lisa Brown (PA)
 - Virginia Aerospace Science and Technology Scholars (VA / Langley)
 - Interactive On-line and Residential Experience for High School Juniors at NASA/Langley
 - Modeled after Texas Aerospace Scholars at NASA/JSC
 - Contact: Mary Sandy (VA)
 - International Electric Propulsion Conference (MI)
 - Meeting Registration, Payment Processing, Web Site, and Other Various Items
 - Contact: Bonnie Bryant (MI)
 - Space Grant 20th Year Evaluation Support Services
 - Pathevo™ Contract (MD, TX, WV, 25 SG Institutions, ~20,000 students)
 - NASA International Year of Astronomy (NASA HQ-SMD)
 - One Student Ambassador Per State
 - Two Ambassadors Will Attend IYA Opening Ceremony in Paris, France
 - States May Select and Fund Additional Ambassadors
 - Initial Selection: 46 Ambassadors, 42 States, 4 State Funded
 - 2nd Round Applications
 - ESMD Student Paper Competition (KSC)
 - Administer NASA Funded Student Awards
 - Systems Engineering Workshop and Curriculum Development (TX / JSC)
 - Systems Engineering Curriculum Development and Implementation
 - Contact: Wally Fowler (TX)
 - Support Services
 - Provide Economies of Scale to Space Grant Network
 - Various Projects With 32 States (6 one time/26 ongoing)
 - Meeting/Workshop Registration
 - (National Meetings, Regional Meetings, IEPC, RockOn, StudentSat 6, SHOT II, Illinois Aerospace Institute Camp)
 - Website Design/Redesign

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- (DE, ND, VA, Council, IEPC, VASTS)
 - Website Hosting (Coordinators, Council, IA, IEPC, ND, VASTS)
 - Application System (9 States, 2 Other Programs: CT, IA, IN, NC, NIYA, NM, NV, TX, VA, VASTS, WV)
 - Fellowship & Scholarship Contractor (Pilot Program)
 - Longitudinal Tracking System (20 States: AR, CO, FL, ID, KY, MD, MI, MN, MS, NC, ND, NH, OK, OR, PA, SC, SD, TN, TX, WA)
 - Proposal Submission and Review System (6 States, 1 Other Program: FL, IN, NC, NM, TX, WV, AESP)
 - States Contract with NSGF to Fund Fellowships
 - Pilot Program (Limited Availability)
 - States Maintain Control of F&S Program
 - F&S Program Definition, Selection Criteria, Selection Process, Award Levels, Award Schedule, Reporting Requirements, etc
 - Cut Checks to Students
 - Tax Documents From Students
 - Report to State
 - End of Year Tax Documents to Students
 - Subcontract Between Space Grant Lead Institution and NSGF
 - NSGF Contact: Joylynn Watkins (watkins@spacegrant.org)
 - Cost Set on a State by State Basis
 - Example Program: 60 Awards, 2 Checks Per Year, Cost: \$3,800
 - Represent Space Grant Nationally (50th Year Publication, NSTA, ASP, Space Week)
 - Serve as Contracting Entity (AESP, ESMD Paper Awards, USRP, EAP, NSIP)
 - Proposal Submission – National/Regional/Local (USRP, AESP, STSP, NSIP, MUST)
 - Accepts Donations On Behalf of State Consortia (HI, NC, OR, TX)
 - Bank Accounts – Interest Bearing and Endowment (Each State, Council)
 - Equipment Purchases (DC, RI, TN)
 - Mailing Lists (sgDirectors, sgCoordinators, sgExec, Student_Satellites)
9. Langley Aerospace Research Summer Scholars (LARSS) Program: Mary Sandy, VASGC, Debbie Murray, LARSS Program Coordinator, (757) 864-5215, Deborah.B.Murray@nasa.gov, Summer Session Deadline: February 1, 2009.
10. American Astronomical Society's Division of Planetary Sciences (DPS), Yervant Terzian, NYSGC: Planetary Scientists Conference commissioned Roberto Sierra a new piece to commemorate the IYA. 800 astronomers from around the globe came to Cornell for the 40th annual meeting of the AAS-DPS. Roberto Sierra, Cornell's Old Dominion Foundation Professor in the Humanities performed his original piece titled "Anillos," or "Rings" inspired by images of Saturn from NASA's Cassini mission.

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B. Monday, October 27, 2008, 8:30 AM – 5:30 PM

1. The John Mather Nobel Scholarship Program, John Mather (via telecon), 2006 Nobel Prize for Physics, sponsored by Dick Henry (MDSGC)
 - On July 16, 2008, five summer interns at NASA's Goddard Space Flight Center in Maryland were awarded John Mather Nobel Scholarships by The Henry Foundation, Inc.
 - The funding for the scholarships originated in a generous contribution from the John and Jane Mather Foundation for Science and the Arts, which in turn was funded from the award of the 2006 Nobel Prize for Physics to Dr. Mather.
 - The awardees were selected by a committee of Directors and former Directors of NASA Space Grant College and Fellowship Program state Space Grant consortia.
 - The award consists in the designation "John Mather Nobel Scholar 2008," plus a \$3000 scientific travel grant over a two year period. The first John Mather Nobel Scholars are:
 - Erin Marie Hammons, a rising Senior at the University of Nebraska, Lincoln, who is a Systems Engineering intern for the ExPRESS Logistics Carrier (ELC) at NASA's Goddard Space Flight Center.
 - Howard Hui, a rising Senior at Oregon State University, Corvallis, Oregon, who at Goddard Space Flight Center this summer is working on developing new instruments to measure the polarization of the Cosmic Microwave Background.
 - Pratik Davé, a rising Senior at the University of Maryland College Park, who is working with NASA contractor Honeywell Aerospace to design and develop a software tool to predict solar weather events hazardous to NASA missions, and send threat assessment messages to satellite ground operators.
 - Victoria Martin, a rising Senior at the University of North Florida, Jacksonville, Florida, who is working at Goddard Space Flight Center on instrumentation to find B-mode polarization in the Cosmic Microwave Background radiation, which would be critical evidence for inflation in the early universe.
 - Lisha Roubert, a rising Senior at the University of Puerto Rico, Cayey Campus, who is working in Earth Science projects at Goddard Space Flight Center.

2. 20th Year PPR Reviewer Training, Barry Nagle sponsored by Diane DeTroye
 - Reviewers are invited or selected by NASA headquarters because of the ability to make an expert judgment based on available data.
 - Reviewers: Space Grant Directors, NASA Headquarters Personnel, Field Center Personnel, Former Space Grant Directors, Other individuals invited by NASA
 - Rubric: A tool that defines and communicates criteria to assess performance. Standardizes assessment in areas where a great deal of subjective judgment is required.
 - Guiding principles: Alignment, Rigor, Context, Consistency, Results
 - The Rubric is designed with the same format as the Program Performance and Results Report. Each element of the PPR Report is unique. Because of this uniqueness, a rubric is customized for each element.

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- Scoring Process:
 - Review the rubric for the section of the PPR Report being assessed.
 - Read PPR Report section being assessed.
 - Consider CMIS Data and other data sources associated with the section being assessed.
 - Using rubric, make qualitative judgment on whether or not the consortium is “excellent,” “good,” or “poor.”
 - After a qualitative judgment is made on the level of the consortium, make a quantitative judgment on what integer score to assign to the consortium within the level.
 - “Close the loop” by re-assessing your rating considering the qualitative and quantitative judgments. This is the italicized statement within each rubric qualitative area.
 - Statement Guidelines:
 - Maintain Self-Anonymity
 - Avoid Referencing Individuals by Name
 - State Complete Thoughts
 - Make Specific, Concise Comments
 - Maintain Objectivity in Positive and Negative Comments
3. The Association for Unmanned Vehicle Systems International Student Competition, John Baker, Professor University of Alabama, sponsored by John Gregory (ALSGC)
- International Aerial Robotics Competition (IARC)
 - Prize Money and some logistics funding is provided by the Association for Unmanned Vehicle Systems International (AUVSI).
 - The official source of information can be found at: <http://iarc.angel-strike.com/>
4. NASA Academy Advisory Committee Update, Dave Rosage, Goddard Space Flight Center
- 2009 Combined Online System
 - All GSFC Internships will be project/mentor driven
 - Space Grant Accounts will work much as they have in the past – only SGs should focus on mentor endorsed applicants
 - The Educational Pipeline at GSFC in 2009 will be functional vs figurative
 - We will continue to embrace distributed student funding from Mentors, Education Programs and Space Grants
 - The 2009 Combined Online Application System may only serve GSFC Programs
 - 2008 GSFC Higher Education Program Statistics
 - Academy (7 women, 12 men, 42% minority, 18 SGs)
 - Robotics (5 women, 18 men, 54% minority, 23 SGs)
 - SIP (12 women, 12 men, 46% minority, 19 SGs)
 - SEICA (13 women, 13 men, 88% minority, 4 SGs)
 - SAWDRIP (3 women, 15 men, 30% minority, 16 SGs)
 - NASA/APL (2 women, 3 men, 60% minority, 2 SGs)
 - MUST (3 women, 2 men, 100% minority, 0 SGs)

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- Other Programs (14 women, 30 men, 25% minority, 5 SGs)
 - Total = 164; SG-funded = 87 (53%)
5. Roadmap to a Space Faring Civilization, Students from the Goddard Academy Group Project 2008, sponsored by Dave Rosage (GSFC)
 - Feasibility of commercial space development utilizing energy and resources from space
 - Orbital Sciences and Space Hub
 - Launch technology has not evolved since the 80s
 - Space based solar power
 - Biotechnology
 - Space Act Agreements
 - NASA invests in companies
 - Prize Development
 - Which items must remain under ITAR
 6. International Space University (ISU), Steve Brody, Vice President, North American Operations (ISU), sponsored by Jeff Hoffman and Raji Patel (MASGC)
 - Space Studies Program (SSP)
 - 9-week program (July/Aug) at leading universities and
 - research institutions around the world
 - Master of Space Studies & Master of Space Management
 - Typically, a 12-month program: 9 months at ISU's Central
 - Campus in Strasbourg + 3 month internship world-wide
 - SSP satisfies the first of five academic 'modules'
 - All programs embrace the "3 i's" (international, interdisciplinary, intercultural) in their methodology.
 - All include: Team Projects, which develop teamwork skills and 'out-of-the-box' thinking, and Professional Visits, to learn about 'local' aerospace & high-tech companies & organizations.
 7. Academy of Aerospace Quality, Alice Smith and Jeffrey S. Smith, Auburn University, sponsored by J-M Wersinger (NASA HQ)
 - Many universities have and will have contracts, grants, and co-operative agreements with NASA to provide space flight experiments and payloads
 - These payloads are designed, constructed and tested under diverse conditions and by largely "amateur" teams
 - AAQ is to provide assistance in assuring that payloads are "successful" from an operations standpoint
 - AAQ is for: Students and faculty involved with NASA payloads – on satellites, shuttle, station, balloon, rocket; Those interested in becoming involved; Future scientists and engineers interested in space

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8. Lunch Keynote Speaker, Dr. Sam Shelton, Director, Georgia Tech Strategic Energy Institute, "The Energy Challenge: Overview and Technology Issues"
 - World Conventional Oil Production will Peak
 - Energy Prices will Increase to Destroy Demand
 - There is No Silver Bullet Solution
 - Develop Near Term Transition Energy Technologies
 - Economics is Primary Driver for Energy Technologies
 - Economic Development Opportunities for Georgia: Ethanol from Southern Pine Pulpwood
 - Long Term Energy Technology Development

9. National Space Grant Student Satellite Program Update, Space Grant Directors: Luke Flynn (Hawaii), Mike Drake (Arizona), Chris Koehler (Colorado), and Bill Hiscock (Montana)
 - NSF CubeSat Program: CubeSat-based Science Missions for Space Weather and Atmospheric Research, Program Solicitation NSF 08-549, Full Proposal Deadline: February 10, 2009 & annually thereafter.
 - NASA Launch Opportunity: Garrett Skrobot, of NASA Launch Services at KSC, has been working hard to get a P-POD manifested as a secondary on a NASA launch. This is called the ELaNa (Educational Launch of Nanosatellites). The current focus is on the launch of the Glory Earth Science mission, expected to launch on July 15, 2009, on a Taurus XL from Vandenberg. Other missions are also under consideration for the addition of a P-POD. This is intended to be the first in a series of opportunities.

10. RockOn 2008 Sounding Rocket Workshop, Chris Koehler, Director Colorado Space Grant and Mary Sandy, Director Virginia Space Grant
 - Workshop Vision:
 - You take this experience and do something with it
 - When you are ready to fly, you'll come back to Wallops
 - You'll fly your payload on next summer's workshop flight
 - Your launch fee will directly supports the 2009 workshop flight
 - Future:
 - Wallops has already committed to a much bigger rocket for next summer
 - A two stage Terrier-Orion Sounding Rocket, Expected to reach 140 km
 - 1st Review has already been held with Wallops
 - Four RockSat Payload Canisters will be flown on the same flight
 - Cost is \$12K per canister for 20 pounds
 - New RockOn, June 21-26, 2009, \$1875/person
 - Balloon workshop in CO, July 8-12, 2009

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11. NASA HQ Update, Joyce Winterton, NASA Assistant Administrator for Education

- Outcomes > Objectives > Measures > Education Projects
- SG is the infrastructure in every state
- 45% employed at NASA, 43% STEM, 30% of undergrads seek advanced education
- PART results: SG is Moderately Effective; It has ambitious goals; It's well-managed.
- Establish: New metrics, Meaningful outcomes, Independent evaluations
- New solicitations: K12, Global Climate Change, Museums and Science Centers
- Single agency-wide performance measurement database; External evaluation contractor selected
- NASA Full Cost Accounting: Management and Operations is akin to Indirect Costs; M&O includes salaries, lights, computers, staff, offices; In FY09 they are budgeted within a "Cross-Agency Support" line
- The NASA congressional authorization contains restrictions on conference travel.
- Q: How SG contributes to the America Competes Act; A: Innovation through universities.
- Q: Where should SG should be 5-10 years. A: Doing things that other NASA programs cannot do.
- In the 2010 budget she wants to see a category to do innovation.

12. Panel Discussion: Working with Minority Institutions (Georgia Space Grant Consortium HBCUs and representatives from other consortia MIs)

- Panelists: Carmen Sidbury, Willy Rockward, and Jonathan Lambrigh (GASGC Affiliate Directors and former Space Grant Fellows) and Mauricio Guadamuz (Lockheed Martin, Higher Education Manager at UPRM)
- Promote feeder programs; visiting faculty and faculty exchange programs
- Faculty in MSIs have large teaching load and limited resources.
- Oftentimes, the approach from non-MSI faculty is not a win-win situation, but what can you do for me.
- Need to develop genuine collaborative relationships between MSIs and non-MSIs, partaking in the research decision.
- Undergrads from MSIs are well prepared to go into the graduate institutions and do research.
- MSIs should do research that is relevant for corporations; Smaller schools should see this as a business relationship.
- Lockheed is building a relationship in UPRM beyond recruiting; working together to develop the technical staff, steer the curriculum closer to what the needs are.
- Ideal to have employees at corporations come back and do collaborative research with the original MSI, it's also another way to ensure that they stay with the company.
- You have to go beyond return on indirect costs; eventually you get it in the long term by developing the relationships.

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C. Tuesday, October 28, 2008, 8:00 AM – 12:30 PM

1. Coordination Issues with Space Grant and NASA Center Internship Programs, Barrett Caldwell, Director Indiana Space Grant
 - 2007-08 Figures (Jerry Hartman and Joyce Winterton reports)
 - 155 ESMD Interns
 - 2000(JH) - 4000 (JW) Overall Interns
 - Interactions with Centers as Major Visibility of Space Grant to NASA Project Managers
 - Major Space Grant Program Emphasis and Outcomes
 - Primary Employment Pathway for Students
 - Variety of Application Processes
 - Over 15 Official Programs
 - At Least Five Distinct Student Application Models
 - Student Selection and NASA Communication: Space Grant vs Project Managers vs NASA Program
 - Diverging Schedules and Planning Processes
 - Preliminary Space Grant Data
 - Approximately 30 SG responses (Still being processed)
 - ~ 200 Space Grant Funded Interns (10-15%?)
 - Quite Wide Variety of Placements
 - Dozens more cost shared and informal placements
 - Concerns about Student Experiences, but Overall Very Strong Program
 - Challenges:
 - FY 2009 Budget Timelines as Major Challenge
 - Variety of SG Program Years and Funding Schedules
 - Budget Reallocations within Centers
 - Additional Opportunities, Coordination vs Autonomy
 - Recommendation: Support an advance coordination center for opportunities with SG, maintaining shared involvement in selection process.
 - Discussion will continue in the spring 2009 meeting.
2. 2009-2010 Exploration Systems/Space Grant Collaborations, Gloria Murphy and Susan Sawyer, Kennedy Space Center along with presentations on ESMD Senior Design (Option #1: John Gershenson, Michigan Technological University ESMD Senior Design; Option #2: Dr. Harris and Dr. Beale, Auburn University)
 - Two senior design courses to offer to consortia that could not meet this component: Lunar Regolith Excavator and Small Spacecraft Project Illustration
 - A package that can be taken and implemented back in your institution
 - These courses can be flexible, you can adapt it to your needs
 - Every NASA project uses the systems engineering approach
 - They will provide \$10K plus a workshop and travel expenses for faculty to take the workshop at KSC, May 23, 2009
 - David Beale: Lunar Regolith Excavator, Auburn University, a standalone Systems Engineering overview for application of the process on a student project.

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- There is a Regolith Excavation Challenge in CA
 - Minimal or no lecturing: students spend their time on a project designing and building a prototype
 - Faculty guides the student team through the design process
 - Project could be multidisciplinary, but not necessarily
 - NASA will support student teams with \$7K through SG
 - There is a web-based handbook to guide the professor and students
 - How to run your class: pick a mission objective, get money in place from SG, contact other faculty if necessary, design and build for one or two semesters, test in bin full of concrete
 - John Gershenson, Michigan Tech, NASA ESMD Capstone Design, Small Spacecraft Project Illustration, less focused on a particular project, how to teach a structure design project to the student, capstone design, how to develop products to exceed customer expectations
 - Systems design process for NASA is different than industry
 - You can handle both process with only one project
 - A structured design process is required
 - New solicitations within one month; Propose for only one: exploration senior design courses, exploration senior design projects, exploration internships
 - The ESMD money now available is for the 2009 interns; the new solicitation is for 2010
3. Spring 2009 National Meeting Update, Richard Berendzen, Director, D.C. Space Grant Consortium
- Where: The Fairfax Embassy Row, 2100 Massachusetts Avenue, NW, Washington, DC
Tel: (202) 835-2100
 - When: Thursday, March 5, 2009 - Saturday, March 7, 2009
 - Dr. Leon Lederman will be the recipient of the 2009 Distinguished Service Award.
4. Fall 2009 National Meeting Update, Jack Higginbotham, Director, Oregon Space Grant Consortium
- Oct 21-24, Portland, Oregon
 - Hotel Accommodations: The Hilton Portland & Executive Tower, 921 SW Sixth Avenue, Portland OR 97204; Rate \$139 - \$159/night
5. Expanding Space Education Opportunities via Distance and Campus Education, Paul Hardersen, Director, North Dakota Space Grant Consortium
- Relevance to NASA and SG:
 - Emphasizes interdisciplinary learning – beyond simply science and engineering;
 - Fosters international cooperation – a key trait of many current and future space missions;
 - The leading space authority in North Dakota – a partner with North Dakota Space Grant;
 - Enables and fosters new and ongoing STEM NASA-relevant research.

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- Research Focus Areas:
 - Astronomical/planetary science research – NASA funded NEO/main-belt asteroid NIR spectroscopy. UND Observatory serving as a training ground for undergraduate and graduate students.
 - Planetary space suit – NDX-2 lunar suit program in progress.
 - Earth sciences – Remote sensing of land use in developing countries.
 - Material sciences – Polymers/coatings and material development.
 - UND Space Studies program: <http://www.space.edu>.
6. NASA Mission Directorates Break-Out Sessions: Science, Exploration Systems, Aeronautics Research, Space Operations
- AERONAUTICS Co-Chairs: Erian Armanios (GA), Scott Tarry (NE)
 - EXPLORATION Co-Chairs: Wally Fowler (TX), Karen Hackney (KY)
 - SCIENCE Co-Chairs: Paul Hardersen (ND), Aileen Yingst (WI)
 - SPACE OPERATIONS Chair: Bill Byrd (IA)
 - Tasks:
 - Discuss what they are doing to establish communication
 - Plans to inform the directors about SG a capabilities
 - Brainstorm on areas for collaboration
 - Who is actually in your directorate from our network?