

Minutes of
National Council of Space Grant Directors' Fall Meeting
Tucson, Arizona
October 1 – October 3, 2015

General Session: Day 1

Council Business

1:00 Welcome – **Tim Swindle**, AZ Space Grant Consortium

Tim Swindle opened meeting and welcomed everyone and told us to drink lots of water. The Spring meeting will be 3/3/16-3/5/16.

1:10 Intro and Executive Committee Update – **Stephen Ruffin** (GA SGC), Council Chair

Steve Ruffin welcomed everyone and asked a minute of silence for the victims of the community college murders in Oregon. Steve also thanked the Arizona SGC for organizing the meeting showed a childhood picture of his from his last trip to Arizona.

News: NASA finds evidence of water in Mars. We made it through another cycle of OEPM.

DC has a new director, Ulysses J Sofia, Delaware's incoming director is William Matthaeus, Iowa's new director is Jay Staker, Missouri welcomes S N Balakrishnan as its new director, and New York welcomes Mason Peck as its new director.

Steve then pointed to some new activities on the agenda, especially the Friday 1 pm flipped session and also the evaluation talk by Pat Shaffer.

1:25 Secretary and Treasurer's Report – **Haim Baruh** (NJ SGC), Council Secretary and **Majid Jaridi** (WV SGC), Council Treasurer

Haim Baruh presented minutes of the Spring 2015 meeting. Approved unanimously. Majid Jaridi presented the treasurer's report. Approved unanimously.

1:35 Nominating Committee Update – **Suzanne Smith** (KY SGC), **Keith Hudson** (AR SGC) and **James Flaten** (MN SGC)

Bill Garrard could not come to the meeting as he and his wife are celebrating their 60th wedding anniversary. Everyone wished them many more years together. A group of three will run elections for four Alliance board members and three Foundation board members. Elections at 5:15 pm this afternoon.

Invited Talk

2:00 Interplanetary Small Sats: Opportunities for Universities and Citizen Scientists, **Mason Peck** (NY SGC)

Mason Peck is the new director of New York Space Grant and the previous Chief Scientist of NASA.

He talked about explosive growth in CubeSat programs over the past five years. CubeSats are now the most commonly launched satellites. MarCO - two interplanetary cube sats. First time beyond earth.

Look at cubesatkit.com.

Biggest challenge with CubeSats is communications and propulsion. Expected that there will be 15 interplanetary launches in the next three years. You can buy a kit that includes the parts or build CubeSats yourselves. University of Michigan is using water in CubeSats as propellant. Tremendous research and design opportunities await us. Cost of a CubeSat is about \$24 per gram.

CubeSat Science Fiction Prize - by VSGC, NYSGC, and Museum of Science Fiction. For high school students to implement designs from science fiction. Dr. Peck gave several examples on how such concepts can be turned into design projects. Announcement in Fall 2015.

Other programs include CubeQuest Challenge by NASA. CisLunar explorer program (in 2018). About \$10 per gram. CubeSats do not contribute to space debris.

Q&A. John Gregory questioned the cost of about \$5,000 that Dr. Peck mentioned for building a CubeSat. The answer is that \$5,000 is at the lower end. To keep costs low, participants need to build the components themselves.

Space Grant Collaborative Programs

2:20 Center for the Advancement of Science and Space Education Programs - **Dan Barstow**, The Virtual High School

Steve Ruffin introduced the speaker, who is development director at The Virtual High School.

Mr. Barstow described the International Space Station (ISS) as a phenomenal field trip for students. CA-SIS and Space Station Academy, also Windows on Earth. Simulated mission on ISS.

First part of the field trip begins with pre-flight training. Teaching of parts of ISS. Different modules. See presentation for pictures of interior of ISS and the experiments. Two hours of exercise a day is needed for cardiovascular strength of astronauts in the ISS.

2nd part is the launch. Please see presentation for details.

3rd part is experiments. A lot of stuff behaves differently in microgravity, for example flames, ants. An interesting project is to go to the Japanese module and launch a cube sat.

4th part is observing the Earth. Taking pictures, making observations, scientific phenomena, visual thermometers, climate change. Please see presentation for pictures.

5th part is return to earth.

2:35 Space Station Academy - **Dan Barstow**, The Virtual High School. Merged into the previous talk.

2:50 Systematic Mentoring Model of the Timbuktu Academy - **Diola Bagayoko**, Associate Director LaSPACE (LA SGC)

Greg Guzik introduced the speaker, who is distinguished professor of physics at Southern University.

Student retention, as a percentage of students who remain in their program, regression, whether they remain in their program, mentoring, systemic mentoring (woven into core functions of the academic institution)

Timbuktu Academy established in 1990-2001 and funded by NSF. See presentation for their scientific approach. Paradigm establishment, design and redesign problems, rigorous implementation, explicitly take transition points into consideration.

Every student is encouraged to rise to their potential and expectations. Space Grant Scholars at Timbuktu Academy. Dr. Bagayoko described the Power Law of Performance. See presentation for details.

Dr. Bagayoko developed a systemic mentoring model that practically guarantees success. Model available on Timbuktu Academy web site. Financial support, scientific advisement, communication skills, tutoring, generic research, conduct of scientific projects, immersion in a professional culture, enhancement of computer skills, monitoring, guidance to graduate school or to job market.

The program has been very successful. They also joined efforts with the LS-AMP program. Over half the students in the program have enrolled in graduate school upon graduation. Please contact Dr. Bagayoko for additional information and informational documents.

Q&A: Dr. Bagayoko mentioned that the less supervision and mentoring students get at home, the more the Timbuktu Academy needs to provide. How do we start a program like this at other universities? Begin with the importance of mentoring. Review of mentoring programs and Dr. Bagayoko has documentation on that (bagayoko@aol.com).

3:15 2017 Eclipse Ballooning Project - **Angela DesJardins** (MT SGC)

Angela DesJardins recommended that we look at the big picture: tremendous opportunity, once in a lifetime, advances ballooning, increases capability of SG networks, strengthens relationships between SG and NASA, maximizes impact to general public, and get K-12 students involved. She also introduced Shane Mayer-Gawik, who will lead the project. Look at eclipse.montana.edu

Angela is working on solicitation with David Pierce. They anticipate 50 awards up to \$50,000 each, live feed, common cameras included at no cost (by SMD), flying common payload is not a common requirement.

Dr. DesJardins provided a timeline (please see presentation). She also talked about zero pressure balloons.

Radiosondes: goal is to measure eclipse-generated atmospheric turbulence. Coordinating committee met in August 2015. See presentation for technical details. White paper coming soon. Exploring NSF funding opportunities. Contact Elaine Lewis (elaine.m.lewis@nasa.gov) for ground activities.

3:30 **Coffee Break and Networking**

Space Grant Student Presentations

3:45 Contributions of design thinking to innovation: JSC in the Classroom – *Mircea Forte* and *Ericka Ricciutti* (RI SGC)

Peter Schultz introduced the speakers, who are students at the RI School of Design. This school opened in 1877 and it has 23 departments. They discussed their collaboration with JSC.

Their proposal involved the interior design of a deep space vehicle. Please see presentation for pictures of design concepts. Three floors. Second floor is for crew quarters and rest area. Life support equipment in bottom floor. Science workstations on the third floor. They talked about the design of a blanket for space use as covers for equipment.

4:00 Lessons About the Importance of Hands-On Experience, World View Enterprises Mission – *Tim Basta* (MT SGC)

Angela DesJardins introduced the speaker. Graduate of Montana State University. Currently working at World View. He was involved with the Borealis high altitude ballooning project. Student-designed experiments, and student-flown balloons. The advantage of developing hands-on projects and how they prepared him to develop other projects, including a payload design in two weeks. Ability to work alongside a variety of professionals.

This payload that he designed led Mr. Basta to receive a job offer from World View. Company provides payloads and passenger flight. He does a variety of tasks at World View. Design, prototyping, testing, assembly, launch, payload recovery are some of his tasks.

4:15 Atmospheric Conditions Associated with Extreme Precipitation and Landslides in Southern California – *Nina Oakley* (NV SGC)

The director of NV SGC, Lynn Fenstermaker, introduced the speaker. Speaker is a Ph.D. student in University of Nevada, Reno. Non-traditional student, started out as a teacher. Became certified as a science teacher, and then received an M.S. in atmospheric science at UNR. Also climatologist for WRCC station. Research problem: Extreme precipitation can trigger landslides hypothesis. Characterizing atmospheric features will facilitate forecasting of landslide hazard areas. Special Sensor Microwave Imager.

See presentation on maps on precipitation data. Also charts correlating Santa Ynez and San Gabriel ranges (in California). Next step is to evaluate synoptic scale figures and to look at composite high and low pressure events. Please look at presentation for conclusions and future work.

Community College and Technical School Programs

4:30 Space Grant Community College Programs in New Jersey – *Susan Monroe* (NJ SGC)

Haim Baruh introduced the speaker, who is a math professor at Brookdale Community College. She began by giving a history of the program and then gave national statistics on STEM enrollment and graduation. Number of underrepresented students is increasing but the percentages are not.

She then described programs at Brookdale. STEM Lounge with SG fellows doing the tutoring. WEST club support and NASA grant allows the program to move forward. Spring dinner with speakers, 50 students attended. Mentoring programs. Other programs involve outreach to students in the K-12 system. Two local K-12 institutions. Outreach event with Girl Scouts.

Future activities include continuing the stem lounge, peer tutoring, STEM clubs in middle schools, professional development for middle schools to start STEM clubs at middle schools.

4:45 Community of Practice Program at Western Nevada College - *Thomas Herring*, (NV SGC)

Steve Ruffin introduced the speaker. They engage community college students with hands-on science. Include students from both campus and statewide offices, build skills, attract more community college students to STEM. Increase completion rates. Scholarship support.

Faculty and students from all around Nevada. Monthly interactive meetings. Also online interactions.

At Western Nevada College, the program has 2 campus co-leaders, 5 students per semester, student-community-focused, broad scope of topics, focused on student interests. Science demonstrations, field trips, research activities, student projects round up the activities.

Challenges. Lack of infrastructure, confusion in business office, involving more faculty, recruiting students, better connections between campuses, and tracking program alumni.

Future plans: Involve more students, bring students to SG meetings, more work at the observatory.

5:00 MN Space Grant Community College Quadcopter Competition - **James Flaten** (MN SGC)

Steve Ruffin introduced the speaker. He is associate director at MN SGC and faculty at University of Minnesota in aerospace engineering.

Engage community college students to build a quadcopter from a kit and then outfit it to explore new capabilities. Seven teams with five students in each team. Some compensation for faculty members involved, diversity goals, student participants receiving fellowship funding. University of Minnesota as the mentor institution.

Timeline. Fall: kick off, build quadcopter, design modifications. Spring: implement.

Challenge loads set by Dr. Flaten - see presentation for more details, as well as movies and pictures from the competition. Testimonials from students show the excitement the program generated. All teams built successful quadcopters that were able to fly. 17 of the students already graduated. Challenges include lack of experience and lack of experience of community colleges in writing subcontracts. All schools are interested in continuing the project, but funding for future years is an issue.

5:15 Council Elections - **Suzanne Smith** (KY SGC), **Keith Hudson** (AR SGC) and **James Flaten** (MN SGC)

Four to be elected to the Alliance Board, and three for the Foundation Board. No floor nominations for the Foundation Board and the nominees, Kevin Crosby (WI SGC), Philip Geubelle (IL SGC), and Ruby Mawasha (OH SGC), were elected by acclamation. There was a floor nomination for the Alliance Board so an election was held.

5:35 **Adjourn**

General Session: Day 2

8:30 **Announcements and Updates**

Alliance Board election results. Cass Runyon (SC SGC), Greg Guzik (LA SGC), John Gregory (AL SGC), and Jaydeep Mukherjee (FL SGC) were elected.

NASA Education Updates

8:35 **Donald James**, NASA Associate Administrator for Education

Steve Ruffin introduced the speaker.

NASA goals include: Reach new heights, reveal the unknown, benefit all humankind.

Both NASA Administrator Charlie Bolden and Associate Administrator Dava Newman are very passionate about education.

Mr. James showed a video entitled Explore with NASA.

He discussed that our job is to engage as broad an audience as possible. He showed picture of a SD SGC student Steve Hamman with President Obama. And picture of a Montana student launching a balloon. Also of Alfred McEwen, faculty member at U Arizona, who is PI on a science experiment.

Education is now on the NASA home page. This change was prompted by NASA Administrator asking why there was no education link on the home page.

Q&A. How is SG doing in the education portfolio? A. Success stories he has seen showing we are doing phenomenal things. He is very happy with the status of SG. He has used SG success stories in presentations to higher ups.

NASA Space Grant Program Updates

8:55 NASA Office of Education Program Updates – *Lenell Allen*, Director, Aerospace Research and Career Development, NASA Office of Education

Steve Ruffin introduced the speaker. Dr. Allen introduced the SG and EPSCoR families and provided updates on everyone. Congratulations to LaTeicia Durham Ford on her marriage.

Education lines of business are: Aerospace Research and Career Development, which includes Space Grant and EPSCoR; STEM Education and Accountability includes MUREP and SEAP; Education professional development, STEM Engagement, NIFS, and Institutional Engagement.

Current opportunities include USIP, SG Solar Eclipse, Augmentation to 2015-2018 training grant. Expect to be released in Q1 of 2016.

USIP: maximum value per award is \$200k. Dr. Allen provided answers to questions. Look at NSPIRES for continuous updates. USIP can include graduate student support of \$25,000 per year for two years.

Audits. Primarily to check to see if the consortium used awards for intended purpose? Were claimed costs allowable? Were grant objectives met? Did the consortium collect data and develop performance measures?

Consortia should provide program performance and accomplishments, and budget management and internal controls, accounting and internal controls, grant expenditure reports, grant reporting, cost sharing funds reports.

Consortia need to work closely with sponsored programs office, budgets in OEPM should mirror expenditures in office of sponsored programs.

NASA operating under Continuing Resolution, and they will adhere to the FY2015 Appropriations language.

Q&A. The eclipse budget will not be a separate CAN but added to the augmentation funds. Both announcements coming in 2016 1st quarter.

9:35 Space Grant Evaluation Program – *Patricia Shaffer*, Acting Director, Office of Infrastructure Division and Evaluation Manager, NASA HQ

NASA Education weekly activity report. Very vital communications tool. Released every week (52 times) and there are 52 consortia. Can each consortia provide a paragraph a week?

Audits are based on random selections.

Draft evaluation questions address: compliance with public law, program management practices, consortium-level and overall program impact, identification of effective practices, challenges, barriers, constraints.

Take a deeper look at the executive summary and provide feedback. We are actually finishing Phase 1. Planning. Evaluation planning, data quality assessment, developing evaluation questions.

Evaluation planning. Document SG model, conduct assessment of SG performance data, prepare and design. And plan procedure.

Ms. Shaffer uses a SG Logic Model. Inputs, program activities, outputs, outcomes (see presentation for more details). Please look at the logic model and give feedback to her on its accuracy and relevance.

Data collection. Continue to collect information, continue to track longitudinally, continue data collection on affiliates and non-affiliates and collect information on the nature of the relationship/partnership.

Ensuring data quality. Use clear definitions, report data collection methods, ensure access to demographics, establish data collection agreements with institutions. This is something NASA needs to do.

OEPM. Streamline data collection and reporting forms, ask consortia to report their programming reflects with state's needs. Allow year-round reporting. Should more people have access to OEPM on entering data. OE should consider aligning consortia performance periods.

National Office Reporting. OE should publish a program-level annual performance report. Report should include description of each consortia, include qualitative data collection analyses, and presentation of key indicators.

Recommendations. Seven evaluation questions. Submit comments in writing no later than October 23, 2015 to Ms. Shaffer. patricia.s.shaffer@nasa.gov.

Next steps. Technical assistance report will be released, OE evaluation of contractors, report recommendations and feedback and launch external evaluation in early 2016. Revision of OEPM data model begins in FY2017. Look at presentation for timeline.

Q&A. Green color and not green color in outcome section. Does it have a meaning? A: It does not mean good or bad.

10:15 **Coffee Break and Networking**

Space Grant Student Presentations

10:30 Space Grant Innovative Pilot in STEM Education - **Joshua Budish** (NM SGC)

Pat Hynes introduced the speaker, who is a student in New Mexico State University. Mr. Budish began by describing what a STEM project is. Then described his project. Flow boiling in varying gravity situations. How heat transfer takes place in a hot channel. See presentation for a sketch of the experiment. What are the consequences of changing the environmental effects? Structural, thermal, and electronic.

Students began with a heat transfer analysis. Effect of having more (or less) insulation. Then, they did a finite element analysis. Effect of the capacity of the pump used to generate fluid flow. They were able to reduce the maximum velocity through the micro channel. Students also developed a 3D CAD model.

10:45 STEM Programs Unwrapped – **Kam Yee** (ND SGC)

Caitlyn Nolby introduced the speaker, who is a student University of North Dakota. Ms. Yee described herself as a non-traditional student. She took eight years to complete her education. She showed a chart on representation of women in STEM fields. Percentage of women in STEM workforce is even less than percentage of women getting STEM degrees. Same in engineering.

A problem in STEM education is that girls avoid science. She listed a lot of reasons why, but something is missing from these answers. If an astronaut does not want to go on a space walk, we question the equipment and procedure.

STEM education narrative has not changed a lot in the past. Need to think about the culture of science.

Online survey prepared by speaker. 27 questions, see slide for respondent demographics. Girls-only programs attracted more interest.

11:00 UPR Science Payloads Built and Launched Through the RockSat-X Project – **Oscar Resto, Samalis Santini, Alexis Oquendo, and Gladys Munoz** (PR SGC), and **Eric Adamsons** and **Heins Kim** (Bifrost Co.)

Gerardo Morell, director of PR SGC, introduced the speakers. Oscar Resto (UPR Mayaguez) began the presentation. Balloon Satellite program in UPR. Students involved in payload development. They partnered with the Colorado SGC and NASA Wallops. Students from engineering, physics and chemistry, computer science, biology. Also partnered with K-12 schools and schools of machining. Bifrost helped with video subsystem and validation of payload development. Evactron helped with the plasma decontamination generator.

Students continued the presentation. Alexis Oquendo discussed the astrobiology mission and sample collection. Samples of particles in 80-160 km orbit. See slide for the decontamination procedures they used. Also see chart for the payload components. The sample collection subsystem was described by Samalis Santini. She also showed results from previous flights and how the subsystem was improved over the years. Gladys Munoz described the K-12 involvement. They reported 50% or better female participation. They worked with Dr. Fransisco Sola at NASA Glenn as well as Yanina Colon and Samuel Diaz, both also with NASA.

Bifrost representatives continued the presentation with their film on the Aurora Borealis. They first did filming from rockets they launched in Iceland and then began to launch imaging devices with the PR team and Rock SatX.

National Space Grant Foundation Updates

11:20 **Barrett Caldwell**, Foundation Treasurer (IN SGC) and **Mark Fischer**

Barrett Caldwell made the presentation. He began with a short listing of expenses and income, as well as planning activities. Income streams limited pending new executive director. Sufficient reserves for now, new efforts await the director and NASA funding situation.

Director search ongoing. Mark Fischer is continuing as director on an interim basis. Mark stepped down due to a conflict of interest issue. Announcement for position has been widely distributed, including in *Academic Keys* and in *Chronicle of Higher Education*. Nine applications received so far. Applications due Dec. 1, 2015. Down select in December, video interviews in January, final selection in March 2016. Part-time position, 10-15 hrs/week, up to \$40,000 salary. Virtual office, performance bonus.

11:45 Networking Break

11:55 Lunch

Invited Talk: To Bennu and Back: The OSIRIS-REx Mission, **Dr. Dante Lauretta**, PI of OSIRIS-REx Mission (please see presentation at <http://national.spacegrant.org/archives.html>)

1:00 Interactive Flipped Meeting, **Angela Des Jardins** (MT SGC) and **Chris Koehler** (CO SGC)

Small Group Discussion Topics: Needs, Resources, Opportunities, Proactive Ideas, and Recruiting & Retaining Underrepresented Minorities

Discussion topics included: 1) Recruiting and Retaining Women and Underrepresented Students, 2) Partnerships and Collaborations, 3) Proactive Ideas, 4) Successes, Challenges, Needs, and Resources, and 5) Vent. The session notes will be posted on the spacegrant.org meeting page.

3:00 Coffee Break and Networking

Collaborative Programs

3:15 Growing Food in Space: The Steckler/Space Grant Lunar Greenhouse Project - **Gene Giacomelli** (AZ SGC)

Tim Swindle, Director of Arizona SGC, introduced the speaker. Food production capability, water balance, growth rate are important parameters.

They built a greenhouse in Antarctica. Machine vision system for remote crop health and growth monitoring. Developed an energy cascade model for multi-crop lunar greenhouse. Currently they are in phase 3, which involves lunar habitat concept and integration of four modules (see figure in presentation).

Collaborations with colleges and county colleges. University of Arizona and Pima Community College are involved in this project.

3:30 Space Grant Participation at Maker Faires – **Justin Smith**, NASA's IV & V Program

Steve Ruffin introduced the speaker, who is involved with NASA's Independent Verification and Validation Program. They do a lot of software analysis.

Speaker talked about the Make magazine and about Maker Faire. Two Maker Faires are held each year, last one was in New York a few weeks ago. NASA has a major role in Maker Faire. NASA showcases its activities and looks for new ideas from Maker Faire participants. Involved with building West Virginia's first spacecraft. He encouraged SG consortia to get involved with Maker Faire.

3:45 JSC Research Collaboration Opportunities with Space Grant and Success of Wearable Technology CLUSTER - **Humberto "Beto" Sanchez** (NASA JSC)

Steve Ruffin introduced the speaker. Educational partnership leading to a variety of NASA functions. Speaker talked about NASA collaborations with SGs. He mentioned the concerns expressed by SGs in the past that they did not know a lot about what the NASA centers do.

How do we bring SGs and NASA Centers closer? Maybe a more focused and deliberate way? Can we keep our programs and tweak them using content from NASA? Maybe a working group? (Please see the web pages given in the presentation for additional information.)

Second part of presentation dealt with wearable technology. Began as a collaboration with University of Minnesota in 2012. MSGC was a sponsor of the program. Student teams presented their projects at JSC that year.

By 2013 program spread to three schools; University of Minnesota, Georgia Tech, and Virginia Tech. The second wearable technology conference had more participants and more people paying attention. This led to a professor from UM to receive an NSF Career award.

Expanded to include Pratt Institute, U NH, and Alaska in 2014. Even bigger in 2015.

4:05 Rock-On Update - **Chris Koehler** (CO SGC)

Chris Koehler showed a video of a community College in Colorado that was discussed by Donald James earlier today as a success story. Next Rock-On will be held June 20-25, 2016.

A new presentation on Nanoracks. Formed in 2009 to provide launch services. New Shepard suborbital system from Blue Origin, which works with Nanoracks. Currently in testing process. They also provide hardware and mechanical interfaces. Payload lockers and payload support.

Space Grant Program Additional Items and Open Discussion Session

4:15 **Lenell Allen** and NASA Headquarters Space Grant Staff

SG staff at NASA HQ made the presentation

Sasha Korobov. NASA in the news. Mars Reconnaissance Orbiter, which found water on Mars and New Horizons which took pictures of Pluto. ISS also is very active. Mike Kelly and Mikhail Kornienko finished half of their duty year on ISS. Journey to Mars research is ongoing. Telling our story is very important. Please submit photos and success stories.

Dr. Sonya Greene. She gave an update on the NIFS process. Four phases, recruiting, policy and procedures, roadmap implementation, final phase. Please see slide for the OSSI application cycle and the placement process.

Michael Cherry. Very important to do the yearly IT security training. Very difficult process to reinstate you if you miss the training deadline. OEPM: Please finish the community college OEPM report in a timely fashion. Pennsylvania has done an excellent job.

LaTeicia Durham Ford. Importance of annual performance documents. Budget changes, no cost extensions, audits, costing and drawing down funds. FY 2015 leftover funds will be used to fund USIP.

Dr. Warfield Teague. Brought regards from Diane DeTroye and Katie Pruzan. We are in need of success stories. For example, Montana has an award in memory of Bill Hiscock. Several pipeline examples. A student from Hawaii got support from Connecticut, Rhode Island, Hawaii, and NASA EPSCoR award and is now at Google. Pennsylvania has a diversity story. Utah has a research success story. Collaborative teamwork story from Rhode Island. 245 students, one of the collaborations was Stanford-Brown-Spellman. Multi-disciplinary teamwork story from New York. Cross-disciplinary from Arizona. Triple major at NAU in science journalism, astronomy, and physics. Student teams in West Virginia. Teacher preparation in Ohio. Path to NASA from South Dakota. A special case of a disabled veteran from Delaware. Warfield gets all these from APDs.

4:30 **Open Q&A Session: Program Coordinators, Directors and NASA Staff** - Merged into the previous discussion.

5:05 **Adjourn**

General Session: Day 3

9:00 **Announcements and Updates**

Louisiana announced that the HASP flight was flown on Labor Day. It was their second longest flight. There will be a call for proposals in mid-December.

Minnesota announced that if anyone wants to team up for USIP, to talk to James Flaten.

Spring national meeting on March 3-6, 2016. Same venue as previous years.

The Fall 2017 meeting will be held in North Dakota. People with suggestions for the meeting should contact North Dakota SGC director, Dr. Santhosh Seelan.

We were honored by the appearance of Senator John McCain, who congratulated us and talked about his concerns with the space program, for example the reliance of Russian rockets for launch.

Mission Directorate Working Groups

9:20 Mission Directorate Working Group breakouts

- **Aeronautics Research** (Lantana)
- **Human Exploration and Operations** (Indigo)
- **Science** (Verbena)
- **Space Technology** (Aster I and II)

10:05 Mission Directorate Working Group Chair reports

Aeronautics Research: Michaela Lucas (NE) presented. The Aeronautics WG will continue publicizing aeronautics-related opportunities to the Space Grant network, and to create opportunities to showcase aeronautics research by our students at Space Grant meetings. The working group discussed highlighting aeronautics activities of SG consortia. We also expressed our best wishes to Laurel Zeno (Vermont SGC) upon her retirement.

Human Exploration and Operations: Raji Patel presented on behalf of Barrett Caldwell. The working group discussed SG interaction with ESMD. Now that ESMD funding is over, most SG are involved with competitions offered by HEMD. They also discussed improving relations with NASA centers.

Science: Terry Teays (MD) reported. Lots of new participants in the Science WG. They discussed the SMD education CAN. They also discussed increasing opportunities available for students. Terry also discussed placement of interns at NASA Centers and the WG agreed to continue this in Summer 2016.

Space Technology: Darren Hitt (VT) reported. The STMD WG continues its efforts to make better connections with the NASA STMD key administrators for the purpose of developing greater ties with Space Grant Consortia. In July of 2015 directors Darren Hitt (VT), Luke Flynn (HI) and Denise Thorsen (AK) met with Dr. Jay Falker of the STMD at NASA Headquarters in Washington D.C.; Dr. Falker is the Early Stage Portfolio Executive within the STMD. During this meeting, Dr. Falker gave an overview of the STMD programs that were relevant to the Space Grant community and various opportunities for future interactions and improved relations were discussed. The directors specifically requested that, in the future, there should be Space Grant representation on the STMD Graduate Fellowship Program review panels. A second initiative is the development of a “portfolio” containing a one-page consortium summary of each state that would be made available to the STMD.

10:25 **Coffee Break and Networking**

SG Regional Breakouts

10:45 Space Grant Regional Breakout Sessions

- **Great Midwestern** (Aster I and II)
- **Mid-Atlantic** (Lantana)
- **Northeast** (Verbena)
- **Southeastern** (Finger Rock II and III)

- **Western (Indigo)**

11:30 Regional Highlights

Great Midwestern: NEED Info Here

Mid-Atlantic: Dick Henry made the presentation. The Mid-Atlantic regional group will have its Fall 2016 meeting in Baltimore, Maryland, Sept. 29 - Oct. 1, 2016. Meeting venue is Johns Hopkins University and Maryland Space Grant Consortium will be the host.

Northeast: Erica Miles presented. The breakout centered around planning for the Fall 2016 Northeast Regional Meeting, hosted by New York. The advantages and disadvantages of various meeting locations were discussed. New York City (Manhattan) was selected, as it is easier to reach from other states within our region. The group also discussed possible topics for this meeting, such as regional collaborations around minority-serving institutions and graduate student recruitment.

Southeastern: Suzanne Smith made the presentation. The Southeastern regional group will have its Fall 2016 meeting in Lexington, KY, Sept 28-30, 2016. The Kentucky-themed meeting will include a focus on Community College programs, the 2017 Solar Eclipse, and more.

Western: NEED Info Here

11:50 **Meeting Conclusion**

Everyone thanked the Arizona Space Grant team for the tremendous job they did in hosting this meeting. Everyone thanked Steve Ruffin for leading the meeting. See you in D.C. next spring.

12:00 **Adjourn**