# National Council of Space Grant Directors 2006 Fall Meeting October 26 – 28, 2006 Marriott Marquis New York City, New York

Friday, October 27, 2006 (9th floor Marriott Marquis)

#### 8:00 Welcome and Introductions:

Bill Garrard, Chair, National Council of Space Grant Directors opened the meeting.

# 8:23 Yervant Terzian Director, New York Space Grant Consortium introduced our first speaker, David Goldston, Chief of Staff, U.S. House Committee on Science.

David Goldston's remarks:

President, in the State of Union address, proposed doubling funding in next 10 years for NSF, DOE, NIST due to American Competitiveness Initiative (ACI). NSF, DOE, and NIST received increases in 2007 and Congress has supported this. Regardless of who wins in next election, all should still see the increases. Before appropriations, agencies have to work and act like they are frozen. What about NASA? ACI is not designed to deal with every agency. It was intended to address certain issues. Main concern for committee is that NASA budget isn't consumed by ESMD and the effort of going to the moon. They must support the other areas. Balance is important. What happens if ESMD doesn't stay in budget? Will other areas of NASA be seen as banks? They say no but it is a worry. In the House, we have been successful. Appropriations call out science and aeronautics in the bill. In terms of education, there is a new head. Science and education are now a focus and we don't want to see it only in NASA Education area but across the board and other Directorates. Congressionally mandate underway now Academic Competitive Council (ACC) forming to govern the education at different agencies. We do have a concern that NASA programs are performing. We expect NASA to continue to fund Space Grant and that they get the amount specified in budget. "Without science, the world would be wacky; there may not even be gravity," said  $2^{nd}$  grade student. Appears that space station research programs will have a harder time than other programs.

# 8:52 Official Welcome by Yervant (verbatim, provided by Yervant)

Good Morning Everyone:

I wish to thank Dr. Goldstone for being with us this morning and for his very kind and inspiring words. New York, named by British settlers for the Duke of York, is the nation's largest city. It is famous for the Statue of Liberty, Times Square, Fifth Avenue, Central Park, Museum Mile, Broadway, and the skyscrapers of the City. And also unfortunately for the 9/11 attack. Our NY State flower is the rose. The state bird is the eastern Bluebird. The state tree is the sugar maple. New York welcomes you for our NASA SG meetings. We wish you well for a safe and enjoyable stay. The most important asset this century for the world is education. Educate all people or we will be in ominous trouble in the future. Most people

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believe in superstitious Gods, horoscopes, no better advice than from a fortune cookie. These people all have votes and elect our political leaders and our school boards. The illusion of knowledge does not promise a happy future. I'm amazed to hear that educated people say "If the Sun is a star, why can't we see it at night?" or "Professor I promise you, I'll graduate on time no matter how long it takes", or "Infinity gets to be too long near the end." I am often asked 'why study science and its resulting technology'. I think it is the thrill to explain nature. To understand the unknown. For the romance of discovery. Because it is beautiful. To understand how nature works and use this knowledge to build useful tools and to survive. To solve problems of security, environmental dangers, and to have a comfortable survival. In spite of the amazing progress we have made in understanding nature, most people are not friendly with the sciences. New ideas and understandings of the universe have always had a long time constant. It takes a long time for people to accept new revolutionary discoveries. accepted that the earth was spherical more than 2000 years ago, and today there are 'Flat Earth Societies' paying dues. Copernicus 500 years ago, and Aristarchos of Samos in ancient Greece, demonstrated that the sun is at the center of the solar system, and it took a few hundred years for people to accept this. Darwin explained biological evolution some 150 years ago, and today most people do not know what he tried to explain. Today, science is saying that we are only a marvelous complex pack of neurons, and I do not know how long it would take for people to accept this. I think: We must devote more time to science education. We must devote more resources to science education. We scientist should be actively involved in improving the scientific literacy of the public. We must promote the importance, usefulness, and benevolence of science. We need qualified, enthusiastic, and well paid science teachers. We must seek ways for colleges and universities to work more closely with K-12 schools. Science's great value is that it provides evidence-based arguments in finding the truth about nature. It provides hard facts that cannot be denied. Such understanding should guide all to make sensible decisions. I view our work in the SG program as assisting in this endeavor. I want to take this opportunity to thank the Museum of National History Rose Center for the great reception last night, I want to thank all of you for the warm wishes you sent about my heart surgery of 4 weeks ago. And I want to thank Erica Miles, our NY Program Coordinator and the people who worked with her, for carrying the load to make these meetings successful. Welcome to New York.

#### 8:58 Some announcements from Bill

- Thank you to John Gregory for past chair
- Additional Ex-Comm meeting at 5:00 today
- James Flaten announcement for coordinators: Session tomorrow 8:00-9:45. Will have a breakfast tomorrow for coordinators

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#### **Introductions:**

John Gregory – Debra Nielson, new AL program coordinator
Bill – James Flaten, new MN program coordinator
Suezette Bieri - Paul Hardersen, new ND Director
Mike Wiskerchen – John Kosmatka, new CA PI
Chris Fritsen – Cindy Routh, new NV program coordinator
Chris Brown – Jobi Cook, new NC Associate Director
Keith Hudson - Laura Holland, new AR program coordinator
Richard Berendzen – (?Introduced someone?)
Scott Miller - Linda Cory, new KS Associate Director
Jack Higginbotham – William Schoenfeld, new OR Associate Director
Diane DeTroye – Thomas Filburn, new CT Director
Bill Garrard – Diane DeTroye, return as PM of Space Grant (standing ovation)

# 9:05 Introduction of Dr. Joyce Winterton, NASA Assistant Administrator for Education (10<sup>th</sup> day on the job) by Diane DeTroye

Former teacher and many other experiences with connections to Utah and Colorado through college.

## Joyce Winterton comments:

Space Grant is 20% of our Education budget. Now know what I don't know. She wanted to be an astronaut. She took up scuba instead. She learned to ask questions before jumping to conclusions. I am here to ask questions. *Undergraduate education is important. Current environment: clear environment,* demonstrated outcomes, share successes with key constituents, address realignment, and communicate core competencies. Four point strategy: employ, educate, engage, inspire. NASA workforce needs: This must be communicated. 2006-09 Systems Engineer and integration engineering, mission operations, systems analysis, quality, safety, propulsion, acoustics, habitability and environment, program and project management. 2010-2011 EVA systems, intelligent adaptive systems robotics, electrical systems, in space propulsion, power systems structures, materials, and mechanics. Space grant Review Team. NASA team charted Education Coordinating Committee. Report due at end of November on guidance for future. The Future: SG has unique charter and unique role to NASA. Measurable outcomes. Align your programs. Develop Leverage connections develop collaborations. synergies. Workforce competencies. Challenge your assumptions – look for new ways to achieve your vision

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# 9:45 NASA HQ Updates: Diane DeTroye, Manager Space Grant and EPSCoR Program, NASA HQ

Diane provides some New York jokes and does introductions. Jim Stofan, Curt Linda Rodgers (UAO JPL), Berta Alfonso (UAO KSC), Tersea Schroeder (KSC), Lesley Garner (KSC), Frank Six (UAO Marshall), Dave Rosage (GSFC), Doug o Handley (Ames), Leah Bug-Townsend (HQ), Adena Losten (Wallops), Phil Eberspeker (Wallops), Magdi Said (Wallops), Doren Jackson (HQ), Katie Pruzan (HQ), Susan Stewart (HQ), JM Wersinger, and Dave Atkinson (??)

Org chart presented with names of new people circled.

Review team: ECC 3 co-chairs Carl Person (HQ), Donald James (AMES), Ann Heyward (Ohio Aerospace Institute).

Members: Linda, Berta, Vigdor Teplitz, Roslyend Wiscons, Patty Courier ESMD person

Guidance and policy document focuses in four areas – workforce, alignment, leverage, diversity

Document due on November 30, 2006

# Education strategic Framework

The NASA Education pyramid is being shown. Doesn't mean you have to start over, just look at you what you are doing through this new lens. Think about following for your activities, demonstrate tangible outcomes, align with the framework, some mission directorate or mission, your consortium goal, STEM pipeline, reaching down to pull participants up, pushing folks up to the next level. Cultivate diversity in everything

Went to a slide from Joyce "Integration of NASA Education" – Showed Vision for Space Exploration, NASA Strategic Plan, Education Strategic Framework, NASA Education Program. End up with three outcomes and 12 objectives from higher education to informal and 81 measures. Space Grant and Goals - 12 objectives from the three outcomes apply to Space Grant. For example 1.2 Student Support – data will be extracted from CMIS. Space Grant isn't the only project contributing to these objectives but we are 20% of the budget so we have to make sure we are reporting it and doing it well.

While putting framework together, Public Outreach and Informal Education were overlapping. We have to look at the intent of each activity. SG should spend your public outreach dollars in the Informal Education side. Public outreach is important to inspire framework, but is done but someone else not SG. You need to focus on Informal Education. This provides a refinement. Some of your

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programs will have to change. Change the intent or move away from it. This will be important for 2007 funds.

Still have 06 funds left. Five of the 17 non-designated states will have opportunity to get a one year augmentation. \$177K, \$45K for fellowships, \$132K match. Specific targeted outcomes will be expected.

2007 Budget Packages: delays will not be as long as 2006 funds. This is because our budget level is higher in the 2007 budget. However, nothing is going to be released until budget is passed.

2006 Progress Report: Talk about SMART goals. This should be easy to show this. These are goals, if you didn't get there OK but tell us why you didn't get there. It is not ding against if you understand why you didn't get there. Describe contribution to NASA Education outcomes. Include results of longitudinal tracking. 2007 SMART goals should include: strategy for diversity in all aspects of program and the guidance from SG Review Team. NASA outcomes and objectives as well.

This is last year of 20 year program review 2007.

Longitudinal Tracking - Requirement started in 2005 and that is when you start, don't go back 10 years. Track them to their first step (next step or first employment). What is right after the Space Grant support? Significant award is defined as greater than or equal to \$5K. I will expect that you track them. Significant award may be less for students at smaller schools. Track these students too.

Summer intern report on longitudinal tracking. May not include all the data from the states. 5,214 student awards in 2005. 8% (417) employed. 31 at NASA, 198 Industry, 111 academia 56 other STEM, and 21 other.

Some highlights from Workforce Development Successes: Individual – Louisiana and Wyoming Pipeline - Iowa, New York, and Tennessee ("pump in the pipeline") Programmatic - Colorado, Kentucky, Mississippi, Rhode Island, and North Dakota

National Success Stories: Starting Student Hardware workshops (I, II, III, IV) and V CubeSats AERO Institute and EAP

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Starting Students Rocket Programs Collaboration with NASA Explorer Schools "Inspiration" son of MIMIC

#### 10:22 Katie Pruzan on Diversity:

(US citizens women and underrepresented minorities and persons with disabilities) We understand there are local challenges. We will ask Bill Garrad to have a working group to talk about this effort.

Where do we start? 2004 CMIS data. We had to look deeper. 20% of national network but only 8% of the funding, money is only one aspect of that. This is not where it should be. It shouldn't equal piece of the pie but more proportionate.

2003 Affiliate Survey: Minority serving institution represented nearly 15% of the responses. 79% response rate from national program but it was conducted in May. Impact on consortium is larger than the funds that my institution receives from it. It isn't about the amount of money, it's about the opportunity for our minority serving institution to showcase their abilities.

Setting targets for your Fellowship and Scholarship program: Program office has decided that the answer is enrollment percentage for the state by NCES digest at <a href="nces.ed.gov/programs/digest/d05/tables/dt05\_208.asp">nces.ed.gov/programs/digest/d05/tables/dt05\_208.asp</a>. We did ok nationally, 69% of consortia met or beat the percentage in their states. We need to work with the states that are doing well so we can learn from their best practices.

What quantitative metrics can we use to show progress? Market share and other items. How can we improve the overall contribution? Our minority serving institutions are struggling to gain visibility in NASA and show their strengths. How do we change the discussion at the state level? Texas is working on the discussion. How do we change the equation in enrolment? West Virginia is working on the equation.

#### 10:55 Break Time

# 11:13 Update on ESMD Space Grant Program and Introduction of KSC Personnel: Berta Alfonso, KSC University Affairs Officer

Berta discussed ESMD. AK was only state not involved. Deadline Spring 11/15/06 and for Summer 02/16/07 internships. 84% response rate for Senior Design. 52% response rate for Competitions. Responses needed from each SG. ESMD Faculty Fellowships: Summer 2007. Five faculty (one from each region). Faculty paired with 2 NASA centers (5 weeks at each center). SG can nominate

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three candidates. Stipend of \$14K plus allocation for travel. Lesley discussed that the ESMD workgroup website is active and will be a useful tool for this collaboration. Teresa discussed additional KSC areas of effort beyond launches. KSC is considering additional internship program for up to 12 students.

# 11:46 ISS National Lab Program: Anngienetta Johnson, Office of Education, NASA HO

Anngienetta discussed a plan to have the US segment of the International Space Station to be a National Laboratory in 2009. Objective is to develop non-NASA users for the 50% of ISS accommodations for research. It is predicted that in 2010 50% of ISS will idle. This is an attempt to fill that void. Why is education included? Workforce and future workforce needs. They will follow Education framework. There task force working on this education integration. Our intent is to designate 20% of the 50% ISS space to STEM education. Space Grant is key to our success. Invitations will go out to academia, industry, and government. First use in late 2009 and early 2010. They need ideas for experiments.

#### 12:07 Lunch

# 1:07 Guest Speaker: Steven Squyres, Cornell University "Rovers on Mars" Yervant introduced Steve Squyres

This was a very detailed talk about the Mars Exploration Rovers. Today was day 1001 of our 90 day mission.

#### 2:02 Council Business

Quick announcement by Keith Hudson. Pathevo software. Please visit booth in lobby. Software is now completed. Tool for completing engineering and career plans. Idea came from working with Space Grant. Describes the different pathways one can follow. Web based and available now. One day workshop is coming to states near you.

### 2:07 Treasurer's Report: Peter Sukanek

Previous balance \$9,629.75. Current balance \$7,448.65 for checking and savings is \$17,906.69.

## 2:09 Minutes from Spring 2006 Meeting: Bill Garrard

Chris Koehler new secretary replacing Bill after he was elected council chair. Minutes from March 2006 meeting approved by council.

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## 2:10 Bylaws Change: Bill Garrard (vote required)

By-laws changes. Need 66% of directors to approve. Changes address the addition of a vice-chair. Motion made and seconded. Vice chair is not a successor for the chair when term is up. 43 out of 52 in favor. 0 opposed and 0 abstained. Changes have passed. Election will be held this spring meeting in D.C.

### 2:15 Charter changes:

Motioned and seconded. 43 in favor. 0 opposed and 0 abstained (assumed) not asked. Charter changes approved.

# 2:16 Council Website: Bill Garrard and Mark Fischer

Council website. <a href="http://national.spacegrant.org">http://national.spacegrant.org</a> Done at the request of the Council. About Space Grant, Programs, Internships, NASA. Easy access to state websites. Contact info is from CMIS. Many auto update features. Other content is provided by SG. Space Grant Internal site is password protected. nsgf is user name and nsgf is password. A coordinator link is not currently on the website. SG news will be achieved.

# 2:27 FAA Educational Outreach Programs and Potential for Collaboration: Shelia Bauer, FAA Educational Outreach Program

Mary Sandy introduced Shelia Bauer from FAA. Looking for ways to partner with SG. Discussion on the numerous FAA outreach programs. Bottom line, 2006 286,824 students, educators, and the general public were reached. Shelia.bauer@faa.gov and www.faa.gov/education.

## 2:55 Meeting announcements by Bill and Break

## 3:18 Balloon Program Office, Wallops Flight Facility: Magdi Said

Big balloons. 940 feet launch string with balloon. 460 foot diameter at highest point in flight. Facility in Antarctica now. 60 million cubic feet, 160,000 feet, 20 balloons per year, 110K to 130K feet typical 8,000 pound payload. Up to 21 days in northern hemisphere, flight from Sweden to Canada. Will work with HQ on funding on as needed basis. Student Experiment Module (SEM-B) Piggy back, Cost Sharing – High altitude. Available Opportunities: Student Platform (HASP), purchase your own flight, \$100K for your own flight. HASP is fully dedicated for students. First flight on 9/4/06. 1,000 pounds 11.82 M cubic feet. 122K feet was float altitude. 18 hours, 11 minutes total flight time. Call for second flight is due 12/15/06, please check website. 6 to 8 month project cycle. 757-824-1386. HQ Space Grant Funded.

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## 3:39 Sounding Rocket Program Office, Wallops Flight Facility: Phil Eberspeaker

Rockets 4 to 15 feet long. Many different configurations and many different altitudes. Terrier is typical student rocket. 25 to 30 rockets a year. Must be low cost and some benefit to Wallops. Need to become competitive. Small Scale Educational Rocket Initiative (SERI). 6,000 feet altitude rockets. Student Designed/Built Rockets, Sub-orbital Student Experiment Module (SubSEM) \$30 K for one SubSEM 757-824-2202 Philip Eberspeaker Philip.j.eberspeaker@nasa.gov

## 3:57 USRP, LARSS, and FAA Design Competition Update: Mary Sandy

18 students were funded. NASA funded 30 students last year. Placed over 80 students last year. In 2007, 150 to 250 students will be placed. Application for spring due on Nov 1, 2006, 1/31/07 for summer, and 2/28/07 for fall. Seventh year of this program. \$500 per week for 10 weeks and transportation is provided. NASA Langley Aerospace Research Summer Scholars (LARSS). 128 students placed. \$4.5K undergrad, \$5K grad stipend. Deadline 2/1/07 for electronic application. FAA Airport design. 21 notices of intent which are required to participate. 01/29/07 is last day to submit electronic notice of intent.

# 4:09 Student Rocket Programs: John Gregory, Doran Baker, and Stephen Whitmore

John Gregory - This workshop is based on Boulder workshop in concept but with rockets. Workshop was held in August of 2006. 12 or 13 universities from 8 states and 36 participants. Will feed competition next April. Tony Whitmore - Utah State University program rocket. From Garage Rockets to Research products. Courses that lead to a rocket build and flight. Hybrid rockets. Many research topics from this work. Plume characterization, throttleable hybrids, scaling parameter analysis, burn rate enhancements, hardware in the loop. John Gregory - AERS rocket discussion. I have three slides. ARES is being managed about of Huntsville. AERS 1.1 will be first launch. They will have a test mass on it. It will launch in two years. Many NASA restraints. 140K feet is max altitude and a 5 minute flight. 4,115 feet/sec at separation. It was thought to include integration cost but is no longer the case. Diane DeTroye came up at 5:00. Announcement will include a statement that integration cost will not be covered by ARES group. John says they are looking for one package. Please let him know if you are interested. John will email slides.

#### 5:10 Upcoming Directors Meetings:

Spring 2007 (DC): Richard Berendzen - Staying at the Watergate hotel this year. Meeting will be held February 28 – March 3, 2007. Rates are 188.00 per night. More details to follow in November 2006.

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Fall 2007 (NM): Pat Hynes - Bill for Pat Hynes. Fall meeting will be in October 2007 in Las Cruces, NM. More details to follow.

#### 5:16 Barrett Caldwell Announcement:

Barrett spoke about a University Fall Space Day. He would like to hold a workshop on how to do a University Space day. Survey was distributed to determine need. Please return the survey during the meeting.

# 5:21 Meeting concluded for the day.

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# 10:20 Industry/Space Grant Work Force Proposal: Mike Wiskerchen and Northrup/Grumman (NG) representative

ESMD really started this. He looked for ways to leverage the ESMD funds and worked with AMES and Dryden Northrop Grumman to get additional internships. Also did this with Lockheed Martin and Boeing. NG is a \$32B company with 125,000 people with 50 states and 24 foreign countries. USA 1994 had 65K engineering graduates China 60K. In 2004, USA had 73K and China 325K. There is a workforce problem. Mike's connection with former Space Grant affiliate director Ray is strong. Northrop is very supportive of Space Grant. Companies are losing the ability to connect with universities. Space Grant could be helping these companies by connecting them with their Space Grant universities. Would like to have a workshop at the D.C. meeting with companies to discuss further opportunities for companies to utilize our network.

# 10:52 NASA Academy Updates: Doug O'Handley and Dave Rosage

Doug on NASA Academy Advisory Committee. Space Grant is Jack OR Alec MI, Terry Teays MD NASA Diversity reviewer. Have been tracking academy students for seven years. Knows where they all are. Kamara Brown from NASA Academy Alumni Association (NAAA) and she will be managing diversity goal. This associate is very active. Charter of committee is to align all four academies. Single authoritative forum. Coordinated input to directors. Academy reflects more on the student input. To strengthen the US aerospace program by attracting and guiding its future leaders. AMES has a great track record. Goals impact partnership and diversity. Ames, Glenn, Goddard, and Marshall are the four academies. Ames is June 23, 2007 to August 31, 2007. Glenn, Goddard, Marshall. June 3 to August 10, 2007. Application due 1-16-2007. NAAA will do initial screening by 1-29-07. SG, mentors, and NAAA formal review 1-29 to 2-19 of 2007. Center selection 2-22-07 and student and SG notification by 2-26 and 3-similar criteria for selection. 12 students will be selected from AMES. Glenn

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will have 8-12 students. Goddard will have 16-20 students. 12 students will be selected for Marshall. Dave Rosage - great to have Doug back. url same as last year along with login and passwords. university.gfsc.nasa.gov/application. Green card holders can apply. Kamara, NAAA is playing a mentor role with students and working with faculty too. <a href="mailto:brownkam@gmail.com">brownkam@gmail.com</a>.

# 11:25 National Student Satellite Programs: Mars Climate Lander: Mike Drake and Bill Hiscock

Linda Rogers for Mike Drake – Crawl Walk Run Fly (CWRF) was started in 2001. Doug McCuistion met with students last Friday and gave verbal approval of the effort. He would contact JPL director about cost sharing the \$165K cost to have more students in summer 2007. Doug is very interested on a seismically active mission.

11:40 National Student Satellite Program: Fifth Boulder Workshop: Chris Koehler Fifth workshop held in Boulder last summer. Well attended (52 paid participants) by 22 states. CricketSats and more detailed ballooning instruction were added. Nearly 10,000 students have been directly involved in the 89 new programs started as a direct result of this workshop. No firm date for a sixth workshop.

## 11:55 Lunch and Working Group Breakouts

# 1:10 National Student Satellite Programs: Sounding Rocket Initiative: Lisa Brown and Tim Wheeler

Tim Wheeler introduced by Lisa Brown. Program started by PA Space Grant. Have launched 3 sounding rockets over the last 3 years. Scientific research in service of undergraduate education. Education always took precedence. Outreach was part of the hands-on activity. Many outcomes from the project. Spirit payload gets the students attention and then direct them to space career. Spirit 1 May 2000, Spirit 2 October 2004 and July 2006 for Spirit 3. The third had a international collaboration. Teamwork was a goal too and global view of human quest to understand the world and prepare the next generation of scientist and engineers. 6 permanent employees at Wallops and 1 at Goddard. 98 students on Spirit 1 and Spirit 2 had 250 students. Students built the entire rocket. 167 km altitude. Most student experiments worked and received some data. Launched in 14 students from PSU attended the launch. What now? environment has changed. Used the partial funding from Space Grant to leverage additional funds for the project. Spirit helped Space Grant provide STEM hands on opportunities for students and outreach opportunities. http://spirit.ee.psu.edu

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# 1:40 National Student Satellite Program: Free Sounding Rocket Flights: Chris Koehler

Chris presented a new program similar to BalloonSats. Concept will eventually lead to an "Walk" type workshop similar to the Boulder BalloonSat workshop held for the last five summers.

## 2:02 Foundation Update: Keith Hudson

Foundation purpose is to support and enhance the Space Grant consortia in every state. To carry out education research and public outreach activities related to space and earth. Purpose was to serve Space Grant network, determine what services are desired, increase NSFC value to SG network, share programs and systems with network and provide economies of scale. Mark Fisher has many new services like credit card options, CMIS tools, and longitudinal tracking resources.

## 2:42 Texas Systems Engineering Program: Wallace Fowler

ESMD needs systems engineers. UT Austin is working with former HQ Lisa Guerra to create a systems engineering program within aerospace program. Undergraduate and graduate programs to train systems engineers. Currently surveying courses and materials. 07-08 implement undergraduate program. 08-09 implement the graduate program. Undergraduate SE materials to SG. 09-10 evaluate and graduate to SG.

#### 3:00 Meeting adjourned by Bill Garrard