Georgia Space Grant Consortium
Georgia Institute of Technology
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Telephone Number: 404 894-8200
Consortium URL: www.gasgc.org
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## PROGRAM DESCRIPTION:

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education GSGC MEMBER: peline, including elementary/secondary and informal education. The Georgia Space Grant Consortium is a Designated/Program Grant Consortium funded at a level of $845,000 for fiscal year 2010.

## PROGRAM GOALS

### Diversity

The proposed programs were designed to reflect the geographic, gender and ethnic demographics of Georgia. The target goals for all programs will represent the demographics of the State of Georgia, as well as the enrollment of students in colleges and universities according to the National Center for Educational Statistics (Underrepresented Groups – 39.6%, Women – 57%).

### Outcome 1

#### Base Grant

The programs being conducted by the GSGC consist of providing research opportunities that enhance students' research capabilities and prepare them for STEM employment. Programs are directed at the undergraduate and graduate level with a strong focus on underrepresented groups in their freshman and sophomore years.

#### Augmentation

The primary focus is workforce development opportunities through establishment of an innovative externship program; establishing stronger partnerships with collaborations with industry; and funding of students at NASA space academies and internships. Fellowships are available for undergraduate and graduate students with greater involvement of all affiliates.

**Outcome 2**

Base Grant

Hands on research, seminars, and professional development workshops capturing all STEM subjects will be conducted throughout the state. Greater emphasis is being placed on collaborations to reach a greater number of faculty and students in Georgia.

Augmentation

Strong emphasis on hands-on summer and academic year STEM learning experiences for K-16 students and educators through a statewide initiative and increased collaborations.

**Outcome 3**

Base Grant

Large scale events for informal science education organizations will continue to be conducted at our member institutions planetariums and science centers.

Augmentation

Emphasis on statewide collaborations and reaching underserved areas of the state with STEM programs will be in the forefront of GSCC activities for the augmentation grant. The proposed Georgia STEM agenda will help build the strategic partnerships and linkages between formal and informal education providers.

## PROGRAM/PROJECT BENEFIT TO OUTCOME (1,2, OR 3)

**Outcome 1**

- Amanda Magabo a Space Grant Fellow originally from HBCU affiliate member Savannah State University completed her bachelor's degree in Civil Engineering at Georgia Tech. Before Amanda left Georgia Tech to start her industry job as a Drills Measurement Field Engineer at Schlumberger, she stopped by the Space Grant Office. Amanda stated it was the first office she visited and the last office she wanted to see because it was her good luck charm. She also treated the GSGC Program Manager to lunch at the same restaurant they ate at when Amanda started at Georgia Tech in 2009. Amanda has already contacted the Colorado Space Grant Consortium to find out about fellowship opportunities for graduate school.

- Two students from the Kennesaw Applied Leadership Program (Space Grant Fellows) submitted an abstract for presentation at the annual Meeting of the Georgia Academy of Science. The Manuscript was accepted and presented by Juan Mora. In addition, seven undergraduate NASA Fellows from Kennesaw were presented with certificates of outstanding achievement at the Annual KSU Biology Awards Program.

- Joy Braithwaite, a Ph.D. candidate in the Space Systems Design Lab at Georgia Tech and Space Grant Fellow, attended the 8$^{th}$ Annual Acquisition Research Symposium in May of 2011. Joy Braithwaite only had partial funding for the

trip. She said that she spoken to faculty members and other student organizations and each time she was referred to the Georgia Space Grant as the "go to" organization for student support to attend technical conferences.

- Christianna Taylor, a Ph.D. student at Georgia Tech and former JPL intern sponsored by the GSGC recently started a company. Her partner is Kamara Brown, who was the former president of the NASA Academy Alumni and frequent presenter at National Space Grant meetings. This will be the first aerospace related company started by African American females in the area of Orbital Debris.

- In the fall 2010 semester, 7 Albany State students attended a new course "CSCI – 4911 – Special Topic: – Real Time Programming" specifically designed to teach programming - Basic Stamp microprocessor that is used to record the sensor data in a balloon flight. On, April 21, 2011, ASU -1, the first independent balloon payload was successfully launched and retrieved by Albany State faculty and students. The data reduction is still continuing.

- The Georgia Space Grant Consortium awarded another one-year fellowship to an outstanding Georgia State University astronomy graduate student, Yamina Touhami. Ms. Touhami is pursuing observations with the GSU Center for High Angular Resolution Astronomy Array, the finest instrument in the world for extremely accurate measurements of the sizes of stars and their gaseous environments. Her work is focused on the observation and analysis of the circumstellar disks of Be stars. She published one first author paper during this period:

    - Touhami, Y., Gies, D. R., & Schaefer, G. H. 2011, "The Infrared Continuum Sizes of Be Star Disks", Astrophysical Journal, 729, 17.

- Ms. Touhami also contributed as a co-author on three other papers:
    - Schaefer, G. H., et al. 2010, "Multi-epoch Near-infrared Interferometry of the Spatially Resolved Disk around the Be Star Zeta Tau", Astronomical Journal, 140, 1838
    - Williams, S. J., et al. 2010, "The Be Star HD 215227: A Candidate Gamma-ray Binary," Astrophysical Journal Letters, 723, L93
    - Millan-Gabet, R., et al. 2010, "Spectro-interferometry of the Be Star Delta Sco: Near-infrared Continuum and Gas Emission Region Sizes in 2007", Astrophysical Journal, 723, 544

- Ms. Touhami also presented contributions at three professional meetings in Atlanta, Socorro, and Flagstaff during this period.

- At the Georgia Regional Astronomers Meeting (GRAM) co-sponsored by the GSGC, Archivists from the Georgia Tech Library displayed three editions of Sir Isaac Newton's Principia (1687, 1713 and 1726), E.E. Barnard's, A Photographic

Atlas of Selected Regions of the Milky Way (1927), and The Atlas Maior, compiled by Joan Blaeu (1665). Stephen Ramsden, a NASA Solar System Ambassador, set up his impressive six solar telescopes, catching the first large solar flare in five years. Participants in the meeting represented a diverse group of university astronomers from Georgia State University, North Georgia College & State University, Emory University, Georgia State College & University, Georgia Perimeter College, the University of Georgia, and Georgia Tech. Astronomers also came from Gordon College, Valdosta State University, Agnes Scott College, and Tellus Museum. In addition, there were a number of amateur astronomers in attendance. The meeting culminated with an evening Public Talk by Dr. Todd Henry (Georgia State University) entitled, "Grab Your Map to the Stars! Tour of the Sun's Neighborhood".

- Georgia Tech Shuttle Symposium Student Summary Report: Todd Chapman *(University of Texas at Austin)*

  I would like to express how grateful I am to have been a part of "The Space Shuttle: An Engineering Milestone". Opportunities to meet so many industry professionals and pioneers of space flight in one place are few and far between, and I will remember this experience for the rest of my life. I am so very thankful to Dr. Yang and Georgia Tech, as well as NASA, Boeing, Georgia Space Grant Consortium, and AIAA for making this learning experience possible. Without these generous sponsors, I would not have been able to attend such a special event.

  The atmosphere of the symposium was very inviting. All of the professionals were approachable and friendly. In fact, the downtime between presentations was just as informative as the presentations themselves. All I had to do was walk up to someone with a NASA badge and ask them what they did and then listen to whatever awesome project it was that they had worked on or were currently working on. I was able to meet the Manager of Shuttle Safety and Assurance, a chief engineer for United Space Alliance, a controls engineer for MSFC, and a former test pilot turned astronaut. It was also a great experience to be exposed to so many other aerospace students from all over the country and to hear the experiences from their college careers.

  As for the presentations, they were well run, entertaining, and informative. I truly feel that I have a better understanding about how NASA does things and the passion that goes into achieving manned space flight. There were, however, speakers who able to convey their passion more effectively than others. For example, Bill McArther and Steve Hawley had particularly interesting stories to share about their time as astronauts and were very energetic in their speech. Michael Gazarik, NASA's Deputy Chief Technologist, was very entertaining and inspiring in his speech about the future of space exploration.

But above all, Bob Thompson, the former Space Shuttle Program Manager, stole the show. Bob was animated, lively, and downright hilarious though out his entire speech. His unique personal stories about NACA and the infancy of NASA, the development of manned space flight, and how the Shuttle ultimately came to be, were priceless. It was really a treat to meet him and his wife after the reception Tuesday night.

The Shuttle symposium was, in my opinion, an overwhelming success. I came with questions and left with answers from true experts. I made valuable connections with decision makers in the aerospace field, as well as with potential future colleagues. As a student churning out homework and projects semester after semester, it is often easy to forget why you chose your specific path of study. Meeting all of these wonderful and accomplished engineers, hearing their stories, and witnessing their enthusiasm has reminded me why I chose to become an Aerospace Engineer.

- Georgia Tech Shuttle Symposium Student Summary Report: Scott Davidson (UCLA)

I am extremely grateful to have had the opportunity to attend the Space Shuttle Symposium at Georgia Tech. The experience has been truly inspirational. Meeting and hearing from astronauts, NASA employees, and others involved in the manned space program has given me a taste of the infectious passion that these people have for their work and the Space Shuttle program in which they have participated. I hope that I will experience that same passion for my future research and work.

Growing up, it was almost taken for granted that America could go into space regularly and safely in the shuttle. However, anytime I had the opportunity to witness a launch on television it was an awe inspiring moment. The majesty and beauty of the shuttle represented the best of what America could accomplish. As I have studied engineering at UCLA, my appreciation for the technical challenges that were overcome to build the shuttle has grown enormously. For example, in a materials science course that I took, a guest lecturer brought in tiles from the space shuttle and explained the different generations of tiles and how they worked. I was amazed by the creativity and ingenuity required to make these tiles that could withstand such immense heat. After attending this symposium, my respect for the engineering work that was and still is done on the shuttle has grown even more. It is an honor to have had the opportunity to meet some the legends who solved these problems, and I am humbled by their belief in what my generation and I can accomplish.

With the end of the shuttle program, I didn't know what the vision was for the future of manned space flight. After being here, I see that nobody really knows what exactly will happen, however that is not necessarily bad. Vast possibilities exist as a new era begins. This is a fascinating and challenging time. I am

thrilled to be a new engineer in such a time when I can witness and participate in the future being shaped.

I have also gained a more sobering perspective regarding the costs of this transition. Many people who have devoted their careers to the space shuttle are being laid off or transferred. There is a lot of worry about the costs, both personally for them, and also the institutional knowledge, wisdom, and skills that they represent. The panel today presenting the lessons learned showed some of how those lessons may be maintained. This seems to be a crucial task in this transitional period.

One often hears about the costs of manned space flight and funding NASA. In the current political and economic climate, everyone is looking for programs that could be cut, and NASA often provides an apparently easy target. However, it is rarer to hear about the benefits of funding the research and missions that NASA participates in. Manned space flight has enormous potential beyond what you typically hear of exploring for the sake of exploring. The processes and technologies that must be developed to return to the Moon, advance to Mars, and even beyond will have transformational roles in society in the future just as Space Shuttle technologies have in the past. Also, as private corporations come to have a greater role in the space community, possibilities abound for what the future may hold. With all I have learned here, I will be able to advocate for the benefits of NASA's program and mission in conversations with those around me. Hopefully I will be able to convey a sense of the excitement that I have gained.

## Outcome 2

- All students who attended the Bridge Competition sponsored by HBCU affiliate, Albany State University joined the Georgia Regent's Engineering Transfer Program and one student has already transferred to Georgia Tech.

- The Atlanta Journal Constitution, December 1, 2010 printed an article on the Kennesaw State University Fellows Program and Pre-College STEM Enrichment Program. The article highlighted how the program helped pre-college students improve their performance in STEM subjects.

- In-service teacher programs sponsored by non-profit affiliate, Orbit Education have impacted students who ultimately benefit which are highlighted in the following two anecdotes.

> HCHS Student Chosen NASA Aerospace Scholar
> HOUSTON COUNTY, GA – Houston County High School astronomy student, Erika Leslie, was selected as a NASA Aerospace Scholar for 2011. Erika will spend a week working with NASA engineers at the Johnson Space Flight Center (JSC) in Houston this summer.

All expenses, including transportation, are NASA-funded. The program is known as WISH (**W**omen **i**n **S**cience, Technology, Engineering and Math - **H**igh School).

Erika competed with hundreds of other high school junior women for this honor and only 40 were selected from around the country. Each girl designed several manned space exploration projects that were competitively judged by NASA engineers at JSC.

Erika will join an engineering team to include NASA professional women engineers and Aerospace Scholars. The team leaders will continue to mentor the youngsters in their careers as they complete their senior year of high school in 2012 and advance to college. They will also maintain contact with their peer team members and help recruit female scholars for future years.

Erika is pictured with her astronomy teacher, Joe Molyson. Molyson said, "It's unfortunate that NASA still has a great deficit of female engineers and scientists, but this kind of program is going to help them overcome that problem in the long run. Congratulations to Erika on her selection!"

- Also ..

Hi Clare,

I pray this message finds you well, I would like to thank you and Tony (Orbit Education) for the awesome workshop on Saturday. I truly enjoyed it and learned a lot of techniques that I am excited about. I am going to use a lot of the information from Saturday with my class and share the information with my co-workers.

Lisa Johnson

### Outcome 3

- Program/Project benefits related to Outcome 3 are in progress during the summer months.

## PROGRAM ACCOMPLISHMENTS

### Outcome 1

Title: Fellows Applied Leadership Program (base funding)
GSGC MEMBER: Dr. Army Lester, Kennesaw State University
Description: Leadership program to help Kennesaw Space Grant Fellows develop skills for success in STEM.
Metric: 9 Fellows complete the 10 week program

Results: Achieved

Title: Space Shuttle Symposium (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: The symposium was dedicated to honoring the contributions of men and women from the U.S. and around the world who dedicated their careers to the success of space missions in the Shuttle Era. Administrator Bolden was the Chair of the event and astronauts and NASA employees (past and present) were part of the agenda. The GSGC provided support by recruiting students through the Space Grant network and providing registration costs.
Metric: Registration for students from Space Grant Institutions
Result: 39 students were funded by the GSGC.

Title: Georgia State University Fellows (base funding)
GSGC MEMBER: Dr. Doug Gies, Georgia State University
Description: GSGC funds support Ph.D. students in Astronomy and Physics
Metric: 2-3 students funded
Results: Achieved

Title: Externships (augmentation funding)
GSGC MEMBER: All GSGC affiliates
Description: Externships are an effective alternative to more costly and more time intensive internships, but with equal impact. The Externship Program is limited to STEM companies in the State of Georgia.
Metric: Preparation and development of full scale program. For the first year the metric is 5-9 undergraduate students.
Results: Program is in development and the metric of 5-9 students should be met by the end of the GSGC fiscal year.

Title: Georgia Astronomer's Meeting (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: The annual meeting of the Georgia Regional Astronomers (GRAM) was held November 5 and 6, 2010, and for the first time Georgia Tech was the host institution. The conference kicked off with a visit to the Georgia Tech Observatory. Another part of the program consisted of presentations that included research projects, teaching programs, new facilities, and interesting stories related to field trips and telescopes.
Metric: 100 participants in the November conference
Results: Achieved metrics.

Title: NASA Space Academies and Internships (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: Internship opportunities for undergraduate and graduate students at NASA field Centers.
Metric: 4-6 students funded to attend Academies/NASA internships
Results: 4 students funded (Glen, Marshall, Goddard, and JPL).

Title: Industry Aerospace Internships (base funding)
GSGC MEMBER: SpaceWorks Enterprises, Inc.
Description: Summer internship experiences related to spaceflight. SpaceWorks Engineering, Inc. (SEI) is an aerospace engineering concept design and systems analysis focusing on next-generation space transportation systems, future technologies, human and robotic exploration of space, and emerging space markets and applications for government and commercial clients.
Metric: 4 students successfully complete industry internship
Results: 4 students completed internship - Katlynn Bringhurst, Aimee Sostilio, Jeff Kugele, Chris Dale.

Title: Mars Desert Research Stations (MDRS) (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: This is an annual program which the GSGC has co-sponsored for the past 10 years. The Mars Desert Research Station (MDRS) is one of four simulated Mars habitats in the world, built and managed by the Mars Society. Metric: A team consisting of 8-15 members travels to the research station to study and conduct research
Results: 9 students successfully participated.

Title: 8th International Planetary Probe Workshop (IPPW-8) in Portsmouth, Virginia 6-10 June, 2011 (augmentation funding)
Description: The goal of the workshop was to bring together scientists, technologists, engineers, mission designers, and policy makers interested in the exploration of Solar System atmospheres and surfaces using atmospheric entry and descent probes, aerial vehicles, surface landers, rovers and penetrators. The workshop covers the technological challenges and scientific opportunities associated with entry, descent, landing and flight in planetary atmospheres, and surface science and mobility. Collaborations at the meeting include students pursuing STEM degrees, faculty, NASA and other government employees, and members of industry. GSGC worked with other IPPW sponsors to invite students to present research papers, research posters and attend this workshop. GSGC planned and conducted a student professional development session, award selection for student researchers and worked with the Virginia Space Grant Consortium in conducting a student social.
Metric: Select and award travel scholarships for 20 students from around the world to attend IPPW-8 and participate in student development activities.
Results: Exceeded, 33 students participated in IPPW-3 with 21 of the students being awarded travel scholarships for the conference.

Title: Space Grant Fellows (base and augmentation funding)
GSGC Member: All GSGC members
Description: Qualified undergraduate and graduate students pursuing STEM are eligible for scholarship/fellowship funding
Metric: 20 students

Results: Funding of students in progress. Results will exceed metrics in the total number of overall students, as well as the total number of female students and students from underrepresented groups.

## Outcome 2

Title: Universities Student Launch Initiative (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: The GSGC has supported the USLI endeavor in the past and are working with students to develop a payload for the upcoming launch. Georgia Tech has a revamped team and new advisor, Dr. Eric Feron. University Student Launch Initiative, or USLI, is a competition that challenges university-level students to design, build and launch a reusable rocket with a scientific or engineering payload to one mile above ground level, or AGL. The project engages students in scientific research and real-world engineering processes with NASA engineers.
Metric: Developing a new team and submitting a proposal for acceptance
Results: Proposal was successfully submitted and supplies have been ordered for development of a reusable rocket.

Title: Student Autonomous Unmanned Vehicle Competition (base funding)
GSGC MEMBER: Dr. Anthony Choi, Mercer University
Description: Two students will participate in a student Autonomous Unmanned Vehicle Competition.
Metric : 2 students participated in completion.
Results: Achieved

Title: Robotics Workshop for Middles and High School Teachers (base funding)
GSGC MEMBER: Dr. Anthony Choi, Mercer University
Description: This workshop is co-sponsored by Boeing for the 2nd year. Teachers design robots as part of in-service workshops that are designed so that teachers can train students in their classrooms during the school year.
Metric: 20 teachers participate in workshops
Results: Exceeded

Title: NASA Fellows pre-college outreach (base funding)
GSGC MEMBER: Dr. Army Lester, Kennesaw State University
Description: Space Grant Fellows are provided opportunities to teach pre-college students. Fellows work with students to make STEM more understandable and meaningful. The program has several components including visits to the K-12 schools; college visits for pre-college students; mentoring; tutoring; and field trips.
Metric: 12 high school students and 8 college students participate in program. 100% of the students were from underrepresented groups.
Results: Achieved

Title: Albany State University Lego Program (base funding)
GSGC MEMBER: Dr. Atin Sinha, Albany State University

Description: One Day Workshop in ASU Engineering Laboratory performing projects with LEGO Nxt programmable robots, CNC lathe, SolidWorks CAD programming and understanding principles of flight in a subsonic wind tunnel
Metric: 10 students from underrepresented groups participate
Results: Achieved

Title: Annual Bridge Building Competition (base funding)
GSGC MEMBER: Dr. Atin Sinha, Albany State University
Description: Bridge Building Competition for high school students to design and develop bridge with strict constraints.
Metric: 63 students participated
Results: Achieved

Title: Science, Engineering and Mathematics (SEM) Career Fair (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: The GSGC provided support for an annual SEM Career Fair for high school students interested in pursuing STEM in college. The fair targeted students from underrepresented groups. Companies in attendance included Lockheed Martin, the CIA, Delta Airlines, and Scientific Atlanta.
Metric: Targeted – 365 students
Result: 200-250 students, 45 parents and/or administrators

Title: First Annual SMART Academy Balloon Launch (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: A weather balloon with a payload will be launched to near space within the city limits of Atlanta
Metric: 18 students from the Benjamin Carson Academy, collaboration with Albany State University, the 100 Black Men of Atlanta, the EPA, United States Air Force, Morehouse College, and Clark Atlanta University.
Result: Ongoing - initial preparations made for the launch, but the date had to be rescheduled.

Title: Youth Slam – Georgia Federation for the Blind (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: Georgia Tech sponsored 15 students to attend an annual engineering camp for blind students at Johns Hopkins University.
Metric: 15 students sponsored.
Results: 15 students who are blind and from underrepresented minority groups were provided scholarships by the GSGC.

Title: Professional Development for Teachers (base funding)
GSGC MEMBER: Orbit Education
Description: In service programs for Georgia Teachers using NASA content and adhered to Georgia Standards for STEM.
Metric: 10 workshops and 35 teachers per session
Results: 350 teachers completed workshops

Title: Georgia STEM Day (augmentation funding)
GSGC MEMBER: Orbit Education
Description: Opportunity for teachers who have attended Professional Development to network, share progress, and enroll in new courses.
Metric: 100 -200 teachers attend
Results: 130 teachers attended

### Outcome 3

Title: Performance Learning Center (base funding)
GSGC MEMBER: Mrs. Jacquelyn Whitt and Dr. Army Lester, Kennesaw State University
Description: the Performance Learning Center is a program for at risk youth. The Learning Center chooses 15 students to participate in a STEM Academy at Kennesaw State University.
Metric: 15 students attend and complete Academy
Results: In progress

Title: Georgia STEM Agenda (augmentation funding)
GSGC MEMBER: Georgia Tech
Description: The STEM Agenda will bring together all non-traditional STEM stakeholders in the State to develop a collaborative network that will strengthen and improve outreach in the State. This program was an outcome of the Georgia team that collaborated on the first Summer of Innovation proposal.
Metric: Development of network and scheduling of webinars
Results: A database of 32 organizations has been developed and webinars are in progress.

Title: Physics Demo Night and NASA Nights (base funding)
GSGC MEMBER: University of West Georgia
Description: Community event for ages 6 and up to engage and inspire in STEM.
Metric: 100-300 participants
Results: 200 participants

## PROGRAM CONTRIBUTIONS TO PART MEASURES

- Longitudinal Tracking:
    - 4 students are employed by NASA (2 underrepresented minorities, one female)
    - 7 undergraduate students moved to advanced education (5 underrepresented minorities, 3 females)
    - 1 underrepresented minority female employed in industry
    - 2 females students are faculty members at University of South Carolina and Florida Gulf State University

- Course Development: 2 new courses (Albany State University –" CSCI 4911, Special Topic, Real Time Programming", and Georgia Tech USLI course in the School of Aerospace Engineering).

- Matching Funds: Exceeded 1:1 matching requirement by 15%. Additional funding provided by Boeing, Flint Energies Foundation, SpaceWorks Enterprises, Inc., and GE Foundation

- Minority-Serving Institutions (HBCUs):
    - Clark Atlanta University
    - Spelman College (also 100% female)
    - Morehouse college
    - Savannah State University
    - Fort Valley State University

## IMPROVEMENTS MADE IN THE PAST YEAR

The GSGC meetings are rotated so that affiliates can host and have an opportunity to showcase their programs. At the most recent meeting held on April 19, 2011, at the University of Georgia, Griffin campus, the Externship Program proposed in the augmentation proposal was introduced as a GSGC-wide program. This will be the first GSGC project that will involve all affiliates.

There are programs from both the base grant and augmentation that will begin starting in June of 2011 and as a result were not able to be captured in this progress report. This data will still be captured monthly, so that there will be consistency with the quantitative reports submitted at a later date.

The GSGC had a larger presence statewide at science fairs, exhibitions, and conferences. The consortium also expanded involvement with consortia in other states including review of projects, and student/faculty exchange programs. There is also ongoing engagement of local government and industry.

Polices that were developed in 2009 as part of the GSGC improvement plan were expanded and/or adapted as necessary. The development of policies and procedures is ongoing, as well as ensuring the accuracy and timelessness of reporting; and assuring that programs adhere to the 2010-2014 GSGC Strategic Plan and improvement plan. Finally, the lead institution standardized submission of data by developing templates for use by the affiliates.

## PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

Consortium Structure/Network

The GSGC consists of 18 institutions listed below by geographic regions and with characteristic information listed.

Atlanta Metropolitan Area

- Clark Atlanta University (HBCU, undergrad and graduate programs, co-director is a former Space Grant Fellow, focus area is collaborative engineering research with majority institutions that lead to NASA careers)
- Georgia Institute of Technology (Lead institution, undergraduate and graduate, focus areas - funding students for advanced degrees in STEM, collaborative research with HBCUs, providing workforce development opportunities for students)
- Georgia State University (undergraduate and graduate, focus area - funding students for Ph.D.s in Astronomy)
- Kennesaw State College (undergraduate and graduate, focus areas - providing scholarships and funding undergrad students to work in STEM outreach programs with K-12 students, and mentoring programs for students in STEM)
- Morehouse College (HBCU, all male, undergraduate only, co-director is a former Space Grant Fellow, focus areas - workforce development, research opportunities for students, and collaborations with other institutions)
- Orbit Education (nonprofit, focus areas - in -service and pre-service teacher training using NASA content materials)
- SpaceWorks Engineering, Inc. (Industrial Affiliate, provides internship opportunities)
- Spelman College (HBCU, all female, undergrad, acting co-director is a former Space Grant Fellow, focus areas – encouraging females students to pursue STEM, hands-on research opportunities and workforce development)

Central Georgia

- Mercer University (undergrad and graduate programs, focus areas – undergraduate research, BOTBALL competitions for Pre-college, development of STEM Kiosks for general public )
- Fort Valley State University (HBCU, Land Grant, focus area – enrichment programs for Pre-college and undergraduates that encourage them to pursue STEM fields for employment or for advanced degrees)

Central West Georgia

- Columbus State University (undergrad, grad, focus on astronomy, space and earth sciences, working in conjunction with the Coca Cola Space Science Center)

North Georgia

- North Georgia College and State University (undergrad and grad, focus area is astronomy, and observatory programs)

East Georgia

- University of Georgia (largest institution, Land Grant, undergraduate and graduate programs, focus area is using NASA technology in agricultural applications, agricultural engineering, chemistry, geology)

Southeast Georgia

- Albany State University (HBCU, undergrad and graduate programs, focus areas – providing research opportunities for undergrads, participation in ballooning activities with other Space Grants, collaborating with other HBCUs and majority institutions, bridge building and other hands on programs for high school students)
- Armstrong Atlantic State University (undergrad, co-director is a former Space Grant Fellow, focus areas – undergraduate research, mentoring for Pre-college, workforce development for students, collaborative research)
- Savannah State University (HBCU, undergrad, co-director is a former Space Grant Fellow, focus area is providing research opportunities and scholarships for students as well as collaborative programs)
- Georgia Southern University (undergrad and grad, focus – informal education via the university operated observatory)

West Georgia

- University of West Georgia (undergrad and graduate programs, focus – undergrad research, planetarium shows for pre-college and informal educators)

The 18 consortium affiliates each have unique programs that are run by an Affiliate Co-Director, who is responsible for submitting proposals, accurate and timely reporting, and participation as needed in the decision making for GSGC. Affiliate Co-Directors are the representative/ambassadors of the GSGC on their campuses and are encouraged to publicize and promote consortium activities.

The GSGC Advisory Board is integral to the success of the Externship Program and has provided leadership support in the development of this innovation new initiative. The Board is equally important in recommending strategies and continually providing input for consortium success in this 5 year renewal period.