Mississippi Space Grant Consortium
University of Mississippi
Dr. Peter C. Sukanek
(662) 915-1187
URL: http://www.ms.spacegrant.org/

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 pipeline, including elementary/secondary and informal education. The Mississippi Space Grant Consortium is a **Designated** Program Grant Consortium funded at a level of **$785,000** for fiscal year 2009.

PROGRAM GOALS

The Mississippi Space Grant Consortium (MSSGC) has three major goals for FY2009-2010 as part of the 5-year Strategic Plan developed to support NASA in pursuit of their education goals and also to detail the Mississippi Space Grant Consortium vision: The Mississippi Space Grant Consortium is a statewide network of sixteen MS Universities and Community Colleges; aerospace-related industries and public service institutions providing opportunities for Mississippians, especially those from underrepresented groups, to understand and participate in NASA's aeronautics and space program by supporting and enhancing science, technology, engineering and mathematics education, research and outreach programs. The three goals for MSSGC are:

1. **Encourage**: The Mississippi Space Grant Consortium Program will provide educational support for STEM students aw well as support STEM faculty to provide hands-on activities in their classroom.
2. **Enhance**: The Mississippi Space Grant Consortium Program will support students in their STEM education and help provide them with the knowledge and skills needed for a world-class workforce. This support includes scholarships, fellowships, and internships with aerospace and aerospace-related industries and NASA Centers, as well as hands-on research experiences, and student rocket and balloon hardware programs.
3. **Enlighten**: The Mississippi Space Grant Consortium Program will nurture a scientific literate Mississippi population through minigrants for general public STEM programs and through dissemination of NASA opportunities for the informal education entities and K-12 and higher education teachers.

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

- MSSGC awarded a total of 49 scholarships and fellowships. Of the 49 awards, 19 were made to underrepresented minority students (38.7%) and 22 to female students (44.8%). This is slightly below the MSSGC benchmark of 39.3% for underrepresented and the 50% benchmark for females. (IES/US Dept of Education stats: MS minority enrollment average of 42%: (42% includes 38.4 Black, .7 Hispanic, .8 Asian, .5 Am Indian and 2.7 Non-resident) MSSGC benchmark goal is 39.3% for minorities since the 2.7% non-resident are not eligible for Space Grant funds.) (Outcome 1)
- The MSSGC Fellowship awardees must complete a K-12 outreach component. MSSGC continues with excellent evaluations from K-12 teachers with the nine MSSGC Fellows and their K-12 outreach activities as part of the Fellowship requirement. Teachers' evaluations were complimentary of the Fellows and their added expertise aiding their curriculum in their classroom. (Outcomes 1 & 2)
- Percentage of students who have taken their next step and have been successfully tracked though their next step vs last year of SG support. (Outcome 1)
    - 100% for 2009
    - 83% for 2008
    - 88% for 2007
    - 83% for 2006
- MSSGC continues to impact students' STEM education and career pathways. (Outcome 1) This student's comments (underrepresented, female) mirror those of many other MSSGC funded students and that are documented on the NSGF tracking site:

    "I cannot begin to explain the impact of the Space Grant program on my life. If I had never been chosen as a participant in the SHARP program the summer after high school graduation, I may have never been introduced to the field of engineering. Now I have found my passion in mechanical engineering and materials science. With each internship, I learned more about my field as well as the advancements in space exploration. These opportunities also opened up numerous other doors which I feel have made me a more educated and well-rounded individual. Any student that has the opportunity to participate in any Space Grant-related activity is truly in for a life changing experience." (Ratessiea Lett - on 12/23/09; 2009 MSSGC Fellowship, Mississippi State University - Graduate Student Researcher, 2008 MSSGC Fellowship, 2007 NASA/Marshall Summer Internship, 2006 NASA Undergraduate Student Research Program, 2005 NASA Undergraduate Student Research Program.

    This is an excellent example of internships, fellowships, MSSGC research opportunities retaining students into the NASA "next step" and pipeline.
- MSSGC continues its mutually beneficial relationship with MS industry with the summer student internship program. Industry matches $2,000 per student. FY09 funds funded sixteen students: fourteen at Lockheed Martin Space Systems, NVision Solutions, Inc. and Radiance Technologies, Inc.; all located at NASA/Stennis. (Outcome 1)
- MSSGC supported three Community College Faculty at NASA/Stennis as part of the Community College Technology Faculty Summer Fellowship Opportunity.

(Outcome 1) This Community College Opportunity is in alignment with NASA's focus on community college engagement and the program's success is evident by the Community College Faculty participants' evaluations of their experiences this summer. According to one participant:

> "I have gained an in-depth understanding of Piping and Instrument Drawings (P&IDs) as they are used in industry and in scientific testing of engines that use various fuels; standard installation practices of piping, instrumentation and deluge systems, to include pressures, flow, labeling, and cryogenic safety.
>
> This experience has been the highlight of my teaching career so far. I have attended workshops and seminars in the past but they are generally highly structured and don't allow easy access to the people that "do" the work. Working here (NASA/Stennis test stands) has allowed me to interact with both the engineers and the technicians. Generally the interaction with the technicians is missing in workshops and seminars. Since my students will be technicians I found this contact to be most valuable. This enhanced knowledge and firsthand experience will greatly benefit the Electronics Technology and Instrumentation Electronics programs at MS Gulf Coast Community College." John Poelma, MS Gulf Coast Community College/Electronics Technology Instructor, Summer 2010 at NASA/Stennis.

- MSSGC continues to fund the student-led rocket and balloon programs at MSU. One of the most rewarding highlight of the year has been the outreach component of the MSU Rocket Team, "The Space Cowboys." This rocket team has reached over 2,005 middle school students by a variety of programs: the rocket team conducts a middle school rocket launch challenge that engaged over 80 MS middle school students this year; the team also produced a pre-engineering career video that included NASA careers that was viewed by over than 1000 MS middle school students; and other rocket team outreach activities included speaking to over 18 middle school schools. (Outcome 1 & 2)
- MSSGC continues with a robust RI Program, funding four new projects for $25K. (Outcome 1)
- MSSGC funded three MS Space Explorer Schools impacting 1585 middle schools students by enhancing their science curriculum. (Outcome 2)
- MSSGC funded nine students to NASA Centers: four students to NASA/Marshall, three to NASA/Langley and 2 to NASA/JPL. (Two students at NASA/Marshall were NASA Academy students.) (Outcome 1)
- MSSGC hosted a middle school STEM workshop in collaboration with the UM Center for Mathematics and Science Education. This 2-day workshop had 65 MS middle school teachers and included sessions with the NASA Outreach Educator from NASA/Stennis. (Outcome 2)
- MSSGC continues to support and partner with the Rainwater Observatory. MSSGC funded four teacher workshops sponsored by the Observatory: two Backyard Astronomy workshops, a Hands-On Astronomy workshop, and Astronomy to Classroom workshop. These workshops are primarily for MS K-12 teachers but are also opened to the public. (Outcome 2 & 3)

- MSSGC funded scholarship/fellowship, higher education, K-12, General Public programs at the sixteen MSSGC affiliates. These various programs are conducted by the Campus Coordinator at the MSSGC Affiliate and are all pre-approved by the MSSGC Director. Detailed descriptions are included in the next section. (Outcome 1, 2, & 3)

PROGRAM ACCOMPLISHMENTS

The majority of Mississippi Space Grant's educational programs includes scholarships and fellowships, mentored research, Higher Education projects (Outcome 1), K-12 Teacher workshops, and mini-grants (Outcome 2), related to Space Grant program objectives. Our public service programs (Outcome 3) have been performed in conjunction with Rainwater Observatory and Planetarium. All of the affiliates' educational programs, K-12 through higher education, are in alignment with state educational standards.

The distribution of NASA funds within the Mississippi Space Grant Consortium for May 1, 2009- April 30, 2010:

Total: $785,000

Scholarships/Fellowships	29%		
Higher Education:	28.6%		
Research Infrastructure:	19.4%	Informal Education:	0 .6%
K-12:	9.4%	Consortium Admin:	13%

Outcome 1: Contribute to the development of the STEM workforce in disciplines needed to achieve NASA's strategic goals. (Employ and Educate)

- 62 students received significant support from FY09 funds
  - 49 in Fellowship & Scholarships
  - 13 in Higher Education/Research programs
- 25 students took next step in FY09 (SG participation supported from FY06-FY09 funds)
  - 13 graduated and are pursuing advanced STEM degrees
  - 2 work in STEM positions at NASA contractors
  - 10 work in STEM positions in industry

FY 2009 goals met; FY 2009 programs included:

1. MSSGC Workforce Development Program (Higher Education)

The Mississippi Space Grant Consortium (MSSGC) implemented a workforce development program in 2003, expanded the program in 2004, and has continued the program for every summer since 2003. This highly successful program is comprised of a student internship and a community college faculty fellowship program. The MSSGC established partnerships with aerospace-related industries in Mississippi and with NASA Centers that provided ten-week internships for sixteen undergraduate students and three community college faculty. The **sixteen student interns** (record high number) were competitively selected by the partnering companies from the MSSGC's eight affiliate universities. MSSGC received 46 student intern applications and forwarded these applications to the sponsoring companies for selection. Companies participating were Lockheed Martin, NVision, and Radiance.

Students participating in Summer 2010 (FY09 funds):

- Robert DeCurtins, UM Computer Science Engineering;
  Interning at Radiance, Inc at NASA/Stennis
- Ryan Keith, MSU Biological Science major;
  Interning at Radiance, Inc at NASA/Stennis
- Gabrielle L. Meeks, MVSU Computer Science major;
  Interning at NVision, Inc. at NASA/Stennis
- Ashleigh A. Gartman, USM Geology major;
  Interning at NVision Inc. at NASA/Stennis
- Rachael Holman, USM Biology major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Mark W. Dickey, MSU Aerospace Engineering major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Leslie J. Nathaniel, JSU Computer Science major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Daniel T. John, MSU Mechanical Engineering major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Patrick E. Fratesi, MSU Mechanical Engineering PhD student;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Roy R. Fuller, PRCC Electronics major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Emmett "Paul" Hotard, MSU Mechanical Engineering major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- William "Ray" Woods, PRCC Electronics major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Matthew Tucker, PRCC Architectural Engineering major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis
- Kyle Kerby, MSU Aerospace Engineering major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis;
- Richard Dixon, MSU Aerospace Engineering major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis;
- Stefan Becerra, PRCC Electronics major;
  Interning at Lockheed Martin Aerospace Inc. at NASA/Stennis;

Community College Faculty participants at NASA/Stennis for the summer 2010 (FY09 funds):

- John Poelma, MS Gulf Coast Community College/Electronics Technology Instructor at NASA/Stennis;
- Thomas Conerly, MS Gulf Coast Community College/Process Operation Technology Instructor at NASA/Stennis;
- Stephanie Lee, Pearl River Community College/Science Instructor at NASA/Stennis.

2. Student Internships at NASA Centers
(Applicants solicited by MSSGC; NASA chooses participants)

Students (9) participating in Summer, 2010 (FY09 funds):

- Julia Kovalcik, MSU/Aerospace Engineering student interning at NASA/Marshall;
- Colin Olsen, MSU/Civil Engineering student interning at NASA/Marshall;
- Dana Nicole "Nikki", UM/Chemical Engineering student interning at NASA/Marshall;
- Tyler Wilkinson, MSU/Computer Science Engineering student interning at NASA/Marshall;
- Tisha Brown, UM/Computer Science PhD student interning at NASA/JPL;
- Jacob Bowen, MSU/Computer Science student interning at NASA/JPL;
- Jonathan Bennett, MSU/Aerospace Engineering student interning at NASA/Langley;
- Joshua Blake, MSU/Aerospace Engineering student interning at NASA/Langley;
- Chris Acuff, MSU/Aerospace Engineering student interning at NASA/Langley.

3. Scholarship and Fellowship Programs

A. MSSGC Fellowship Program

MSSGC awarded nine $17,000 fellowships for the 09-10 academic year. These fellowships may be renewed for up to three years, and support graduate students enrolled at a Mississippi university pursuing any field of graduate study (Masters or Doctoral level) relevant to NASA. MSSGC Grant Fellows are required to be a resource person to a teacher in one of their graduate institution's neighboring K-12 schools for ten hours per week. Rather than develop teaching modules, the Fellows used already developed materials from the wide variety available through NASA and the NSF-sponsored North Mississippi GK-8 program. Each Fellow attended a one day training workshop at UM in August to provide guidance for K-12 instruction. The applicant also had to describe their graduate research project and how it relates to NASA interests.

(9) Fellowships @ $17,000 each for 2009/10 awarded to:

- Jairus D. Bernard, MSU/Mechanical Engineering PhD Student;
- Thomas Neil Williams, MSU/Computational Engineering PhD student;
- Jarred Reneau, MSU/Aerospace Engineering PhD student;
- Joshua Aaron Smith, MSU/Aerospace Engineering PhD student;
- Nicole Mae Wolgemuth Poe, MSU/ Mechanical Engineering PhD student;
- Ratessiea Lett, MSU/ Mechanical Engineering PhD student;
- Nicole Margo Montgomery, UM/Chemistry PhD student;
- Michael Hougendobler, UM/Mechanical Engineering PhD student;
- Tisha Brown, UM/Computer Science Engineering PhD student.

B. Affiliates' Fellowship and Scholarship Programs/Space Grant funds

- Alcorn State University

Scholarship: ASU funded five scholarships to support graduate and undergraduate science majors by awarding fellowships and scholarships for tuition and school expenses. Students were given the opportunity to gain research experiences: they were placed in the laboratory under the supervision of a faculty mentor. The faculty mentor gave the

students basic instruction and guidance in scientific research. Students awarded scholarships were assigned to a lab that they help manage under the supervision of a professor, and they work directly under a professor as a research assistant.

- Itawamba Community College

Scholarship: ICC funded three student scholarships. Awardees were assigned to work with ICC faculty, and also serve as mentors for STEM students.

- Jackson State University

Scholarships/Fellowships**:** JSU funded three scholarships and one fellowship. Awardees were required to meet with their faculty mentor at least 10 hours a week and conduct research as assigned by their mentor.

- Mississippi State University

Fellowship: MSU awarded one fellowship in engineering.

- Mississippi University for Women

Scholarship: Three scholarship awardees are selected by a STEM committee and are required to pursue research at MUW or a host institution. Awardees are required to submit a final report of their summer work and give oral presentation at appropriate scientific meetings.

- Northwest Mississippi Community College

Scholarship: Two awardees selected by NMCC STEM faculty and are required to be laboratory assistants to help all STEM faculty to set up and prepare the science laboratories.

- University of Southern Mississippi

Scholarship**:** USM funds ten scholarships for physics, mathematics or Computer Science students. The students are selected by faculty from these three areas.

4. Research Infrastructure Programs

A. MSSGC Research Infrastructure Program

The Call for Proposals was initiated December 2009, and twelve proposals were received. The MSSGC Review Panel selected four projects in January 2010. Preference was given to projects that related to NASA's research needs, had a strong interdisciplinary team, included new faculty and directly involved students. Project completion date is set for April 30, 2011 for the four projects selected. Projects selected are:

- Dr. Judy A. Schneider, MSU/Dept. of Mechanical Engineering; "Optimizing Friction Stir Welding Process Parameters to Eliminate Defect Formation." (NASA/Marshall)
- Dr. B. Banerjee, USM/School of Computing; "Prognosis of Anomalies in Sensor Networks." (Dr. Wanda Solano at NASA/Stennis)
- Dr. Thomas C. Marshall, UM/Dept. of Physics and Astronomy; "Improved Detection of Lightning Return Strikes at KSC." (NASA/Kennedy)
- Dr. Ed Swan, MSU/Dept. of Computer Science and Engineering; "Depth Perception in Near-Field Augmented Reality." (Dr. Ellis at NASA/Ames)

B. Affiliates' Research Infrastructure Programs/Space Grant funds

- Jackson State University

Research Infrastructure: Funds were provided for the research component of the scholarship/fellowship research projects. Some of this amount was used to partially fund travel to scientific meetings to present project papers.

- Mississippi State University

Research Infrastructure: MSU has funded two research infrastructure projects: Supersonic Wind Tunnel research and Sports Engineering/Engineering Materials. Each project provides a stipend for the undergraduate and graduate students working on their research as well as travel funds to present their projects at scientific meetings.

- The University of Mississippi

Research Infrastructure: UM funded two RI projects: Dr. L Cao, UM/Electrical Engineering: "Joint Forward Error Control Coding and Network Coding in Ad-hoc Wireless Networks;" and Dr. A. Yakovlev, UM/Electrical Engineering: "Nanocomposite Materials in Emergent Antenna and Sensor Technologies for NASA Space Communication Systems." This project is with collaboration with NASA/JPL and Glenn Research Center.

- Mississippi University for Women

Research Infrastructure: MUW funds two faculty research projects and results of the research projects are presented and/or published at professional conferences.

- University of Southern Mississippi

Research Infrastructure: USM funded 5 undergraduate students to work and train on methods of scientific and engineering modeling, simulation, and visualization. The High Performance Visualization Lab at USM was created through the collaborative efforts and funding of the US Navy, US Army and several academic units from the College of Science and Technology. This project was designed to create and maintain a basic knowledge foundation in the lab. This foundation is realized through training a pipeline of graduate and undergraduate students on the basics of modeling, simulation, and scientific and engineering visualization methods and techniques. Additionally, the program is aimed to motivate the creativity of the students and to encourage them to design, build, implement, and improve visualization tools that would be helpful for all researchers who are using the lab facilities. The research coordinator in the lab holds mandatory weekly meetings. In these meetings, discussions are focused on new research ideas, problems and solutions of current research projects and demonstrations of progress reports and presentations.

Outcome 2: Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty. (Educate and Engage)
FY2009 Goals met; FY2009 Programs included:

1. MSSGC Programs: (K-12)

A. MSSGC Annual MSSGC Teachers Conference The workshop was held January 22-23, 2010 at the University of MS. Over 65 middle school teachers (over fifty percent are underrepresented minority teachers) attended with speakers from the Consortium and its partners presenting topics in mathematics and science. Steve Culivan, NASA Educator, presented two sessions on space science and NASA's vision for the future. Evaluation of each speaker as well as the entire workshop was conducted. Overall, this workshop was evaluated as excellent by participants.

B. MSSGC Minigrants:

- Tupelo High School**:** This project included high school student science lectures, research activities, and mentoring program.
- Rainwater Observatory
  NASA funds: Projects funded are four teacher workshops: two Backyard Astronomy workshops, a Hands-On Astronomy workshop, and an Astronomy to Classroom workshop.

2. Space Explorers: MSSGC collaborated with Space Explorers Aerospace Outreach offering professional development to 3 Mississippi teachers in Booneville, Waveland and Bayou View, MS schools to train teachers using hands-on lessons and activities with a vision to connect students with space exploration in mission simulations and activities that expand their knowledge of space, earth, physical, and life science. Booneville Middle School Teacher Brenda Scott commented: "My students had a great time with the Marslink program. Even more so, their parents have been thrilled by their interest and excitement. The programs are wonderfully motivational and allow students of all levels to excel. The launches emphasize the importance of being able to work with fellow team members and help make the connection between classroom studies and real-world situations. The excitement sparks that enthusiasm for space travel that might result in a career. Thanks for providing education with such an excellent program." She is also featured on the Space Explorer's home webpage. Her comments about the program can be found: http://www.space-explorers.com/internal/events/testimonials.html .

3. Affiliate Programs/ Higher Education and K-12/Space Grant funds**:**

- Hinds Community College

Higher Ed/K-12: HCC awarded (2) undergraduate students to serve as mentors for former and newly recruited participants in the Minority Science and Engineering Improvement Program. These students work closely with mathematics, science, and/or computer science instructors as project/classroom/laboratory assistants. The student mentors provide career choice information, tutoring and assistance with special assignments including science projects.

- Itawamba Community College

Higher Education: ICC funded a student assistant to support science faculty in the development of videos, software, and on-line instructional materials. The student assistant also serves as a tutor for science students needing assistance.

- Jackson State University

K-12: Funds were provided for a workshop for K-12 teachers in the Jackson area. JSU sponsored a three day workshop for K-12 teachers from the Jackson Public School District. K-12 teachers learned how to conduct scientific experiments, collect, gather, and analyze experimental data and write laboratory reports.

- Meridian Community College

Higher Education: MCC funded a mentoring program, providing a stipend for a computer lab assistant. The student is available for MCC students who need tutoring in the areas of biology and chemistry.

- Mississippi Delta Community College

Higher Education: Two students were funded to serve as math and science tutors for 2 hours a week for fall and spring semesters in the Center of Learning on campus. Tutoring is free to any MDCC students and is provided in conjunction with the MDCC Center of Learning.

- Mississippi State University

Higher Education: High Altitude Balloon Project: MSU/Aerospace Dept. utilizes MSSGC funds for an on-going high altitude balloon project as a research platform. FY09 funds were used in the development of a high altitude sailplane to study flight mechanics in the near space environment. MSU/Rocket Program: MSU also uses MSSGC funds for the University Student Launch Initiative. The "Space Cowboys" are a student rocket team that has designed and built rockets and participated in the competitive launch at NASA/Marshall and the AIAA Southeastern Region Student Conference yearly. The "Space Cowboys" K-12 outreach component: This rocket team has reached over 2,005 middle school students by a variety of programs: the rocket team conducts a middle school rocket launch challenge that engaged over 80 MS middle school students this year; the team also produced a pre-engineering career video that included NASA careers that was viewed by over than 1000 MS middle school students; and other rocket team outreach activities included speaking to over 18 middle school schools. Additional MSU Space Grant/K-12 projects**:** MSU funds a dedicated science lab for the local public school/3rd grades. This lab serves approximately 300 students and 15 teachers. More than two-thirds of the students and half of the teachers are from underrepresented minorities. MSU also funds tours of the MSU engineering laboratories for approximately 200 local high school students. Hands-on activities are included on these tours. Most of these high school students are underrepresented minorities.

- Mississippi University for Women

Higher Education: MUW funded STEM faculty to accompany selected sophomores, juniors, and seniors (based on GPA) to the Mississippi Academy of Science annual meeting and the Mathematical Association of America Louisiana/Mississippi sectional meeting. The intention is to encourage MUW's stronger students to consider graduate and research careers as well as present research papers.

- Mississippi Valley State University

Higher Education: MVSU provided funds for four students and two faculty member to conduct research on student achievement in the local schools in Leflore County (95% underrepresented minorities) and to establish baseline data for placement of MVSU students in college mathematics courses.

- Pearl River Community College

Higher Education**:** PRCC funded a collaborative project with the Alpha Omega Science Club and for all students at PRCC, speakers for science lectures and conference presentations. K-12: PRCC/SG provided funds for the MCTM/PRCC Mathematics Competition held annually on campus. Also, PRCC/SG funded two area high school science teachers to attend NASA workshops.

- University of Southern Mississippi

Higher Education**:** USM funded a spring "Innovative Computing Solution Competition." Students are encouraged to contact local businesses, medical and industrial communities for projects. This goal is to encourage students and motivate their innovation in developing computer solutions and programs in the working environment. Presentations are judged by the School of Computing Faculty.

Outcome 3: Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission. (Engage and Inspire)

FY 2009 goals met; FY 2009 programs included:

- MSSGC Administrative Office: Increasing the dissemination of NASA and Space Grant activities and information is a continuing focus for the consortium's central office. A part-time graduate student is employed as the MSSGC Webmaster. The task of dissemination is currently achieved through a variety of mechanisms including email distribution lists, a World Wide Web page, and mailings. NASA announcements and opportunities, as well as other announcements applicable to our shared NASA/consortium goals, are routinely distributed via our email lists and Web page. The consortium's Web site at http://www.ms.spacegrant.org is updated bi-monthly with consortium information, funding opportunities, conference and workshop announcements, and educational links, as well as numerous other links to science, math, and engineering information.
- Rainwater Observatory and Planetarium

Through the MSSGC Mini-grant program, the Rainwater Observatory and Planetarium received four awards for workshops. These workshops are open to the public, although many are designed for K-12 teachers. The director of the Rainwater Observatory is Mississippi's Solar System Educator, Mr. Jim Hill. (See MSSGC K-12 programs in Outcome 2 for descriptions of the four workshops.)

- Itawamba Community College and Meridian Community College

General Public: ICC and MCC each funded a "Backyard Astronomy Program" presented by Jim Hill, Director from the Rainwater Observatory and Planetarium, Mississippi's Solar System Educator, schedule for the ICC and MCC campus April, 2009. The programs are opened to the public and included advertising, and evaluating the event.

- Pearl River Community College

General Public/ Higher Education**:** PRCC/SG in collaboration with the Alpha Omega Science Club provided speaker stipends for guest scientific lecturers. The collaboration hosts several lectures by scientists in different areas whose expertise capture the interest of the student population and expand their horizons. It gives science majors the opportunity to hear from current, informed leaders in their own fields of study; non-science majors are able to relate developments in science and technology to their own disciplines. The general public is also invited to the lecture series.

PROGRAM CONTRIBUTIONS TO PART MEASURES

- Longitudinal Tracking: MSSGC has been tracking students that have received $3,000 or more in NASA/MSSGC funds since 2006. MSSGC contracts with the National Space Grant Foundation for this service.

Percentage of students who have taken their next step and have been successfully tracked though their next step vs last year of SG support is as follows:

- 100% for 2009
- 83% for 2008
- 88% for 2007
- 83% for 2006

Student Data and Longitudinal Tracking:

Student Data and Longitudinal Tracking: Total awards = 62. Fellowship/Scholarship: 49, Higher Education/Research Infrastructure: 13. The total awards represent 37.1% underrepresented minority funding. During the FY09 program year 13 students graduated and are pursuing advanced STEM degrees, 2 students have accepted STEM positions with Aerospace Contractors, and 10 have accepted STEM positions in other industry.

For all students that were significantly supported in the period FY06-FY09, 17 students graduated and are pursuing advanced STEM degrees, 2 students have accepted STEM positions with Aerospace Contractors, 20 students accepted STEM positions in other industry, and 1 is working in a STEM position in academia.

- Course Development: MSSGC funded one MSU/Electrical and Computer Engineering Department capstone senior design course. The project, "Universal Wireless Sensor KSC2-11-SD," with Chris Iannello at NASA/Kennedy.

- Matching Funds: $691,702 matching funds for FY09. The ratio of funds leveraged by NASA funding support by MSSGC exceeds the 1:1 requirement of matching funds.

- Minority-Serving Institutions: All five public Mississippi HBCU's are an active part of the MSSGC. MSSGC has also partnered with the two private Mississippi HBCU's in the state. Percentage of awards FY09 to underrepresented students is 37.1%.

IMPROVEMENTS MADE IN THE PAST YEAR

- MSSGC Campus Coordinator sub-committee developed a revised Strategic Plan for 2010-2014 during the summer 2009. The MSSGC Strategic Plan, Vision, and Mission, and the 2010-2014 Goals and SMART Objectives were distributed to the MSSGC Affiliates and after final editing were approved and implemented in January, 2010.
- Increased number of MSSGC Fellowships (and applications).
- Increases the number of MSSGC Industry Student Interns to sixteen.
- Developed a closer partnership with the MS Center for Mathematics and Science Education; the partnership includes the training of the MSSGC Fellows and their K-12 component requirement and providing presenters for the MSSGC Teachers Conference.
- Increased RI projects (MSSGC and UM) to 6 projects.

PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION*

*(Role of affiliates and partners as described in the section "Program Accomplishments.")

Academic Affiliates

The University of Mississippi (UM): Public PhD degree-granting research university and lead institution for the NASA Space Grant Program. Dr. Peter Sukanek is a Professor of Chemical Engineering and serves as the Director of the MSSGC and UM/MSSGC Campus Coordinator.

The University of Southern Mississippi (USM): Public PhD degree-granting research university. Dr. Joe Whitehead is the Dean and Associate Professor of the College of Science and Technology and is the MSSGC Campus Coordinator.

Mississippi State University (MSU): Public PhD degree-granting research university. Dr. Keith Koenig is a Professor of Aerospace Engineering and the MSSGC Campus Coordinator.

Jackson State University (JSU/HBCU): Public PhD degree-granting research university. Dr. Maria Begonia is a Professor of Biology and the MSSGC Campus Coordinator.

Alcorn State University (ASU/HBCU): Public degree-granting university. Dr. Noland Boyd, Chemistry Professor is the MSSGC Campus Coordinator.

Delta State University (DSU): Public PhD degree-granting university. Dr. Charles Smithhart is a Professor in the Dept. of Biological and Physical Sciences and is the MSSGC Campus Coordinator.

Mississippi University for Women (MUW): Public degree-grant university. Dr. Shaochen Yang is a Mathematics Professor and is the MSSGC Campus Coordinator.

Mississippi Valley State University (MVSU/HBCU): Public degree-grant university. Dr. Raymond Williams is a Mathematics Professor and is the MSSGC Campus Coordinator.

Coahoma Community College (CCC/HBCU): Associate degree-granting community college. Mr. Amick Youngblood is an Instructor in the Dept of Math, Science and Computer Science and is the MSSGC Campus Coordinator.

Hinds Community College (HCC/HBCU): Associate degree-granting community college. Dr. M. Cathryne Jackson is the Chair for the Mathematics & Natural Science Division and is the MSSGC Campus Coordinator.

Itawamba Community College (ICC): Associate degree-granting community college. Presently the MSSGC Director has set-up a meeting with ICC Administration to discuss the MSSGC Campus Coordinator position due to the untimely loss of Mr. Kenneth Nowicki, who served as the MSSGC Campus Coordinator for many years.

Meridian Community College (MCC): Associate degree-granting community college. Dr. Angela Carraway is a Chemistry Instructor and the MSSGC Campus Coordinator.

Mississippi Delta Community College (MDCC): Associate degree-granting community college. Amy Biles is a Physical Science Instructor and the MSSGC Campus Coordinator.

Mississippi Gulf Coast Community College (MGCCC): Associate degree-granting community college. Mr. Steve Manis is a Science Instructor and the MSSGC Campus Coordinator.

Northeast Mississippi Community College (NEMCC): Associate degree-granting community college. Mr. Patrick Eaton is the Development Officer and is the MSSGC Campus Coordinator.

Pearl River Community College (PRCC): Associate degree-granting community college. Dr. Aleta Sullivan is a Science Instructor and the MSSGC Campus Coordinator.

Industrial Partners
Alliant (ATK) TechSystems
NVision Solutions, Inc.
Lockheed Martin Space Systems Company
Planning Systems, Inc (PSI)
Radiance, Inc.

Government Partners
NASA Stennis Space Center
NASA Marshall Flight Space Center
Jet Propulsion Laboratory
NASA Kennedy Space Center
NASA Ames
NASA Langley
NASA Glenn

Educational Partners
Rainwater Astronomy and Planetarium
UM/Center for Math and Science Education
Enterprise for Innovative Geospatial Solutions (EIGS)
Mississippi Science Teachers Association
Mississippi Educational Broadcasting
Millsaps College
Rust College (private HBCU)
Tougaloo College (private HBCU)
Space Explorers