Alabama Space Grant Consortium
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Consortium URL: www.uah.edu/ASGC/
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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 pipeline, including elementary/secondary and informal education. The Alabama Space Grant Consortium is a Designated Consortium funded at a level of $845,000 for fiscal year 2010.

PROGRAM GOALS

The Strategic Plan and Goals of the ASGC contains the following Vision and Mission Statements. Our specific goals are aligned with the ASGC strategic plan, with NASA's Education Enterprise Strategy and Human Capital Management Plans, and with the recommendation of the President's Commission on Implementation of U.S. Space Exploration.

Our Mission is: to inspire, enable and educate a diverse group of Alabama students to take up careers in space science, aerospace technology and allied fields; to play our part in assuring U.S. leadership in space exploration and aerospace technology in the future; to inspire the next generation of space explorers; to bring increased realization of the value of space science and technology to the people of Alabama; to insure that our message and our programs reach all constituencies in the population of Alabama, especially those traditionally under-represented in the science and engineering professions.

Our Vision is: an increased level of appreciation, participation and leadership by all the people of Alabama in the national and international space exploration and aerospace engineering enterprises. The ASGC program has, over the years, selected components in each of the NASA Space Grant national emphasis areas that also fit well with Alabama interests in one, and usually both, of the following senses: 1) there is a clear existing need and interest shown by an Alabama faculty member, a teacher, a group of students, school

system, university, industry, museum, etc.; and 2) there is evident willingness of an Alabama stakeholder to provide matching resources to achieve common objectives with NASA (the ASGC program shows match, or co-funding, mostly from non-federal sources of a ratio of 1:1 for every NASA dollar).

Outcome 1 (Employ and Educate) Consortium Fellowship/Scholarship, Research Infrastructure, and Higher Education Program Goals and SMART Objectives.
Contribute to the development of the STEM workforce in disciplines needed to achieve NASA's strategic goals, through a portfolio of investments.

ASGC Program Goals: Fellowship & Scholarship

1) Support and maintain our fellowship and scholarship program with high-caliber students;
2) Recruit fellows and scholars at all 7 member PhD-granting institutions;
3) Each fellowship will be matched by another of equal value using local funds; and
4) Actively recruit and support students in STEM fields from traditionally underrepresented groups at a rate consistent with NCES for Alabama.

SMART Objectives: Fellowship & Scholarship

- Objective 1: All 7 member PhD-granting institutions will have recruited a minimum of 3 fellows/scholars per university in FY10.
- Objective 2: In FY10, each affiliate will continue to match each fellowship it receives with a second fellowship to be administered by ASGC at the same value and will maintain the $37,000 stipend level to remain competitive with other Federal agencies. (This brings an additional $222K of non-Federal funds into the ASGC fellowship program).
- Objective 3: All recruited fellow and scholar awardees in FY10 will have a diversity level of 25% minority and 40% female participants.

ASGC Program Goals: Research Infrastructure Development

1) Support a significant number of motivated students and mentors encompassing a wide range of experiences in internships at NASA centers and collaborating industry;
2) Recruit a diverse cadre of students to work on mentored research projects at our established REU Programs at Alabama universities;
3) Ensure all REU projects funded with NASA funds shall be aerospace science and technology or STEM focused;
4) Support underrepresented faculty or faculty from our MSI members at research opportunities at NASA field centers; and
5) Actively recruit and support students and faculty in STEM fields from traditionally underrepresented groups at a rate consistent with NCES for Alabama.

SMART Objectives: Research Infrastructure Development

- Objective 1: A diverse group of 8 students from Alabama Universities will be placed as interns at NASA centers and collaborating industry in FY10.
- Objective 2: A diverse group of 24 students will be recruited to work on mentored research projects at 3-4 Alabama universities via our Research Experience for Undergraduates Programs in FY10.

- Objective 3: 1 underrepresented faculty or 1 faculty from our MSI members will be placed at a research opportunity at a NASA field center in FY10.
- Objective 4: All recruited research infrastructure participants in FY10 will be 25% minority and 40% female.

ASGC Program Goals: Higher Education
1) Support special courses in Space Hardware Building and Project Management;
2) Maintain and grow student ***Building Space Hardware*** programs throughout the State of Alabama; and
3) Actively recruit and support students and faculty in STEM fields from traditionally under-represented groups at a rate consistent with NCES for Alabama.

SMART Objectives: Higher Education
- Objective 1: 3 special courses in Space Hardware Building and Project-Management will be supported at 3 of Alabama universities in FY10.
- Objective 2: Maintain 15 student building space hardware programs at 6 universities in FY10, including 4 programs at 2 HBCU's.
- Objective 3: Initiate 1 new student building space hardware program at 1 university or 1 community college in FY10.
- Objective 3: All recruited higher education participants in FY10 will be 25% minority and 40% female.

Outcome 2 (Educate and Engage): Consortium Pre-college Programs Goals and SMART Objectives.
Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers and faculty.
ASGC Program Goals: Pre-college Education
1) Support a select set of projects and events that emphasize the development of K-12 teachers, particularly in pre-service and in-service program areas, which encourage young students to prepare for STEM careers;
2) Leverage funds with larger contributions from other sources;
3) Focus on in-service and/or pre-service teacher training that results in deeper content understanding and/or competence and confidence in teaching STEM disciplines;
4) Support NASA Education programs;
5) Evaluate programs to insure continuous improvement; and
6) Direct programs to underrepresented and underserved populations.

SMART Objectives: Pre-college Education
- Objective 1: 3 in-service and/or pre-service teacher educators will attend teacher educator workshops in FY10.
- Objective 2: Undefined. Targets of opportunity that meet the program goals will be identified and pursued.

Outcome 3 (Engage and Inspire): Consortium General Public and External Relations Program Goals and SMART Objectives.
Build strategic partnerships and linkages with STEM formal and informal education

provides that promote STEM literacy and awareness of NASA's mission.

ASGC Program Goals: General Public and External Relations
1). Actively engage members of the public from traditionally underrepresented groups;
2) Bridge the gap between Land and Earth Grant research and geospatial technology and societal needs in Alabama;
3) Leverage funding to extend the reach of SG beyond direct investment;
4) Support science education needs in underserved schools;
5) Engage students in informal education initiatives; and
6) Track impacts and evaluate programs success via quantitative and qualitative methods to insure continuous process improvement.

SMART Objectives: General Public and External Relations
- Objective 1: The activities of 1 Space Grant Fellow, Dr. J-M Wersinger, will be supported to help NASA and the Department of Agriculture bridge the gap between Land and Earth Grant research.
- Objective 2: 1 training workshop on satellite remote sensing and Geographic Information Systems (GIS) technology will be offered in FY10 by 1 Alabama University.
- Objective 3: In FY10, 2 state Regional Science Olympiad and Science Fairs that are supported by the ASGC and held annually at the lead-institution will have over 1,500 participants.

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

We provide some anecdotal examples of how we are contributing to the 3 outcomes. All comments come from students who were supported by the ASGC in FY10.

NASA Education Outcome 1:

My participation in the Space Grant Program has made me aware of several new opportunities within NASA and has given me the chance to meet mentors and career advisors in STEM fields. (Kristen Stovall – on 1/17/11, 2010 Space Grant Scholarship, University of Alabama).

Participation in the Research Experience for Undergraduates program gave me the opportunity to work with a graduate/student in the field of computational fluid dynamics, providing me with a background that enabled me to obtain my current cooperative education position with ESI Group North America. (Christopher Wordingham – on 9-17-2010, 2010 Research Experiences for Undergraduates, University of Alabama in Huntsville).

I spent a total of two and a half years with NASA via internships, the Great Moonbuggy Race and United Launch Alliance Projects, and my Senior Design Project. I feel these experiences have allowed me to develop good relationships with many people at Marshall Space Flight Center, from the education department to the Branch Chiefs, and the Heads of the Propulsion Department. To my knowledge, the main goal of organizations like the Space Grant, USRP, MSRP, etc. is to give young engineers the

knowledge and experience to work for the agency. While I was at Marshall in 2009, the Center Director formed a team of interns and co-ops to show why we as 'Generation Y' are primed and ready to be not the leaders of tomorrow, but today. The results of this team's presentation may not be seen for sometime, yet I believe just the fact that the team was formed shows some of NASA is ready for the next generation of leaders, not just engineers to begin becoming an important part of the future of space flight. I feel based on all of my experience I have received; I will make an excellent employee at NASA. (Kenneth Kirby – on 2/17/11, 2009 & 2010 NASA MSFC Summer Intern-Alabama A&M University).

The REU Program provided me an opportunity to start my undergraduate research early to write a great Thesis Defense for the Honor's Program that eventually allowed me to get into Vanderbilt University to pursue my Ph.D. in Chemistry. (Andrew Harris – on 11/17/10, 2010 Research Experiences for Undergraduates, University of South Alabama).

My ASGC scholarships have helped relieve the financial burden of my undergraduate tuition. This has allowed me to take a more active role in my engineering department. Since the start of my ASGC scholarship in 2009, I have participated in and led a variety of space related research projects involving nano-composite technologies. My involvement has enabled me to properly define my career goals, which involves the continuation to graduate study in carbon nano-composites in an Alabama institution. (Gregory Hickman – on 2/17/11, 2009 & 2010 Space Grant Scholarship-University of South Alabama).

The Space Grant program has encouraged me to continue my education for a doctoral degree in either Engineering Physics or Nuclear Engineering. (Breon Williams – on 2/17/11, 2009 & 2010 Space Grant Scholarship-Alabama A&M University).

NASA Education Outcome 2:

This has been the best professional development I have attended in my thirteen years of teaching. Thank you so much for making it possible for me to attend the LiftOff Summer Institute at JSC. (Stefanie D. Jenkins – on 07/20/10, Shades Cahaba Elementary, K-5 Teacher, Hands-on, Inquiry-based Math, Science, and Technology).

Based on the impact this professional development had on this educator below, we plan to fund 2 teacher educators in FY10 to attend the LiftOff Summer Institute at JSC in July (7/17/11-7/22/11).

NASA Education Outcome 3:

I was able to be a part of this competition with projects that apply to biology, earth science, chemistry, physics, design, problem solving and technology. (Elizabeth Mayer – on 2/2011, High School Student on her Science Olympiad Experience. Pope John Paul II Catholic High School, Huntsville, AL).

The Science Olympiad is a unique opportunity for young scientists to experience fields and disciplines that are not part of the curriculum. This helps to broaden the students'

scope for college majors and future career decisions. Students on the Science Olympiad team have to love science because that is what motivates them to devote many hours of practice and what will help to inspire their efforts. (Theresa Chivers – on 2/2011. Pope John Paul II Catholic High School, Chemistry Teacher).

Thank you so much for the opportunity to participate. Your competition provided me with great feedback and the opportunity to make many new friends. The state competition prepared me for the international state and was a significant reason why I placed first in Plant Sciences and won "Best in Category." (Mason McFarland – on 4/2010, Middle School Student on his Alabama Science and Engineering Fair Experience. Pleasant Grove Middle School, Pleasant Grove, AL).

PROGRAM ACCOMPLISHMENTS

NASA Education Outcome 1:

ASGC Program Goals: Fellowship & Scholarship

1) Support and maintain fellowship and scholarship program with high-caliber students;
2) Recruit fellows and scholars at all 7 member PhD-granting institutions;
3) Each fellowship will be matched by another of equal value using local funds; and
4) Actively recruit and support students in STEM fields from traditionally underrepresented groups at a rate consistent with NCES for Alabama.

SMART Objectives: Fellowship & Scholarship Accomplishments

- Objective 1: All 7 member PhD-granting institutions recruited and awarded fellows and scholars in FY10 (AAMU, 8 students, AU, 11 students, UA, 12 students, UAB, 4 students, UAH, 11 students, USA, 6 students & TU, 5 students). A total of 57 fellowships and scholarships were awarded and directly funded in FY10 (12 Graduate Fellows, 41 Undergraduate Scholars and 4 Teacher Educator Scholars). The total amount of NASA funds awarded to Fellows and Scholars by ASGC in FY10 was $266K. This was matched with $222K in state funds for a total of $488K.
- Objective 2: Each member matched each fellowship it received in FY10 with a second fellowship at the same value ($37K). This brought an additional $222K of non-Federal funds into the ASGC Fellowship program.
- Objective 3: The ASGC exceeded its recruiting objectives for fellow and scholar awardees in FY10. We had projected a diversity goal of 25% underrepresented minority (actual was 32%) and 40% female participants (actual was 42%) in these programs. We had 79% undergraduate and 21% graduate awardees.
    - 106 total students were "significantly supported" from FY10 funds (57 fellowship/scholarship and 49 higher education/research infrastructure). 12 students took their next step in FY10 (SG participation supported from FY06-10 funds). 1 accepted a position at NASA, 2 accepted STEM positions in academia and 9 accepted STEM positions in industry.

ASGC Program Goals: Research Infrastructure Development

1) Support a significant number of motivated students and mentors encompassing a wide range of experiences in internships at NASA centers and collaborating industry;
2) Recruit a diverse cadre of students to work on mentored research projects at our

established REU Programs at Alabama universities;
3) Ensure all REU projects funded with NASA funds shall be aerospace science and technology or STEM focused;
4) Support underrepresented faculty or faculty from our MSI members at research opportunities at NASA field centers; and
5) Actively recruit and support students and faculty in STEM fields from traditionally underrepresented groups at a rate consistent with NCES for Alabama.

SMART Objectives: Research Infrastructure Development Accomplishments

- Objective 1: ASGC surpassed its objective of directly funding 8 student interns in FY10 by 10. A diverse group of 18 students from Alabama Universities were placed in research internships at NASA centers (Glenn & MSFC) in FY10 that were directly funded by the ASGC.
- Objective 2: ASGC surpassed its objective of directly funding 24 REU students in FY10 by 7. A diverse group of 31 direct funded students were recruited to work on mentored research projects at 3 Alabama universities (UAB, UAH & USA) via our Research Experience for Undergraduates Programs in FY10. We directly funded 49 total students in Research Infrastructure overall with 45% female participants, 55% male participants. We had 94% undergraduate and 6% graduate participants.
- Objective 3: Although we assisted MSFC in running their Summer Faculty Fellowship Program in FY10, we were not able to direct support any faculty members at a NASA field center. Our objective was to support 1 underrepresented faculty or 1 faculty from our MSI members, but we did not accomplish this in FY10.
- Objective 4: We directly funded 12% underrepresented minorities under Research Infrastructure in FY10. We fell short of our objective of 25% by 13%). We did accomplish our objective of funding 45% female participants, which is an increase of 5%. We shall address the shortfall in 2011.

ASGC Program Goals: Higher Education

1) Support special courses in Space Hardware Building and Project Management;
2) Maintain and grow Student Building Space Hardware Programs throughout the State of Alabama; and
3) Actively recruit and support students and faculty in STEM fields from traditionally underrepresented groups at a rate consistent with NCES for Alabama.

SMART Objectives: Higher Education Accomplishments

- Objective 1: Injection of new courses into the undergraduate curriculum is extremely difficult at U.S. universities. We have done this at 3 universities in the past and it is a testament to the excellence of our faculty instructors. In FY10, we reached our objective and supported 3 special courses in Space Hardware Building and Project Management (1 of these courses is newly developed by a minority, female faculty at UAH, Dr. Christina Carmen) at 2 of our Alabama universities (AU and UAH).
    - AU – PHYS 3500: Dr. J-M Wersinger, "Development of Learning Modules in Project Management and Systems Engineering and Physics of the World Around Us",

    - UAH – MAE 490/491/492: Dr. Christina Carmen, "New Course Development: Collaboration between NASA and MAE 490/491/492 Senior Design to Develop a Lunar Wormbot",
    - UAH – MAE 493/593: Dr. Robert Frederick, "Propulsion Engineering & Rocket Design".
- Objective 2: ASGC was able to maintain its objective of funding 15 *students building space hardware* programs (Moonbuggy, Lunar Regolith/Lunabotics, BalloonSat, CubeSat, Microgravity and USLI) at 5 universities (AAMU, AU, UAH, USA, and TU), including 4 programs at 2 HBCU's (Moonbuggy, BalloonSat and USLI at AAMU, and USLI at TU).
- Objective 3: ASGC initiated 1 new student building space hardware program (Moonbuggy) at 1 community college (Bevill State Community College – they are fielding two teams since the response was so great) in FY10.
- Objective 3: **Directly funded higher education participants in FY10**. We reached our objectives of a diversity level of 25% (actual 35%) underrepresented minority and 40% (actual 44%) female participants in these programs. All directly funded higher education participants were 98 % undergraduates and 2% graduates in FY10. ASGC had a total of 228 higher education direct student participants FY10.
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NASA Education Outcome 2:

ASGC Program Goals: Pre-college Education

1) Support a select set of projects and events that emphasize the development of K-12 teachers, particularly in pre-service and in-service program areas which encourage young students to prepare for STEM careers;
2) Leverage funds with larger contributions from other sources;
3) Focus on in-service and/or pre-service teacher training that results in deeper content understanding and/or competence and confidence in teaching STEM disciplines;
4) Support NASA Education programs;
5) Evaluate programs to insure continuous improvement; and
6) Direct programs to underrepresented and underserved populations.

SMART Objectives: Pre-college Education Accomplishments

- Objective 1: In FY10, we supported 3 in-service and/or pre-service teacher educators by having them attend teacher educator workshops. Our objective was to support 3. This workshop was a 1-week long experience for 3 female educators, to attend the Texas Space Grant's LiftOff Summer Institute at JSC. We also funded 100 STEM teacher educator scholarships so they could attend the 2011 Alabama STEM Education Summit in Montgomery, AL which covered points such as developing the State's STEM workforce, the role and challenges of informal STEM programs in Alabama, the next generation of STEM standards and they were able to participate in an interactive session to set priorities and actions for STEM education in Alabama.
- Objective 2: Learning Opportunities for Middle School students and Educators: We are working with the UAH Institute for Science Education and the Alabama Mathematics, Science, Technology and Engineering Coalition for Education to provide new BalloonSat opportunities for Middle School students and educators. Middle school students will be provided with an exciting introduction to the

engineering process in the aerospace world of 'design, build, fly and evaluate.' The classroom curriculum will track the BalloonSat experience and the intention is to use this project as a pilot for a feeder-system into the established Alabama Engineering Academy Initiative in area high schools. This opportunity will target schools having high minority participation and they hope to see increased SAT scores in physical science.

- Objective 3: ASGC supported 1 renewed, 1-week summer program in FY10 which targets High School Students through an outreach program involving Bioengineering and Chemical Engineering. University of South Alabama (USA) provided opportunities for students to interact with scientists and engineers at USA with intentions of getting these students into the STEM pipeline and go onto pursue degrees in STEM fields once they graduate H.S.

NASA Education Outcome 3:

ASGC Program Goals: General Public and External Relations

1). Actively engage members of the public from traditionally underrepresented groups;
2) Bridge the gap between Land and Earth Grant research and geospatial technology and societal needs in Alabama;
3) Leverage funding to extend the reach of SG beyond direct investment;
4) Support science education needs in underserved schools;
5) Engage students in informal education initiatives; and
6) Track impacts and evaluate programs success via quantitative and qualitative methods to insure continuous process improvement.

SMART Objectives: General Public and External Relations Accomplishments

- Objective 1: ASGC was able to support the activities of 1 Space Grant Fellow, Dr. J-M Wersinger, in FY10. He was able to assist NASA during the summer of FY10 at a detail at NASA HQ and he is instrumental in assisting the Department of Agriculture bridge the gap between Land and Earth Grant research since he is located at Auburn University, a hub for agricultural studies and The Southeastern Remote Sensing Applications Consortium (SERSAC).
- Objective 2: ASGC supported 3 faculty members from TU and AAMU (both HBCU's) to attend the NASA STEM Education EONS Workshop at NASA MSFC. The faculty members learned information regarding curriculum improvement, innovations in global climate change education, MUREP, and MSFC and Stennis unique projects in FY10.
- Objective 3: In FY10, ASGC supported 3 State Regional Science Olympiad and Science Fairs that are held annually at the lead-institution, UAH, and these events hosted over 1,200 indirect participants and are venues to attract students in informal education initiatives and allow us to leverage our funding with co-sponsors. Members of the public from the entire State of Alabama are present at these events.

PROGRAM CONTRIBUTIONS TO PART MEASURES

- **Longitudinal Tracking**:
    - Total awards = 106; Fellowship/Scholarship = 57, Higher Education/Research Infrastructure = 49; 26 of the total awards represent underrepresented minority

funding. 12 students took their next step in FY10 (SG participation supported from FY06-10 funds). 1 accepted a position at NASA, 2 accepted STEM positions in academia and 9 accepted STEM positions in industry.

- **Course Development**: ASGC supported 1 new and 2 revised courses targeted at the STEM skills needed by NASA that were developed with NASA support. These courses are in Space Hardware Building and Project Management (1 of these courses is newly developed by a minority, female faculty at UAH, Dr. Christina Carmen) at 2 of our Alabama universities (AU and UAH). The courses are:
    - AU – PHYS 3500: Dr. J-M Wersinger, "Development of Learning Modules in Project Management and Systems Engineering and Physics of the World Around Us",
    - UAH – MAE 490/491/492: Dr. Christina Carmen, "New Course Development: Collaboration between NASA and MAE 490/491/492 Senior Design to Develop a Lunar Wormbot",
    - UAH – MAE 493/593: Dr. Robert Frederick, "Propulsion Engineering & Rocket Design".

- **Matching Funds**: Ratio of funds leveraged by NASA funding support is 1:1.

- **Minority-Serving Institutions**: ASGC supported 2 MSI's in FY10, which are both HBCU's (AAMU and TU). The total number of **directly funded/significantly supported** student awards to MSI's was 26 (18 Fellowship/Scholarship and 8 Higher Education/Research Infrastructure) out of 106 total awards (25%). ASGC supported 105 (31%) underrepresented minority students out of 334 students in our Fellowship/Scholarship, Higher Ed and Research programs across the state.

IMPROVEMENTS MADE IN THE PAST YEAR

- Development of New Relationships

  In FY10, ASGC made key new relationships. We successfully added a 2-year Public Institution of Higher Education/Community College to our suite of affiliate programs, Bevill State Community College (BSCC). Under the faculty mentorship of Ms. Maurice Ingle, BSCC is fielding two moonbuggy teams to compete in the 18th Annual NASA Great Moonbuggy Race in Huntsville, AL. The BSCC team consists of freshman and sophomores in Drafting Design Engineering Technology and Pre-Engineering. We also forged new relationships with two non-profit organizations, the Alabama Mathematics, Science, Technology and Engineering Coalition for Education (AMSTEC) and the Von Braun Center for Science and Innovation (VCSI). We partner with AMSTEC on various K-12 educator programs. AMSTEC works closely with the State Department of Education to improve math and science teaching statewide. Their mission is to provide all students in Grades K-12 with the knowledge and skills needed for success in the workforce and/or postsecondary studies. The mission of VCSI is to provide innovative engineering solutions and science applications for NASA, DoD, and other government agencies. We collaborate with VCSI by placing student interns there.

- Engagement with State of Alabama STEM Education Initiatives
  The ASGC director is a member of the State Steering Committee for the Alabama Governor's STEM Summit to be held in the state capital, May 2011.
- Learning Opportunities for Middle School Students and Educators
  We are working with the UAH Institute for Science Education and the Alabama Mathematics, Science, Technology and Engineering Coalition for Education to provide new BalloonSat opportunities for Middle School Students and K-12 educators. Middle school students will be provided with an exciting introduction into the engineering process in the aerospace world of 'design, build, fly and evaluate.' The classroom curriculum will track the BalloonSat experience and the intention is to use this project as a pilot for a feeder-system into the established Alabama Engineering Academy Initiative in area high schools. This opportunity will target schools having high minority participation and they hope to see increased SAT scores in physical science.

PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

The ASGC collaborates with many institutions across the state in the execution of its programs. We have a closely-knit management team consisting of the campus directors of all the 7 Research Universities across the state (2 of which are HBCU's) and a couple of others including the University Affairs Officer at MSFC. We call the home institutions of the Management Council **"Members"** of ASGC and all other partners we call **"Affiliates"**. The affiliates tend to come and go, that is they may not participate each year; they may come in for a special opportunity. The provision of these affiliate resources, while very real and valuable, does not mean that these partners have any inclination to participate in the management of the overall program, and in fact most simply do not have the time to spend finding out about all the other programs in ASGC. **All our "members"** do, however, actively participate in management and are interested in what the other members are doing.

The demographics for the 7 research universities in Alabama, which is in the Southeastern region of the U.S., has changed in the past 20 years. UAB with 16,000 students is 26% minority. UA, AU, and UAH together are about 14% minority, and USA has drastically changed its minority enrollment strategy and is 20% minority. Together the majority enrollment research universities in Alabama have almost twice as many minority students as the 2 major research HBCU universities, AAMU and TU.

Institution of Higher Education (Bachelor's and/or Graduate Degree Granting): 7 (Alabama A&M University, Auburn University, The University of Alabama, The University of Alabama in Huntsville, The University of Alabama at Birmingham, University of South Alabama and Tuskegee University).

- **Alabama A&M University** (AAMU). HBCU, Public, Ph.D. degree-granting research university. Campus Director is Dr. V. Trent Montgomery, Dean, School of Engineering and Technology. AAMU participates in Scholarships, Fellowships, Student Interns, BalloonSat Program, University Student Launch Initiative, and Moonbuggy Programs.

- **Auburn University** (AU). Public, Ph.D. degree-granting research university. Campus Director is Dr. David G. Beale, Professor, Department of Mechanical Engineering. AU participates in Scholarships, Fellowships, Student Interns, BalloonSat Program, CubeSat Program, Lunar Regolith Competition, and Course Development.

- **The University of Alabama** (UA). Public, Ph.D. degree-granting research university. Campus Director is Dr. John Baker, Professor, Department of Mechanical Engineering. UA participates in Scholarships, Fellowships, Student Interns, BalloonSat Program, Lunar Regolith Competition, Microgravity Program, Autonomous Vehicle Program, University Student Launch Initiative, and Design-Build-Fly Program.

- **The University of Alabama at Birmingham** (UAB). Public, Ph.D. degree-granting research university. Campus Director is Dr. Yogesh K. Vohra, Professor, Department of Physics. UAB participates in Scholarships, Fellowships, and REU Program.

- **The University of Alabama in Huntsville** (UAH). Public, Ph.D. degree-granting research university. Campus Directors are Drs. Gerald R. Karr and Kader Frendi, Professors, Department of Mechanical and Aerospace Engineering. UAH participates in Scholarships, Fellowships, BalloonSat Program, University Student Launch Initiative, Moonbuggy Program, State/Regional Science and Engineering Fairs, REU Program, Student Interns, CanSat Program, CubeSat Program, Science Olympiad, Sounding Rocket Workshops, Course Development and is working to develop a Middle School Student/Teacher BalloonSat Education Program.

- **University of South Alabama** (USA). Public, Master's degree-granting research university. Campus Director is Dr. John W. Steadman, Dean, College of Engineering. USA participates in Scholarships, Fellowships, University Student Launch Initiative, Math Olympiad, Summer Intern Program, and REU Program.

- **Tuskegee University** (TU). HBCU, Private, Ph.D. degree-granting research university. Campus Director is Dr. Gregory V. Murphy, Department Head, Electrical and Computer Engineering. TU participates in Scholarships, University Student Launch Initiative, and Student Interns.

Institution of Higher Education (Community College/2-Year Institution): 1 (Bevill State Community College).

- **Bevill State Community College** (BSCC). Public, associate degree-granting community college. Campus Director is Ms. Maurice Ingle, Drafting Design Engineering Technology Department. BSCC currently supports 2 Moonbuggy Programs.

Government (Federal/State/Local): 3 (MSFC; Ex-officio member of ASGC Management Team, the Alabama Mathematics, Science, Technology and Engineering Coalition for

Education (AMSTEC) and the Von Braun Center for Science and Innovation, Inc. (VCSI).

- **NASA - MSFC**. Federal. We collaborate with all NASA centers to place student interns and faculty fellows, but due to proximity, we closely have ties with MSFC. We partner with them on various projects and programs such as running 2 Advanced Rocketry Workshops that are preparing student teams to participate in the NASA University Student Launch Initiative. We also manage the NASA Academy, the NASA Propulsion Academy and the NASA Robotics Academies during the summer for MSFC. Our contact at MSFC is Dr. Frank Six, University Affairs Officer.

- **Alabama Mathematics, Science, Technology and Engineering Coalition for Education** (AMSTEC). Non-Profit/State. We partner with AMSTEC on various K-12 educator programs. AMSTEC works closely with the State Department of Education to improve math and science teaching statewide. Their mission is to provide all students in Grades K-12 with the knowledge and skills needed for success in the workforce and/or postsecondary studies. We are partnering with AMSTEC to provide teacher educator scholarships to attend the May 3, 2011 Alabama STEM Education Summit in Montgomery, AL. The mission of the Summit is bridging workforce needs, economic development and effective education. The keynote speaker will be the Governor of Alabama, Dr. Robert Bentley who will be discussing the importance of STEM in Alabama. Our contact person at AMSTEC is Ms. Brenda Terry, Executive Director.

- **Von Braun Center for Science and Innovation** (VCSI). Non-Profit/Local. The mission of VCSI is to provide innovative engineering solutions and science applications for NASA, DoD, and other government agencies. We collaborate with VCSI by placing student interns here. Our contact person at VCSI is Mr. Marty Kress, Executive Director.

Industry: 2 (The Boeing Company and Dynetics, Inc.).

- **The Boeing Company**. We work with Boeing to provide student internship opportunities and they are one of the major supports of the Alabama Science and Engineering Fair. Our contact person at Boeing is Ms. Tina Watts, Community and Education Relations Specialist.

- **Dynetics, Inc.** Dynetics provides us with many guest speakers to our various Awards Banquets and Workshops. We also partner with Dynetics by providing students and faculty to participate on the "Rocket City Space Pioneers" program. The Rocket City Space Pioneers, made up of Huntsville partners Dynetics (team leader), Teledyne Brown Engineering, Andrews Space, Spaceflight Services, Draper Laboratory, the University of Alabama Huntsville, and the Von Braun Center for Science & Innovation, will compete for the Google Lunar X PRIZE. Our contact person at Dynetics is Mr. Tim Pickens, Chief Propulsion Engineer and Commercial Space Advisor.

Museum/Science Center/Planetarium: 1 (U.S. Space and Rocket Center).

- **U.S. Space and Rocket Center** (USSRC). We partner with the USSRC on various K-12 teacher training and informal education projects. Our contact person at USSRC is Ms. Mare Gilmore, Director of Education for Space Camp.