

SOUTH DAKOTA SPACE GRANT CONSORTIUM

www.sd.spacegrant.org

Lead Institution

South Dakota School of Mines and Technology
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Membership

Institutional Members

- SD School of Mines and Technology
- South Dakota State University
- USGS Center for Earth Resources Observation and Science (EROS)
- Augustana College
- SD Discovery Center and Aquarium

Industrial Affiliates

- Raven Industries
- RESPEC
- Science Applications International Corporation (SAIC)

Educational Affiliates

- Black Hills State University
- The University of South Dakota
- Dakota State University
- Badlands Observatory
- Black Hills Astronomical Society
- Kirby Science Discovery Center
- The Journey Museum
- Lower Brule Community College
- Oglala Lakota College
- Sinte Gleska University
- Lake Area Technical Institute

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 South Dakota Space Grant Consortium (SDSGC) is a Capability Enhancement Consortium funded at a level of \$410,000 for fiscal year 2007.

The SDSGC is headquartered at the South Dakota School of Mines & Technology (SDSM&T) with 18 additional members/affiliates. SDSGC has a very effective 9-member Management Team consisting of a representative cross-section of its membership. During FY2007, the consortium's Management Team continued to consist of representation from SDSM&T, SD State University, Augustana College, Sinte Gleska University (a Tribal College -- minority-serving institution), the U.S. Geological Survey's Center for Earth Resource Observation and Science (EROS), the SD

Discovery Center & Aquarium, the Journey Museum, and the Kirby Science Discovery Center.

PROGRAM RELEVANCE TO NASA:

Space Grant consortia build human capital and research expertise to support NASA programs and missions, expand NASA's expertise and educational networks, and bring knowledge and awareness of space to a broad range of constituents in every state. As the link between NASA and the citizens of South Dakota, SDSGC's mission is to instill the spirit of exploration and discovery in students and educators and in the general public, with a special focus on the fields of science, technology, engineering, and mathematics (STEM) that are essential for the development of the nation's workforce.

PROGRAM BENEFITS TO THE STATE:

The SDSGC has become one of the key organizational forums in South Dakota for bringing together talented people, their ideas, and collaborative projects in research, education, and technology-based economic development. The scientific and technological interests of both NASA and the State of South Dakota have benefited as a result of the Consortium's educational and research efforts in remote sensing, satellite imagery, GIS, global and regional geoscience, environmental science, and K-12 educational outreach. Likewise, with an annual, competitive student fellowship/scholarship program that provides an average of 45 college students each year with a total of about \$150,000 in direct support of NASA-related STEM education, SDSGC is one of the top funding sources in South Dakota for higher education.

PROGRAM GOALS

The goals of the SDSGC include:

- Management: To ensure quality and fairness in all Consortium programs and alignment with the needs of NASA, the member and affiliate organizations, and the state of South Dakota.
- Fellowship: To administer a fellowship/scholarship program that offers educational and research opportunities to students from diverse backgrounds who are pursuing degrees in fields of STEM that align with NASA's mission and those of SDSGC members and affiliates.
- Research Infrastructure: To promote the improvement of research programs and capabilities of institutional and affiliate members with an emphasis on the fields of aerospace, earth science, and supporting STEM disciplines.
- Higher Education: To build interdisciplinary programs related to NASA's mission and goals at the state's institutions of higher education and to support related programs that serve to strengthen STEM education in South Dakota.
- Precollege: To increase student awareness and access to education and career opportunities in aerospace, earth science, and supporting STEM disciplines.
- Public Service: To enhance public scientific literacy in aerospace and earth science; to complement community efforts in STEM education; and to inspire citizens of diverse backgrounds through the excitement of scientific exploration and discovery.

PROGRAM ACCOMPLISHMENTS

- Fifty-seven (57) applications were received from students from five of the Consortium's universities in competition for the NASA funding available through the FY2007 Fellowship/Scholarship Program.
- Forty (40) student awardees were selected and provided with a total of \$104,000 in NASA funding.

- SDSGC exceeded its targeted goal of 40% of awards to women and 10% to minorities. Forty-five percent (45%) of student funding was awarded to women and 14% to minorities.
- Seven of the 39 awardees (18%) were Native American minority students. Three of the seven Native Americans attend a Tribal College affiliate.
- Ten (10) students were placed in internships at NASA Centers (JSC, KSC, JPL, GSFC, and MSFC) and aerospace industry (Spirit Aerosystems and Hamilton Sundstrand) during summers 2007/2008.
- Eleven (11) student interns were placed at EROS during summer 2007.
- SDSGC completed its second year of a formal subcontract with St. Francis Indian School (SFIS) to enhance STEM education for Native American students on the Rosebud Indian Reservation and prepare them for college.
- SDSGC sponsored "SD Space Days 2007: To the Moon, Mars & Beyond" at affiliate Kirby Science Discovery Center, drawing 1,130 students and teachers who participated in "hands-on" STEM educational activities and space-related presentations from NASA JPL and SDSGC personnel.
- SDSGC staff and students conducted 20 pre-college informal education events, reaching 3,060 students and teachers with presentations on space-related topics.
- In cooperation with NASA AESP, SDSGC continued to support pre-college teacher-training in robotics and two schools were awarded with \$5,000 robotics grants.
- SDSGC's annual Kelly Lane Earth & Space Science Grant was awarded to a high school science teacher from Mitchell, SD for outstanding teaching and innovative STEM educational programs.
- Five "Women in Science" conferences were supported across the state during FY2007, as well as SDSU's hallmark Aerospace Career and Education Camp.
- SDSGC's Consortium Development Competition project was funded in March 2007 to "Increase Minority Participation in Higher Education in STEM Disciplines Responsive to NASA Needs".
- The State of South Dakota's REACH ("Research Excellence a Critical Hallmark") Committee replaced the former SD NASA EPSCoR Technical Advisory Committee (TAC) as the advisory board for both SDSGC and SD NASA EPSCoR.

STUDENT ACCOMPLISHMENTS

Forty (40) college student awardees were funded in FY2007 and 10 were placed in internships at NASA Centers and industry. A few of highlights include:

- **Jessica Weidenbach**, Senior Computer Science and Math major conducted a summer 2007 internship at Johnson Space Center under NASA's Undergraduate Student Research Program.
- **Ashley Vayer-Jenkins**, a Metallurgical Engineering student conducted a six-month aerospace industry co-op at Hamilton Sundstrand at their plant in York, NE in 2007 and was accepted into a summer '08 internship at Spirit Aerosystems.
- **Connie Giroux**, a Native American Space Grant fellow who graduated from SDSM&T in Dec. '07 with an MS in Technology Management completed a summer 2007 internship in the Mission Assurance Office at NASA's Jet Propulsion Lab.
- **Paul Cooney**, an undergraduate Mechanical Engineering student participated in NASA's summer 2007 Student Internship Program at Goddard Spaceflight Center and worked for the Lunar Reconnaissance Orbiter project office.
- **Jeremy Banik**, a graduate of SDSM&T and previous Space Grant student fellow is now employed as a contractor with the Air Force Research Laboratory Space Vehicles Directorate as a Research Aerospace Engineer.