

NASA Idaho Space Grant Consortium

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Lead Institution: University of Idaho

Academic Affiliates

University of Idaho – Lead Institution
College of Idaho
Boise State University
Brigham Young University-Idaho
College of Southern Idaho
Idaho State University
Lewis Clark State College
North Idaho College
Northwest Nazarene University

Informal Education Affiliates

Discovery Center of Idaho
Idaho Mobile Space Station
Idaho Museum of Natural History
Palouse Discovery Science Center
Warhawk Museum and NASA Space Place

Governmental and Industrial Associates

Bruneau Dunes State Park
Craters of the Moon National Monument
Idaho Department of Education
Idaho Division of Aeronautics
Idaho National Laboratory

ISGC Partners

Idaho Academy of Science
Idaho Science Teachers Association

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 NASA Idaho Space Grant Consortium is a Designated Consortium funded at a level of \$590,000 for fiscal year 2007.

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. The NASA Idaho Space Grant Consortium helps build collaborative relationships between faculty and students in the state of Idaho and NASA engineers and scientists, provides funding for undergraduate and graduate student interns to work at NASA centers, promotes NASA's mission and vision in the state of Idaho, and trains the next generation of engineers and scientists for NASA. In addition, the NASA Idaho Space Grant Consortium offers training to teachers to enhance their skills in science, technology, engineering and mathematics (STEM) and informs and excites the general public about NASA's programs and missions.

PROGRAM BENEFITS TO STATE

The NASA Idaho Space Grant Consortium offers several programs and services that benefit the state of Idaho. Funding for research projects has not only increased the expertise of faculty in the state, but has also transferred intellectual property and technology to the public sector. Research support has also provided opportunities for undergraduate and graduate students to gain hands-on experience in research areas of interest to NASA. Scholarship and fellowship funding has supported undergraduate and graduate students and allowed them to achieve their academic goals as well as gain experience working in areas of interest to NASA. Educational opportunities for teachers have helped to encourage K-12 students to remain in STEM fields throughout their K-12 experience and to select STEM disciplines in college. Opportunities for informal education help to inform the general public about NASA programs and missions and continue to stimulate an interest in STEM by the citizenry of the state.

PROGRAM GOALS

The vision of the Idaho Space Grant Consortium is to be the voice of NASA in the state of Idaho. To achieve this vision, the mission of the ISGC is to use a strong and active constituent base to provide easily accessible, highly flexible programs that focus on current and ongoing NASA

initiatives that will benefit researchers, K-12 teachers, K-20 students, industry, the general public, the state of Idaho and ultimately, NASA.

To achieve the ISGC vision and mission, the ISGC identified the following goals: (1) maintain an active statewide network of universities, colleges, industries, governmental agencies and informal education organizations with interests and capabilities in STEM related fields; (2) build strong partnerships with NASA field centers; (3) encourage cooperative programs among educational institutions, industry, all levels of government and other space grant consortia; (4) encourage interdisciplinary training, research, and public service programs related to the NASA Mission Directorates; (5) develop a strong workforce by recruiting and training professionals, especially underrepresented individuals, for careers in STEM; and (6) promote strong science, technology, engineering, mathematics and education from kindergarten through university levels, using formal and informal science programs.

PROGRAM ACCOMPLISHMENTS

The ISGC is dedicated to enhancing research capabilities in areas that support both the economic and technology goals of the state and its populace and align with the mission and strategic research priorities of NASA. Researchers work closely with many of the NASA centers including JPL, NASA Ames, NASA Glenn, NASA Johnson, and NASA Goddard. Many of the Research Initiation Grants that have been awarded to Idaho faculty have resulted in additional funding from agencies such as NASA, NSF, NIH, and DoD. Collaborations are also established with industries and governmental agencies such as Boeing, Micron, Positron Systems, the Idaho National Laboratory, and multiple military industries.

One of the highlights of the ISGC is the involvement of both undergraduate and graduate students in aerospace engineering and research activities. **I**Idaho **R**Research **I**Involving **S**Student **E**ngineers and **E**ducators (RISE) is a part of the National Space Grant Student Satellite Program developed to promote aerospace research and engineering capabilities and expertise through the implementation of near-space, sub-orbital, and deep space flight programs. Modeled after the organizational structure of NASA flight programs, Idaho RISE originated as a high-altitude balloon program, but steps are being made towards sub-orbital, space, and deep space hardware design, development, and mission capabilities. A component of the Idaho RISE program is a dual enrollment course through the University of Idaho for physics high school students. This course provides the high school students with the opportunity to participate in Idaho RISE, to design, build, and operate communication and tracking hardware, to fly science experiments, and to receive, analyze, and interpret data.

Another undergraduate research program is the Idaho **R**obotic **L**unar **E**xploration **P**rogram (RLEP). Idaho RLEP is led by two ISGC fellows and involves undergraduate teams working with the Space Grant fellows and mentors at NASA Ames to design prototype components for future lunar exploration programs. A component of RLEP includes internships for students at NASA Ames during the summer.

Research internships are an integral part of the ISGC and offer opportunities for Idaho students to gain hands-on research experience while working with NASA researchers. In 2007, ISGC support allowed 15 students to intern at the Jet Propulsion Laboratory, Ames Research Center, Marshall Space Flight Center, Langley Research Center, and the NASA IV&V Facility. In 2008,

it is anticipated that students will intern at the NASA Academy, JPL, Ames Research Center, Marshall Space Flight Center, and Langley Research Center.

STUDENT ACCOMPLISHMENTS

Austin Howard, a recent graduate in Mechanical Engineering at the University of Idaho, has been an active participant in the Idaho RISE program for the past four years. For the first two years, Austin served as the Team Lead for the RISE Structures team and for the past two years he has been the overall Student Program Manager. A very intelligent, articulate, and polite young man, Austin has been involved in aerospace science research at the University of Idaho for several years, including two summer internships at Ames and JPL. His leadership skills have been instrumental in helping the Idaho Space Grant Consortium expand the RISE program in the state of Idaho. Austin has been an outstanding role model to undergraduate engineering students and has encouraged many of them to become involved in RISE. He has presented posters at the 2006 and 2007 Planetary Probe Workshops, was a member of a senior design team that built a small prototype planetary entry and descent probe, and during the summer of 2007 while at JPL, Austin led a team of students investigating mission concepts for the Mars Student Climate Lander and Student Seismic Discovery Missions. He was also selected for "Coffee with NASA Administrator", Mike Griffin, this spring. Austin interviewed for positions at both JPL and NASA Ames, and received offers from both Centers. He will be joining NASA Ames in the fall of 2008.

A key to enhancing the research capabilities of college students has been offering opportunities for the students to present their research accomplishments through scholarly publications or at workshop and conferences. In recent year, students involved in undergraduate research project in Idaho have presented at the Space Grant Directors' Meeting in Las Cruces, NM, at NASA Ames and JPL, at Penn State University, and at the International Planetary Probe Workshops in Pasadena (2006) and Bordeaux, France (2007).

Another important component of the ISGC programs is training for undergraduate and graduate students to prepare them for entrance into the STEM workforce and for positions with NASA. The ISGC accomplishes this, in part, by working with NASA to identify projects for undergraduate student design teams to analyze, design, build and test during the academic year. As an example, during the 2006-2007 year, NASA Ames supported a senior design team to build a small probe to be launched from Wallops on a sounding rocket. Three members of the team have subsequently been hired by Ames to continue planning and engineering development towards the summer, 2008 launch. A second flight opportunity that will involve a new University of Idaho senior design team in 2008-2009 is being negotiated with NASA Ames.