

# Washington NASA Space Grant Consortium

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## Affiliate Members:

- Aerojet – Redmond Operations
- The Boeing Company
- Heritage University
- Museum of Flight
- North Central Educational Services District (NCESD)
- North Seattle Community College
- Northwest Indian College (NWIC)
- Office of the Superintendent of Public Instruction (OSPI)
- Pacific Science Center
- Seattle Central Community College
- Seattle University
- Tethers Unlimited, Inc.
- University of Puget Sound
- Washington State University (WSU)
- Western Washington University (WWU)
- Whitman College

## 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 fellowship and scholarship 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 Washington NASA Space Grant Consortium (WSGC) 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.

Working within the framework of NASA's SMART goals, WSGC provides higher education opportunities for Washington students seeking to pursue careers in the fields of science, technology, engineering and math (STEM); it enriches and improves STEM education at the state's pre-college, college, university and community learning centers; and it conducts public outreach for NASA missions, thereby strengthening the future workforce for NASA and our nation.

#### PROGRAM BENEFITS TO THE STATE

WSGC benefits Washington state through its scholarships, fellowships, undergraduate research programs and internships, and its standards-based, K-12 professional development activities. These programs all support the 10-year goals of our state's Higher Education Coordinating Board, which are aimed at achieving greater diversity across postsecondary education, motivating and supporting more students from families with low incomes to prepare for and attend college, and strengthening math and science education through advanced teacher preparation. Consortium affiliates OSPI, NCESD, and our museum members are also state leaders in state science and mathematics education reform efforts and in ongoing professional development for educators.

#### PROGRAM GOALS

Our higher education goals are to attract and retain high-achieving students, especially those underrepresented in the sciences, technology, engineering and mathematics, to space-related degree programs and career tracks supporting NASA's missions; to support the integration of research and education in NASA-related fields at the undergraduate and graduate levels; and to support faculty interested in deepening ties to NASA research and the development of research infrastructure at consortium member institutions. At the K-12 level, WSGC's goal is to attract students into STEM fields and retain them. We also seek to enhance the teaching of STEM topics and to attract students to these fields of study through engaging informal and formal education programs based on NASA's missions on Earth and in space. In informal education, we seek to build strategic partnerships and linkages with the goal of sharing the excitement and knowledge gained from NASA's missions with the public.

#### PROGRAM ACCOMPLISHMENTS

WSGC places a strong emphasis on research experiences for learners of all ages. In 2007, WSGC accomplishments are as follows:

- Awarded 80 undergraduate scholarships and 10 graduate fellowships consortium-wide.
- Funded 53 student researchers in UW laboratories through our Summer Undergraduate Research Program and 18 others in labs at our affiliate campuses.
- Added a research component to scholarships and fellowships at Washington State University, our largest academic affiliate.
- Supported Northwest Indian College, a tribal college, in implementing its first bachelor degree, the Native Environmental Science Bachelor of Science.
- Placed six summer interns at the Jet Propulsion Laboratory, one at NASA Robotics Academy, and five at Aerojet.

- Funded a new rocketry course at the University of Washington. The first student-built payloads were launched in October.
- Increased capacity for Space and Space Travel, an entry-level UW course that prepares students for upper-level courses in space science or a major in Earth and Space Sciences with an emphasis in physics. The course is now offered twice yearly and class capacity was increased to nearly 190 students each quarter.
- Recruited two new industry partners, Korry Electronics and the Institute for Systems Biology, to participate in the WSGC private industry internship program.
- Conducted K-12 professional development workshops designed specifically for informal educators' needs. The two astronomy workshops for Seattle afterschool providers were presented in English and Spanish. Participants received NASA educational materials and links to additional resources in both languages.
- Co-sponsored the NASA Future Forum, held on 1/25/08 at the Museum of Flight. This celebration of NASA's 50<sup>th</sup> anniversary attracted more than 200 attendees, including students and faculty from WSGC affiliates.

#### STUDENT ACCOMPLISHMENTS

In 2007, a WSGC scholar earned a Goldwater Scholarship and another was named the sophomore medalist for achieving the strongest academic record of anyone in his class at the University of Washington.

A WSGC-supported team dominated the college bridge and wing building competitions at the annual conference of the Society for the Advancement of Material and Process Engineering, taking fourth place overall and sweeping first place in five categories.

In 2007, WSGC scholars reported 18 professional publications.

A WSGC scholar who is a pre-service teacher created and implemented a weeklong Earth and space sciences curriculum for eighth and ninth graders at Brewster Junior-Senior High School. The school is located in rural Eastern Washington and serves a population that is 60 percent Hispanic and 3.2 percent Native American.

WSGC alumni continue to report participation in the STEM-field workforce both in and out of NASA. Among our success stories are:

- Hakim Weatherspoon, UW '99: Research associate in the computer science department at Cornell University.
- Erin Strobel Hicks, WSU '99: Postdoc at the Max Planck Institute for Extraterrestrial Physics (MPE) in Germany.
- Daniel Forshee, UW '01, and Joshua Rusk, UW '06: The Boeing Co., working on testing and writing requirements for the 787 aircraft program flight controls.
- Marleen Martinez, UW '06: Avionics systems engineer for Lockheed Martin, now assigned to the NASA Orion Program.
- Laura Kushner, UW '07: NASA Ames Research Center, working on flow visualization used in wind tunnel tests of aircraft.
- Owen Anfinson, WSU '08: Researcher at the University of Calgary studying outburst floods and how they may relate to past events on Mars.