



NASA Rhode Island Space Grant Consortium

Brown University / Providence, RI 02912 / Phone: (401) 863-2889 / Fax: (401) 863-3978
http://www.spacegrant.edu/RI_Space_Grant

Administration:

Director: Professor Peter H. Schultz (PI)
 Assistant Director: Dean David Targan
 Program Manager: Dorcas E. Metcalf

Lead Institution:

Brown University (*Providence, RI*)

Consortium Affiliates:

Bryant College (*Smithfield, RI*)
 Community College of Rhode Island
 (*Lincoln, RI*)
 Graduate School of Oceanography
 (*URI, Narragansett Bay, RI*)
 Providence College (*Providence, RI*)
 Rhode Island College (*Providence, RI*)
 Rhode Island School of Design
 (*Providence, RI*)
 Museum of Natural History and
 Cormack
 Planetarium (*Providence, RI*)
 Roger Williams University (*Bristol, RI*)
 Salve Regina University (*Newport, RI*)
 University of Rhode Island (*Kingston,
 RI*)
 Wheaton College (*Norton, MA*)

Consortium Partners:

Aero-Astro
 Feinstein IMAX Theatre
 Brown's Ladd Observatory
 NASA Northeast Planetary Data Center

Academic Areas Served:

Applied Math, Astronomy, Astrophysics,
 Biology, Biological Engineering,
 Chemistry, Cognitive and Linguistic
 Sciences, Computer Science,
 Cosmetology (Physics), Engineering
 (Civil, Electrical, Materials, and
 Mechanical), Environmental Studies,
 Geochemistry, Geology, Geophysics,
 Mathematics, Neurosciences, Physics,
 Planetary Geology, Program in Liberal
 Medical Education, Psychology,
 Sociology (Health & Society), Visual
 Arts

R.I. Space Grant goals are: (1) to encourage undergraduate and graduate university students (especially women and minorities) to explore NASA-related science research and engineering as a career; and (2) to use space-related science as a vehicle for enhancing scientific literacy among educators and their students in Rhode Island. The NASA RI Space Grant Consortium is part of a nationwide congressionally mandated, NASA-managed program designed to act as a space-science resource for higher education, pre-college teachers, and the general public. The Rhode Island Space Grant Consortium seeks to engage the Rhode Island community in the excitement and the process of NASA research, technology, and education, especially as outlined in the *President's Commission on Implementation of United States Space Exploration Policy: A journey to Inspire, Innovate, and Discover* (6/04) and in support of the NASA Office of Education's mission and goals, as they pertain to the strengths and weaknesses of our state.

A broad range of projects and programs involving areas of interest to our state and to NASA are supported by RI's Space Grant Consortium. Several examples from various program areas can be seen on the next page.

Numbers of Fellowships and Scholarships awarded in RI since 1991:

Total Fellowships awarded:
 53 (@ ~\$19K = \$1.007 mil)

Total Academic Year Scholarships awarded:
 72 (@ ~\$4K = \$288K)

Total Summer Scholarships Awarded:
 47 (@ ~\$4K = \$188K)

Award total for all Fellows and Scholars: ~\$1.48 million

Faculty research and curriculum support programs for last 8 years (Space Grant \$ only, as reported to NASA):

| Year | Research | Higher Educ. |
|----------------|-----------------|------------------|
| 1997 | \$12,400 | \$7,400 |
| 1998 | \$8,300 | \$23,100 |
| 1999 | \$20,500 | \$27,800 |
| 2000 | \$8,000 | \$43,200 |
| 2001 | \$6,900 | \$37,600 |
| 2002 | \$4,200 | \$43,600 |
| 2003 | \$6,400 | \$34,000 |
| 2004 | \$5,700 | \$49,400 |
| TOTALS: | \$72,400 | \$266,100 |

*Total NASA Funds awarded to RI ('04): Just over \$6 million

Examples of Projects and Programs:

Higher Education

RISD Industrial Design Course: Design for Extreme Environments. RISG has supported this class since 1992. In recent years it has evolved into a more formal partnership between RISD's Industrial Design Department and the NASA Johnson's Man Systems Integration Standards Division, to such an extent that four RISD interns have been hired by NASA contractors to work on NASA projects. Annual support for this course is currently at \$25K.

NASA Reduced Gravity Student Flight Opportunities Program (Vomit Comet): RISG has supported undergraduate teams of 5 students from Brown and/or CCRI every year since '99. A team from Brown has been selected to fly their experiment entitled "Fluid Experiments Across States: Exploration in Educational Applications" this summer. RISG has spent upwards of \$28K in support of this program since 1999 to enable students to travel to Houston. Annual support is ~\$3-5K.

Student Field Experiences: We have supported annual field trips by faculty and students at Brown, URI, Bryant University, and Wheaton College to travel to various parts of the US to study the analogous topography and geology on Earth to other planets such as Mars. Annual support ranges from \$5K - \$15K.

Research

FLASH: Brown students (part of an engineering class) designed a concept mission to launch a projectile into the Moon at a velocity of 9.5km/s using a piggyback launch. This small class project is now beyond a concept mission and actually represents a viable opportunity costing a mere \$7 million, fully in line with NASA's new vision. RISG's support has enabled this project to move forward: concept to design to potential near-future launch.

ASSET: RISG supports this Brown project's team members (undergraduates, faculty, and industry personnel) as they plan to demonstrate the successful deployment and operation of their aerobrake and provide imagery and data to support further development of this technology. With this development aerobrakes may become an integral element of space vehicles in the near future especially for use in high-speed re-entry, and orbital insertion and adjustment. This student-directed and

industry-guided project, with RISG support, is rapidly moving to feasibility testing and toward actual launch.

Pre-College

NASA Explorer School in RI: Perry Middle School. RISG was instrumental in supporting teachers at the middle school in their bid to become the first NASA Explorer School in RI. Their three-year award ends next year and RISG is seeking strategies to help them sustain the momentum and enthusiasm of the teachers and students, so vital to this inner-city school.

K-12 NASA Professional Development: NASA Sun-Earth Connection Education Forum, NASA Aerospace Education Specialist Rick Varner led Lunar and Meteorite Sample Certification Course, and the NASA Distance Learning workshop were all NASA teacher training opportunities provided to RI K-12 teachers with RISG support over the past year.

K-12 Teacher Partnership Program: K-12 teachers and students are visited annually in their own classrooms to promote SMET topics and to bring the excitement of current space-related research.

Science En Español: The program links Scholars and Fellows with bilingual classrooms in Providence. Regular discussions are held with children in the classroom about different science themes, in their native Spanish.

Girl Scouts of RI: RISG participated in the second annual state-wide S.M.A.R.T. day at which over 500 girls and their troop leaders participated in a variety of science and math focused activities set up on RISG Affiliate Bryant University's campus.

General Public

Museum of Natural History: RISG has supported several new exhibits on NASA-related themes over the last several years, including: *Space Weathering*, *Lewis & Clark: Exploration Then and Today*, and *Astrobiology: Get Extreme*

IMAX: the Feinstein IMAX Theatre donated to RISG preview screenings of recent large-format film premieres for two NASA-themed productions, *Magnificent Desolation* and *Roving Mars* and were attended by students, faculty, and families of Consortium Affiliate member colleges and universities

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