

Rocky Mountain (Utah) NASA Space Grant Consortium  
University of Utah  
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<http://utahspacegrant.com>

### 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 STEM education pipeline, including precollege teacher development and informal education. The Rocky Mountain (Utah) NASA Space Grant Consortium is a Designated Consortium funded at a level of \$785,000 for fiscal year 2009.

### PROGRAM GOALS

1. Demonstrably contribute to the development of the diverse STEM Workforce with programs in direct alignment with NASA's education strategic goals and defined outcomes.
2. Attract and retain students and public school teachers who have a solid understanding of subject material in STEM disciplines.
3. Conduct an informal education program to form strategic partnerships and linkages among STEM formal and informal providers promoting awareness of the missions of NASA.

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

#### **Outcome 1. Fellowships/Scholarships, Higher Education and Research Infrastructure**

- Student Symposium held May 2009
- Annual Meeting of RMNSGC held May 2009
- Alabama rocket competition 2009
- Green River rocket competition 2009
- Systems Engineering class development Fall 2009
- Space class development Spring 2010
- Space optics class development Spring 2010
- Space vehicle thruster development class Fall 2009
- Prof. Whitmore @ Endeavour launch 3 Feb 2010
- Student paper at AGU Dec 2010

- Senior project demos to the public 6 May 2010

### **Outcome 2. Precollege**

- Teacher Development Workshops
- Mars Workshops
- Clark Planetarium workshops/demonstrations for teachers
- Hill Aerospace Museum aerospace teacher workshops
- Science Olympiad
- Utah Space Week
- Physics Day at Lagoon
- Expanding Your Horizons Day Camp
- FIRST Robotics

### **Outcome 3. Informal Education**

- Small Satellite Conference 23 Aug 09
- The Leonardo hands-on projects and displays
- Clark Planetarium public visits
- Hill Aerospace Museum history of flight
- Native American Pow Wow

## **PROGRAM ACCOMPLISHMENTS**

### **Outcome 1. Fellowships/Scholarships, Higher Education and Research Infrastructure.**

- We awarded a total of 53 Fellowships/Scholarships.
- We won the national small rocket competition in Huntsville, AL.
- We developed/advanced four STEM college courses.
- We had a total of 19.67% participants from underutilized segments of society.

### **Outcome 2. Precollege**

- We conducted 9 precollege teacher workshops which involved 112 teachers

### **Outcome 3. Informal Education**

- Co-sponsored the 23<sup>rd</sup> Small Sat Conference 23 Aug 09 with 970 registrants
- We issued 1,700 newsletters

## **PROGRAM CONTRIBUTIONS TO PART MEASURES**

- **Longitudinal Tracking:** The services of the National Space Grant Foundation were engaged to assist our Consortium in this important endeavor. We feed in the annual graduating fellowship/scholarship information to the Foundation staff.
- **Course Development:** STEM courses were created and/or upgraded in four areas: 1) Space vehicle propulsion, 2) Space systems engineering, 3) Electro-optical systems, 4) Renewable energy systems. The Space Systems Engineering course was

based on a case study on the Wide-Field Infrared Survey Explorer (WISE) instrument.

- **Matching Funds:** The Rocky Mountain (Utah) Consortium provided matching funds in the amount of \$585,000 for the total \$785,000 funds awarded by NASA. The ratio of funds leveraged by NASA funding support is 3:4 (75%). The lead institution and the Affiliates provide matching funds through in-kind support, volunteer efforts, matching of fellowship/scholarship awards, and waived indirect cost.
- **Minority-Serving Institutions:** We do not have any minority institutions in Utah.

### IMPROVEMENTS MADE IN THE PAST YEAR

- Increased collaborations with our Affiliates, other Consortia, industry, and NASA Centers.
- Increased number of competitive, leveraged fellowship/scholarship awards to students under specific mentors.
- Higher Education projects included new courses (Electro-optical Systems & Renewable Energy Systems) and revised courses (Space Vehicle Propulsion & Space Systems Engineering).
- Upgraded content with hands-on exciting experiences in workshops specifically organized for credit-earning precollege teachers.
- Increased diversity by participation of more participants from underutilized segments of society.

### PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT

EXECUTION 20 Affiliates:

**Education and Research Universities:** (1) Utah State University, (2) University of Utah, (3) Brigham Young University; **Industry:** (4) ATK Aerospace Systems; **Education Institutions:** (5) Weber State University, (6) Southern Utah University, (7) Snow College, (8) Dixie State College, (9) Utah College of Applied Technology, (10) Salt Lake Community College, (11) Westminster College, (12) Utah Valley University; **Government Centers:** (13) Idaho National Laboratory, (14) Space Dynamics Laboratory, (15) Hill Air Force Base; **Outreach Institutions:** (16) Clark Planetarium, (17) Aerospace Heritage Foundation of Utah/Hill Aerospace Museum, (18) North American Native Research & Education Foundation, (19) The Leonardo, (20) Rocky Mountain NASA Fellows Association.