

**The National Space Grant Office requires two annual reports, the Annual Performance Data Report (APD – this document) and the Office of Education Performance Measurement System (OEPM) report. The former is primarily narrative and the latter data intensive. Because the reporting timeline cycles are different, data in the two reports may not necessarily agree at the time of report submission. OEPM data are used for official reporting.**

Montana Space Grant Consortium  
Lead Institution: Montana State University  
Director: Dr. Angela C. Des Jardins  
Telephone Number: 406-994-4223  
Consortium URL: <http://spacegant.montana.edu>  
Grant Number: NNX10AJ83H

## 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 Montana Space Grant Consortium is a Designated Consortium funded at a level of \$575,000 for fiscal year 2014.

## PROGRAM GOALS

2014 SMART Objectives by Strategic Goal:

*(These SMART Objectives apply to the 2014 MSGC grant year unless otherwise specified)*

**(1) Develop and connect interdisciplinary aerospace education programs that will build and enhance opportunities for involvement in space-based science, technology, engineering and math in Montana.**

1a. By August 1st, award \$1,500 competitive scholarships to deserving undergraduate students; maintain at least a 3.5 mean grade point average (GPA); maintain at least 25% underrepresented awardees; increase the percentage of female awardees from 40% to 45% for the 2010-2014 grant period.

1b. By August 1st, award \$7,500 one-semester competitive fellowships to deserving graduate students with 3.25 GPAs or higher; maintain at least a 90% level of major awardees that continue on to STEM employment or STEM advanced education; increase the percentage of underrepresented and female awardees from 3% and 38% to 5% and 40%, respectively for the 2010-2014 grant period.

1c. Continue to strive to award at least one scholarship to each Academic Affiliate, maintaining

the number of represented institutions at a minimum of 16 per year for the 2010-2014 grant period.

1d. Award Education Enhancement grants that continue to be impactful, interdisciplinary and have diverse participants; increase the average percentage of female PIs from 19% to 22% in the 2010-2014 award; increase the number of participating affiliate institutions to 8 (from 6 in the 2005-2009 award), including an increase in the number of Tribal College participants from 2 to 3 for the 2010-2014 grant period.

1e. Increase the number of Affiliate Institutions actively participating in the BOREALIS high altitude ballooning program from 3 to 5 in the 2010-2014 award.

1f. Through the efforts of the Space Public Outreach Team (SPOT) graduate managers, continue to educate 8% or more of the Montana K-12 teachers and students (~700 and 12,000 respectively) each year about NASA-related opportunities and careers available to Montana students as those students look forward to higher education; maintain at least a 80% level of teachers who use SPOT-provided NASA materials in their classroom instruction; maintain at least 50% female, 5% underrepresented, and 10% non-MSU presenters.

1g. Seek, wherever possible, to foster programs that reach across the artificial boundaries of “precollege,” “general public,” or “higher education;” continue to participate at least three times per year (on a volunteer basis) in outreach programs such as ‘Expanding Your Horizons,’ ‘Astronomy Day,’ ‘Science Olympiad,’ and ‘FIRST Lego League Tournaments;’ continue to participate (on a volunteer basis) on Montana museum boards.

**(2) Strive to build a Montana aerospace workforce, integrating women, under-represented minorities and persons with disabilities.**

2a. Continue to create interdisciplinary, hands-on, and meaningful opportunities for Montana students to participate in space hardware projects; maintain at least a 90% level of major awardees that continue on to STEM employment or STEM advanced education; increase the percentage of underrepresented and female participants from 8% and 16% to 10% and 20%, respectively for the 2010-2014 grant period.

2b. Continue to offer interdisciplinary, hands-on, and meaningful summer internships for Montana students from campuses other than MSU to participate in MSGC student space hardware projects; maintain at least a 90% level of interns that continue on to STEM employment or STEM advanced education; increase the percentage of underrepresented and female participants from 8% and 16% to 10% and 20%, respectively for the 2010-2014 grant period.

2c. Continue to create interdisciplinary, hands-on, and meaningful opportunities for Montana students to design and build BOREALIS high altitude balloon experiments at the BOREALIS launch centers; maintain at least a 90% level of major awardees that continue on to STEM employment or STEM advanced education; increase the percentage of underrepresented and female participants from 8% and 16% to 10% and 20%, respectively for the 2010-2014 grant period.

2d. Continue to offer interdisciplinary, hands-on, and meaningful summer internships for Montana students to participate in MSGC BOREALIS high altitude ballooning projects; maintain at least a 90% level of interns that continue on to STEM employment or STEM advanced education; increase the percentage of underrepresented and female participants from 8% and 16% to 10% and 20%, respectively for the 2010-2014 grant period.

2e. Increase the involvement of students from Tribal College Affiliate Institutions in the MSGC Minority Serving Institution Partnership Development Program, BOREALIS, student space hardware, undergraduate research, and internship programs from 30% to 100% involvement of at

least one student in at least one program for the 2010-2014 grant period.

**(3) Network Montana colleges, universities, aerospace industries, and government with national aerospace programs in government and industry, especially NASA centers and other Space Grant Consortia.**

3a. Continue to hold meaningful yearly Affiliates' Meetings, maintaining at least 75% Affiliate Representative attendance; create an evaluation of the Affiliates' Meeting and obtain at least 90% satisfaction with the meeting.

3b. Continue to hold MSGC Student Research Symposiums (MSRS) for all students involved in MSGC programs; maintain at least 120 student and faculty participants from at least 15 Affiliate Institutions, and maintain at least a 95% participant agreement that the Symposium was beneficial.

3c. Continue to offer support for NASA center internships; maintain at least a 90% level of NASA interns that continue on to STEM employment or STEM advanced education; increase the percentage of underrepresented and female participants from 5% and 10% to 7% and 15%, respectively for the 2010-2014 grant period.

3d. Increase support for aerospace industry internships – provide support for at least one industry internship.

3e. Continue nearly 100% MSGC director attendance at Space Grant Regional and National Meetings.

**(4) Expand and enhance aeronautics and NASA-related research activity in Montana colleges and universities.**

4a. Continue to maintain a 100% level of NASA-related interdisciplinary Research Initiation awards; create an evaluation of the number of PIs who propose for follow-on NASA funding and obtain at least 50%; increase the percentage of underrepresented and female PIs from 14% and 14% to 17% and 17%, respectively for the 2010-2014 grant period.

4b. Competitively award stipends to Montana State University students involved in STEM research; maintain at least a 90% level of students who present their work and/or submit a paper; increase the percentage of underrepresented and female participants from 2% and 35% to 5% and 40%, respectively for the 2010-2014 grant period.

4c. Competitively award stipends to University of Montana students involved in STEM research; increase the percentage of students who present their work and/or submit a paper to at least 70%; maintain at least 50% female awardees; increase the percentage of underrepresented awardees to 3% for the 2010-2014 grant period.

4d. Competitively award stipends to Montana Tech students involved in STEM research; increase the percentage of students who present their work and/or submit a paper to at least 70%; increase the percentage of female awardees from 43% to 48%; increase the percentage of underrepresented awardees to 3% for the 2010-2014 grant period.

4e. Continue to make stipends available to students attending institutions other than MSU, UM and Montana Tech who are involved in STEM research; increase the average number of participating Academic Affiliate Institutions from 3 to 10; increase the percentage of students who present their work and/or submit a paper from 50% to 70%; maintain at least 50% female awardees; increase the percentage of underrepresented awardees from 8 to 11% for the 2010-2014 grant period.

4f. Competitively award Apprenticeship stipends to Montana undergraduate students involved in *major* NASA research projects; have at least 90% present their work and/or submit a paper; 40% female awardees; 10% underrepresented awardees for the 2010-2014 grant period.

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

**Note:** Here, we have highlighted the activities not covered in the other sections below.

1) Nationwide Network of Total Solar Eclipse High Altitude Balloon Flights Project ('Eclipse Ballooning'). (Outcome 1)

The primary focus for BOREALIS is the Nationwide Network of Total Solar Eclipse High Altitude Balloon Flights Project ('Eclipse Ballooning'). Students on dozens of teams from more than 40 states will conduct high altitude balloon flights from 10-12 locations across the 8/21/2017 total eclipse path, from Oregon to South Carolina, sending live video and images from near space to the NASA website. In a second effort in collaboration with NOAA and NCAR, we have the opportunity to conduct the largest geographic campaign of balloon flights ever undertaken during the eclipse. MSGC is leading both of these eclipse ballooning efforts.

In support of the eclipse ballooning project, MSGC is building industrial relationships along the way. Two partnering companies are ATA Aerospace and World View Enterprises Inc. MSGC BOREALIS flew a payload on an ATA Aerospace high altitude balloon flight on October 28, 2014 at Holloman Airforce Base in New Mexico. In addition, MSGC BOREALIS had two experiments fly with World View Enterprises Inc on Feb 19, 2015. MSGC BOREALIS will be an active participant in NASA's High Altitude Student Platform (HASP) program in fall 2015, partnering with the University of Minnesota and Iowa State University to fly a HASP payload for testing the Eclipse Ballooning primary payload.

2) Tribal College student highlights (Outcome 1)

**Angelita Bearquiver**, MTSGC scholar and apprentice, is a graduate of Chief Dull Knife College and is currently pursuing a degree in Chemistry with a minor in Biology at MSU-Billings. Her apprenticeship research involves the investigation of how salinity levels in stream sediment shape microbial community assembly. Angelita intends to continue her work with NASA through her interest in astrobiology.

**Marty Seymour**, MTSGC scholar and Launch program participant, is currently a student at Chief Dull Knife College working towards an AA degree in general studies. Due to her scholarship funding, Marty applied to be a part of MTSGC's new community college efforts through our Launch (Launching Culturally Relevant Montana Careers in STEM) program. This experience is her first exposure to research and she chose this program because she is interested in considering careers in a NASA field.

**Noel Stewart**, MTSGC scholar and apprentice, is currently a student at Salish Kootenai College working towards a degree in Hydrology. Noel continues working with the Salish Kootenai College (SKC) Cubesat project and was a 2014 summer intern at NASA's Goddard Space Flight Center working on the Global Precipitation Measurement (GPM) mission. Noel's MTSGC apprenticeship is to develop a product that will map and overlay all of the data from each NASA weather satellite and radar to qualitatively assess global environmental parameters and instrument capabilities more accurately.

3) Hiscock Memorial Award (Outcome 1)

The \$1,500 William (Bill) A. Hiscock Memorial award is given annually to the applicant who best embodies Bill's passion for aerospace-related education. The 2014-15 AY Hiscock Memorial Award winner is Rocky Mountain College student **Kobi Hudson**. Kobi is in his

second year at Rocky Mountain College working towards majors in computer science, mathematics, and physics. This spring semester, with the aid of the Hiscock Memorial Award, Kobi will be continuing work started his freshman year on the Algal Growth and Remediation (AGAR) project to grow algae in zero gravity and test its CO2 remediation. The test of growing algae in agar in zero gravity will be the first of its kind.

## PROGRAM ACCOMPLISHMENTS

NOTE: THIS LIST REFERENCES OUR SMART OBJECTIVES BY OUTCOME AND REFERENCES RELATED NASA EDUCATION PRIORITIES [IN BRACKETS]. In order to be succinct, NASA Education Priorities are referred to by number: EP1. Hands-on student experiences, EP2. Middle school teachers, EP3. Summer opportunities for secondary students, EP4. Community colleges, EP5. Aeronautics research, EP6. Environmental Science and GCC, EP7. Diversity, EP8. Innovative research infrastructure.

### **Outcome 1:**

1a. Competitive Scholarships [EP5] [EP6] [EP7]

Awarded 31 undergraduate scholarships; mean GPA = 3.61; underrepresented = 16%; female = 61%. All objectives met.

1b. Fellowships [EP5] [EP6] [EP7]

Awarded seven 2014-2015 graduate fellowships; mean GPA = 3.70; FY 2014 metrics: underrepresented = 0%; female = 43%. We continue to actively recruit and encourage minority participation.

1c. Statewide Scholarships [EP4] [EP5] [EP6] [EP7]

Succeeded in maintaining 16 Affiliate Institutions receiving awards. We increased our visits to 8 affiliate institutions to enhance recruiting. Additionally our new assistant director has an office at two affiliate institutions to increase MTSGCs presence throughout our large state.

1d. Education Enhancement grants [EP1] [EP2] [EP4] [EP5] [EP6] [EP7]

Awarded three grants in FY 14 (details below) to two institutions.

- Female PIs = 67%; underrepresented PIs = 0%. While the underrepresented PI number is zero this year, our SMART objective is for the entire 2010-2014 period has been met. Female PI objective met for FY14 and for the grant period.

- FY 14 Titles, PIs, and institutions:

1) "Accessing Technology Resources Online to Motivate Interest in STEM Careers," Brenda Canine, Great Falls College - Montana State University (community college)

2) "Why Janus has two faces: Teaching the nature of science in Astronomy 110," Shannon Willoughby, Montana State University

3) "Side-by-Side Learning: Using Minecraft and Gamification to Support Student Learning and Teacher Professional Development," Nicholas Lux, Montana State University Department of Education

- FY 12 and 13 updates -- impact metrics from the last year of activity: publications: 1 pending; invited talks: 1; contributed talks at professional meetings: 1; pending follow on grants = 1; awarded follow on grants = 3 for a total of \$64,200; 13 direct funded faculty participants (1 underrepresented male, 1 underrepresented female, 7 white males, 4 white females); new courses = 2; revised courses = 6; 1 new fruitful collaboration with college of education.

1e. BOREALIS statewide effort [EP1] [EP4] [EP5] [EP6] [EP7]

Launch centers at MSU-Bozeman and UM-Missoula fly student experiments for any MSGC affiliate institution. As a result of expanding our efforts to involve students from affiliate campuses with our main launch centers, we had participation from Montana State University, University of Montana, Salish Kootenai College (a Tribal College), Carroll College, Missoula College, Montana Tech and Miles Community College in FY 2014.

- 1 MSU and 2 UM BOREALIS students presented research posters. 3 MSU and 1 UM student presented research talks.

1f. Space Public Outreach Team [EP1] [EP2] [EP7]

7 students total from MSU and UM (male). Working toward recruiting underrepresented and female participants. MTSGC continues to provide graduate student fellowship support of the SPOT managers and is currently seeking other funding partners for this very successful program. One current partnership and expansion of the program is with the Montana Office of Public Instruction.

2a. Student Satellites [EP1] [EP6] [EP7]

7 major student awards; underrepresented = 0%; female = 28%. We realize this is one of our toughest areas for recruiting female and minority student participation and are working on ways to boost these levels. For example, MTSGC Apprentice Katherine Stocker is responsible for efforts to engage, via peer-tutoring of freshmen, undergraduate STEM female students at Montana State University. Two additional MSU Space Science and Engineering Lab (SSEL) satellites were launched on January 31st. There are now five MTSGC-supported satellites in space!

2b. SSEL internships [EP1] [EP4] [EP6] [EP7]

Awards from FY 2014 have not yet been made. FY 2013 (summer 2014): 2 students (still enrolled), 0% female, 0% underrepresented.

2c. BOREALIS launch centers [EP1] [EP6] [EP7]

MSU BOREALIS continued research into the development of a valve system that can be used to control the ascent and descent profile of standard latex weather balloons. The first of several successful valve controlled balloon flights was completed in June of 2014. The valve offers us the ability to obtain neutral buoyancy or float allowing for longer flight times at altitude. It also provides us control over when and where we want to descend so as to achieve a safe landing. Students Tim Basta and Scott Miller were selected to present this work at the High Altitude Balloon Conference at University of North Dakota in June, 2014.

- The UMBOREALIS team began a new collaboration with UM climatologist Ashley Ballentyne. The project is to acquire CO<sub>2</sub> and methane atmospheric profiles from a balloon using an AirCore. The AirCore was developed by NOAA and a version was built this summer by Montana Tech mechanical engineering student, Shelby Mallin. An additional project was begun this summer by UM student and computational physics major Reed Hovenkotter to increase the forecast accuracy of balloon flight predictions utilizing NCAR's WRF model.

- MSU FY 2014: 35 students participated; 7% underrepresented; 13% female. For underrepresented and female students, we continue to find ways to encourage participation such as a new women in engineering and physics peer-tutoring program and holding specific women and science informational opportunities.

- UM FY 2014: 4 undergraduate students participated; 0% underrepresented; 25% female. Additionally 1 male and 1 female high school and 1 female and 1 male middle school students participated.

2d. BOREALIS internships [EP1] [EP6] [EP7]

FY 2014 awards have not yet been made. FY 2013 (summer 2014): 6 major awards, 33% female. We continue to work towards the goals set out in our SMART objective.

#### 2e. Minority Serving Institutions [EP1] [EP4] [EP6] [EP7]

- We continue to support students and faculty on two main Tribal College (TC) projects: the Aurora Detector Project and the Remote Sensing Project. We continue to offer support to these projects via our primary MSGC Apprenticeship, ARES, and BOREALIS state-wide programs. Highlights on these two main programs and other TC activities are given below and throughout this report. We are meeting our SMART Objective metric for engaging 100% of our TCs.

- Students from Chief Dull Knife College are enrolled in Code Montana to learn basic computer programming to ready themselves for work with the MSU and UM BOREALIS students on remote sensing and big data projects.

- Tribal College students are encouraged to participate in MTSGC's new community college efforts through our Launch program.

#### 3a. Affiliates' Meetings [EP4] [EP7]

We held our annual Affiliates' Meeting October 4th, 2014 in Missoula, MT. Of the 22 institutions within MTSGC, 68% were represented at the meeting. In changing the format and location of the meeting we held a reception the night prior as a way for members to interact in an informal atmosphere. For the sixth year in a row, our affiliate reps will also have a chance to interact at the Student Research Symposium April 18th, 2015.

#### 3b. MSGC Student Research Symposium (MSRS). [EP1] [EP4] [EP5] [EP6] [EP7] [EP8]

In 2014 we hosted the fifth MSRS including 181 participants from 10 Montana campuses, 32 student talks, and 25 student posters. Participant evaluations of the Symposium were overwhelmingly positive. Six Montana companies sponsored student presentation awards.

#### 3c. NASA internships [EP1] [EP5] [EP6] [EP7] [EP8]

FY 2014 awards have not yet been made. FY 2013 (summer 2014): 1 major award, 0% female, 0% underrepresented. While our minority and female participation has been low in the past, it is important to remember that at least 1 female student at Salish Kootenai College recruited by MSGC were being paid directly by NASA sources – an even bigger honor than being supported by MSGC!

#### 3d. Industry internships [EP1] [EP4] [EP5] [EP6] [EP7] [EP8]

FY 2014 awards have not yet been made. FY 2013 (summer 2014): 3 major awards with Montana Instruments (Bozeman, MT), 0% female, 33% underrepresented.

#### 3e. National and Regional Meeting Attendance

We met our goal for staff attendance at regional and national meetings.

#### 4a. Research Initiation grants [EP1] [EP4] [EP5] [EP6] [EP7] [EP8]

No FY14 awards (all awards were made under MT NASA EPSCoR)

#### 4b. MSU undergraduate research [EP1] [EP5] [EP6] [EP7] [EP8]

FY 2014: 16 awards, 31% female, and 6% underrepresented; presentations coming in April 2015. We continue to encourage female and minority participation, but it should be noted that the students are chosen by the MSU undergraduate research staff (not the MSGC staff). For example, MTSGC Apprentice Katherine Stocker is responsible for efforts to engage, via peer-tutoring of freshmen, undergraduate STEM female students at Montana State University.

#### 4c. UM undergraduate research [EP1] [EP6] [EP7] [EP8]

FY 2014: 6 awards, 100% female, and 0% underrepresented. Presentations coming in April 2015. We continue to encourage minority participation, but it should be noted that the students are chosen by the UM undergraduate research staff (not the MSGC staff).

4d. Montana Tech undergraduate research [EP1] [EP6] [EP7] [EP8]

FY 2014 awards have not yet been made. FY 2013 awards were made to 2 students, 100% of the students presented their work, 0% female, and 0% underrepresented. We continue to encourage female and minority participation, but it should be noted that the students are chosen by the MT Tech undergraduate research staff (not the MSGC staff).

4e. ARES [EP1] [EP4] [EP6] [EP7] [EP8]

In FY 2014, 13 ARES awards were made at 7 institutions including three community colleges; 58% female; 0% underrepresented. All awarded students complete Responsible Conduct of Research tutorials and present their research at the MSGC Student Research Symposium or another research conference. We continue to actively recruit and encourage minority participation.

4f. Undergraduate Research Apprenticeships [EP1] [EP4] [EP5] [EP6] [EP7] [EP8]

11 MSGC Apprenticeship awards were made in FY14. 100% are currently scheduled to present their work at the MSRS, 54% female, and 18% underrepresented. All are still enrolled. We continue to actively recruit and encourage female and minority participation. For example, MTSGC Apprentice Katherine Stocker is responsible for efforts to engage, via peer-tutoring of freshmen, undergraduate STEM female students at Montana State University.

## **Outcome 2:**

1g. Precollege

MSGC spent \$2,000 in match funding on Precollege projects and volunteered for several other precollege activities. See details below.

BOREALIS K-12 student opportunity. At UM, one male HS student and one female HS students, one male MS student and one female MS students participated in the academic year program. [EP1] [EP3] [EP7]

- MSU's American Indian Research Opportunities (AIRO) Montana Assistantship Program (MAP). In summer 2014, MSGC hosted one high school MAP research student who worked with BOREALIS for 180 hours. [EP1] [EP3] [EP7]

- UM BOREALIS provided a high altitude launch for Simms Middle and High School for science fair projects. [EP1]

- Continued in 2014, we will invite four teams of middle and high school Montana students who are second place winners at the regional Science Bowl and FIRST Robotics Tournaments in addition to second place winners of the Montana State Science Fairs to our annual Student Research Symposium. \$2,000 (\$500 per team for travel). [EP1] [EP7]

## **Outcome 3:**

1g. Informal Education/Synergistic projects

MSGC did not spend any base funding on Informal projects, though MSGC staff volunteered at several events. Being sponsors and volunteers creates awareness about our Higher Education opportunities among the Precollege teachers and students that is quite valuable.

- September 20, 2014 MTSGC hosted a High altitude Balloon Launch from the MSU Bobcat Stadium with over 15,000 people in attendance. MSGC students from MSU, UM, and Carroll College participated in this pre-game activity. This event was and pictures from the flight were highlighted in the MSU College of Letters and Science fall 2014 publication "Confluence". [EP1] [EP7]

- Astronomy and Aerospace Day, April 5th, 2014. MTSGC helped arrange the associated visits by Adler Planetarium President and MTSGC alum Dr. Michelle Larson and Jaime Waydo. MTSGC also had interactive booths for our programs. A total of 1800 people attended the event, calling it 'AWESOME!' [EP1] [EP7]
- March 4th, 2015 Neil deGrasse Tyson gave a lecture in Montana. MTSGC held a reception for our affiliate students, faculty, and staff prior to the event in an effort to further build our connections.
- Other volunteer activities include: Science Olympiad: several MSGC staff and students volunteered. FIRST Lego League and FIRST Tech Challenge Tournament: several MSGC staff and students volunteered for the Montana regional tournament in February, 2015. Montana State Middle School and High School Science Fair: MSGC staff and students volunteered. Montana Regional Middle School and Montana Regional High School Science Bowls: the MSGC director volunteered for and gave the welcome addresses (talking about MSGC) to hundreds of students at the competitions in March, 2015. [EP1]

## PROGRAM CONTRIBUTIONS TO NASA EDUCATION PERFORMANCE MEASURES

**Diversity:** The education priorities listed include diversity (EP7); refer to all the accomplishments marked EP7 above, as well as objective 2e specifically.

**Minority-Serving Institutions:** Activities with our MSIs are highlighted in the Program Accomplishments: Outcome 1: 1e and 2e sections.

**NASA Education Priorities:** Accomplishments related to NASA Education Priorities are given in the 'Program Accomplishments', 'Program Contributions to PART Measures', or 'Improvements' sections.

## IMPROVEMENTS MADE IN THE PAST YEAR

In FY 2014, we increased our efforts to personally visit more of our affiliate campuses. In fact we double the number of visits from 2013. We are already seeing increased participation in MTSGC opportunities we attribute as a result of our efforts.

In September 2014, we added a 21st and 22nd Academic Affiliate, Great Falls College - MSU and Gallatin College - MSU. Both colleges have recently transitioned from primarily vocational colleges to true community colleges. Therefore, we found it appropriate to include these colleges as members of the Consortium.

## PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

### **Academic Affiliates:**

See <http://www.spacegrant.montana.edu/members.html>

In FY 14, 19 of our 22 Academic Affiliate institutions were 'active', meaning they were involved in at least one MSGC program during the year! Below is a list of the institutions and the primary programs they participated in.

- o Aaniiih Nakota College: MTSGC staff visit
- o Blackfeet Community College: scholarship, Launch program participants.
- o Carroll College: undergraduate research, MSRS, Affiliates' Meeting
- o Chief Dull Knife College: scholarship, Affiliates' Meeting, Launch program participants, MSRS

- o Dawson Community College: scholarship
- o Flathead Valley Community College: scholarship, undergraduate research, Launch program participants, MSRS, Affiliates' Meeting, MTSGC staff visit
- o Miles Community College: MSRS, MTSGC staff visit, Affiliates' Meeting
- o Missoula College: undergraduate research, Affiliates' Meeting
- o Montana State University: scholarship, fellowship, BOREALIS, undergraduate research, education enhancement grants, SPOT, student satellites, NASA internship, MSRS, Affiliates' Meeting
- o Montana State University-Billings: scholarship, undergraduate research, MSRS, Affiliates' Meeting
- o Montana State University-Northern: scholarship, Affiliates' Meeting
- o Montana Tech: scholarship, undergraduate research, MSRS, BOREALIS
- o Rocky Mountain College: scholarship, student satellite internship, undergraduate research, MSRS, Affiliates' Meeting
- o Salish Kootenai College: scholarship, undergraduate research, MSRS, student satellites (mostly NASA TCUP funding), NASA internships, Affiliates' Meeting, Launch Program participants, MTSGC staff visit
- o Stone Child College: scholarship, MTSGC staff visit
- o University of Great Falls: scholarship, undergraduate research, MSRS, Affiliates' Meeting,
- o University of Montana: scholarship, fellowship, BOREALIS, undergraduate research, NSSSC, MSRS, Affiliates' Meeting
- o Great Falls College - MSU: scholarship, MTSGC staff visit, Affiliates' Meeting
- o Gallatin College - MSU: Affiliates' Meeting