

Graduate Student Researchers Project (GSRP)

Administered by Cooperative Agreement between NASA and NASA
Research and Education Support Services (NRESS)

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PROJECT DESCRIPTION

The NASA Graduate Student Researchers Program (GSRP) awards fellowships for graduate study leading to masters or doctoral degrees in the fields of science, mathematics, and engineering related to NASA research and development. This twelve-month award includes a required ten-week internship at the NASA center affiliated with the NASA sponsored research.

Training grants are awarded for one year in the amount of \$30,000. This amount includes a \$20,000 student stipend, a student travel allowance of \$6,000, up to \$1,000 for health insurance, and a \$3,000 university allowance, which typically goes to the Research Advisor, who becomes the Principal Investigator for the Training Grant. Awards are renewable up to three years based on satisfactory academic advancement, research progress, and available funding.

PROJECT GOALS

Cultivate research ties to the academic community, to help meet the continuing needs of the Nation's aeronautics and space requirements by increasing the number of highly trained scientists and engineers in aeronautics and space-related disciplines, and to broaden the base of students pursuing advanced degrees in science, mathematics, and engineering. Research opportunities described on the GSRP Web site are assessed and updated annually to complement the mission requirements of NASA. Research areas are in NASA core-competency disciplines that lead to aeronautic and space careers.

- GSRP was expanded in 2010 to include students interested in becoming educators/administrators to meet the Nation's need to increase STEM educators.

In 2010, the GSRP Coordinating Committee recommended as its top goal that aggressive steps be taken to increase the diversity of the population of the GSRP candidate pool and awardees, as measured by the distribution of applicants among the categories commonly used to characterize ethnic and gender diversity, in comparison with the results for the general population. The following steps were taken in an attempt to achieve this goal:

- In a strong effort to diversify the project, GSRP developed research collaborations with URC and NSTI to increase diverse pool of graduate students at minority institutions where NASA has made substantial research investments and academic infrastructure.
- Online ads were placed on the National Society of Black Engineers and Society of Hispanic Professional Engineers Web sites in an attempt to increase the underrepresented applicant pool.
- NASA Project Managers for Jenkins Predoctoral Fellowship Program, University Research Centers, and Undergraduate Student Research Program were requested to send out announcements to their project participants alerting them to the GSRP online application.

GSRP fellows eligible for the workforce are closely tracked by project management to increase the percentage of awardees who, within five years of receipt of their degrees, become full-time employees of the NASA centers, JPL, academia, or contractors associated with NASA missions, programs, and projects.

PROJECT BENEFIT TO OUTCOME (1, 2, OR 3)

GSRP directly addresses Outcome 1 and supports outcome 2 of the NASA education strategic plan. These outcomes commit the Education Office to fund programs which 1) contribute to the development of the STEM

workforce, and 2) attract and retain students in STEM disciplines needed to achieve NASA strategic goals. Put simply, GSRP is an important contributor in developing NASA's future workforce as well as increasing the size and quality of the overall future aerospace workforce to which NASA contractors depend. Incorporating experiential opportunities into higher education programs provides several benefits over the traditional "lecture and lab" curricula including improved retention through graduation and into degree-related employment at NASA and its contractor partners.

PROJECT ACCOMPLISHMENTS (CONNECTION BACK TO ANNUAL PERFORMANCE GOALS AND PLANS)

For 2010, GSRP received a total of 472 completed applications; 133 graduate students were selected to receive GSRP fellowships, representing 96 separate institutions and 35 states, plus Puerto Rico. NASA Office of Education funded 133 graduate students at the cost of \$3,990 million.

Of the 133 GSRP fellows selected in 2010, 59 were female, 74 male; 39 participants were underrepresented.

The goal for 2010 was to increase diversity and female participation, which was accomplished:

30% increase in underrepresented fellows
45% increase in female participation

PROJECT CONTRIBUTIONS TO PART MEASURES (INCLUDE DATA PLUS EXPLANATION)

The need for increased STEM graduates in the U.S. is well documented. This need is dramatically magnified in the aerospace field. Documentation from the National Aerospace Initiative (2004) shows the average age of the U.S. aerospace workforce at 49. As many reports and studies affirm, the health of the aerospace workforce is directly connected to America's long-term security interests – both economic and defense. This research shows that one of the best methods of maximizing retention within the field of study is to incorporate hands-on research opportunities into the traditional course of study. Benefits in terms of retention to graduation, GPA at

graduation, increased capability at graduation, pursuit of advanced degrees, and retention with the career field are well documented.

- In 2010, GSRP provided 133 STEM graduate students with \$30,000 fellowship.
- The project's goal is to select a geographically and institutionally diverse group of GSRP fellows from a wide array of backgrounds, who are fully representative U.S. graduate students enrolled in STEM majors.

IMPROVEMENTS (e.g. project management, efficiencies, etc.) MADE IN THE PAST YEAR

- In 2010, project management required that any graduate student awarded a GSRP fellowship must spend ten weeks at the NASA center extending the fellowship. Previously, students were encouraged but not required to spend ten weeks at the center. The purpose for imposing this requirement on the student is to better acquaint the NASA center research advisor with the student, thus increasing the students chances for full-time employment.
- A tier-system is used for allocating the annual GSRP budget. The system counts the total number of GSRP applicants at each NASA center over the past three years. Centers with the highest number of applicants received the most fellowship funding, thus allowing NASA's largest research centers to make the most awards to GSRP candidates. This will enable fellows to conduct research at NASA centers where most full time employment opportunities will occur.
- GSRP project management submitted PART data as follows: Thirty-two GSRP fellows were eligible for the workforce of which 97% were employed by NASA, aerospace contractors, and other STEM educational institutions.
- GSRP fellows eligible for the workforce are closely tracked by project management to increase the percentage of awardees who, within five years of receipt of their degrees, become full-time employees of

the NASA centers, JPL, academia, or aerospace contractors associated with NASA missions, programs, and projects.

- Project management successfully managed to adhere to 2010 GSRP timeline and milestones from the beginning of AO to the successful completion of having GSRP funds fully obligated by the July 30, 2010 deadline.
- Accurate records were kept by GSRP project management on all participants.
- September 2010, GSRP center coordinators met with the GSRP program manager for the annual GSRP meeting. A lively discussion ensued reflecting on what was accomplished in 2010 and what should be the focus of 2011 GSRP. It was decided that the top project goals for 2011 will be to recruit graduate fellows through NASA's new SOLAR application, and to again focus on diversifying the project.

PROJECT PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

(THIS IS WHERE FURTHER FOLLOW-UP TO OCCUR FOR COLLECTING 2010 GRANTEE PERFORMANCE SUMMARIES FOR PUBLISHING TO OUR EDUCATION HOME PAGE)

A pilot research collaboration has been established between GSRP, URC, and NSTI to increase the pool of diverse master's and doctoral students from Minority Institutions where NASA has made substantial research investments and academic infrastructure. URC and NSTI projects have the following components which should help to attract a strong pool of underrepresented candidates for GSRP:

- Research support for faculty, students and postdoctoral fellows
- Target minority institutions and develops academic infrastructure
- Research projects support students migrating through the spectrum of the STEM pipeline.
- This partnership will strengthen the on-going research being conducted by URC's and NSTI research clusters beyond the Office of

Education's initial investment. It will also increase faculty long term interaction with NASA beyond the expiration of their initial grants.