

Minority University Research and Education Program at Johnson Space Center

Jennifer Scott Williams, Johnson Space Center

Since October 2005, the Johnson Space Center (JSC) Office of Education has worked through the Minority University Research and Education Program (MUREP) to strengthen its relationship with Minority-Serving Institutions of higher education to ensure that NASA can meet future workforce needs in science, technology, engineering, and mathematics (STEM) fields. MUREP was created to increase the agency's responsiveness to three federal mandates related to Minority-Serving Institutions:

- Executive Order 13532: Historically Black Colleges and Universities (Dated Feb. 26, 2010)
- Executive Order 13555: Educational Excellence for Hispanics (Dated Oct. 19, 2010)
- Executive Order 13270: Tribal Colleges and Universities (Dated July 3, 2002)

MUREP engages underrepresented populations through a wide variety of STEM initiatives. During 2010 and 2011, JSC actively recruited and employed approximately 45 students during the summer of 2010 through summer internship opportunities, and 50 students during the summer of 2011 through various MUREP-related programs and projects.

MUREP is comprised of eight different projects:

- University Research Center (URC)
- NASA Science and Technology Institute (NSTI)
- MUREP Small Projects (MSP)
- Motivating Undergraduates in Science and Technology (MUST)
- Curriculum Improvements Partnership Award for the Integration of Research (CiPAIR)
- Tribal Colleges and Universities Project (TCUP)
- NASA Innovations in Climate Education (NICE)
- Harriet B. Jenkins Pre-doctoral Fellowship Program (Jenkins)

Assigned to JSC are two of 13 URCs (URC is a multiyear grant up to 1 million dollars a year)—one to Prairie View A&M University, and one to The University of Texas at El Paso. The grants are designed to assist faculty and students in research of pertinent missions in radiobiology, propulsion, and space radiation. More than 20 students from both URCs participated in summer internships during 2010 and 2011.

NSTI currently host three cluster grants at three NASA centers. One of these cluster grants—the Mission Enabling Technology Cluster—is assigned to JSC and is comprised of Texas Southern University, Savannah State University, Tougaloo College, and Jarvis Christian College. Seven students were engaged through the NSTI project where interns and researchers conducted pertinent research in the Space and Life Sciences organization. The Harriet B. Jenkins Pre-doctoral Fellowship Program is a graduate student program for underrepresented and underserved populations in STEM. JSC hosted one fellow who conducted research on anti-fog coating for space visors. Three new Jenkins fellows were selected for JSC for the 2011 incoming cohort of students.

Through MSP, the Achieving Competence in Computing, Engineering and Space Science (ACCESS) is a program designed for students with disabilities. During 2010 and 2011, four students successfully completed work in the ACCESS program through projects in aerospace, mechanical engineering, and physical science.

The MUST project is comprised of scholarships and internships, and currently hosts 115 scholars who are placed in internships across the agency. During 2010 and 2011, JSC hosted nearly 30 MUST scholars who engaged in various engineering, science, and mathematics projects. Through CiPAIR, JSC was able to host eight students and two faculty members selected for research opportunities.

The Pre-Service Teacher Institute (PSTI) is a summer residential workshop targeted for Minority-Serving Institutions' early childhood and elementary education majors preparing to teach in an elementary or middle

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school (K-8). In 2010, JSC was able to host one 2-week session. In 2011, JSC hosted two 1-week sessions of PSTI workshops where college students from diverse backgrounds were exposed to the aerospace community through STEM inquiry-based learning activities. Nearly 90 students were involved in this program. PSTI participants were able to actively put into action the newly learned lessons through an outreach to more than 400 students in partnership with the JSC Visitor Center, Space Center Houston, and a local Young Men's Christian Association.

JSC's Office of Education, in collaboration with the Integrated Project Office, Public Affairs Office, and Space and Life Sciences, Astromaterials, and Engineering Directorates, supported the Hispanic Engineering, Science, and Technology (HESTEC) Conference 2010 in Edinburg, Texas. HESTEC is a partnership with the University of Texas-Pan American and Congressman Rubén Hinojosa's office. NASA exhibited activities to expose and inspire underserved minority middle school students to become scientists, mathematicians, and engineers, which supports the goals of the NASA Summer of Innovation initiative.

Overall, JSC MUREP has taken strides to engage students from Minority-Serving Institutions and underrepresented populations with quality research experiences as well as valuable skills that will lead to future success in the classroom, graduate school, post-doctorate work, as well as the STEM workforce.