

A note from the director...

For over a decade, SOARS has broadened participation in the atmospheric sciences by helping students from under-represented groups succeed in graduate school. With over 82% of protégés going on to pursue graduate degrees, SOARS participants continue to increase the number of African Americans, American Indians, Latinos, women, and first generation college students receiving advanced degrees and entering careers in the atmospheric and related sciences.

In addition to nudging the demographics of the atmospheric workforce closer to the national demographics, the 104 protégés who have already participated in SOARS contribute to the vitality and relevance of the atmospheric sciences. Independent studies show that diverse teams come up with the most creative and innovative solutions, and businesses have long argued that a diverse workforce is more responsive to an increasingly multicultural society. SOARS protégés have proven both these tenets true. According to mentors,

SOARS protégés enrich the labs they work in by asking novel questions and introducing new approaches. For example, protégés have designed research projects that specifically address the needs of under-served communities.

Building on this success, SOARS will expand its commitment to bringing students from under-represented groups into the atmospheric sciences by welcoming students with disabilities. According to the National Science Foundation, individuals with disabilities are underrepresented in science and especially in the atmospheric sciences. While 26.9% of undergraduates in the U.S. with a disability pursue degrees in science, technology, engineering, or mathematics, only 17.3% of graduate students with a disability pursue degrees in these fields. Of the 126 doctorates awarded in the atmospheric sciences in 2004, not one went to an individual with a disability, even though individuals with disabilities make up about 12% of the adult population. These stark statistics suggest that talented

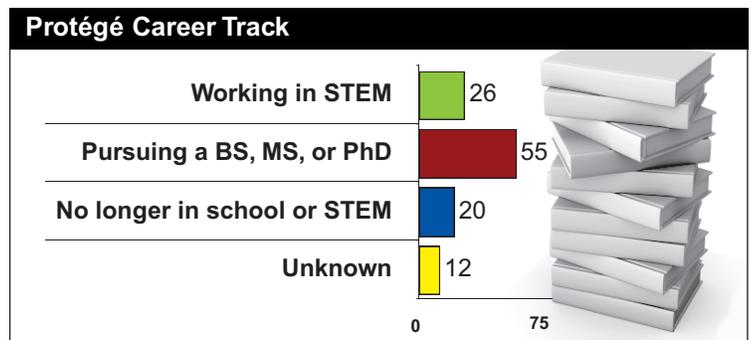
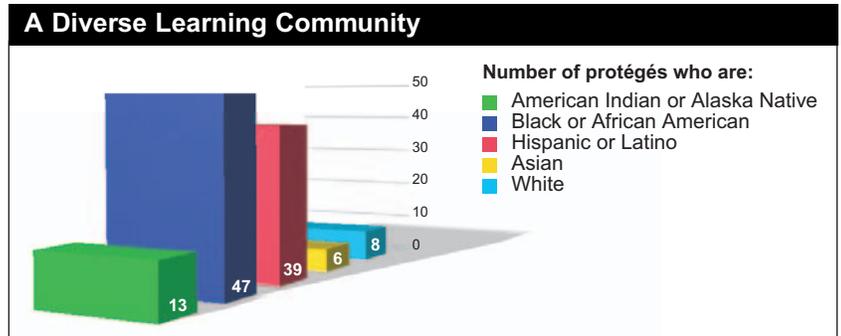
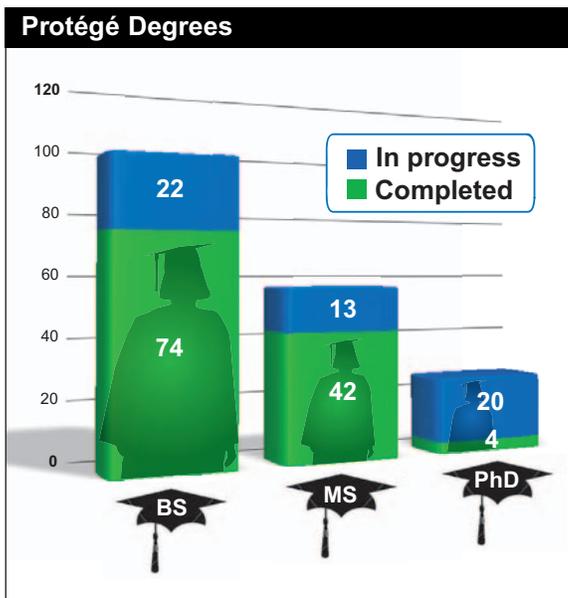
and gifted students with disabilities (both apparent and non-apparent) face serious hurdles in pursuing careers in science. These obstacles include social stigmas and public ignorance surrounding disabilities as well as an unavailability of role models within the sciences.

With our strong mentoring structure and exceptional research opportunities, SOARS seeks to support students with disabilities as they overcome these hurdles. This mission is consistent with both our commitment to serving students from under-represented groups and our goal of building an inclusive and world-class workforce in the atmospheric and related sciences. It is not only the right thing to do; it is the necessary thing to do. As our society encounters increasingly complex problems associated with a planet under stress, we need to build the most creative and diverse workforce to address these challenges. ☺

by R. Pandya and A. Calhoun

SOARS Success

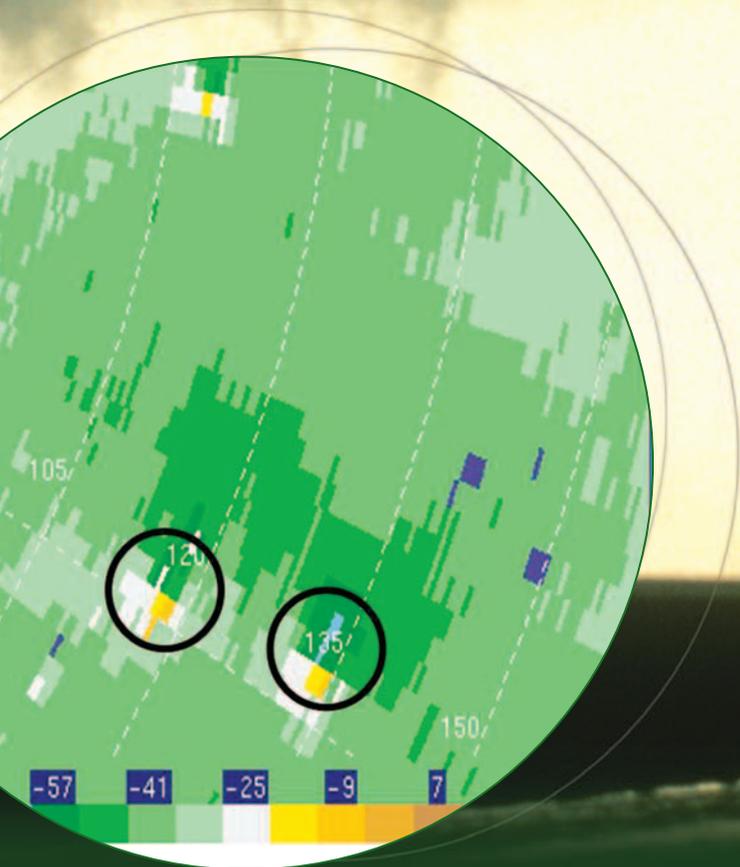
These figures include protégés entering the program in 2007



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RESEARCH

Keith Goodman (*on left*) researched hurricane spawned tornadoes during his internship with SOARS. His graphic shows a radar signature of two areas of rotating winds in the outer rainband of a hurricane.



■ PROTÉGÉ ACCOMPLISHMENTS

Yarice Rodriguez completed an MS in Geography with a concentration in Physical Climate from the University of Illinois at Urbana-Champaign in December 2005. She is currently working as a geographer with the U.S. Census Bureau in Washington, D.C.

Nancy Rivera Rivera completed an MS in Environmental Sciences at the University of Texas at El Paso in December 2006. Her thesis, "Detection and Characterization of Dust Source Areas in the Chihuahuan Desert, Southwestern North America," was selected as the University Outstanding Thesis for 2006.

Karen Diaz received a BS in Environmental Engineering from the Polytechnic University of Puerto Rico.

Alisha Fernandez completed a BS in Mathematics at the University of Colorado at Boulder in December 2006. She is currently teaching English in Seville, Spain.

Rei Ueyama successfully passed the Committee on Graduate Studies (COGS) exam, making her an official PhD candidate in the atmospheric science program at the University of Washington.

Matthew Coleman delivered two presentations to expose students to new paths they

can take with a meteorology degree. The talks, titled "Weather Outside the Lines: Dabbling in Reinsurance and Finance," were presented at the 6th Annual AMS Student Conference, held January 2007 in San Antonio, Texas, and at Northern Illinois University in Dekalb, Illinois, in February 2007.

Ernesto Muñoz presented a talk on the inter-annual variability of the Caribbean low-level jet at the 2006 American Geophysical Union Fall Meeting. He has been selected as a graduate student representative on the American Meteorological Society Board on Women and Minorities for 2007 and was invited by the Senate of Puerto Rico to a March 7 roundtable discussion on energy alternatives, climate change, and implications.

Luna Rodriguez presented her SOARS summer research, "Assessing the precision of GPS radio occultation" at the FORMOSAT-3/COSMIC Workshop in Taipei, Taiwan, November 2006.

Deanna Henc presented a talk at the Hurricane Rainband and Intensity Change Experiment (RAINEX) workshop in Boulder, Colorado, in February 2007.

Miriam Garcia (RESESS protégé) received the Reese Rowling Scholarship from the

Department of Geological Sciences at the University of Texas El Paso. She presented a poster, "Modeling vertical deformation associated with the 1931 Mach earthquake, Pakistan" at the Society for Advancement of Chicanos and Native Americans in Science in Tampa, Florida, in October 2006, and at the American Geophysical Union Fall Meeting in San Francisco, California, in December 2006. She also presented a poster titled "Relationships between volcanic cinder cone angle and ages: a potential diagnostic tool for estimating Quaternary eruption ages and volcanic hazards" at EarthScope in Monterey, California, in March 2007.

Melissa Burt presented a poster titled "Using CCSM3 to understand the hydrological cycle at Last Glacial Maximum compared to Present Day" at the Center For Multi-scale Modeling of Atmospheric Processes Team Meeting in Kauai, Hawaii, in February 2007.

Shirley Murillo, who works in the Atlantic Oceanographic and Meteorological Laboratory's Hurricane Research Division, was recognized as NOAA's employee of the month for March 2007 for making significant contributions and demonstrating exceptional and sustained effort towards accomplishing the agency's mission. **S**

■ CONFERENCE PRESENTATIONS Fall 2006/Winter 2007

Society for Advancement of Chicanos and Native Americans in Science, 2006 National Conference Tampa, Florida, October 2006

Theresa Aguilar, "Radar surface measurements of boundary layer convergence zones."

Alisha Fernandez, "Quasi-Biennial Oscillation (QBO) effect on the diurnal tide in the Whole Atmosphere Community Climate Model (WACCM)."

Shanna-Shaye Forbes, "Developing at C++ interface for NetCDF-4."

Michael Hernandez, "Comparison of CHAMP radio occultations with global model forecasts: 2005 hurricane season."

Armand Silva, "Understanding local wind circulations over White Sands Missile Range."

Julien Wang, "Analyzing ozone formation sensitivities in the Mexico City Metropolitan Area."

American Indian Science and Engineering Society, 2006 National Conference Detroit, Michigan, November 2006

Bret Harper, "Statistical methods for quantifying uncertainty in ENSO on wind power in the Northern Great Plains."

American Geophysical Union, 2006 Fall Meeting San Francisco, California, December 2006

Karen Diaz, "Ozone dependency of the background current in ozonesondes."

Nicole Ngo, "Assessing the prospects for employment in an expansion of U.S. aquaculture."

Marco Orozco, "Sulfuric acid in the woods and a connection to aerosols."

American Meteorological Society 87th Annual Meeting, Sixth Annual Student Conference San Antonio, Texas, January 2007

Theresa Aguilar, "Radar and surface measurements of boundary layer convergence zones."

Anthony Didlake, Jr., "A comparison of large-scale influences on tropical cyclogenesis in the Eastern Pacific."

Braxton Edwards, "Radar rainfall verification in GIS: A step toward improving short-term flash flood forecasting."

Shanna-Shaye Forbes, "Developing a C++ interface for NetCDF-4."

Douglas Gavin, "Characteristics of sea surface temperatures (SSTs) between 23°C and 24°C west of the Galapagos Islands."

Michael Hernandez, "Comparison of CHAMP radio occultations with global model forecasts: 2005 hurricane season."

Talea Mayo, "Correlating atmospheric water vapor and hurricane intensity."

Imani Morris, "The impact of Megacities on the emission of nitrogen dioxide using GOME and SCIAMACHY data."

Luna Rodriguez, "Assessing the precision of GPS radio occultation."

Armand Silva, "Understanding local wind circulations over White Sands Missile Range."

Julien Wang, "Analyzing ozone formation sensitivities in the Mexico City Metropolitan Area."

American Association for the Advancement of Science, Annual Meeting San Francisco, California, February 2007

Theresa Aguilar, "Radar and surface measurements of boundary layer convergence zones."

Talea Mayo, "Correlating atmospheric water vapor and hurricane intensity." **S**

Transitioning to graduate school: One protégé's unexpected lessons

Luna Rodriguez says her father is the one who best summarized her first year of graduate school. "He told me that before I was a tree among bushes. Now I am a tree among trees." Luna explains that while there can be a wide variety of students at the undergraduate level, graduate school involves a certain amount of rigor from applicants. Because it is a more challenging environment, she is now around other people who are very knowledgeable. "Being here, I have had to develop new relationships and that is not necessarily as I expected. I am no longer always the go-to person."

Luna completed her undergraduate degree at the University of Puerto Rico Rio Piedras. The physics program there drew about six to eight new majors each year, so Luna's classes were small and she was often in a leadership role. In the meteorology graduate program at The Pennsylvania State University, the differences go beyond class size, she reports. Her first months of study have involved changes in both how she approaches the increased level of difficulty involved in graduate coursework and her role working with new peer groups.



Luna Rodriguez presents a poster of her research at AMS.

Moving from Puerto Rico to Pennsylvania has evoked other issues as well. "I never expected that it would lead to so many questions about my own identity," she says. Although there are some international students, Luna is the only student from an under-represented population in her incoming class. Along with an international student from Ecuador, she is one of two Hispanic graduate students in Penn State's entire meteorology program. "I get lots of questions about where I was born and why I do not have an accent. I feel like I have to defend that I am Puerto Rican." For comfort, Luna has turned again to

a book she first read as a child, "When I Was Puerto Rican" by Esmeralda Santiago.

Life in Pennsylvania has brought new experiences, including driving in snow and learning what an ice scraper is. Happily, Luna reports that she has been able to find the traditional cooking ingredients she needs, even Goya, a line of food products that includes rice, beans, and authentic Latino seasonings and specialties.

Overall, Luna's first months of graduate school have been a challenging but productive transition. She has been assigned to a research group doing dispersion modeling and continues her coursework toward a master's degree and what she hopes will eventually be a PhD.

Asked what advice she would give to incoming graduate students she says: "Be aware. Yes, it's going to be difficult. You will change, not always in expected ways, but you will also learn new things about yourself." ☺

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