

# New Leadership for SOARS

In Boulder, February temperatures dipped to -6°F and soared to 67°. The sentiments of some in the SOARS community did the same: Staff, mentors and protégés said goodbye to long-time director Tom Windham in February, and hello to new director Rajul Pandya.

Tom has been named senior advisor for science and engineering workforce at the National Science Foundation (NSF)—a new position for the agency, and a high-profile one—and he began in his new position in February. Tom's expertise on and dedication to the issue are obvious, and he will be missed at SOARS. It was under Tom's leadership that the program earned the President's Award for Excellence in Science, Mathematics, and Engineering Mentoring.

New director Raj arrives from UCAR's Digital Library for Earth System Education (DLESE) Program Center office, and he has a strong background in both science and education. Tom said he's delighted to have Raj take leadership of SOARS. "I have every confidence in Raj," Tom said. "I have high expectations that he will bring new dimensions to the program that will enable it to

excel in ways that are different."

Raj's background is solidly scientific: He was inspired by several excellent science teachers in high school, majored in physics at the University of Illinois, earned his PhD from the University of Washington, and worked as an assistant professor at West Chester University in Pennsylvania. But recently, Raj became more focused on education, especially in his work with DLESE. The choice between science and education was not an easy one, he said.

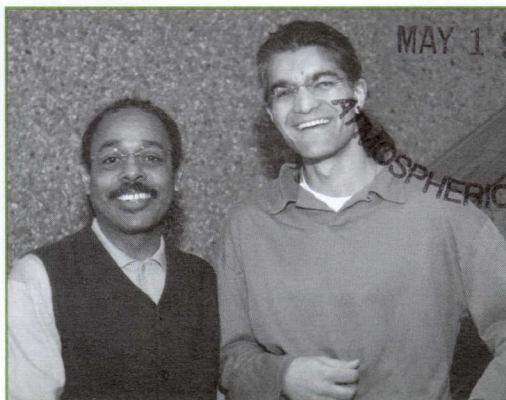
"For one, science is cool. And science still seems a little more prestigious than education, and I was trained as a scientist," Raj said. "But I think education fits my skills better. I'm a pretty good listener. I think I can hear what students are asking." Raj has long been interested in helping the community of science better reflect the population of the country as a whole. "We are at an unprecedented point in history

where we're going to impact the planet in some way," he said. "We need to do that intelligently, and the United States has an opportunity to lead in that effort. But we can't be credible elsewhere in the world if we don't include all parts of our own population in that effort."

"Science is better when there are more people participating," Raj added. He cited an article written by Stephen J. Gould describing an early 1800s research paper purporting to show that white people had, on average, larger skulls than did Africans.

At the time, skull size was incorrectly considered an indicator of intelligence. Gould's

(continued on page 2)



Left, departing director Tom Windham and new director Raj Pandya

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## COMING EVENTS...

**SOARS summer program:**  
7 June–13 August 2004

**Protégé colloquium:**  
9–11 August 2004, NCAR

**2005 Application deadline:**  
1 February 2005

## IT'S A FACT...

SOARS protégés presented 156 papers at professional meetings between 1996 and January 2004.

## SOARS

Visit the SOARS Web site at:  
[www.ucar.edu/soars](http://www.ucar.edu/soars)

## H I G H L I G H T S

**Rei Ueyama** was awarded a National Science Foundation Research Fellowship. Rei plans to begin her PhD program this fall at the University of Washington, after spending this summer as a Mass Media Science and Engineering Fellow.

**Rynda Hudman** is co-author of a paper in press at the *Journal of Geophysical Research*: Goldstein, A.H., D.B. Millet, M. McKay, L. Jaegle, L. Horowitz, O. Cooper, R. Hudman, D.J. Jacob, S. Oltmans, and A. Clark, "Impact

of Asian emissions on observations at Trinidad Head, California, during ITCT 2K2." Rynda will also be providing chemical forecasts for several research groups organizing field experiments this summer in the Northeast.

**Lorenza Levy** is expected to receive her MS in Astrophysics in May 2004, from the University of North Carolina-Chapel Hill and will continue working toward her PhD. She was awarded a NASA/Jenkins Predoctoral Fellowship for this year and next. Lorenza is delighted to

announce the birth of her daughter Alejandra Alonso-Levy, born March 4, 2004.

**Erick Adame** received recognition in January for the AMS Minority Industry Scholarship scholarship he earned upon graduating from high school. Erick attended the AMS conference for free and had dinner with representatives from IBM, his sponsor.

**Rebecca Chan** received her BS in Meteorology in December, and immediately began working (continued on page 4)



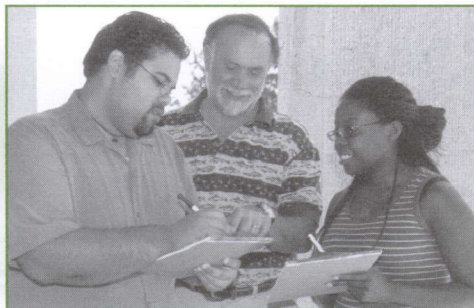
## Protégé determined to take research to next level

Atzel Drevón won't be the first person in his family to earn a PhD. His mother, now finishing up her doctorate in school administration, will probably beat him to it. But Atzel is the first in his family to study science, and his relatives in Puerto Rico sometimes don't appreciate why he needs to work such long hours.

"It's hard to make them understand how time-consuming it is," said Atzel, who often finds it difficult to check email, he's so busy with classes, exams, and research. Atzel plans to return to Boulder this summer for his third year with SOARS, a program he credits for inspiring him to pursue a career in scientific research.

"Before SOARS, I didn't want to go to graduate school," Atzel said. "Now there's nothing else I want to do."

With the help of his SOARS science advisor, David Schimel, Atzel communicated with professors at the University of New Hampshire, University of Michigan and other graduate schools, where he'd like to continue doing research in carbon-cycling. Conference travel funded by SOARS let Atzel connect with many of those researchers in person. And SOARS' writing and communications work improved his English and his graduate school applications, Atzel said.



Protégés Atzel Drevón and Christina Webb speak with science advisor David Schimel, center, during the summer of 2002.

He expects to hear back from universities this spring.

Atzel credits his mom for feeding his early interest in science. "She always got me a microscope, the chemistry set, all that stuff, when I was young," Atzel said. "The older I grew, the more fascinated I was with all sciences."

As an undergraduate, Atzel chose to study environmental sciences (at the Universidad Metropolitana in Puerto Rico) because it includes so many disciplines: biology, chemistry and atmospheric sciences, to name a few. In addition, he appreciates the fact that in environmental sciences, the "big picture" is always obvious,

whether it has to do with climate change or people's dependence on healthy ecosystems.

Working with David last summer, Atzel analyzed ten years of data from the Harvard Forest experiments, in which researchers are tracking the exchange of carbon between the forest and the atmosphere. David and Atzel used the relatively new technique of wavelet analysis to quantify the effects of soil moisture, soil temperature, precipitation, and other variables on the flux of carbon dioxide, a greenhouse gas.

Atzel explained that the overall goal of better understanding those relationships is to improve climate models and our understanding of global warming, and, perhaps, to help identify missing sinks of carbon, a hot issue in the field of carbon cycling.

Atzel said he finds the field compelling for a number of reasons. There are many unanswered questions to pursue and those questions are increasingly important, given global warming. Atzel also admitted he's partly drawn to the topic because it's a hip one in science. Carbon cycling research is scrutinized carefully by many types of people, politicians as well as scientists, and the topic captures popular interest. ①

### New Leadership... (continued from page 1)

reanalysis of the work showed the author made one mistake after another in his selection of skulls and analyses. In fact, there was no difference in skull size between the two groups.

The lesson, to Raj: "You don't check things you think are right. You can be too immersed in the culture of the time."

SOARS has done a wonderful job helping protégés learn the language and culture of science, Raj said. Perhaps protégés can also subtly change that language and culture, and SOARS can help support them in that work.

Tom, the first and only director of SOARS before now, said he's proud of the protégés and their accomplishments. The metrics of success are clear, he said: 85 protégés, among whom 18 have already earned master's degrees, four are PhD candidates and 36 currently enrolled in graduate school. Protégés have won innumerable awards for their work.

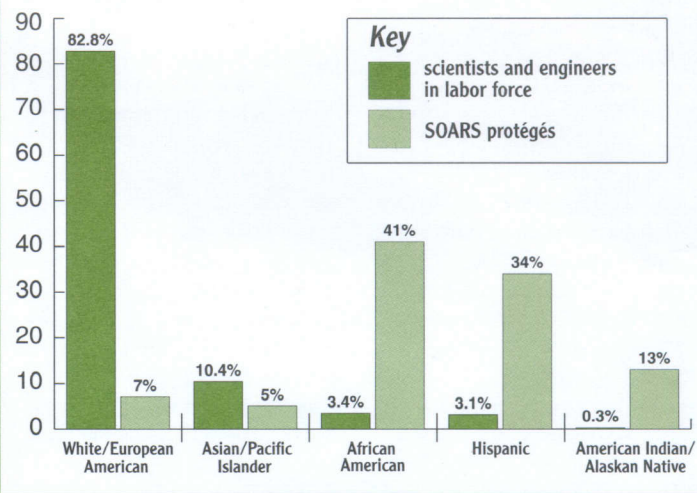
Tom said he's also pleased with the less quantitative aspects of the program, especially the NCAR community created by SOARS staff, protégés and mentors.

Tom said he misses the SOARS staff deeply, especially Beverly Johnson, with whom he worked closely for a decade. But

he continues to be in close contact with staff and many of the SOARS protégés.

In Washington, DC, Tom is working both within the NSF and with the agency's partners to build programs that will broaden participation in science, technology, engineering, and mathematics. NSF is especially interested in increasing the representation of African American/Black, American Indian/Native American, Hispanic/Latino/Chicanos, Pacific Islanders, women, and persons with disabilities.

Tom said he will bring many of his SOARS experiences with him. The federal government uses the word "minority," for example, Tom said. "I will be saying 'underrepresented,' or 'underserved,' or 'persons from underserved communities.' My job is to advance the achievement of these goals, and I think that language is critical to how we do that."



The distribution of ethnicities represented by SOARS protégés is quite different from that in today's science and engineering labor force.

Tom has traveled frequently between DC and Boulder in the first three months of his new position. His wife Paula will remain in Colorado until spring, when the two plan to find a new home in the East.

Raj, his wife, and their child live in North Boulder. Raj jokes that his wife, Amy Alter-Pandya, is the "real" doctor in the family—she's a physician, where Raj "just" has a PhD. Their daughter, Maya Ruth, was born in 2002. ②



## Program history documented in new publication

African American, Hispanic, and American Indian students remain underrepresented in science and engineering fields, despite the fact that observers first noted the discrepancy years ago. A new publication details the factors that contributed to the success of one program dedicated to changing the trend. The winning combination: a student-centered community, multi-year support, intensive mentoring, and the expectation of success.

The program with those features, of course, is SOARS. In the January issue of the Bulletin of the American Meteorological Society (BAMS), former SOARS director Tom Windham and two colleagues describe the measures of SOARS's successes, and how they were achieved.

In brief: 85 students (protégés) participated in SOARS during its first eight years, most of them African American, American Indian, Hispanic, or Asian/Pacific Islander. Not one

of those 85 left school without completing an undergraduate degree in science, mathematics, engineering, or a related field. A full 20 percent of protégés have already earned a graduate degree; many more are on their way. More than 50 protégés have presented their research at national and international science conferences.

Perhaps most importantly, protégés speak eloquently about how the program has inspired them and bolstered their self-confidence. Pauline Datulayta presented her SOARS research at a conference in Hawaii in January, and said two audience members grilled her on her work. "If I wasn't in SOARS, it would have been really intimidating," she said. "But I've been exposed to a lot of really smart people now. I wasn't intimidated at all." ☺

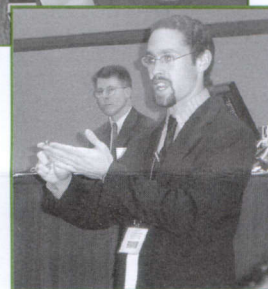
For more information, or to read the full article, please see <http://www.ametsoc.org> (click on Journals and Publications)

## CONFERENCE SEASON

SOARS protégés presented diverse research projects at a range of conferences this year, from the student-based UMET conference in Puerto Rico to AMS and AGU with their valuable networking opportunities. For six protégés, the highlight was attending an intimate, international conference in Hawaii. It was a place they never expected to be able to visit, said protégés **Pauline Datulayta** and **Atzel Drevón**, who presented their research from the summer of 2003 at the Hawaii International Conference on Science.



Above (Left to right): Olusegun Goyea, Beverly Johnson, Tamara Singleton, and Okason Morrison at the Hawaii International Conference on Sciences in January



Right: Casey Thornbrugh presents an invited talk at the American Meteorological Society meeting in January.

### PROTÉGÉ PRESENTATIONS

Universidad Metropolitana Undergraduate Research Symposium, San Juan, Puerto Rico, October 2003.

#### POSTER PRESENTATIONS

**Roberto Cancel**, "The effect of cloud drop populations on cloud chemistry."  
**Rebecca Chan and Bill Randel**, "Using radiosonde data to determine statistical properties of convection."  
**Tanya Craft**, "Improving the performance of image based flow visualization."  
**Dione Rossiter and Bill Kuo**, "Comparison between GPS radio occultation and radiosonde sounding data."

American Indian Science and Engineering Society, Albuquerque, NM, November 2003.

#### ORAL PRESENTATION

**Casey Thornbrugh**, "Contributing to the prediction of coastal flooding: simulating wave heights and directions along the coast of Barrow, AK."

#### POSTER PRESENTATION

**Erik Noble**, "The remote influence of tropical Atlantic sea surface temperatures upon the tropical Pacific."

American Geophysical Union Fall Meeting, San Francisco, CA, December 2003.

#### POSTER PRESENTATION

**Rei Ueyama**, "Seasonal dependency of diurnal and semidiurnal surface wind variations over the tropical Pacific Ocean."

American Meteorological Society, Third Annual Student Conference, Seattle, WA, January 2004.

#### INVITED TALKS

**Maribel Martinez**, "Hydrometeor habits and their relation to the electrification of two tornadic storms as revealed by a polarimetric Doppler radar."  
**Casey Thornbrugh**, "Contributing to the prediction of coastal flooding: simulating wave heights and directions along the coast of Barrow, AK."

#### POSTER PRESENTATIONS

**Roberto Cancel**, "The effect of different cloud drop populations on cloud chemistry."  
**Rebecca Chan**, "Using radiosonde data to determine statistical properties of convection."  
**Braxton Edwards**, "Analyzing the accuracy of using surface data to estimate the water vapor content throughout the boundary layer."  
**Deanna Hense**, "Investigation of conceptual hail-formation models using airborne Doppler radar."  
**Erik Noble**, "The remote influence of tropical Atlantic sea surface temperatures on the tropical Pacific."  
**Amber Reynolds**, "Environments of bow echoes associated with localized vs. widespread straight-line wind damage."  
**Segayle C. Walford**, "Planetary boundary layer heights: radiosonde- and lidar-based observations."

Hawaii International Conference on Sciences, Honolulu, HI, January 2004.

#### ORAL PRESENTATIONS

**Pauline Datulayta**, "Wavelet analysis of recent climate change: model-observed date intercomparison."  
**Olusegun Goyea**, "Testing and modification of two infrared gas analyzers for CO<sub>2</sub> measurement."  
**Okason Morrison**, "The design, building, and testing of a calibration device for the atmospheric measurement of trace chemical species."  
**Tamara Singleton**, "Comparison of temperature variations in the Earth's mesopause."

#### POSTER PRESENTATIONS

**Atzel Drevón**, "Multiple time scale analysis of CO<sub>2</sub> exchange between the Harvard Forest and the atmosphere."  
**Maribel Martinez**, "Hydrometeor habits and their relation to the electrification of two tornadic storms as revealed by a polarimetric doppler."

American Association for the Advancement of Science, Seattle, WA, February 2004.

#### ORAL PRESENTATION

**Rei Ueyama**, "Seasonal dependency of diurnal and semidiurnal surface wind variations over the tropical Pacific Ocean." ☺



**HIGHLIGHTS** (continued from page 1)

toward her master's degree in paleoclimatology at the University of Massachusetts in Amherst, supported by a research assistantship. She will be studying precipitation variability in East Africa/Arabia region.

**Rachel Chavez** received her BS in Cellular and Molecular Biology in December, from Humboldt State University in Arcata, CA.

**Shirley Murillo** was invited to sit for a second term on the AMS's Board on Women and Minorities. She served on the AMS's program committee for the 13th Symposium on Education, and chaired several sessions at the January 2004 meeting, including the Symposium on Education, the 20th Conference on Weather Analysis and Forecasting, and a special session on Women in the Atmospheric and Related Sciences.

**Deanna Henge** is expected to graduate from the University of Michigan in May, with a BS in Atmospheric Science and Meteorology. She is eagerly waiting to hear back from several graduate schools and recovering from ballroom dancing injuries.

**Pauline Datulayta** graduated from Queens College in December with a BS in Computer Science.

**Maribel Martinez** and several of her Texas Tech University colleagues drove to Colorado in February to attend the Sixth Annual Storm Chasers Convention in Denver. The group popped into NCAR for a quick visit and tour. Maribel has just been accepted to an NSF-funded graduate studies program at Texas Tech, and she plans to begin her PhD work in wind engineering in August. Maribel gave

an invited presentation at the AMS student conference in January.

**Casey Thornbrugh** gave an invited talk at the January AMS student conference in Seattle.

**Sharon Pérez-Suárez** is currently working for the US Environmental Protection Agency in Denver. She is an environmental engineer in the agency's Underground Injection Control Program.

**Resa Kelly** defended her master's research in chemistry education at the University of Northern Colorado this winter and expects to finish her degree in May. She hopes to complete her PhD in 2005. ⑤

SOARS PARTICIPATING UNIVERSITIES: Colorado State University, Cornell University, Dartmouth College, Drexel University, Florida State University, Georgia Institute of Technology, Iowa State University, Michigan Technological University, New Mexico Tech, North Carolina State University, Old Dominion University, Oregon State University, Pennsylvania State University, Purdue University, Rutgers, the State University of New Jersey, Stanford University, University of Alabama at Huntsville, University of Alaska at Fairbanks, University of Arizona, University of California/Irvine, University of California/Los Angeles, University of California/San Diego (Scripps Institution of Oceanography), University of Colorado/Boulder, University of Hawaii, University of Illinois/Urbana-Champaign, University of Iowa, University of Miami, University of Michigan, University of Missouri/Columbia, University of Nebraska/Lincoln, University of Nevada/Reno, University of Oklahoma, University of Rhode Island, University of Texas, University of Utah, University of Washington, University of Wisconsin/Madison, University of Wyoming, Washington State University, Woods Hole Oceanographic Institution.



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