

## GUEST EDITORIAL

# SOARS alumni take their science to the Hill

The Geosciences Congressional Visits Day was a whirlwind experience, jam-packed with a crash course on communication, a late night of preparation in the hotel room, back-to-back meetings on the Hill the next day, and on top of it all, the sweet reward, a mini SOARS reunion in D.C.!

The approximately 55 participating geoscientists were grouped according to the state in which we reside. Coincidentally, all three participating SOARS alumni, Matt Coleman, Melanie Zauscher and I are fellow Californians. With a policy staff as our guide, we navigated through the halls of the Senate and Congressional buildings to visit the offices of California senators and representatives. During our meetings—most often with one of the legislative assistants—we took turns stressing the value of the geosciences for the well-being of our state and the nation as a whole.

Collectively, our goal was to ask for continued federal support of the geosciences. We also did not fail to mention that such federal support results in a successful educational program like SOARS! This was a great opportunity to practice a type of communication skill that many scientists find challenging: to succinctly summarize your work and why

*“The best part of the experience was applying what I learned at the AMS Summer Policy Colloquium. The SPC provided me with a wealth of background information on Congress and how it operates. Congressional Visits Day was a great opportunity to apply that knowledge by customizing my technical message in a way that makes sense to policy makers.”*

— Matt Coleman

it’s important. This experience encouraged me, as a product of many years of federal funding, to reflect on the benefits I could bring to society. I’ve always worked hard and tried to do good work. But it was not until this day that I fully realized that it is not my choice, but rather my *responsibility* to do meaningful work.

**Rei Ureyama**  
— SOARS alumna



This summer, SOARS protégés and visiting students from the Severe Weather Center REU at the University of Oklahoma offered an afternoon of hands-on science experiments for children at Casa de la Esperanza, a low-income housing community in Boulder County. ■

*“...a rewarding activity because we learned about teamwork and about how hard it is to explain meteorology concepts to five to eight year olds. While we were teaching the kids about the science we were also teaching ourselves.”*

— Tracey Dorian, Student from the Severe Weather Center REU



# Giving back

By Jennifer Frazer

When Theresa Aguilar participated as a SOARS protégé this summer, she did something most SOARS protégés do not: she took on a protégé of her own. That is, she became a science mentor to a student in the UCAR High School Internship and Research Opportunities Program (HIRO).

"I really wanted to give back to the SOARS program because the program has done so much for me," Aguilar said, "and this was a good way to give back."

Aguilar, a second-year Master's student at the South Dakota School of Mines and Technology, was working on her thesis project, studying the difference between storms with gust fronts and those without by looking at storm characteristics and local environmental conditions. She had

her mentee, Douglas County High School student, Kara Fong, work on storm characteristics.

It wasn't easy: most of the summer was consumed in just trying to figure out how to study the storms. But, as Aguilar noted, unexpected challenges and difficulties are an important part of the real research experience.

"Kara got to experience a different side of research, she said, "analyzing data, collecting it, but also the hiccups along the road."

Together with Fong, she developed and tested techniques, which included, at one point, using an old-fashioned light table to manually overlay and analyze contours of time-height plots, since no computer program had yet been written to do what



Theresa Aguilar



Kara Fong

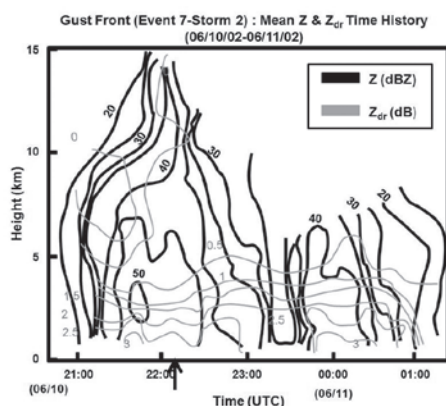
they needed. They both struggled to make sense of real, and often flawed data.

"I think a lot of it was explorative because neither she nor I ever had all the right answers, and we both recognized that and took it as an opportunity to learn," Fong said.

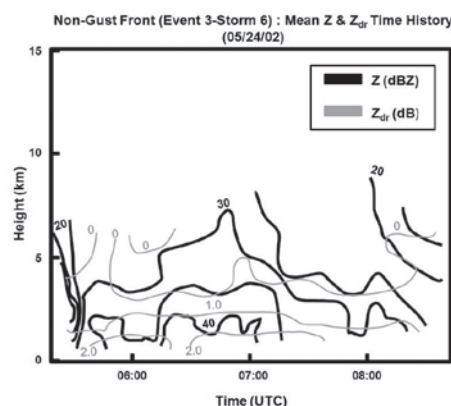
Aguilar definitely learned from the experience, primarily, that preparation is key. She also learned to be supportive and think of the mentee's needs. Fong's interest is chemical engineering, which is far afield from Aguilar's atmospheric research. But Aguilar and Fong's peer mentor, SOARS protégé Annareli Morales, introduced her to staff in the chemistry division of NCAR.

Aguilar recommends that any SOARS protégé considering following in her footsteps make sure they have a plan in place.

"Be supportive of [your student], communicate with them, and figure out what are their plans so you can help them," she said.



Time-height plots of the mean reflectivity (Z) overlaid with the mean differential reflectivity (Zdr) for a gust front storm and a non-gust front storm.



## SOARS PROTÉGÉ AND ALUMNI ACCOMPLISHMENTS

**Vanessa Almanza** attended the FORMOSAT-3/ COSMIC Science Workshop in Taiwan where she presented a poster about her summer research entitled "Correlating the transport of precipitable water vapor with rainfall in a complex orographic environment before, during and after a typhoon: case study of Typhoon Morakot (2009)." She gave a talk with the same title at a student conference at the National Central University in Jhongli City.

**D. Matthew Coleman** received his MBA in finance from the University of Virginia, Darden School of Business. He accepted a position as Portfolio Analyst with Nephila Advisors LLC, a hedge fund that structures insurance products for weather and natural catastrophe events. Matthew was also appointed Chair of the AMS Board for Private Sector Meteorologists.

**Raymond Detweiler** started graduate studies in analytical chemistry at Colorado State University.

**Alisha Fernandez** published a paper in the Journal for Regulatory Economics: "Fernandez, A., Blumsack, S., and Reed, P., 2011. Evaluating ecosystem and wind-following services for hydroelectric dams in PJM."

**Alex Gonzalez** received a MS in atmospheric science from Colorado State University and continues as a PhD student.

**Deanna Hince** published a paper in the Journal of the Atmospheric Sciences: "Hince, D. A., and R. A. Houze, Jr., 2011: Vertical structure of hurricane eyewalls as seen by the TRMM Precipitation Radar." A second paper was accepted for publica-

tion by the same journal: "Hince, D. A., and R. A. Houze, Jr., 2011: Vertical structure of tropical cyclones with concentric eyewalls as seen by the TRMM Precipitation Radar."

**Talea Mayo** presented at two conferences; the SIAM Conference on Mathematical & Computational Issues in the Geosciences, 2011, Long Beach, CA, and the 2011 Richard Tapia Celebration of Diversity in Computing Conference, San Francisco, CA. She won poster awards at both for her research entitled "Talea Mayo, Butler, T., Altaf, M., Dawson, C., Hoteit, I., Luo, X.: Reducing Hurricane Storm Surge Model Error Using the Ensemble Kalman Filter."

**Shirley Murillo** was selected 2011 and 2012 NOAA/Hurricane Research Division's Field

# SOARS congratulates its newest PhD graduates!

**Two SOARS protégés, Deanna Hence and Tamara Singleton-Goyea, earned their PhDs this spring, making a total of 17 since the inception of the program.**

Deanna received her PhD in atmospheric sciences at the University of Washington, Seattle. Her thesis with Dr. Robert A. Houze, Jr., was on "The Vertical Structure of Precipitation in Tropical Cyclones as seen by the TRMM Precipitation Radar." This fall, Deanna is participating in the Dynamics of Madden-Julian Oscillation field campaign in the Southern Indian Ocean and she started applying for post-doctoral positions. She has some advice for protégés getting ready for graduate school: *"Don't be afraid to ask questions. Think them through before you ask, of course, but you will save yourself a lot of time and trouble by just asking. Often what you think is a stupid or an obvious question turns out to be a really important one. Plus it shows that you are interested and engaged in what you're*

*doing, some-thing everyone (but especially professors) appreciates!"* She adds *"Find, or make, community wherever you end up. Graduate school isn't impossible, but it can be trying. Your community will help you through the rough patches."* Tamara agrees on the value of community and networking *"Try to develop a cohort of faculty and professionals in your field of study. This network of individuals will aid you when searching for a job, becoming a professor, presenting or publishing your research, and completing your undergraduate/graduate studies."*

Tamara received her PhD in applied mathematics and scientific computing at the University of Maryland, College Park. Her thesis with Dr. Eugenia Kalnay was titled "Data Assimilation Experiments with a Simple Coupled-Ocean Atmosphere Model". Tamara accepted a position at



Deanna Hence, PhD in Atmospheric Sciences



Tamara Singleton-Goyea, PhD in Applied Mathematics and Scientific Computing

the Johns Hopkins Applied Physics Laboratory and will be working in the Applied Information Sciences Department as a part of the Systems Analysis Group. To succeed in graduate school, she recommends to *"Always seek out opportunities to advance...as a student and future scientist/engineer. This can be achieved by attending or presenting at conferences, attending trainings and workshops, learning a computer programming language or latest software (i.e. Matlab, CAD, Java, etc.), auditing or taking an extra course to complement your area of study."* ■

(continued from page 2...)

Program Director. She is also the recipient of the AMS Charles E. Anderson award. This award is given to an individual in recognition of outstanding contributions to the promotion of diversity in the atmospheric and related sciences and broader communities through education and community service.

**Lumari Pardo** started her graduate studies at UC-Santa Barbara. She is part of the Human-Environment Dynamic Lab pursuing her PhD in geography.

**Diamiliet Perez-Betancourt** received the AMS Howard T. Orville Endowed Scholarship in Meteorology and the David Sankey Minority Scholarship in Meteorology. Together with Rosimar Rios-Berrios, she leads the University of Puerto Rico, Mayaguez AMS student chapter. The chapter was awarded the AMS Outstanding Student Chapter of the Year Award.

**Rosimar Rios-Berrios** published a paper in Theoretical and Applied Climatology: "Mark R. Jury, Rosimar Rios-Berrios and Eduardo Garcia, 2011: Caribbean hurricanes: changes of intensity and track prediction." She gave a presentation entitled "Quantifying the role of tropospheric

relative humidity on tropical cyclogenesis" at the NOAA/Atlantic Oceanographic and Atmospheric Laboratory/Hurricane Research Division. Rosimar is recipient of the AMS Undergraduate Named Scholarship, Werner A. Baum Endowed Scholarship-2011 and was accepted to the 2011-2013 MS PHD'S Cohort.

**Aaron Piña** graduated with a BS in meteorology from Texas A&M University and started graduate studies in atmospheric science at Colorado State University.

**Daniel Pollak** graduated with a BS in meteorology from The Pennsylvania State University. He has been accepted to the Boston University SEA Semester for next spring.

**Luna Rodriguez** passed her comprehensive exams for her PhD in meteorology at The Pennsylvania State University. She received an AMS Student Paper Honorable Mention for her paper on "Coupling a Genetic Algorithm with an Atmospheric Transport and Dispersion Model". Luna gave oral presentations on her current research at the Technical Cooperation Programme Chemical and Biological Defence Group Technical Panel 9 Annual Meeting, 2011, at the 15th Annual

George Mason University Transport and Dispersion Modeling Conference, 2011 and at the SPIE Defense Security + Sensing Conference, 2011.

**Cecille Villanueva** presented a poster on her graduate research titled "Changes in the Productivity of the Warm Rain Process in Deep Convective Clouds Resulting from Regional Climate Change Over the Continental U.S." at the Purdue Climate Change Research Center (PCCRC) Annual Meeting and Poster Session Spring 2011. She was awarded a Purdue Research Foundation (PRF) Grant for this academic year (2011-2012).

**Vanessa Vincente** graduated *magna cum laude* with a BS in meteorology and a minor in mathematics from Valparaiso University. She is now a graduate student in atmospheric science at Colorado State University. She was awarded the Colorado Alliance for Graduate Education and the Professoriate (AGEP) Fellowship, as well as the Integrated Water, Atmosphere, Ecosystems Education and Research (I-WATER) Student Fellowship.

**Curtis Walker** was named meteorology representative on the Department of Earth and Atmospheric Sciences Student Advisory Council at SUNY Oneonta. ■



University Corporation for Atmospheric Research  
SOARS Program Office  
P.O. Box 3000  
Boulder, CO 80307

Phone: 303-497-8622

E-mail: [soars@ucar.edu](mailto:soars@ucar.edu)

**[www.soars.ucar.edu](http://www.soars.ucar.edu)**

**Subscriptions:** Contact SOARS Program Office

**Production:**

Writing: SOARS staff

Editing: SOARS staff

External review: Karen Smith-Herman

Photos: UCAR

Design: Nicole Brinn, Core Design Works, inc

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## SIGNIFICANT OPPORTUNITIES IN ATMOSPHERIC RESEARCH AND SCIENCE



*"It was such a great pleasure to be a part of the Casa de la Esperanza event. Having the young energy and enthusiasm of the SOARS and OU students made for such a positive learning environment, as seen by all the smiles of the children! I love participating in outreach events such as this one because it shows how, even with barriers such as language; we can educate the community, especially to those who will be our future scientists and researchers."*

— Sandra Maina, SOARS protégé