NEWSLETTER
SOARS PROGRAM | FALL 2012

research | mentoring | community
SOARS®

SIGNIFICANT OPPORTUNITIES IN ATMOSPHERIC RESEARCH AND SCIENCE

SOARS in the Digital Age

If there's anything that those familiar with science know, it's that new discoveries necessitate change. SOARS has noticed the changes in communications with our various audiences over the past few years, especially as it relates to electronic communications. Now more than ever, we use media like email, texting, Facebook and QR codes to interact with protégés, funders, applicants and mentors.

Keeping this change in mind, we have determined that the best way for us to continue to reach our diverse audiences is to move our newsletter to an online format. The current issue will be delivered both as a hard copy and electronically. Starting with our winter 2012 newsletter, delivery will be entirely electronic.

An advantage of moving into this new format is that we can now offer a wider variety of articles, while our readers can easily pick and choose those articles which interest them most. In this issue, for example, you can find full transcripts of conversations with protégés about applying to and choosing graduate schools by following the link at the end of the article.

If you do not receive the fall 2012 newsletter via email, please send your email address to soars@ucar.edu indicating that you would like to be placed on our email list. If you're interested in what this summer's protégés were up to, check out the photos at **www.facebook.com/SOARSprogram**.

For the electronic newsletter, go to **www.soars.ucar.edu/about/newsletter/Fall2012**. ■

JOIN US!

If you have not already received the newsletter electronically, please send us an email to soars@ucar.edu to sign up.

THIS IS THE LAST HARD COPY/PRINT EDITION

Q&A PANEL PROFILES

Name: **Diamilet Pérez-Betancourt**
Grad school: Massachusetts Institute of Technology
Major: Atmospheric Science
Advisor: Dr. Kerry Emanuel
Number of schools applied to: 5
Undergraduate school: University of Puerto Rico at Mayagüez
Major: Theoretical Physics

Name: **Curtis Walker**
Grad school: University of Nebraska–Lincoln
Major: Atmospheric Science
Advisor: Dr. Mark Anderson
Number of schools applied to: 6
Undergraduate school: State University of New York College at Oneonta
Major: Meteorology

Name: **Annareli Morales**
Grad school: Colorado State University
Major: Atmospheric Science
Advisor: Sonia Kreidenweis
Number of schools applied to: 5
Undergraduate school: University of Illinois at Urbana-Champaign
Major: Atmospheric Science and Geology

Q&A: Grad School

Q: ***How did you know for sure that you wanted to go to grad school?***
— Sarah Al-Momar

A: I tried to set up a career goal first. Talking to my mentors and SOARS staff about my interests over the summer helped me define that goal, which is to become a researcher in tropical meteorology. Although I had always wanted to further my education in atmospheric science, at that point graduate school became the logical avenue to pursue my career goal.
— Diamilet Pérez-Betancourt

Q: ***What should I expect when contacting prospective advisors?***
— Ana Ortiz

A: Expect to wait. I had to wait weeks for a response; some were quicker. If I didn't get a response, I was persistent and sent them a follow up email. Most of the professors I emailed were nice and either gave me some time through a phone conversation or sent me to someone else who would have more information.
— Annareli Morales

Q: ***How did you find out what each program had to offer besides what was on the school's website?***
— Ana Ortiz

continued on page 4

SPONSORED BY: NSF NOAA CMMAP CIRES UCAR NCAR UCAR COMMUNITY PROGRAMS spark UCAR science education

SOARS Conference Presentations 2011

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), 2011 National Conference

San Jose, CA, October 2011

POSTER PRESENTATIONS

Jenny Eav: "Comparison of monoterpene oil composition and volatile emissions from Ponderosa and Austrian pine."

Stanley Edwin: "Simulating magnetosphere-ionosphere coupling in TIEGCM."

Manny Hernandez: "Analysis of present-day and future precipitation in the southwestern United States."

Javier Lujan: "Understanding profiler observations of the stratocumulus-topped marine boundary layer."

Annareli Morales: "Semi-empirical functions describing the response of short-lived radicals to their driving forces in the WRF/Chem model."

Adrianna Woolman: "Examining ionization parameterizations for energetic electrons in the ionosphere using TIME-GCM simulations."

AGU Fall Meeting

San Francisco, CA, December 2011

POSTER PRESENTATIONS

Matthew Burger: "Climatology of stability indexes for Cincinnati, Ohio."

Karl Clark: "Program coordinators' perceptions of effective national citizen science programs and their impacts: An exploratory study."

Manny Hernandez: "Analysis of present-day and future precipitation in the southwestern United States."

Matthew Paulus: "Detection of mesoscale vortices and their role in subsequent convection."

Aaron Piña: "Comparison of microphysical cloud properties from the FSSP and the CDP during CAMPS field campaign."

Curtis Walker: "An analysis of the sensitivity of pavement temperature to the makeup of the road surface."

American Meteorological Society, 92nd Annual Meeting

New Orleans, LA, January 2012

POSTER PRESENTATIONS

Graylen Boone: "Evaluation of the new crop option in the CAM4/CLM4CN using midwestern United States site observations."

Matthew Burger: "Climatology of stability indexes for Cincinnati, Ohio."

Sharome Goode: "Vertical distribution of coarse particulate matter."

Javier Lujan: "Understanding profiler observations of the stratocumulus-topped marine boundary layer."

Sandra Maina: "Improvement of hurricane risk perceptions: Re-analysis of a hurricane damage index and development of spatial damage assessments."

Annareli Morales: "Semi-empirical functions describing the response of short-lived radicals to their driving forces in the WRF/Chem model."

Matthew Paulus: "Detection of mesoscale vortices and their role in subsequent convection."

Daniel Pollak: "Characterizing wind turbine inflow and wakes through comparison of SODAR and meteorological tower observation– A part of TWICS: The Turbine Wake Inflow Characterization Study."

Andre Perkins: "Deciduous-broadleaf forest simulation accuracy in the Community Land Model v4.0."

Vanessa Vincente: "Analysis of moisture transport and its impact on mid-latitude precipitation by tropical storm Hermine (2010)."

ORAL PRESENTATIONS

Theresa Aguilar: "Gust front vs. non-gust front thunderstorms: An investigation into storm characteristics and environmental conditions."

Vanessa Almanza: "Precipitable water vapor in and around tropical cyclones in the Caribbean: 2007-2010."

Aaron Piña: "Comparison of microphysical cloud properties from the FSSP and the CDP during CAMPS field campaign."

American Meteorological Society, 92nd Annual Meeting– 11th Annual Student Conference

New Orleans, LA, January 2012

POSTER PRESENTATIONS

Annareli Morales: "Semi-empirical functions describing the response of short-lived radicals to their driving forces in the WRF/Chem model."

Aaron Piña: "Comparison of microphysical cloud properties from the FSSP and the CDP during CAMPS field campaign."

Daniel Pollak: "Characterizing wind turbine inflow and wakes through comparison of SODAR and meteorological tower observation– A part of TWICS: The Turbine Wake Inflow Characterization Study."

Curtis Walker: "An analysis of the sensitivity of pavement temperature to the makeup of the road surface."

> PROTÉGÉ AND ALUMNI ACCOMPLISHMENTS

Vanessa Almanza graduated with a BS in atmospheric and oceanic sciences from San Francisco State University. She started her MS in atmospheric science at the University of Hawai'i at Manoa.

Matthew Burger completed his BS in geography-meteorology at Ohio University this spring.

Dereka Carroll graduated from Jackson State University with a BS in meteorology and headed to Purdue University to pursue a MS in atmospheric science.

Logan Dawson received a fellowship to study for a PhD in atmospheric sciences at Purdue University. He also received an honorable mention for his NSF Graduate Research Fellowship.

Alisha Fernandez was awarded the Alfred P. Sloan Fellowship 2012 from Pennsylvania State University and published a paper in Energy: Blumsack, Seth, and Alisha Fernandez, 2011: "Ready or Not, Here Comes the SmartGrid."

Deanna Hence accepted a NASA postdoctoral fellowship and had a paper accepted for publication in the Journal of the Atmospheric Sciences: Hence, D. A., and R. A. Houze, Jr., 2011: "Vertical structure of hurricane eyewalls as seen by the TRMM Precipitation Radar."

Sandra Maina graduated with a BS in meteorology from the Florida Institute of Technology. She started her Master's of Environmental Studies at Floridan International University.

Max Menchaca was awarded an NSF Graduate Fellowship.

Annareli Morales graduated with a BS in atmospheric science and geology from the University of Illinois at Urbana-Champaign.

Ngo tracks urban air pollution on two continents

People often credit a mentor or a class for pointing them down their career path. Nicole Ngo credits a movie. That seems natural for a southern California native, but this movie wasn't from Hollywood: it was a documentary her dad was watching on TV one day when she was home from college.

"It was about air pollution in China," says the SOARS alumna. "One of the major sources is coal-fired power plants. Environmentalists don't like coal burning because it's so dirty, but the coal industry people see it as part of China's economic development. It was interesting to hear both sides of the argument."

Ngo was an economics major at the University of California, Irvine, and had taken one atmospheric science course already. After seeing the movie, she added a second major in earth and environmental studies. She graduated in 2006 and went on to Columbia University with a major in sustainable development.

She continued to focus on air pollution, particulary in cities. "Finding ways to balance economic growth with preserving our environment is a difficult problem," she says. At Columbia, she answered an email looking for a research assistant working on air pollution and got the position. Then, she says, she got really lucky.

"I was looking at satellite data on pollution in sub-Saharan Africa. Patrick Kinney [a professor at Columbia] had the opportunity to go to Kenya. He asked if I wanted to go, and I jumped at the chance."

The 2009 project, which tracked particulate emissions in Nairobi, was one of the first studies of urban air pollution. "There's a lot more work on indoor air pollution, which is common in rural areas because of dirty fuels," Ngo explains. But within the last two decades, the rate of urbanization in Africa has been the highest in the world. Half the population of sub-Saharan Africa is expected to be city dwellers by 2050. In Kenya, the rate is even more staggering, with half of the country's citizens expected to live in Nairobi alone by 2020.

About 90% of urban air pollution in less developed countries comes from motor vehicles. "That's why we studied roadway emissions," Ngo says. In her project, led by Kinney and Michael Gatari (University of Nairobi), technicians carried air samplers in backpacks throughout the city, measuring particles of the size most likely to be emitted by vehicles. Their data indicated that many Nairobians are exposed to enough pollution that their long-term health is likely to be affected.

Ngo's wrote her master's thesis on the study. She's doing her PhD research back home in New York City—a project that correlates the ages and routes of individual city buses with public health records to discover the effects of the changing emissions standards over the years. But her involvement with Africa isn't over.

"I really wanted to go back," she says. "I applied for a lot of grants and I got rejected for a lot, but I finally got two grants. I got to go back last August [2011], and again in March." She started two new studies of air pollution in Nairobi and its health impacts on low-income populations.

From her experience in Nairobi and New York, Ngo has learned that finding and carrying out a research project in a foreign country is likely to be more challenging than doing similar work at home. "There are opportunities, but you have to go look for them. It's expensive; lab equipment is expensive, and you have to hire research assistants. It'll take more work.

"But it was worth it for me. This was something I really wanted to do."

Nicole stands next to air pollution monitoring equipment at one of the research sites at Kenyatta University in Nairobi.

Dust is an important contributor to air pollution in Africa, where many roads are still unpaved, such as this one in Naivasha, Kenya.

She started her MS in atmospheric science at Colorado State University.

Imani Morris published a paper in the Journal of Applied Meteorology and Climatology: Diem, Jeremy E., Melissa A. Hursey, Imani R. Morris, Amanda C. Murray, Ricardo A. Rodriguez, 2010: "Upper-Level Atmospheric Circulation Patterns and Ground-Level Ozone in the Atlanta Metropolitan Area."

Shirley Murillo was co-author on a paper published in Bulletin of the American Meteorological Society, Rappaport, E. N., J.-G. Jiing, C. W. Landsea, S. T. Murillo, and J. L.. Franklin, 2012: "The Joint Hurricane Test Bed: Its First Decade of Tropical Cyclone Research-To-Operations Activities Reviewed."

Diamilet Perez-Betancourt presented on her research, "Rapid intensification of hurricane Earl in advanced hurricane WRF model simulations," at NOAA'S EPP 6TH Education & Science Forum in Tallahassee, Florida.

Shanna Pitter began a new job as a senior program analyst in NOAA's Office of Oceanic and Atmospheric Research at their Office of Policy, Planning, and Evaluation in Silver Spring, MD.

Rosimar Rios-Berrios was awarded a graduate fellowship with NSF's Graduate Research Fellowship Program. She also won Outstanding Undergraduate Presentation at NOAA'S EPP 6th Education & Science Forum in Tallahassee, Florida, for her work on "Quantifying the role of tropospheric relative humidity on the development of tropical cyclones."

Sarah Tessendorf had a paper published in Bulletin of the American Meteorological Society, Tessendorf, S.A. and coauthors, 2012: "The Queensland Cloud Seeding Research Program."

Curtis Walker was awarded the 2012 SUNY Chancellor's Award for Student Excellence, and is attending University of Nebraska in Lincoln to start his MS in atmospheric science.

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

Phone: 303-497-8622
E-mail: soars@ucar.edu

www.soars.ucar.edu

NONPROFIT ORG.
US POSTAGE PAID
BOULDER, CO
PERMIT NUMBER 558

THIS IS THE LAST
HARD COPY/PRINT EDITION

For Digital Subscriptions: Contact SOARS Program Office

Production:
Writing: Moira Kennedy, Carol Rasmussen
Editing: SOARS staff
External review: Karen Smith-Herman
Photos: UCAR, Nicole Ngo
Design: Core Design Works, inc

SOARS is a registered trademark of the
University Corporation for Atmospheric Research.

printed on recycled paper

SIGNIFICANT OPPORTUNITIES IN ATMOSPHERIC RESEARCH AND SCIENCE

A: I sent several emails out to the faculty within the program as well as to the programs' directors. I asked almost every question under the sun and sought clarification when necessary. Furthermore, I conducted phone interviews with some faculty and potential advisors to get a better sense of things and a more personal interaction than that offered by an email. The best way to find out what each program had to offer though was to visit all of them (or at least the most interesting) in person.
— Curtis Walker

Q: ***What was the toughest question you faced when applying to grad school?***
— Ann Wang

A: I guess if you mean literal question when applying I would say the personal essay portion of the application was the toughest part. It seems easy to speak about yourself, but you just want it to be perfect that it takes forever! If you mean personally, the toughest question was what exactly do I want to research. For most people, this is a problem. If you don't know what you want to research (which is okay), it can be hard to focus on a specific professor you want to work with.
— Annareli Morales

Q: ***What are some key things you did in order to increase your chances of being accepted into graduate school?***
— Ana Ortiz

A: I looked for opportunities to meet prospective advisors in person. I planned early on to attend a national meeting within my area of interest, since I knew prospective advisors would probably be there too. At the meeting, I reached for opportunities to introduce myself, and the professors and I often ended up chatting about my summer research. In the end, the offers I received were from professors who had met me and had learned about my research experience. One of them even told me explicitly that meeting me at that conference was one of the defining factors for him to make me an offer.
— Diamilet Pérez-Betancourt

Q: ***What are the costs besides application fees?***
— Ana Ordonez

A: In addition to the application fees, other costs include that of the GRE (yikes!), sending the GRE score reports out (beyond the initial set during the exam) and possibly fees incurred at your institution to send your official undergraduate transcript. If you opt to visit the institutions and are not fully compensated for your travels, then additional costs may arise as well.
— Curtis Walker

Look for the second part of our Grad School Q&A in the next newsletter, where protégés will address how to evaluate offers and what to think about when visiting schools. ■