

FALL 2016 Newsletter

Hi SOARS family, and welcome to our fall newsletter!

This year, SOARS has been celebrating its 20th anniversary. We have shared the successes of our alumni, highlighted the structure of our program and cherished the support of our community. And we've also reflected on the ongoing need for SOARS as our field works to solve the difficult challenges of today, including climate change and air quality - challenges that need diversity of ideas and the input of all parts of our population in order to overcome.

In June, many of our alumni and protégés came together at the SOARS 20 Year Symposium and reconnected with the SOARS mission. The commitment of our alumni to the program and to building diversity in STEM is second to none, and this newsletter is a testament to that ongoing commitment.

My thanks to our newly formed newsletter committee, Erin Dougherty, Sarah Lee, Maribel Martinez, Annareli Morales, Matthew Paulus, Waleska Rivera-Rios, Vanessa Vincente and Melanie Zauscher (all alumni) who have pushed us to restart our newsletter, and have filled it with inspiring stories! We hope you enjoy it. If there are stories you'd like to see in upcoming editions, or you have comments about what you read in this issue, please don't hesitate to contact us.

Bec Batchelor and the SOARS team

SOARS 20 Year Symposium



Our youngest protégé, Keon Gibson (left) and earliest attending alum, Waleska Rivera-Ríos (SOARS 1999, 2000) cut the birthday cake (Photo by J. La Plante Photo).

Over the weekend of June 24-26, 2016, sixty-five protégés and alumni from across the country reconnected in celebration of SOARS 20th anniversary. The weekend began with a reception celebration at the NCAR Mesa Lab, where attendees were joined by current and past mentors from NCAR, UCP, NOAA-ESRL, and the university community, funders, and past and present SOARS directors. In addition to cake and celebratory speeches, including those by UCP director William Kuo, UCAR interim president Michael Thompson and SOARS director Rebecca Haacker, there were hugs, joyful reunions and many, many memories and stories.

On Saturday the attention moved to strengthening the inter-decadal connections, sharing career advice and reinspiring leadership for the SOARS mission. Talks by past directors Thomas Windham and Raj Pandya charged attendees to this mission, and formal leadership training got people laughing and connecting before moving on to breakout groups focused on careers in research, government, industry and education. A career panel on “Careers Outside the Ivory Tower” followed, with SOARS alumni Maribel Martinez (Emergency Management, CNS Pantex), Marcus Walter (Broadcast Meteorologist, RNN-TV/Verizon FiOS 1 News), Fabiola Navarro (Senior Cybersecurity Engineer, La Jolla Logic), and Melanie Zauscher (Air Pollution Specialist, California Air Resources Board) sharing their career and life journeys. The day was rounded out with a poster session, with posters spanning scientific research to career journeys to memories of SOARS, before a shared working dinner focused on balancing career and family.



Above, SOARS alum Darilis Suarez (SOARS 2000) reconnects with former SOARS director Thomas Windham. Below, SOARS alumni and current protégés in attendance at the SOARS 20 Year Symposium (Photos by J. La Plante Photo).

Sunday moved the weekend's discussion to diversity, the future, and SOARS' role in supporting the next generation of diverse leaders in the atmospheric and related sciences. We discussed minority challenges, our role as leaders, and where SOARS might head as we move into our next twenty years. Many ideas were raised and there was a very strong commitment by both alumni and current protégés to staying connected and moving SOARS into the future. The love and the joy for being part of the SOARS family was an overarching theme of the weekend, clearly demonstrating the power of this program to positively influence lives.



Observations on Hurricane Hunting

[Erin Dougherty](#)



SOARS alum Erin Dougherty aboard the NOAA P3 aircraft excitedly watching Hurricane Earl evolve both on radar and outside the plane window during a visit to the Hurricane Research Division in Miami, Fl. as part of her graduate work.

I delved into studying hurricanes without ever experiencing one. Prior to this year, I had not even experienced tropical weather, let alone severe tropical weather. That all changed this summer when a series of fortuitous events brought me to the Hurricane Research Division in Miami, FL., and ultimately, flying into the eye of Hurricane Earl, a Category 1 hurricane.

Flying into a hurricane was both nothing and everything like I expected it to be. The flight was much calmer than I imagined – no engines failed, turbulence was infrequent and moderate, and I never once reached for the barf bag, despite numerous warnings I received. Whatever drama lacked inside the plane was made up for beyond the plane window, as the equations from classes sprang to life before my eyes. The spiral rainbands I usually viewed on radar were massive, curved, and thick with moisture; the eyewall and its powerful dynamics were felt with each jostle of the plane and flash of lightning; the eye, a clearing from which to view the storm structure.



A view of the eye forming when Earl was still at tropical storm status on August 2, 2016, from aboard the NOAA P3 aircraft.

Studying Hurricane Earl's anatomy as I observed scientists methodically collecting data provided me with a better appreciation for working with observational data. Now, I no longer see mere numbers when analyzing data, but I envision the cloudy eyewall of Hurricane Earl and the readings streaming back from a single dropsonde that told us Earl had reached hurricane status. It is this memory that reminds me of the importance one data point can hold and all the work that went into collecting that point.

Mental Health: It affects us all

Waleska Rivera-Rios

Feeling accomplished and proud of my successes has been a decades long journey as I found my way out of depression and unhealthy thought patterns. I constantly thought that I fooled everyone around me and that I was not as capable, intelligent, creative and skillful as I appeared to be. Internally I attributed all my remarkable achievements to sheer luck thinking that I just happened to land in the right place at the right time and was fortunate enough to meet people who took pity on me and helped me. I discounted all evidence to the contrary and did not take ownership of all the academic recognition I rightfully received.

More information:

[In The Classroom, Common Ground Can Transform GPAs](#)

[This is your mind on grad school](#)

[There's an awful cost to getting a PhD that no one talks about](#)

[The UK's student mental health charity](#)

[The importance of peer support during your PhD](#)

[Feel like a fraud?](#)

[Meditation Room](#)

These thought patterns did not let me fully enjoy the recognition and success I had achieved through hard work and my intellectual abilities since I was not able to recognize and celebrate my contribution to them. As a woman of color I experienced a heightened version of these struggles. At times I thought that people took pity on me for being a Hispanic female. I did not understand at the time that I was engaging in an unhealthy behavior that perpetuated irrational thinking patterns which sometimes is referred as the impostor syndrome or self-sabotage. These thinking patterns wore down my psychological fabric. Faced with the challenge of severe depression and extraordinary anxiety, I chose to delve deep into the subject and made it my goal to overcome and help others avoid this trap.

In 2005 the University of California, Berkeley published a study about depression among graduate students, opening the dialog between other renowned universities to create awareness of the resources that should be available for all students. Issues such as stress, the impostor syndrome and emotionally absent mentors came to the forefront. Berkeley created a counseling center just for graduate students, realizing that they had specific needs that were not being addressed by the general counseling center. Minorities and women showed a greater degree of these challenges. More recently in 2015, the NPR podcast Hidden Brain produced an episode titled Students and Teachers (Episode 4, October 13, 2015). In this episode a Harvard research study was discussed on the positive effect of a healthy mentor-student relationship and the correlation between grades and this relationship in minority students. Listen to it, it is enlightening. In summary it validates Berkeley's study's findings.

Today my story is different. I have been transformed by my quest for healing and understanding. Personally, I sought not only professional help, but also delved into spirituality and the aspect of human beings that is intangible and transcendental. It is a lifelong journey and I keep myself healthy through a combination of professional counseling, mindfulness courses, meditation, exercise and by keeping a tight group of loved ones close and informed about my emotions and challenges. I check my stress levels and explore new things each day. It is my choice to stay away from frightful information and media, sticking to lighter subjects and science topics. This is what works for me. What works for you?

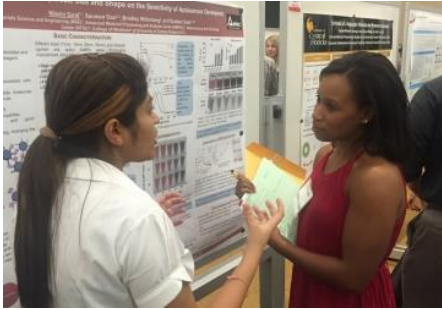
Most of us have been touched by mental illness; either suffering from it ourselves or by having a loved one struggle with one. Many suffer in silence and inner shame since they do not want to jeopardize jobs, relationships, promotions or reputation. If you are struggling with challenges such as depression, anxiety, bipolar disorder, borderline personality disorder, schizophrenia or other, seek a safe support group and trustful help.

I invite all SOARS members to raise awareness among degree holders, students, professionals, (especially professional single women) and start changing the paradigm. We need to move towards professional environments where people with mental illnesses can feel safe and cared for. Reach out to those friends who are suddenly withdrawn and just listen: that might be all they need. We can exert change anonymously or publicly. Celebrate your accomplishments and prioritize your wellbeing because your mental health is sacred.

Alumni Spotlights:

Talea Mayo, First African-american to earn a PhD from CSEM, UT-AUSTIN

[Vanessa Vincente](#)



SOARS alum Prof. Talea Mayo (right) speaks with graduate student Nilesi Saraf during the 2016 University of Central Florida [Graduate Research Forum](#)

SOARS alum Dr. Talea Mayo (2006, 2008) was the first African-American student to earn a Ph.D. from the Computational Science, Engineering, and Mathematics (CSEM) graduate program at the University of Texas at Austin. She is currently an Assistant Professor in the Civil, Environmental, and Construction Engineering Department at the University of Central Florida. In this article, we talk to Dr. Mayo about her achievement, how it has influenced her current career, and how she hopes it will inspire others to pursue their goals.

- **How did you feel when you learned that you were the first African-American Ph.D. in your graduate program?**

I actually had a feeling I may have been. I knew there were initially no other black students in my program (another joined in my third year). It is always nice to be part of the change/increase in diversity, so I think the best word to describe how I felt is proud.

- **How did this achievement influence your career path?**

Being the only black student really influenced my desire to become a professor. Initially, I felt very alone and isolated. The other students in my program were great, but I knew that our experiences were different. It took me a long time to connect socially, and that made my first years very hard. My thesis advisor was not black, but he was very supportive of me, and that made a difficult transition period easier. I really wanted to be that source of support for someone else.

- **In what ways do you hope your achievement will inspire others?**

I hope that I can inspire other science students to persist. I think when you don't have examples of people like you who have successfully achieved your own goals, it can be discouraging. I want students to gain inspiration from knowing that it was hard for me too and I did it and they can too. Students inspire me to achieve more as well. I want to be better because I know their goals will only get bigger. And I want to be an example of successful accomplishment of those goals too.

Original news article from Univ. of Texas at Austin:
<https://www.ices.utexas.edu/about/news/260/>

From the Cubical to the Courtroom: A Spotlight on Atzel Drevon

[Sarah Lee](#)



SOARS alum Atzel Drevon, who is now working as a lawyer and part-time professor of criminal justice at the American University of Puerto Rico.

Ever find yourself in the middle of something and realize you probably should have done it completely different? That's the predicament Atzel Drevon (SOARS protégé 2002-2004) found himself in while in the midst of his Master of Earth Sciences degree at the University of New Hampshire. He was programming, analyzing, and sitting at a computer all day and realized he was very unhappy. It was hard to admit to himself, but "I felt like I was failing" Atzel says. Although he had the support of those around him, he knew he had to do something differently, and decided to switch gears and pursue his lifelong interest of law.

After graduating the law school of the Interamerican University of Puerto Rico, Atzel worked for the government and is now his own boss, practicing various types of law such as criminal, civil, and environmental. Atzel attributes much of his success to SOARS, saying it gave him the public speaking experience he needed for his career. "I was very shy," says Atzel, but the leadership workshops and oral presentations helped him gain confidence and overcome his stage fright.

For the last five years, Atzel has also become a much-loved professor of criminal justice at the American University of Puerto Rico. Mentoring in SOARS and tutoring in college sparked his interest in teaching when he was still a student. Now, Atzel is able to incorporate his interest in science with his want to help people by teaching the next generation of lawyers.

Atzel currently lives in Ciales, Puerto Rico with his wife and is expecting his first child in October. He is planning on moving to the continental US next year to pursue a career in policy change. Atzel hopes to bridge his interests in law and science by helping researchers translate their findings into policies to make the world a better, greener place.

Summer research

Ryan Adams, Kent State University, ["Western North Atlantic explosive cyclones in relation to Arctic ice and atmospheric blocking"](#)

Science research mentor: Scott Sheridan, Kent State University

Shao Wen (Amy) Chen, University of Illinois at Urbana-Champaign, ["Sensitivity of Model Precipitation and Propagation Verification Results: Method for Object-based Diagnostic Evaluation – Time Domain"](#)

Science research mentor: Amanda Anderson, NCAR

Writing & communication mentor: Jamie Wolff, NCAR

Computing mentor: Mary Haley, NCAR

Coach: Cindy Worster, UCAR

Peer mentors: William Evonosky, Steven Naegele, SOARS

Briah' Davis, University at Albany, SUNY, ["From DOS to LabVIEW Real-Time: Modernizing a Carbon Monoxide Instrument for User-Friendly Data Acquisition"](#)

Science research mentor: Teresa Campos, NCAR

Writing & communication mentor: Rebecca Buchholz, NCAR

Computing mentor: Bryan Guarente, UCP

Coach: Matt Paulus*, NCAR

Peer mentor: Rosa Vargas-Martes, SOARS

Lauren Deanes, University of Wisconsin - Madison, ["Evaluation of High Resolution Rapid Refresh-Smoke \(HRRRSmoke\) Modeling Products Using PM2.5 Observations"](#)

Science research mentor: Ravan Ahmadov, NOAA & CIRES

Writing & communication mentor: Annie Reiser, NOAA

Peer mentor: Amber Liggett, SOARS

William Evonosky, University of South Florida, ["Modeling Molecular Hydrogen Emission in M Dwarf Exoplanetary Systems"](#)

Science research mentors: Kevin France, Nick Kruczek, CU

Writing & communication mentor: Scott Archer-Nicholls, NCAR

Peer mentor: Amy Chen, SOARS

K. Ryder Fox, New Mexico Institute of Mining and Technology, ["Behind the Rapid Intensification of Hurricane Patricia, the Strongest Recorded Hurricane in History"](#)

Science research mentor: Falko Judt, NCAR

Writing & communication mentor: David Ahijevych, NCAR

Computing mentor: Yangyang Xu, NCAR

Coach: Tim Barnes, UCP

Peer mentor: Meghan Mitchell, SOARS

Keon Gibson, Jackson State University, ["Temperature Effects on Vibrating Wire Frequencies"](#)

Science research mentor: Scott Landolt, NCAR

Writing & communication mentor: Brian Bevirt, NCAR

Computing mentor: Justin Lenz, NCAR

Coach: Eileen Carpenter, UCP

Peer mentor: Nkosi Muse, SOARS

Shay Gilpin, University of California Santa Cruz, ["Weather Balloons to Satellites: Mathematical Comparison of Radiosonde and Radio Occultation Refractivity Over Guam"](#)

Science research mentor: Rick Anthes, Therese Rieckh, UCP, Bill Randal, NCAR

Writing & communication mentor: Gang Lu, NCAR

Coach: Julie Malmberg, UCP

Peer mentor: Arianna Varuolo-Clarke, SOARS

Tony Hurt, Jackson State University, ["The Variability of Diurnal Cycle Precipitation over the Pacific Basin Associated with El Niño"](#)

Science research mentor: Naoko Sakaeda, NOAA

Writing & communication mentor: George Kiladis, NOAA

Computing mentor: Juliana Dias, NOAA & CIRES

Coach: Jeff Weber, UCP

Peer mentor: Rosa Vargas-Martes, SOARS

Amber Liggett, Millersville University, ["Improving Short Range Forecasting of Severe Weather using Experimental High Resolution Rapid Refresh Ensemble \(HRRRE\)"](#)

Science research mentor: Terra Ladwig, NOAA & CIRES

Writing & communication mentor: Elizabeth Burakowski, NCAR

Computing mentor: Erik Larson, NOAA & CIRES

Coach: Steve Massie, CU

Peer mentor: Lauren Deanes, SOARS

Jenine McKoy, University of Michigan, ["Sustainable Waterways: Modeling the Impact of Interdependent Relationships within the Water-Energy Nexus"](#)

Science research mentor: Hiba Baroud, Vanderbilt University

Writing & communication mentor: Carolyn Brinkworth, NCAR

Meghan Mitchell, Texas Tech, ["Development of Statistical Post-Processing Techniques for Improved Low-level Wind Speed Forecasts"](#)

Science research mentors: Sue Haupt, Jared Lee, Luca Delle Monache, Gerry Weiner, NCAR

Writing & communication mentor: Michael Lawler, NCAR
Computing mentor: Ryan Sobash, NCAR
Peer mentor: Ryder Fox, SOARS

Nkosi Muse, University of North Carolina at Charlotte, [Understanding & Communicating Future Flood Losses Using Weather Typing](#)

Science research mentor: James Done, NCAR
Writing & communication mentor: Lesley Smith, NOAA & CIRES
Peer mentor: Keon Gibson, SOARS

Steven Naegele, Penn State, [“Riming Parameterization Impacts on the Microphysical Evolution of a Northeast Winter Cyclone and the Associated Snow Bands”](#)

Science research mentor: Trude Eidhammer, NCAR
Writing & communication mentor: Benjamin Gaubert, NCAR
Peer mentors: Shao Wen (Amy) Chen, Jesse Villalobos, SOARS

Rosa Vargas-Martes, University of Puerto Rico – Mayaguez, [“Further Exploration of Precursors and MJO Initiation Events as Revealed by an MJO-like Dynamical Mode”](#)

Science research mentor: Leslie Hartten, NOAA & CIRES
Writing & communication mentor: Katherine McCaffrey, NOAA
Peer mentors: Briah' Davis and Tony Hurt, SOARS

Arianna Varuolo-Clarke, Stony Brook University, [“Northeast Pacific Stratocumulus to Cumulus Transition in the Community Earth System Model”](#)

Science research mentor: Brian Medeiros, NCAR
Writing & communication mentor: Karen McKinnon, NCAR
Computing mentor: Gary Strand, NCAR
Peer mentor: Shay Gibson, SOARS

Jesse Villalobos, University of California, Irvine, [“Confirming the Improved Precision and Accuracy of a Modified Airborne Carbon Monoxide \(CO\) Analyzer for Measurement in the Upper Troposphere”](#)

Science research mentor: Teresa Campos, NCAR
Writing & communication mentor: Andrea Smith, UCP
Coach: Vanessa Vincente*, UCP
Peer mentor: Steven Naegele, SOARS

*SOARS Alumni