

Meet the Scientists

By Sierra McCall

During a summer internship in July-August 2018, I interviewed a group of scientists, technicians, and engineers involved in the Southwest Atlantic Meridional Overturning Circulation (SAM) project to learn more about what their jobs actually entail. I also asked them about their history and how they got into the oceanographic research field. This article presents some of the highlights of my interviews.

Dr. Christopher Meinen

Physical Oceanography

Dr. Meinen began his scientific journey in undergraduate school, where he studied physics and mathematics. Once he had completed his Bachelor's degree, he began to search, as many others do, for a way to apply his recently acquired skills in a way that was interesting and fulfilling. Through a series of fortunate circumstances, he was led to oceanography.

He followed a fairly traditional schooling route, achieving his Ph.D. in oceanography and then going on to two post-doctoral positions in Seattle, Washington and Honolulu, Hawaii. After completing his postdoctoral jobs, Dr. Meinen found a position as an assistant scientist at the University of Miami, and then two years later he was hired as a physical oceanographer at NOAA. With about fifteen years of experience, he is now one of the most senior scientists in his division. Chris' job consists primarily of sitting in front of a computer, analyzing data and writing proposals. Additionally, he is in charge of managing several other employees at the lab. Though his position presents a unique combination of challenges such as navigating inter-office politics, being responsible for other's pay, and the general day-to-day stress of the job, Chris says he thoroughly enjoys his work.

Chris is the lead scientist on AOML's SAM project, studying the meridional overturning circulation in the Southwest Atlantic. This project is an international collaboration that could increase the accuracy of numerical models used to predict storms and natural disasters.

Dr. Renellys Perez

Physical Oceanography and Numerical Modeling

Like many other Physical Oceanographers, Dr. Perez was interested in physics and math in high school. Growing up in Miami, she was also in close contact with the ocean from a young age. Renellys went to school across the street from AOML at the University of Miami for her

Master's degree, and then attended Oregon State University to get her Ph.D. She did a post-doctoral position in Seattle before learning of an available position here. Now, her typical work schedule involves lots of data analysis and supervising post-doctoral researchers. She is the co-PI on the SAM project along with Dr. Meinen, and her responsibilities involve data analysis and writing papers and proposals.

Renellys has also done work with numerical models, and believes that data gathered from the SAM project could be very valuable in increasing the accuracy of these models, which could eventually make forecasts and weather projections more precise. She feels the most challenging part of her job is not having enough time to do everything since there is so much data to get through it's simply not possible to analyze all of it to its full extent. She feels the most rewarding part of her job is outreach, as she thoroughly enjoys meeting new people and helping them to appreciate science.

Dr. Shenfu Dong

Physical Oceanography

Dr. Dong loved physics as a high school student in Tangshan, China. Shenfu then went on to study oceanography at Ocean University of Qingdao, after which she obtained her Ph.D. from the University of Washington. From there, she went on to complete a post-doctoral position at the Scripps Institution of Oceanography. Her first language is Mandarin, but she began studying English in middle school, and she is quite fluent.

Shenfu says her typical workday is once again lots of computer work. She does data processing, and writes funding proposals and publications. She says one of the most challenging parts of her job is writing proposals and getting papers published. The most rewarding part for her is collaboration and meeting new people.

She is also a CO- PI on the SAM project, which has taught her a lot about the South Atlantic and it's role in the Meridional Overturning Circulation.

Dr. Marion Kersalé

Physical Oceanography

Dr. Kersalé is a physical oceanographer completing a post-doctoral position here at AOML. She grew up in Africa, and later came back to Marseille in the south of France. She got her Bachelor's degree in physics and chemistry after high school, and then decided to study

oceanography as an interesting way to apply it. While working in South Africa she met Chris Meinen and Renellys Perez, who were already working for AOML. The collaboration she began to develop along with her preexisting friends and family in Miami led her to apply for her current post-doctoral position here at AOML.

Her analytical brain is put to good use in her day-to-day job, which involves lots of data analysis, creating visual aids like charts and graphs, as well as paper writing. English is her second language. She says that scientific writing in English can still be challenging at times, but that with practice she is getting much better, and that she has great collaborators and a good support system to aid her when she needs it.

Marion is doing research similar to the SAM project, but so far has been working primarily in the eastern South Atlantic, and will later be shifting gradually to the west. The SAM project uses PIES instruments, but Marion is working with CPIES, a device that measures not only pressure and travel time, but also ocean current just above the seafloor. She considers the most challenging part of her job to be pulling away from her work. When she is deep in the data, she just wants to continue searching and searching until she has gotten every single answer she can out of it.

Ryan Smith

Physical Oceanography

Ryan Smith got his Undergraduate degree in Marine Sciences and Biology, and then went on to study for a Master's degree in physical oceanography at the University of Miami. He began working at AOML part-time while he was still an undergraduate in college, and enjoyed the work so much he applied for a full-time position when one became available. Today, he is working on several projects in the lab including the SAM project. His part in SAM is mostly data processing and formatting, preparing the data for further analysis, and publishing.

Another project he is working on measures the amount of water moving through the Straits of Florida. He is part of a team making long-term measurements in the region using several different types of instruments, including ship-based systems and an out-of-service telephone cable running along across the bottom of the Straits between West Palm Beach and the Bahamas.

Ryan considers the most challenging part of his job to be organizing and managing research cruises, as there are so many components that must come together to yield a successful outcome. He explains that if something were to go wrong at sea, and the team was unable to continue data collection, thousands or even tens of thousands of dollars could be lost as a result, due to the high operating costs of research vessels. However he also feels that seeing the cruises come together

successfully is one of the most rewarding parts of his job, as few things can rival the feeling of seeing all of your hard work pay off.

Pedro Peña

Engineer

As many young boys do, Pedro wanted to be an inventor when he was young. He was fortunate enough to be one of the few people who get to realize their childhood dreams, as he is now in what might be the closest position possible - engineering. After getting his Bachelor's degree in Computer Engineering, he began job searching and found NOAA through a friend who had done an internship. He enjoys finding ways to incorporate things that excite him into his projects, and over the years has been part of several money-saving inventions such as satellite transmission systems, and one data recording system replacement that saves NOAA over \$200,000 per year.

Pedro is also part of the SAM project, checking devices and replacing batteries as well as translating between Spanish and English speaking researchers in the international team.

A typical workday for him begins with a "To Do" list, and usually consists mostly of maintenance and programming. He says that for the most part his work environment is pretty relaxed and low pressure. His favorite part of his job is, of course, inventing. He thoroughly enjoys incorporating his ideas into the projects they are working on, and finding innovative ways to achieve the objective.