I consider myself a modeler who also works with ocean ecosystem/biogeochemical modeling. For my research, I often modify the model by incorporating processes or mechanisms reported in observational and experimental studies. The experience that I am going to share with you is about an observational project in which I participated during a research cruise.

I was a Marine Sciences major as an undergraduate. After I participated in several research projects in my junior year, I got the opportunity to work on biological and chemical samples in a laboratory. Although I was satisfied with the results obtained from these experiments, I felt a lack in my education from never having attended a research cruise myself.

I started to learn ocean modeling during graduate school. Numerical models are a useful approach for oceanography studies, and are of great benefit in interpreting results from laboratory and field studies. At that time, I hoped to combine models and observational approaches in my future career. In a casual conversation, I told Prof. Eric Saltzman that I would like to have some field work experience. I am very grateful that Prof. Saltzman took my idea seriously. He directs a trace gas laboratory at the University of California, Irvine, and his group often has opportunities for field campaigns. When there was a cruise opportunity later, Prof. Saltzman asked me whether I would like to go. I was really excited that I could participate in a research cruise, but unfortunately the cruise was irrelevant to my dissertation project.

I was in my fourth year of Ph.D. study. I knew that preparing myself for the cruise and the one-month cruise itself would require a lot of time. However, this was a rare opportunity for me. I talked with my Ph.D. advisor, Prof. Keith Moore, about the cruise. Prof. Moore thought that it was great for a modeler to gain some observational prospective and that the experience would also be helpful to me. He encouraged me to participate. Thanks to Prof. Moore’s support, I started my journey on the HaloCarbon Air-Sea Transect – Pacific (HaloCAST-P) cruise.

I needed to make continuous underway measurements of a dissolved gas - dimethyl sulfide (DMS) - using an instrument called “miniCIMS.” The miniCIMS is a compact chemical ionization mass spectrometer. In seawater, DMS is primarily cleaved from DMSP, a major secondary metabo-
DMS measurements, but also a new perspective on field observations. I understand more about how data are collected and how should I treat data in my models. On the other hand, I realize that it is indeed necessary to integrate numerical modeling with experimental and observational efforts in oceanography studies. Before the cruise, I was puzzled as to why some field- or laboratory-oriented students consider modeling no more than guesswork. I can understand why they feel their results are more solid after my experience with laboratorial experiments and the research cruise. I admit that modelers sometimes need to make assumptions and simplify processes in models. But observational results can be confounding. Different physical, chemical and biological factors in oceans interact with each other. Modeling can serve as a “cross-check” for observations, as what is observed may not be globally representative in certain situations. It is helpful to use models to predict what may be out there. Also, field observations are usually very expensive and require lengthy preparations, so these efforts can only cover limited time and space. Models can fill in the gaps in observations and help to interpret observational data.

From my experience, I realized that both modeling and observations require total dedication to gain the best outcome. Although it is disappointing, I think I should focus on one direction as a young scientist and extend my research later when I get the chance. I want to express my deep gratitude to Prof. Saltzman and Prof. Moore for the incredible opportunity. I think model-oriented and field- or laboratory-oriented young scientists should try to learn more about both approaches. I encourage all the modelers to participate some laboratorial or field studies and gain some new perspective, and vice versa.

The HaloCAST-P cruise took place aboard the Research Vessel Thomas G. Thompson, which is owned by the Office of Naval Research and operated by the University of Washington. The Thompson is 274 feet in length and has room for 21 officers along with 36 scientists. You can see a lot more about this Research Vessel at www.ocean.washington.edu/vessels/TGT/tgt.html. There is even video of it at YouTube.
Communicating Your Science by Vanessa Schweizer

Science communication is not just for press offices anymore. Under the changing media landscape and the increasingly competitive work environment for scientists, it's important for any successful scientist to develop her skills in science communication. Last fall, NSF sponsored a workshop at NCAR on this topic. One of the early exercises involved folding your arms in a manner opposite of what you are accustomed to. It is harder to do than you think! The same is true of communicating your science to audiences who are not scientists.

The challenge is to present your science in a concise, accessible, and memorable manner. When communicating with each other, scientists often start with broad descriptions of background before even bringing up their research questions. Then they talk about a bunch of other stuff (methods and results) before they get to the point (their conclusions). This is completely backward for audiences of non-scientists, who would be most interested to hear about tantalizing conclusions first.

Knowing how to communicate your science forward, backward, inside, and out is important for promoting yourself and your work. Aside from giving you some spotlight, press or blog coverage can get your work cited more often and raise your profile with potential collaborators, partner institutions, and even funders!

Luckily, there are still opportunities to develop skills in science communication. NASA sponsored a science communication workshop February 10 at the Denver Museum of Nature and Science as part of FameLab, an international search for early career scientists who are also promising communicators. There is another preliminary event in March and then an online component. Learn more about FameLab at www.astrobiologyfamlab.arc.nasa.gov/.

In house, there is also the NCAR & UCAR Media Office, which can work with you one-on-one to develop your science communication skills.

Science Blogging

Are you a blogger or have you ever considered blogging about science? If so, Vivienne Raper’s article “Science Blogging and Tenure” in Science Careers is a must read. Will blogging help your career or hurt it? There’s really no clear answer to that question: it depends on the type of job and institution that’s looking to hire you. In some cases, blogging is considered an asset; it means that you’re passionate about communicating your work. In other more research-oriented institutions, blogging can be viewed as a liability, a distraction from your work.

Raper writes, “A blog can enhance the careers of scientists who follow the advice offered by the Massachusetts Institute of Technology’s Thomas Levenson at ScienceOnline2011: "Don’t be stupid." One way you can be stupid is to spend too much time blogging, displacing more scholarly work. Another is using your blog to criticize other scientists’ research. "Blog writing is informal and rapid fire, which makes it easy to write a post that sounds overly hostile," says Chris Rowan, a geology blogger and postdoctoral fellow at the University of Chicago in Illinois. "For those of us without a permanent position, this may be viewed unkindly by our current or future employers."

[Alexander] Palazzo -- who occasionally wrote about published scientific research papers before he gave up blogging in 2009 because of the time pressures of a new baby and job -- says he rarely blogged about papers that were boring or wrong. "In general, I tended to write about things I liked," he says. "I could have written about research that’s wrong or insignificant, but why waste my time?"

Early-career scientists who wish to play it safe should limit their blogging to research they admire, says Dennis Meredith, author of Explaining Research: How to Reach Key Audiences to Advance Your Work. "Avoid negative blogging. That way, you’re seen as being a positive contributor to your field."

The bottom line is that you want to approach blogging carefully if you decide to jump in. Vivienne Raper’s article offers some different perspectives on the topic. To read the article in its entirety, please see www.sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2011_01_28/

Language is the principal tool with which we communicate; but when words are used carelessly or mistakenly, what was intended to advance mutual understanding may in fact hinder it; our instrument becomes our burden.

-Irving M. Copi