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CAREER PROFILES Options and Insights

LOUISE NEWMAN | Executive Officer, Southern Ocean Observing System, newman@soos.aq

Degree: When, where, what, and what in?

For my undergraduate degree (1997–2001), I was a double major in zoology with honors at the University of Tasmania, Australia. In 2003, I started my PhD, also at the University of Tasmania, Australia. My dissertation focused on the paleobiogeography of the freshwater fauna in Antarctica. For this research, I collected sediment cores from a number of freshwater lakes in Antarctica, and used zooplankton microfossils preserved in the sediment to reconstruct changes in the lacustrine ecosystem through time, predominantly over the last 10,000 years BP, but in one region stretching back ~130,000 years BP. The key finding of my research was that many freshwater species in eastern Antarctica survived the Last Glacial Maximum in lacustrine refuges—and did not colonize the continent from more northerly landmasses after deglaciation, as previously thought.

Did you stay in academia at all, and if so, for how long?

I managed to keep some level of research going for a number of years after my PhD. My first job post-PhD was 80% contact hours, so I took an honorary research associate position at the University of Bern, Switzerland, to continue my research one day a week. The limited time available meant it was difficult to run my own research projects, but I spent my time co-authoring papers and research grant proposals.

How did you go about searching for a job outside of the university setting?

With about six months to go on my PhD, I started looking at international job-seeking websites. I knew that I wanted to get experience working outside of Australia, and I was also interested in

positions that were not necessarily pure research, but still relied heavily on the knowledge that I had built throughout my university education. I saw a job advertised for Science Officer of PAGES (Past Global Changes), an international initiative that coordinates and promotes past global change research toward improved understanding of past changes in the Earth system. The position required a PhD in a field of paleo science, as well as an interest in science communication and coordination. I had limited experience in the latter but applied anyway. I was actually very lucky to get this job, as I had not finished my PhD at the time and had limited experience outside of this. I was interviewed while in Antarctica as a field assistant, so I had to do the interview via satellite phone. I was offered the position, and within three months had moved to Bern, Switzerland! It was a steep learning curve, and I had to finish my PhD on the weekends, but it was a fantastic group in the PAGES International Project Office (IPO). The IPO had only five staff, and my position cut across many aspects, from coordination and communication to Web content, strategic planning, and scientific editing, so I very quickly built up my experience across a broad range of activities.

Is this the only job (post-academia) that you've had? If not, what else did you do?

My position as Science Officer at PAGES and the parallel honorary research associate position at the University of Bern are the only jobs I have done post-PhD, other than my current position.

What is your current job? What path did you take to get there?

I am currently the Executive Officer of the Southern Ocean Observing System (SOOS; <http://www.soos.aq>). SOOS is an



international initiative of the Scientific Committee on Oceanic Research (SCOR) and the Scientific Committee on Antarctic Research (SCAR). SOOS aims to facilitate the collection and delivery of essential observations of the Southern Ocean that are required to address key societal challenges, such as those relating to sea level rise, climate change, and marine resources. I run the SOOS International Project Office (IPO), which is based at the Institute for Marine and Antarctic Studies, University of Tasmania, Australia. My position as Science Officer for PAGES provided me with broad skills across many aspects of international science coordination, and I find all of these skills useful in my current position. The IPO for SOOS has only two staff, so my position includes duties ranging from strategic development, organization/running of meetings and workshops, maintenance of the SOOS website and all communication products, engagement with stakeholders, and maintaining/enhancing funding and sponsorship, as well as general administration.

What did your oceanographic education (or academic career) give you that is useful in your current job?

Much of my undergraduate training was focused on marine ecosystem science, but I gained broader oceanographic

CALL FOR CAREER PROFILES

Who would you profile?

Oceanography's "career profiles" of marine scientists are intended to provide information to ocean sciences graduate students about career options other than teaching and/or research in a university setting.

Oceanography needs your help to make this careers column a success. Finding the right subjects is a challenging task, and *Oceanography* needs suggestions about who to profile. Please consult your roots, your Rolodex, or your phone's contacts folder and provide *Oceanography* with information about people you know whose career paths might inspire and inform the next generation. Self-nominations are accepted.

Do you have suggestions?

Please send their contact information to ekappel@geo-prose.com.

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experience through numerous part-time research and field tech positions that I held alongside my university education. There are many aspects of my education and work experience that are beneficial to my current job. Although I am no longer running my own research projects, a significant part of my current position involves advocating for oceanographic research and observations, so I need to have a good understanding of the science I am supporting. Experience in writing publications and funding proposals, giving presentations, and generally building networks has been very useful.

Is there any course or other training you would have liked to have had as part of your graduate education to meet the demands of the job market?

Clear communication of science has become increasingly important, and I would have liked some level of education on this front, as part of a scientific undergraduate course.

Is the job satisfying? What aspects of the job do you like best/least?

I love my job, and I think to a large extent it is because I believe in the importance of what the organization is trying to achieve. The best thing about my position is also the worst; it is very varied. To some degree, I can choose each day what I feel like doing, whether it be website content, writing a paper or report, drafting a funding strategy, or balancing the budget. I love that I get to meet and work with people from all around the world, and I also love that I am supporting cutting-edge science on a daily basis. However, the broad requirements of my position also make it difficult to focus solely on priority activities, because there are always other things that also need to be done. It is very difficult to support the growth of SOOS to the level required, when the capacity I have in my position is really only enough to sustain SOOS as it is now. From a positive viewpoint, this is because SOOS has become successful enough to now need more IPO staff to support it, and if we can

work over the next few years to get the funding and support necessary for this, then I look forward to growing my own leadership and management experience.

Do you have any recommendations for new grads looking for jobs?

I think there are two key things I have inadvertently learned through my career so far. First, it is very important to have as broad a skill base and as wide experience as possible. I believe that one of the big reasons I got the job as Science Officer at PAGES was because of the many extra jobs and volunteer science work (e.g., as laboratory or field assistant) I had done in my spare time during university (mainly for economic reasons at the time). In the years since then, I have sat on numerous interview committees, and I believe that people who have experience beyond their university education generally have broader networks and greater skill bases that may not be directly relevant to the job they are applying for but that demonstrate personal initiative and drive. This extra experience also tends to increase co-authorship of publications and proposals, and in my experience, can also lead to new opportunities.

The second thing I have learned is the importance of personality. Perhaps this is an obvious statement to many, but through the process of hiring people that I will then have to work with, I came to realize that in most cases if you get asked to an interview, then you generally have the qualifications...on paper. What it then comes down to is whether you have the personality to fit into the team. Of course, there might be requirements of the position that you do not have experience in, but if you can demonstrate your ability to learn and adapt and that you are a motivated individual, and if you can communicate this to the interviewers (with eye contact, concise examples, etc.), then I believe this makes an enormous difference. ☺

Degree: When, where, what, and what in?

I received a bachelor of science degree from Yale University in 1994 in the atmosphere/ocean track of the Department of Geology & Geophysics. I then went to the University of Washington in Seattle for graduate school, where I received a PhD in physical oceanography in 2002.

Did you stay in academia at all, and if so, for how long?

My entire career, after my postdoctoral fellowship, has been soft-money research carried out in a non-university setting, first at a nonprofit and now at a principal investigator-owned company. Because it is a little ambiguous whether or not this qualifies as academia, the answer is either “the whole time” or “not at all.”

How did you go about searching for a job outside of the university setting?

While I was a postdoc at the Université Pierre et Marie Curie in Paris, I made plans to return to Seattle. I knew of three organizations in Seattle where one could do soft-money research. I contacted all three of these places, visited, and explained that I was looking for a place where I could establish my own career pathway. I chose to work with the organization that had the most to offer a young scientist, and that could help support me as I established my own funding stream.

What is your current job? What path did you take to get there?

I am a senior research scientist at NorthWest Research Associates, based outside of Seattle. After I had been at another institute for about five years, I felt it was time for a change, so I basically picked up the phone. If you have your own funding, finding another employer isn't particularly difficult.

What did your oceanographic education (or academic career) give you that is useful in your current job?

I have been fortunate, as a postdoc, graduate student, and undergrad, to have had a number of truly top-notch teachers and mentors. More than just learning conceptual material, being in contact with great thinkers gives you the chance to absorb some aspects of their approaches or worldviews or personalities. These connections have been essential in many ways to my growth as a scientist. It would take a long time to explain in detail.

Is there any course or other training you would have liked to have had as part of your graduate education to meet the demands of the job market?

I'm going to rephrase this question and answer instead, “What other trainings, apart from what you learned in graduate school, are necessary to be a successful researcher?”

Formal intellectual studies in graduate school impart only a small fraction of the skills necessary to succeed as a researcher. To be effective, a researcher needs to have a raft of mental and emotional skills that are beyond what we normally think of as being a part of scientific training. In graduate school, there is a tendency to get to the finish line by plowing through with a straightforward combination of intelligence, hard work, and willpower. That's not a viable long-term strategy. There are a lot of factors that contribute to graduate students developing habits that are diametrically opposed to sustainable, creative, and productive research careers.

How to effectively communicate with others, how to be stable in the face of great uncertainty, how to negotiate, how to maintain observational sharpness and detachment even when the results appear to be at their most exciting, how to cultivate curiosity, how to adapt, how to know when to let go of problems, how to know when to stubbornly persist—these are all essential, if underappreciated, ingredients



in the scientific skillset. If you're interested in having the biggest impact in the long term, I think the best thing to do is slow down and get yourself sorted out, in whatever way makes sense to you. There are a lot of resources out there. The earlier in your career, the better. Otherwise, you are going to learn things the hard way and suffer a lot as a consequence.

When you are cooking, you make sure you are working with a sharp knife. If the knife is dull, you sharpen it. You don't hack away with a dull knife because you feel so stressed out about the need to get the meal cooked as soon as possible. But what about in science? Do you feel you have the mental space to take the time to sharpen the knife, if necessary? For me, I find there is a very quiet internal voice that recognizes when something seems to be more difficult than it needs to be. I do my best to listen to that voice, and then go and attend to whatever it is that I need to learn. It isn't always easy to find the space to take a step back in the face of deadlines and other career pressures. However, my experience has been that such an approach leads to becoming more productive as well as more internally peaceful, whereas just plowing through leads to the opposite.

On a much more practical level, a researcher needs to know how to write proposals. If you think you can just clearly articulate a clever idea that you personally would like to work on and

expect to get funded, sorry, that's not how it works. Writing a proposal is much harder and subtler than writing a scientific paper. You have to connect with the needs of the scientific community as well as with the needs of the program. You have to understand the points of view of potential reviewers. You have to say neither too much nor too little. And you have to be able to weather disappointments. It's extremely difficult to learn all of this on your own; you really need to find a successful mentor who can communicate what he or she has learned through long experience.

Is the job satisfying? What aspects of the job do you like best/least?

To start with, I think it's important to recognize that it's extremely rare to have a job description of trying to understand how the natural world works. It's really a great honor, and that by itself is satisfying.

There are moments in research when you have a breakthrough and suddenly everything make sense. It's as if the whole cosmos rearranges itself, and your previous understanding becomes only one facet of a larger, more complete understanding. For me, this rearrangement has sometimes happened literally in my dreams. Those moments are indeed very satisfying. Yet, it's essential not to get too attached to them, because then you are likely to miss something even more important that is hiding, quietly, in plain sight. Also, most of the time it is not like this, so if you are expecting it to be, then you will not be willing to put in all the necessary hard work, and furthermore, you will lose your objectivity.

When you engage deeply with a research topic, and tenaciously follow it where it leads, you often end up with something you could not possibly have imagined. It's extremely satisfying to help create something that feels whole and complete, yet also totally unexpected. It's like tracking a mythical animal that nobody believes in and finally finding its lair. It's not so much the satisfaction of having "made" something as it is of

having followed your instincts through all kinds of trials and hardships, and discovered something wonderful that you intuited must exist all along.

When you get to have that experience in collaboration with another person, where each of you take turns getting the other through situations that you wouldn't have made it out of on your own, that's even more remarkable. It's not only the satisfaction of having believed in yourself, but also of having been willing to completely trust another person.

When I get up in the morning, there generally isn't anywhere I need to be. There's no one telling me what to do. It's not for everyone, but I really love this kind of freedom. It's like having a gigantic blank canvas, but instead of paint, your media are equations and data. I try to work in a way that is not just true but also beautiful. This freedom of scientific expression is probably my favorite part of my job.

I also love being connected to a larger continuity of thinkers across space and time. Reading the works of great scientists of the past is like listening to Bach or seeing a Shakespeare play: you feel some part of that person's spirit is communicated to you. I have colleagues all over the world, people that I'm connected to because we spend our time thinking about the same things. When I see some of my closest colleagues, we speak in incomplete sentences. It isn't necessary to finish a sentence because so much is shared. An onlooker would have no idea what is going on. Experiences like this really make you feel that you are working on something bigger than yourself, or rather, that there is a larger perspective beyond the personal one with which you are most familiar.

As to aspects of the job that I like least, that's an easy one. It's no secret that it is very difficult to obtain funding these days. Even if you are fortunate enough to get funding, a project that should take a year could easily take five: two years to get the funding, then say four months per year for three years to work on it. Sometimes

you can't get the funding and have to set the whole project aside. When 10 years of your life go by and you still haven't completed a project, simply because the funding didn't arrive at the right time, it starts to seem pretty preposterous.

There is a lot of pressure to educate students and employ postdocs, but there are not enough jobs. It's not just oceanography, it's across the board, as a New York Times article by Gina Kolata, "So Many Research Scientists, So Few Openings as Professors," described recently. Everyone knows this. Just go and look at jobs ads and you'll find postdoctoral offers outnumber faculty offers by 10 to one. It does not really look like a viable career option anymore. Probably my least favorite part of my job is that I can't wholeheartedly recommend it to young people.

Do you have any recommendations for new grads looking for jobs?

For a new PhD, the most important thing is to figure out what is most important to you personally. After you've figured that out, everything else has to take a back seat. A common dilemma is needing to choose between living where you want to, or having a type of job that you really want. Which is more important? If you are willing to go anywhere in the world, you obviously have more options.

New graduates should know that the social and economic pressures in this field tend to heap stress upon you, giving you too many responsibilities to actually get things done. If you want to have a career and also a life, you have to be highly proactive and make intentional decisions. You have to know when to say no. You can look at all the examples of everyone who has gone before you, all your role models, and take what you want from each of them in order to construct a way of living that makes sense to you. Or, if you don't see any examples of the way you want to live, you can use your imagination. ☺