

Q&A

Helen Amanda Fricker, a glaciologist at Scripps Institution of Oceanography at the University of California, San Diego, has won the 2010 Martha T. Muse Prize for Science and Policy in Antarctica.

Did you have early support for your interest in Earth physics?

No. At first I was discouraged. I was studying maths and physics at University College London, where we were encouraged to take more traditional, theoretical courses such as quantum physics or atomic theory. I will never forget having to sit down with the head of department in my third year to ask permission to take a course on Earth physics. The professor of the course, Chris Rapley, encouraged me to do a dissertation on using remote-sensing data to track icebergs in the Antarctic during my final year.

How did you end up doing your PhD in Antarctica, by way of Australia?

I had lived in Australia for a year before college, and was eager to get back. I wrote 20 letters asking about jobs. I got 17 responses, but no one had funding. I was ready to give up when I got an offer from the University of New South Wales in Sydney to use satellite radar altimetry to map the Simpson Desert in central Australia. After two years of fieldwork, I decided to do a PhD. But later I was invited to do research in Antarctica. Luckily, my funding agency let me change where I was to do my PhD.

Was your initial interest in Antarctica driven by climate change?

Not really. We knew about climate change when I started my research in 1994, but we didn't have evidence that the ice shelves were breaking apart. I remember seeing one of the first presentations on collapsing ice shelves in 1997.

Have you had an 'aha' moment?

Yes, when I discovered signals related to active subglacial lakes under Antarctica's ice

streams. Using NASA's Ice, Cloud and land Elevation Satellite, launched in 2003, we were finally able to make the precise elevation measurements necessary to estimate the amount of water underneath the ice streams and infer the speed with which it was moving. I knew within hours that I had a gold mine, but it took another few days to get supporting imagery from a colleague to back up our assertions. It was a jaw-dropping moment. I went home that night and knew I had something really cool — a discovery. A colleague pointed out that you get a lot of new results in this field because things are changing all the time — erosion occurs, glaciers melt — and generally it all links back to climate. But these subglacial lakes were formed by processes underneath the ice sheet that were completely unrelated to climate — and we knew almost nothing about them until 2006.

How would you advise young scientists whose work gets into the media spotlight?

Take it slowly. Don't stick your neck out and say anything you don't believe in. I was lucky. For our press conference, we were very well prepared and knew what we would say when people inevitably tried to link the subglacial lakes to climate change. Be prepared to pre-empt assumptions.

How did you end up with a collaborator?

Right after I discovered the subglacial lakes, one of my colleagues, Slawek Tulaczyk at the University of California, Santa Cruz, had been funded to look for lakes underneath another

ice stream. A different kind of researcher might not have involved me, but he was very inclusive and invited me to be part of his project. He wrote to the programme manager at the National Science Foundation and got permission to change his research location to, as he put it, 'Helen's lakes' so we could collaborate. Now Slawek and I work together on a



much larger project to drill into one of those subglacial lakes, involving 14 principal investigators at 9 institutes.

Are most of your colleagues at other institutions?

Yes. Scripps is one of two large oceanographic institutions in the United States, but no one else was looking at ocean-ice-sheet interactions. I was isolated at Scripps for a long time, so I reached out to other glaciologists and formed my own virtual group. I've learned that communication with other scientists is important. What if I had kept that subglacial lakes discovery to myself? I wouldn't have made the same progress.

How has being a mother affected your research?

I've sacrificed being able to go into the field. It is very hard with young children. Right now, my youngest is 6 months old. In two years my team will drill to take samples from the lakes, but I've resigned myself to not being able to go. In everyday life, I try to work at home one day a week, and not to work on weekends. But it is day by day. It would have been impossible to build my career in the same way without my husband providing support at home. ■

Interview by Virginia Gewin

IN BRIEF

Pharma job cuts ease off

Job losses in the US pharmaceutical industry fell to 255 in August, down from 321 in August 2009 and among the lowest levels since 2007, according to a survey by outplacement consultants Challenger, Gray and Christmas of Chicago, Illinois. By comparison, the industry lost 2,023 jobs in July, 830 in June and 6,943 in May. Mergers, failed drug candidates and drugs coming off patent caused the deeper cuts in May and July, the company says. Partly due to the large cuts already made, year-on-year job losses in the sector are down 29.7% from 2009; mergers in 2009, between Pfizer and Wyeth, and Merck and Schering-Plough, accounted for two-thirds of cuts this year, say the consultants.

Loan-repayment help

An 'ambassador' network will help US physician-scientists repay their loans, say those directing the Loan Repayment Program (LRP) of the US National Institutes of Health (NIH) in Bethesda, Maryland. Researchers who have benefited from the programme will help hopefuls with applications. The NIH is to launch the network as a pilot later this year. Created in 1989, the LRP gives eligible recipients up to US\$35,000 per year for up to two years to help them pay educational debts. The Association of American Medical Colleges in Washington DC says the average debt for those graduating in 2009 was \$156,456; the success rate for new LRP applicants in fiscal year 2009 was 36%. The 2010 application cycle closes on 15 November.

Return to tenure urged

US universities should restore faculty positions to the tenure track and hire fewer adjuncts, says the American Association of University Professors in Washington DC. In its 6 September report 'Tenure and Teaching-Intensive Appointments', the association asserts that contingent faculty members and students all suffer because of the shift to non-tenure-track positions. Marc Bousquet, the report committee's co-chair, says that non-tenured research-faculty members have limited academic freedom, work under the direction of another faculty member and, as a result, lose independence and can be pressured to accept another investigator's conclusions. As of 2007, some 70% of US faculty members were non-tenured, says the report.