Gisela Winckler

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My academic background, including my Master's and Ph.D., is in physics. In graduate school I was more attracted to crosscutting Earth science problems than to classical physical research like hunting down elementary particles. Luckily, I got a research assistant job at Heidelberg's Institute of Environmental Physics, an ideal place to combine basic physics skills with marine science. After my first research cruise to the equatorial Pacific, I was hooked; I knew that my decision to abandon traditional physics was the right one. For the next five years I studied extreme marine environments: brine-filled deeps in the Mediterranean, hydrothermal systems in the Red Sea, cold and hot vents along the North and South American continental margin, and gas hydrate systems off Oregon and in the Sea of Okhotsk. Being on the ocean was a magical experience, and I will always love going to sea.

After graduating, I worked for the United Nations in Vienna, and in 2001 I started a postdoc at the Lamont-Doherty Earth Observatory. My plan to stay for a year or two has turned into a longer journey; I am now a Doherty-Associate-Research Scientist at Lamont, and perhaps a permanent resident of New York City. Entrained in the Lamont-Doherty culture, I've become intrigued with cutting-edge paleoclimate problems, particularly at the interface between marine geochemistry, oceanography, and climate studies. Reconstruction of past climates is key to understanding the climate system's sensitivity to natural variability and anthropogenic perturbations, and thus to predicting future climate evolution. My toolkit centers on noble gas mass spectrometry. I collaborate with other geochemists, integrating the several trace isotopes and elements to unravel the stories locked up in ocean sediments. Now my focus is on figuring out how to use cosmic dust, labeled by the rare helium isotope ^{3}He, to understand how ocean sediments accumulate and archive Earth's climate history. This "stardust" signal gives us a new tool to evaluate fluxes of climate-relevant species, such as dust and productivity, in the past. I believe it may revolutionize paleoceanographic interpretation of sediment accumulation rates and ocean-sediment fluxes.

Being one of about 8 percent female students enrolled in physics in graduate school provided me with an early experience of a "minority' feeling." Representation of women in Earth sciences is better than in physics, but there is still a lot of gender bias nonetheless. The hurdles we face in advancing our careers may be subtler than in the past, but their impact is tangible. For me, balancing my research with my personal life, which now includes a 14-month-old daughter and my scientist partner, is quickly becoming the greatest challenge of my career.

On board of RV *Atlantis* in the Northeast Pacific. My dive with *Alvin* to an active gas hydrate site off the coast of Oregon was a magical experience and certainly one of the highlights of my scientific career.