

## Q & A with Mike Coffin, PhD '85



Marine geophysicist Mike Coffin was recently appointed founding Executive Director of the Institute for Marine and Antarctic Studies (IMAS), established by the University of Tasmania in 2010.

### Who or what most influenced your decision to pursue studies in the earth sciences?

Dartmouth had an exceptionally strong group of observational earth scientists, including Noye Johnson and former Lamonter Chuck Drake. Through classwork, weekend field excursions, and a field program that took me to such places as the Catskills, Lake Powell (“desert oceanography”), and Central America, I became an earth science major.

Between junior and senior years, the Woods Hole Oceanographic Institution organized a month of on-shore work for me, followed by 4.5 months aboard the R/V *Atlantis II*. That extended sea time provided a superb opportunity to evaluate marine geoscience as a career and introduced me to a wide array of marine geoscientists, including Jamie Austin, Betty Bunce, Bob Detrick, Jeremy Duschene, Ed Laine, Keith Louden, Barry Parsons, Mike Purdy, and El Uchupi. Chuck Drake supervised my senior honors thesis on magnetics data we’d collected while aboard the *Atlantis II* and encouraged me to attend Columbia for graduate school.

### What research questions have engaged you over the years?

Typically questions that involve exploratory research and imagination. After finishing my PhD on rifting and breakup between East Africa and Madagascar and the intervening Western Somali Basin, I moved to Australia for five years and focused on understanding the origin and evolution of the Kerguelen Plateau in the Indian Ocean.

I then worked for nearly a dozen years under Art Maxwell and former Lamonter Paul Stoffa at the University of Texas. I realized that integrated analyses of large igneous provinces (LIPs)—oceanic plateaus, volcanic rifted margins, and continental flood basalts—could provide unique synergies lacking in studies dedicated to a single type of LIP. I collaborated closely with former Lamonter Olav Eldholm of Norway to study how the massive magmatism associated with LIPs may impact surrounding environments. Other research questions included the origin, evolution, and tectonics of the Ontong Java Plateau in the Pacific Ocean, the world’s largest oceanic plateau. The physical mechanisms that initiate subduction began to intrigue me while I was in Texas, stimulated in part by the great 1989 Macquarie Ridge earthquake south of New Zealand.

Moving to Japan in 2001, I complemented further Ontong Java Plateau studies with investigations of the Manihiki Plateau, Macquarie Ridge, and the Izu-Bonin Arc. I also began to work closely with geochemists and paleoceanographers to understand links between LIPs and the great Cretaceous oceanic anoxic events, which are marked by significant depletion in oceanic oxygen levels.

In 2007, I moved to the UK to commence full-time administrative work across the major oceanographic disciplines at the National Oceanography Centre, Southampton. Now, as in my three years in the UK, I experience research mainly vicariously through collaborators and students. Nevertheless, last year I sailed on the first deep seismic investigation of the Ontong Java Plateau with Japanese colleagues, and I’m keen to address further Kerguelen Plateau and Macquarie Ridge questions on Australia’s new R/V *Investigator* after she’s launched in 2013.

### In a field that seeks to understand the integrated systems of our planet, your experience living and working on four continents must be particularly valuable.

I must say that I feel extremely fortunate to (1) have grown up in Maine with a Canadian mother, a French grandmother, and an American father who nurtured and supported my curiosity about international cultures; (2) live at a time when international mobility is relatively unconstrained; and (3) have English, the current lingua franca of science, as my native language. These circumstances have greatly fostered working and living on four continents.

Earth and ocean processes transcend any political boundaries, and observational earth scientists typically travel far and wide to study what are usually universal phenomena. Thus, we are

automatically “internationalists” when we choose to study earth science. It is no accident the Integrated Ocean Drilling Program (IODP) is not only the largest international program in the earth and ocean sciences but is among the largest of its kind in any scientific discipline. The success of other international programs, such as the World Ocean Circulation Experiment or the Argo project (not to mention the Intergovernmental Panel on Climate Change), bears testimony to the enormous efforts and outstanding successes of earth scientists working together across cultures.

I’d encourage aspiring young scientists to pursue international research ashore and afloat. The rewards are many and the risks are few.

### What challenges and opportunities do you foresee for the nascent IMAS?

We are a mere toddler compared with our aspirational peer institutions. Fortunately, we are geographically situated at the locus of Southern Hemisphere oceanographic and Antarctic research. The Hobart region is home to not only IMAS (~150 staff) but also to Australia’s Commonwealth Scientific and Industrial Research Organization Marine and Atmospheric Research (~550 staff) and the Australian Antarctic Division (~300 staff), so we have a sizable critical mass here. Our greatest challenge is to forge these academic and governmental researchers into a synergistic community, which is also our greatest opportunity. Such a concentration of ocean and Antarctic expertise is remarkable for any country, let alone one with a population of only 22.5 million people. My role at IMAS can be summarized in six words: build IMAS, drive change, develop people.

### What led you to make the transition from a scientist to assuming your current leadership role?

In retrospect, the transitions from researcher and teacher to coordinator and leader seem quite blurred and gradual. In 1992, I was recruited by the International Association of Volcanology and Chemistry of the Earth’s Interior to build an international commission focusing on LIPs. Over the course of five years, John Mahoney (University of Hawaii) and I pulled together an international community of more than 500 people. In 1999, I was drafted to cochair the international working group that put together the initial science plan for the IODP, and I served as inaugural chair of the IODP’s Science Planning Committee. Striving for (and achieving) community goals proved fulfilling and rewarding. The opportunity to build a major new research and educational institution is rare in anyone’s career, and I feel exceedingly privileged to be leading IMAS.