

PhD on submarine volcanic emissions

We seek expressions of interest for PhD students to join the project *Navigating a Sea of Bias in the Study of Volcanic Gas Emissions: He Waka Eke Noa*: www.wakalab.org. This is a three-year project supported by the Marsden Fund of the Royal Society Te Apārangi of New Zealand, and is hosted in the School of Geography, Environment and Earth Science at Victoria University of Wellington.

Project synopsis:

Volcanic degassing fuels eruptions and influences the climate, but our understanding of this process has long been biased. Focus has been on accessible volcanoes in developed countries, whereas up to one third of global emissions are from the poorly studied volcanoes of Melanesia. On ambitious expeditions, we will comprehensively measure gases, aerosols, and isotopes of CO₂ from all the active subaerial and submarine volcanoes in this prodigiously degassing region. Combining modern instruments with traditional Māori/Pasifika seafaring techniques, we will eliminate scientific and social bias from our understanding of volcanic emissions, their hazards, and their influences on Earth's atmosphere.

The PhD project will focus on the collection and analysis of emissions from active submarine volcanoes. The project will have a significant technical component, as we develop new techniques for submarine exploration and sampling using a state-of-the-art Remotely Operated Vehicle (ROV), BoxFish (www.boxfish.nz). It will also have a significant geochemical component, as we use these new methods to investigate the contribution that submarine volcanoes make to total arc volatile fluxes.

Field work in New Zealand, Vanuatu, Solomon Islands, and Papua New Guinea will involve travel to target volcanoes on traditional Māori/Melanesian double-hulled sailing canoes, or “waka”. Most of the project, however, will involve intensive development and testing of electromechanical sampling devices and laboratory analysis of gas and water samples in the facilities at Victoria University. This work will complement a larger effort to quantify emissions from the world’s most prodigiously active volcanic region.

Eligible candidates will be encouraged to apply for doctoral scholarships through VUW (next closing date March 1, 2020). Scholarships provide a NZ\$23,500 stipend and all tuition fees for a term of three years.

Victoria University of Wellington is ranked first in New Zealand for research excellence and first in New Zealand in Earth Sciences. The student will be joining a vibrant community of graduate students in the nation’s capital city, with the opportunity to build an international reputation. Full details on the VUW application process are available from the Faculty of Graduate Research at: <http://tinyurl.com/VUW-FGR>

A strong academic background in chemistry and/or geology is essential. Experience with the building and maintenance of electronics, and time spent at sea, or SCUBA would be desirable. Cultural sensitivity is crucial. Furthermore, although most of the work will be laboratory based, the fieldwork has potential to be gruelling, exposed, uncomfortable, and in close quarters with the rest of the team. Candidates will need to demonstrate that they have relevant experience that has prepared them for such an undertaking.

Closing date for VUW scholarship applications is **March 1, 2020**. Those wishing to apply should send a CV, indication of academic standing, list of referees, and a one-page cover letter to Ian Schipper (ian.schipper@vuw.ac.nz) as soon as possible before this date. The cover letter should state specifically why you want to do this project, and why you are the right person for it.

