

Ph.D. Graduate Student Opportunity in Environmental Geochemistry

Metal Isotope Tracing of Heavy Metal Pollutants (funded with stipend)

We are seeking an enthusiastic and motivated student to undertake a fully-funded PhD project (with stipend) investigating the sources and environmental pathways of heavy metal contaminants across the rapidly growing urban centre of Auckland.

Supervisors: Prof Claudine Stirling - Department of Geology, U. Otago

Dr Jennifer Gadd – NIWA, Auckland

Dr Matthew Druce - Department of Geology, U. Otago

Prof Michael Ellwood – Research School of Earth Sciences (RSES), ANU, Australia

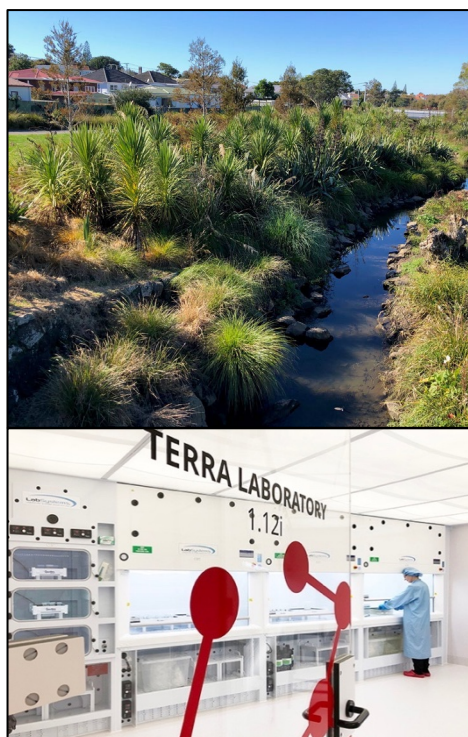
Project Description

By 2050, 40% of NZ's population is projected to live in Auckland, while the NZ government has ambitions to double primary-export earnings to NZ\$64-billion by 2025. However, environmental pressures pose risks to sustaining growth.

Sources of anthropogenic heavy metals are diverse and ubiquitous in the environment through their use in transport, construction, agriculture and horticulture. This has led to the accumulation of heavy metals in soils, streams and estuaries, exerting toxic effects on ecosystems, providing a pathway for adverse human health effects, and tarnishing NZ's 'clean and green' reputation.

This PhD project will characterise the distributions and isotopic signatures of heavy metals across mixed land-use catchments in Auckland to trace the sources, pathways and fate of heavy metal contaminants from 'source-to-sink'. These datasets will inform the contaminant-accounting models used by regulatory authorities to help prioritise decision-making and incentivise sustainable urbanisation and resource use. The project will involve collaboration between U. Otago, NIWA, ANU and Auckland Council.

The project involves field sampling, 'clean-room' geochemistry and ICPMS and MC-ICPMS based mass spectrometry for quantifying the concentrations and isotopic signatures of heavy metals.



Requirements and how to apply: Applicants with a strong background in geosciences, environmental sciences, chemistry, or related discipline at the BSc(Hons) or MSc level are encouraged to apply. The project is funded by MBIE and the selected candidate will receive a PhD Scholarship (NZ\$27,000 per year for 36-months, tax free with a fee waiver). Preference will be given to NZ/Australian applicants. Consideration of other applicants is contingent on eligibility for NZ study.

Applicants should submit a cover letter, complete CV (including academic transcripts), and the names and contact information of at least two referees in a single pdf file by email to: claudine.stirling@otago.ac.nz

Contact Prof Claudine Stirling for further information about the project. Additional information about the Department of Geology at the U. Otago, RSES (ANU), and NIWA can be found at: <https://www.otago.ac.nz/geology>, <https://earthsciences.anu.edu.au> and <https://www.niwa.co.nz>.