

PhD opportunity: Impact of extreme weather events on shelf-sea physics in Aotearoa New Zealand (Physical Oceanography)

Supervisor: Dr Robert Smith (University of Otago; robert.smith@otago.ac.nz)

Location: University of Otago, Department of Marine Science, Dunedin, New Zealand

Closing date: Sep 30th 2026

Start date: By June 2027

About the Project

The Department of Marine Science at the University of Otago (New Zealand) seek applicants for a PhD project in Physical Oceanography starting first/second quarter 2027.

The ocean around Aotearoa New Zealand is warming faster than the global average, fuelling extreme weather and changing the ocean near the coast. We are seeking a skilled and ambitious PhD candidate to work on the MBIE Endeavour funded programme: “*Te Moana Mahana (Ocean change forecasting for climate resilience in Aotearoa)*”. The PhD candidate’s research will involve developing, running and analysing high-resolution numerical ocean models and analysing moored observations to (1) assess the present-day response of Aotearoa New Zealand’s shelf seas to extreme weather events (e.g., extratropical storms / cyclones, atmospheric blocking), and (2) investigate the physical mechanisms linking the shelf sea responses to atmospheric forcing and changes in the deeper offshore ocean.

The candidate will be based at the University of Otago, collaborating with a team from the University of Auckland (Assoc. Prof. Mellissa Bowen, Dr. Alice Della Penna), Earth Sciences New Zealand), and an advisory group including tangata whenua.

About the PhD Position

The PhD position includes a tax-free stipend / scholarship of NZ\$35,000 per year and covers full university tuition fees. Funding is also available for some expenses, including travel to collaborators and national / international conferences.

The position is open to all nationalities (i.e., the successful applicants do not have to be an NZ or Australian citizen). An international candidate (i.e., non-NZ or non-Australian) will be required to apply for an NZ student visa to be allowed to study in NZ. Where English is not an applicant’s first or native language, evidence of English language proficiency that meets the requirements for Postgraduate Study at the University of Otago (<https://www.otago.ac.nz/study/entry-requirements/language-requirements>) will be required.

About the PhD Candidate

Applicants should have **completed** an M.Sc. and/or B.Sc. (Hons) degree in one or more of the following disciplines: oceanography, physics, mathematics or computer science. Strong

skills in data analysis, written and oral communication and coding in MATLAB, Python, Julia and/or Fortran are also essential.

Interested applicants should contact Dr Robert Smith at robert.smith@otago.ac.nz and attach:

- (i) a Curriculum Vitae,
- (ii) a copy of your academic transcript(s),
- (iii) a brief statement of research experience and interests,
- (iv) an indication of your potential start date.

Shortlisted applicants will also be requested to provide the names and contact details of two academic referee willing to provide confidential comments on your suitability for the project.

The **Department of Marine Science** was established in 1992, but we have a long history of marine research and teaching at the University of Otago. We are a multidisciplinary department with research strengths in both biological and physical marine sciences. We offer undergraduate and postgraduate degrees focusing on pure and applied marine science, and aquaculture. Information about the Department of Marine Science, its staff, current teaching and research, can be obtained from <http://www.otago.ac.nz/marinescience>

Te Moana Mahana (*Ocean change forecasting for climate resilience in Aoteroa*) is an \$8.9 million, five-year research programme funded by the Ministry of Business, Employment and Innovation (MBIE). The research programme is examining how offshore ocean changes are driving New Zealand's extreme weather and impacting our coastal waters. We are also investigating the community experience of the ocean and pathways to policy and adaptation. The research team includes 14 experts from the universities of Auckland, Otago and Canterbury; Earth Sciences New Zealand; and Australia's national science agency, CSIRO. Information about the research programme can be obtained from <https://te-moana-mahana.org/>