Postdoctoral Research Fellow in Biogeochemical Modelling

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| **College/Division** | College of Science and Engineering |
| **School/Section** | Institute for Marine and Antarctic Studies |
| **Location** | Hobart |
| **Classification** | Academic Level A |
| **Reporting line**  |  Tyler Rohr |

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#  Application Instructions

# Email a CV and 1 page Cover Letter to tyler.rohr@utas.edu.au. Application will be considered until Jan 15th, 2024

#  Position Summary

The University of Tasmania is building a vision of a place-based University with a mission to enhance the intellectual, economic, social and cultural future of Tasmania, and from Tasmania, contribute to the world in areas of distinctive advantage. The University recognizes that achieving this vision is dependent on the people we employ as well as creating a people-centered University that is values-based, relational, diverse, and development-focused.

We are seeking to appoint a Postdoctoral Research Fellow in Biogeochemical Modelling in the Oceans & Cryosphere Centre which is part of the [Institute for Marine and Antarctic Studies](https://www.imas.utas.edu.au/).

The Postdoctoral Research Fellow will be based at the Institute for Marine and Antarctic Studies within the Oceans & Cryosphere Centre and will contribute to the research project “Constraining the additionality problem for Ocean Alkalinity Enhancement (OAE)”, made possible by the ICONIQ Impact Ocean Co-Lab. The aim of this project is to enable the quantification of additionality during large-scale OAE simulations by making experimentally-informed improvements to a global coupled-biogeochemical (BGC) model.

# Anthropogenic OAE poses a promising mechanism to reduce atmospheric CO2 by shifting the speciation of the carbonate system in order to increase the ocean’s carbon reservoir. However, this shift in carbonate chemistry is associated with an increase in the saturation state for CaCO3 which, in turn, may trigger a reduction in the 'natural' alkalinity source by decreasing CaCO3 dissolution across coastal sediments and open ocean corrosive microenvironments such as marine snow and zooplankton guts. This reduction of natural alkalinity could decrease the CO2 sequestration potential of OAE.

# Modelling work will be complemented by experimental quantification of additionality in coastal sediments and open ocean microenvironments contemporaneously conducted at IMAS. This position will work closely with experimentalists and modelers across IMAS and CSIRO to incorporate these mechanisms into Australia’s next generation Earth System Model, ACCESS-OM3. The ultimate goal is to run a suite of experiments to evaluate the additionality of OAE at global scale, and thereby quantify the net climatic benefit of OAE.

# The position has a strong team focus and will collaborate across an exciting nexus of emerging research into marine carbon dioxide removal based in Hobart. We expect the applicant to be excited by these research questions and bring strong quantitative, analytical, and computational skills to the activities of the group. The position is fixed term for a period of 2 years, with the likely possibility to extend for 6-12 months.

# We are an inclusive workplace committed to ‘working from the strength that diversity brings’ reflected in our Statement of Values. We are dedicated to attracting, retaining and developing our people and are committed to inclusive principles. We celebrate the range of diverse assets that gender identity, ethnicity, sexual orientation, disability, age and life course bring.

*The intention of this position description is to highlight the most important aspects, rather than to limit the scope or accountabilities of this role. Duties above may be altered in accordance with the changing requirements of the position.*

**Position Details and Compensation**

**Supervisory Team:** Tyler Rohr (IMAS) and Pearse Buchanan (CSIRO)

**Term:** 1 year; to be renewed annually (up to 3 years total)

**Starting Salary:** AUD 97,471.27; stepping up annually

**Superannuation:** 17% annual contribution to nominated fund

**Relocation Allowance:** AUD 10,000

**Travel Allowance:** AUD5,000 per annum for conference/work travel

**Total Compensation (Appx):** AUD 120,000 in plus relocation.

**Start Date:** ASAP, but flexible/negotiable

**What You’ll Do**

* Lead a suite of model developments to resolve the mechanisms needed to constrain OAE additionality. This will include work to:
	+ Force ACCESS-OM3 with a regional, non-steady-state diagenetic model for ocean sediments, which includes sophisticated CaCO3 dissolution kinetics.
	+ Implement an improved parameterization for dissolution of pelagic particulate inorganic carbon in corrosive microenvironments.
	+ Tune model parameters/processes toward experimental results.
* Run a suite of targeted simulations to quantify the net climatic benefit of OAE across scales.
* Work collaboratively with experimental and modelling team members as well as across related projects at IMAS and CSIRO (Climate Recovery Institute, CarbonLock)
* Disseminate research findings through high profile publications and presentations.
* Fulfil reporting obligation to funding body.

# What We’re Looking For (success criteria)

* A PhD in a relevant area of science, including chemical and physical oceanography, chemistry, biogeochemistry, and/or other geophysical sciences.
* Strong quantitative and programming skills. Experience in high performance computing environments and model development is highly desirable but not required.
* A good record of, and continuing commitment to, research that has achieved national recognition and made worthwhile contributions to the field, demonstrated by a record of quality publications, presentations at conferences.
* A high level of enthusiasm and desire to learn new skills to achieve impactful results in an urgently important field of study.

**Other position requirements *(delete those not applicable)***

* Regular intrastate/ interstate/ international travel
* Regular virtual meeting participation as required, including in different time zones.