



Postdoctoral Research Fellowship in polar ocean modelling and teaching

Introduction

The Marine and Antarctic Research Centre for Innovation and Sustainability (MARIS) is an interdisciplinary, multi-department and multi-faculty research unit of the University of Cape Town (UCT). It is an aggregator of competence and expertise that considers multiple bodies of knowledge (including academic and technological) in relation to societal benefits, with the overarching aim of producing knowledge and human capacity in marine and Antarctic research. MARIS promotes and manages inter- and transdisciplinary marine research projects within UCT and with national and international partners.

Call for Applications

MARIS-UCT invites applications for a Postdoctoral Research Fellowship involving teaching and research as part of the SAMOS project funded by ERASMUS+ (<https://samos-edu.eu/>), and the philanthropic Whales & Climate research project (<https://whalesandclimate.org/>).

The fellowship will contribute to the development of numerical ocean models of Antarctic sea ice, as well as expanding the lecturing capacity of the Department of Oceanography in polar oceanography. The incumbent is expected to dedicate approximately 40% of the time to teaching undergraduate and postgraduate courses and 60% for research. Undergraduate teaching will consist of selected modules from SEA3004F, Ocean and Atmosphere Dynamics. For the postgraduate teaching component, the successful candidate will contribute to the lecturing of the following SAMOS components:

- Core 2: physical oceanography of the Southern Ocean
- Core 3: quantitative methods for ocean sciences
- Specialized electives: Introduction to numerical ocean modelling

For the research component, the candidate will focus on the improvement of sea-ice rheology parameterizations and the response to waves-in-ice using offline and online numerical simulations conducted with the NEMO engine at $\frac{1}{4}$ of a degree resolution. The postdoctoral fellow is expected to design and conduct further simulation experiments to elucidate the role of the various drivers and climate components in determining Antarctic sea-ice volume, and to contribute to the development of parameterizations that will improve the description of Antarctic sea ice rheology. The outcome is to increase our confidence on the simulations of the Antarctic marginal ice zone as a habitat for whales foraging and its response to the Southern Ocean warming.

The incumbent, if progress is satisfactory, will continue this work as part of a new project funded by the European Union and expected to start in January 2027.

The postdoctoral fellow is expected to lead and design its own research, and to contribute to knowledge transfer within the team of post-graduate students. The successful incumbent will participate in monthly project meetings with collaborators and disseminate findings through peer-reviewed publications and conference presentations. The Fellow will be

hosted in the **Department of Oceanography** and will be advised by **Prof Marcello Vichi**.

Key Requirements

- A PhD in oceanography, atmospheric Science, applied mathematics, climate science, or a closely related discipline (awarded within the last 5 years)
- In alternative, evidence of PhD thesis submitted for evaluation (in the same disciplines as above), with PhD degree to be obtained within maximum 6 months from the date of closing of this advert.
- Experience with numerical ocean models and model output analyses.
- Proven experience in scientific computing and programming languages
- Strong communication and collaborative skills for working in a multidisciplinary team.

- Excellent communication (oral and written) in English.
- Evidence of relevant publication records beyond the thesis.
- Applicants may not previously have held full-time permanent professional or comprehensive academic posts.

Funding

The value of the Fellowship award is **R384,000** per year for 36 months (3 years), to be renewed every year pending performance assessment and funding availability. The assessment will be conducted in November, with the presentation of a scientific report and the list of produced deliverables.

Postdoctoral Research Fellowships are non-taxable, meaning fellowships must be granted without fringe benefits or any other additional benefits.

To apply:

Send an email application to **Mrs. Cashifa Karriem** (cashifa.karriemi@uct.ac.za) with the subject "MARIS Postdoctoral Fellowship" and **attach the following documents:**

1. Cover letter describing research experience, interests, and collaborative experience
2. Academic curriculum vitae with list of publications and conference presentations included
3. Certified transcripts of academic qualifications at the tertiary level
4. Contact details for 2 people willing to write reference letters

Closing date for applications: 03/04/2026

For further information, please contact: **Prof Vichi** (marcello.vichi@uct.ac.za)

The University of Cape Town reserves the right to disqualify ineligible, incomplete and/or inappropriate application. The University of Cape Town reserves the right to change the conditions of award or to make no awards at all. The successful incumbent must be prepared to comply with the University's approved policies, procedures and practices for the postdoctoral sector.