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POSITION DESCRIPTION

Postdoctoral Fellow – Oceanographic Data Scientist

Position Level	A
Faculty/Division	Science
Position Number	00203945
Original document creation	11/10/ 2024

Position Summary

The Coastal and Regional Oceanography group is a dynamic team of researchers, including academics, postdocs, technical staff, and PhD students conducting research focussed on the dynamics of the East Australian Current System and the shelf circulation along the coast of southeastern Australia. The team are based in the School of Biological Earth and Environmental Sciences with close collaborations with the School of Maths and Statistics. UNSW has notable strengths in Oceanography, Marine Science, Geophysical Fluid Dynamics, Data Science, and Statistical Analysis and Methods and is consistently ranked in the top 25 universities in the world for Oceanography (ARWU).

The primary research goal of the Coastal and Regional Oceanography group is to make a major contribution to understanding and predicting our coastal oceans and their interaction with the mesoscale boundary currents. The group uses modern observations (e.g., moorings, gliders, HF Radar, crowd sourcing ocean data from Fishing Vessels) and satellite remote sensing in combination with advanced numerical modelling to explain fundamental ocean dynamics, and to gain a quantitative understanding of their impacts on coastal ocean bio-geo-chemical processes. The group are a lead organisation in Australia's Integrated Marine Observing System (www.imos.org.au), responsible for the ongoing operation of the ocean-observing programme along southeastern Australia. The group has expertise in the Regional Ocean Modelling System

(ROMS) and 4DVar data assimilation, with strong links to international collaborators. The group collaborate locally with state agencies on applied aspects of bio-physical oceanography.

The role of the Postdoctoral Fellow: Physical Oceanographer – Data Scientist is to contribute to the development and maintenance of high-quality data products from oceanographic data and contribute to the dissemination and uptake of ocean data largely from the Integrated Marine Observing System (www.imos.org.au) along southeastern Australia.

The Postdoctoral Fellow will report to Prof. Moninya Roughan. While the role does not involve any supervisory responsibilities, the possibility exists to contribute to the co-supervision of students, and it is expected that the appointee will engage and collaborate with other members of the UNSW Oceanography team. Further opportunities exist to collaborate with the Australian oceanographic community through involvement in IMOS

Accountabilities

Specific accountabilities for this role include:

- Manage the technical aspects of oceanographic databases, including coordinating and executing data cleaning, data processing (real time and delayed mode), data management processes and ensuring research integrity in research databases. Take responsibility for data QA/QC (real time and delayed mode) a variety of oceanographic instruments and variables.
- Contribute to the development and maintenance of Python code and toolboxes for ocean data processing, analysis, and visualisation.
- Contribute to the development of real-time data delivery tools and techniques and real-time data display.
- Collaborate with the research team in carrying out original and independent research into the dynamics of the East Australian Current System and continental shelf processes to achieve project outcomes.
- Contribute to the writing of high-quality research articles and/or technical reports for prompt publication in peer-reviewed academic journals and communicate project outcomes at conferences, seminars and to industry partners.
- Provide quantitative data analysis, and research as required to support various research, consultancy and development projects and grant applications.
- Represent the project and the University at national and international conferences and/or workshops relevant to the project as required.
- Build and maintain networks with national and international ocean observing and modelling communities.
- Perform project administrative tasks as required, e.g., contribute to the development of project planning documents, budgets, and regular reporting.
- Assist with the supervision of research students in the research area where required.
- Participate in collection of oceanographic data through participation in Research Cruises aboard large and small vessels as required.

- Align with and actively demonstrate the [UNSW Values in Action: Our Behaviours](#) and the [UNSW Code of Conduct](#).
- Cooperate with all health and safety policies and procedures of the university and take all reasonable care to ensure that your actions or omissions do not impact on the health and safety of yourself or others.

Skills and Experience

- PhD and documented research experience in physical oceanography.
- Proficiency working with, organising and analysing large geophysical from ocean observing systems (e.g., Argo, satellite, HF Radar, glider, XBT and oceanographic mooring data, ADCP, CTD, FishSOOP, etc) and ability to critically assess oceanographic data including QA/QC.
- Strong track record in regional dynamical oceanography; and the ability to analyse and critically assess oceanographic models and observational data as evidenced by publications in internationally recognised peer reviewed journals.
- Excellent programming ability, including proficiency in Python and NetCDF; and experience working with Linux, high-performance computing environments and GitHub or similar.
- Experience with cloud computing highly desirable.
- Scientific writing skills in English, as evidenced by publications in internationally recognised, peer-reviewed journals and technical reports.
- Demonstrated self-motivation and ability to work independently with limited supervision.
- Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
- Strong interpersonal skills with demonstrated ability to communicate and interact with a diverse range of stakeholders and students.
- Attention to detail and an ability to organise and prioritise tasks and manage projects in a timely fashion.
- An understanding of and commitment to UNSW's aims, objectives and values in action, together with relevant policies and guidelines.
- Knowledge of health and safety responsibilities and commitment to attending relevant health and safety training.

Pre-employment checks required for this position

- Verification of qualifications

This Position Description outlines the objectives, desired outcomes, key responsibilities, accountabilities, required skills, experience and desired behaviours required to successfully perform the role.