



## POSTDOCTORAL FELLOW – DEPARTMENT OF OCEANOGRAPHY (Full-time, 3-year contract)

**Location:** Marine and Antarctic Research for Innovation and Sustainability (MARiS), University of Cape Town and Southern Ocean Carbon-Climate Observatory (SOCCO), CSIR, Cape Town

The Marine and Antarctic Research for Innovation and Sustainability (MARiS) (<https://maris.uct.ac.za/>), Department of Oceanography at the University of Cape Town (UCT) and the Southern Ocean Carbon-Climate Observatory (<https://socco.org.za/>) at the Council for Scientific and Industrial Research (CSIR) invites applications for **two Postdoctoral Fellowships** as part of a large international, interdisciplinary project, *WAM: “Oxygen and Biogeochemical Dynamics Along the West African Margin”*, funded by [Schmidt Sciences](#) under the Ocean Biogeochemistry Virtual Institute ([OBVI](#)).

The WAM project's research domain is the West African ocean margin, a highly productive zone, critical for supporting key fisheries and marine diversity. This region is characterised by significantly low oxygen regions that make it particularly susceptible to future environmental changes such as deoxygenation, which could have major socio-economic consequences for several West African countries. These two postdoctoral positions will form part of a research cohort that includes postdocs, PhD students, and researchers at all career stages. While closely connected through shared objectives and collaboration, each position offers a distinct research focus, providing both integration within a cohesive team and the opportunity for independent scientific contributions. Both Postdoctoral Fellowships will be expected to supervise postgraduate students, and to support teaching and outreach activities. The selected candidates will be appointed at UCT in the Department of Oceanography, working collaboratively between SOCCO and UCT. This opportunity will be based in Cape Town. The salary is non-taxable and the 3 year contract is extended annually upon successful evaluation.

### **Postdoctoral Fellowship 1 - Fine-Scale Physical–Biogeochemical Processes and Oxygen Variability**

The primary aim of the first Postdoctoral Fellowship will be to investigate fine-scale physical–biogeochemical processes driving oxygen variability along the West African margin. Using a variety of high-resolution glider observations, including optical estimates of chlorophyll and carbon (fluorescence and backscatter), dissolved oxygen, nitrate (e.g., SUNA), derived primary production, and export flux estimates. The research will link nutrient supply, biological productivity and export to key physical drivers such as advection, mixing, and frontal activity across seasonal time scales. The work will involve detailed analysis of glider-based biogeochemical datasets, integration with complementary satellite and model products, and quantification of the physical and biogeochemical processes controlling oxygen variability in this dynamic and economically important system.

### **Postdoctoral Fellowship 2 - Wave-Current-Wind Interactions and Air–Sea Gas Exchange**

The second Postdoctoral Fellowship will investigate the role and interactions of waves, currents and wind in driving surface ocean turbulence (mixing) and the subsequent role in modulating air–sea gas exchange (oxygen and carbon dioxide). This will be carried out using in situ observations from co-ordinated “twinning” deployments of surface Wave Gliders and Slocum buoyancy gliders, equipped with microstructure shear probes, ADCP, wave height sensor, surface meteorological and CO<sub>2</sub> flux sensors (VeGAS-pCO<sub>2</sub>). Integration with satellite-derived reanalyses products, wave model simulations, and turbulence theory will allow the fellow to assess how wind–wave–bubble mixing processes influence CO<sub>2</sub> and O<sub>2</sub> exchange at event-to-seasonal scales, and how these processes may contribute to regional differences in carbon and oxygen budgets.

The Postdoctoral Fellows will be expected to contribute to experimental design and the implementation of the glider field campaigns, ensure the community best practices for pre-deployment calibration of glider sensors (oxygen) are followed, and assist in quality control of resultant datasets. They will additionally be expected to participate in the broader OBVI consortium activities, with opportunities for international interdisciplinary research exchanges.

### **REQUIREMENTS:**

- A Ph.D. degree achieved within the past 5 years in a relevant field (e.g., oceanography, environmental/Earth science, chemistry, physics).
- Applicants have not previously held comprehensive professional or permanent academic positions.
- Experience conducting oceanographic research with ocean robotics (gliders).
- Experience measuring and interpreting dissolved oxygen data from the ocean
- An understanding of upper-ocean physical processes (surface boundary layer) and (sub)mesoscale dynamics.
- Strong coding experience (e.g., Matlab/Python) towards data processing, analysis, and visualisation.
- A desire to participate in research cruises.



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- Effective communication skills (oral, written, and presentation).
- Capacity for independent work and working under pressure.
- A track record of conference presentations and publications in peer-reviewed journals
- Experience in analysis of ocean microstructure data (PD2)
- Experience of student supervision
- Experience working in low-oxygen and/or low-nutrient marine environments.
- Multiple first-author publications in international peer-reviewed journals encouraged

### **Applicants must attach the following documents:**

- Curriculum Vitae highlighting relevant skills and experience.
- Cover letter describing research experience and alignment with advertised position.
- Three referee names, include position details and relationship to you, as well as contact details (email and phone number).

References may be requested by UCT at any stage of the selection process.

Any enquiries for the position to be addressed to **Dr Sarah Nicholson (snicholson@csir.co.za)**

**Closing date: 30 August 2025**

*UCT reserves the right not to appoint.*