

## Research Associate – Paleo ice sheet modeller

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College/Division	College of Sciences and Engineering
School/Section	Institute for Marine and Antarctic Studies – Oceans and Cryosphere
Location	Hobart – Salamanca
Classification	Academic Level A/B
Reporting line	Poul Christoffersen

### Position Summary

The University of Tasmania (UTAS) 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 recognises that achieving this vision is dependent on the people we employ as well as creating a people-centred University that is values-based, relational, diverse, and development-focused.

The Research Associate will use ice sheet models or ice sheet reconstructions combined with machine-learning to investigate the sensitivity of the East Antarctic ice sheet (EAIS) to past and future climate change. This position is part of the ARC Australian Centre for Excellence in Antarctic Science (ACEAS), a national-scale, University-led, international centre focused on helping the world community prepare for climate risks emerging from East Antarctica and the Southern Ocean by integrating knowledge of the ocean, atmosphere, cryosphere and ecosystems, and their interplay. ACEAS will grow to support the activities of around 150 researchers, administrative staff, and students, with exciting opportunities to collaborate across disciplinary and institutional boundaries. Further information on ACEAS is available at <http://antarctic.org.au/>.

In this post, we are looking for a person to develop and lead a programme of work that explores how the EAIS has influenced global sea levels during past warm periods. The work will provide an integrated view of the ice sheet's warm past and its possible warm futures, using marine records and other available data to constrain simulated ice sheet behaviour and reconstructions.

The candidate will investigate the EAIS behaviour during past warm climates using a numerical ice flow model or suitably trained statistical emulator. Whether the approach is physics-based or based on machine learning, or both, we seek a better quantitative understanding of EAIS during periods of climatic change. The research will be informed by marine records, which include new cores collected by ACEAS in the Totten and Denman region where contemporary EAIS mass losses are centred. The specific research objectives will be developed collaboratively by the candidate, who will work closely with paleoceanographers, marine geoscientists, physical oceanographers and climate scientists, as well as other ice sheet modellers in ACEAS.

**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. Applications are encouraged from all sectors of the community. Tell us how we can make this job work for you.**

## What You'll Do

In this project, the candidate is expected to:

- Develop and apply either a physics-based ice flow model or statistical 'surrogate' ice sheet model from which past changes in the EAIS can be better understood.
- Integrate marine records and work collaboratively with ACEAS scientists who are using marine seismic reflection and sediment provenance to reconstruct the EAIS during past climatic states in the Totten and Denman region.
- Formulate a research strategy in which numerical modelling and marine records are integrated in order to answer science questions, e.g. how did EAIS respond during past warm periods? How can models of EAIS during past warm periods help reduce uncertainty in long-term future projections?

More generally, the candidate will be expected to:

- Maintain a strong focus on communicating research findings by publishing in highly ranked journals and presenting work to peers at local, national and international conferences.
- Work collaboratively in an interdisciplinary research team to achieve collective as well as individual outcomes.
- Take on leadership opportunities that arise and contribute to the collegiate life of ACEAS/IMAS such as contributing to PhD supervision, committee membership, leading workshops, etc.
- Undertake other duties as assigned by the supervisor.

## What We're Looking For (success criteria)

- A PhD in Earth science, Geophysics, Maths or another relevant discipline
- Previous experience in ice flow modelling or glaciological machine learning applications, as demonstrated by a record of high quality publications.
- Demonstrated ability to work efficiently and independently, with a capacity to set and prioritize strategic research directions, and to design and complete collaborative research programs to achieve agreed scientific goals.
- Demonstrated ability to work collaboratively in a research team covering multiple disciplines and achieve collective goals as well as individual outcomes.
- A strong interest in glaciology, marine geoscience and the East Antarctic ice sheet

## Other desirable criteria

- Familiarity with ice sheet models suitable for paleo-ice sheet simulations or machine learning relevant for setting up surrogate statistical models.
- Previous experience in data assimilation or other types of work that combines models and observations
- Experience in Antarctic research including climate-ice sheet interactions over long time scales.
- Ability to effectively communicate results to a variety of audiences and stakeholders

## University of Tasmania

The University of Tasmania is an institution with an enduring commitment to our state and community, and a strong global outlook. We are committed to enhancing the intellectual, economic, social and cultural future of Tasmania. Our [Strategic Direction](#) strongly reflects the University community's voice that our University must be place based but globally connected as well as regionally networked and designed to deliver quality access to higher education for the whole State.

We believe that from our unique position here in Tasmania we can impact the world through the contributions of our staff, students and graduates. We recognise that achieving this vision is dependent on the people we employ, as well as creating a university that is values-based, relational, diverse, and development-focused.

Check out more here: <https://www.utas.edu.au/jobs>

*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.*