Ice Sheet Modeller

Reference: BAS 24/95

Band: E

Contract Type: Fixed Term Appointment – until March 2027

Location: Cambridge

Interview Date: TBC

Purpose:

The Antarctic Ice Sheet is losing mass at an accelerating rate and contributing to sea-level rise, with far-reaching impacts on coastal populations and infrastructure around the globe. Coastal planners, governments and other key decision makers require projections of future sea-level rise with quantified uncertainties to make robust mitigation and adaptation decisions. The largest uncertainties in future sea level and cryosphere change are related to the Greenland and Antarctic ice sheets, and high-impact, low-likelihood scenarios of many metres of sea level rise within centuries cannot be ruled out (IPCC AR6). This deep uncertainty is largely due to poorly understood processes in the ice sheets that may lead to ice sheet instabilities in the future. While these processes have the potential to strongly increase Antarctic mass loss, including their influence in models and accounting for the many sources of uncertainties remains challenging. The British Antarctic Survey (BAS) is looking to recruit an Ice Sheet Modeller to join our research programme focused on addressing this deep uncertainty in future ice loss from Antarctica. Our overarching goal is to improve our understanding of ice dynamics in order to reduce uncertainties in projections of Antarctica's sea-level contribution over policy-relevant timescales (from the present day to the coming few centuries).

We are looking for someone whose proposed research will enhance BAS's capability to deliver on the big questions facing society over the coming decades and centuries: how much and how fast will the Antarctic Ice Sheet contribute to global sea level rise? This post is aligned with a strategic initiative to deliver on the new BAS Science Strategy. There will be significant scope to tailor the position to the candidate's interests, aligned with the interests of the research community at BAS. Research interests of the group include, but are not limited to, modelling ice-ocean or ice-atmosphere interactions, machine learning/emulation for projections, combining observations and models, and modelling dynamic ice-sheet processes (e.g. ice fracture). An enthusiasm for integrating machine learning, emulation, and/or optimal experimental design (active learning) techniques into ice sheet modelling and sea level rise science is desirable. Specific experience of using machine learning in a glaciological context is not essential.

The successful candidate will join the Ice Dynamics and Palaeoclimate Team at BAS, which includes ice sheet modellers, ice core scientists, Earth system modellers and geophysicists. BAS is an interdisciplinary and collegiate organization and strong collaborations between science teams are core to our work; the successful post-holder will have opportunities to build on and develop collaborations across BAS. Support and training will be provided to enable the successful candidate to make use of the opportunities BAS has to offer and to develop their scientific career.

The start date for this role is flexible, but ideally autumn/winter 2024. If this role appeals to you, we'd love to hear from you, whatever your background. Informal enquiries about this post are very welcome and should be addressed to Rosie Williams (chll1@bas.ac.uk).

Duties:

- Deliver high quality scientific research that addresses key questions of Antarctic ice sheet change over policy-relevant timescales (present day to future centuries).
- Disseminate research findings through high-impact peer reviewed journal articles, reports and presentations, clearly highlighting novel results and their impact.
- Work with scientists across BAS in contributing to research proposals to deliver innovative research on future sea level change from Antarctica.
- To work both independently and with small teams to contribute ideas, direct projects, and mentor other scientists.
- To engage with the academic life and activities of British Antarctic Survey, NERC and UKRI.

Skills Specification

Qualifications

Essential:

A PhD in a relevant field, plus post-doctoral experience.

Skills & Experience

Essential:

Expertise in developing and delivering research on ice sheet modelling with a focus on policy-relevant timescales (present day-coming centuries).

Excellent track record of disseminating research results through the publication of high-quality reports, peer-reviewed literature, and conference presentations.

Excellent numerical skills commensurate with this field, which include running models and analysing model data.

Previous experience of managing oneself and resources/components of projects to meet objectives and deadlines.

Proficient in written and spoken English language. In particular, the ability to present science in a clear and compelling way to a variety of stakeholders.

Desirable:

An interest in one of more of the following areas:

- Incorporating techniques such as machine learning, AI, optimal experimental design (active learning), and uncertainty quantification into projections of future sea level contribution from the ice sheets and glaciers.
- Ice sheet interactions with other parts of the Earth system e.g. ice-ocean or ice-atmosphere interactions.
- Combining observations and models.
- Modelling processes within the ice sheets.

Proven track record in model related problem solving/debugging and model development.

Experience of mentoring researchers.

Other factors

Essential:

Ability to show initiative and to tackle problems independently as well as part of a team.

The role holder will be required to have the appropriate level of security screening/vetting required for the role. UKRI reserves the right to run or re-run security clearance as required during the course of employment.

British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Who are we?

British Antarctic Survey (BAS) delivers and enables world-leading interdisciplinary research in the Polar Regions. Its skilled science and support staff based in Cambridge, Antarctica and the Arctic, work together to deliver research that uses the Polar Regions to advance our understanding of Earth as a sustainable planet. Through its extensive logistic capability, BAS facilitates access for the British and international science community to the UK polar research operation. Numerous national and international collaborations, combined with an excellent infrastructure help sustain a world leading position for the UK in Antarctic affairs. British Antarctic Survey is a component of the Natural Environment Research Council (NERC). NERC is part of UK Research and Innovation www.ukri.org.

We employ experts from many different professions to carry out our Science as well as to keep the lights on, feed the research and support teams and keep everyone safe! We aim to attract the best people for our jobs. If you are looking for an opportunity to work with amazing people in amazing places, then British Antarctic Survey could be for you.

Our vision

At BAS, our vision is to be a world-leading centre for polar science and operations. Making our vision a reality depends on the excellence and diversity of our staff. We are committed to creating a workplace where all our staff can flourish and succeed. BAS is a Disability Confident employer, we are proud to hold a silver Athena Swan award and we are a member of enei, the Employers Network for Equality & Inclusion.

Working at BAS

Choosing to come to work at BAS means that you will have access to a whole host of benefits from a defined benefit pension scheme, excellent holiday entitlement, access to employee shopping/travel discounts and salary sacrifice cycle to work scheme. You can find out more about our benefits here.

We appreciate the importance of achieving work-life balance and support this with several family and carer-friendly policies. Plus, a flexible working policy for those who may wish to amend their working pattern or arrangement. We also operate a hybrid working policy to support the balance of working time between the office and home.

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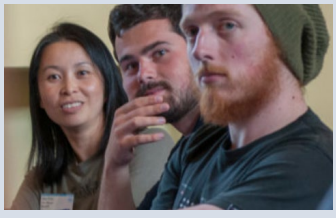
About British Antarctic Survey


Our Organisation


Our Vision and Mission


Careers at BAS - introduction


Working for BAS