



UNIVERSITY OF LEEDS

## CANDIDATE BRIEF

Research Fellow in Modelling Climate-Ice Sheet Interactions, Faculty of Environment



**Salary: Grade 7 (£37,099 - £44,263 p.a. depending on experience)**

**Reporting to: Associate Professor, Dr Lauren Gregoire**

**Reference: ENVEE1755**

**Fixed term for 24 months to complete specific time limited work.**

**Location: University of Leeds (with scope for hybrid working)**

**We are open to discussing flexible working arrangements.**

## Overview of the Role

In this role, you will join a large international team of scientists from the [SWAIS-2C project](#) “Sensitivity of the West Antarctic Ice sheet to 2 °C of Warming” and work with [Dr Lauren Gregoire](#) to understand the drivers of past Antarctic ice sheet collapse. The SWAIS-2C international team are drilling the sediments below the Ross Ice Shelf to reveal how much of the West Antarctic ice sheet melted when the climate was warmer than present, thus revealing how sensitive the ice sheet is to the 1.5-2°C Paris Agreement warming target. Your role in the project will be to run and analyse the first coupled climate-ice sheet simulations of the Last Interglacial period (127,000 years ago) from the UK flagship Earth System Model [UKESM](#) on national [High-Performance Computing facilities](#). You will be supported by technical and scientific experts from the [Centre for Environmental Modelling And Computation \(CEMAC\)](#) and National Centre for Atmospheric Science. The aim is to evaluate the climate and ice sheet mechanisms driving Antarctic ice sheet retreat or collapse during past warm interglacials, including ocean circulation changes, marine ice sheet instabilities and tipping points. The work will further our understanding of the key mechanisms in future ice sheet evolution, test the complex models used to make projections and contribute to the next IPCC reports.

You will work closely with the UK SWAIS-2C team of 8 UK academics and 6 postdoctoral researchers led by Prof. Tina Van de Flierdt and Dr Ed Gasson, working across Imperial College London, the University of Exeter, UCL, the British Antarctic Survey and Durham University. This UK team will apply a range of techniques to reconstruct and model the past evolution of the West Antarctic ice sheet. You will also have opportunities to visit and collaborate with international SWAIS-2C scientists from New Zealand, the United States, Germany, Australia, Italy, Japan, Spain, Republic of Korea and the Netherlands being part of a vibrant community of researchers.

You will have, or be close to obtaining, a PhD in Climate Science, Meteorology or Glaciology and extensive experience using complex models and observations to study climate and/or ice sheet processes. You may have experience working on closely related topics such as the evolution of quaternary climate and ice sheet or interactions between the Antarctic ice sheet and the Southern Ocean.

Applications for part-time work or other flexible working arrangements are encouraged. There is a possibility of extending the duration of the post depending on the start date, salary and funding availability.



## Main duties and responsibilities

- Work with Dr Lauren Gregoire and researchers from the SWAIS2C team to further our understanding of past Antarctic ice sheet collapse;
- Design, set up, run and analyse simulations of the Last interglacial period (127,000 years ago) with the [UKESM](#) earth system models coupled to the [BISICLES](#) ice sheet model on the [ARCHER2](#) High-Performance computer;
- Combine model results with available data from the SWAIS2C project and other projects to evaluate the sensitivity of the West Antarctic ice sheet to ocean warming during past warm interglacials;
- Develop research objectives and model experimental design and contribute to setting the direction of the research project in collaboration with members of the team, international scientific collaborators and project partners;
- Evaluate methods and results from the literature on the Last Interglacial period and Antarctic ice sheet and relate such evaluations appropriately to your own work;
- Prepare papers for publication in leading international journals and disseminate research results and outputs through conference presentations and other recognised forms of output;
- Work both independently and as part of a larger team of researchers, engage in knowledge-transfer activities where appropriate and feasible;
- Maintain your own continuing professional development and act as a mentor to less experienced colleagues as appropriate;
- Contribute to the training and mentoring of undergraduate and/or postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

## Qualifications and skills

### Essential

- A PhD or near completion (i.e. initial thesis to be handed in before the start date) in climate, ocean or atmospheric science, glaciology or a closely allied discipline;
- A strong background in climatology and a good knowledge of glaciology, including interactions between the climate and ice sheets;
- Demonstrated expertise in setting up and running complex climate and/or ice sheet model simulations on high-performance computers;



- Extensive experience in managing, processing, visualising and analysing complex and multi-dimensional climate data, and excellent experience in scientific programming using FORTRAN, R or Python;
- Good time management and planning skills (with the ability to manage competing demands and work effectively to meet deadlines without close support) and a proven ability to work well both individually and in a team;
- Excellent written and verbal communication in English, including good presentation skills and the proven ability to write clearly and succinctly for publication;
- A strong motivation to work on this project and a commitment to your own continuous professional development.

### Desirable

- Experience modelling Quaternary changes in climate and/or ice sheets;
- Knowledge of Antarctic ice sheet dynamics and interaction with the Southern Ocean;
- Knowledge of the Last Interglacial climate, ice sheets and sea level;
- A track record of High-quality peer-reviewed publication(s).

## **Additional information**

Find out more about the [Priestley International Centre for Climate](#)

Find out more about the [Faculty of Environment](#)

Find out more about our [School of Earth and Environment](#)

Find out more about our [Research and associated facilities](#).

Find out more about [equality](#) in the Faculty.

### **Our University**

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Environment we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and



particularly encourage applications from, but not limited to Black, Asian, people who belong to a minority ethnic community; people who identify as LGBT+; and disabled people. Candidates will always be selected based on merit and ability.

The Faculty of Environment has received a prestigious Athena SWAN silver award from [Advance HE](#), the national body that promotes equality in the higher education sector. This award represents the combined efforts of all schools in the Faculty and shows the positive actions we have taken to ensure that our policies, processes and ethos all promote an equal and inclusive environment for work and study.

### **Working at Leeds**

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.

### **Candidates with disabilities**

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at [foehr@leeds.ac.uk](mailto:foehr@leeds.ac.uk).

### **Criminal record information**

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

