UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Statistical Emulation of Climate and Ice Sheet Models, School of Earth and Environment

Salary: Grade 7 (£33,199 – £39,609 p.a.)

Reference: ENVEE1344

Closing date: 18 August 2019

Fixed-term for 2.5 years (Due to external funding)

We will consider job share / part time / flexible working arrangements

Research Fellow in Statistical Emulation of Climate and Ice Sheet Models,
School of Earth and Environment, Faculty of Environment

Are you an ambitious statistician looking for your next challenge? Do you want to work with world leaders in glaciology and artificial intelligence to tackle future sea level rise? Do you want to further your career in one of the UKs leading research intensive Universities?

You will join a team of climate scientists, glaciologists and statisticians led by [Dr Lauren Gregoire](#) as part of the prestigious UKRI [Future Leaders Fellowship project](#) "Constraining projections of ice sheet instabilities and future sea level rise". The ambitious and exciting aim of the project is to provide robust estimates of 'worst case' future sea level rise using information from past events when ice sheets became unstable. You will develop SMB-Gen, the first 'emulator' of past climate and ice sheet surface mass balance using cutting-edge techniques in Uncertainty Quantification and Artificial Intelligence. This emulator will be used to simulate past and future instabilities in the Greenland, Antarctic and Northern Hemisphere ice sheets and the resulting sea level rise. There is a possibility of extending this employment as new avenues for research emerge. You will work with partners from the MetOffice, the Environment Agency and energy and transport industries on the co-production of knowledge on 'worst-case' sea level rise. You will be co-supervised by Danny Williamson, Fellow of the Alan Turing Institute and Senior Lecturer at the University of Exeter and will have opportunities for extended visits / secondments to project partners.

You will have, or be close to obtaining, a PhD in Statistics, Machine Learning or a related subject, ideally with expertise in Bayesian optimisation, Gaussian process emulation or Uncertainty Quantification. Experience in applying these techniques in environmental sciences or a familiarity with climatology or glaciology is also desirable. You will have evidence of a strong commitment to publishing and presenting scientific results at an international level and experience in working as part of a team.

What does the role entail?

As a Research Fellow, your main duties will include:

- Designing and analysing ensembles of climate and ice sheet model simulations and combining them with observations to quantify uncertainties in past and future climate, ice sheet and sea level changes;
- Developing a statistical model of past climate and ice sheet surface melt, working in collaboration with Dr Gregoire (glaciologist; UKRI Future Leaders Fellow), Dr Williamson (statistician; Fellow of the Alan Turing institute), Dr Ivanovic (climatologist; Leader of the Paleoclimate Model Intercomparison Deglacial Working Group) and a research fellow in climate modelling;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and contributing to setting the direction of the research project in collaboration with members of the team, international scientific collaborators and industrial project partners;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work;
- Preparing papers for publication in leading international journals and disseminating research results through conference presentations;
- Working both independently and also as part of a larger team of researchers;
- Engaging in knowledge-transfer activities and in the co-production of knowledge on 'worse case' sea level rise with project partners and members of our impact advisory board;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow you will have:

- A PhD or near completion (i.e. initial thesis to be handed in before the start date) in statistics, Machine Learning or a closely allied discipline;
- A strong background in Bayesian statistics;
- Experience in statistical modelling and a proven ability to develop methodology and algorithms in Machine Learning, Uncertainty Quantification or other related subjects;
- Excellent skill in scientific programming (e.g. in R, Python, FORTRAN);
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- A proven track record of peer-reviewed publications in high impact factor journals;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a multi-disciplinary team;
- A strong commitment to your own continuous professional development.

You may also have:

- A background in Uncertainty Quantification, Bayesian Optimisation or Gaussian Process Emulation;
- A proven ability to manage, visualise and analyse large multidimensional datasets;
- Expertise in applying statistical methods to environmental sciences such as climatology or glaciology.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Dr Lauren Gregoire, Lecturer in Earth System Modelling
Tel: +44 (0)113 343 4945
Email: l.j.gregoire@leeds.ac.uk

Additional information

Find out more about Dr Lauren Gregoire's Future Leaders Fellowship

Find out more about the Priestley International Centre for Climate

Find out more about the Centre for Polar Observation and Modelling

Find out more about our School of Earth and Environment

Working at Leeds
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on 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 disclosure@leeds.ac.uk.

Criminal record information
Rehabilitation of Offenders Act 1974
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.