UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Atmospheric Convection and Scale Interactions, Faculty of Environment

Salary: Grade 7 (£39,355 – £46,735 p.a. depending on experience)

Reporting to: Professor John Marsham

Reference: ENVEE1809

Fixed term for 12 months, we expect annual extensions to the activity to form a 3-year project.

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

We are open to discussing flexible working arrangements

Research Fellow in Atmospheric Convection and Scale Interactions, School of Earth and Environment, Faculty of Environment

Commented [JM1]: In text I think it needs to be fixed-term to end March 2026, but we expect continued funding ending end of March 2028.

Overview of the Role

Are you an ambitious researcher looking for your next challenge? Do you have a background in atmospheric science, or the physics/mathematics needed to model the weather and climate? Do you want to apply your skills to understanding the benefits of the next generation of convection-permitting models for weather and climate? Do you want to further your career in one of the UK's leading research intensive Universities?

An exciting opportunity has arisen to work with the Met Office on a project to assess and understand the "upscale" benefits of explicitly modelling atmospheric moist convection on large domains and to evaluate global, pan-tropical and regional convection-permitting simulations.

The representation of atmospheric moist convection in global models is a major challenge in weather and climate prediction. This has led to high-profile calls internationally for much greater use of convection-permitting simulations over large domains. Despite the computational cost, numerous studies have shown how these models can transform our ability to model key physical processes in the climate system, including scale interactions from km to continental scales, and interactions between the atmosphere and underlying land surface system. You will analyse data from new cutting-edge convection-permitting simulations provided by the Met Office to gain physical understanding of the role of convection in weather and climate and so inform future modelling strategies. The analysis performed in the project will be used to inform related research developing AI-based models for weather and climate prediction. You will join the strong atmospheric dynamics group at Leeds, with a long track record of using convection-permitting models to understand processes and scale interactions.

Supervised by Professor John Marsham, Dr Juliane Schwendike and Professor Doug Parker, you will also interact closely with members of the project team at the University of Reading and the UK Centre for Ecology and Hydrology, as well with scientists at

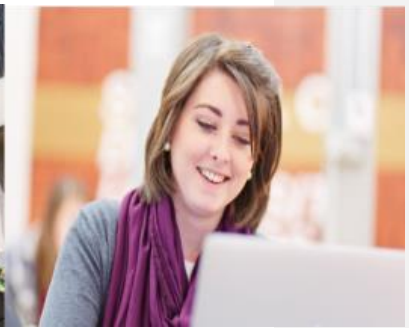
the Met Office. Although the funding is currently for one year, we expect funding to be extended annually to form a 3-year project.

Main duties and responsibilities

- Using innovative theory and diagnostics to assess and evaluate the physics of scale-interactions between convection and large scales and how this affects teleconnections between regions;
- Evaluating the ability of convection-permitting models to represent convection, and upscale impacts on radiation, circulation and heat, water and momentum budgets;
- Meeting regularly with the Met Office and project team, and working together with team members from other institutions to deliver regular project reports to the Met Office;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- 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 other recognised forms of output;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- 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.





Qualifications and skills

Essential

- A PhD or near completion - i.e. the initial thesis needs to have been handed in at the point of application in Physics, Meteorology, or Applied Maths or a closely allied discipline;
- Evidence of excellent scientific thinking, applicable to the physics and fluid dynamics of the climate system; Your experience could be outside of atmospheric science, but you must have skills and experience which can be applied to analyse, understand and work creatively in studying climate dynamics;
- Experience in handling and analysing large datasets, such as those from atmospheric models;
- Strong skills in a suitable programming language, preferably Python;
- Good time management and planning skills, with the ability to meet deadlines, manage competing demands and work effectively without close support;
- A developing track record of peer reviewed publications in international journals;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

Desirable

- Willingness to travel to the Met Office for project meetings;
- Experience in use of convection-permitting models;
- Experience of tropical meteorology, convection and scale interactions;
- Experience of use of the Met Office Unified Model.

Additional information

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.



Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information please visit: www.gov.uk/skilled-worker-visa

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information please visit: https://www.gov.uk/global-talent

Find out more about the Faculty of Environment

Find out more about the School of Earth and Environment

Find out more about our Research and associated facilities

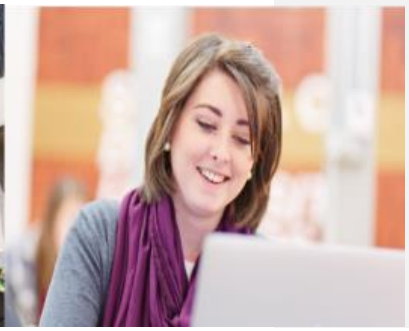
Find out more about Equality and Inclusion in the faculty

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.

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.

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.





Information for disabled candidates
Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at hr@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 page.