



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Climate Impact of Future Aircraft Technology,
Faculty of Environment



Salary: Grade 7 (£38,205 – £45,585 p.a. depending on experience)

Reporting to: Dr Alex Rap

Reference: ENVEE1767

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

Are you an ambitious researcher looking for your next challenge? Do you have a background in atmospheric science? Do you want to further your career in one of the world's leading climate-research groups?

You will join a team of climate and atmospheric scientists at the University of Leeds to work on the Natural Environment Research Council (NERC) and Department for Transport (DfT) funded project '*Contrail Assessment of Future Aircraft and Propulsion Architectures*'. You will work with Dr Alex Rap and Dr Chris Smith to develop the SOCRATES radiative transfer scheme and the Finite amplitude Impulse Response (FaIR) climate model emulator to analyse the climate impact of climate-optimised aircraft designs. You will also collaborate closely with the other researchers involved in the project at the University of Southampton, as well as with our project partners Airbus and Rolls-Royce.

The '*Contrail Assessment of Future Aircraft and Propulsion Architectures*' project is a collaborative project involving research groups at the University of Southampton and University of Leeds, funded through the NERC/DfT "Jet zero: Aviation's non-CO2 impacts on the climate" programme. The overarching aim of the project is to assess the contrail climate impact of future low-CO2 aircraft by incorporating rigorous analysis of turbulence/microphysics interactions into climate-optimised aircraft design.

You will have, or be close to obtaining, a PhD in the field of Atmospheric Science (or a closely related field). You will have knowledge of atmospheric and/or climate modelling and evidence of a strong commitment to publishing scientific results at an international level. Experience of radiative transfer modelling and quantifying aviation climate impacts are desirable.



Main duties and responsibilities

- Working with and in support of Dr Alex Rap to ensure the objectives and deliverables of the project are successfully met;
- Developing the SOCRATES radiative transfer model to investigate the effect of the different contrail microphysical and optical characteristics resulting from alternative technologies;
- Investigating the uncertainty in contrail radiative forcing due to the radiative transfer scheme by performing comparisons between SOCRATES and a line-by-line model;
- Quantifying contrail radiative forcings associated with the full parameter space of likely contrail characteristics for the proposed alternative technologies;
- Estimating policy-relevant aviation climate metrics using the Finite amplitude Impulse Response (FaIR) climate model emulator;
- Exploring the associated aviation climate impact uncertainty considering the balance between different aviation climate impact terms;
- 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 Atmospheric Science or a closely allied discipline;
- Excellent knowledge of atmospheric and/or climate modelling;
- Experience of using radiative transfer models;
- Experience of authoring relevant peer-reviewed publications in high-impact journals;
- A strong background in scientific programming (e.g. Python, Fortran);
- A proven ability to work well both individually and in a team;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- Excellent written and verbal communication skills including presentation skills;
- A strong commitment to your own continuous professional development.

Desirable

- Experience of using a line-by-line radiative transfer model;
- Experience of modelling aviation climate impacts.

Additional information

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. 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.

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.

