



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Hydrological and Environmental Modelling, School of Geography, Faculty of Environment



Salary: Grade 7 (£41,064 – £48,822 p.a. depending on experience)

Reporting to: Professor Mark Smith

Reference: ENVGE1281

Fixed term for 36 months – To complete specific time limited work

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

We are open to discussing flexible working arrangements

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Overview of the Role

Are you an ambitious researcher looking for your next challenge? Do you have an established background in hydrology and climate modelling? Are you looking to make a real-world impact beyond environmental science and work as part of an interdisciplinary team?

Based in the School of Geography, you will contribute to the recently funded research project '**Still Waters: using hydrological models to improve malaria transmission estimates**' funded by the UKRI Natural Environment Research Council (NERC). The project aims to embed hydrological processes in models of malaria transmission using the latest advances in climate science, hydrological modelling and satellite remote sensing. In collaboration with partners in Zambia, we aim to develop a new generation of environmental risk mapping for malaria transmission that can help public health planners target and tailor malaria interventions.

Joining the River Basin Processes and Management research group and working closely with project lead Prof Mark Smith, you will be involved with colleagues across campus, at Aberystwyth University, and partners in Zambia, Hong Kong and Italy. We are looking for an enthusiastic Post-Doctoral researcher with a background in hydrological modelling or environmental modelling more generally to join our team in the University of Leeds. The role involves generating new surface water layers and adapting an existing open-source malaria transmission model (in partnership with the model developer) to embed these new water layers. Model outputs will then be validated using remotely sensed datasets and existing health data. In combination, this permits a more process-based understanding of malaria risk enabling targeting of interventions based on specific eco-hydrological settings.



Main duties and responsibilities

- Using existing high resolution data products of rainfall and temperature to run a two dimensional hydrological model across the Western Province of Zambia;
- Validating model outputs of surface water using provided remotely sensed radar data products and available field data;
- Ground-truthing these model and earth-observation estimates during both wet and dry season field campaigns;
- Working with the developer of an open-source malaria transmission model to enable inclusion of surface water layers differentiated by malaria vector species habitat preferences;
- Running the malaria transmission model for present and future climates;
- Validating these model outputs using health facility data, adjusted for local access considerations;
- Communicating these model outputs to the wider project team, including presenting summaries for Zambian project partners;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- 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 Geography, Civil Engineering or a closely allied discipline;
- A strong background in hydrological modelling including rainfall-runoff and 2D flood modelling;
- Proficient in using coding (e.g., Python, C++) and utilising a High Performance Computing cluster to run hydrological models;
- Experience in using climate change scenario models within hydrological models;
- An ability to write high quality research papers independently with an emerging track record in publishing scholarly articles in peer-reviewed journals in the appropriate subject area;
- A willingness to undertake short field visits as part of data collection;
- Evidenced ability to use initiative and develop and pursue new research ideas in-line with the requirements of the project;
- 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 proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

Desirable

- Experience of pursuing external funding to support research;
- Experience of working in trans-disciplinary teams

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 our [School of Geography](#)

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, those 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.



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.

