



**UNIVERSITY OF LEEDS**

## **CANDIDATE BRIEF**

**Research Fellow in Peatland Ecohydrological Modelling (CongoPeat),  
School of Geography, Faculty of Environment**



**Salary: Grade 7 (£33,797 – £40,322 p.a.)**

**Reference: ENVGE1108**

**Closing date: 10 December 2019**

**Interview date: Expected to take place 18 December 2019**

**Fixed-term for 24 months (full time) or 30 months (part time) at 80%  
(external funding)**

**We will consider job share / flexible working arrangements**



# Research Fellow in Peatland Ecohydrological Modelling (CongoPeat)

## School of Geography, Faculty of Environment

The world's largest complex of tropical peatlands was recently mapped in central Africa, spanning 145,500 km<sup>2</sup> and storing 30 billion tonnes of carbon (Dargie et al. 2017, *Nature*). Would you like to be part of a large international research project on the future of these peatlands? Do you have a strong background in ecosystem modelling and peatland ecohydrology? Are you excited by the prospect of joining a multidisciplinary research team investigating one of the world's most important ecosystems?

This is an important new role on the CongoPeat project, a 5 year Natural Environment Research Council project that will involve simulating the past, present and future of the peatlands of the central Congo Basin. You will be responsible for (i) updating the DigiBog peatland development model using contemporary process data collected from the Congo peatlands, (ii) comparing the model's simulations of the past development of the Congo peatlands with reconstructions from the palaeorecord, and (iii) simulating future conditions in the peatlands under land-use change and climate change. You will also be responsible for linking key model outputs to a peatland version of the JULES land surface scheme which is being used for larger-scale modelling of the Congo peatlands.

Within the five year [CongoPeat](#) project, which began in 2018, the first two years are primarily focussed on data collection in the Republic of Congo and Democratic Republic of Congo, with the modelling component in the middle of the project. The final part of the project will use the modelling results and other outputs of the science programme to work with policy makers to provide accessible and clear information on what action is required on how to protect these globally-significant peatlands.

### What does the role entail?

As a Research Fellow, your main duties will include:

- Reviewing the most recent literature on plant growth and above- and below-ground litter production in tropical peatlands;
- Reviewing the research literature on peat decay in tropical peatlands;



- Liaising with CongoPeat's biogeochemists, ecologists and ecohydrologists on their measurements of (i) contemporary rates of plant production and peat decay in the Congo peatlands and (ii) peat physical properties (such as permeability);
- Altering some key functions in the DigiBog peatland development model so that it represents conditions found in the Congo peatlands;
- Compiling hindcasts of climate conditions in the Congo Basin over millennial timescales to use as driving data with which to simulate the past development of its peatlands;
- Comparing DigiBog's outputs with the palaeorecord from peat cores collected at a number of CongoPeat sites and with LiDAR data of peatland shape;
- Modifying the model in the light of the above comparisons;
- Running the updated and tested model for a range of climate-change and management (e.g. peatland drainage) scenarios to help understand future threats to the Congo peatlands;
- Writing up (as lead author) your research findings with members of the CongoPeat team for publication in prominent international journals;
- Working closely with another Research Fellow working on the JULES land surface model – your work on DigiBog will help inform aspects of the parameterisation of the JULES model which will be used for regional-scale simulations of the Congo peatlands;
- 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.



## What will you bring to the role?

As a Research Fellow you will have:

- A PhD or near completion - i.e. the initial thesis needs to have been handed in at the point of application in ecosystem processes/modelling or a closely allied discipline;
- A proven track record of being an accomplished ecosystem modeller;
- A good knowledge of peatland environments;
- Excellent programming skills in a high-level language, and competence in running multiple (often factorial) model scenarios and in interpreting model outputs;
- A proven track record of being highly skilled in handling large data sets, summarising them for publication, and ensuring they are properly archived;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- Have experience of writing papers in English for publication in international journals as a lead author;
- Excellent written and verbal communication skills including presentation skills;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience of simulating peatlands;
- Experience of working effectively in a multidisciplinary team.

## 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:

[Professor Andy Baird](#), CongoPeat Work Package Leader for Digibog Modelling





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**[Professor Simon Lewis](#), CongoPeat Project Overall Lead**

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## Additional information

Find out more about our [School](#).

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

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

### A diverse workforce

The Faculty of Environment has received a prestigious Athena SWAN bronze 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

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](mailto: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 page.

