



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Biogeochemical Modelling, Faculty of Environment



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

Reference: ENVEE1391

Fixed term until 31 May 2022 (due to external funding)

We will consider job share / flexible working arrangements

Research Fellow in Biogeochemical Modelling School of Earth and Environment, Faculty of Environment

Are you an ambitious researcher looking for your next challenge? Do you have a background in numerical modelling? Do you want to further your career in one of the UK's leading research intensive Universities?

You will be a key member of the European Research Council funded project "MINORG: The Role of Minerals in the Oceanic Carbon Cycle" and will work with a large research team at Leeds to explore the role of iron in the preservation of organic carbon in marine sediments over Earth history. It is the central hypothesis of MINORG that iron minerals play a major role in the preservation and burial of organic carbon in marine sediments and thus in regulating Earth's climate and oxygenation. Working as a biogeochemical modeller, you will develop and validate a new model for mineral, carbon and oxygen cycling through the global ocean and sediments. In particular you will integrate a broader understanding of the mineralogical controls on carbon preservation and burial into current modelling frameworks for long-term global biogeochemical cycling and surface geochemistry. You will undertake model development and validation, and lead associated research publications. You will also support the project leader [Professor Caroline Peacock](#) in the planning and administration of MINORG.

You will have a PhD or be near completion - i.e. the initial thesis needs to have been handed in at the point of application, in Earth, Environmental or Marine Sciences, Mathematics, Engineering, Computing or Physical Sciences, or a closely allied discipline. You will also have experience in MATLAB or a similar scientific programming language. Knowledge of global biogeochemical cycles is desirable. You will show a strong commitment to publishing scientific results at an international level.

What does the role entail?

As a Research Fellow in MINORG your main duty will be to:

- Develop a biogeochemical model of the marine carbon-oxygen cycle over Earth history to include additional mineral cycles and preservation controls.

You will achieve this by:

- Incorporating our new understanding of organic carbon degradation in marine sediments, generated in MINORG, into a wider global biogeochemical framework;



- Comparing model output to, and validating model output against, published estimates of present day inventories and fluxes;
- Applying the new model to investigate the consequences of the association of organic matter with marine minerals, in terms of the functioning of the global carbon, oxygen, phosphorus, sulfur and iron cycles;
- Using the model to assess the controls on the evolution of Earth's carbon and oxygen cycles, to reconstruct global CO₂ and O₂ levels, and to compare to the geological record (e.g. carbon isotopes preserved in marine carbonates);
- Working with the MINORG research team to compare model output with the latest experimental results, and iterating model development as necessary.

You will also be expected to:

- Develop research objectives and contribute to setting the direction of the MINORG project and team;
- Evaluate methods and techniques used and results obtained by other researchers and relate such evaluations appropriately to your own work;
- Work both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- Communicate and present your research results, including preparing papers for publication in leading international journals;
- Contribute to the training of both undergraduate and postgraduate students, including helping to supervise projects in areas relevant to your research;
- Where appropriate, contribute to the development of complimentary research funding proposals in collaboration with colleagues;

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 be near completion - i.e. the initial thesis needs to have been handed in at the point of application, in Earth, Environmental or Marine Sciences, Mathematics, Engineering, Computing or Physical Sciences, or a closely allied discipline;



- A strong background and extensive experience of developing and applying numerical models of the Earth system, including experience in MATLAB or a similar scientific programming language;
- Experience of developing, modifying, running, visualising and conveying outputs from complex numerical models;
- A proven commitment to publishing original scientific results at an international level;
- Excellent written and verbal communication skills including presentation skills;
- Excellent organisational and planning skills, with the ability to plan complex numerical model experiments;
- A proven ability to work flexibly, both as part of a team and independently, with proven ability to manage competing demands effectively, responsibly and without close support.

You may also have:

- Knowledge of marine sediment biogeochemical dynamics;
- Expertise in marine carbon cycle research;
- Knowledge of Earth's history and climatic evolution.

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 Caroline Peacock](#), Professor of Biogeochemistry

Tel: +44 (0)113 343 7877

Email: c.l.peacock@leeds.ac.uk

Additional information

Find out more about the [Faculty](#)



Find out more about our [School](#)

Find out more about our [Research and associated facilities](#)

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

A diverse workforce

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

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 page.

