



Leverhulme
Centre for Climate Change
Mitigation



Job Ref: UOS014313

Senior Post-doctoral Research Associate 'Modelling Enhanced Weathering Geochemistry'

University of Sheffield - Faculty of Science - Department of Animal and Plant Sciences

Full-Time, 4 year fixed-term contract (ending 30 June 2020)

Salary range: £29,847 to £33,574 per annum

Start date: as soon as possible

Working with Professor David Beerling FRS, Professor Steven Banwart and colleagues, as part of the new £10 million Leverhulme Centre for Climate Change Mitigation (LC³M), we are looking to appoint a Senior Researcher to develop the Centre's rock weathering-soil biogeochemistry modelling strategy. The aim of the Centre is to develop and assess enhanced rock weathering as a means of safely removing large amounts of CO₂ from the atmosphere, to cool the planet and avert ocean acidification, and understand its potential co-benefits for food security.

The post holder will work with colleagues to develop the Centre's numerical modelling strategy for simulating biological weathering of silicate rocks applied to natural and managed lands at regional-to-global scales. The aim is to develop and rigorously evaluate a flexible state-of-the-art model of root and microbial-driven soil mineral weathering that extends our existing work in this area [e.g., Taylor *et al.* 2016, *Nature Climate Change*, **6**, 402-406]. You will be responsible for leading the development of code and coupling it with process-based managed-land terrestrial carbon cycle models simulating the productivity of global croplands. Key objectives include 1) multi-model analysis of agricultural impacts on rock weathering and soil chemistry (e.g., pH, redox profiles and movement of heavy metals) using a diverse range of RCP future climate change scenarios to 2100 and 2) quantification of key uncertainties from climate input data, model choice, and other sources. This exciting opportunity will involve working alongside terrestrial carbon cycle modellers, Earth system modellers, biogeochemists and experimentalists in the Centre. The post-holder will have excellent software skills (e.g. Phreeq C) and experience in a range of languages. They will have excellent communication skills for collaborating with other researchers and will be expected to disseminate their findings at conferences and in scientific papers to assist the Centre in achieving its aims and objectives.

The Leverhulme Centre for Climate Change Mitigation (LC³M) is one of four winners of the new Leverhulme Research Centre awards designed to support fundamental cross-disciplinary research across the whole range of sciences, humanities and social sciences.

The Department of Animal and Plant Sciences is one of the largest departments in the UK devoted to the study of whole organism biology, with over 45 academic staff, 50 support staff and 130 postgraduate and postdoctoral researchers. We are ranked joint 3rd in the UK for biology research and 70% of our research activity has been judged to be "world-leading" or internationally excellent (RAE 2008). We have a strong ethos of research-led teaching and a high standard of student recruitment. We enrol over 180 undergraduate students per

year on to 7 degree programmes and are ranked 4th in the UK for biological sciences teaching (The Complete University Guide 2010).

The University has achieved the Athena SWAN award for Women in Science, Engineering and Medicine.

The Department has achieved the Athena SWAN Silver award for Women in Science, Engineering and Medicine.

Apply online www.sheffield.ac.uk/jobs and search for job reference: UOS014313

For informal enquiries about this job and the recruiting department, contact: Professor David J. Beerling FRS (d.j.beerling@sheffield.ac.uk)

For administration queries and details on the application process, contact: Shi-Yuen Li, HR Administrator (shi-yuen.li@sheffield.ac.uk).