Job Reference Number: UOS035557

Job Title: Research Associate in Climate Modelling

Contract Type: Fixed Term

Faculty: Faculty of Social Sciences

Department: Department of Geography

Salary: Grade 7
£35,333- £38,592 per annum

Closing Date: 10th January 2023

Summary:

We are seeking to recruit a Research Associate in Climate Modelling to design and conduct numerical modelling experiments of past and future climate of the Andes. This is part of a new NERC funded project, Deplete and Retreat: The Future of Andean Water Towers, led by Jeremy Ely, to investigate the impact of climate change on snow and ice resources across the Andes.

We seek to appoint someone with experience of numerical climate modelling, with a background in climate science, and ideally with some experience of climate model downscaling.

Climate change is depleting the stores of water held in snow and ice within Andean water towers. These changes are driven by a complex climatology; snowfall amounts are increasingly delivered by fewer, more extreme precipitation events. The steep topography of the Andes represents a challenge for climate models, especially because orographic processes greatly influence precipitation phase and snowfall rates. This makes understanding past, and potential future, changes to mountainous water resources challenging.

This project addresses this challenge by assessing the sensitivity of water resources in 10 key catchments across the Andes to the changing supplies of snow and ice by integrating observations with climate, ice-flow and hydrology models.

As part of this project, you will design and conduct dynamic downscaling climate model experiments, using the Weather Research and Forecasting Model (WRF). WRF will be run at a resolution sufficient to resolve the orographic processes that operate in the Andes. You will design experiments which span past climate conditions (back to 1850), through to potential future climate scenarios (up to 2100). You will also examine extreme conditions using a stochastic weather generator. The regional climate simulations generated will reveal aspects of the changing Andean climate, be used in further glacial and hydrological modelling experiments, and will be compared to field data collated as part of the project. If desired, there are opportunities for you to undertake fieldwork and for an extended research placement in South America.

You will benefit from the expertise and support of a team of nine academics and four other postdoctoral researchers. The position will be based in Sheffield with Jeremy Ely, Julie Jones and Sihan Li, but you will also work closely with the wider project team including Bethan Davies (Newcastle University), Wouter Buytaert (Imperial College London), Tom Matthews and Tamsin Edwards (both Kings College London), Robert McNabb (Ulster University) and Jonathan Carrivick (University of Leeds).

For informal enquiries about this job and the recruiting department, contact: Dr Jeremy Ely on j.ely@sheffield.ac.uk, Dr Sihan Li on sihan.li@sheffield.ac.uk, or Dr Julie Jones on julie.jones@sheffield.ac.uk

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