

PROJECT TITLE: The Future of the UK's Water Supply: Climate Change Impacts on Future Hydroclimatic Droughts

Project Science: Theme: Science for Environmental Solutions

Project keywords: Droughts, climate change, water supply

Lead Institution: University of Bristol

Lead Supervisor: Gemma Coxon, University of Bristol, School of Geographical Sciences

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Project aims and methods:

A reliable water supply is often taken for granted in the UK, yet there is increasing pressure on water supplies. By 2050, climate change and increasing water demand is projected to lead to frequent UK water shortages. Modelling the impacts of climate change on hydroclimatic droughts is vital to support critical planning decisions, such as future investments in new reservoirs and water transfer schemes. However, this is a challenge as droughts are complex phenomena that occur across multiple spatial and temporal scales. The overall aim of this project is to deliver new understanding of climate change impacts on hydroclimatic droughts by using national-scale hydrological models and a new regional coupled modelling system at km-scale.

The project is flexible depending on the student's interests and aims to explore the following research directions:

- (1) Incorporate and test new model developments to improve the simulation of low river flows such as groundwater schemes, reservoirs or water abstraction.
- (2) Project climate change impacts on hydroclimatic droughts using high-resolution UK Climate Projections
- (3) Test adaptation options for mitigating the impact of climate change on droughts

Project CASE partner

The Met Office will pay a £1,000 PA contribution to the student project or pro-rata for those studying part-time. In addition to the cash contribution above, meeting the extra expenses (such as travel and subsistence) incurred by the student visiting and working at the Met Office and contributions in cash or in kind towards necessary materials whilst the student is based at the Met Office.

Useful recruitment links:

For information relating to the research project please contact the lead Supervisor via:

gemma.coxon@bristol.ac.uk

Bristol NERC GW4+ DTP Prospectus:

<https://www.bristol.ac.uk/study/postgraduate/research/great-western-four-doctoral-training-partnership-nerc/>

How to apply to the University of Bristol:

<http://www.bristol.ac.uk/study/postgraduate/apply/>

The application deadline is Monday 13 January 2025 at 2359 GMT.