

Project title: Unlocking the cave record of climate change in the northern Irish borderlands

Ref: OP2409

Keywords: : Ireland, UK, palaeoclimate, cave, climate change

One Planet Research Theme:

Climate & Climate Change | Earth System Processes | Anthropocene | Environmental Informatics

Lead Supervisor:

[Michael Rogerson](#), Northumbria University

Key Research Gaps and Questions:

- 1) When did a modern-like environment develop in western Northern Ireland.
- 2) How did climate vary in that region during the Holocene?
- 3) When and why did the very large floods apparent in the speleothem record happen



Project Description:

Northern Ireland has a dramatic environmental history, having been covered in thick ice during the last glacial maximum and since the ice retreated being exposed to variability driven by the North Atlantic Ocean. However, we have little palaeoclimate data for this key region. Newly recovered stalagmites open a window into this history, and the successful applicant will be the first to start opening that window. The partnership includes specialists working at the fieldsite, the spectacular Cuilcagh lakeland in the northern Irish borderlands (<https://cuilcaghlakelands.org/>), at the University of Maynooth and both the Northern Irish and British Geological Surveys and will involve both laboratory and fieldwork.

As well as producing palaeoclimate records from the speleothems we have already collected, the successful applicant will take responsibility for continuing and expanding cave monitoring work across the region and – potentially – for collecting further speleothem samples. This pioneering work will be the first to show how climate and environmental change are recorded in stalagmites in the northern Irish regions, and the first to determine when and why the large flood events apparent from thick sand layers encompassed by those stalagmites happened. This is part of a wider collaboration between an international group of researchers seeking to extend and deepen our understanding of past environmental change in the Anglo-Celtic archipelago.

You will be trained in state-of-the-art geochemical techniques, cave and groundwater monitoring and past climate analysis; you will also receive training in getting papers published, writing grant applications, and conference presentations. There will also be opportunities for undergraduate teaching and research supervision.

Prerequisites:

Ability to conduct research in caves and rugged terrain.

For more information, please contact Mike Rogerson

Michael.rogerson@northumbria.ac.uk