

PROJECT TITLE: Revealing and Protecting the Diminishing Phyco-diversity of the Cryosphere

Project Science Theme: Evolution and Biodiversity Through Space and Time

Project keywords: Snow-algae, glacier-algae, cryosphere, climate-change, biodiversity

Lead Institution: University of Bristol

Lead Supervisor: Dr Chris Williamson, University of Bristol, School of Geographical Sciences

Co-Supervisor: Julie Brodie, Natural History Museum (NHM), Life Sciences, Algae, Fungi and Plants Division

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Project aims and methods:

This project will pursue new knowledge on the diversity and biogeography of snow and glacier algae across the cryosphere, and best approaches for the preservation and conservation of these unique communities in the face of rapid cryosphere loss. Snowpack and glacial systems are experiencing rapid global decline, with mountain glaciers particularly vulnerable to climate change over the coming decades. For example, 34 - 40% of the ice volume of the European Alps is projected to be lost by just 2050. Unique microalgal communities thrive within snow and glacial ice habitats, forming widespread algal blooms during summer melt seasons. Such snow- and glacier-algae serve as important examples of how life can adapt to harsh environmental regimes and provide a looking glass into ancient Earth biospheres during past glaciations. We currently do not know the true biodiversity of snow or glacier algae across the cryosphere. This, twinned with knowledge on the biogeography of species, is key to understanding which populations are most at risk as climate change proceeds.

This project, twinning expertise of MicroLab@Bristol with the specialist algal team of the Natural History Museum, London, can explore generation of new collections, molecular sequencing for biodiversity discovery, and conservation strategies across the cryosphere.

Useful recruitment links:

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

c.williamson@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.