PROJECT TITLE: Future changes to rainfall over Antarctica and the Southern Ocean

Project Science Theme: Climate Change and Risk
Project keywords: Antarctica, sea-ice, rainfall, projections, impacts

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Project aims and methods:

The Antarctic ice sheet contains 90% of the world's glacier ice and is surrounded by seasonal floating sea-ice, which together form an integral part of the Earth's climate system. However, although precipitation over these regions is largely snow-dominated at present, climate models suggest that in the future the Antarctic ice sheet and sea-ice will experience more rainfall due to climate change. This is likely to have pronounced impacts by increasing melting of snow and ice, which in turn will affect sea-ice extent and thickness, ice sheet mass balance, global sea level, as well as the success of flora and fauna (including penguin colonies). Yet despite the severity of these impacts, considerable uncertainty exists regarding the frequency and intensity of changes to snow and rain over these regions.

This project aims to address this significant knowledge gap, with possible research directions including: i) using observational datasets (e.g., satellite-based) to quantify present-day occurrences of rainfall for Antarctica and identifying their associated atmospheric circulation patterns, and ii) investigating future changes in rainfall (and their associated circulation patters) by analysing projections for Antarctica from IPCC Coupled Model Intercomparison Project Phase 6 (CMIP6) global climate models from present-day to 2100 for multiple climate change scenarios.

Useful recruitment links:

For information relating to the research project please contact the lead Supervisor via: anmcr@bas.ac.uk

To submit an application, you will need to apply via the University of Bristol application page as the registered university for the project. It is important that you follow the detailed instructions provided when applying for the project and be sure to read the prospectus carefully. We advise you download the 'Admissions Statement' for Physical Geography from the prospectus and follow the instructions.

When applying please include in your application the NERC GW4+ DLTP personal statement (Office document, 194kB) version of a personal statement.

There is an additional 'applicants questionnaire' that the DLTP require, so please complete this at the time of application as well.

When applying for projects in the School of Geographical Sciences please choose 'Geography- PhD' in the 'find a programme' box.