



# United Kingdom & Canada: Developing Arctic Connections

Researchers in the United Kingdom and Canada have a strong record of cooperation in delivering cutting-edge Arctic science, in sharing infrastructure and developing exciting new partnerships. This document summarises some of the most recent achievements, connections and future potential.

The Natural Environment Research Council (NERC) has invested over £30m into Arctic science over the last five years. Since 2008 around 70 projects with Canadian Arctic connections have been funded by NERC. We are keen to explore further opportunities for even closer working between researchers, funding bodies and logistics providers, to support the best and most important Arctic science.

Since April this year the NERC is now part of UK Research and Innovation (UKRI). Operating across the whole of the UK with a combined budget of more than £6 billion, UKRI brings together the seven Research Councils, Innovate UK and a new organisation, Research England.

## Memorandum of Understanding

The Canadian and UK Governments signed a 'Memorandum of Understanding Concerning Cooperation in Polar Research' in 2008 to facilitate the exchange of practical support for researchers across the polar regions. Subsequent Annexes signed by universities and research centres set out how this would apply to specific projects in the Canadian Arctic. The MoU has facilitated the mutual exchange of research time, accommodation and aviation fuel for a British Antarctic Survey (BAS) operated Twin Otter aircraft at Cambridge Bay in spring 2017, as well as underpinning the creation and operation of the UK-Canada Arctic Bursaries. Innovative work has also begun to install underwater heated settlement panels to study the effect of the warming Arctic marine environment. This season UK researchers have already worked with Canadian counterparts to deploy ice mass balance buoys with remote connectivity around Cambridge Bay, providing live and freely accessible scientific data.

## UK-Canada Arctic Bursaries 2017 & 2018

With financial support from the Department for Business, Energy and Industrial Strategy, Bursaries were provided to 18 project teams to join Canadian-led projects in the Arctic in 2017. Canadian partners included ArcticNet, Polar Knowledge Canada, Natural Resources Canada, Sentinel North, NSERC and at least ten separate universities. The spread of geographic areas, research topics and partners was significant, with strong representation across the marine, terrestrial, cryosphere and atmosphere themes. There was a deliberate emphasis on early-mid career researchers. Through their Bursaries UK-based researchers were able to work across the Northwest Territories, Canadian Arctic Ocean, Nunavut, Baffin Island and beyond. CCGS *Amundsen* featured prominently in the



projects, as did UAVs, helicopters, field camps, corers and benthic landers, marine and terrestrial laboratories, many small boats and the new Canadian High Arctic Research Station.



We are very pleased that there will be a second round of the Bursaries this season, with 11 UK-based teams receiving support to join new Canadian-led projects. Fieldwork has already begun, with a similarly strong range of partners, geographic areas and use of logistical assets. This season we are pleased to support a social science project connecting directly to traditional and local knowledge in the Canadian Arctic. We look forward to a successful season and being able to share the initial results of this work at the next ArcticNet meeting in Ottawa this year, and beyond.

## Arctic Research Icebreaker Consortium (ARICE)

Canada and the United Kingdom are partners in the recently announced European Union ARICE programme which provides transnational access for researchers to a fleet of ice-strengthened research vessels.

We join ten other countries in this important initiative, with CCGS *Amundsen* and the RRS *Sir David Attenborough* and four other vessels becoming available for use by international teams over the course of the four years of the programme.



## ArcticNet

UK researchers have been part of international teams funded by the ArcticNet programme, including through connections made through the Bursaries programme. Researchers hosted sessions at the ArcticNet Annual Scientific Meeting in Winnipeg in 2016, and most recently at the Arctic Change conference in Quebec City in 2017 to present their findings from the Bursaries Programme. Well over half the 2017 Bursary recipients were represented at the Arctic Change meeting, which presented a valuable opportunity to build connections with a wide range of Canadian stakeholders.

## Strong, High Impact and International Arctic Research



The UK is the 4th most productive country, measured by the number of papers in peer-reviewed journals (after the US, Russia and Canada).



Papers from UK-based researchers are cited 90% more than the global average for these individual disciplines.



Nearly two-thirds of the UK Arctic papers have international co-authors - higher than any of the other three nations with a larger output.



UK-based researchers are very regular co-authors

Source: Arctic Research Publication Trends: A Pilot Study. University of the Arctic et al, August 2016

## NERC Changing Arctic Ocean Programme



The Changing Arctic Ocean Programme is a 5-year (2017-2022) strategic research programme funded by NERC, representing a £16 million investment in Arctic research.

The focus of the programme is to understand the effects of climate change on the ecosystems, marine biology and biogeochemistry of the Arctic Ocean in a quantifiable way.



The programme had a very successful scientific cruise in summer 2017 to the Barents Sea area of the Arctic Ocean. This involved all four projects. Summer 2018 will see a further three cruises to different parts of the Arctic Ocean: Fram Strait and the Barents Sea. A further twelve projects are due to be announced in the coming months. The programme's scientists are also participating in many additional, international scientific cruises

outside of the NERC-funded activities. Cooperation with Canadian research institutions so far includes: Fisheries and Oceans Canada, Memorial University, Calgary University and McEwan University. These links contribute hugely to the strengthening of international collaboration. The Programme's Science Coordinator and the project PIs are keen to broaden and deepen these links over the life of the programme.

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## Wider International Engagement

The United Kingdom and Canada are partners in a range of important international Arctic fora, including the International Arctic Science Committee and its five themed Working Groups; the Arctic Council Working Groups and Expert Groups; and the Arctic Science Ministerial meetings. We look forward to working closely with partners in the Arctic States and beyond to develop a strong set of deliverable actions from the forthcoming Arctic Science Ministerial meeting in Berlin in October 2018.



## #UKinArctic

The UK's Science and Innovation Network have created the #UKinArctic digital campaign to highlight the engagement of UK-funded Arctic science and the work of UK-based researchers.

This campaign has included highlighting UK-Canada cooperation and we are keen to extend this.

## T-MOSAiC

Institutions in Canada, including Laval University, Sentinel North and the University of Calgary are partners in a new IASC terrestrial initiative to create a land-based program to extend the activities of the IASC flagship marine program MOSAiC, a multinational year-round study (2019-2020) of the central Arctic Ocean to measure the coupling between atmosphere, sea ice, ocean and ecosystem processes. The objective of T-MOSAiC is to coordinate complementary activities that aid and benefit from MOSAiC, especially the modelling components, by extending the work to the land surrounding the Arctic Ocean and to the northern communities who live there. UK-based researchers look forward to active participation in the discussions around the development of the science and implementation plans for T-MOSAiC, alongside Canadian colleagues.



Arctic Office  
NATURAL ENVIRONMENT RESEARCH COUNCIL

NERC Arctic Office

The Arctic Office is funded by the Natural Environment Research Council (NERC) to act as a central hub of information on the UK's engagement with Arctic research and the diverse community of UK-based Arctic researchers, which is spread across 70 universities and research centres.

The NERC Arctic Office's aims are to:

- support UK research in the High North
- provide advice to policy makers
- develop international scientific cooperation across all aspects of Arctic research

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