Natural environment – focused research activities in the Canadian Arctic

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The Changing Canadian Arctic Workshop
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A community with impact and international connections

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

To find out more about UK Arctic research excellence, infrastructure and international partnerships follow #UKinArctic and @Arctic_Office
>170 investigators at 32 institutions/organisations

Collaboration with scientists in 15 other countries

Collaboration with policy makers
Marine research

- Impact of ocean acidification and microplastics at the base of the food chain – Baffin Bay
- Establishing continuous plankton recording – Arctic Ocean
- Harp seals as reliable indicators of climate change impact – Arctic Ocean
- Sea ice productivity over time and the impact of fertility changes on the ecosystem
- Microbial response to nutrient enrichment in Arctic waters and the role of turbulence
Atmosphere research

- Better understanding of **snow layering and properties**, to support the next generation of remote sensing and prediction – Inuvik & Trail Valley Creek (Northwest Territories)
- Addressing the role of **tundra snowpack chemistry** and its impact on the boundary layer – Eureka Station (Nunavut)
- **Transboundary pollution**, black carbon deposition, movement of persistent organic pollutants
Cryosphere research

- **Glacier volume changes** – eastern Baffin Island and Ellesmere Island
- Modelling **permafrost slope stability and sediment delivery** to rivers – Nunavut
- **Coastal erosion due to permafrost thaw**, decline of fast ice and storms, and relation to **community resilience** – Tuktoyaktuk
- Understanding the dynamic processes involved in the **melting of first year sea ice** – Cambridge Bay
- Assessing the **deglacial history** of the Labrador ice dome and wider implications – Ungava Peninsula, Nunavik
Terrestrial research

- What is driving rapid tundra vegetation change, using ground level and remote sensing tools – Yukon and NWT
- Understanding the changing drivers of wildfires, and the impact of fire on carbon release into ground water
- Erosion of organic carbon – Mackenzie Basin
- Range expansion/contraction of fauna and flora – as country food and as vital ecosystem elements
- Balance between Arctic vegetation ‘greening’ and ‘browning’ and impact on local/regional ecology and environment
Summary

- Researchers based in the United Kingdom have growing links with Canadian colleagues across the university and research centres, and with researchers from Inuit and other communities in the North.
- The engagement across all the scientific disciplines is broad, deep and mutually supportive.
- Understanding the local, regional and global implications of environmental change is vital.
- Awareness of the value and role of multidisciplinary and interdisciplinary research is growing.