PROFESSORS SØREN RYSGAARD AND **DAVID BARBER** AND SENIOR RESEARCHER **MALENE SIMON** OUTLINE THE IMPORTANCE OF PARTNERSHIPS AMONG INSTITUTIONS IN THE ARCTIC

New Arctic effort

One of the most significant global issues over the past ten years has been the vast change in the Arctic region. The world has again turned its attention to the Arctic, this time mainly because of climate change and its expected global impacts, the economic potential of the region, and the geopolitical implications of these changes.

Political, economic and social developments are already underway, including the flourishing of advanced democratic societies, and undoubtedly the future of the Arctic will be radically different from the reality we know today.

To meet these challenges, there is an urgent need to prepare Arctic societies through the improved knowledge and education of future generations. This is best done through partnerships among institutions in the Arctic.

At the top of the world

The Greenland Institute of Natural Resources, Greenland, Aarhus University, Denmark, and University of Manitoba, Canada, joined forces in July 2012 to strengthen Arctic research. The Arctic Science Partnership (ASP) was formed to study the full impact of the changes in the Arctic and the mechanisms behind these changes.

This new and extensive Greenlandic-Danish-Canadian research collaboration is bringing together a number of the world's leading scientists in climate-related research in the Arctic. The ASP partnership fosters a critical exchange of knowledge and provides scientists with a joint logistical platform, drawing on the numerous facilities administered by each institution, including research vessels, field stations and laboratory facilities.


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The Arctic Science Partnership was launched in Nuuk, Greenland in July of 2012, where the presidents of the Aarhus University, Greenland Institute of Natural Resources and University of Manitoba signed a Memorandum of Understanding

The ASP partners are in charge of several ultramodern and well equipped field stations in the Arctic area. The field stations are staffed most of the year and are open to students and researchers from the entire world. A new field station is being built this year at Station Nord – the very north of Greenland.

Furthermore, the partnership is the basis for highly integrated and co-ordinated climate related research and education collaboration among Greenland, Denmark, and Canada around much of the Arctic region.

ASP partners will:

- Encourage staff of the partners to move freely, as required, among the institutions, adhering to local institutional standards;
- Encourage graduate students to spend time and to work at multiple institutions as appropriate;
- Ensure shared use of infrastructure such as research vessels, field stations, laboratories, office space, equipment and the co-ordination of logistics;
- Implement an efficient co-ordination and collaboration at all levels;
- Develop a co-ordinated recruitment strategy and, in particular, jointly announce the availability of student and staff positions; and
- Develop joint education programmes and courses.

Focus areas

Joint research campaigns are the cornerstones of the Arctic Science Partnership. During fieldwork periods, specialists from various

disciplines and countries unite to carry out investigations in locations of mutual interest.

ASP will be a leading consortium on climate, ice, ecosystems and human interactions. Across water, land and atmosphere, ASP investigates:

- On-going changes in ice-ocean interactions, snow and ice extent, permafrost thaw and their combined consequences for Arctic ecosystems and the benefits we receive from the systems;
- Feedback between the Arctic and Earth climate systems;
- Proxies for predicting future changes in ocean currents, weather systems and ecosystems;
- Impact of climate change on the Arctic population's lifestyle and disease patterns; and
- Pollutant transport to the Arctic and exposure consequences on ecosystems and humans.

Education and communication

Academic programmes, aimed at training the next generation of researchers, are designed to be anchored locally in Greenland, Denmark and Canada, enabling individual courses to grapple with topics and issues in the immediate surroundings and build local knowledge and expertise.

The continuous dissemination of knowledge to the public, with the aim of promoting local ownership and community level action in the context of irrevocable climate change is another key role for Arctic Science Partnership.

Three individual centres

The ASP is conducted by three individual research centres. The first of these is the Greenland Institute of Natural Resources, which conducts research into Arctic ecosystems, monitors the living resources and the environment in Greenland, and advises the self-government of Greenland and other authorities on the sustainable exploitation of living resources and to ensure the environment and biodiversity. The institute houses the Greenland Climate Research Centre (GCRC) which conducts research on expected impacts of climate change on Arctic marine, limnic and terrestrial environments and on Greenlandic society, including adaptation and prevention strategies.

The Arctic Science Partnership is bridging science from several scientific disciplines and countries

The next research centre is the Arctic Research Centre, Aarhus University, Denmark (ARC). This was founded in 2012 and was initiated by a major contribution to Arctic research, investing approximately €14m for a five-year period. The centre bridges all the faculties at the university: science and technology, health, arts, business and social sciences, and brings together more than 250 scientists.

The scientific goal of the ARC is to strengthen interdisciplinary Arctic research, with a particular focus on Greenland. Furthermore, the centre will disseminate this knowledge to local Arctic actors through targeted communication activities and a new Arctic education programme in natural science is planned.

Finally, the Centre for Earth Observation Science, University of Manitoba, Winnipeg, Canada, (CEOS) was established in 1994 with a mandate to research, preserve and communicate knowledge of Earth system processes using the technologies of Earth observation science.

Research is multidisciplinary and collaborative, seeking to understand the complex interrelationships between different elements of Earth systems and how these systems will likely respond to climate change.

CEOS brings together over 100 scientists, research staff and students who conduct collaborative research on Arctic marine, coastal and freshwater research. The group works extensively with industry partners from the oil and gas sector, mining, marine transportation and climate related fields.

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