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ArcticNet  
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## Corporate Profile

Understanding the present transformation of the Arctic environment and anticipating its consequences is one of the great challenges faced by Canadians, the Canadian government, and the national and international scientific communities. In Canada, climate warming will have tremendous environmental, socio-economic and strategic consequences that will be felt first and most severely in arctic communities and regions.

ArcticNet brings together scientists and managers in the natural, human health and social sciences with their partners in Inuit organizations, northern communities, government and industry to help Canadians face the impacts and opportunities of climate change and globalization in the Arctic. Over 145 ArcticNet researchers and 580 graduate students, postdoctoral fellows, research associates and technicians from 30 Canadian universities, 8 federal and 11 provincial departments and agencies collaborate on 40 research projects with over 100 partner organizations from 15 countries.

### Our Vision

A future where knowledge exchange, monitoring, modelling and capacity building will have enabled scientists, Northerners and decision makers to jointly attenuate the negative impacts and maximize the positive outcomes of the transformation of the Canadian Arctic.

### Our Mission

- Build synergy among existing Centres of Excellence in the natural, human health and social arctic sciences.
- Involve Northerners, government and industry in the steering of the Network and scientific process through bilateral exchange of knowledge, training and technology.
- Increase and update the observational basis needed to address the ecosystem-level questions raised by climate change and globalization in the Arctic.
- Provide academic researchers and their national and international collaborators with stable access to the coastal Canadian Arctic.
- Consolidate national and international collaborations in the study of the Canadian Arctic.
- Contribute to the training of the next generation of experts, from north and south, needed to study, model and ensure the stewardship of the changing Canadian Arctic.
- Translate our growing understanding of the changing Arctic into Integrated Regional Impact Assessments, national policies and adaptation strategies.





The Network has helped push arctic issues to the forefront of the political agenda, stimulating the formulation of Canada's long-awaited Northern Strategy which will be ArcticNet's strategic roadmap during its next cycle of funding. Each and every project of the proposed research program focuses on some key aspects of the four pillars of this strategy.

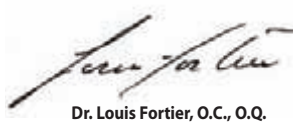




## Message from the Chair of the Board, Scientific Director and Executive Director

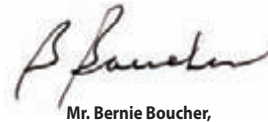
### Moving into our next cycle

The last seven years will be remembered as a pivotal period in the revitalization of Canadian Arctic research. A period dominated by the emergence of the ArcticNet Network of Centres of Excellence, which transformed the way Canadian arctic science is conducted along the lines of the 2001 NSERC/SSHRC Task Force Report on the state of northern research. Reflecting the three-council nature of the NCE program, ArcticNet has federated the natural, socio-economic, and human health sectors of northern research. It has forged the much-needed alliance of researchers and Inuit in the study of the changing Arctic. Thanks to its core infrastructure the *Amundsen*, the Network has provided Canadian scientists, students and their international collaborators with unprecedented access to the coastal Canadian Arctic and its communities. It has led the 2004 Nunavik Health Study (*Qanuippitaa? – How are we?*), which served as a model for the IPY-funded Inuit Health in Transition Studies in the three other Inuit regions of Nunavut, Nunatsiavut and the Inuvialuit Settlement Region. ArcticNet teams have led successfully 13 of the most ambitious projects of the Canadian International Polar Year program, including the International Circumpolar Flaw Lead System Study (CFL) that involved the overwintering of the CCGS *Amundsen* in the Beaufort Sea. Major research partnerships have been built with the Oil & Gas industry in the Beaufort Sea and with Manitoba Hydro in Hudson Bay, generating non-NCE revenues re-invested in 12 new projects focusing on Inuit education, health and culture.



**Dr. Louis Fortier, O.C., O.Q.**

Scientific Director,  
President and CEO



**Mr. Bernie Boucher,**

Chair of the Board of Directors



**Dr. Martin Fortier,**

Executive Director,  
Vice-President and COO

The Network has also helped push arctic issues to the forefront of the political agenda, stimulating the formulation of Canada's long-awaited Northern Strategy which will be ArcticNet's strategic roadmap during its next cycle of funding. Each and every project of the proposed research program focuses on some



key aspects of the four pillars of this strategy: Sovereignty, Economic and Social Development, Environmental Protection, and Governance. In support of the Northern Strategy, the four Regional Impact Assessments that integrate the science of ArcticNet for stakeholders and policy makers will be published during Cycle II and some will be in their second edition. The Network will adapt new observation platforms and environmental technologies to arctic conditions. The Polar Continental Shelf Program will join the CCGS *Amundsen* and the Centre d'études

geo-referenced data retrieval system widely used by scientists and stakeholders.

Thanks to its multidisciplinary and trans-sector research program, ArcticNet will be the leading supplier of expertise (1) to prepare Northerners for the potential impacts and opportunities of climate change and modernization; (2) to inform decision in government and industry on arctic issues and development; and (3) to help build capacity at all levels of northern societies.

## The integration of the NPRP, the CHARS and the *Diefenbaker* will heave up Canada to undisputed world leadership in the study and sustainable development of the changing Arctic.



nordiques field stations in the pool of core infrastructures of the Network. The two Canada Excellence Research Chairs funded under the aegis of the Network will be fully implemented. To further consolidate ArcticNet's impressive international network, the newly created Canada-France CNRS Unité Mixte Internationale will be fully populated, and a similar initiative based on the Canada-UK agreement on arctic research will be developed. ArcticNet's major research partnerships with the Oil and Gas industry in the Beaufort Sea will be expanded to other regions of the Arctic. The Network will also support a new Inuit Knowledge Center sponsored by its partner organization Inuit Tapiriit Kanatami. A new call for proposals will be issued in 2013 for research in the adaptation of technologies to northern conditions. In collaboration with the NCE GEOIDE, the ArcticNet-CCIN Polar Catalogue will evolve into a state-of-the-art

Most importantly, ArcticNet has developed a precise plan to ensure the full participation of university-based arctic specialists across Canada in the research programs that will be supported by the Northern Strategy and its associated Canadian High Arctic Research Station (CHARS) and polar icebreaker *Diefenbaker* to be inaugurated in 2018. During Cycle II, the Network will consolidate into a CFI-funded National Polar Research Platform (NPRP) that will provide continued access to the Arctic, maintain our unique trans-sector research program, and help coordinate the future access of academia to the CHARS and the *Diefenbaker*.

Thanks to renewed NCE funding, by 2018, the community of university-based Arctic specialists needed to implement the scientific dimension of Canada's Northern Strategy will have at least doubled relative to pre-ArcticNet numbers. The Northern Strategy will be well on its way to implementation, thanks in part to the active contribution of academia and their partners as concerted through ArcticNet. The integration of the NPRP, the CHARS and the *Diefenbaker* will heave up Canada to undisputed world leadership in the study and sustainable development of the changing Arctic.



## Message from the Co-Chair of the Board

It has been a productive and exciting year for ArcticNet! Following a successful partnership with industry, ArcticNet, in addressing Inuit interests and recognized Inuit-specific research gaps, allocated \$1 million in a call for proposals dedicated to health and social sciences. Inuit have continued to advocate for research that will focus on Inuit priority areas. Supporting projects on topics such as Inuit knowledge of the land, a cancer causing stomach bug, and success factors in high school education is a major advancement in our push to gain ground on issues that affect us more directly. These projects highlight our research needs as contributed from the vision and ideas of an increasing number of Inuit who are participating within the network.

In recognizing the diverse research needs and priorities of the four Inuit land claim regions, ArcticNet also expanded the Research Management Committee (RMC) this year to accommodate a representative from each region, as well as international and national Inuit organization representation. All of our regions bring important and necessary perspectives to the RMC, and it will ensure that ArcticNet research is relevant across Inuit Nunangat and that our priorities will be brought to the management table. The engagement of our Inuit organizational processes and structures is essential for enabling the relevant and meaningful bridging of research with policy, which is a process Inuit are pushing all Arctic research programs to incorporate.

This year also marked increased efforts on the part of the Inuit Advisory Committee (IAC) toward more constructive participation of Inuit within ArcticNet. To support ArcticNet renewal and review processes, the IAC has been busy drafting a visioning document that will help guide ArcticNet into its next phase, particularly with the objective of enhancing its policy relevance to Inuit in the regions. In many respects this visioning goes beyond ArcticNet as an entity. It will focus on concepts and actions that Inuit can apply to the broader Arctic research community. By committing to and building on the Inuit partnership, ArcticNet can provide a national example of how a research program can operate cooperatively and achieve mutual benefits.

In January of this year, I had the pleasure of launching a separate ITK initiative called *Inuit Qaujisarvingat: The Inuit Knowledge Centre*, which I feel has important links to the activities of ArcticNet. Inuit knowledge is essential to developing appropriate and sustainable policies, decisions, and actions on critical issues facing the Arctic and our communities. There are mutual benefits in bridging Inuit and western knowledge systems; on the one hand, ArcticNet benefits from the provision of Inuit-specific knowledge and interests in research and policy, and on the other, Inuit benefit from ArcticNet's long-term investment in Arctic research and science. The three guiding principles and practices central to the evolving IKC framework are capacity building, access, and knowledge stewardship, which will ensure an



**Ms. Mary Simon,**  
Co-Chair of the Board of Directors and  
President of Inuit Tapiriit Kanatami



increasingly active role for Inuit in research in support of improved, sustainable Arctic science and policy. As the IKC progresses through its development stage, it is certainly my hope that it will be soon situated to support the regions in identifying projects that will respond more appropriately to the needs and interests of Inuit in the first order, as well as effectively link with ArcticNet.

Throughout the circumpolar world, Canadian Inuit have been working together with Inuit of Greenland, Alaska, and Russia to bring forward the human dimension of climate change and adaptation. Internationally, we have lobbied together to ensure that the most vulnerable communities have access to the knowledge and resources to effectively adapt to the numerous changes being experienced due to climate change and globalization. Inuit have much to contribute collectively to the global understanding on the challenges of addressing the impacts of climate change.

As a leader actively engaged in the policy process for Inuit, I am committed to ensuring that ArcticNet research will lead to constructive and useful actions; actions, in this case, that will assist governments in developing policies that conform to the priorities of our Inuit communities, that will benefit us above and beyond community level capacity initiatives. As President of ITK, and co-chair of the ArcticNet Board, successfully transforming *research into action* is my vision for the next phase of the Network. Conducting research in collaboration with Inuit is a cornerstone to this vision. I look forward to the results of ArcticNet projects which will help inform my work as national leader of the Inuit of Canada as well as contribute to the development of international policies and initiatives to address the impacts of climate change in our communities across the circumpolar Arctic and beyond.





The engagement of our Inuit organizational processes and structures is essential for enabling the relevant and meaningful bridging of research with policy, which is a process Inuit are pushing all Arctic research programs to incorporate.





ArcticNet is committed to providing its Network Investigators, students and partners with well coordinated sea and land access to the Canadian Arctic. Only through improved and stable access can researchers establish the long-term observations and studies necessary to understand and document the changes occurring in the Arctic.



## 2009-2010 ArcticNet Research and Monitoring Efforts

ArcticNet is committed to providing its Network Investigators, students and partners with well coordinated sea and land access to the Canadian Arctic. Only through improved and stable access can researchers establish the long-term observations and studies necessary to understand and document the changes occurring in the Arctic. On land, Network Investigators can rely on a network of research stations and laboratories such as the ones maintained by the Polar Continental Shelf Program (PCSP), the Centre d'études nordiques (CEN), the Nunavik Research Centre, the Churchill Northern Studies Centre, the Aurora Research Institute and the Nunavut Research Institute. At sea, Network Investigators from various disciplines use the state of the art research icebreaker CCGS *Amundsen* as a mobile research platform to study the coastal Canadian Arctic. Through collaborative partnerships, researchers working on land and at sea also have access to the expertise of communities, northern regional authorities and governments.

### On Land

During 2009-2010, ArcticNet Network Investigators conducted research in each of the four Inuit regions of Canada, as well as in northern Manitoba and in the Yukon. More than 105 field sites were visited, including 36 of the 53 Canadian Inuit communities. Numerous ArcticNet Network Investigators use the CEN SILA-Qaujisarvik network composed of 9 field research stations and 75 meteorological stations distributed throughout the ecozones of Northeastern Canada, from the northern edge of the boreal

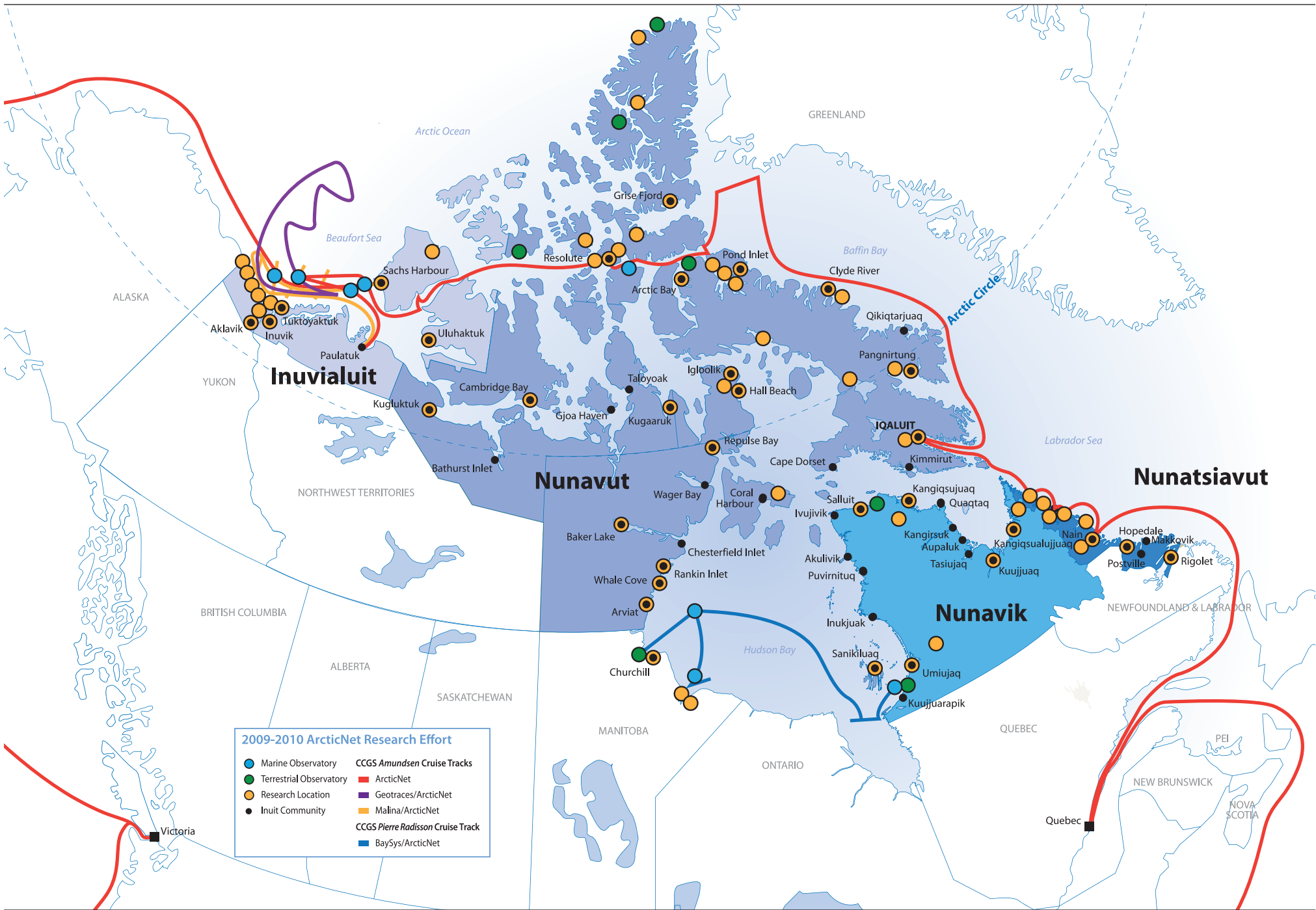
forest (53°N) up to the northernmost ice shelves of the Canadian High Arctic (83°N). With research occurring across the Canadian Arctic and sub-Arctic, ArcticNet Network Investigators are able to better understand the variation in climate change occurring across the Arctic and the range of impacts being observed. Research conducted in and around northern communities covers a wide spectrum of health, social and natural sciences, with Network Investigators studying issues such as food security, wildlife diversity, coastal erosion, community adaptation, emerging infectious diseases and permafrost degradation.

### At Sea

On 4 June 2009, the Canadian research icebreaker CCGS *Amundsen* left her home port of Quebec City for a five-month scientific expedition to the coastal Canadian Arctic. To better support three major research programs in the Beaufort Sea, the vessel circumnavigated North America by sailing through the Panama Canal, entering the Arctic Ocean through Bering Strait. The icebreaker reached the study area almost one month earlier than by sailing through the Northwest Passage, its usual eastern route. Once in the Beaufort Sea, the CCGS *Amundsen* supported ArcticNet Network Investigators in their continued sampling efforts designed to better understand and predict the impacts of climate change on the Canadian Arctic marine environment.

Through a collaborative agreement with Imperial Oil, ArcticNet researchers were also able to increase the level and spatial





**Inuvialuit**

**Nunavut**

**Nunavik**

**Nunatsiavut**

ALASKA

YUKON

NORTHWEST TERRITORIES

BRITISH COLUMBIA

ALBERTA

SASKATCHEWAN

MANITOBA

ONTARIO

QUEBEC

NEWFOUNDLAND & LABRADOR

NEW BRUNSWICK

NOVA SCOTIA

Victoria

Quebec

Arctic Ocean

Beaufort Sea

GREENLAND

Grise Fjord

Resolute

Pond Inlet

Baffin Bay

Clyde River

Aklavik

Tuktoyaktuk

Inuvik

Sachs Harbour

Uluhaktuk

Cambridge Bay

Taloyoak

Igloolik

Hall Beach

Qikiqtarjuaq

Pangnirtung

Kugluktuk

Gjoa Haven

Kugaaruk

Repulse Bay

IQALUIT

Labrador Sea

Bathurst Inlet

Wager Bay

Cape Dorset

Kimmirut

**Nunatsiavut**

Baker Lake

Chesterfield Inlet

Salluit

Kangiqsujuaq

Quaqtaq

Kangirsuk

Aupaluk

Kangiqsualujuaq

Nain

Kangiqsualujuaq

Tasiujaq

Kuujuaq

Hopedale

Makkovik

Postville

Rigolet

Whale Cove

Rankin Inlet

Arviat

Churchill

Ivujivik

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Kuujuarapik

NEWFOUNDLAND & LABRADOR

NEW BRUNSWICK

NOVA SCOTIA



coverage of sea ice, geological and environmental data collection in the Beaufort Sea/Mackenzie Shelf/Amundsen Gulf region. A special focus was placed in and around areas of the Beaufort Sea where the Government of Canada recently awarded offshore exploration licences.

Funded by the Centre national de la recherche scientifique (CNRS) and by the French and European Space Agencies, the French-led Malina project ([www.obs-vlfr.fr/Malina](http://www.obs-vlfr.fr/Malina)) is a collaboration between ArcticNet and numerous French and American institutions, including NASA. Led by Dr. Marcel Babin, Canada Excellence Research Chair in Arctic Remote Sensing, Malina conducted an intensive 28-day mission using the sophisticated equipment of the CCGS *Amundsen* to study the impact of increasing penetration of solar radiation on the marine ecosystem and carbon fluxes of the Arctic Ocean.

Taking the CCGS *Amundsen* in the deep arctic pack of the Beaufort Sea and Canada Basin, researchers from the Canadian-led Geotraces program joined ArcticNet scientists to sample the multi-year ice environment. The project's objectives are to identify, characterize and quantify processes that control the distribution and environmental sensitivity of key trace elements and isotopes in the Canadian Arctic Ocean. Led by Professor Roger François from the University of British Columbia, the Geotraces expedition is funded by the Canadian International Polar Year (IPY) program ([www.api-ipy.gc.ca](http://www.api-ipy.gc.ca)).

Once sampling operations in the Beaufort Sea were completed, the CCGS *Amundsen* headed east in support of the ongoing ArcticNet oceanographic research in the Northwest Passage,

northern Baffin Bay and northern Labrador fjords. The vessel concluded its 168-day circumnavigation of North America in Quebec City on 18 November 2009.

## Core Research Program

ArcticNet's Phase II research program continues to support a multidisciplinary approach. The program's breadth of research topics includes the monitoring and modelling of climate indicators, the study of infrastructure destabilization, marine and terrestrial ecosystems, geopolitics, and, more than ever, the socio-cultural and health impacts of climate change. Realizing the need for additional social and human health research in ArcticNet's core research program, an extremely successful call for proposals targeting Inuit education, social and health sciences was held in the fall of 2009. Over \$1,000,000 was allocated to fund 12 new research projects in 2010-2011. Covering topics such as K-12 and higher education, arctic shipping, sovereignty, security, food safety and industrial development, these exciting new projects bring an additional 35 new Network Investigators and dozens of graduate students to ArcticNet.

In the context of a changing Arctic World, the research program of ArcticNet focuses on four main themes: coastal marine ecosystems, coastal terrestrial ecosystems, Inuit health and adaptation, and industrial development in the North. Research projects are increasingly focused towards Integrated Regional Impact Studies (IRISes) studying the consequences of change on the society and ecosystems of the coastal western and central Arctic, eastern Arctic and sub-Arctic, and Hudson Bay. The ultimate goal of integrating research results within this framework is the production of Integrated Regional Impact Assessments that will



be a key tool for decision-makers in developing policies and strategies for an increasingly stressed arctic system. Each of the 40 research projects detailed below contribute to one or more of the four ArcticNet IRISes.



### **IRIS 1: Western and Central Arctic**

Leader: Gary Stern, Fisheries and Oceans Canada  
& University of Manitoba  
Coordinator: Ashley Gaden

### **IRIS 2: Eastern Arctic**

Leader: Trevor Bell, Memorial University of Newfoundland  
Coordinator: Philippe Leblanc

### **IRIS 3: Hudson Bay**

Leader: David Barber, University of Manitoba  
Coordinator: Dan Leitch

### **IRIS 4: Eastern sub-Arctic**

Leader: Michel Allard, Université Laval  
Coordinator: Mickaël Lemay

## **ArcticNet Projects and Project Leaders:**

*\* Newly funded in 2010*

### **Permafrost and Climate Change in Northern Coastal Canada**

**Project Leaders:** Michel Allard and Wayne Pollard

How is permafrost likely to respond to a changing climate? Using regional climate models to determine ground surface temperatures, by means of current and projected climate conditions, this project monitors changes to the landscape, including the development of landforms, modification of drainage patterns, and coastal erosion. The project will provide policy makers, managers and land use planners with the tools needed to assess the impact of landscape modifications on northern communities and ecosystems.



### Impact of Climate Change on Arctic Benthos

**Project Leader:** Philippe Archambault

Life on the ocean floor is astonishingly diverse but still poorly known in polar regions where ice cover and remoteness has restricted sampling. This project establishes benchmarks at biodiversity *hotspots*, areas with a high number of species and abundance, and *coldspots*, where opposite conditions prevail. Knowledge resulting from this research effort will provide a better understanding of how arctic benthos will be affected by climate-driven changes in oceanographic conditions and resource exploitation.

### The Role of Sea Ice in ArcticNet IRISes

**Project Leader:** David Barber

The arctic system is changing from one dominated by multiyear sea ice to one dominated by first-year sea ice-related processes. In the next few decades, marine ecosystems will come under incremental pressure, industrial activity will increase as more exploration and development occurs, and Inuit will find it more and more challenging to use sea ice for cultural and subsistence purposes. This project provides sea ice expertise to the coordinated ArcticNet Integrated Regional Impact Studies of the coastal Canadian Arctic, supplying the required information for sound management of these issues.

### Freshwater-Marine Coupling in Hudson Bay

**Project Leaders:** David Barber and Kevin Sydor

Climate models predict warming in the Hudson Bay watershed that may alter the amount and timing of runoff and therefore the load of suspended solids, dissolved organic matter, nutrients, and heat delivered to the Bay. The overarching objective of this

project is to describe the impact of such runoff on marine processes within Hudson Bay and to examine the cumulative impacts of climate change and hydroelectric development on these processes.

### Analysis of Past Hydro-Climatic Variations in Nunavik

**Project Leader:** Yves Bégin

The 15 percent decrease in Central Quebec precipitation over the last thirty years could have serious socio-economic consequences as nearly 50 percent of the province's hydroelectric production comes from this area. Using an extended network of tree-ring chronologies, the project studies temporal and geographical hydroclimatic variations over the past 250 years and, at some locations, over the last millennium at a yearly resolution. The records and the reconstructions of climatic variables will be used to better grasp the climatic variations over the pre- and post-industrial period.

### Instability of Coastal Landscapes in Arctic Communities and Regions

**Project Leaders:** Trevor Bell and Don Forbes

Future climate scenarios and impacts modelling predict changes in climate variables that may increase coastal landscape instability and hazard risk. Through improved understanding of changes in climate, sea level, sea ice, storms and waves, this project assesses integrated impacts on coastal landscape stability, including flooding, erosion, habitat integrity, and community vulnerability. Together with northern communities and partners, the project integrates local and external research and knowledge on climate change trends and impacts in order to promote informed choices of adaptation measures and enhanced resilience in northern coastal communities.





### Effects of Climate Change on Canadian Arctic Wildlife

**Project Leader:** Dominique Berteaux

Many northern biological systems are undergoing major shifts related to climate change. An understanding of this transformation and its consequences is critical to anticipating ways in which negative and positive effects on wildlife populations may be mitigated or addressed. Through the implementation of a wildlife monitoring program, the project identifies the main vulnerabilities of arctic wildlife to climate change using the collected data to analyze past and present responses of wildlife to climatic variability. Decision makers in the wildlife sector will be provided with a sound basis for developing appropriate management and adaptation strategies.

ArcticNet benefited from the International Partnership Initiative of the Network of Centres of Excellence program to consolidate its numerous international collaborations.

### The Law and Politics of Canadian Jurisdiction on Arctic Ocean Seabed

**Project Leader:** Michael Byers

The possibility that the Arctic Ocean seabed contains vast deposits of hydrocarbons is attracting considerable attention. This research project focuses on several outstanding maritime boundary disputes — involving the United States, Denmark and potentially Russia — that must be resolved before Canada can submit a comprehensive package of information to the UN Commission on the Limits of the Continental Shelf by 2013. The

project will analyze the legal and political differences involved in the different disputes, explore the various options for resolving them, and provide detailed recommendations.

### Food Security, Ice, Climate and Community Health: Climate Change Impacts on Traditional Food Security in Canadian Inuit Communities

**Project Leaders:** Laurie Chan and Christopher Furgal

Collaborating with Canadian Arctic communities, this project seeks to investigate how and to what extent climate change is affecting the traditional diet profile of northern aboriginal residents presently and potentially in the future, and what implications this may have for individuals' health. Using models and qualitative approaches to integrate both scientific and traditional knowledge, the project focuses on nutrition and potential changes in nutrient intake, exposure to contaminants, and levels of food security.

### Population Dynamics of Migratory Caribou in Nunavik/Nunatsiavut

**Project Leader:** Steeve Côté

Migratory caribou are now abundant in northern Quebec and Labrador, but declining almost everywhere else in Canada. The factors responsible for these declines are poorly known. This project establishes how climate, population density, and industrial activities affect caribou abundance and distribution in the Arctic. Partners from government, aboriginal groups and industry will be provided with new tools to monitor the demography of caribou and improve their conservation in the face of a changing Arctic.

### **\*International Inuit Cohort Study:**

#### **Developing the Next Phase**

**Project Leader:** Éric Dewailly

This project merges the data from the major Inuit health surveys conducted in Canada and Greenland. From this new database, health indicators of global changes (environment, climate, modernization, etc.) will be extracted to show geographical differences according to regions and IRIS territories. New information will also be collected at the community level in order to understand if different infrastructure or demographic variables are associated with chronic diseases or risk factors. Finally, the project aims at organizing the follow-up of all participants starting with a new visit planned in 2012 in Nunavik.

#### **Marine Fatty Acids in a Changing Canadian Arctic**

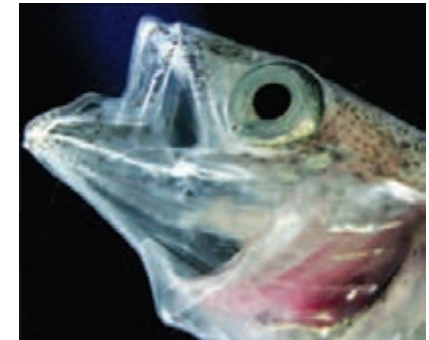
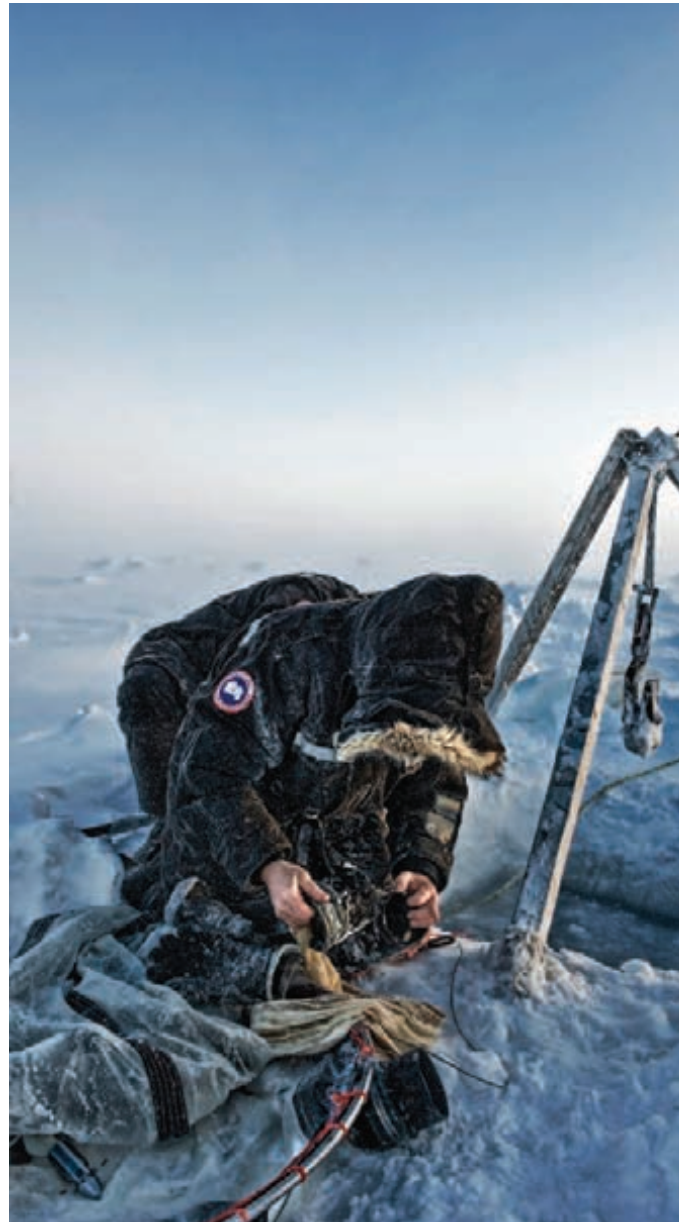
**Project Leader:** Éric Dewailly

Traditional Inuit diet consists mainly of fish, marine and terrestrial mammals, and berries. Marine lipids consumption by Inuit play an especially important role for energy intake and other critical human biological functions. A warming climate might affect the molecular composition of these lipids through changes in microalgae, the basis of the entire arctic food web. This project seeks to understand the impact of these changes on the health of Inuit and to orient public policies to prevent the negative consequences of these changes.

#### **Multi-Species Tracking of Aquatic Animals in the Canadian Arctic**

**Project Leader:** Terry Dick

This project aims to provide current and long-term monitoring of the Arctic Ocean using Canadian-made sensory arrays that







record the physical and chemical conditions of the water column and simultaneously record the movement and behaviour of marine animals through the use of acoustic tags. Partnered with the Ocean Tracking Network, this project is part of a global ocean monitoring network that aims to provide new knowledge so people can make better choices related to their environment, consumption of local plant and animal life, but also to society, economics, culture and health.

#### **\*Integrated Analysis of Human Development in the Canadian Arctic**

**Project Leader:** Gérard Duhaime

Using Inuit health survey data and the ArcticStat socioeconomic circumpolar database, this project proposes to link an integrated analysis of individual social conditions to an analysis of regional structural conditions. The project's overarching goal is to understand the adaptive capacity of Inuit regional societies.

#### **Impacts of Global Warming on Arctic Marine Mammals**

**Project Leader:** Steven Ferguson

Knowing how polar ecosystems may change with global warming will help us develop strategies for conservation and species management. It is important to recognize the changing distribution and numbers of arctic mammals, as Northerners depend on these species as a food source and integral part of their unique culture. This project examines global warming and its effects on water-based mammals in the Arctic. Several aspects of mammal health are studied, including diet, diseases, contaminants, and stress. Research results will help Inuit communities adapt to changes in marine mammal distribution and abundance.

#### **\*Climate Change and Food Security in Regional Inuit Centres**

**Project Leader:** James Ford

Food insecurity is a chronic problem affecting many Inuit communities and is likely to predispose Inuit food systems to the negative effects of climate change. Using in-depth case studies, this project aims at identifying and characterizing the vulnerability of food systems in four regional Inuit centres to climate change as a basis for identifying adaptation entry points.

#### **\*Impacts of Environmental Change on Charr in the Inuvialuit Settlement Region**

**Project Leader:** Chris Furgal

This project uses both Traditional Ecological Knowledge and scientific information to develop environmental indicators for the assessment and monitoring of changes in Arctic charr (*Salvelinus alpinus*) in Inuvialuit Settlement Region communities. This novel research and the outcomes of the development of effective community-based monitoring plans created in direct collaboration with arctic community residents will generate results applicable to other northern communities facing similar changes and challenges.

#### **\*Inuit Knowledge and Geospatial Ontologies in Nunatsiavut**

**Project Leaders:** Chris Furgal and Tom Sheldon

This project proposes to conduct a Participatory GIS and geospatial ontology research exercise with expert knowledge holders in the Nunatsiavut Settlement Area. The goal is the development of a geospatial ontology application and interface that complements existing GIS for in land use planning,

environment and development decision making as well as Inuit knowledge representation and transmission in Nunatsiavut.

#### **\*Community-Driven Research on *H. pylori* Infection in the Inuvialuit Settlement Region**

**Project Leader:** Karen Goodman

*H. pylori* infection has become a major concern for many northern communities and their health care providers. These concerns initiated a large collaborative project to investigate the health risks of *H. pylori* and develop locally appropriate *H. pylori* control strategies. This project seeks to expand these efforts to include other northern communities and ultimately to improve the success of *H. pylori* infection treatment methods, provide health authorities with information to guide relevant public health policy, and to help concerned community members understand *H. pylori* health risks.

#### **Long-Term Observatories in Canadian Arctic Waters**

**Project Leader:** Yves Gratton

This project will correlate sub-surface ocean properties recorded by moored instruments to satellite records of surface temperature, chlorophyll, suspended sediments and sea ice type and thermodynamic state. The objectives are 1) to provide long-term detailed observations of the ocean-sea ice-atmosphere coupling in the Canadian High Arctic, 2) to identify the oceanic/atmospheric processes underlying changes in these variables, and 3) to provide baseline physical information required to understand the complexities of physical-biological coupling in the arctic marine environment.

#### **Impacts of Vegetation Change in the Canadian Arctic: Local and Regional Assessments**

**Project Leader:** Greg Henry

The tundra across the Canadian Arctic is already reacting to climate change. Northerners and scientists are observing changes, such as shrubs getting taller and more numerous. This research team studies changes to tundra vegetation near arctic communities across the North, including changes in the amount of berries produced each year in traditional berry picking areas. Community members are involved in designing the studies and in conducting measurements. The results will be used by communities and will contribute to national and international efforts to understand the responses of tundra ecosystems to climate variability and change.

#### **Integrating and Translating ArcticNet Science for Sustainable Communities and National and Global Policy and Decision-Making**

**Project Leaders:** David Hik and Chris Furgal

This project investigates the arctic policy landscape and how ArcticNet science contributes to informed policy decisions in Canada and globally. This will be accomplished through a quantitative and qualitative analysis of the influence of ArcticNet science on arctic policy development. The conclusions from this project will allow ArcticNet to address the most effective ways to use and translate ArcticNet research results on urgent issues such as climate change into “action” or decision-making at the local, regional, national or international levels.





### \*The Emerging Arctic Security Environment

**Project Leader:** Rob Huebert

This project aims at a better understanding of the developing Arctic security trends in the circumpolar region, and will address these questions: (1) What are the reasons behind the new foreign, defence and security policies of the Arctic states? (2) What are the ramifications of these actions? The project will add to the public policy debate within Canada and across the circumpolar world regarding the possibilities/probabilities for conflict and cooperation in the region. The project will also systematically (3) analyze the relationship between sovereignty, security and safety in Canadian political discourse and policy and (4) critically examine the historic and contemporary practice of Arctic sovereignty and security assertion in evolving cultural, political and spatial contexts.

### The Canadian Arctic Seabed: Navigation and Resource Mapping

**Project Leader:** John Hughes Clarke

This project undertakes the core seabed mapping component of the ArcticNet research program. Acoustic mapping of the seabed relief, sediment distribution and shallow subsurface sediments are the prime datasets used by researchers to understand the geological processes shaping the seafloor, to assess natural hazards, hazards to navigation and coastal habitats, and to reconstruct the history of past climatic changes.

### \*Adaptation, Industrial Development and Arctic Communities

**Project Leader:** Arn Keeling

This project is set to engage in community-based, historical and comparative research on industrial development as a driver of social, cultural and environmental change in the Arctic. In particular, researchers will explore the cultural, economic and environmental impacts of mineral exploration and development on three arctic communities. Ultimately, this project will be useful for communities and policy makers in assessing the potential benefits and impacts of current development proposals.

### High Arctic Hydrological, Landscape and Ecosystem Responses to Climate Change

**Project Leaders:** Scott Lamoureux and Melissa Lafrenière

Research at the Cape Bounty Arctic Watershed Observatory, Melville Island, Nunavut, investigates how climate change affects rivers, permafrost, soils, vegetation, greenhouse gas emissions and the release of contaminants into High Arctic rivers and lakes. This integrated watershed network will provide an unprecedented understanding of the sensitivity and anticipated future effects of climate change on the High Arctic ecosystem. Impact models based on river flow and related environmental systems will be developed for scientists, Northerners and other stakeholders to identify and adapt to the impacts of climate change.

### \*Climate Change and Commercial Shipping Development in the Arctic

**Project Leader:** Frédéric Lasserre

Is arctic shipping really going to develop as fast as generally predicted in Canada? What segments of the shipping industry



could be interested in plying a seasonal, poorly mapped, unserviced northern route? Will containerized cargo liners between Europe and Asia rush to the route? Asking these questions to international shipping companies will enable researchers to evaluate the speed and shape of shipping development in the region.

### Development of an Ocean Modelling Capacity for the Canadian Arctic Archipelago

**Project Leader:** Paul Myers

This project is structured around three objectives: to develop a capacity for ocean and sea ice modelling for the Canadian North and the Canadian Arctic Archipelago, to examine current ocean transports in and out of the entire Canadian Arctic Archipelago and to quantify the processes underlying snow distribution patterns on landfast sea ice in the Canadian Arctic Archipelago.

### Carbon Exchange Dynamics in Coastal and Marine Ecosystems

**Project Leader:** Tim Papakyriakou

Absorption and release of carbon dioxide by the oceans is one of the primary factors controlling the atmospheric CO<sub>2</sub> concentration, and some of the highest CO<sub>2</sub> uptake rates reported anywhere have been observed within the Arctic's peripheral seas. Researchers in this project undertake field studies to parameterize the effects of several factors affecting both the distribution of dissolved CO<sub>2</sub> in arctic surface water and the mechanism by which the gas is exchanged with the atmosphere. Newly developed parameterizations will be implemented into a coupled atmosphere-sea ice-ocean biogeochemistry model to learn how the ocean's response to climate change and variability will affect the atmosphere-ocean cycling of CO<sub>2</sub>.

### Growth Variability and Mercury Tissue Concentration in Anadromous Arctic Charr

**Project Leader:** Michael Power

This project examines climate change related impacts on land-locked and migratory populations of Arctic charr. Differences in total mercury accumulation rates in the two types of Arctic charr will be analysed and the relative influences of diet, temperature and habitat on growth and total mercury accumulation along a north-south gradient will be assessed. An enhanced understanding will permit more accurate prediction of the effects of climate change on the important migratory stocks of Arctic charr used by Inuit in traditional subsistence fisheries. This research will also inform management decisions about the issues associated with country food consumption in the face of climate change.

### Understanding and Responding to the Effects of Climate Change and Modernization in Nunatsiavut

**Project Leaders:** Ken Reimer and Marina Biasutti

This project addresses Inuit concerns about the impacts of climate change, modernization and contaminants on the health of marine ecosystems and communities of northern Labrador. Research will provide important insights into how the environment is changing, what it means for the long term health of marine ecosystems and how northern communities will access and manage their land and freshwater resources in the future. The involvement of Inuit, the Nunatsiavut Government and federal agencies will ensure developed adaptation strategies and policies have direct relevance for the people, industries and environment of northern Labrador.





### **\*Improving Access to University Education in the Canadian Arctic**

**Project Leader:** Thierry Rodon

The goal of this research project is to provide evidence-based research on Inuit participation in university education throughout Inuit Nunaat. A secondary goal is to promote a national discussion amongst providers of university programs in Inuit Nunaat, northern institutions and Inuit organizations in order to define a more coordinated effort in program delivery and curriculum development.

### **Adaptation in a Changing Arctic: Ecosystem Services, Communities and Policy**

**Project Leader:** Barry Smit

This project documents the changing physical, biological and socio-economic conditions that are affecting people in the Arctic and identifies policies and strategies to assist communities in dealing with these changes. The main focus of the project involves integrating scientific and traditional knowledge of ice, permafrost, coastal dynamics and wildlife with information about community use of these ecosystem services. The overarching goal is to identify the opportunities in existing policies and co-management arrangements for adaptation strategies to help communities deal with changing conditions.

### **\*Transience and Social Cohesion in an Arctic Community**

**Project Leader:** Chris Southcott

Using Inuvik, Northwest Territories, as a case study, the researchers, in partnership with community groups, will investigate the extent of mobility in the community, determine what the major negative impacts of this mobility are on community

organizations, and discuss what can be done to mitigate these negative impacts.

### **Effects of Climate Change on Contaminant Cycling in the Coastal and Marine Ecosystems**

**Project Leaders:** Gary Stern, Robie Macdonald, and Feiyue Wang

Contaminants pose a potential hazard to arctic fish and marine mammal health, and ultimately to Northerners that consume their meat as part of their traditional diets. The research will help assess the vulnerability of coastal Inuit communities to climate change, document and project impacts of climate change on traditional food security and community health, and provide the information required by communities, scientists and policy makers to develop adaptation strategies. Findings will help test and shape policy for the future management of contaminant emissions and long range transport to the Arctic and will support integrated ocean management programs.

### **Coping with Atmospheric-Related Hazards in the Canadian Arctic**

**Project Leader:** Ronald Stewart

Atmospheric-related hazards are a major concern to residents in all regions of the Arctic and vulnerabilities to changing weather conditions have been identified in several communities. This study addresses hazards through a combined effort among local communities, social scientists and physical scientists. It also assesses the current knowledge of atmospheric hazards, while identifying past and current hazardous events. Improvements in the prediction of hazards and suggestions for adaptation to changing conditions will then be conveyed to local communities and the public.

### Marine Biological Hotspots: Ecosystem Services and Susceptibility to Climate Change

**Project Leaders:** Jean-Éric Tremblay and Michel Gosselin

The microalgae growing in ice brine channels and in surface water are the source of the arctic marine food web. Changes at the base of the food web are bound to affect the nutrition and spatial distribution of higher trophic level organisms such as seals, whales, and polar bears. This project examines how changes in the physical environment affect the productivity and species dominance of organisms, particularly in the lower part of the food web. A comprehensive synthesis of the whole arctic marine food web will then be assembled and made available to inform stakeholders.

### Freshwater Resources of the Eastern Canadian Arctic

**Project Leader:** Warwick Vincent

Lakes and wetlands are major ecological features of the circumpolar Arctic, and they provide many essential services including habitats for aquatic wildlife, drinking water supplies for northern residents, and water for industrial activities. The project continues and extends observations on lakes and wetlands at key sites in the eastern Canadian Arctic to identify and measure aquatic indicators of environmental change in the past and present. These studies will allow assessments of future changes in northern freshwater ecosystems to help guide the formulation of environmental management and monitoring policies.

### \*Inuit Qaujimagatuqangit and the Transformation of High School Education in Nunavut

**Project Leader:** Fiona Walton

How can Inuit educational leaders work with parents in communities to create a school system to meet the challenges of the 21st century? How can a curriculum grounded in traditional beliefs and values contribute to the personal and academic success of Inuit high school students? This project aims at exploring these questions and documenting the role of culture and language on student learning, in the hope of providing useful ideas and examples as tools for northern communities attempting transformation in local education.

### Hydro-ecological Responses of Arctic Tundra Lakes to Climate Change and Landscape Perturbation

**Project Leader:** Fred Wrona

Significant changes in climatic regimes are expected to have far-reaching impacts on the hydrology and ecology of arctic freshwater ecosystems. This project aims at integrating landscape-lake processes and modelling studies to improve the regional understanding of the upland tundra lakes sensitivities and responses to climate variability and change. An integrated landscape-geochemical, lake-ice, hydroecological model for arctic systems will be developed and validated. The project will produce legacy data and products of direct benefit to the development of adaptation options for the conservation, protection and management of arctic freshwater ecosystems.







ArcticNet's Training Fund has supported the participation of our students in international Arctic schools. The overall result is that ArcticNet students are developing today the future international network of researchers that will study, manage and ensure the stewardship of the Arctic.



## Education and Training

Since 2004, over 500 students and postdoctoral fellows have completed or are completing their training within the uniquely multidisciplinary, trans-sector and international context of ArcticNet. The Network currently supports over 300 graduate students and post-doctoral fellows and 275 research associates and technical staff. Whether at sea on the CCGS *Amundsen* participating in some of the largest international research projects ever conducted, in the arctic tundra or in Inuit communities, at the Annual Scientific Meeting (ASM) and planning workshops, or attending international schools, these young researchers are immersed in trans-sector networking — working, discussing and debating with the best Canadian and foreign experts in the natural, health and social arctic sciences. They have formed the remarkably active ArcticNet Student Association (ASA). Thanks to a dedicated budget from ArcticNet, the ASA holds the Student Day of the Annual Scientific Meeting as well as regional workshops to discuss how to adapt their research to the objectives of the Network. ArcticNet's Training Fund has supported the participation of our students in international Arctic schools. The overall result is that ArcticNet students are developing today the future international network of researchers that will study, manage and ensure the stewardship of the Arctic. The accomplishments of these hundreds of ArcticNet graduate students and post-doctoral fellows in recent years provide a positive direction for the future of Arctic research and the management of an environment buffeted by climate change and globalization.

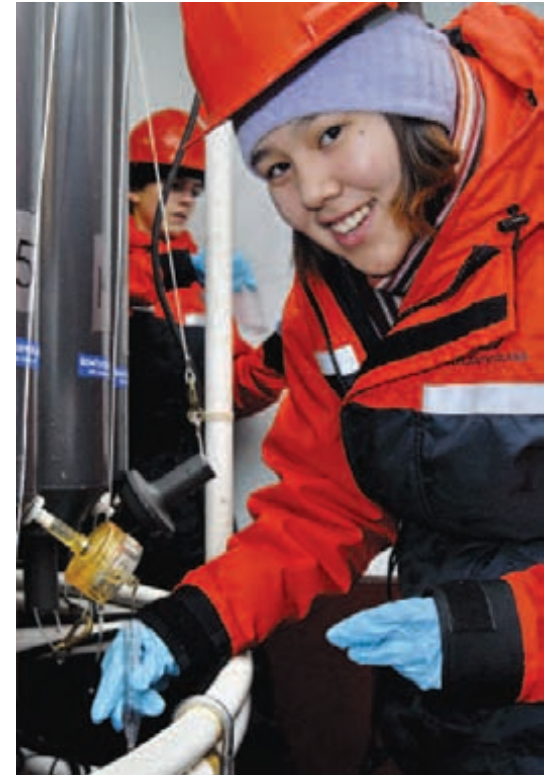
### Schools on Board

Initiated in the first year of ArcticNet, the Schools on Board Program offers high school students and teachers in Canadian schools from coast to coast to coast the opportunity to bridge the gap between arctic science taught in the classroom and research conducted directly in the field. The ultimate goal of the program is to engage youth from northern and southern communities and highlight the education and career opportunities that involve studying and managing the changing Arctic environment. The main thrust of the program is the field program “onboard” the CCGS *Amundsen*. Schools are given the unique opportunity to send students and teachers to the Arctic, onboard the vessel to participate in an educational experience completely integrated into the research activities of the ArcticNet science team.

The 2009 field program took place in the last segment of the 2009 ArcticNet annual scientific expedition at the end of October. Schools on Board participants joined the ArcticNet science teams in Iqaluit, Nunavut. Participants then travelled through Frobisher Bay, across Hudson Strait, along the Labrador Shelf and into the fjords of northern Labrador, proceeded into the Gulf of St. Lawrence, and ended at the Coast Guard base in Quebec City.

### 2010 Arctic Climate Change Youth Forum

In February 2010, ArcticNet Schools on Board co-hosted the 2010 Arctic Climate Change Youth Forum. This forum took place in







*“The research experience that I earned with Schools on Board has not only fuelled my dreams of becoming a researcher, but has given me knowledge that is inspirational and everlasting. I’m so grateful and look forward to my future career in research”*

— 2009 SOB field program student

Winnipeg, Manitoba, in conjunction with the IPY-CFL gala. The youth forum involved over 200 students and teachers from 30 high schools in an outdoor event that included fieldwork stations with arctic researchers, as well as presentations by scientists, environmentalists, and musicians.

On the international front, the Schools on Board program was directly involved in the International Polar Year Education Outreach and Communication book ‘Polar Science and Global Climate: An International Resource for Education and Outreach’, and in the Teachers Workshop at 2010 IPY Oslo Science Conference in June 2010.

### **ArcticNet Student Association**

The ArcticNet Student Association (ASA) continues to exceed expectations. The 2009 Executive Committee composed of highly motivated graduate students from across Canada organized many outreach activities. Designed to broaden the ArcticNet student experience through the promotion of learning, leadership, research and networking, these activities included the writing of articles, the organization of regional and national meetings, and the development of partnerships. ASA members from the University of Manitoba and Université Laval worked closely with Schools on Board to host one-day outreach events with local schools to showcase arctic fieldwork and promote science education. The ASA does not work exclusively with students but also collaborates with academics, partner organizations and Northerners in its value-added approach to challenge students in expanding their educational experiences.



### ASA-APECS IPY International

#### Early Career Researcher Symposium

The ASA partnered with the Association of Polar Early Career Scientists (APECS) to organize the IPY International Early Career Researcher Symposium. The Symposium ran from 4 to 8 December 2009, with the final day overlapping with the annual ASA Student Day. The Symposium brought together 71 young polar researchers from 14 countries for a series of career development sessions. Seven different topics, including *How to Get Started in Science and Data Management*, were introduced by plenary talks given by international experts in polar issues. A total of 22 mentors from six countries, including four from northern communities, contributed their time and expertise to the event. The Symposium also gave participants a chance to give short presentations on their research, and provided opportunities for networking and collaboration.

### The Fifth Annual

#### ArcticNet Student Day

The fifth annual ArcticNet Student Day was held in conjunction with the end of the Association of Polar Early Career Scientists (APECS) Symposium. This allowed an expanded audience of more than 250 students studying different fields of arctic research to participate in the Symposium. Plenary talks in management and research were provided throughout the day by leaders representing different sectors from academia, industry, Inuit organizations and government agencies. The speakers' wide array of expertise allowed for the unique opportunity of introducing young researchers to important initiatives bound to define the future of arctic research in Canada.

### ASA Regional Workshops

With ArcticNet students enrolled in 30 universities across Canada, the ASA developed the concept of regional research groups that provide a forum for discussion and networking to students from the same geographical region. The fourth annual regional workshop for the Quebec region was held at Université Laval in May 2009. More than 40 students from 5 different Quebec universities attended the workshop and learned more about the northern communities with whom they collaborate. The aim of the workshop was to familiarize young scientists with Inuit culture in order to improve work and communication between the two groups.

### Training Fund

Well established within the Network since its inception, the ArcticNet Training Fund encourages ArcticNet students to take part in international field schools covering different axes of Arctic research. This year, 11 students benefitted from the fund to attend high level international training offered by leading Arctic research centers in Canada, France, Norway, Sweden, Germany and the USA. The field courses provide students with expert insight and technical training in fields ranging from glaciology and climate to satellite imagery analysis and microbial ecology.

### Recognition of Excellence for ArcticNet students

#### W. Garfield Weston Foundation

The Garfield Weston Awards for Northern Research is a three year, one million dollar scholarship program initiated during the International Polar Year by the W. Garfield Weston Foundation to





encourage Canada's leadership in northern studies. Each year, seven M.Sc. students and seven Ph.D. students are selected on the basis of academic excellence and commitment to the North. Successful recipients demonstrate an understanding of how their research contributes to northern scholarship and are willing to publicly promote the importance of tackling northern scientific challenges. ArcticNet is honoured to have eight of its graduate students among the 2009-2010 recipients.

**Doctoral Scholarships (\$40 000)**

Jean-François Therrien, Ph.D. student,  
Biology, Université Laval

Julie Veillette, Ph.D. student,  
Biology, Université Laval

Corinne Pomerleau, Ph.D. student,  
Marine Biology, Université du Québec à Rimouski

Laura McKinnon, Ph.D. student,  
Reproductive Ecology, Université du Québec à Rimouski

Isla Myers-Smith, Ph.D. student,  
Ecology/Biological Sciences, University of Alberta

**Masters Scholarships (\$15 000)**

Kaitlin Breton-Honeyman, M.Sc. student,  
Environment and Life Sciences, Trent University

Melanie Irvine, M.Sc. student,  
Geography, Memorial University of Newfoundland

Jennifer Knopp, M.Sc. student,  
Watershed Ecosystem, Trent University

**Lorraine Allison Memorial Scholarship**

Jennifer Knopp also received this year's Lorraine Allison Memorial Scholarship, a program administered by the Arctic Institute of North America. Open to any student enrolled in a Canadian university in a program of graduate studies related to northern issues, this scholarship program celebrates academic excellence, a demonstrated commitment to northern research, and a desire for research results beneficial to Northerners.

**ASM2009 Graduate Student Poster Award**

To encourage student research, ArcticNet holds an annual poster competition for excellence in research and presentation during its Annual Scientific Meeting (ASM). Prizes of up to \$500 were awarded to the winners of the 2009 ArcticNet Graduate Student Poster Awards.

### Natural Sciences - Marine

- Kaitlin Breton-Honeyman, Trent University,  
*Investigation of Beluga (*Delphinapterus leucas*) Habitat Ecology Through Traditional Ecological Knowledge (TEK) in Northern Quebec (Nunavik), Canada.*
- Sélima Ben Mustapha, Université de Sherbrooke,  
*Ocean Color Algorithms in the Amundsen Gulf: New Parameterization Using SeaWiFs, MODIS and Meris Spectral Bands.*
- Gérald Darnis, Université Laval, *Zooplankton Dynamics and Active Flux of Carbon in Amundsen Gulf.*

### Natural Sciences - Terrestrial

- Arnaud Tarroux, Université du Québec à Rimouski,  
*The Marine Side of a Terrestrial Mammal: Trophic Niche and Diet Specialization of Arctic Foxes.*
- Joëlle Taillon, Université Laval,  
*Moving in the Tundra: Changes in Selection and Timing of Use of Summer Habitat by Migratory Caribou.*
- Melanie Irvine, Memorial University of Newfoundland,  
*Building on Unstable Ground: Identifying Physical Landscape Constraints on Infrastructure Sustainability and Planning in Nunavut Communities.*

### Health and Social Sciences

- Christina Goldhar, Memorial University of Newfoundland,  
*Bringing Water to the Cabin: Vulnerability of Drinking Water Systems Under a Changing Climate in Nunatsiavut.*
- James Baker, University of British Columbia,  
*The Potential Role of Institutions in Consolidating Territorial Dispute Resolutions in the Arctic.*

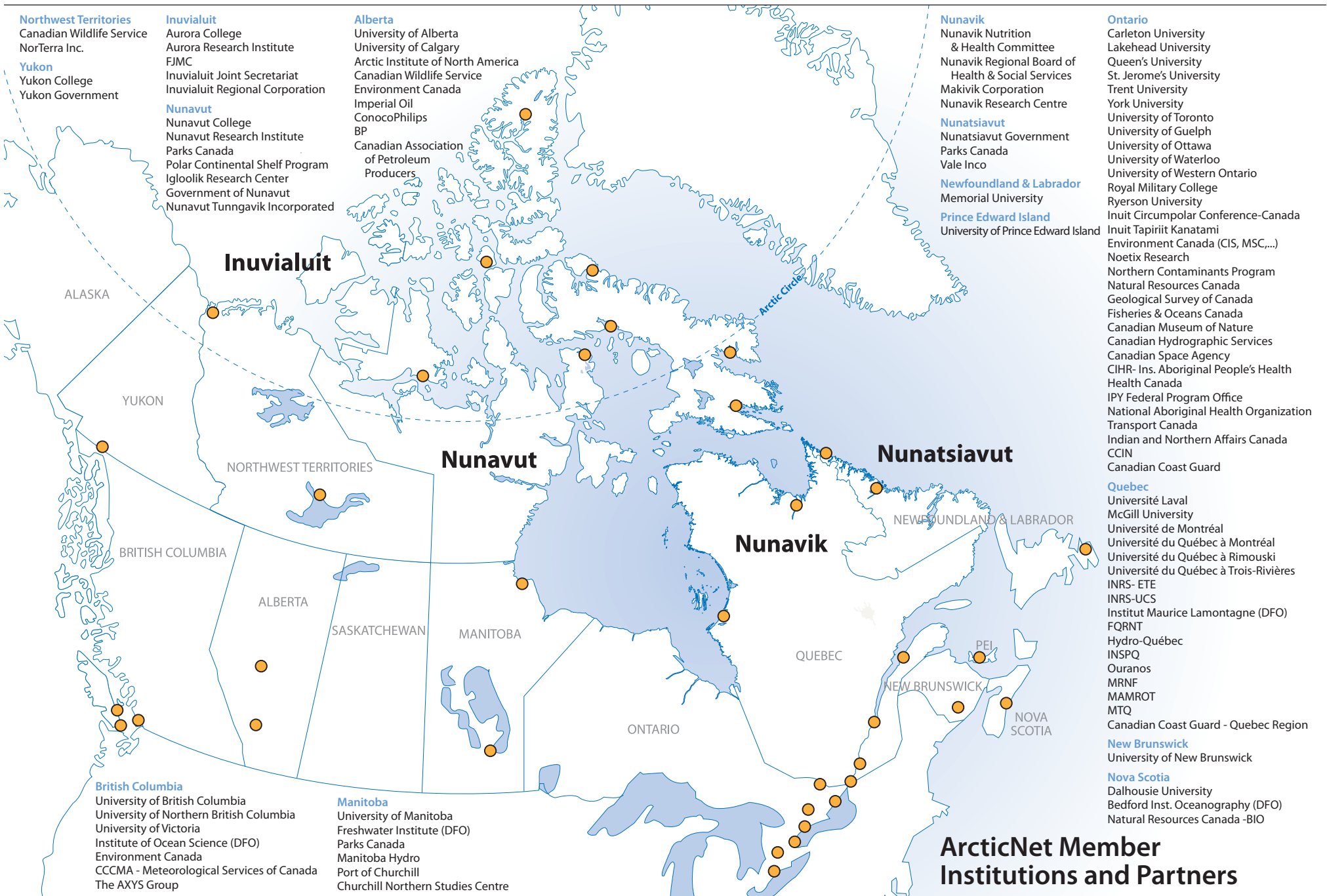


- Eva Patton, University of Manitoba,  
*Fisheries Co-Management and Adaptation in a Changing Arctic: a Case Study of Dolly Varden Charr Subsistence Fisheries Co-Management in NWT.*

### Inuit Partnership of Excellence Award

- Jennie Knopp, Trent University,  
*Uniting Traditional Ecological and Scientific Knowledge of Charrs and Environmental Indicators to Create an Arctic Charr Community-Based Monitoring Plan.*





## Networking and Partnerships

ArcticNet is a truly pan-Canadian network with strong international connections, reflecting the global dimension of arctic issues. At the eve of our second funding cycle, 30 Canadian universities, 28 programs, agencies and laboratories in 8 federal departments, 18 Inuit organizations, 10 private sector partners, and 9 provincial departments and agencies participate meaningfully in the Network. These partners are distributed in all Canadian provinces, northern territories and Inuit Land Claim Settlement Regions, covering not only the usual along-the-US-border east-west dimension of Canada, but her south-north dimension as well. An increasing number of academic and government-based partners in the USA, Norway, France, Denmark, the UK, Spain, Russia, Japan and Germany provide the international dimension of ArcticNet.

### Partnership with Inuit

With ArcticNet research focused on the coastal Canadian Arctic, Inuit are the first and foremost partners for ArcticNet generated knowledge. Since 2004, ArcticNet has engaged Inuit directly at all levels of the planning of the research program and the strategic framework. ArcticNet now collaborates closely with Inuit Tapiriit Kanatami (ITK) and the Inuit Circumpolar Council (Canada) in developing and conducting its research program and defining its Strategic Plan. The Network is also consolidating liaisons with the four Inuit regions of Canada by increasing regional representation on its Research Management Committee and Board of Directors.

*“ArcticNet has served as an important neutral catalyst under which we have been able to create synergistic partnerships between various levels of government, industry and academia. We also acknowledge the great efforts by ArcticNet over the recent past to conduct research that is a priority within the region, including the support of the integration of Inuit Knowledge and the meaningful involvement of Nunatsiavimmiut into the research process. The continuance of ArcticNet is of strategic importance for our region. We view research and a partnership with ArcticNet as an opportunity to create an industry that can deliver benefits, build capacity within our people and help sustain our culture and our knowledge.”*

— James Lyall, President, Nunatsiavut Government

Consulting Inuit and northern stakeholders in over 50 remote coastal Arctic communities scattered over millions of km<sup>2</sup> presents important logistical and financial challenges. In an alliance with the Northern Contaminants Program (NCP) and the Nasivvik Centre for Inuit Health and Changing Environments, ArcticNet supports an Inuit Research Advisor (IRA) position in each of the four Inuit regions. The mandate of the IRAs includes the facilitation of community visits and consultations to present research projects to northern communities and research licensing bodies and the collection of input by Northerners into specific projects and the overall research program of ArcticNet.

## Attracting world leading researchers and their teams to the Network

The Canada Excellence Research Chairs (CERC) program was announced in 2008 as part of the government's Science and Technology Strategy to help build Canadian expertise in strategic

*"The Arctic Ocean is not limited by national boundaries. It is one ecosystem encircled by three continents and extensive hinterland. Each sector of the Arctic Ocean is vastly different and arctic countries must therefore work together to solve the challenges faced in the Arctic. ArcticNet is an excellent partner in ensuring sustained international collaboration in the Arctic."*

— Paul Wassmann, leader of the network ARCTOS at University of Tromsø.

areas. In May 2009, the Honourable Tony Clement, Minister of Industry, announced the first recipients of the program. A total of 19 CERCs were awarded in 13 Canadian universities across the country. Among the recipients, two world-class Arctic marine researchers are joining the ranks of ArcticNet at Université Laval and at the University of Manitoba, consolidating the well-established reputation of these institutions as preeminent centres of excellence in Arctic research. At Université Laval, Dr. Marcel Babin will hold the Canada Excellence Research Chair in Remote Sensing of Canada's New Arctic Frontier. At the University of Manitoba, Dr. Søren Rysgaard will lead the Canada Excellence Research Chair in Arctic Geomicrobiology and Climate Change. Both researchers and their teams have joined the ranks of ArcticNet and will make use of the Canadian research icebreaker CCGS *Amundsen* to access the coastal Canadian Arctic. Each chair holder was awarded \$10 million by the Government of Canada over the next seven years. This \$20 million investment will be leveraged by the two teams over the same period with

an additional investment of over \$60 million from the host universities and partners in the public and private sectors.

## Growing international collaborations

In the last years, ArcticNet has benefited from incredible opportunities to create and strengthen its ever-growing international collaborations. Building even further on the momentum of IPY in 2007-2009 and the International Partnership Initiative (IPI) of the Network of Centres of Excellence program, ArcticNet has consolidated many partnerships that have in turn enhanced the Network's recognition and contribution at a global level. New developments in 2009-2010 include:

### CNRS-funded Canada-France Unité Mixte internationale in Arctic Sciences

In June 2009 in Paris, ArcticNet Scientific Director Louis Fortier presented the president of France's Comité National de la Recherche Scientifique (CNRS) with the idea of establishing a CNRS Unité Mixte Internationale for Arctic research at Université Laval. The agreement between Laval and the CNRS to create the UMI *Takuvik: the international centre for the study and modelling of arctic and subarctic ecosystems and geosystems* was signed on 19 July 2010. The strategic objectives of the UMI are (1) to provide French polar specialists with access to the Canadian Arctic and Canada's northern research infrastructure, and (2) to enrich the ongoing Canadian effort with scientific and engineering expertise from France. The UMI will bring in residence to Université Laval several teams of CNRS experts and technicians in arctic sciences. Each team is matched to a corresponding Canadian team. The Takuvik UMI is a unique avenue to consolidate international collaborations within ArcticNet and adds a new centre of excellence to the Network.





Building even further on the momentum of IPY in 2007-2009 and the International Partnership Initiative (IPI) of the Network of Centres of Excellence program, ArcticNet has consolidated many partnerships that have in turn enhanced the Network's recognition and contribution at a global level.

### MALINA

In collaboration with ArcticNet and NASA researchers, the French-led Malina project boarded the CCGS *Amundsen* during the 2009 expedition. The cost for ship time, highly-qualified personnel, and sampling and laboratory equipment were shared among the collaborators during the expedition. Malina's overarching objective is to study the effect of light on carbon fluxes through the dynamics of the arctic sea ice cover.

*"The research not only assists industry in our design and operational planning, but the collaborative approach also benefits other northern stakeholders, including regulators and the public, by making the data publicly available. ArcticNet research provides a vehicle to deliver credible scientific data that all northerners will benefit from."*

— Mike Peters, Manager, Northern Canada Operations,  
Canadian Association of Petroleum Producers

### SCANNET

In October 2009, the Centre for Northern Studies (CEN), one of ArcticNet's major Centres of Excellence, signed a Memorandum of Understanding with the large international SCANNET, a network of terrestrial field bases, research stations managers and user groups that collaborate to improve comparative observations and access to information on environmental change in the circumpolar North. The agreement will increase the CEN's international visibility and encourage scientific collaboration and exchange between nations. It also strengthens Canada's contribution to the emerging Sustaining Arctic Observing Network (SAON) international initiative.

### SEARCH

The American SEARCH (Study of Environmental Arctic Change) is an interagency effort currently supporting nearly 70 projects to understand the nature, extent, and future development of the system-scale transformation of the Arctic. SEARCH shares with ArcticNet the goal of integrating research results across the natural, health and social sciences. The two networks are presently discussing an MoU to increase collaboration and coordinate activities.

### Consolidating collaborations with the private sector

As an important part of its mandate, ArcticNet continues to consolidate collaborations between the academic and the private sector. Building on existing collaborations with Manitoba Hydro, the Network recently initiated major new research collaborations with the Oil and Gas industry.

Offshore oil and gas exploration in the Arctic is at the top of the national and international political agenda. Following recent events in the Gulf of Mexico, the National Energy Board of Canada is now conducting a review on Arctic offshore exploration and the Government of Canada recently launched the Beaufort Regional Environmental Assessment (BREA). In 2009-2010, ArcticNet initiated a major research collaboration with Imperial Oil Resources Ventures Limited that allowed network researchers to increase their environmental, geophysical and geological data collection efforts onboard the CCGS *Amundsen* in the offshore areas of the Beaufort Sea where the government of Canada recently awarded exploration licences. Owned by ArcticNet, the additional data collected through this novel collaborative



approach will not only assist industry in its design and operational planning, but will also benefit other stakeholders, including regulators, Northerners and the public, by making the data publicly available. As an independent academic network, ArcticNet provides a scientifically endorsed mechanism for making the same reliable data accessible to all parties when proposing developments and when stipulating regulatory conditions. Based on the great success of this initial collaboration, a similar agreement was reached in early 2010 with BP Exploration Operating Company Limited to extend the data collection campaign in their neighbouring offshore exploration acreages. Through these collaborations and other ongoing network research activities, ArcticNet is now a major player in informing policy makers on the complex issues linked to oil and gas development in the Canadian Arctic.

### ArcticNet Annual Scientific Meeting: Canada's Premier Arctic Conference

Soon after its first edition in December 2004, ArcticNet's Annual Scientific meeting quickly became THE annual Arctic science meeting in Canada. Filling a much needed niche, the ASM has now developed in a well established, recurrent and extremely well attended national and international Arctic research conference. Held annually in early December, the conference now attracts between 400 to 900 participants annually. Opening with a dedicated Student Day, organised and led by the ArcticNet Student Association (ASA), the ASM is recognised as one of the most dynamic and multidisciplinary Arctic meetings in the world. The large participation rate of dynamic graduate students and young scientists has brought a much needed rejuvenation in this type of meeting in Canada and to the Arctic research community in general.



ArcticNet's sixth Annual Scientific Meeting (ASM2009) was held from 8 to 11 December 2009 at the Fairmont Empress Hotel and adjoining Victoria Conference Centre in Victoria, British Columbia. With 425 participants, the ASM2009 was a powerful networking event, providing an essential opportunity for network investigators, post-doctoral fellows, graduate students, research staff, network partners, board and committee members, together with their partners from Inuit organizations, the industry, and governments, to meet face to face and exchange research results. More than 110 oral presentations and 140 scientific posters from all fields of arctic management and research were proposed during the meeting, reflecting the astonishing scientific achievements and high level of multidisciplinary supported by ArcticNet.





Most importantly, ArcticNet has developed a precise plan to ensure the full participation of university-based arctic specialists across Canada in the research programs that will be supported by the Northern Strategy and its associated Canadian High Arctic Research Station (CHARS) and polar icebreaker Diefenbaker to be inaugurated in 2018.

## Sharing Knowledge

ArcticNet research results are increasingly accessible to decision makers, fellow scientists, and the general public. Published research results also spur new and more innovative projects, and increase the possibilities for collaborations. At the community level, access to results enables individuals to make informed decisions about their environment. It also orients decision makers towards addressing the issues that Northerners deal with on a daily basis.

This year alone, ArcticNet members delivered 562 scientific publications, with 153 in refereed journals. Research results were also presented in numerous other formats, including book chapters, conference proceedings, letters, parliamentary commissions, radio and television shows, technical reports, theses, websites and workshops.

### Informing policy

Over the last few years, the Network's influence on policy has been pervasive, helping bring the Arctic question to the forefront of the political agenda. The research priorities and gaps identified by ArcticNet informed both the Canadian International Polar Year program and Canada's new Northern Strategy. The Northern Strategy encapsulates Canada's policy to adapt northern communities to climate change and modernization, and to develop the natural resources of the Canadian Arctic all the while protecting its ecosystems. The four pillars of the Strategy are clearly mirrored in the research spectrum of the Network

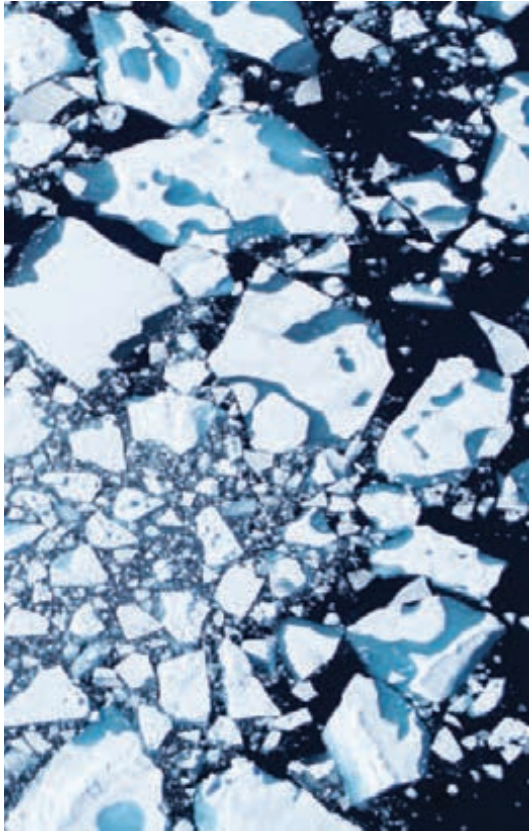
*“Over the past six years, ArcticNet and Indian and Northern Affairs Canada (INAC) have established a number of major collaborations that have been integral to furthering our understanding of Canada's Arctic environments, providing information necessary for sound policy and decision-making, particularly in support of Canada's Northern Strategy. ... As the Government of Canada carries on implementing its Northern Strategy, continued collaborations between ArcticNet and INAC will be important over the coming years.”*

— Patrick Borbey, Assistant Deputy Minister, Northern Affairs,  
Indian and Northern Affairs Canada

covering arctic sovereignty, sustainable resource development, adaptation to climate change, the stewardship of arctic ecosystems, and Inuit control of their economic, health and cultural destiny. All projects making up ArcticNet's research program and the Network's several research partnerships contribute to define and implement the policy underpinning the four pillars of the Strategy.

ArcticNet's IRIS framework and the direct involvement of policy makers from federal departments, Inuit governance and the private sector in the stewardship and activities of the Network and the orientation of the scientific program encourage the needed two-way exchange between science and policy.





### Bacon and Eggheads Seminars

Since the beginning of ArcticNet in 2004, six network investigators have had the privilege of presenting their research as part of the Bacon and Eggheads seminar series. By bringing together Parliamentarians with experts in science and engineering, showcasing outstanding Canadian research accomplishments, this prestigious forum offers a unique opportunity for scientists to communicate important findings to a distinguished and influential audience, including key decision makers.

In October 2009, Prof. David Barber made a presentation to Parliamentarians on his 2009 expedition onboard the CCGS *Amundsen* and shared his field observations of the actual state of multiyear sea ice that may be worse off than that assessed through remote sensing.

### Polar Data Catalogue

The wealth of knowledge and data generated by polar research must be managed to ensure and maximize the exchange and accessibility of relevant data, and to leave a lasting legacy. The Polar Data Catalogue ([www.polardata.ca](http://www.polardata.ca)) is a data centre that describes and provides access to diverse Arctic and Antarctic datasets. The records cover a wide range of disciplines from natural sciences and policy, to health and social sciences. In addition to all data collected through ArcticNet, the catalogue now hosts metadata from research institutions, centres, and programs across Canada and abroad, including the Northern Contaminants Program, the Circumpolar Biodiversity Monitoring Program, and the International Polar Year Program. A geospatial search tool is now available to the public and researchers alike and allows users to search for data using a web-based mapping

interface, in combination with other search parameters (keywords, date, research group, etc.). Metadata are entered via a streamlined portal, are subjected to quality control and approval, and are then available for exchange with other international databases. Full data archiving is now being implemented and new geomatics tools are being incorporated in collaboration with the new Canada Excellence Research Chair on Remote Sensing of Canada's New Arctic Frontier. Collaborations are also underway with the GEOIDE NCE to add Spatial Online Analytical Processing (SOLAP) capacity to the Catalogue. The Polar Data Catalogue was developed as a collaborative effort between ArcticNet, the Canadian Cryospheric Information Network (CCIN), and the Department of Fisheries and Oceans Canada (DFO) to facilitate the exchange of information on the Canadian Arctic between researchers and other user groups, including northern communities and international programs. The management of the Polar Data Catalogue is now coordinated by the inter-agency Polar Data Management Committee, which includes representatives from CCIN, ArcticNet, Centre for Northern Studies, Northern Contaminants Program, DFO, Environment Canada, and IPY-Canada.

### Bringing Arctic issues to the General Public

From an appearance on "One on One" with Peter Mansbridge to a Bacon and Egghead allocation on Parliament Hill and through dozens of editorials in major national and international magazines and newspapers, ArcticNet, its researchers, and its research infrastructure the CCGS *Amundsen*, have once again contributed substantially to inform the general public about the complex environmental and social issues facing the rapidly changing Arctic world.



### In the Media

Throughout 2009-2010, ArcticNet maintained a high level of national and international media coverage through television, radio, web and print outputs.

With the high level of expertise available within ArcticNet, the management and researchers of the Network are often called upon by the media for interviews regarding issues of critical importance to Canadians and their government. Many projects led by ArcticNet Network Investigators received intense national and international media coverage, raising arctic climate change research awareness to millions of viewers and readers worldwide. Among some of the highlights are:

- Over 250 articles featuring ArcticNet research were produced by international (BBC, Nature, National Geographic), national (CBC, Canwest Global, Toronto Star) and northern (APTN, CBC North, Nunatsiq News) media and published in numerous countries including Belgium, Brazil, Canada, China, France, India, Italy, Norway, Russia, Spain, the UK, the USA and Venezuela.
  - The French magazine Le Figaro published an 8-page report on ArcticNet's research onboard the CCGS *Amundsen*.
  - ArcticNet Network Investigator David Barber was a featured guest on the CBC's "One on One" with Peter Mansbridge.
  - Inuit leaders and ArcticNet Board members Mary Simon and Duane Smith were omnipresent in the news over the last year, expressing Inuit points of views on topics such as Inuit education, health, arctic sovereignty, the status of the polar bear, and the EU seal trade ban.
  - A three part documentary entitled "Arctic Meltdown", featuring ArcticNet researchers aired on Radio-Canada's *Découverte* and on CBC's *The Nature of Things*.
- Gary Stern's work on mercury levels in certain arctic seals was covered in national and international media outlets.
  - Éric Dewailly's findings about the negative impacts of mercury on blood pressure were presented in several newspaper articles from Brazil, Canada, Nunavik, the USA and Venezuela.
  - David Barber's publication in the peer reviewed journal *Geophysical Research Letters* was mentioned in many international outlets.
  - Dr. Egeland's results, the first to be published from the *Qanuqpit? Qanuippitali? Kanuivit?* 2007-2008 Inuit Health Study appeared in an issue of the *Canadian Medical Association Journal*. The results were also reported in many



*“The value of ArcticNet as a single access point to over 200 research scientists cannot be underestimated as we work to build greater understanding and appreciation of Canadian science and those who conduct it. We envision a strong role for ArcticNet as we develop these future initiatives and look forward to working with your staff, researchers and partners in a renewed and strengthened collaboration.”* — John Nightingale, Ph.D., President & CEO, Vancouver Aquarium Marine Science Centre



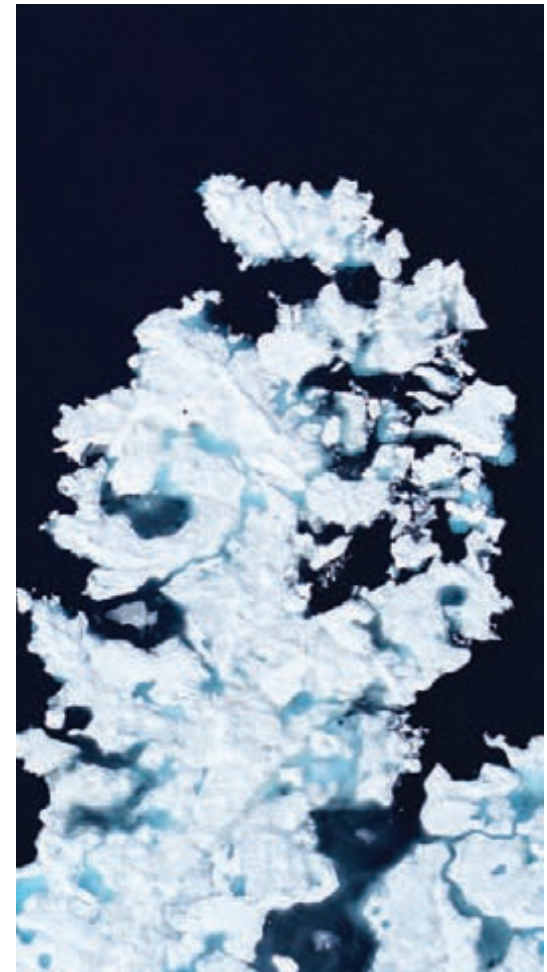
news outlets including the Montreal Gazette, McGill News, eScience News, Physorg.com, CBC, MedicalNewsToday, Global TV News, CTV and USAToday.

- ArcticNet Ph.D. student Laura McKinnon and network investigator Joël Bêty's groundbreaking research on bird migration was published in the prestigious scientific journal *Science* and featured in many media outlets such as the Los Angeles Times, CBC, ScienceBlogs, Ocean Conserve, National Public Radio (Washington), Vancouver Sun, Ottawa Citizen, and Christian Science Monitor.
- ArcticNet Network Investigators also produced general audience books such as the photo book "Two Ways of Knowing" by Prof. David Barber, providing an insider's view on arctic research during IPY, and the comprehensive book "Who Owns the Arctic?" by Prof. Michael Byers addressing arctic sovereignty issues. National magazines have also taken interest in ArcticNet activities such as the IPY special edition of *Canadian Geographic* and the March edition of *University Affairs*.

#### Canada's Arctic exhibit at the Vancouver Aquarium

In addition to the tremendous inherent value of the science conducted by ArcticNet researchers, the Vancouver Aquarium has benefited greatly from the contributions made by ArcticNet staff and scientists toward the development of its new Canada's Arctic gallery. ArcticNet's assistance in providing imagery and content, connecting Aquarium staff with scientific experts in various fields, reviewing texts and graphics and in facilitating opportunities for the content team to capture imagery and conduct interviews proved invaluable to the Aquarium. With a strong focus on ArcticNet research and the CCGS *Amundsen*, the Canada's Arctic gallery and associated live programming have exposed over 900,000 visitors from across Canada and abroad to the work of ArcticNet and its partners since its inauguration in October 2009. For the first time in its history, the Aquarium also offers some of the content of its Arctic exhibit online ([www.vanaqua.org/canadasarctic](http://www.vanaqua.org/canadasarctic)). ArcticNet's collaboration with the Aquarium is consolidating and moving forward as they plan for an increasing presence of Arctic content in the future.





With a strong focus on ArcticNet research and the CCGS *Amundsen*, the Vancouver Aquarium's Arctic gallery and associated live programming have exposed over 900,000 visitors from across Canada and abroad to the work of ArcticNet and its partners since its inauguration in October 2009.



# ArcticNet Community Communauté ArcticNet

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Emmanuel Guy  
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Guillaume St-Onge

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Jean-Éric Tremblay  
Jean-Pierre Tremblay  
Warwick Vincent

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John England  
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Alastair Franke  
Karen Goodman

David Hik  
Monika Keelan  
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**University of Prince Edward Island**

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Gregory Flato  
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Verena Tunnicliffe  
Svein Vagle  
Frederick Wrona

**University of Waterloo**

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Marlene Evans  
Michael Power

**University of Western Ontario**

Gordon McBean  
Karen Pennesi

**University of Winnipeg**

Samantha Arnold

**Wilfrid Laurier University**

Derek Armitage

**York University**

Kathy Young



# ArcticNet Partners

## Partenaires d'ArcticNet

### ᐃᐅᐅᓃᑦᑕᓃᑦᑕᐅᑦ ᑕᐅᐅᓃᑦᑕᓃᑦᑕᐅᑦ

#### Federal Departments and Agencies Ministères et organismes fédéraux ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ

- Canadian Museum of Nature
- Canadian Polar Commission
- Canadian Space Agency
- Environment Canada
  - Canadian Wildlife Service
    - Atlantic Region
    - Northern Conservation Division
    - Ontario Region
    - Prairie and Northern Region
    - Quebec Region
  - National Water Research Institute
  - Science and Technology Branch
- Fisheries and Oceans Canada
  - Canadian Coast Guard
  - Canadian Hydrographic Service (Central and Arctic Region)
  - Freshwater Institute
  - Institute of Ocean Sciences
  - Maurice Lamontagne Institute
  - Science Branch Newfoundland and Labrador
  - Science Sector
    - National Centre for Arctic Aquatic Research Excellence
- Government of Canada
- Health Canada
  - First Nations and Inuit Health Branch
- Indian and Northern Affairs Canada
  - Northern Science and Contaminants Research Directorate
    - Northern Contaminants Program
  - Northern Scientific Training Program
  - Program for International Polar Year

- National Defence
- Natural Resources Canada
  - Earth Sciences Sector
    - Canada Centre for Remote Sensing
    - Climate Change Impacts and Adaptation Program
    - Geological Survey of Canada
    - Polar Continental Shelf Program
  - Energy Sector
    - Office of Energy Research and Development
- Parks Canada
  - Nunavut Field Unit
  - Torngat Mountains National Park Reserve
- Public Health Agency of Canada
- Species at Risk Program
- Transport Canada

#### Provincial Departments and Agencies Ministères et organismes provinciaux ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ

- Coopération Québec Bavière, Chancellerie Bavaroise
- Fonds québécois de recherche sur la nature et les technologies
- Government of Newfoundland and Labrador (Environment and Conservation)
- Institut national de santé publique du Québec
- Ministère des Affaires municipales et des Régions du Québec
- Ministère des Ressources naturelles et de la Faune du Québec
- Ministère des Transports du Québec

#### International Inuit Organization Organisation internationale inuite ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ

Inuit Circumpolar Council (Canada)

#### National Inuit Organization Organisation nationale inuite ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ

Inuit Tapiriit Kanatami

#### Regional Organizations, Agencies, and Governments Gouvernements, agences et organisations régionales ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ, ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ

Nunatsiavut Region:

- Nunatsiavut Government
- Torngat Joint Fisheries Board

Nunavik:

- Kativik Environmental Advisory Committee
- Kativik Municipal Housing Bureau
- Kativik Regional Government
- Makivik Corporation

Nunavut:

- Nunavut Tunngavik Incorporated
- Government of Nunavut
- Nunavut Implementation Fund
- Nunavut Wildlife Management Board
- Nunavut Wildlife Research Trust

Inuvialuit Region:

- Inuvialuit Joint Secretariat
- Inuvialuit Regional Corporation
- Fisheries Joint Management Committee

#### Northern Communities Communautés nordiques ᐅᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᐅᑦᑕᑦᑕᑦᑕᑦ

- Churchill, MB
- Aqvituk, NL (Hopedale)
- Nunainguk, NL (Nain)
- Kikiak, NL (Rigolet)
- Aklavik, NT
- Inuvik, NT
- Paulatuk, NT
- Sachs Harbour, NT
- Tuktoyaktuk, NT
- Uluhaktuk, NT (Holman)
- Arviat, NU
- Iqalukuttiaq (Cambridge Bay)
- Iglulik, NU (Igloolik)
- Ikpiarjuk, NU (Arctic Bay)
- Iqaluit, NU
- Kangiqliniq, NU (Rankin Inlet)
- Kangiqtuqaapik, NU (Clyde River)
- Kugluktuk, NU
- Kuugaarjuk, NU (Kugaaruk)
- Mittimatalik, NU (Pond Inlet)
- Naujaat, NU (Repulse Bay)
- Panniqtuuq, NU (Pangnirtung)
- Qamani'tuaq, NU (Baker Lake)
- Qausuittuq, NU (Resolute Bay)
- Salliq, NU (Coral Harbour)
- Sanikiluaq, NU
- Sanirajak, NU (Hall Beach)
- Tikrarjuaq, NU (Whale Cove)
- Kangiqsualujjuaq, QC
- Kangirsujuaq, QC



Kuujuaq, QC  
 Kuujuaaraapik, QC  
 Salluit, QC  
 Umiujaq, QC

**Industries**  
**Industries**  
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BP Exploration Operating Company Ltd  
 ConocoPhillips Canada  
 Campbell Scientific  
 Golder Associates  
 Hydro-Québec  
 Imperial Oil Resources Ventures Limited  
 Kongsberg Maritime  
 Manitoba Hydro  
 New Brunswick Innovation Foundation  
 NorTerra Inc.  
 OmniTRAX  
 Québec Outfitter Federation Inc.  
 The Axys Group  
 Xstrata Nickel

**Universities and Institutes**  
**Universités et instituts**  
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Alfred Wegener Institute Foundation  
 for Polar and Marine Research  
 Canadian Circumpolar Institute,  
 University of Alberta  
 Carleton University  
 Centre d'études nordiques, Université Laval  
 Centre de recherche du Centre hospitalier de  
 l'Université Laval  
 Centre for Earth Observation Science,  
 University of Manitoba  
 Circumpolar Flaw Lead System Study,  
 University of Manitoba  
 Institut des sciences de la mer de Rimouski  
 Institut national de la recherche scientifique -  
 Eau, Terre et Environnement

Institute of the North  
 McGill University  
 Memorial University of Newfoundland  
 Nasivik Centre  
 Nunavut Arctic College – Kivalliq campus  
 Nunavut Research Institute  
 Québec-Océan, Université Laval  
 Trent University  
 Université du Québec à Rimouski  
 Université Laval  
 University of Alberta  
 University of British Columbia  
 University of Manitoba  
 University of Victoria

**Others**  
**Autres**  
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Canadian Wildlife Federation  
 Centre national de la recherche scientifique  
 Garfield Weston Foundation  
 German Research Foundation  
 International Polar Year CAVIAR project  
 Kenneth M Molson Foundation  
 Minerals Management Service  
 National Science Foundation  
 Ouranos Consortium  
 Polar Bears International  
 Sea Duck Joint Venture  
 World Wildlife Fund Canada

## Financial Summary / Sommaire financier

ArcticNet was audited in June 2010 in accordance with generally accepted Canadian auditing standards. The following figures and financial overview are prepared from the unqualified financial statements.

ArcticNet a été vérifié en juin 2010 selon les normes de vérification généralement reconnues au Canada. Les données financières suivantes sont extraites des rapports financiers produits sans restriction.

### Revenues, expenses and net assets | Revenus, dépenses et actifs nets

For fiscal year ending March 31, 2010

Pour l'année fiscale se terminant le 31 mars 2010

<b>Revenues</b>	<b>Revenus</b>	<b>2009-2010</b>
Networks of Centres of Excellence Grant (NCE)	Subvention des Réseaux de centres d'excellence (RCE)	\$ 6,441,000
Network partner contributions (Non-NCE)	Contributions des partenaires du réseau (Non-RCE)	8,770,031
Others	Autres	191,869
		<b>15,402,900</b>
<b>Expenses</b>	<b>Dépenses</b>	
Research Projects (NCE)	Projets de recherche (RCE)	3,137,858
Research Projects (Non-NCE)	Projets de recherche (Non-RCE)	1,833,380
Core infrastructure (NCE)	Infrastructure majeure (RCE)	2,258,798
Core infrastructure – (Non-NCE)	Infrastructure majeure – (Non-RCE)	6,021,472
Amortization of equipment (Non-NCE)	Amortissement équipement (Non-RCE)	1,216,090
Administrative Centre	Centre administratif	1,565,994
		<b>16,033,592</b>
<b>Surplus (deficiency) of revenues over expenses</b>	<b>Excédent (déficit) des revenus sur les dépenses</b>	(630,692)
Net assets, beginning of year	Actifs nets, début de l'exercice	2,171,508
<b>Net assets, end of year</b>	<b>Actifs nets, fin de l'exercice</b>	<b>\$ 1,540,816</b>



## Balance Sheet | Bilan

For fiscal year ending March 31, 2010

Pour l'année fiscale se terminant le 31 mars 2010

<b>Assets</b>	<b>Actifs</b>	<b>2009-2010</b>
Cash	Encaisse	\$ 3,670,641
Accounts receivable	Comptes à recevoir	51,999
Prepaid expenses	Frais payés d'avance	15,931
		3,738,571
Capital assets	Immobilisations	1,216,089
		<b>4,954,660</b>
<b>Liabilities</b>	<b>Passifs</b>	
Accounts payable and accrued liabilities	Comptes à payer et frais courus	247,906
Deferred grant	Apports reportés	3,165,938
<b>Unrestricted net assets</b>	<b>Actifs nets non affectés</b>	<b>1,540,816</b>
		<b>\$ 4,954,660</b>

## Statement of cash and in-kind contributions | Sommaire des contributions en espèces et en nature

		<b>Cash / En espèces 2009-2010</b>	<b>In-kind / En nature 2009-2010</b>	<b>Total</b>
<b>NCE</b>	<b>RCE</b>	\$ 6,441,000	0	6,441,000
<b>Non-NCE<sup>1</sup></b>	<b>Non-RCE<sup>1</sup></b>			
Provincial	Provinciales	1,116,227	-	1,116,227
Federal <sup>2</sup>	Fédérales <sup>2</sup>	2,616,883	2,039,800	4,656,683
University	Universitaires	1,490,027	1,038,150	2,528,177
Industry	Industrielles	11,535,505	7,380,000	18,915,505
Other	Autres	936,400	99,800	1,036,200
<b>Total non-NCE</b>	<b>Total non-RCE</b>	<b>17,695,042</b>	<b>10,557,750</b>	<b>28,252,792</b>
<b>Total NCE and non-NCE</b>	<b>Total RCE et non-RCE</b>	<b>\$ 24,136,042</b>	<b>\$ 10,557,750</b>	<b>\$ 34,693,792</b>

For fiscal year ending 31 March 2010

- 1 Certain funds contributed by Network Partners to support research projects are forwarded directly to researchers and are not managed by the ArcticNet Administrative Centre.
- 2 These federal contributions do not include contributions received from the granting councils, the Canada Foundation for Innovation and Genome Canada.

Pour l'année fiscale se terminant le 31 mars 2010.

- 1 Certaines contributions des partenaires du réseau aux projets de recherche parviennent directement aux chercheurs et ne sont pas gérées par le centre administratif d'ArcticNet.
- 2 Ces contributions fédérales n'incluent pas les contributions des conseils de recherche, de la fondation canadienne pour l'innovation et de Génome Canada.













































































































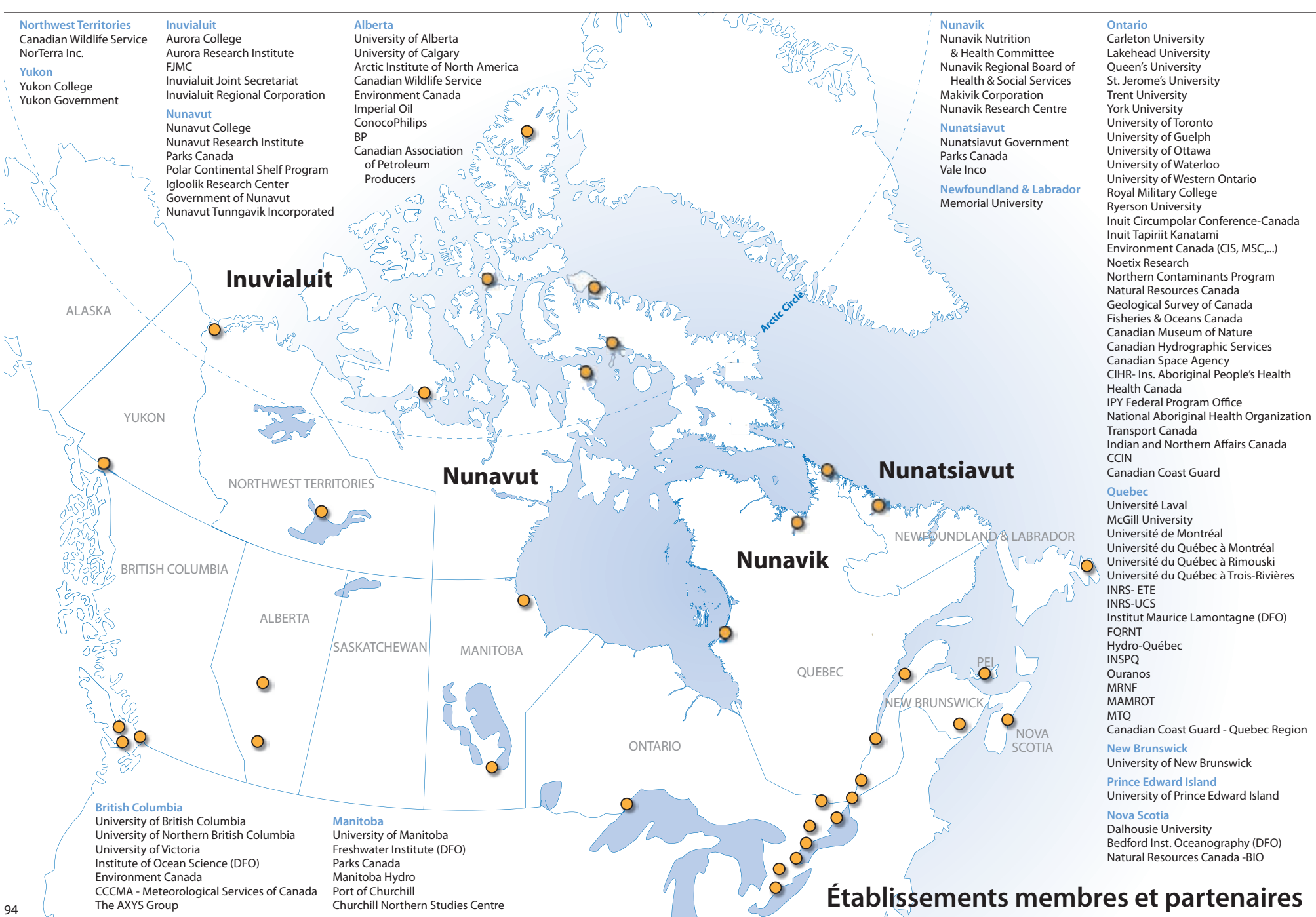












**Northwest Territories**

Canadian Wildlife Service  
NorTerra Inc.

**Yukon**

Yukon College  
Yukon Government

**Inuvialuit**

Aurora College  
Aurora Research Institute  
FJMC  
Inuvialuit Joint Secretariat  
Inuvialuit Regional Corporation

**Nunavut**

Nunavut College  
Nunavut Research Institute  
Parks Canada  
Polar Continental Shelf Program  
Igloolik Research Center  
Government of Nunavut  
Nunavut Tunngavik Incorporated

**Alberta**

University of Alberta  
University of Calgary  
Arctic Institute of North America  
Canadian Wildlife Service  
Environment Canada  
Imperial Oil  
ConocoPhillips  
BP  
Canadian Association of Petroleum Producers

**Nunavik**

Nunavik Nutrition & Health Committee  
Nunavik Regional Board of Health & Social Services  
Makivik Corporation  
Nunavik Research Centre

**Nunatsiavut**

Nunatsiavut Government  
Parks Canada  
Vale Inco

**Newfoundland & Labrador**

Memorial University

**Ontario**

Carleton University  
Lakehead University  
Queen's University  
St. Jerome's University  
Trent University  
York University  
University of Toronto  
University of Guelph  
University of Ottawa  
University of Waterloo  
University of Western Ontario  
Royal Military College  
Ryerson University  
Inuit Circumpolar Conference-Canada  
Inuit Tapiriit Kanatami  
Environment Canada (CIS, MSC,...)  
Noetix Research  
Northern Contaminants Program  
Natural Resources Canada  
Geological Survey of Canada  
Fisheries & Oceans Canada  
Canadian Museum of Nature  
Canadian Hydrographic Services  
Canadian Space Agency  
CIHR- Ins. Aboriginal People's Health  
Health Canada  
IPY Federal Program Office  
National Aboriginal Health Organization  
Transport Canada  
Indian and Northern Affairs Canada  
CCIN  
Canadian Coast Guard

**Quebec**

Université Laval  
McGill University  
Université de Montréal  
Université du Québec à Montréal  
Université du Québec à Rimouski  
Université du Québec à Trois-Rivières  
INRS- ETE  
INRS-UCS  
Institut Maurice Lamontagne (DFO)  
FQRNT  
Hydro-Québec  
INSPQ  
Ouranos  
MRNF  
MAMROT  
MTQ  
Canadian Coast Guard - Quebec Region

**New Brunswick**

University of New Brunswick

**Prince Edward Island**

University of Prince Edward Island

**Nova Scotia**

Dalhousie University  
Bedford Inst. Oceanography (DFO)  
Natural Resources Canada -BIO

**British Columbia**

University of British Columbia  
University of Northern British Columbia  
University of Victoria  
Institute of Ocean Science (DFO)  
Environment Canada  
CCCMA - Meteorological Services of Canada  
The AXYS Group

**Manitoba**

University of Manitoba  
Freshwater Institute (DFO)  
Parks Canada  
Manitoba Hydro  
Port of Churchill  
Churchill Northern Studies Centre

**Établissements membres et partenaires**

























































