

# Climate Change Projects in Nunavut

Some are completed, while others are ongoing, and offer a way for Nunavummiut to participate in training, employment and business opportunities for the future.

*To see the projects closer, click on the Project Title or view the full series of projects by Project Category – they are hyperlinked!*

Project Title	Project Categories	Post Date	Brief Project Summary
<b><u>Nunavut Permafrost Monitoring Network</u></b>	<u>Permafrost, Terrestrial Environment</u>	02-07-2012	<p>A multi-community project studying the changing conditions of frozen ground to depths of 15 metres.</p> <p>Between 2008 and 2010, the Government of Nunavut (GN) collaborated with Natural Resources Canada and 10 Nunavut communities to install permafrost monitoring sites across Nunavut.</p> <p>These sites are currently generating ongoing information on the thermal conditions of the ground to depths of 15 metres. This will provide baseline information required for engineering design and community planning. It will also help our understanding of the response of permafrost to changes in climate.</p> <p>As well, these sites contribute to a larger National Permafrost Monitoring Network with the goal of increasing the knowledge of current conditions across Canada's permafrost region and building a baseline against which to measure change.</p>
<b><u>Sea-Ice Monitoring</u></b>	<u>Sea Ice &amp; Ice</u>	02-07-2012	<p>Examining sea ice, sea ice use, and sea ice change.</p> <p>From 2006 to 2010, a community-based sea ice observation network was created for the Siku-Inuit-Hila (Sea Ice-People-Weather) project, an international, interdisciplinary project that investigated the relationship between humans and sea ice in the Arctic communities of Qaanaaq, Greenland, Barrow, Alaska, and Clyde River, Nunavut.</p> <p>The project is complete, but in response to interest from other communities and researchers, the National Snow and Ice Data Centre has made a Sea</p>

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			Ice Monitoring Handbook available to anyone who wants to establish a local sea ice monitoring program.
<b>The Nunavut Regional Adaptation Collaborative</b>	<i>Energy, Permafrost, Resource Development, Sea Ice &amp; Ice, Transportation</i>	02-17-2012	<p>A territory-wide program focusing on advancing climate change adaptation knowledge and decision-making on resource development in Nunavut.</p> <p>The objective of the Nunavut RAC is to advance climate change adaptation with respect to issues of particular concern to the territory, such as changes in permafrost and the related impacts of these changes on the mining sector and on the infrastructure upon which this sector depends.</p>
<b>Pan-Territorial Adaptation Initiatives</b>	<i>Animals, Aquatic Environment, Energy, Food Security, Health &amp; Disease, Heritage, IQ, Landscape, Permafrost, Plants, Resource Development, Sea Ice &amp; Ice, Sea Level, Security &amp; Safety, Temperature, Terrestrial Environment, Tourism, Traditional Activities, Transportation, Watershed, Weather &amp; Precipitation</i>	02-17-2012	<p>Addressing climate change and identifying approaches for supporting current and future climate change adaptation projects across the Canadian Arctic.</p> <p>In 2011, Canada's 3 territories released the Pan-Territorial Adaptation Strategy: Moving Forward on Climate Change Adaptation in Canada's North. This document describes the challenges and goals of Canada's territories in addressing climate change. It identifies ways to support current and future climate change adaptation projects in the Canadian Arctic.</p>
<b>Add To Your Community's IQ</b>	<i>IQ, Traditional Activities</i>	02-28-2012	What do your elders and community leaders in Nunavut have to say about changing climate conditions over the years? Do you have images of your region that show the effects of climate change? Submit a community report and add your contribution to our store of knowledge.

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<b>Research on Arctic marine mammals</b>	<i>Animals, Aquatic Environment, Traditional Activities</i>	03-06-2012	<p>Research on Arctic marine mammals via the collection of detailed empirical information throughout Canadian Arctic marine ecosystems, using a variety of methods including both scientific and local knowledge.</p> <p>Study site locations</p> <p>Arctic Bay, Arviat, Churchill, Repulse Bay, Chesterfield Inlet, Coral Harbour, Igloodlik, Kugaaruk, Pangnirtung, Pond Inlet, Sanikiluaq, Whale Cove.</p>
<b>Effects of climate change on carbon exchange dynamics in the Arctic</b>	<i>Terrestrial Environment</i>	03-06-2012	A study of the absorption and release of carbon dioxide by the Arctic Ocean.
<b>Instability of coastal landscapes in Arctic communities and regions</b>	<i>Security &amp; Safety, Terrestrial Environment, Weather &amp; Precipitation</i>	03-06-2012	Seasonal changes in the northern landscape, together with extreme weather events, can create instability and hazards, including flooding, landslides, thaw failure and subsidence, coastal ice push, storm surges, and coastal erosion. Our project team is measuring both the drivers of change and the effects of instability in community landscapes at selected sites across the Arctic.
<b>Climate change and food security in regional Inuit centers</b>	<i>Food Security</i>	03-06-2012	Using in-depth case studies, this project will identify and characterize the vulnerability of food systems in four regional Inuit centers (RIC) (Iqaluit, Arviat, Inuvik and Kuujjuak) to climate change as a basis for identifying adaptation entry points.
<b>Impacts of climate change for the marine Arctic</b>	<i>Animals, Aquatic Environment, Sea Ice &amp; Ice, Terrestrial Environment</i>	03-06-2012	Some implications of climate change for the marine Arctic ecosystem are fairly intuitive. For instance, polar bears and ringed seals are bound to be negatively impacted by the loss of ice that provides the physical platform for their hunting and reproduction. Other consequences are less obvious.
<b>The emerging Arctic security environment</b>	<i>Security &amp; Safety</i>	03-06-2012	Our project examines the fundamental questions: what is Arctic security? What should policy makers anticipate that the circumpolar world will look like in the future, given the various forces that are now transforming this region?
<b>Impact of climate change on the life</b>	<i>Animals, Aquatic Environment, Traditional Activities</i>	03-06-2012	Climate warming is driving a rapid transformation of polar ecosystems, and we urgently need to study the vulnerability of seafloor biodiversity to changes that are already underway.

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<b>of the Arctic Ocean floor</b>			
<b>Industrial development and Arctic communities: environmental and social change</b>	<i>Resource Development, Terrestrial Environment, Traditional Activities</i>	03-06-2012	This project will explore the cultural, economic and environmental impacts of mineral exploration and development on four Arctic communities.
<b>Climate change and commercial shipping development in the Arctic</b>	<i>Resource Development, Transportation</i>	03-06-2012	To what extent will shipping develop in the Northwest and Northeast Passages, and with what kind of shipping: will it be transit shipping, fishing, tourism, transportation induced by natural resources mining?
<b>Past and present changes to the ocean and sea-ice in the Arctic Archipelago</b>	<i>Aquatic Environment, Sea Ice &amp; Ice, Sea Level</i>	03-06-2012	The goal of this project is to provide the modelling framework for future impact studies on the Canadian Arctic Archipelago's pack ice, oceanography and marine food web.
<b>Sea Ice of the Arctic</b>	<i>Aquatic Environment, Sea Ice &amp; Ice</i>	03-06-2012	This project brings together key sea ice researchers to examine the processes that cause the observed changes in sea ice dynamic and thermodynamic processes, snow cover, and physical coupling across the ocean-sea ice-atmosphere (OSA) interface.
<b>Cape Bounty Arctic Watershed Observatory (CBAWO), Melville Island</b>	<i>Aquatic Environment, Watershed</i>	03-06-2012	To determine the impacts of climate change on terrestrial ecosystems and freshwater quality and availability in the High Arctic, we created a watershed and landscape ecosystem observation network.
<b>ArcticNet Integrated Regional Impact Studies (IRIS)</b>	<i>Animals, Aquatic Environment, Energy, Food Security, Health &amp; Disease, Heritage, IQ, Landscape, Permafrost, Plants,</i>	03-16-2012	ArcticNet brings together scientists and managers with their partners from Inuit organizations, northern communities, federal and provincial agencies and the private sector to study the impacts of climate change in the coastal Canadian Arctic.

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	<i>Resource Development, Sea Ice &amp; Ice, Sea Level, Security &amp; Safety, Temperature, Terrestrial Environment, Tourism, Traditional Activities, Transportation, Watershed, Weather &amp; Precipitation</i>		
<b>Community adaptation in a changing Arctic</b>	<i>IQ, Landscape, Permafrost, Sea Ice &amp; Ice</i>	04-09-2013	<p>Communities across the Canadian Arctic are exposed and sensitive to changes in social, political, cultural environmental and economic systems.</p> <p>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.</p>
<b>Effects of climate change on the Arctic wildlife</b>	<i>Animals</i>	04-09-2013	<p>Many northern ecosystems are undergoing major shifts related to climate change.</p>
<b>C-Change – Coastal Climate Adaptation Strategies</b>	<i>Sea Level</i>	04-09-2013	<p>The C-Change Project is a joint funded project with SSHRC and IDRC, headquartered out of the Telfer School of Management at the University of Ottawa.</p> <p>This project links community members and university researchers from Canada and the Caribbean region in support of applied research on coastal adaptation to environmental change from the impacts of storms and sea-level rise on susceptible coastal communities. Iqaluit, growing capital of the territory of Nunavut in Canada's Eastern Arctic, was chosen as one of our study sites as it is a coastal community, vulnerable to sea level rise and storm surges.</p> <p>This project is designed to close the gaps between ongoing and anticipated environmental change, and the urgent need for coastal communities to foster and maintain their physical, economic, cultural, and social well-being.</p>

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<b>Kangiqtugaapik (Clyde River) Weather Station Network- Silalirijiit Project</b>	<i>Temperature, Weather &amp; Precipitation</i>	06-12-2013	Current weather updates at Akuliaqattak, Silasiutitalik, Ailaktalik, Nattiqsujuq, and Kangiqtugaapik Airport. These weather stations have been installed as part of the Silalirijiit Project in Kangiqtugaapik, Nunavut
<b>A Map and Summary Database of Permafrost Temperatures in Nunavut, Canada</b>	<i>Landscape, Permafrost, Resource Development, Temperature, Terrestrial Environment</i>	08-12-2013	The Geological Survey of Canada has developed a summary database and map of recent permafrost temperatures for Nunavut Canada.
<b>Climate Change and Health Research: Photovoice Workshop for Youth</b>	<i>Food Security, Health &amp; Disease, IQ, Landscape, Permafrost, Plants, Sea Ice &amp; Ice, Sea Level, Temperature, Terrestrial Environment, Traditional Activities</i>	12-01-2014	Qaujigiartiit Health Research Centre hosted a 3-day youth photovoice research training workshop from September 26-28, 2014.
<b>Inuit women and environmental change: examining experiences and adaptations in Iqaluit, Nunavut</b>	<i>Food Security, Health &amp; Disease, IQ, Traditional Activities</i>	12-02-2014	This project is investigating how Inuit women in Iqaluit are experiencing climate change within the context of greater socio-economic change.
<b>Linking changes in the Arctic marine ecosystem to the provisioning of ecosystem services and Inuit wellbeing</b>	<i>Animals, Aquatic Environment, Health &amp; Disease, IQ, Traditional Activities</i>	02-16-2015	Climate change pressures, such as warmer temperatures and sea ice decline, transform the Arctic marine ecosystem and could lead to major shifts in its functioning. This study will combine diverse but complementary methods to study the Arctic marine ecosystem and its interconnectedness with Inuit communities in the context of a changing Arctic.

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<b>Climate Change Adaptation for Nunavut Decision Makers Course</b>	<i>Animals, Aquatic Environment, Energy, Food Security, Health &amp; Disease, Heritage, IQ, Landscape, Permafrost, Plants, Resource Development, Sea Ice &amp; Ice, Sea Level, Security &amp; Safety, Temperature, Terrestrial Environment, Tourism, Traditional Activities, Transportation, Watershed, Weather &amp; Precipitation</i>	03-27-2015	This course informs government staff of climate change impacts and how to incorporate climate change into decision-making across all government sectors.
<b>How does climate change and vegetation growth affect snow properties and permafrost temperature?</b>	<i>Animals, Landscape, Temperature, Terrestrial Environment, Weather &amp; Precipitation</i>	04-07-2015	The properties of snow on the ground change over time and these changes are affected by temperature and wind, i.e. climate. Lemmings live under the snow and need to travel under the snow in search of food in winter. They are therefore sensitive to snow properties and climate change may strongly affect their populations, and of course also the populations of their predators.
<b>Evaluation Adaptation to Climate Change in Nunavut, Canada</b>	<i>Landscape, Permafrost, Terrestrial Environment</i>	04-28-2015	This three part project started in fall 2014 assesses the current state of government-driven adaptation in Nunavut, including linkages, barriers, and interactions across scales.
<b>Apex River Project</b>	<i>Watershed</i>	05-12-2015	Water sources and change for the Apex River, Iqaluit: We started this research project studying the Apex River in 2013 to determine how the river has changed during the past 40 years and how it is sensitive to future change.



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<b>Snowmelt project</b>	<i>Aquatic Environment, IQ, Temperature, Watershed</i>	05-22-2015	Spring snowmelt is the most important hydrologic event of the year in Arctic landscapes. During this relatively short period in spring, inputs of water and waterborne contaminants such as mercury (Hg) and other trace metals to surface waters can exceed those occurring during the remainder of the year. Nevertheless, there is little research on the transport of metals to lakes during snowmelt periods in Arctic Canada. The main objective of this project is to quantify, using hydrological and water chemistry measurements, the relative contributions of mercury and other trace metals in snowmelt runoff to the water column and sediments of lakes in the vicinity of Iqaluit, NU. Metal pollution in lakes and rivers comes from local, regional and global atmospheric sources and is important to monitor over time, particular mercury, which sometimes reaches toxic levels in fish and wildlife.
<b>Exploring Inuit Artistic Voice about Arctic Environmental and Sea Ice Change</b>	<i>Heritage, Plants, Sea Ice &amp; Ice, Sea Level, Terrestrial Environment, Weather &amp; Precipitation</i>	07-07-2015	The purpose of this doctoral research is to engage with artists to explore the perspectives of Inuit artists about environmental change.
<b>Glacier Monitoring and Assessment, Penny Ice Cap, Nunavut</b>	<i>Landscape, Sea Ice &amp; Ice, Watershed, Weather &amp; Precipitation</i>	09-16-2015	<p>Higher than normal summer temperatures over the past few decades have resulted in increased melt of glaciers and ice caps in the Canadian Arctic, particularly since 2005. In order to better understand past and future changes of glaciers in the southern Canadian Arctic, the Geological Survey of Canada, Parks Canada and University of Ottawa have been studying Penny Ice Cap on southern Baffin Island since 2007.</p> <p>Studying Penny Ice Cap also helps answer a question many scientists around the globe are asking. How much will glaciers melt over the next century and how will this contribute to global sea level rise?</p>
<b>Foodborne and Waterborne Disease Mitigation: Community-based Surveillance for Environmental Health</b>	<i>Health &amp; Disease</i>	09-16-2015	Recent research uncovered the highest rates of self-reported enteric illness (i.e., diarrhea and vomiting) reported in the world to be in Iqaluit, Nunavut, and Rigolet, Nunatsiavut. Infectious diarrhea and vomiting can be caused by contaminated drinking water (i.e., waterborne disease), contaminated food (i.e., foodborne disease), or person-to-person contact. To reduce the high rates of diarrhea and vomiting in Northern Canada, we must monitor these pathogens causing illness to understand what pathogens are responsible for illness and how people contract the illness.



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<b>Indigenous Health Adaptation to Climate Change (IHACC)</b>	<i>Health &amp; Disease</i>	09-16-2015	IHACC is a multi-year, trans-disciplinary, community-based initiative working with remote Indigenous populations in the Peruvian Amazon, Canadian Arctic and Uganda to examine vulnerabilities to the health effects of climate change and develop an evidentiary base for adaption. In the Arctic, IHACC is working in the communities of Nunavut and Rigolet, Nunatsiavut.
<b>The response of White Glacier to Arctic Warming over the past 55 years</b>	<i>Landscape, Sea Ice &amp; Ice, Weather &amp; Precipitation</i>	09-21-2015	White Glacier is a 14 km long alpine glacier located on Axel Heiberg Island in the northwest part of Nunavut.
<b>Assessing Berries to Monitor Ecological Change: a collaboration with Nunavut Arctic College's Environmental Technology Program</b>	<i>Landscape, Permafrost, Plants, Terrestrial Environment, Traditional Activities, Weather &amp; Precipitation</i>	10-20-2015	Students of ETP have been contributing to a multidisciplinary study looking at vegetation response in a warming Arctic context, with a focus on berry ecology and productivity of 3 favourite species: Blueberry (Kigutangirnaq/Vaccinium uliginosum), Crowberry (Paurngaq/Empetrum nigrum) and Cranberry (Kimminaq/Vaccinium vitis-idaea).
<b>Irregular flow of surge-type glaciers</b>	<i>Landscape, Sea Ice &amp; Ice</i>	11-16-2015	<p>Most glaciers flow at a similar speed from one year to the next, but a few undergo dramatic changes in velocity over a period of years to decades. These are called surge-type glaciers, and they alternate between two phases: a long quiescent phase in which the glacier is almost stationary, and a short period of extremely rapid flow where ice speeds can be 100-1000 times higher (over 1 km per year). Surge-type glaciers follow a non-random distribution and cluster in specific glaciated regions including Alaska, Svalbard, Greenland and Iceland, as well as the Canadian High Arctic.</p> <p>The question as to what triggers surges has long been a mystery in glaciology, especially due to the challenges of obtaining field data during the active phase of a surge. An understanding of the causes of glacier</p>

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			surging is important so that we can properly distinguish between glacier changes caused by climate change versus those caused by internal glacier dynamics.
<b>Water, mud, and bubbles: Impacts of permafrost degradation on greenhouse gas emissions from Arctic ponds and lakes</b>	<i>Aquatic Environment, Permafrost</i>	12-14-2015	Carbon cycle dynamics in response to permafrost degradation is a 'hot topic' in northern research.
<b>Portraits of Resilience: Many Strong Voices</b>	<i>Food Security, Heritage, IQ, Temperature, Traditional Activities,</i>  <i>Weather &amp; Precipitation</i>	01-04-2016	Many Strong Voices is an organization that visited the community of Pangnirtung and did a community based Photo Voice type project with the Youth.
<b>Building Capacity to Monitor the Risk of Climate Change on Water Quality and Human Health: A Two Year Journey Expanding Community-Based Leadership in Pond Inlet</b>	<i>Aquatic Environment, Health &amp; Disease, Watershed</i>	01-06-2016	A community project in Pond Inlet. A group of 3 young Mittimatalirmiut wish to research water quality and develop more skills in research! Access to healthy water is of paramount importance for Mittimatalirmiut. Water is important to keep us alive, sturdy and healthy; and bad water can be harmful for people- their beloved elders, youth and infants. Water also an important cultural value to their people since many are going out on the land in order to provide family with fresh water, just as elders used to and then proudly taught the future generations.
<b>Nunavut Climate Change Partnership</b>	<i>Food Security, Heritage, IQ,</i>	05-27-2016	The Nunavut Climate Change Partnership (NCCP) was a collaborative partnership between the Government of Nunavut, Aboriginal Affairs and Northern Development Canada, and Natural Resources Canada to build capacity for community-level adaptation planning.

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	<i>Resource Development, Security &amp; Safety, Terrestrial Environment, Traditional Activities</i>		<p>The Nunavut Climate Change Partnership (NCCP) was formed in 2008. Entitled "Atuliqtuq: Action and Adaptation in Nunavut" the Partnership's three main themes are:</p> <ul style="list-style-type: none"> <li>• To build capacity for climate change adaptation planning within the Government of Nunavut and communities</li> <li>• To develop tools to collect, publish, share and communicate climate change adaptation knowledge across the communities of Nunavut and beyond</li> <li>• To create scientific information that is regionally and locally targeted to help communities adapt to climate change and transfer this capability into Nunavut</li> </ul>
<b>A Summary of MethylMercury and Climate Change Research in Nunavut</b>	<i>Aquatic Environment, Food Security, Health &amp; Disease, Sea Ice &amp; Ice, Watershed, Weather &amp; Precipitation</i>	06-27-2016	Mercury (Hg) is a toxic heavy metal that changes into various chemical forms through geochemical processes. It is an element that occurs naturally in the environment but with industrialization, humans have altered its cycle by adding more mercury in the water, air, and soil.
<b>How to evaluate climate change adaptation in permafrost environment: A pilot study in Arviat, Nunavut</b>	<i>Permafrost, Terrestrial Environment</i>	07-06-2016	In Nunavut, rising temperatures are causing permafrost (ground that stays at 0°C or lower for two years or more) to thaw. This thawing, called permafrost degradation, means the ground can shift and become less stable for building on. In Nunavut there are ongoing projects to adapt to permafrost degradation.
<b>Transnational Climate Change Mobilisationg: The Impact of the 2005 Inuit Petition</b>	<i>Heritage, IQ</i>	07-13-2016	In 2005, Sheila Watt-Cloutier and 62 Inuit elders and hunters from Canada and the United States joined forces with environmental lawyers in the US and submitted a petition before the Inter-American Commission on Human Rights.

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<b>The People, Animals, Water and Sustenance Program</b>	<i>Animals, Aquatic Environment, Health &amp; Disease, Terrestrial Environment, Traditional Activities, Watershed</i>	07-28-2016	The People, Animals, Water, and Sustenance (PAWS) Project is interested in gaining a better understanding of the relationships Iqaluit Inuit have with dogs, water, and food. Currently there are gaps in our understanding of the interactions between dogs, water, and food in a Northern context. In-depth interviews on these topics coupled with sampling of dog feces, water, and clams will help us understand how these relationships interact together and how these relationships may be changing.
<b>Search and Rescue in Nunavut</b>	<i>IQ, Landscape, Security &amp; Safety, Transportation, Weather &amp; Precipitation</i>	08-09-2016	This research looks at the causes of search and rescue (SAR) and more broadly unintentional injuries on the land in Nunavut.
<b>Incorporating Climate Change into Land Development</b>	<i>Landscape, Permafrost, Terrestrial Environment</i>	08-31-2016	The Nunavut Climate Change Centre is devoted to including Nunavut communities in their projects and outreach.
<b>How to evaluate climate change adaptation in a permafrost environment: A pilot study in Arviat, Nunavut</b>	<i>Landscape, Permafrost, Security &amp; Safety, Terrestrial Environment</i>	10-04-2016	This research created a community-based evaluation framework to monitor and evaluate adaptation projects. Evaluating these projects can help us to learn from and improve projects. The framework was tested in Arviat on the 'Terrain Analysis in Nunavut' project, a Government of Nunavut project using satellite radar images to see if the ground is moving to detect permafrost degradation.
<b>Frobisher Bay Long-term Ecology and Habitat Mapping Study</b>	<i>Animals, Aquatic Environment</i>	11-14-2016	Frobisher Bay is undergoing rapid anthropogenic and climatic change.
<b>Climate Communication and Adaptation: Engaging Maritime Publics</b>	<i>Animals, Landscape, Sea Ice &amp; Ice, Traditional Activities</i>	02-17-2017	This research on climate change communication compares maritime communities in diverse climate zones to identify differences and similarities in local perceptions of climate change and global climate action, and associated effects on local participation in environmental management.

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<b>Climate Change Adaptation Project - Permafrost Thaw and River Erosion in Kugluk Territorial Park</b>	<i>Heritage, Permafrost, Terrestrial Environment, Tourism</i>	05-10-2018	The Kugluk Territorial Parks Project is a Climate Change Adaptation project by the Climate Change Secretariat in partnership with Nunavut Parks and Special Places. This project addresses the impacts of climate change being experienced in the Kugluk Territorial Park with an end goal of adapting to those environmental changes.
<b>Arviat Goes Green</b>	<i>Food Security, IQ, Plants</i>	02-26-2019	Nunavut communities must work towards building their capacity to withstand impacts from climate change.
<b>Northern Infrastructure Standardization Initiative</b>	<i>Permafrost, Temperature, Weather &amp; Precipitation</i>	10-07-2019	Infrastructure in the Canadian Arctic is being affected by climate change impacts such as permafrost thaw, coastal erosion, and changing temperature.