



# Northern Climate ExChange

*Independent Information - Shared Understanding - Action on Climate Change*

NCE Update February 10, 2010



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## Announcements

- 1. TONIGHT: Adaptation and Activism: Climate Change Lecture Series - *Climate change and Invasive Species***

The **Northern Climate ExChange, Yukon College** in association with the **MacBride Museum of Yukon History** will be hosting a series of speakers to present talks on Climate Change. This will proved an opportunity for the public to learn about climate change research and related work through informal yet informative lectures.

The '**Adaptation and Activism: Climate Change Lecture Series**' will run every Wednesday night from **7:00 - 8:00 pm at the McBride Museum** from **February 3rd until March 3rd 2010**.

- **February 10: Bruce Bennett - Climate change and Invasive Species**
- **February 17:** Karine Grenier - Climate Change and Northern Life - Views from an Environmental Historian
- **February 24:** Vicki Sahanatien - Polar Bears, Sea Ice and Climate Change
- **March 3:** Meghan Larivee - Coping with a Changing World: Adaptation and Plasticity in Kluane Red Squirrels

To view bios of presenters and descriptions of the lectures please visit McBride's website at: [www.macbridemuseum.com](http://www.macbridemuseum.com)



For more information please contact Meghan Larivee, NCE Communication and Outreach Coordinator, at 456-8694 or [mlarivee@yukoncollege.yk.ca](mailto:mlarivee@yukoncollege.yk.ca).

## **2. NOAA Launches new climate website: [www.climate.gov](http://www.climate.gov)**

**National Oceanic and Atmospheric Administration (NOAA)** has unveiled a new Web site - <http://www.climate.gov> - "that serves as a single point-of-entry for NOAA's extensive climate information, data, products and services. Known as the NOAA Climate Portal, the site addresses the needs of five broadly-defined user groups: decision makers and policy leaders, scientists and applications-oriented data users, educators, business users and the public.

Highlights of the portal include an interactive "climate dashboard" that shows a range of constantly updating climate datasets (e.g., temperature, carbon dioxide concentration and sea level) over adjustable time scales; the new climate science magazine *ClimateWatch*, featuring videos and articles of scientists discussing recent climate research and findings; and an array of data products and educational resources."

<http://www.climate.gov>

## **3. Energy Solutions Centre: Northern Energy Solutions Conference: Practical and Current Energy Solutions for the North - February 2010**

The **Energy Solutions Centre** will host the **Northern Energy Solutions Conference** on February 15 - 19, 2010 at the Yukon Inn in Whitehorse Yukon. The conference will focus on practical and current Energy Solutions for commercial and institutional structures. It will also touch on transportation, residential housing and other energy issues.

The North has remote regions and different energy scenarios, weather trends and population bases, with energy issues requiring unique solutions. Together, we will learn the best practices and solutions for energy issues in the north.

What are the solutions that can be implemented now to conserve energy, reduce costs and limit GHG emissions? Delegates from Nunavut, Northwest and Yukon Territories and some southern regions will attempt to answer this question.

**Date: February 15-19, 2010**

**Contact:** Sean MacKinnon by e-mail at [sean.mackinnon@gov.yk.ca](mailto:sean.mackinnon@gov.yk.ca) or by phone (867) 393-7067.

**Website:** [www.yukonenergyconference.ca](http://www.yukonenergyconference.ca)

[www.esc.gov.yk.ca](http://www.esc.gov.yk.ca)

## **4. Ecological Encounters: *The Wildlife of Yukon's Arctic Tundra: Patterns and Trends in a Warming World***

**Sunday, February 28th, 2010, 3:30 pm- 5:00 pm**

**Yukon Wildlife Preserve** (Free for members, \$15 for non-members)

Presented by **Dr. Don Reid of the Wildlife Conservation Society**, coordinator of the Arctic WOLVES (Wildlife Observatories Linking Vulnerable EcoSystems) project. Dr. Reid will illustrate patterns and trends from Arctic WOLVES observations and discuss what they might mean for the future of wildlife on Yukon's arctic fringe.

**Ecological Encounters** may be a combination of formal presentation and outdoor observations at the preserve. Dress for the weather.

Please pre-register by contacting either Chris Wilkinson, Program Officer, [chris@yukonwildlife.ca](mailto:chris@yukonwildlife.ca) or Clare Daitch, Program Manager, [clare@yukonwildlife.ca](mailto:clare@yukonwildlife.ca). Phone: 867-456-7400

## 5. On-line Survey: Whitehorse Green Guide Survey 2010

### Whitehorse Green Guide Survey 2010

**The Whitehorse Green Guide Survey is now available! If you are a business or organization that offers green products or services in Whitehorse, click here to fill out the survey!**

Emphasis is placed on attributes and certifications which support increased energy efficiency, reduction of greenhouse gas emissions, waste, and toxins.

**Information collected in the survey will be used to develop an on-line search tool to green products and services available in Whitehorse.**

**The survey link for the first edition will close on March 15th.**

**Whitehorse Green Guide Partners:** Northern Climate Exchange (Yukon College), City of Whitehorse, Energy Solutions Centre (Energy, Mines, and Resources, Yukon Government), Climate Change Secretariat (Yukon Government), and the Yukon Federal Council.

<http://taiga.net/nce/>

## 6. International Symposium on Sea Ice in the Physical and Biogeochemical System - Tromso Norway, 31 May - 4 June 2010

"Sea ice is a relatively fragile part of the Earth system, important for the understanding of a wide range of subjects, from climate, to biodiversity, to society and culture. This symposium will present an opportunity for participants from all fields related to sea ice to present their work, learn from the work of others, and form interdisciplinary collaborations. The suggested topics are intentionally interdisciplinary, including physical, biological, chemical, and socio-economic research on sea ice".

[www.igs2010.org](http://www.igs2010.org)

## Articles

### 1. Scant Arctic ice could mean summer "double whammy"

*Scant ice over the Arctic Sea this winter could mean a "double whammy" of powerful ice-melt next summer,*

*a top U.S. climate scientist said on Thursday.*

By Deborah Zabarenko  
Reuters  
February 4, 2010

"It's not that the ice keeps melting, it's just not growing very fast," said Mark Serreze, director of the U.S. National Snow and Ice Data Center.

In January, Arctic sea ice grew by about 13,000 square miles (34,000 sq km) a day, which is a bit more than one-third the pace of ice growth during the 1980s, and less than the average for the first decade of the 21st century.

Arctic ice cover is important to the rest of the world because the Arctic is the globe's biggest weather-maker, sometimes dubbed Earth's air-conditioner for its ability to cool down the planet.

More melting Arctic sea ice could affect this weather-making process; it is unlikely to lead to rising sea levels, any more than an ice cube melting in a glass of water would make the glass overflow.

If Arctic ice fails to build up sufficiently during the dark, cold winter months, it is likely to melt faster and earlier when spring comes, Serreze said by telephone from Colorado.

"We've grown back ice in the winter, but that ice tends to be thin and that's the problem," he said. "You set yourself up for a world of hurt in summer. The ice that is there is also thinner than it was before and thinner ice simply takes less energy to melt out the next summer."

With less of the Arctic sea covered in ice in winter, and with the existing ice thinner and more fragile than before, "you've got a double whammy going on," Serreze said.

This more perishable thin ice is prone to early melting, and when it does, the heat-reflecting light-colored sea ice is replaced by heat-absorbing dark-colored ocean water, which accelerates spring and summer melting in the Arctic.

This winter, there were unusually warm December temperatures in the Arctic due to a weather pattern known as the Arctic oscillation, so ice grew more slowly than normal.

In January, that pattern shifted to produce cooler Arctic temperatures. The ice extent -- the area the ice covers -- was below normal over much of the Atlantic sector, including the Barents Sea, part of the East Greenland Sea and in the Davis Strait.

There was above-average ice extent on the Pacific side of the Bering Sea, the National Snow and Ice Data Center reported.

The last three years -- 2007, 2008 and 2009 -- had the lowest level of ice extent since satellite records began in 1979.

(Editing by Mohammad Zargham)

[www.reuters.com](http://www.reuters.com)

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## **2. Arctic warming will cost world billions: Pew study**

CBC News  
January 22, 2010

Climate warming in the Arctic will cost the global economy billions of dollars in 2010 alone, according to a study by the U.S.-based Pew Environment Group released Friday.

The environmental advocacy organization held a news conference in Iqaluit - where G7 finance ministers and central bank governors are meeting to discuss global economic reform - to emphasize its view that protection of the environment should also be on the agenda.

The study estimated that melting sea ice and permafrost as well as dwindling snow cover would cost the world between \$61 billion and \$370 billion US in 2010.

The authors predict that will rise to at least \$2.4 trillion by the year 2050.

The study is the first to put an estimated dollar value on global warming resulting from the Arctic's declining ability to act as "air conditioner" of the planet.

It arrived at its number by estimating how much the loss of snow, ice and permafrost would have on warming, expressing that in equivalent tonnes of carbon dioxide and multiplying that increase by what it called the "social cost of carbon." Those include estimates of the cost of climate change on agriculture, energy production, water availability, sea level rise, and flooding.

One of the report's authors, economist Eban Goldstein of Bard College in New York, said the Arctic is warming at twice the rate of the rest of the world.

He said the combination of melting ice, increased sunlight absorption by darker barren ground and the release of methane as the permafrost thaws will this year warm the Earth the equivalent of 40 per cent of total U.S. industrial emissions.

[Read the report](#)

[www.cbc.ca](http://www.cbc.ca)

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### **3. Arctic ice melt alarms scientists**

*Local professor relates first-hand view of faster-than-expected change.*

By Bruce Owen  
Winnipeg Free Press  
February 6, 2010

James Ford has spent eight years researching the effects of climate change on the lifestyles of Inuit people living in the Far North.

He's seen evidence that local temperatures are rising and there's a lot less sea ice floating around, for a much shorter time period each year. Along the Northern Foxe Basin, for example, the ice is taking as much as four weeks as long to freeze than it did 40 years ago, said Ford.

That means it is harder for Inuit people to hunt, fish, and eke out a livable existence, according to their traditional ways.

"Hunting is not just a hobby to Inuit, it's a way of life," the McGill University professor explained in a recent

telephone interview from his Montreal office.

In places like Igloolik, Nunavut, where a week's worth of groceries typically cost more than \$550 for a small family, there simply aren't a lot of other options.

There are few jobs, many of Canada's 50,000 Inuit live well below the poverty line and there is little opportunity to change the available means of subsistence.

Ford likens the current circumstances for many Inuit to a community where the grocery store moves five kilometers away from your home every year, making it more and more difficult for you to get access to food, as time goes by.

And after enough time passes by, the road starts to crumble away and you're not even sure how to get there with the use of a car -- or in the case of the Inuit, possibly an ATV or a snowmobile.

For Inuit people, "their supermarket is the land," Ford said. The problem is that the supermarket is moving out of reach.

### **A way forward**

In a new study published in the *Global Environmental Change* journal, Ford and a group of Canadian colleagues have concluded that Inuit must adapt to coming environmental changes that are inevitable and unavoidable.

Climate change, the researchers report, is threatening many aspects of Inuit life, including access to food, the integrity of local infrastructure and the ability to maintain their traditional lifestyles.

But according to Ford and his fellow researchers, things are not completely bleak.

"Despite the fact that our climate is changing, Inuit are adapting," Ford said.

Many Inuit are adapting to climate change on an individual basis through, for example, the use of new hunting techniques that employ modern technology. They are also paying attention to the fluctuations of wildlife populations and migration patterns and adjusting accordingly.

But the researchers contend that individual adaptation is not going to be good enough in the long run, and Inuit people will need government assistance to successfully maintain their lifestyles.

They are calling for all levels of government to work with Inuit communities, taking advantage of both scientific and traditional knowledge, to best develop strategies for dealing with climate change.

The cost for these investments is hard to gauge, as only a small number of researchers are involved in studying Inuit adaptation to climate change and firm cost projections are not yet available.

"That is where the research is lacking," Ford admits.

And while some may assume that Ottawa has dropped the ball on a long-festering problem, Ford said the government has its eye on the situation.

Multimillion-dollar projects are underway with Indian and Northern Affairs, as well as Health Canada, seeking to gather "very, very practical" information about climate change and Inuit people, said Ford.

"The Feds, they are certainly getting up to speed on the adaptation side," he said.

At the Nunavut government level, studies are taking place to determine how climate change is affecting every aspect of Inuit life.

It's this type of progress that keeps Ford "guardedly optimistic" about the future.

"There still is a lot to do...but we're going in the right direction," he said.

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#### **4. More climate data released**

MET Office

February 4, 2010

Following the release of the data from more than 1,500 stations that make up the global land surface temperature record in December, the Met Office has now released the data from a further 1,500 stations.

These data are a subset of the full HadCRUT record of global temperatures, which is one of the global temperature records that have underpinned IPCC assessment reports and numerous scientific studies.

The data subset consists of a network of individual land stations that has been designated by the [World Meteorological Organization](#) for use in climate monitoring, and other data that the Met Office has gained permission from the owners to make available.

The data show monthly average temperature values for more than 3,000 land stations. The subset of stations is evenly distributed across the globe and provides a fair representation of changes in mean temperature on a global scale over land.

This subset is not a new global temperature record and it does not replace the HadCRUT, NASA GISS and NCDC global temperature records, all of which have been fully peer-reviewed. This subset shows that global-average land temperatures have risen over the last 150 years and is very similar to the temperature rises shown by the complete data set.

This subset release continues the policy of putting as much of the station temperature record as possible into the public domain. As soon as we have all permissions in place we will release the remaining station records - around 5,000 in total - that make up the full land temperature record. We are dependent on international approvals to enable this final step and cannot guarantee that we will get permission from all data owners.

[Land surface climate station records](#)

[Global-average temperature records explained](#)

[www.metoffice.gov.uk](http://www.metoffice.gov.uk)

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#### **5. A Federal Climate Service Is Created to Provide Data**

By John M. Broder

The New York Times

February 9, 2010

WASHINGTON - The National Oceanic and Atmospheric Administration will create a new climate change office to gather and provide data to governments, industry and academia as part of a broad federal effort to prepare for long-term changes to the planet, officials said Monday.

The new unit, to be known as the NOAA Climate Service, will assemble the roughly 550 scientists and analysts already working on the issue at the agency into a cohesive group under a single leader.

The climate service is designed to be analogous to the National Weather Service, also part of NOAA, which celebrates its 140th birthday this month. Officials said they hoped the reorganization would shore up the profile of government climate science and perhaps drive the creation of new businesses like those that repackage and sell weather and census data.

"By providing critical planning information that our businesses and our communities need, NOAA Climate Service will help tackle head-on the challenges of mitigating and adapting to climate change," Commerce Secretary Gary Locke, whose department oversees the atmospheric agency, said in a statement. "In the process, we'll discover new technologies, build new businesses and create new jobs."

The agency has also created a Web site, [www.climate.gov](http://www.climate.gov), to make it easier for people to find government climate change data and analysis.

Jane Lubchenco, administrator of NOAA, said there was a growing demand for timely information from the government about variations in the global climate.

"As the realities of climate change become more obvious to more people, farmers, businesses, government agencies and public health officials are going to be turning to us for credible, useful and relevant information," Dr. Lubchenco said in an interview

She said that planning for the new unit was not related to recent challenges to the credibility of the Intergovernmental Panel on Climate Change, a United Nations research unit that has been accused of inaccurate statements on how climate change could affect glaciers and rain forests.

Dr. Lubchenco said her agency was committed to sharing all the information it gathered, including raw data and analytical reports, another area in which the United Nations panel has drawn some criticism.

"We want to help build confidence in the science of climate change and give people an understanding of what is well established, as well as areas where there is more work to be done," she said.

Because the creation of the climate service involves shuffling money within the Commerce Department, approval will be required from Congressional appropriations committees.

[www.nytimes.com](http://www.nytimes.com)

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## **6. Mackenzie River's fish contaminated with dangerous toxins: scientists**

*Warming of Arctic triggers burst of biological activity, leading to unexpected consequence*

By Martin Mittelstaedt  
Globe and Mail  
February 9, 2010

Scientists studying burbot in the Mackenzie River, one of the country's most pristine rivers, have been surprised to discover that mercury, PCBs and DDT in the fish are rising rapidly, a finding they say is linked to climate change.

The increase in the amount of harmful chemicals has been huge. In the period from the mid-1990s to 2008, PCBs have risen up to six times, DDT by three times, and mercury by 1.6 times in the burbot, a delicacy in the north described as tasting like a freshwater lobster.

Contaminant levels "going up so dramatically was quite surprising," said Gary Stern, a senior scientist with the Department of Fisheries and Oceans and lead researcher on the study, which also involved scientists

from the University of Manitoba and Geological Survey of Canada.

Dr. Stern said the most plausible explanation for the trend is that as temperatures in the Arctic rise due to climate change, snow and ice cover are diminishing, leading to a profusion of algae, zooplankton and other aquatic microscopic life able to absorb pollutants from water.

While this greening of the Arctic environment means there is more for wildlife to eat, it also allows harmful contaminants to enter the food chain in far greater amounts, he said.

The discovery of the rising tally of harmful pollutants in fish in such a remote area of the Northwest Territories was doubly unusual for researchers because contaminant levels should have been going down, based on the declining amount of the chemicals in the general environment. Both PCBs and DDT have been banned for at least the past quarter-century, while mercury concentrations have generally been stable or falling slightly.

Almost no DDT, an insecticide blamed for wiping out bird populations, and PCBs, a transformer fluid linked to cancer and intellectual impairments in children, have been used in the Arctic. Mercury is emitted from coal-fired power plants. But the chemicals have been deposited in the north as air-pollution fallout from heavily industrialized areas.

"What climate change is doing is changing the [biological] availability of PCBs and the DDT that are already in the system," Dr. Stern said .

Among the three pollutants, mercury is the most dangerous to human health because it is a neurotoxin able to undermine brain development in children. The highest levels found were about .44 parts per million in specimens caught in 2006. This placed them under Health Canada's safe maximum of .5 ppm, beyond which authorities advise reduced consumption. Levels in the mid-1990s were around .25 ppm.

A peer-reviewed paper outlining the findings appeared earlier this year in the journal *Environmental Science and Technology*.

Dr. Stern said researchers do not know whether contaminants are increasing in fish elsewhere. The burbot were caught near Fort Good Hope, where temperatures have risen an average of 1.9 degrees since the early 1970s. But he has been part of a wider research effort that has found strong hints that warming is driving a rapid increase in biological activity in the north, with the potential to increase harmful chemical residues in animals.

[www.theglobeandmail.com](http://www.theglobeandmail.com)

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## **7. The 'new' NASA will look back at Earth**

*By Plans allow agency to re-fly carbon observatory that crashed last year*

By Andrea Thompson  
MSNBC  
February 2, 2010

NASA's new proposed budget will in part shift the space agency's focus from landing people on the moon back to Earth, with more money slated to go to projects that will help us understand our planet's climate and even plans to re-launch the carbon observatory that failed to launch last year.

The 2011 proposed budget for NASA, announced on Monday, cancels the Constellation program to build new rockets and spacecraft optimized for the moon, but increases NASA's overall budget by \$6 billion over the next five years. Of that \$6 billion, about \$2 billion will be funneled into new and existing science missions, particularly those aimed at investigating the Earth sciences, particularly climate .

"That's about 27 percent of the overall budget over the next five years of the agency [that] will be dedicated to science," said Edward Weiler, head of NASA's Science Mission Directorate at the agency's

headquarters in Washington, D.C.

The Earth and climate science division will get the bulk of the money allocated to science, and that money will bolster Earth science missions that are either already in the works or proposed, "NASA will be able to turn its considerable expertise to advancing climate-change research and observations," Weiler said today in a press briefing.

In particular, NASA's budget will allow the agency to re-fly the Orbiting Carbon Observatory (OCO), which crashed into the ocean near Antarctica just after launch almost a year ago. NASA has decided to give the mission a second chance, because it "is critical to our understanding of the Earth's carbon cycle and its effect on climate change," Weiler said.

OCO was the first satellite built exclusively to map carbon dioxide levels on Earth and help scientists understand how humanity's contribution of the greenhouse gas is affecting global climate change.

Climate scientist Ken Caldeira of Stanford University welcomed the news. "The Orbiting Carbon Observatory is a key piece [of] the monitoring system that we need to keep track of our changing Earth, so that we might better understand the complex interplay of Earth's climate system and carbon cycle, and therefore help to better inform the difficult climate-related decisions that we will need to make over the coming years and decades," he said.

The plans to resurrect the failed satellite began "literally before the sun rose on the night it was lost," said OCO principal investigator David Crisp of NASA's Jet Propulsion Laboratory in Pasadena, Calif.

"Due diligence required that we look at what it would cost and what it would take to fly a backup mission. We knew at that point in time, which was many, many months ago, that there was no identified budget for it, but that didn't mean that we wouldn't try to see if we could find a way to do this," Weiler said.

So Crisp and his team evaluated the possibilities of getting a new OCO back-up in space and decided the best way was to do it exactly the way they did it before.

"This is a carbon copy of the original," Crisp said, with just a few minor, now-obsolete parts replaced. NASA and Congress approved the plan to keep the option of a new OCO open, so the team has already started gathering and putting in orders for the needed parts. The new budget, if it is approved, will jump start this effort.

"We were just absolutely delighted to see the budget come out," Crisp said. "This is really, really good news for getting the mission back on track."

The new OCO is slated to be rebuilt and launched in 28 months, after Oct. 1 of this year, when the newly approved budget would take effect.

"In space time, that's coming right up," Crisp said, but he is confident that it's a doable schedule, he added. Crisp told LiveScience he has been receiving many congratulatory e-mails from climate scientists all over the world. "The amount of enthusiasm about this is really heartwarming," he said.

The successor to the OCO will be named OCO-2. The original name was a play on the structure of a carbon dioxide molecule (an oxygen atom attached to a carbon atom attached to another oxygen atom), while the second name plays on the chemical formula of the greenhouse gas, CO<sub>2</sub>.

OCO won't be the only program that gets a boost from the added funding.

"It will accelerate the development of new satellites to enhance observations of the climate and other Earth systems," Weiler said.

Some of the current missions in development that will benefit are the Global Precipitation Measurement, which will measure global rain, ice and snow patterns, and the Landsat Data Continuity Mission, which aims to continue the efforts of the Landsat satellites in measuring changes in Earth's landmasses. Data from the Landsat satellites are the longest continuous record of Earth's surface as seen from space.

The new budget money will also help operate and launch several planned missions: The Glory mission, to launch later this year, will measure levels of black carbon and other small particles in the Earth's atmosphere that can impact Earth's temperature and climate.

The NPOESS Preparatory Project (NPP) mission will take ocean and atmospheric temperatures, humidity measurements, measurements of the biological productivity on land and in the ocean, and investigate the properties of clouds and aerosols, two key uncertainties in climate models. And the Aquarius mission will measure the salinity of the sea surface, gathering more data on this parameter in two months than has been gathered in the last 100 years.

The added funding will also be used to further enhance climate modeling efforts and examine the feasibility of conducting Earth science measurements from the orbiting International Space Station, which will get a longer life under the new NASA plan.

Caldeira lauded the new plans and particularly the shift of resources toward science missions. "Increased funding for Earth observations and climate science signals a welcome redirection of resources to unmanned missions that will have real scientific yield for people who live on Earth today," he told LiveScience.

[www.msnbc.msn.com](http://www.msnbc.msn.com)

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## **8. Handheld field computers record Inuit knowledge**

Nunatsiaq News - Special  
February 4, 2010

A project that promises to revolutionize the way traditional knowledge is gathered and used across Nunavut's vast expanse has run into a problem all too familiar to software entrepreneurs everywhere - it's running out of cash.

The Igliniit Project has spent two years testing and refining a computer program for hunters to log what they see and do on while out on the land.

But as the money from the International Polar Year's research winds down, Igliniit looks to new sources to continue its work.

Since Igliniit's inception five years ago it has spent around \$260,000 in technology, travel and fees.

Shari Gearheard, one of the project's coordinators, said it's not clear how much more the project will need. That will depend on what new applications her group chooses to develop.

She was looking to scientists' groups and the departments of the Government of Nunavut for fresh funding.

Igliniit has produced a program for a pocket computer to record weather data and hunters' observations while on the land.

Using a stylus on the touch-screen, hunters can record what they encounter while hunting or traveling.

Igliniit's coordinators presented their work in Iqaluit on Jan. 27 to a full house at Nunavut Arctic College and Unikkaarvik Visitors Centre.

The machine has icons for a variety of Arctic animals, as well as weather conditions, ice conditions, and even garbage, all though a pictographic interface in both English and Inuktitut syllabics.

If it's an animal, the hunter can record if he simply saw it or shot it.

As a hunter taps the icons of what he sees, the machine records the time and the location of the sighting.

Although the computer has GPS capability, it's only for recording locations, not navigation. Hunters can do that on their own, Gearheard explained.

The machine has an external weather sensor, which can be mounted on a snow machine or dog sled. The sensor takes readings of air pressure, humidity and temperature every 30 seconds.

The weather data combined with the hunters' observations has the potential to produce an enormous amount of raw data on areas of the Arctic seldom visited by researchers.

Gearheard said she hoped every hunters and trappers organization in Nunavut would consider using the Igliniit system to document their land.

"The more you have eyes out there, the more you can share information," she said.

There have been a few bugs to work out. The computer doesn't work well in extreme cold, but the group has found an insulated sleeve to cover the unit and protect it.

A priority was to design a way to connect the computer to a snow machine so it would not run out of power. That required durable cables capable of handling the cold and rough travel.

Also, high mountains block the satellite signals of the computer's GPS system.

David Iqaqrialu was one of the hunters involved in field-testing the system, taking it on trips from Clyde River to Arctic Bay and Igloodik.

He presented maps overlaid with dozens of icons representing input from Jayko Enuaraq, the hunter with the computer at the time.

Iqaqrialu said the information gathered could be useful in teaching traditional knowledge to youth, as well as for scientists who don't visit Nunavut in the middle of winter.

Gearheard pointed to the variety of potential applications for the information gathered: environmental monitoring, land use planning, wildlife and harvest studies, search and rescue and ice mapping.

For example, when a new mining exploration project conducts community consultations, local residents help develop maps to show where are the hunting grounds and fishing areas and other resources on the land.

Igliniit's work would have such maps ready to go.

As an added bonus, the engineering students who designed the computer program installed a few video games like Solitaire.

These proved unexpectedly popular among hunters while waiting out bad weather.

The seven-year-old daughter of one hunter even figured out how to put music on the units, resulting in a rash of music sharing among the program's participants.

[www.nunatsiaqonline.ca](http://www.nunatsiaqonline.ca)

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Northern Climate ExChange

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*The next Update from the Northern Climate ExChange will be sent out **Wednesday, February 17, 2010***