



Northern Climate ExChange

Independent Information - Shared Understanding - Action on Climate Change

NCE Update March 30, 2011



Article Headlines:

- 1. Northern peatlands a misunderstood player in climate change**
- 2. Whitehorse promises more climate-change action**
- 3. Alaska summer 'bug explosion' predicted**
- 4. Alaska Musk Oxen found frozen in ice**
- 5. Arctic Ocean has become less salty, more unstable**
- 6. Study: temperature trends in Canada 1948-2009**

Quick Links

[NCE Website](#)
[What's New](#)
[About NCE](#)
[Climate Change North Website](#)
[Impacts & Adaptation](#)

Distribution List

[Join Our Mailing List!](#)

Announcements

1. Yukon Environment Fair

May 13-14th, Takhini Arena

The Government of Yukon's Department of Environment is again hosting the Yukon Environment Fair, this year with the theme 'Learning from the Land.'

Visit the [website](#) for registration and information.

Registration deadline is April 15. Contact the Environment Fair Coordinator, [Deborah Turner-Davis](#) at (867) 335-0333 for more information.

2. Draft net metering policy to shape Yukon's future in energy

Open for public comments until April 29, 2011

A draft policy outlining how the Yukon Government will manage net metering in the Yukon is available for public review. The draft policy outlines the process that will provide opportunities for Yukoners to who produce electricity from renewable technologies for their own consumption to connect to the electrical grid. It also encourages the development and adoption of new individual renewable energy sources, and promotes energy conservation and greater energy efficiency.

Copies and comments are open [here](#)



WELCOME!
WHITEHORSE
GREEN GUIDE
2010-11

Articles

1. Northern peatlands a misunderstood player in climate change

By Brian Murphy
University of Alberta
March 16, 2011

University of Alberta researchers have determined that while the influence of Northern peatlands on the prehistoric record of climate change was overestimated, the vast Northern wetlands must be watched closely as the planet grapples with its current global warming trend.

Alberto Reyes and Colin Cooke were PhD students in the U of A's Department of Earth and Atmospheric Sciences when they began their research into the response of Northern peatlands to climate change.

Northern peatlands, which are a boggy mixture of dead organic material and water, cover more than four million square kilometres. The largest Northern peatlands occur in the subarctic regions of Canada and Russia. As peatlands grow they sequester carbon in the form of carbon dioxide from the atmosphere. However, as old peat is buried and begins to decompose, it emits large amounts of methane, a potent greenhouse gas.

Reyes says the research began with the examination of radiocarbon dates of ancient peatlands. "We wanted to find out how peatlands first colonized Northern regions at the end of the last ice age," said Reyes. "This was a period of rapid global warming."

Atmospheric carbon dioxide and methane levels rose dramatically 10,000 years ago at the end of the last ice age. "In the past, scientists had suggested that Northern peatlands were an important, if not the principle, source of the dramatic increase in atmospheric methane," said Cooke.

But the U of A team revealed the peatlands did not colonize the North until 500-1,000 years after the abrupt increases in atmospheric methane. "These results show that other methane sources must have contributed to the warming at the end of the last ice age," said Reyes.

The researchers point to tropical wetlands as the likely drivers of the initial rises in methane levels during that period. Today, tropical peatlands are the second-largest source of methane emissions to the atmosphere, after human activities such as the burning of fossil fuels and large-scale agriculture.

Reyes and Cooke say their work points to the miscalculation of the role of Northern peatlands as an example of the complexities involved in studying huge and dynamic areas of the planet. Unraveling how Northern regions will respond to future warming remains a critical research topic for Canada and other Northern nations.

"Our future research will focus on Northern peatlands as nature's own carbon-capture mechanism," said Reyes. "On the flipside of that role we'll look at the peatlands as a major emitter of carbon in the form of methane gas."

The research was published online last month in [Proceedings of the National Academy of Science](#).

[University of Alberta](#)

[back to top](#)

2. Whitehorse promises more climate-change action

CBC News

March 22, 2011

Whitehorse officials say the city will do more to fight climate change, after some recent reports gave the Yukon capital a failing grade.

Whitehorse has been left off the World Wildlife Fund's latest Earth Hour list of Canadian cities that are fighting climate change.

The WWF report, released on Monday, puts Yellowknife - Whitehorse's rival city - in the top 10 because of that city's aggressive efforts to reduce greenhouse gas emissions.

The report is based on data from Corporate Knights magazine's 2011 list of Canada's most sustainable cities, which ranks Whitehorse in last place among six small cities. Yellowknife is in fourth place in the same category.

"Whitehorse has come in dead last, and that really irritates me because Yellowknife beat us," Lewis Rifkind of the Yukon Conservation Society told CBC News on Monday.

Whitehorse is doing a relatively good job in combating climate change, but it scored particularly poorly in terms of infrastructure, said Josh Laughren, director of the WWF's climate and energy program.

"What are the efficiency for your buildings? To what standards are new buildings required to comply when you're retrofitting older buildings? Are there good incentives in place to encourage energy efficiency and conservation?" Laughren said.

Water usage a problem

Rifkind said the wasteful use of water in Whitehorse is a major problem.

"We're having to pump a lot of water around the city. We then use it and then, of course, you have to treat a lot of that water through the sewage lagoons," he said.

Mayor Bev Buckway agreed, adding that it does not help that Whitehorse is so spread out, meaning residents also depend more on driving around the city.

Buckway said there is a concerted effort by the city to encourage more people to use transit and to recycle and separate compost from their garbage.

"If you don't have the buy-in from your residents or the corporate sector, then there's a lot of things going in that landfill that shouldn't be going in there. So again, we can do better on things like that," she said.

"Those scores have probably picked up a lot of those little items where we all, personally, need to do a little better."

But Buckway said public education takes time. Offering financial incentives to reduce, reuse and recycle is not an option, she added.

"If we have to pass out financial incentives or something for people to cut back and conserve, that sort of goes against the grain of what we're trying to achieve," she said.

Buckway said she believes Whitehorse will do better next year, citing the city's growing efforts to reduce greenhouse gases and a decision by Yellowknife residents last week not to financially support that city's plans for a geothermal heating system.

cbc.ca/north

[back to top](#)

3. Alaska summer 'bug explosion' predicted

Alaska Dispatch
March 22, 2011

Alaskans, prepare for an intense summer bug season. Global warming is fueling a "bug explosion" in the Last Frontier, according to a broadcast from Alaska Public Radio Network.

For bugs, climate change is "a playground on steroids" and warmer, longer summers coupled with a northerly advancing forest could set the stage "for some new insect players in Alaska," according to [APRN](#). The report highlights dead alders in Southcentral Alaska. The die-off is not the result of moose foraging; rather, a bug that's new to Alaska, the green alder soft fly.

One scientist postulates that the fly arrived by ship to Alaska, where it "found a suitable environment and was able to get established without anyone noticing very quickly." Alders are what scientists call a "keystone species" in Alaska, according to the report -- they feed moose and keep creek banks from eroding.

Other bugs that are native to Alaska but thriving in the warmer environment include green looper caterpillars that turn into moths come late fall. Foresters and agriculturalists worry that if other, invasive species like the Asian gypsy moth were to gain a foothold in Alaska, "the devastation would dwarf the damage caused by spruce-bark beetles" in the 1980s and 1990s, which left acres of dead forest in their wake, according to the story, which can be listened to in its entirety [here](#).

www.alaskadispatch.com

[back to top](#)

4. Alaska Musk Oxen found frozen in ice

Craig Medred
Alaska Dispatch
March 22, 2011

Climate change appears to have killed a herd of musk oxen in the Bering Land Bridge National Preserve of Northwest Alaska.

Thirty-two musk oxen carcasses were found March 15 by scientists who had been studying them. The animals were dead and entombed in ice. The belief is that the musk oxen either drowned during a February thaw or became trapped in water and died after it froze.

A late February storm on the northern coast of the Seward Peninsula, which played havoc with the Iron Dog snowmachine race, also apparently caused a mid-winter icing event that killed the Arctic animals, scientists believe.

Coastal flooding due to the storm forced the Iron Dog to be put on hold in Nome, and portions of the trail later had to be rerouted around open water. The Iron Dog takes snowmachine racers 2,000 miles, from Wasilla in Southcentral Alaska up to Nome and then back east to Fairbanks -- a "motor-head" version of Alaska's Iditarod Trail Sled Dog Race.

As the snowmachiners were waiting out the storm in an old gold-mining town on the peninsula, scientists say that the musk oxen were dying just to the north of them.

A press release from the National Park Service confirmed that 32 animals "were found frozen in the ice on the northern coast of the Seward Peninsula ... (and) it is possible that an additional 23 may be buried deeper and not visible until spring."

Some scientists studying caribou in the region say periodic winter thaws appear to be a new Arctic phenomenon linked to global warming. The climatic shifts have previously been linked to caribou and Dall sheep deaths, but not musk oxen.

Four musk oxen in what had been a 55-animal herd were located by biologists tracking their radio collars.

The animals would have been otherwise hard to find. Their carcasses were largely covered by ice and snow that fell after a refreeze.

However, once the radio-tracking devices led researchers to the four tagged animals, on-the-ground reconnaissance led to the discovery of 28 more. Scientists still do not know for sure whether the rest of the herd escaped the flooding and ice. They are now trying to determine which musk oxen in the herd died and exactly how.

All of the animals were part of what was scheduled as a five-year study by respected Alaska wildlife researcher Layne Adams. He has been studying musk oxen population dynamics in Northwest Alaska with the help of Joel Berger, senior scientist for the Wildlife Conservation Society and a professor at the University of Montana.

The park service doubts the meat of the musk oxen, eaten by local residents, is salvageable at this time, and notes that it is unlawful to remove the horns of the muskoxen because the animals are in a national park. The 2.6 million acre Bering preserve was protected under the Alaska National Interest Lands Conservation Act of 1980 as a remnant of the land bridge that connected Asia with North America more 13,000 years ago.

It is expected the carcasses will be scavenged by wolves, foxes, eagles and ravens, and if there is anything left, by grizzly bears in the spring.

www.alaskadispatch.com

[back to top](#)

5. Arctic Ocean has become less salty, more unstable

Nunatsiaq News
March 29, 2011

More fresh water is pouring into the Arctic Ocean as glaciers melt, raising concern among some scientists.

The fresh water content of the upper layer of the Arctic Ocean has increased by about 20 per cent since the 1990s, say scientists from Germany's Alfred Wegener Institute.

They predict this increase may alter the world's ocean currents, with potentially disastrous results.

This fresh water from melting glaciers that pours into the upper layer of the Arctic Ocean is likely to flow out into the North Atlantic. There, it may impact on global ocean circulation and disrupt the flow of the Gulf Stream, say researchers from the Alfred Wegener Institute in the journal Deep-Sea Research.

If that happens, places like Greenland, Iceland, Norway and parts of Europe, which are warmed by this powerful ocean current, could actually cool off.

The fresh water on top of the Arctic Ocean is important because this surface water controls the amount of heat that escapes. Like a blanket, fresh water usually lies on top of the deeper salty and warm ocean layers and cuts off their heat flow to the ice and atmosphere.

Changing the balance between the cold and warm layers could change the way ocean currents form and travel, scientists says.

To measure the depth distribution of the salt concentration, researchers used sensors from ships or mounted sensors on large ice floes so the data could be recorded as the ice drifted through the Arctic Ocean.

New research by scientists at Woods Hole Oceanographic Institution also shows the Arctic Ocean is bringing more heat to Greenland's glaciers, causing them to melt even faster and pour more fresh water into the ocean.

A research team discovered warm, subtropical waters deep inside Sermilik fiord at the base of Helheim glacier in 2009.

"We knew that these warm waters were reaching the fjords, but we did not know if they were reaching the glaciers or how the melting was occurring," said Fiamma Straneo, lead author of a study published online in the March 20 edition of the journal [Nature Geoscience](#).

www.nunatsiaq.ca

[back to top](#)

6. Study: Temperature trends in Canada 1948 to 2009

Statistics Canada
March 23, 2011

During the past 60 years, the trend in average annual temperatures for Canada as a whole has increased by 1.4 degrees Celsius.

The article "[Temperature trends in Canada](#)" in EnviroStats examines data consisting of temperature departures from normal on an annual and seasonal basis for 11 climatic regions and the nation from 1948 to 2009.

The climatic regions that showed the strongest warming trends were located in Canada's far north, specifically the Arctic Tundra; Arctic Mountains and Fiords; Mackenzie District; and Yukon and North British Columbia Mountains. The Mackenzie District climatic region recorded the strongest warming trend, rising 2.2 degrees Celsius over normal during the six decades.

The Atlantic Canada climatic region recorded the smallest increase in average temperatures, 0.5 degrees Celsius over normal.

The analysis of seasonal departures from normal suggests that increased winter and spring temperatures contributed to the warming trend to a greater degree than the other seasons. Average winter and spring temperatures got milder over the study period. Average summer and fall temperatures also increased over normal, but at slower rates.

The Atlantic Canada climatic region experienced significantly cooler winters during the six-decade period, while 7 of the 11 climatic regions experienced warmer winters.

Full report '[Temperature trends in Canada](#)' by Jeff Fritzsche, Environment Accounts and Statistics Division

www.statcan.gc.ca

[back to top](#)

NCE Update Subscribers,

For comments, or to submit content you would like considered for inclusion in the NCE Update, e-mail us at: [NCE Update](#).

Northern Climate Exchange

[back to top](#)

*The NCE Update is currently being published bi-weekly. The next Update from the Northern Climate Exchange will be sent out **Wednesday, April 13th 2011***