



# Northern Climate ExChange

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

NCE Update October 7, 2009



## Article Headlines:

- [1. Mighty Arctic caribou herds dwindle, warming blamed](#)
- [2. Arctic sea ice extent remains low; 2009 sees third-lowest mark](#)
- [3. Arctic seas turn to acid, putting vital food chain at risk](#)
- [4. Russian Arctic tribe at risk from Yamal gas projects](#)
- [5. Eco-friendly defence against erosion in arctic regions](#)
- [6. Greenpeace blocks Arctic coal mine in Svalbard](#)
- [7. The Arctic Is an Area of Peace](#)
- [8. New polar bear rule sent to White House](#)

## Quick Links

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

## Distribution List

[Join Our Mailing List!](#)

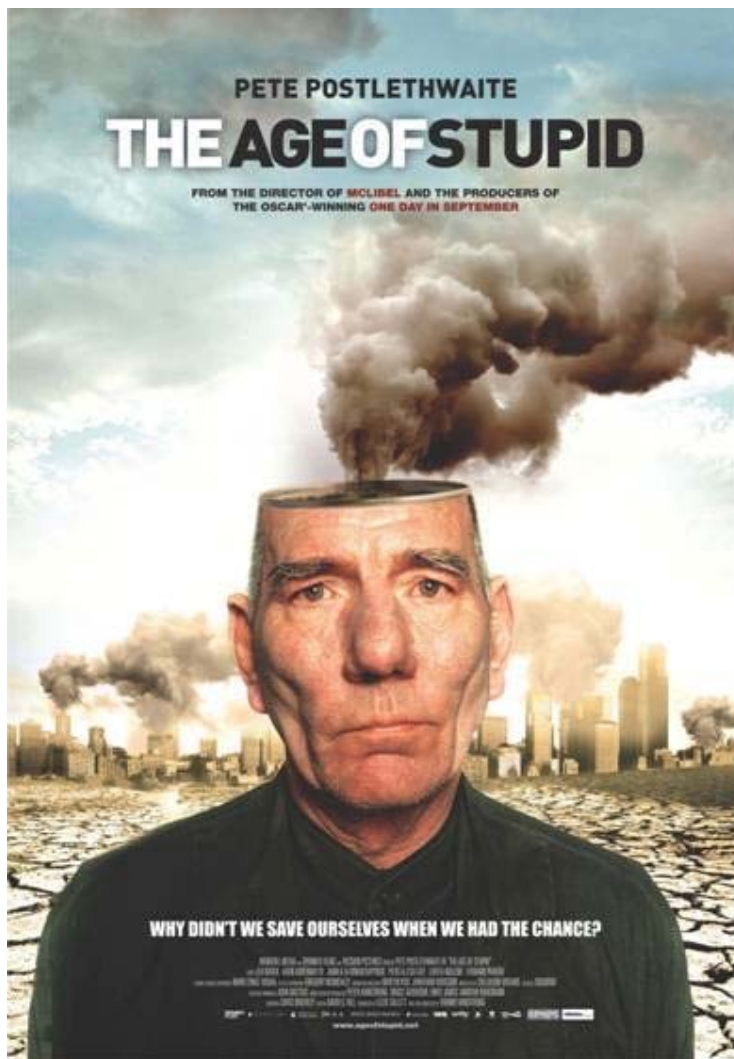
## Announcements

- [1. Film Screening Next Wednesday: 'The Age of Stupid'](#)



The **Northern Climate ExChange**, Yukon College, is pleased to invite you to a screening of the new feature-length cinema-documentary:

"The Age of Stupid" [www.ageofstupid.net](http://www.ageofstupid.net)



**Wednesday October 14, 2009**

The Old Firehall, Whitehorse, YT

Doors open at 6:30 p.m.

Show starts at 7 p.m.

(Seating is limited, so please arrive early).

'**The Age of Stupid**' is the new cinema documentary from the Director of 'McLibel' and the Producer of the Oscar-winning 'One Day In September'. This enormously ambitious drama-documentary-animation hybrid stars Oscar-nominated Pete Postlethwaite as an old man living in the devastated world of 2055, watching "archive" footage from 2008 and asking: **why didn't we stop climate change while we had the chance?**

[www.taiga.net/nce](http://www.taiga.net/nce)

## **2. Dawson Adaptation Plan Open House - October 19, 2009**

The **Northern Climate ExChange** (NCE) will be holding an Open House on October 19th to review and accept feedback from the Community of Dawson on the second draft of the **Dawson Adaptation Plan**.

Come see how Dawson residents may be vulnerable to climate change and what adaptations were proposed by the community to create an effective response strategy.

We will also announce which adaptation projects have been accepted by the Dawson Local Advisory Committee for implementation over the next year.

**The Open House will be held at the Tr'ondëk Hwëch'in Community Hall from 5:00-9:00 pm.**

For more information, contact:

[Sebastian Jones](#), Dawson Adaptation Coordinator  
Northern Climate ExChange, Yukon College  
(867) 993-4401

[www.taiga.net/nce](http://www.taiga.net/nce)

### **3. Webinar | Alliance for Resilient Cities: Community Adaptation Planning in Yukon: October 22, 2009**

The **Northern Climate ExChange's** Community Adaptation Project Manager, Ryan Hennessey, will be presenting a webinar on community adaptation planning in Yukon to the **Alliance for Resilient Cities/Clean Air Partnership (CAP)**.

Ryan will discuss the ongoing **NCE Community Climate Change Adaptation Project (CCCAP)**, including some of the details of how the plan was developed, some of the challenges that the planning team has experienced and next steps for CCCAP in 2009/10.

Communities and interested persons wishing to participate in the webinar, should pre-register by contacting [arc@cleanairpartnership.org](mailto:arc@cleanairpartnership.org)

Details about the webinar can be found on the CAP website:

<http://www.cleanairpartnership.org/arc>

### **4. 'Hug the Legislature' for Action on Climate Change - October 24**

**Bringing Youth Towards Equality (BYTE)** and the **Canadian Youth Climate Coalition** invite Whitehorse citizens of all ages to stand in solidarity with tens of thousands of Canadians in Ottawa and across the nation as part of a global campaign to request that our national governments take decisive action on Climate Change at the upcoming UN Climate Conference in Copenhagen this December 2009.

**On October 24th at noon, 350 people in Whitehorse will gather together to form a standing circle, hand-in-hand, around the Yukon Legislative Building on 2nd Avenue to send a powerful message to our government that Yukoners want Canada to take responsibility and leadership on acting to curb climate change.**

350 is the number that climate scientists say is the acceptable upper limit for carbon dioxide-measured in "parts per million" in our atmosphere.

#### **Sign up and commit to be one of the 350!**

To get your designated number;

1. drop by the **BYTE** office (#2-407 Ogilvie Street),
2. phone 667-7975,
3. visit [www.yukonyouth.com](http://www.yukonyouth.com) or
4. e-mail [events@yukonyouth.com](mailto:events@yukonyouth.com).

For more information, please contact: Matthew Koop-Pearce  
Bringing Youth Towards Equality at 867-667-7975

[www.350.org/node/7609](http://www.350.org/node/7609)

## 5. UNEP Climate Change Science Compendium 2009

The Climate Change Science Compendium is a review of some 400 major scientific contributions to our understanding of Earth Systems and climate that have been released through peer-reviewed literature or from research institutions over the last three years, since the close of research for consideration by the IPCC Fourth Assessment Report.

The Compendium is not a consensus document or an update of any other process. Instead, it is a presentation of some exciting scientific findings, interpretations, ideas, and conclusions that have emerged among scientists.

Focusing on work that brings new insights to aspects of Earth System Science at various scales, it discusses findings from the International Polar Year and from new technologies that enhance our abilities to see the Earth's Systems in new ways. Evidence of unexpected rates of change in Arctic sea ice extent, ocean acidification, and species loss emphasizes the urgency needed to develop management strategies for addressing climate change.

[Download full report](#) (4.6 MB)

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

## 6. Call for Proposals 2010-2011: The Climate Change and Health Adaptation Program - Northern First Nations and Inuit Communities.

The Climate Change and Health Adaptation Program is now accepting proposals from Northern First Nations and Inuit Communities for the 2010-2011 fiscal year. The Climate Change and Health Adaptation Program funds community-centred research, where the research is done by community members/organizations for the benefit of their community.

For more information and how to apply, contact:  
Erin Myers, Program Officer, Health Canada  
(613) 957-2490 or e-mail [erin\\_myers@hc-sc.gc.ca](mailto:erin_myers@hc-sc.gc.ca)

**Deadline for Applications is January 24th, 2010**

## Articles

### 1. Mighty Arctic caribou herds dwindle, warming blamed

By Charles J. Hanley  
The Associated Press  
*Daily NewsMiner*  
October 4, 2009

ON THE PORCUPINE RIVER TUNDRA, Yukon Territory- Here on the endlessly rolling and tussocky terrain of northwest Canada, where man has hunted caribou since the Stone Age, the vast antlered herds are fast growing thin. And it's not just here.

Across the tundra 1,000 miles to the east, Canada's Beverly herd, numbering more than 200,000 a decade ago, can barely be found today.

Halfway around the world in Siberia, the biggest aggregation of these migratory animals, of the dun-colored herds whose sweep across the Arctic's white canvas is one of nature's matchless wonders, has shrunk by

hundreds of thousands in a few short years.

From wildlife spectacle to wildlife mystery, the decline of the caribou - called reindeer in the Eurasian Arctic - has biologists searching for clues, and finding them.

They believe the insidious impact of climate change, its tipping of natural balances and disruption of feeding habits, is decimating a species that has long numbered in the millions and supported human life in Earth's most inhuman climate.

Many herds have lost more than half their number from the maximums of recent decades, a global survey finds. They "hover on the precipice of a major decline," it says.

The "People of the Caribou," the native Gwich'in of the Yukon and Alaska, were among the first to sense trouble, in the late 1990s, as their Porcupine herd dwindled. From 178,000 in 1989, the herd - named for the river crossing its range - is now estimated to number 100,000.

"They used to come through by the hundreds," James Firth, 56, of the Gwich'in Renewable Resources Board said as he guided two Associated Press journalists across the tundra.

Off toward distant horizons this summer afternoon, only small groups of a dozen or fewer migrating caribou could be seen grazing southward across the spongy landscape, green with a layer of grasses, mosses and lichen over the Arctic permafrost.

"I've never seen it like this before," Firth said of the sparse numbers.

More than 50 identifiable caribou herds migrate over huge wilderness tracts in a wide band circling the top of the world. They head north in the spring to ancient calving grounds, then back south through summer and fall to winter ranges closer to northern forests.

The Porcupine herd moves over a 100,000-square-mile range, calving in the Arctic National Wildlife Refuge, near Alaska's north coast, where proposals for oil drilling have long stirred opposition from environmentalists seeking to protect the caribou.

The global survey by researchers at the University of Alberta, published in June in the peer-reviewed journal *Global Change Biology*, has deepened concerns about the caribou's future.

Drawing on scores of other studies, government databases, wildlife management boards and other sources, the biologists found that 34 of 43 herds being monitored worldwide are in decline. The average falloff in numbers was 57 percent from earlier maximums, they said.

Siberia's Taimyr herd has declined from 1 million in 2000 to an estimated 750,000, as reported in the 2008 "Arctic Report Card" of the U.S. National Oceanic and Atmospheric Administration.

The Taimyr is the world's largest herd, but Canada and Alaska have more caribou, and the Alberta study reported that 22 of 34 North American herds are shrinking. Data were insufficient to make a judgment on seven others.

In an AP interview, Liv Solveig Vors, the June report's lead author, summarized what is believed behind the caribou crash: "Climate change is changing the way they're interacting with their food, directly and indirectly."

Global warming has boosted temperatures in the Arctic twice as much as elsewhere, and Canadian researchers say the natural balance is suffering:

-Unusual freezing rains in autumn are locking lichen, the caribou's winter forage, under impenetrable ice sheets. This was the documented cause in the late 1990s of the near-extinction of the 50,000-strong Peary caribou subspecies on Canada's High Arctic islands.

-Mosquitoes, flies and insect parasites have always tormented and weakened caribou, but warmer temperatures have aggravated this summertime problem, driving the animals on crazed, debilitating runs to escape, and keeping them from foraging and fattening up for winter.

-The springtime Arctic "green-up" is occurring two weeks or more earlier. The great caribou migrations evolved over ages to catch the shrubs on the calving grounds at their freshest and most nutritious. But pregnant, migrating cows may now be arriving too late.

Vors said caribou are unlikely to adjust.

"Evolutionary changes tend to take place over longer time scales than the time scale of climate change at the moment," she said. Climatologists foresee northern temperatures rising several degrees more this century unless global greenhouse gas emissions are sharply reduced soon.

Caribou herds have gone through boom-and-bust cycles historically, but were never known to decline so uniformly worldwide.

Leading Canadian specialist Don Russell, coordinator of a new global network formed to more closely monitor what's happening to the herds, said experts are focusing on "what has changed between this decline and previous declines."

"We've seen a number of areas where climate change is playing a big role, and we see some very dramatic trends," he said in an interview in Whitehorse, the Yukon territorial capital.

In neighboring Northwest Territories, the territorial government on Sept. 24 reported results of its aerial survey of the Bathurst herd: Its population has dropped to about 32,000, from 128,000 in 2006.

"The numbers are not getting better. There's no good news, no indication of recovery," J. Michael Miltenberger, the environment and natural resources minister, said by telephone from Yellowknife, the capital.

He said "there's a huge issue" with the Beverly herd, which numbered 276,000 in 1994, ranging over the Canadian tundra 1,000 miles due north of North Dakota.

"We've been flying north to south, east to west," Miltenberger said. "By our count, with the Beverly herd, they've all but disappeared."

Climate change is piling problem upon problem on the caribou, he said, including bogging them down in thawing permafrost and lengthening the wildfire season, burning up their food.

"The cumulative impact is bringing enormous pressure on the caribou," he said.

And that puts pressure on Canada's "First Nations," who for at least 8,000 years have relied on the harvest of caribou meat for the winter larder, have settled along migration routes, have built their material culture around the animal - using skin, bones and sinews for clothing, shelter, tools, thread, even their drums.

"There are probably ominous implications for communities relying on caribou," Russell said.

Such reliance is mirrored in Siberia and northern Scandinavia, where the Sami people make a hard living herding reindeer as livestock. Freezing rains there are reported to have forced Sami to buy fodder to substitute for ice-locked forage.

Here in the timeless, silent beauty of Gwich'in country, his people may face "hard decisions," Firth acknowledged, perhaps to limit their hunt to ease the pressure.

"The future of the Gwich'in and the future of the caribou are the same," the Gwich'in often say. But even more may be at stake.

On this summer day above the Arctic Circle, binoculars found a group of caribou being stalked and circled by a hungry grizzly bear, a needy predator and another link in an intricate, interdependent natural web that may be unraveling, year by year and degree by degree, on the tundra.

[back to top](#)

## 2. Arctic sea ice extent remains low; 2009 sees third-lowest mark

National Snow and Ice Data Center  
October 6, 2009

At the end of the Arctic summer, more ice cover remained this year than during the previous record-setting low years of 2007 and 2008. However, sea ice has not recovered to previous levels. September sea ice extent was the third lowest since the start of satellite records in 1979, and the past five years have seen the five lowest ice extents in the satellite record.

NSIDC Director and Senior Scientist Mark Serreze said, "It's nice to see a little recovery over the past couple years, but there's no reason to think that we're headed back to conditions seen back in the 1970s. We still expect to see ice-free summers sometime in the next few decades."

The average ice extent over the month of September, a reference comparison for climate studies, was 5.36 million square kilometers (2.07 million square miles) ([Figure 1](#)). This was 1.06 million square kilometers (409,000 square miles) greater than the record low for the month in 2007, and 690,000 square kilometers (266,000 square miles) greater than the second-lowest extent in 2008. However, ice extent was still 1.68 million square kilometers (649,000 square miles) below the 1979 to 2000 September average ([Figure 2](#)). Arctic sea ice is now declining at a rate of 11.2 percent per decade, relative to the 1979 to 2000 average ([Figure 3](#)).

Sea surface temperatures in the Arctic this season remained higher than normal, but slightly lower than the past two years, according to data from Mike Steele at the University of Washington in Seattle. The cooler conditions, which resulted largely from cloudy skies during late summer, slowed ice loss compared to the past two years ([Figure 4](#)). In addition, atmospheric patterns in August and September helped to spread out the ice pack, keeping extent higher.

The ice cover remained thin, leaving the ice cover vulnerable to melt in coming summers. Scientists use satellites to measure ice age, a proxy for ice thickness. This year, younger (less than one year old), thinner ice, which is more vulnerable to melt, accounted for 49 percent of the ice cover at the end of summer. Second-year ice made up 32 percent, compared to 21 percent in 2007 and 9 percent in 2008 ([Figure 5](#)). Only 19 percent of the ice cover was over 2 years old, the least in the satellite record and far below the 1981-2000 average of 52 percent. Earlier this summer, NASA researcher Ron Kwok and colleagues from the University of Washington in Seattle published satellite data showing that ice thickness declined by 0.68 meters (2.2 feet) between 2004 and 2008.

NSIDC Scientist Walt Meier said, "We've preserved a fair amount of first-year ice and second-year ice after this summer compared to the past couple of years. If this ice remains in the Arctic through the winter, it will thicken, which gives some hope of stabilizing the ice cover over the next few years. However, the ice is still much younger and thinner than it was in the 1980s, leaving it vulnerable to melt during the summer."

Arctic sea ice follows an annual cycle of melting and refreezing, melting through the warm summer months and refreezing in the winter. Sea ice reflects sunlight, keeping the Arctic region cool and moderating global climate. While Arctic sea ice extent varies from year to year because of changeable atmospheric conditions, ice extent has shown a dramatic overall decline over the past thirty years. During this time, ice extent has declined at a rate of 11.2 percent per decade during September (relative to the 1979 to 2000 average) ([Figure 6](#)), and about 3 percent per decade in the winter months.

NSIDC Lead Scientist Ted Scambos said, "A lot of people are going to look at that graph of ice extent and think that we've turned the corner on climate change. But the underlying conditions are still very worrisome."

Reference:

Kwok, R., and D. A. Rothrock. 2009. Decline in Arctic sea ice thickness from submarine and ICESat records: 1958-2008, *Geophys. Res. Lett.*, 36, L15501, [doi:10.1029/2009GL039035](https://doi.org/10.1029/2009GL039035).

[back to top](#)

### **3. Arctic seas turn to acid, putting vital food chain at risk**

*With the world's oceans absorbing six million tonnes of carbon a day, a leading oceanographer warns of eco disaster*

By Robin Mckie  
The Observer  
October 4, 2009

Carbon-dioxide emissions are turning the waters of the Arctic Ocean into acid at an unprecedented rate, scientists have discovered. Research carried out in the archipelago of Svalbard has shown in many regions around the north pole seawater is likely to reach corrosive levels within 10 years. The water will then start to dissolve the shells of mussels and other shellfish and cause major disruption to the food chain. By the end of the century, the entire Arctic Ocean will be corrosively acidic.

"This is extremely worrying," Professor Jean-Pierre Gattuso, of France's Centre National de la Recherche Scientifique, told an international oceanography conference last week. "We knew that the seas were getting more acidic and this would disrupt the ability of shellfish - like mussels - to grow their shells. But now we realise the situation is much worse. The water will become so acidic it will actually dissolve the shells of living shellfish."

Just as an acid descaler breaks apart limescale inside a kettle, so the shells that protect molluscs and other creatures will be dissolved. "This will affect the whole food chain, including the North Atlantic salmon, which feeds on molluscs," said Gattuso, speaking at a European commission conference, Oceans of Tomorrow, in Barcelona last week. The oceanographer told delegates that the problem of ocean acidification was worse in high latitudes, in the Arctic and around Antarctica, than it was nearer the equator.

"More carbon dioxide can dissolve in cold water than warm," he said. "Hence the problem of acidification is worse in the Arctic than in the tropics, though we have only recently got round to studying the problem in detail."

About a quarter of the carbon dioxide pumped into the atmosphere by factories, power stations and cars now ends up being absorbed by the oceans. That represents more than six million tonnes of carbon a day. This carbon dioxide dissolves and is turned into carbonic acid, causing the oceans to become more acidic. "We knew the Arctic would be particularly badly affected when we started our studies but I did not anticipate the extent of the problem," said Gattuso.

His research suggests that 10% of the Arctic Ocean will be corrosively acidic by 2018; 50% by 2050; and 100% ocean by 2100. "Over the whole planet, there will be a threefold increase in the average acidity of the oceans, which is unprecedented during the past 20 million years. That level of acidification will cause immense damage to the ecosystem and the food chain, particularly in the Arctic," he added.

The tiny mollusc *Limacina helicina*, which is found in Arctic waters, will be particularly vulnerable, he said. The little shellfish is eaten by baleen whales, salmon, herring and various seabirds. Its disappearance would therefore have a major impact on the entire marine food chain. The deep-water coral *Lophelia pertusa* would also be extremely vulnerable to rising acidity. Reefs in high latitudes are constructed by only one or two types of coral - unlike tropical coral reefs which are built by a large variety of species. The loss of *Lophelia pertusa* would therefore devastate reefs off Norway and the coast of Scotland, removing underwater shelters that are exploited by dozens of species of fish and other creatures.

"Scientists have proposed all sorts of geo-engineering solutions to global warming," said Gattuso. "For instance, they have proposed spraying the upper atmosphere with aerosol particles that would reduce sunlight reaching the Earth, mitigating the warming caused by rising levels of carbon dioxide."

"But these ideas miss the point. They will still allow carbon dioxide emissions to continue to increase - and thus the oceans to become more and more acidic. There is only one way to stop the devastation the oceans are now facing and that is to limit carbon-dioxide emissions as a matter of urgency."

This was backed by other speakers at the conference. Daniel Conley, of Lund University, Sweden, said that increasing acidity levels, sea-level rises and temperature changes now threatened to bring about irreversible loss of biodiversity in the sea. Christoph Heinze, of Bergen University, Norway, said his studies, part of the EU CarboOcean project, had found that carbon from the atmosphere was being transported into the oceans' deeper waters far more rapidly than expected and was already having a corrosive effect on life forms there.

The oceans' vulnerability to climate change and rising carbon-dioxide levels has also been a key factor in the launching of the EU's Tara Ocean project at Barcelona. The expedition, on the sailing ship Tara, will take three years to circumnavigate the globe, culminating in a voyage through the icy Northwest Passage in Canada, and will make continual and detailed samplings of seawater to study its life forms.

A litre of seawater contains between 1bn and 10bn single-celled organisms called prokaryotes, between 10bn and 100bn viruses and a vast number of more complex, microscopic creatures known as zooplankton, said Chris Bowler, a marine biologist on Tara.

"People think they are just swimming in water when they go for a dip in the sea," he said. "In fact, they are bathing in a plankton soup."

That plankton soup is of crucial importance to the planet, he added. "As much carbon dioxide is absorbed by plankton as is absorbed by tropical rainforests. Its health is therefore of crucial importance to us all."

However, only 1% of the life forms found in the sea have been properly identified and studied, said Bowler. "The aim of the Tara project is to correct some of that ignorance and identify many more of these organisms while we still have the chance. Issues like ocean acidification, rising sea levels and global warming will not be concerns at the back of our minds. They will be a key focus for the work that we do while we are on our expedition."

### **The toll by 2100**

- The Intergovernmental Panel on Climate Change forecast in 2007 that sea levels would rise by 20cm to 60cm by 2100 thanks to global warming caused by man-made carbon-dioxide emissions. This is now thought to be an underestimate, however, with most scientific bodies warning that sea levels could rise by a metre or even higher. Major inundations of vulnerable regions such as Bangladesh would ensue.
- The planet will be hotter by 3C by 2100, most scientists now expect, though rises of 4.5C to 5C could be experienced. Deserts will spread and heatwaves will become more prevalent. Ice-caps will melt and cyclones are also likely to be triggered.
- Weather patterns across the globe will become more unstable, numbers of devastating storms will increase dramatically while snow will disappear from all but the highest mountains.

[www.guardian.co.uk](http://www.guardian.co.uk)

[back to top](#)

## **4. Russian Arctic tribe at risk from Yamal gas projects**

By Amie Ferris-Rotman  
Reuters  
October 6, 2009

The Nenets tribespeople of Russia's frozen Yamal peninsula have survived the age of the Tsars, the Bolshevik revolution and the chaotic 1990s, but now confront their biggest challenge -- under their fur-bundled feet is enough gas to heat the world for five years.

"For them it is fortune, for us terror," said 20-year-old herder Andrei Yezgini, dressed from head to toe in reindeer skin, referring to ambitious plans by state gas giant Gazprom to drill the region Prime Minister

Vladimir Putin has described as "the world's storehouse" of gas and oil.

Putin jetted into the sparsely populated region within the Arctic circle, 2,000 km (1,250 miles) northeast of Moscow, in late September to woo foreign partners to develop a quarter of the world's known gas reserves. Experts and the Nenets say industry will damage and pollute the tundra, whose flat marshy terrain switches from marigold russets in summer to thick winter snow and is peppered with disc-like thermokarst lakes and crystal blue waterways.

Nenets migrate north to south over 150 km every year, spending only a few days in one place, living off reindeer and fish and lugging their "chums," or tents, kerosene lamps and wood-fired stoves on reindeer-pulled sleighs.

"The fact they've found deposits here is catastrophic," said Slava Vanuito, 34, his Asiatic eyes narrowing as a gust of Arctic wind sweeps over a tundra bouncy from the thick carpet of springy moss that feeds the reindeer.

Like many young Nenets men, Vanuito served in the Russian army -- he fought against Chechens in the first separatist war -- and decided to return to his nomadic life in Yamal, which means "world's end" in Nenets, a distant relative of Finnish.

Numbering around 42,000, the Nenets are entirely dependent on reindeer, which appear on the Yamal region's crest, and are animists. Their strict code of superstitions and gender divisions has been virtually untouched for at least a millennium.

### **Broken Deer Legs**

From a Soviet-made helicopter, a bright blue train with 20 wagons can be seen snaking through the tundra, part of a newly-opened railway which experts say heralds severe damage.

Opened by Putin last month, it will serve Russia's biggest gas field Bovanenkovo at the top of Yamal, which will feed the Nord Stream pipeline to Germany from 2012, and runs around two-thirds of the 700-km-long peninsula.

Yezgini said it is breaking the legs of the deer. "There's debris and gravel around the tracks, frightening and hurting them." He added pastures around the track have lost shrubbery.

Bruce Forbes, research professor in global change at the University of Lapland in Finland, said the railway is only the beginning: "We are just seeing the tip of the iceberg in terms of destruction," he told Reuters by telephone.

The government is keen to develop the Yamalo-Nenets region as soon as possible. Last month it proposed tax breaks to entice foreign firms to drill the frozen mass of land, which has field reserves of 16 trillion cubic meters.

Already Russia's main gas-producing region, Gazprom said it gives Yamal 20 billion roubles (\$665 million) every year, but declined to comment on how the money is distributed.

Yamal accounts for more than 90 percent of Gazprom's gas output, and total revenues last year stood at 3.5 trillion roubles.

Vanuito, sharpening a saw for antler trimming, dismissed such claims by Gazprom as "rubbish." He said they received a "pittance" of a monthly state stipend of 2,000 roubles (\$66).

In January, Forbes sent a research report to the firms urging the coexistence of oil and gas activities with the Nenets by asking companies to respect their demands, such as no illegal hunting by gas workers and the burying of pipelines.

Citing herders and administration officials, he said compensations for pasture degradation and land withdrawals tended to be absorbed by local government and did not reach the Nenets.

"The European Union needs to be more responsible ethically and morally when considering where they want

to buy their gas from," he said, adding Western firms had responded positively to the report.

It is not the first time Russian indigenous people have come under threat from industry. Rights groups say energy firms do not fully respect the culture of the Khanty in Russia's oil-producing region of Khanty-Mansiysk in west Siberia.

Moscow has offered the Nenets free houses in Yamal's capital Salekhard, but Forbes said that was missing the point: "Their animals and their space in the tundra give them complete freedom."

Some state benefits are welcomed by the Nenets -- helicopters take them to towns of several hundred people an hour's flight away and children from age seven are sent to Russian-language schools in towns where they live with other Nenets families.

"I just pray Gazprom won't change us," said Yezgini's mother Valentina, 52. "I want my grandchildren to see our land as it is: beautiful, fresh, full of berries and deer."

(Additional reporting by Vladimir Soldatkin in Moscow; Editing by Janet Lawrence)

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

[back to top](#)

## **5. Eco-friendly defence against erosion in arctic regions**

*A robust geosynthetic bag developed by the French and Norwegian partners of EUREKA project E! 3702 GISSAC can be filled with locally available, low-grade soil and used to build protective infrastructures capable of withstanding sea and ice erosion in the harsh Arctic climate.*

Eureka

October 2, 2009

Coastal roads and harbours are traditionally protected from sea erosion by giant blocks of rock or geosynthetic bags filled with material, all locally sourced where possible. In the Arctic and other cold northern regions, where good quality material is often scarce, the prohibitive economic and environmental cost of importing suitable matter has led to a demand for solutions that make use of whatever low quality soil or other material is available.

Geosynthetic bags, which are typically woven textile, polymer-based envelopes, have been successfully used for more than 40 years in temperate climates, but have not been tested in sub-zero conditions.

### **Answering local needs**

EUREKA project E! 3702 GISSAC was initiated by TenCate Geosynthetics France, a world-leader in the design and production of geosynthetic materials for civil engineering projects. The company wanted to find out if geosynthetic bags worked in very cold conditions, and to come up with a product that was both environmentally friendly and sustainable.

"Our northern European sales offices asked us to develop suitable materials for cold regions where the temperature is rarely above zero," explains Dr Olivier Artières, TenCate's Innovation Project Manager and Senior Expert. "They face specific problems such as the thawing and freezing cycles of water that make the construction of infrastructures like roads and jetties difficult.

"Following a discussion with colleagues at Norway's SINTEF Research Institute we decided to talk to hold a brainstorming session with local users to gain a better understanding of their needs and the kind of solution they were looking for. They told us that constructing embankments under water to create dykes and breakwaters was a major problem, and protecting against coastal erosion. This was particularly so in areas such as Svalbard, where traditional solutions are too expensive or don't comply with strict environmental regulations, and which also lack suitable geological material for building protective infrastructures."

### **A robust and versatile solution**

The GISSAC project team, with the support of EUREKA and the Norwegian-French Foundation, set about developing envelopes made with textiles comprising different structures (woven, non-woven and knitted) and different types of polymers. Laboratory tests and analysis of on-site results were conducted by French partner CETE Est LRPC Nancy and Norwegian subcontractor UNIS, with PhD and MSc students taking part in the fieldwork.

The project also entailed establishing the optimum shape and size of the geosynthetic bags, or Geobags, and the best method of installation. "The cold makes it extremely difficult to work in the Arctic," explains Dr Artières, "so it was a matter of finding the best compromise between a solution that works well and is also easy to install, as well as being inexpensive and environmentally friendly."

Geobags made from different types of textile were installed along a 100 metre stretch of coastline near a mining camp on Svalbard operated by project partner Store Norske Spitsbergen Grubekompani (SNSG). Over three winters, their response was monitored to the cold, ice movement, currents, abrasion and other stresses characteristic of the area. The results were so good that SNSG used the Geobags to repair a damaged quay wall in the local harbour instead of locally available rocks.

### **A growing market**

The inexpensive, sustainable solution will be launched on the market in early 2010. With climate change models predicting that the north-western coasts of Canada and Alaska will be ice-free by 2020, and an estimated 25% of the world's undiscovered oil and gas resources located in the Arctic, the market potential for Geobags is considerable, as all new operations will require land-based infrastructures in need of protection. Several new Russian fields are also currently planned in the Barents and Pechora seas.

Given the ecologically fragile nature of arctic regions, Geobags have another significant advantage, says Dr Artières. "Geobag infrastructures are reversible - if they are no longer required, they can simply be emptied and the place left exactly as it was before construction."

### **Smart supervision**

The condition of Geobags when they are in situ is relatively easy to monitor, as being positioned on the ground surface of a site they can be checked regularly and replaced if necessary. However, the geosynthetic products used in more temperate climates for dams and flood-protection dikes and embankments are installed invisibly under soil, making it impossible to tell how well they are functioning.

TenCate has recently completed another EUREKA project, E! 3361 SAFEDIKE, which has developed a new, intelligent generation of geosynthetic textiles incorporating sensors and fibre optic technology that enable their condition to be monitored remotely.

"The GeoDetect® system not only monitors a product remotely but also acts as an early warning system, explains Dr Artières. "If the geosynthetic textile's performance starts deteriorating or there's some other malfunction, the system can identify the source of the trouble. The site managers can make a repair before any major damage occurs, especially something potentially catastrophic like a dike or dam failure."

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[back to top](#)

## **6. Greenpeace blocks Arctic coal mine in Svalbard**

- Protest against coal production in pristine Arctic region
- Conveyer belt blocked, delaying ship headed for Portugal

By Wojciech Moskwa  
Reuters  
October 2, 2009

OSLO, Oct 2 (Reuters) - Environmental activist group Greenpeace blocked on Friday a coal mine in Norway's Svalbard archipelago deep in the Arctic, protesting plans for more coal production in one of the

world's northernmost regions.

More than a dozen protesters stopped a conveyor belt at the Svea mine carrying coal to a ship due to sail to Portugal with 70,000 tonnes this weekend.

"Coal is a huge climate change factor yet Norway wants new mines in one of the most pristine regions in the world," protester Martin Norman told Reuters by phone from Svalbard.

He said some protesters planned to spend the night in a tent pitched on the conveyor belt, weather permitting. The weather there was sunny and the temperature a crisp minus 8 degrees Celsius (18 Fahrenheit) and expected to get colder overnight.

For decades coal mining was unprofitable in Svalbard -- an archipelago nearly the size of Ireland located halfway between Norway and the North Pole.

But mining was maintained during the Cold War to keep a Western presence on the Arctic islands, which are controlled by Norway but offer free access to a number of other nations under an international treaty from 1920.

Russia still has a Soviet-era mining community on Svalbard.

Norman said the state-owned Svea mine, the largest in Norway, was due to export 2.5 million tonnes of coal this year and remain in operation until about 2014.

At that time operations would commence on the other side of the same mountain and plans also envisage building a road across a glacier to set up another mining site, he said.

"We can not allow this," said Norman. Norway's trade and industry ministry was not immediately available for comment. (Editing by James Jukwey)

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[back to top](#)

## **7. The Arctic Is an Area of Peace**

*Keeping the peace and stability in the Arctic is our main responsibility, says the Senior Arctic Official Chair of the Arctic Council*

By Jesper Hansen  
Arctic Council  
October 7, 2009

"The Arctic has been, and is, a region characterized by close cooperation and the absence of conflict, an area of peace and stability. Our primary responsibility is to maintain this situation in the interest of all of mankind", Lars Møller - the Senior Arctic Official Chair of the Arctic Council - said last week at The Arctic Centres 20 years anniversary in Rovaniemi. Mr. Møller drew a straight line from the establishment of the Arctic Council until today: "From an international cooperation dealing only with environmental protection the cooperation was widened to cover the all the living conditions of the peoples of the Arctic."

He also underlined that there is an efficient tool for maintaining the Arctic as an area of peace and stability: "We do not need any new basic instrument or organisation. The necessary basis for UNCLOS, on which the Arctic coastal states have agreed to build and cooperate. As far as thinternational cooperation is already in place: We have the UN Convention on the Law of the Sea, e landmass is concerned each of the Arctic states manages, of course, its own part of the Arctic. In addition, we have the Arctic Council - the only circumpolar, political forum where all the challenges and opportunities in the Arctic - the overall governance of the region - can be discussed by the states and the peoples of the Arctic. The Arctic Council is the only international body that can balance different considerations, pave the way for development based on high environmental standards, protecting the unique Arctic environment and biodiversity and putting the peoples of the Arctic in the centre - in short, secure sustainable development.

The law of the sea and the Arctic Council form the basis for the cooperation on the Arctic. And in addition, we have a fairly large number of international conventions and agreements that also apply to the Arctic region. This legal framework needs, of course, constant adaptation to changed circumstances and new challenges and opportunities, but new basic international law or new institutions are not needed."

Mr. Møller added that it was a pleasure for him to be in Rovaniemi because it was here the cradle of the Arctic Council stood. On the initiative of the Government of Finland it was in Rovaniemi that officials from the eight Arctic countries met to discuss cooperative measures to protect the Arctic environment in September 1989. This initiative led to the establishment of the Arctic Environmental Protection Strategy, and later, in 1996, by the adoption of the Ottawa Declaration, to the establishment of the Arctic Council. Therefore Lars Møller was able to congratulate both the Arctic Council and the Arctic Centre in Raovaniemi.

The Arctic Centre at the University of Lapland is a national and international centre of excellence. It conducts high standard local, regional and international research into the Arctic, trains experts on Arctic issues and conveys information and research results concerning the region.

The research blends the perspectives of the natural and social sciences, and the Centre's multidisciplinary research groups study the social and environmental impacts of global and climate change as well as sustainable development and environmental and minority law . The research is carried out throughout the Arctic and Antarctic.

[www.arctic-council.org](http://www.arctic-council.org)

[back to top](#)

## **8. New polar bear rule sent to White House**

By Deborah Zabarenko  
Reuters  
October 6, 2009

WASHINGTON (Reuters) - Protection for polar bears' shrinking icy habitat is the subject of a proposed rule sent to the White House by the Interior Department.

The proposed rule, "Endangered and Threatened Wildlife and Plants; Critical Habitat Designation for the Polar Bear" is the latest step in a long process aimed at shielding the big white bears from the effects of climate change.

Details of the proposed rule were not immediately made public, but it was filed on Monday with the White House.

The Bush administration designated polar bears as threatened under the Endangered Species Act, on the grounds that the sea ice they use as hunting platforms is literally melting under their paws.

However, the 2008 threat listing allowed oil and gas companies to operating in the polar bear's habitat, which environmental groups pointedly criticized as a flawed understanding of the relationship between fossil fuels, climate change and the fate of Arctic wildlife.

In May, the Obama administration said it would keep a Bush-era "polar bear special rule," which weakens protection for the polar bear's habitat and plays down links between the threatened status of the species and climate change.

The rule exempts from government review all activities that occur outside the polar bears' range, which means that individual sources of greenhouse gas emissions that lead to climate change cannot be directly linked to the polar bear's habitat.

### **'Environmental Tragedy'**

Obama administration Interior Secretary Ken Salazar said on May 8 that the melting of polar bear habitat is "an environmental tragedy of the modern age."

But Salazar went on to say, "The best course of action for protecting the polar bear under the Endangered Species Act is to wisely implement the current rule, not revoke it at this time."

Polar bears depend on Arctic sea ice as a platform for hunting seals, their main prey. Malnourished polar bears have more problems reproducing and raising their young. The U.S. Geological Survey has said two-thirds of the world's polar bears -- some 16,000 -- could be gone by 2050 if predictions about diminishing Arctic sea ice hold true.

Asked about the new proposed rule, John Kostyack of the National Wildlife Federation said the Obama administration needs to be more "honest with the science than the previous administration."

"There is extremely strong link between climate change and the decline of the polar bear, and if we hope to conserve the polar bear for future generations, we're going to have to take some strong steps to reduce the non-climate stressors ... the chief one would be oil and gas development," Kostyack said in a telephone interview.

Arctic sea ice has declined in the last three years to its smallest area since satellite views began in 1979, according to the U.S. National Snow and Ice Data Center. The 2009 summer ice had grown from the previous two years but was still less than in 1979.

"It's nice to see a little recovery over the past couple years, but there's no reason to think that we're headed back to conditions seen back in the 1970s," the center's director and senior scientist, Mark Serreze said in a statement on Tuesday. "We still expect to see ice-free summers sometime in the next few decades."

(Editing by Philip Barbara)

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[back to top](#)

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[back to top](#)

*The next Update from the Northern Climate ExChange will be sent out **Wednesday, October 14, 2009***