



Ice melting, but Barents Sea stays cool

Winter ice decreases 10 percent since 2000, but study may be helpful for oil explorers

Less ice doesn't necessarily mean warmer water in the Barents Sea, since tides make it "a robust and effective ocean cooler," according to a new study by four Bergen oceanographers.

There's 10 percent less winter ice cover than at the start of the millennium due to warmer air, conclude the researchers who took 55,000 temperature measurements of the sea during a four-year time span. But other factors such as strong tides and shallow depth limited the rise of the average water temperature to less than 1° Celsius.

That may provide a boost for commercial interests in the heated battle about the Arctic's vast natural resources and concerns about the impact of tapping into them.

"At the ice retreats it may be good news for those who want to explore for oil and gas, and bad news for environmentalists," wrote Torsten Hanssen in an article for *Adresseavisen*.

The paper, published in *Ocean Science*, claims to take a new approach in understanding the Barents Sea. The results show that while the waters have a relatively shallow depth of 230 meters, it releases more energy into the atmosphere than any other Arctic sea.

"During the last decade the Barents Sea has experienced an atmospheric warming and an increased ocean heat transport," an abstract of the study notes. "The Barents Sea responds to such large changes by adjusting temperature and heat loss.

As a result "there is little net surface heat
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Mathias Hamar, 5, slides down the skateboard ramp next to the youth club while braving chilly temperatures and strong winds this week along with his sister, Melina, 2, and father, Peter.

Minus 23°C? Bah!

Chill sets in after long period of record heat, but what is really considered cold in Svalbard?

Temperatures consider brutal in most of the world are actually a secondary consideration when determining if it's a crummy day in Svalbard. But at some point they have to, um, drop to the forefront.

So how low do they have to go?

Lower than those bringing this winter's most frigid temperatures this week, it seems. The thermometer bottomed out at minus 23.3° Celsius as of press time, with a wind chill well below minus 40. A few more people stayed inside and there some nuisances, but the above-

ground water pipes generally kept flowing and dozens of snowmobilers found themselves submitting to sobriety checks by police.

A bit of a shock, perhaps, after record and near-record high temperatures the previous three months, including an unprecedented amount of rain in January. But if the humidity is what makes heat insufferable, in the dry and often-sunny Arctic the wind is what people frequently call the true menace.

"It can be minus 25 and no wind, and it feels fine," said Preben Andreassen, a driver for Longyearbyen Taxi. "It can be minus 10 with a lot of wind and it's too cold."

Some Longyearbyen residents said they
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Shifting soil makes for surreal flights



A polar bear stands watch over arriving baggage at Svalbard Airport.

Svalbard Airport among world's 18 strangest, magazine says, despite unremarkable facilities

Travelers can't play golf between the runways and there's no danger of high tide washing planes off a sand runway into the sea. But it seems flying into Svalbard is just as weird.

Svalbard Airport is one of "The World's 18 Strangest Airports," according to the current issue of *Popular Mechanics*. While other airports on the list are distinct for runways on steep slopes in the Alps and intersecting with major

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Submitting material

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The water surrounding Bjørnøya has less ice cover, but is losing most of its extra heat due to stronger ocean currents, according to a team of Bergen researchers. Photo by Lars H. Smedsrud.

Study: Sea adjusts to cope with loss of ice

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loss annually in the north," the abstract notes.

The researchers divided the Barents Sea into northern and southern regions, determining the northern migration of sea ice and larger open ocean areas in the south are compensating for much of the increase in ocean heat transport since the mid 1990s, according to *Science Daily*.

"The heat is lost by the ocean in the southern Barents Sea through evaporation and sensible fluxes, as there is an approximate balance between the incoming solar, and the outgoing long wave, radiation," the publication notes. "The northern Barents Sea receives little ocean heat transport, leading to early sea ice formation during winter."

All that energy in the water isn't an entirely good thing for oil companies hoping to explore the region.

"The longer the waves, the more energy, a factor that must be included in the calculation of anchoring systems," wrote Bjørn Tore Bjørsvik for the industry publication *PetroNews*.

A clear answer on the potential effect for floating ship facilities in the Barents Sea is unclear, but "probably the challenge is well manageable" through remedies such as larger vessels.

However, "from the extent of experience from the Norwegian Sea it can be assumed it is not entirely without problems," Bjørsvik added.

There's more! Visit www.icepeople.net for the complete story.

Briefly

Spies headed to Arctic, security police say

The High North is particularly susceptible to foreign intelligence activities, according to the Norwegian Police Security's most recent annual Threat Assessment.

Foreign interest will remain high, especially in advanced technological environments of Norway's petroleum and energy industries, according to the report.

"Currently the greatest intelligence activity registered by PST has been within the management of the oil and gas resources in the High North," the report states.

Intelligence activity will also be directed at unresolved legal issues such as Norwegian enforcement of protected areas in Svalbard and interpretations of the Svalbard Treaty, according to police security officials.

Foreign intelligence officials will continue targeting political policy makers, employees in bureaucracy, industry workers, journalists and researchers.

Up to one-fourth of the world's untapped oil may be in the Arctic. Political leaders in northern countries frequently emphasize the need for cooperation in the challenging envi-

ronment, but they are also engaged in fierce legal squabbles and boosting their military presence in the area.

No specific foreign intelligence services or countries are named in the annual threat report. The five nations with primary Arctic interests are Norway, Russia, Canada, Denmark and the United States.

Study: Svea miners are effective tunnel sleepers

Miners in the tunnels at Svea handle extended shifts well, adapting their sleep patterns in ways remain elusive in other industries, according to researchers.

The study by scientists at the University of Bergen and National Center on Sleep Diseases examined the effect of working alternately day (6 a.m. to 4 p.m.) and night (6 p.m. to 4 a.m. shifts for 21 days. Miners keeping diaries of their "subjective sleepiness and function scale...had high sleep efficiency...regardless of how many days they had worked and whether they worked day or night."

The 25 workers slept up to an hour less during day shifts, but work ability did not appear to be affected, the study notes.



The runway at Svalbard Airport is built with flexible asphalt designed to withstand temperatures as low as minus 40° Celsius. But aerobridges can't reliably attach to planes due to frequent high winds, meaning passengers must walk outdoors to and from the terminal.

Permafrost trouble makes airport strange

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city streets, Svalbard's is notorious for its northern latitude and shifting soil.

"I never thought it was very strange," said Ole Rambech, the airport's manager. "This is a standard airport built to international standards."

The magazine examines the airports from an engineering standpoint, so jets flying a few feet above oceanside sunbathers counts for more than cattle roaming the terminal. But geographical novelty such as extreme altitudes and latitudes also merit attention.

"While there are three airports within the archipelago, two of which are used mainly to transport miners, Svalbard Airport is open to commercial travel, making it the world's northernmost airport that tourists can book tickets to," the magazine states.

Other airports on the list face challenges such as runways on steep slopes in the Alps and landing planes on strips the length of a cruise ship. Svalbard's handicap is the permafrost, making the runway an unsettling experience.

"Engineers used the region's brutally cold climate to their favor during construction and built the runway on a layer of permafrost," the magazine notes. "The airport was completed in

1975, but slight seasonal changes caused sections of the runway to become uneven, forcing the need to repave the runway on several occasions.

"A project was launched in 1989 aimed at insulating troublesome sections of the runway from the ground, which proved relatively successful. However, a 2002 study indicates that rising temperatures in the area may increase the need and frequency of maintenance efforts and repaving."

Bad as that sounds, it's far from the worst threat an airport is facing due to global warming. A few on the magazine's list face the risk of vanishing entirely because they are on sand beaches or manmade islands that will be submerged by rising waters (some already have to plan flights around tidal charts).

Other cold-weather winners include the ice runways of Antarctica and the 3.5-mile runway needed for the high altitude at Qamdo Bangda Airport in Tibet.

Rambech said he's never heard Svalbard's airport referred to as strange before and didn't know it was being eyed by the magazine.

"They didn't contact me, so it was a surprise," he said.

There's more! Visit www.icepeople.net for the complete story.

HEADLINES STOLEN FROM

SVALBARDPOSTEN

VERDENS NORDLIGSTE AVIS

Store Norske reports 400m surplus for 'difficult' 2009

Store Norske had a 400 million kroner before-tax surplus in 2009, its second-best total ever despite "a very difficult year" marked by falling coal prices and plans to significantly downsize its workforce, according to company officials. Coal dropped to \$50 a ton in 2009 from a peak of \$175 in 2008, but Store Norske's earnings remained strong because of contracts negotiated when prices were higher. "First and foremost, we managed to negotiate new contracts with the steel industry with prices at 2008 level," said Bjørn Arnestad, the company's administrative director. "Average coal prices for the market for 2009 were at \$75 a ton. We have achieved \$30 more than this." Production was 2.6 million tons, compared to 4 million in 2007.

Foreign students can attend mainland schools this fall

Foreign students at Longyearbyen School without a Norwegian residency permit will be able to attend a mainland secondary school this fall, according to Astri Aas-Hansen, a Ministry of Justice state secretary. In a Feb. 10 presentation to students in Longyearbyen, she said a new regulation allows youths to attend schools in the Troms region where a larger range of courses are offered. A reduced number of courses available in Svalbard due to limited funds and staffing has long been a sore point with educators, parents and students.

Search for snowmobiles in sea ice comes up empty

Two snowmobiles disappeared in the sea ice at Van Mijenfjorden at about midnight Sunday, according to two people in a cottage who contacted the Svalbard governor's office, but rescue officials said they were unable to find any evidence of an accident. The observers "are quite sure it was snowscooters they saw and the lights disappeared," said Trond Aagesen, the governor's deputy police chief. Rescuers conducted a midday helicopter search for several hours and, while ice conditions were poor, nothing unusual was seen.

Weather forecast for Longyearbyen

Wednesday

Cloudy and a little snow. ENE winds at 38 km/h. High -16C (-33C wind chill), low -19C (-33C wind chill).

Thursday

Sun and low clouds. ENE winds at 16 km/h. High -18C (-28C wind chill), low -22C (-30C wind chill).

Friday

Low clouds. ENE winds at 14 km/h. High -18C (-27C wind chill), low -21C (-31C wind chill).

Saturday

Flurries, then snow. E winds at 25 km/h. High -18C (-31C wind chill), low -22C (-35C wind chill).

Extended forecast: Sunday, a few flurries -18C (-26C), -22C (-27C); Monday, a few clouds, -17C (-24C), -18C (-25C); Tuesday, areas of low clouds -14C (-20C), -17C (-22C); Wednesday, low clouds and increasing wind, -13C (-22C), -17C (-28C).

Data provided by AccuWeather.com



Heating cables protect water pipes in Longyearbyen from freezing during intense cold, but those at Longyearbyen School are considered vulnerable. A 1.8 million kroner upgrade is planned this year.

School, mine among most at risk in chill

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were keeping a wary eye on their water pipes during the cold stretch. But truly taxing some of the city's facilities means approaching the all-time record of minus 46.3° Celsius set in March 1986.

"Problems with frozen pipes increase at minus 20°C and the wind, but I will not say that there is extreme cold until it is minus 35°C or minus 40°C," wrote Håkan Eriksson, an operations engineer for the city, in an e-mail interview.

The pipes carrying hot water that also heat some homes and businesses are the most vulnerable part of Longyearbyen's infrastructure during cold spells, Eriksson wrote.

"To avoid it there are installed heating cables or (antifreeze) loops" in addition to protective insulation, he added. "This frost protection works very well, but if the cable stops working it may freeze if there is little circulation in the pipe."

One of the most vulnerable locations is Longyearbyen School, where pipes occasionally freeze at minus 23.3° Celsius or below, said Ivar Undheim, administrator of the Longyearbyen Council. He said a 1.8 million kroner upgrade is planned, but cannot take place until summer.

As for getting out and about, batteries might go dead in cars not plugged into block heaters, but the roads and runways are built for extreme-weather travel.

"I don't think minus 20, 25 is cold," said Svalbard Airport Manager Ole Rambech, "When we constructed the airport we designed it to minus 40."

"When we do the surface on the runway the asphalt there are different mixtures," he said. "Avinor once made a mistake on the mainland. When they had a really cold night the asphalt would crack. We have a mixtures that gives flexibility into the asphalt so it can cope with cold temperatures."

An upgrade to the terminal completed in

2007 is designed with insulation and heating system for similar temperatures, Rambech said. But passengers can't escape the elements entirely – they have to walk outside between the plane and terminal because aerobridges can't reliably link the two.

"It is blowing so much up here the usual systems will give us lots of trouble," Rambech said.

Svalbard's streets are paved with the same asphalt used at the airport. In fact, "the roads are far more stable in the frost," Undheim said. When things begin to thaw is when cracks and potholes appear.

One place that did experience problems was Svea where a day of production was lost due to the water supply freezing, wrote Leiv Sanden, manager at Mine 7 for Store Norske, in an e-mail interview.

"In Mine 7 it can cause problems if the cold weather is above minus 20 for three or four days," he wrote. But the problem of frozen water is temporary since they have received funding to improve insulation.

"Another problem is that there may be problems starting the coal cars, which run the coal from the mine and the delivery location," Sanden wrote.

Tourists might think the cold is more than enough to overcome during excursions. But some who tried warming up their spirits too much, so to speak, found themselves back indoors as police conducting spot checks Tuesday morning stopped 10 snowscooter drivers for driving while legally intoxicated.

February is historically the coldest month in Longyearbyen with an average temperature of minus 16.2° Celsius, followed by March at minus 15.7° Celsius according to the Norwegian Meteorological Institute. Even with the current cold spell, the average temperature of minus 9.8° Celsius during the past 30 days is 6.3 degrees above normal.

There's more! Visit www.icepeople.net for the complete story.

What's up

Feb. 24

5:30 p.m.: Weekly ski races start, ending April 21. Meet at the old museum. Prizes awarded. Adults 100 kroner, youths 50 kroner. Register at www.svalbardturn.no or call 79 02 13 33.

Feb. 26-27

NNM soccer tournament. Svalbard Hall.

Feb. 28

6 p.m.: Movie: "Pelle Politibil Går i Vanne," Norwegian animation, all ages. Huset.

8 p.m.: Movie: "Sherlock Holmes," U.S. action/drama, ages 15 and up. Huset.

March 1

10:15 a.m.: Environmental and food committee meeting. Næringsbygget 1, Tundra room.

March 2

10 a.m.: Administration committee meeting. Næringsbygget 1, Tundra room.

7 p.m.: Mass by visiting bishops Berislav Grgic and Pater Miroslaw from Tromsø. Svalbard Church.

March 4

7:30 p.m.: "Impressions From The Desert" presentation by Hilde Bergrem. The Svalbard resident was among 15 girls from 10 countries in Europe and the Middle East participating in a five-day desert walk and cultural dialogue. Free, with sales of beverages. Longyearbyen library.

March 7-13

Solfestuka 2010, celebrating the return of the sun to Longyearbyen. Performances, talent competitions, concerts, art exhibits and other activities. Greeting of the sun at noon March 8 at Skjæringa. Full schedule and preview in the March 2 issue of *Icepeople*.

March 9

7 p.m.: Lent mass. Svalbard Church. Waffles and coffee at 7:30 p.m.

What's online

Icepeople.net provides daily updates of news about Svalbard and the world's polar regions, plus extras for articles from the print edition. Among the latest news:

- *BBC documentary follows 'kebob man'*
- *Top U.N. climate official resigns*
- *Norway to oil workers: Lose weight or job*
- *Japan, whalers go to war in Antarctica*