

Biggest North Pole mission back from 'dying Arctic'

October 12 2020, by Patrik Stollarz With Yannick Pasquet In Berlin



Several hundred scientists from 20 countries travelled in the icebreaker 'Polarstern'

Researchers on the world's biggest mission to the North Pole returned to Germany on Monday, bringing home devastating proof of a dying Arctic

Ocean and warnings of ice-free summers in just decades.

The German Alfred Wegener Institute's Polarstern ship returned to the port of Bremerhaven after 389 days spent drifting through the Arctic trapped in ice, allowing scientists to gather vital information on the effects of global warming in the region.

Mission leader Markus Rex said he and his team of 300 scientists from 20 countries had witnessed "a place of truly fascinating and unique beauty".

"We should really make every effort to preserve this world... for future generations and to use the small chance we still have to do so," he told a press conference.

Ahead of their return, Rex told AFP the scientists had seen for themselves the dramatic effects of global warming on ice in the region considered "the epicentre of climate change".

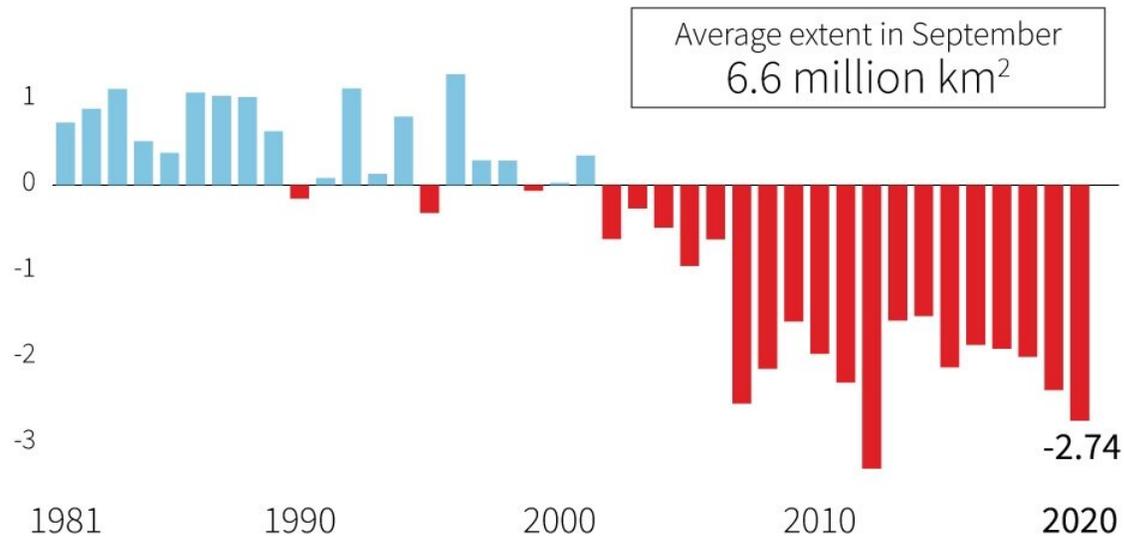
"We witnessed how the Arctic ocean is dying," Rex said. "We saw this process right outside our windows, or when we walked on the brittle ice."

Underlining how much of the sea ice has melted away, Rex said the mission was able to sail through large patches of open water, "sometimes stretching as far as the horizon".

"At the North Pole itself, we found badly eroded, melted, thin and brittle ice."

Disappearance of the Arctic sea ice

Difference between the measured extent and the average extent of the sea ice in September 1981-2010, in million km²



Source: C3S/ECMWF



Chart showing the measured extent and the average extent of the Arctic sea ice in September, 1981-2010 in million km²

'Ice-free Arctic'

If the warming trend in the North Pole continues, in a few decades we will have "an ice-free Arctic in the summer", Rex said.

The Polarstern mission, dubbed MOSAIC, spent more than a year collecting data on the atmosphere, ocean, sea ice and ecosystems to help assess the impact of climate change on the region and the world.

To carry out the research, four observational sites were set up on the sea

ice in a radius of up to 40 kilometres around the ship.

The researchers collected water samples from beneath the ice during the polar night to study plant plankton and bacteria and better understand how the marine ecosystem functions under extreme conditions.

The 140-million-euro (\$165 million) expedition has also brought back 150 terabytes of data and more than 1,000 ice samples.

The team measured more than 100 parameters almost continuously throughout the year and are hoping the information will provide a "breakthrough in understanding the Arctic and climate system", Rex said.

Thomas Krumpfen, sea ice physicist said: "For us the second phase is starting—the analysis of data. A lot of data has returned with the ship and we will likely be busy with it over the next ten years."

The multitude of parameters will feed into the development of models to help predict what heatwaves, heavy rains or storms could look like in 20, 50 or 100 years.

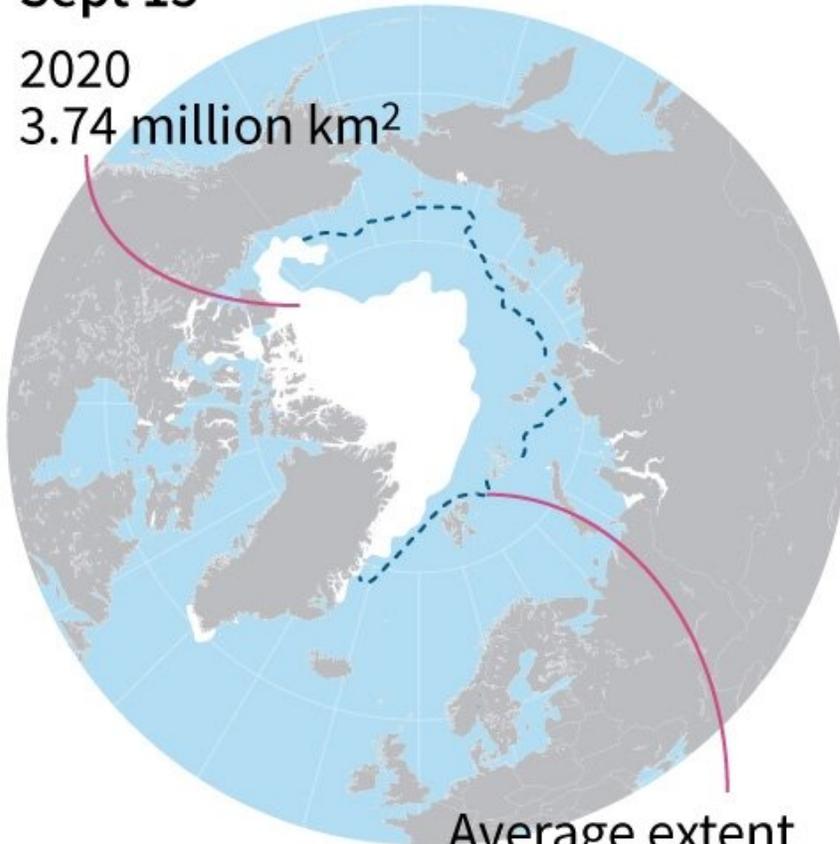
Shrinking ice cap

Arctic summer sea ice second lowest on record

Sept 15

2020

3.74 million km²



Average extent
1981 - 2010

- Year of lowest extent: 2012
- The 14 lowest extents have been in the last 14 years

Source: National Snow and Ice Data Center



Map comparing the extent of summer Arctic sea ice this year with the average between the years 1980 to 2010.

60 polar bears

Since the ship departed from Tromso in Norway on September 20, 2019, the crew have seen long months of complete darkness, temperatures as low as -39.5 Celsius (-39.1 Fahrenheit)—and more than 60 polar bears.

A shot had to be fired to warn off a polar bear that came too close.

But the bigger threat was the coronavirus pandemic in the spring, which left the crew stranded at the North Pole for two months.

A multinational team of scientists was scheduled to fly in as part of a scheduled relay to relieve those who had already spent several months on the ice, but the plan had to be redrawn when flights were cancelled across the world as governments scrambled to halt the spread of the coronavirus.

During the course of the expedition, the German ship zigzagged through 3,400 kilometres of ice along a wind-driven route known as the transpolar drift.

The voyage was a huge logistical challenge, not least when it came to feeding the crew—during the first three months, the ship's cargo included 14,000 eggs, 2,000 litres of milk and 200 kilogrammes of rutabaga, a root vegetable.

Radiance Calmer, a researcher at the University of Colorado who was on board the Polarstern from June to September, told AFP that stepping out on to the ice was a "magical" moment.

"If you concentrate, you can feel it moving," she said.

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Citation: Biggest North Pole mission back from 'dying Arctic' (2020, October 12) retrieved 24 April 2024 from <https://phys.org/news/2020-10-biggest-north-pole-mission-dying.html>

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