

Arctic ice could disappear in summer by 2040: study

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Global warming could melt almost all of the ice in the Arctic during the summer months by the year 2040, according to a study to be published Tuesday.

CBC News

The top image, based on simulations produced by the Community Climate System Model, shows the approximate extent of Arctic sea ice in September. By about 2040 (image at bottom), the Arctic may be nearly devoid of sea ice during the late summer unless greenhouse gas emissions are significantly curtailed. (UCAR)

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If greenhouse gases continue to build at their current rate, the study found, the Arctic's ice cover would go through periods of stability followed by abrupt retreat.

One simulation projects that by 2040, only a small amount of perennial ice would remain on the north coasts of Greenland and Canada during the summer months.

This would be a more dramatic change in Arctic climate than anything we've seen so far, according to McGill University professor Bruno Tremblay, one of the study's authors. And it would also have a profound impact on global warming around the world, he said.

"Open water absorbs more sunlight than does ice," Tremblay told CBC News Online. "This means that the growing regions of ice-free water will accelerate the warming trend."

The melting of polar ice creates a positive feedback loop, Tremblay said. Higher temperatures means less ice, and that means more sunlight is absorbed by water, which in turn raises temperatures. This will lead to an accelerated change in climate in a very short time, Tremblay said.

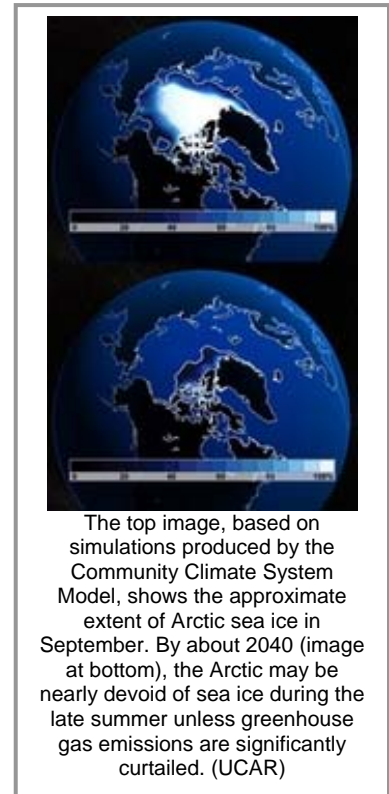
Scenarios simulated on supercomputers suggest sea ice could diminish enough within 20 years to speed the retreat of Arctic ice four-times faster than at any other time in the observed record.

"Right now there is a steady decline. But we're going to reach a tipping point where the decline will happen very quickly and [from which] we can't recover," he said.

Carbon-dioxide emissions blamed

Tremblay worked on the study - to be published in the Dec. 12 issue of Geophysical Research Letters - with lead researcher Marika Holland at the U.S. National Center for Atmospheric Research and Cecilia Bitz of the University of Washington.

The only way to prevent the rapid loss of polar ice is to implement aggressive measures to reduce carbon-dioxide emissions resulting from the combustion of fossil fuels, Tremblay said.



Previous studies looking at the Canadian Arctic have envisaged similar timetables for the disappearance of permanent ice floes.

In June 2006, University of British Columbia professor Michael Byers said the Northwest Passage would be clear of ice during the summer months in 25 years.

A 2004 study by André Rochon, chief scientist on Canada's Amundsen research icebreaker, predicted the waterways would be clear of ice in 50 years.