



Climate change: Greenland's ice faces melting 'death sentence'

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How much is Greenland melting?

Sermilik glacier, at the southern end of Greenland, is one of the fastest-shrinking glaciers anywhere in the world. Over the past 15 years, it has continued to melt so much faster that, on a return visit to the same glacier, the ice looks small compared to how massive it was before.

Over the last 30 years, Greenland has continued to drop more ice. Either the ice melts at the surface which sends water down to the surrounding seas, or huge chunks of ice break off from the edges and float away as icebergs and eventually melt. Around 362 billion tons of melted ice raises the average ocean level by a millimeter. In 2012 Greenland's loss totaled about 450

billion tons of melted ice, and this year's melt is expected to be about the same, with some researchers suggesting it could raise sea levels by up to 2 millimeters. On top of that you have to factor in the ice melting in Antarctica as well, and the fact that water expands as it warms. All of this raises the water level of the oceans.



Dr Jason Box, Geological Survey of Denmark

Greenland's ice sheet has lost three and a half trillion tonnes of ice since 2003

Change in mass of the ice sheet in Gigatonnes
(one Gt = one billion tonnes)

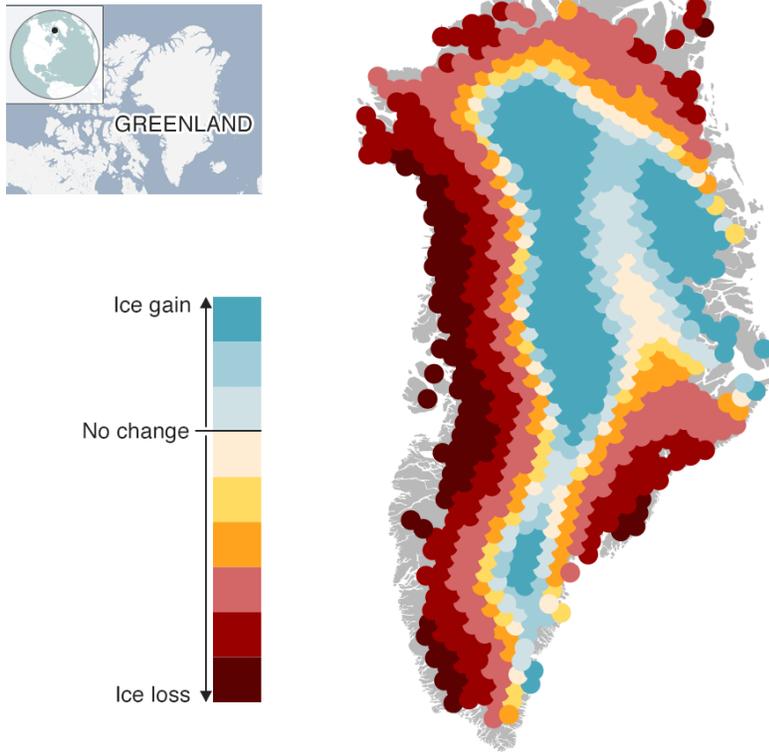


Source: National Space Institute, Technical University of Denmark



Heaviest ice loss around Greenland's coast

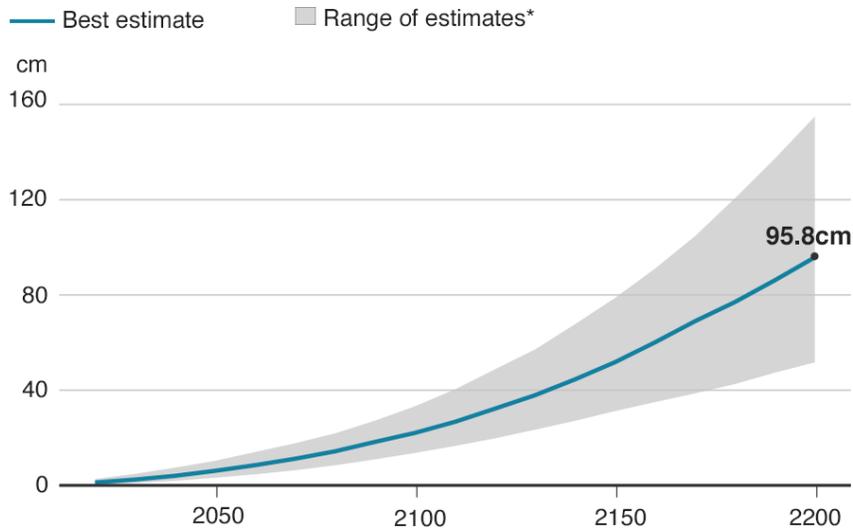
January 2012 to December 2016



Source: National Space Institute, Technical University of Denmark

BBC

Greenland's melting ice sheet predicted to raise global sea levels



* Two thirds of estimates fall within this range

Source: Aschwanden, A et al. (2019), Science Advances

BBC

What's happening to the ice itself?

On Sermilik glacier scientists have made an important discovery – growing algae. By turning the surface dark in color, the algae help the ice soak up more of the sun's rays and melt faster. Another discovery is that the ice is not only being melted by the air, as the air heats up under global warming, but also by warmer water reaching underneath the fronts of the glaciers. One NASA scientist describes the ice as being under a hair-dryer and at the same time also on a cooker.



Image caption: Algae growing on the Sermilik glacier

What do the people of Greenland think?

Even with a fast move to cut emissions, or the release, of warming gases - Greenland could still see a growing rate of ice melting, though that could possibly be slowed. For some young Greenlanders, climate change is becoming a big concern, partly because of the impact of "their" ice on other areas of the planet. Naja-Theresia Høegh was inspired by the Swedish activist Greta Thunberg to lead a climate strike in her town of Qaqortoq, a pretty city of brightly painted houses on the ocean.



Image caption: Inutsiaq Ibsen, 18, Naja-Theresia Høegh, 19, and Caroline Hartmann Hansen, 21, in Qaqortoq

Can anything be done?

The scientists have also started a plan to try to take in some of the carbon dioxide released by the flights they take to do their research. Airplane flights make greenhouse gases from burning their fuel. The researchers are planting 6,000 Siberian larch trees, a type of tree known to do well in Greenland's environment. Trees take in carbon dioxide and change it to oxygen. 10 of the trees would need to grow for 60 years to soak up the carbon produced by a return flight from London to San Francisco, but the scientists say it's a start. If the project later leads to a much larger forest, it might help lessen climate change.



Image caption Dr Faezeh Nick plants tree saplings near Narsarsuaq