

The researchers also point out that although the ice contracted considerably in northern Greenland in the Holocene warming period, the amount of sea ice in Canada expanded.

They believe the differences are caused by changes in the overall wind systems, which are influenced by increasing temperatures.

The wind systems control the circulating ocean currents which move the sea ice around in the Arctic Ocean, and changes in these currents affect the amount of sea ice reaching the coasts of Greenland and Canada.

The wind an overlooked factor

"All in all, one can say that there has been tremendous natural variability in the spread of Arctic sea ice," he says. "The bad news is that there is a clear correlation between temperatures and the amount of sea ice, which means the continued warming will undoubtedly reduce the summer sea ice in the Arctic Ocean. The good news is that even with the reduction to less than 50 percent of the current amount of sea ice, it will not reach a point of no return. The ice will still be regenerated if the climate one day gets colder again."

There should be sea ice in the Arctic until 2100

The study shows that the influence of temperature in particular on the overall wind systems is the reason behind the changes.

"This has not been adequately taken into account in projections of the impending disappearance of the sea ice, so we must urge that greater consideration is taken of this in the projection models."

In Funder's opinion, the new research results point in the direction of a more conservative expert evaluation as to when the summer sea ice will disappear entirely.

"More pessimistic researchers believe that the summer sea ice will be gone around 2030, while others do not believe this will happen until around 2100. We believe the latter is more likely," concludes Sven Funder.

[Read the article in Danish at videnskab.dk](#) [8]

 [There will be less and less summer sea ice along the north coast of Greenland, but in fact there was only half as much 6,000 years ago as there is now. \(Photo: Svend Funder\)](#) [9]

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Fact box

Summer sea ice is the extent of the sea ice in the Arctic during the summer period from April to September. The amount of sea ice in the Arctic Ocean has diminished considerably in recent years.

The amount of ice varies according to the seasons and is greatest between March and May, when it covers some 15 million square kilometres. After this the ice begins to melt as it gets warmer. There is least ice in September.

Measurements from 2007 showed that the extent of the ice was the lowest ever registered - less than 5 million square kilometres.

Fact box

The driftwood used by the Danish team of researchers in their study arrived at the northern coast of

Greenland with the aid of strong Arctic currents.

Larch from northern Siberia travelled with the Trans-polar Drift Current, while the spruce from North America was carried by the Beaufort-Gyre current in the north-western Arctic Ocean.

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