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Big decline in depth of Arctic winter sea ice

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The thickness of sea ice in the Arctic dramatically declined last winter for the first time since records began in the early 1990s. The research by British scientists shows a significant loss in the thickness of the northern ice cap after the record loss of ice in the summer of 2007, although the weather was not abnormally warm.

The findings, published in the journal Geophysical Research Letters, raise the possibility that the loss of the Arctic sea ice could accelerate, because as the ice recedes the water temperature rises. This summer the sea ice recorded its second-lowest extent after the record low of 2007, again despite relatively cool air temperatures.

However, Katharine Giles of the Centre for Polar Observation and Modelling at University College London, who led the study, said it was too soon to say whether the downward trend would continue and lead to summer sea ice disappearing even faster than forecast. "It's dangerous to extrapolate out because colder weather would mean the ice could recover again," said Giles. "This data will help climate modellers to validate their models and make them more accurate."

The study, part-funded by the Natural Environment Research Council and the European Union, found the thickness of sea ice in the Arctic was almost unchanged in the five winters from 2002-6, but then declined 10%, or 26cm, last winter. In parts of the western Arctic, where the greatest loss was recorded the previous summer, the loss was nearly double the average.

But Vicky Pope, the Met Office's leading adviser to the government on climate change, warned: "There's clearly a decline over the last 30 years and we can detect a human signal in that, but the change in the last couple of years could be due to natural fluctuations in the weather."

Other causes of sea ice changes could include ocean currents and wind piling up ice, making it important to measure both thickness and extent to calculate total volume, said Giles.