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Ocean warming could trigger abrupt melting of Antarctic ice: scientist

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The scientists used sophisticated ice sheet and climate models to recreate the Antarctic ice sheet as it came out of the last ice age, when both the ocean and atmosphere warmed quickly, Victoria University researcher Dr Nick Golledge said Tuesday.

The results suggested that oceanic changes could trigger a significant shift in the stability of the Antarctic ice sheet, which could lead to an increase in global sea levels, Golledge said in a statement.

The team of scientists, including researchers from the New Zealand government's Institute of Geological and Nuclear Sciences and Australia's University of New South Wales, found that when the ocean around Antarctica became more stratified, or layered, warm water at depth melted the ice sheet faster than when the ocean was less stratified.

A dramatic example of the process occurred around 14,000 years ago, and led to an abrupt rise in global sea level of almost 3 meters over just a few centuries.

Current oceanographic observations around Antarctica showed the ocean is once again becoming more stratified, said Golledge.

At the surface the water was getting colder and less salty, with more extensive sea ice occurring in some areas, but the deeper ocean was warming and was already accelerating the decline of some glaciers, he said.

"Whether the ice sheet will react to these changing ocean conditions as rapidly as it did 14,000 years ago is unclear, but with 10 percent of the world's population living less than 10 meters above present sea-level, this study highlights the need to better define the complex relationship between Antarctica and the Southern Ocean," he said.

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