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Antarctic glaciers melting twice as fast as previously estimated: scientists

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Scientists from the University of New South Wales (UNSW) found the warm water can be 4 degrees warmer than the cold water it displaces and has serious consequences for rising global sea levels which will reshaping coastlines.

"What you usually have is cold water sitting next to the ice shelves at about minus 2 degrees Celsius and then warm water further out," Paul Spence from the Climate Change Research Center at UNSW told the Australian Broadcasting Commission (ABC).

"We found by using projected wind forces to the end of this century that warm waters tend to flood onshore, right next to the grounding lines of the glacial ice sheets.

"It could lead to a massive increase in the rate of ice sheet melt, with direct consequences for global sea level rise."

Researchers said that the melting of some ice sheets in Antarctica is probably now irreversible.

A team of scientists from UNSW and the Australian National University (ANU) have for the first time modeled how sub-surface ocean temperatures down to 700 meters are rapidly changing around Antarctica because of shifting wind patterns, thought to be partly due to global warming.

"It certainly was for me a very frightening result," Spence said.

"I didn't fully appreciate how sensitive this part of the ocean was to change and how ripe a

situation it was for providing dramatic impacts on the ice sheets."

He said the research shows sub-surface warming at twice the rate previously thought.

"They weren't considering the types of temperature warming that we're seeing in our model simulations around the Antarctic coastline," Spence said.

But scientists cannot predict when these warm waters will trigger cascading glacial loss.

"It's not unlike an avalanche of snow, where you don't quite know when it's going to happen but when it happens, it can happen quickly," Spence said.

The Australian Antarctic Division's Tas van Ommen said the effects of a rapidly transforming Antarctica are now likely to be felt this century.

"We need to bear in mind that even modest sea level rises half- a-meter to a meter is a very big change and if we are going to see estimates now of several tenths of a meter more than that by the end of this century, that's going to rapidly reshape our response to sea level rise," he said.

"What's concerning is that with a heavily populated planet it's going to reshape our coastlines in ways that matter in this century."

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