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# Antarctica is warming, not cooling, study finds



(AP)

A penguin appears in Antarctica during the southern hemisphere's summer season

Lewis Smith, Environment reporter

Antarctica is warming up just like the rest of the world a new study has found, blowing a hole in an argument of climate change sceptics.

In the last 50 years, despite cooling in parts of the continent over the last two decades, Antarctica has been getting "steadily warmer".

The finding is a particular worry for West Antarctica where there are fears a "tipping point" may be reached which condemns much of the ice sheet to turn to water.

Sea rises of up to seven metres would be expected if the entire West Antarctic ice sheet were to melt but even a fraction of that would have severe consequences for low-lying areas around the world.

When analysing temperature rises in Antarctica the continent is divided into three distinct areas by scientists. The Antarctic Peninsula is regarded as the most exposed to loss of ice and the warming trend has been recognised for several years.

Because of the inaccessibility of most of the rest of the continent, the trends in East and West Antarctica are less certain and in its 2007 report, the International Panel on Climate Change (IPCC), the United Nations body monitoring global warming, decided too little was understood about them to make firm predictions.

Temperatures for the past 50 years have now been calculated by researchers from the United States using satellite measurements of surface heat.

Satellite readings were matched to weather station readings and by making sure they were accurate in regions where temperatures are known they were able to estimate them in parts of the continent where data has been absent.

Using the new measurements scientists were able to conclude that the continent has been warming up at a rate of 0.12C every decade since the 1950s.

West Antarctica was found to have warmed by 0.17C every ten years from 1957 to 2006, and the Peninsula warmed by 0.11C per decade. In East Antarctica temperatures rose by an average of 0.1C each decade even once cooler conditions in the last 20 years were taken into account.

It was impossible to give a precise average temperature in Antarctica but Eric Steig, of the University of Washington, said: "We are talking about a mean average temperature of something like -50C." At such temperatures small rises would make little difference but there are wide seasonal variations in which they might make the difference between stable ice and a thaw.

The research team was unable to say what had caused the rises but they said it was almost bound to include at least an element of man-made climate change.

In their report, published in the journal Nature, they concluded: "This warming trend is difficult to explain without the radioactive forcing associated with increasing greenhouse-gas concentrations."

Mr Steig said: "The thing you hear all the time is that Antarctica is cooling and that's not the case. If anything it's the reverse, but it's more complex than that.

"Antarctica isn't warming at the same rate everywhere, and while some areas have been cooling for a long time the evidence shows the continent as a whole is getting warmer."

Professor Barry Brook, of the University of Adelaide, said after seeing the study that the findings indicated that scientists trying to predict sea level rises over the next century need to look as much at melting ice in West Antarctica as at Greenland.

"This new analysis of the warming trend over the other large vulnerable ice sheet, West Antarctica, suggests it is also precariously balanced.

"A complete melting of both of these ice sheets would cause about 14 metres of sea level rise, but even losing a fraction of both would cause a few metres this century, with disastrous consequences. I worry, with the observed polar warming over the last few decades and more in the pipeline due to lags in the climate system, that their large-scale melt is now a fait accompli."

Dr Gareth Marshall, of the British Antarctic Survey, said the research "fills in a hole" in temperature measurements from the southern continent.

"What this does is provide a basic estimate of what is happening," he said. "It's the last piece of the jigsaw puzzle. It's a shot against the [climate change] sceptics. This study shows that, similar to the other six continents, Antarctica has undergone a significant warming over the past 50 years."

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