

# West Antarctic ice sheet 'could be more stable than thought'

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Dr. Chris Fogwill on fieldwork in the Antarctic.

Whether global warming may cause the giant West Antarctic Ice Sheet to melt and raise sea-levels by several meters is one of the most contested debates in climate science.

A new study involving a scientist at the University of Exeter has reported valuable new evidence on the issue which suggests the ice sheet may be more stable than thought.

Dr. Chris Fogwill, from the university's Geography department in the College of Life and Environmental Sciences, went to Antarctica to carry out first hand research for the Natural Environment Research Council (NERC) funded study.

He said: "The debate on the ice-sheet focuses around the Earth's past

climate. Evidence suggests our climate has warmed before and about 125,000 years ago there was an ‘interglacial period’ when global temperatures were about 2 C warmer than they are today.

“Some models of that past climate suggest sea-levels were much higher during that time than they are now, and some of that water would have to have come from this giant freshwater body of ice – suggesting the ice-sheet is vulnerable to melting at warmer global temperatures.

“However, we found evidence which suggests the ice-sheet has been around for at least 200,000 years, meaning that it has survived at least one warm period and is more resilient than thought.”

Dr. Fogwill, working with a team from the University of Edinburgh, used a state of the art method called cosmogenic dating which relies on radiation left over from the Big Bang – the cataclysmic event which scientists believe created the Universe.

Cosmic rays build up in rock when it is exposed. Dr. Fogwill looked at the cosmic radiation levels in exposed rocks in moraines, where weather and landscape erode ice to reveal bare rock, along the Heritage range of mountains near the central dome of the west [Antarctic ice sheet](#).

They found that the moraines had been developing for at least 200,000 years, suggesting ice has covered the area for at least that long – meaning the ice-sheet would have survived the last warm period in the Earth’s climate.

Dr. Fogwill added: “This research doesn’t provide conclusive evidence, but it definitely provides us with a solid theory. There is evidence from other studies which suggests the ice-sheet isn’t as resilient, so this will remain an area of uncertainty for now.”

However, Dr. Fogwill has just returned from a recent trip to the Antarctic to gather more evidence to study to test this hypothesis. He has collected more samples for cosmogenic dating and will be collating the information to test the theory from the newly published study.

**More information:** The full paper, published in *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology* can be viewed online here:

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