

Research reveals the reality of runaway ice loss in Antarctica

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By studying rocks at different elevations beside the East Antarctic Ice Sheet (EAIS), the team concluded that a period of rapid glacier thinning occurred in the recent geological past, and persisted for several centuries.

Satellite observations show that parts of the Antarctic ice sheet are currently thinning in response to a warming ocean. Of particular concern is the potential for 'marine [ice sheet](#) instability', where an initial retreat of ice margins into deepening valleys could lead to continued, unstable ice loss.

The new research, led by Postdoctoral Research Fellow Dr Richard Jones, indicates that the processes leading to instability can be initiated by just minor climate warming.

"The finding is very important for predicting Antarctica's future contribution to [sea level](#) change," says Dr Jones. "Particularly when considering that the EAIS contains enough vulnerable ice to raise sea level by tens of metres.

"It might only require a small amount of climate variation to initiate runaway ice loss, and it could continue for centuries to millennia," says Dr Jones.

While this process has been posited for many years, the study presents the first directly recorded evidence that it has taken place in the past, providing new insight into the future behaviour of rapidly changing parts of Antarctica today.

A major strength of the study was combining numerical modelling experiments that simulate glacier retreat with geological data that recorded past ice surface lowering.

"Most research has previously focused on the West Antarctic Ice Sheet, which makes these observations from East Antarctica all the more significant," says Dr Jones.

Dr Jones' research has been published in the journal *Nature Communications*.

More information: R. S. Jones et al. Rapid Holocene thinning of an East Antarctic outlet glacier driven by marine ice sheet instability, *Nature Communications* (2015). [DOI: 10.1038/ncomms9910](https://doi.org/10.1038/ncomms9910)

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