

## Antarctic warmth in the last interglacial driven by Northern insolation and deglaciation

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The global mean sea level in the last interglacial (LIG, about 130,000 to 115,000 years before present) was very likely higher than the present level, driven mainly by mass loss of the West Antarctic Ice Sheet (WAIS). Some studies have shown that this mass loss may have been caused by the warmer temperature over the Southern Ocean in the LIG compared with the present interglacial, suggested based on Antarctic ice cores and marine sediments. However, the ultimate cause of this warming, which is indispensable to understand future mass loss of the Antarctic ice sheet, has not been explained nor modelled. Here, based on transient simulations of the last deglaciation using a fully coupled ocean-atmosphere model, we show that faster (by a factor of 1.5) melting of the Northern Hemisphere ice sheets and the associated meltwater during the middle stage of the deglaciation could have produced the reconstructed Antarctic warmth. This study suggests that slightly smaller orbital eccentricity in our current interglacial than in the LIG has prevented the Antarctic ice sheet from passing the tipping point of large mass loss at present.

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