
Press release

Brussels, November 12th 2018**Antarctica and Greenland:
Global warming above 1.5°C could be catastrophic**

New research published in Nature Climate Change concludes on the importance to limit global warming by 2100 to 1.5degC to maximise the chance of avoiding so-called tipping points that would dramatically accelerate Antarctica and Greenland's mass loss.

A new assessment, published in Nature Climate Change this Monday, suggests that current predictions of future changes in ice-sheet mass balance in a 1.5degC warmer world are questionable. This is due to incomplete understanding of atmospheric circulation changes around Greenland and ocean circulation around Antarctica. However, an expert research group led by **Frank Pattyn – glaciologist at the Université libre de Bruxelles** - conclude on the importance to limit global warming by 2100 to 1.5degC, in order to maximise the chance of avoiding so-called tipping points that would dramatically accelerate Antarctica and Greenland's mass loss.

Today, sea level rises at a pace of around 4mm per year and is accelerating. The major contributions to this rise are due to ocean expansion, melting glaciers and – becoming increasingly important – melting of the Greenland and Antarctic ice sheets. Those ice sheets are commonly considered as the 'sleeping giants' on Earth, as together they can potentially lead to sea-level rise by more than 70 metres over thousands of years.

Despite improved observations and computer model simulations since the IPCC's Fifth Assessment Report (AR5) published in 2013, the review highlights some lingering key gaps in knowledge regarding climate forcing of the ice sheets and their resulting responses. On longer time scales, both ice sheets may reach tipping points above around a 1.5-2.0degC limit, leading to irreversible mass loss. For Greenland this is due to increased melting of the ice sheet, while for Antarctica this is due to marine instabilities of certain sectors of the ice sheet, in particular the West Antarctica ice sheet. This would lead to multi-metre sea level rise on centennial to millennial time scales, which has existential consequences for small island states and coastal cities across the world.

Lead author Prof. Frank Pattyn said *"Limiting global atmospheric warming to 1.5degC will avoid short and long-term surprises coming from both ice sheets and significantly reduce adaptation cost when global sea-level rise is limited and not catastrophic"*.

References:

The Greenland and Antarctic ice sheets under 1.5 °C global warming

Frank Pattyn, Catherine Ritz, Edward Hanna, Xylar Asay-Davis, Rob DeConto, Gaël Durand, Lionel Favier, Xavier Fettweis, Heiko Goelzer, Nicholas R. Golledge, Peter Kuipers Munneke, Jan T. M. Lenaerts, Sophie Nowicki, Antony J. Payne, Alexander Robinson, Hélène Seroussi, Luke D. Trusel and Michiel van den Broeke.

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