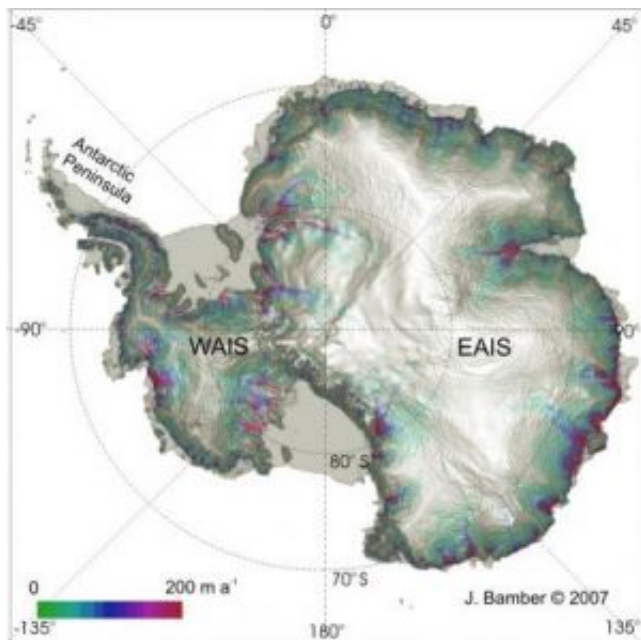


Antarctic Ice Loss

13 January 2008



Satellite-derived image of the surface topography of Antarctica. Shown in color are the flow speeds of glaciers draining ice into the oceans. The scale is meters per year. It is noticeable how the rate speeds up in narrow glacier outlets. Credit: Jonathan Bamber

Increasing amounts of ice mass have been lost from West Antarctica and the Antarctic peninsula over the past ten years, according to research from the University of Bristol and published online this week in *Nature Geoscience*.

Meanwhile the ice mass in East Antarctica has been roughly stable, with neither loss nor accumulation over the past decade.

Professor Jonathan Bamber at the University of Bristol and colleagues estimated the flux of ice from the ice sheet into the ocean from satellite data that cover 85% of Antarctica's coastline, which they compared with simulations of snow accumulation over the same period, obtained using a regional climate model.

They arrived at a best estimate of a loss of 132

billion tonnes of ice in 2006 from West Antarctica – up from about 83 billion tonnes in 1996 – and a loss of about 60 billion tonnes in 2006 from the Antarctic Peninsula.

Professor Bamber said: "To put these figures into perspective, four billion tons of ice is enough to provide drinking water for the whole of the UK population for one year."

The authors conclude that the Antarctic ice sheet mass budget is more complex than indicated by the evolution of its surface mass balance or climate-driven predictions.

Changes in glacier dynamics are significant and may in fact dominate the ice sheet mass budget. This conclusion is contrary to model simulations of the response of the ice sheet to future climate change, which conclude that it will grow due to increased snowfall.

The ice loss is concentrated at narrow glacier outlets with accelerating ice flow, which suggests that glacier flow has altered the mass balance of the entire ice sheet.

Over the 10 year time period of the survey, the ice sheet as a whole was certainly losing mass, and the mass loss increased by 75% during this time. Most of the mass loss is from the Amundsen Sea sector of West Antarctica and the northern tip of the Peninsula where it is driven by ongoing, pronounced glacier acceleration. In East Antarctica, the mass balance is near zero, but the thinning of its potentially vulnerable marine sectors suggests this may change in the near future.

Source: University of Bristol

APA citation: Antarctic Ice Loss (2008, January 13) retrieved 25 October 2020 from <https://phys.org/news/2008-01-antarctic-ice-loss.html>

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