



Antarctic Melting

Posted by [Stuart Staniford](#) on March 3, 2006 - 1:44pm

Topic: [Environment/Sustainability](#)

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Just a quick note. There is a new paper by Velicogna and Wahr in Science today (you [have to pay](#)) which attempts to assess the overall mass balance of Antarctic ice by satellite measurements of the earth's gravity field.

Using measurements of time-variable gravity from the Gravity Recovery and Climate Experiment (GRACE) satellites we determine mass variations of the Antarctic ice sheet during 2002-2005. We find that the ice sheet mass decreased significantly, at a rate of 152 ± 80 km³/year of ice, equivalent to 0.4 ± 0.2 mm/year of global sea level rise. Most of this mass loss came from the West Antarctic Ice Sheet.

There are several cautions here. That ± 0.2 mm is a 1 sigma error bar, so this is only a two-sigma result. Furthermore, it's a short time period, so we don't know how this fits into an overall trend. Finally, it's a new method, so if the referees missed a methodological problem, that will show up in time. In particular, the ice mass loss signal emerges as an offset to a sizeable correction due to post ice-age rebound which has to be estimated from ice history models. That sounds a little scary to me - I'd feel better seeing this replicated with other independent analyses.

All that said, it's certainly not in the good news column. If this result holds up, it suggests that Greenland and WAIS are contributing roughly equally to sea level rise at present.

We discussed sea level rise before in

- [Living in the Eemian](#)
- [Greenland, or why you might care about ice physics](#)



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