

Interactive comment on “The sea level fingerprint of 21st century ice mass fluxes” by J. Bamber and R. Riva

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Recent Mass Balance Estimate

I agree with the commentary of Dr. Oerlemans that the work is methodologically sound and has very interesting results. I am curious however whether any of the mass balance estimates for the ice sheets as displayed in this paper (particularly Greenland) will require revisions based on the Wu et al (2010) paper recently published in Nature Geoscience. Wu et al (2010) claim to have improved GRACE based mass balance estimates for Greenland and Antarctica substantially based upon an integrated GPS-GRACE approach for understanding GIA and mass changes. The result of the different methodology is an estimate for Greenland (104 Gt per year) that is significantly lower than the estimate of 166 GT per year used in this study from Van Den Broeke et al

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(2009). Furthermore, Wu et al (2010) estimate that losses in Antarctica are reasonably lower (around 40 Gt) than the estimates adapted from Rignot et al (2008). Undoubtedly these differences do not cause large gaps between estimates when including uncertainties, but they are worth considering. As there could very likely be questions arising regarding whether the older Grace estimate (Van Den Broeke et al. 2009) is as accurate as the newer integrated assessment for Greenland in particular (Wu et al. 2010) it would perhaps be useful to address this issue or make a note of the differences in estimates.

Wu et al. (2010). Simultaneous estimation of global present-day water transport and glacial isostatic adjustment. Nature Geoscience. 3, 642-646.

Interactive comment on The Cryosphere Discuss., 4, 1593, 2010.