Nat. Hazards Earth Syst. Sci. Discuss.,
doi:10.5194/nhess-2017-86-SC1, 2017

Natural Hazards and Earth System Sciences
Discussions
Open Access
EGU

Interactive comment on "Impact of asymmetric uncertainties in ice sheet dynamics on regional sea level projections" *by* Renske de Winter et al.

R. Rietbroek

roelof@geod.uni-bonn.de

Received and published: 15 May 2017

First of all, I enjoyed reading the paper. The tails of the probability density functions (pdf's) are important and needed in the design of coastal defense infrastructure, and as such the paper is policy relevant.

I was wondering whether possible long term changes (intensification) in the terrestrial waster cycle (e.g. change in surface waters and soil moisture) are accounted for? The throughput of the water cycle is large so their might be a nett effect on sea level, and it might be widen/shift the pdf's of the type shown in fig 2 because of the added uncertainties. I'm asking because from GRACE we found some indications that water storage over the last decade has a negative contribution to sea level (see refs below).

References: Reager, J. T., Gardner, A. S., Famiglietti, J. S., Wiese, D. N., Eicker, A.,

Printer-friendly version

Discussion paper

& Lo, M.-H. (2016). A decade of sea level rise slowed by climate-driven hydrology. Science, 351(6274), 699–703. https://doi.org/10.1126/science.aad8386

Rietbroek, R., Brunnabend, S.-E., Kusche, J., Schröter, J., & Dahle, C. (2016). Revisiting the Contemporary Sea Level Budget on Global and Regional Scales. Proceedings of the National Academy of Sciences, 201519132. https://doi.org/10.1073/pnas.1519132113

Llovel, W., Becker, M., Cazenave, A., Crétaux, J.-F., & Ramillien, G. (2010). Global land water storage change from GRACE over 2002–2009; Inference on sea level. Comptes Rendus Geosciences, 342(3), 179–188. https://doi.org/10.1016/j.crte.2009.12.004

Riva, R. E. M., Bamber, J. L., Lavallée, D. A., & Wouters, B. (2010). Sea-level fingerprint of continental water and ice mass change from GRACE. Geophysical Research Letters, 37(19), L19605. https://doi.org/10.1029/2010GL044770

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2017-86, 2017.

Printer-friendly version

Discussion paper