

Interactive comment on “Comparing a thermo-mechanical Weichselian ice sheet reconstruction to GIA driven reconstructions: aspects of earth response and ice configuration” by P. Schmidt et al.

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General comments

I have been looking forward to the day when someone would discuss the relation between, or combination of, "geophysical" and "glaciological" reconstructions of ice sheets for glacial rebound studies - and now it is here. This is in my view a most welcomed paper. It is new, it is relevant, and it is interesting. It should certainly be published in SE.

C833

Specific comments

I have a few minor remarks.

1. Comparisons are made with the uplift rates of Lidberg et al (2007) and Lidberg et al (2010), based on GPS data; it is correctly stated that these rates have a fairly large uncertainty because of satellite reference frame problems. Here it could be pointed out that Lidberg et al in the same papers have found that their decadal satellite-derived uplift rates are consistent with those based on century-long sea level (tide gauge) observations, thereby strengthening the validity of the comparisons in the present paper, and the conclusions based on them.

2. Figure 5 is an uplift map that does not occur in the reference given below the figure (Lidberg et al, 2007). It would be better to say something like "Map drawn on the basis of Lidberg et al (2007)." The contour lines are strangely shaped in central-northern Norway and Kola peninsula. One might even consider the possibility of not using a map but only make comparisons with actually measured uplift rates.

3. A most prominent difference between the three ice sheet reconstructions is the large areal ice extent in the ICE-5G model compared to the ANU and UMISM models before LGM. A short comment on the background to this considerable difference might be of interest to the reader.

4. In the Introduction reference is made to (Ekman, 1991); this should preferably be replaced by (Ekman, 2009): Ekman, M: The changing level of the Baltic Sea during 300 years: A clue to understanding the Earth. Summer Institute for Historical Geophysics, Åland Islands, 155 pp, 2009; www.historicalgeophysics.ax. I realize this book is not easily available in paper form to very many people, but it is nowadays also available to everyone in digital form at the web site given in the reference.

Technical comments (linguistic details)

Page 2366, lines 17-20, the sentence needs reconstruction to become understandable.

C834

Page 2349, line 14, the word "years" (after kyr) should be deleted.

Page 2368, line 9, the words "this would" should be deleted (they occur twice).

In several cases the word "modelling" is spelt in the American way, with one l, but in other cases it is spelt in the British way, with two l.

In a number of cases an ending with -s on the verb is missing (in phrases like "NN presents"), or there is an ending with -s where there should be none. On page 2349, line 7, "is" should be replaced by "are".

"Relative sea-level" is shortened as r.s.l., whereas all other abbreviations are given by capital letters. It would be good to change this also to capital letters. (Or even better: Do not abbreviate it at all.)

Interactive comment on Solid Earth Discuss., 5, 2345, 2013.