

Interactive comment on “Optimal locations of sea-level indicators in glacial isostatic adjustment investigations” by H. Steffen et al.

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Received and published: 4 March 2014

Comments to the reviewers’ report on ‘Optimal locations of sea-level indicators in glacial isostatic adjustment investigations’ by Holger Steffen, Patrick Wu and Hansheng Wang.

We have revised the paper taking into account both reviewers’ comments. Below follows a detailed list of how we have responded to the individual comments (marked in *italics*) by Anonymous reviewer #2. The revised manuscript has been attached as supplement. Changes are marked in bold letters.

General statements:

This reviewer notes the importance of the problem addressed in our manuscript, but

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strongly criticizes the way it is presented. He/she may recommend publication in case we thoroughly deal with a list of remarks.

For example, in the Conclusions (section 6): “We have ... data to four parameters which are important in GIA modelling: ice-load history, lateral lithospheric thickness variations, background viscosity, and lateral lithospheric thickness variations.”

So I ask the authors: What is wrong with this sentence?

Although we think that lithospheric thickness variation should not be underestimated, we changed one “lithospheric thickness” to “mantle viscosity”.

1. *Completely rewrite the Conclusion section – highlighting only the main discoveries from the research.*

Rewritten as suggested.

- (a) *For example, the 6 items in the bullet list are all known to be important by every investigator in the field of GIA and RSL. There simply is no value, and no new information, delivered to the community here.*

Removed.

- (b) *The paragraph that follows the bullet list: lines 18-25, page 2435 and continuing in the remainder of the paragraph can (and should be) condensed into two sentences, capturing only the main points.*

Condensed to two sentences and merged with additional sentences to form a new paragraph.

- (c) *Now in the remaining parts of the Conclusion section is where the real ‘beef’ of the results – > conclusions in this paper, at least in this reviewers opinion. The point about what can be revealed in more accurate data is very interesting, and possibly the main reason that this paper should be published (in a shortened form). To obtain this type of accuracy may be quite a tough challenge. With relative sea-level so much lower (higher) the coastal environment where the splash zone exists is different – and this brings in a*

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whole host of new questions that coastal geomorphologists and ocean scientists must tackle. A little more emphasis should be placed on this point.

We have emphasized this part in the revised conclusions.

- (d) *The remainder of the Conclusions need not be altered, albeit it could be cleaned up some. A suggestion to the 1st author for self-editing: Re-read and try to eliminate unnecessary words/phrases. Such as: "In turn, more than 14,000..." – > "More than 14,000...". Another example: consider the following 56-word, 308-character paragraph: "In view of our investigation, new RSL data should be searched around the world. It is clear that the focus has always been set on coastal areas. However, our sensitivity maps show that the deep sea and many areas on land with lakes have high sensitivities and any sea-level indicator found there can be of help." With the 35-word, 230-character paragraph: "Our sensitivity study suggests the value of collecting and interpreting RSL data in coastal areas that are surrounded by deeper ocean and that non-marine fresh water lakes also provide valuable new information to constrain models." Doing this is just a vehicle for getting to more compact and readable scientific writing. It takes iteration. And it does not have to end in "The King's English", so to speak.*

We have adopted the suggestions and revised the remaining text accordingly. "The King's English" is certainly unreachable for us, but we do our best to get at least close to Matt King's English.

2. *The Discussion section reads better and is well-organized. However, there is some repetitiveness with respect to the Results section. I ask the authors to consider condensing and examining for redundancy. Try to reduce the total word count from 1,030 to 800.*

We have condensed this section and deleted redundant parts. The word count is now below 850.

3. *The paleo-environmental community might read this with a touch greater gusto*
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and acceptance if you were to adopt: ka (calendar years before 1950) in place of kaBP. (see Alley et al., Holocene climatic instability: A prominent, widespread event 8200 yr ago, Geology, 25(6), 483-486, 1997. – cited over 1,270 times!)

We have adopted this suggestion.

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/5/C1078/2014/sed-5-C1078-2014-supplement.pdf>

Interactive comment on Solid Earth Discuss., 5, 2419, 2013.