

## ***Interactive comment on “The future sea-level contribution of the Greenland ice sheet: a multi-model ensemble study of ISMIP6” by Heiko Goelzer et al.***

### **Anonymous Referee #1**

Received and published: 21 February 2020

Review of "The future sea-level contribution of the Greenland ice sheet: a multi-model ensemble study of ISMIP6" by Heiko Goelzer et al.

This paper presents the results of the ISMIP6 effort to project the Greenland ice sheet sea-level rise contributions over the next century. This is a community effort which encompasses the contributions of a large number of groups around the world. As such, this paper will be an important input of the coming IPCC report. The paper is globally well written. I have nevertheless made a list of remarks which I believe might improve its clarity.

C1

- all along the manuscript: you should refer to the TC guidelines for authors and adopt the required standards (e.g. caption are not in bold, use of Fig., Figs. and Figure, etc...)
- page 2, line 20: define here (and not page 4 lines 29-30) GrIS and use it all along the manuscript afterward.
- page 2, line 29: initiatives e.g. -> initiatives, e.g.
- page 3, line 10: is "in our context" necessary?
- page 4, line 2 : would be nice to have already some numbers on how many models have applied here
- page 4, line 5: the bibliography should be checked as for example you are using 2020a here but not in the list of references so that 2020a and 2020b cannot be distinguished.
- page 4, line 24: "extended" here seems to refer to something different than in the captions of Tab. 1 and Fig. 1.
- Table 1: the note about "open" framework should be more explicit about what it is or refer the reader to the text. In general, "extended" and "open" experiment/framework should be defined more clearly at the beginning of the paper. Also, the same notation, with or without " " should be used all along the manuscript
- page 5, line 12: Figure 1a,b -> Fig. 1a,b
- caption Fig. 1: "extended" experiments are presented whereas it is mentioned page 18 line 21 that these experiments have not been studied here. At the end, I am a bit confused with what you refer to by extended and open (see my previous remark).
- page 6, line 23: exercise xhttp -> exercise (http (?) isn't it a proper reference for this MIP? Also, the link is not working (error 404)
- page 8, line 3: the naming for the simulation should be explained somewhere. What

C2

is the 2 referencing to?

- page 8, line 7: observed -> observations (?)
- Figure 2 (and also other figures): in general the quality of the figures could be improved. Black frames should be removed. The size of the text should be similar to the main text size. The size of the figure should be adapted to either full width or one column, depending on the figure. For Fig. 2, it should be similar to Fig. 1 in Goelzer et al. 2018 to ease comparison (with a warning on the fact that the scales are not covering the same range?).
- caption Fig. 4: stippled -> dotted
- page 12, line 22: Figure S3, S4 -> Figs. S3, S4
- caption Fig. 5: I don't understand what you mean here by "The diagnostic have been calculated for grid cells subsampled...". Why sampling would be important in calculating a RMSE?
- page 13, line 9: problem in that sentence?
- Fig. 7b: the dashed line is very difficult to see
- page 16, line 2: Figure 7 -> Fig. 7b
- page 18, line 10: the reduction by 1/3 is relative to what. This part is not very clear.
- page 28, line 21: if a water-pressure dependent friction law is used, some words should be said on how the basal water pressure is evaluated.
- page 30, line 2: is it VUB-GISM ou GISM-VUB?
- page 31, line 5: minimum and maximum resolution -> minimum and maximum resolutions

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Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2019-319>, 2020.