

Responses to Reviewers' Comments for Manuscript EGUSPHERE-2024-2223

Modeled Greenland Ice Sheet evolution constrained by ice-core-derived Holocene elevation histories

Addressed Comments for Publication to

The Cryosphere

by

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Authors' Response to the Editor

General Comments. You have thoroughly addressed the last round of comments, and I believe the manuscript is near ready for publication. Please find an additional set of minor comments below, which should be addressed.

Response: Thank you for your feedback and interest in our work.

We have carefully addressed all the issues as follows.

Comment 1

L11: "that the ice bridge collapsed 4.9 ± 0.5 ka ago and" ← I think you should delete this phrase from the abstract. It is true that your simulations show this, but you also show that the timing is much too late. Highlighting it here as a confirmed result is misleading.

Response: Thank you for the comment.

This has been removed.

Comment 2

Fig. 1: Consider including your extended glacier catchment basins as a supplement data file and script to generate it. It could be a very useful resource for other modelers in the future.

Response: Thank you for the comment.

Yes good idea.

We have added a link to an archive (<https://doi.org/10.5281/zenodo.15681862>) under "Code and data availability"

Comment 3

L69: grounding line advance → grounding-line advance

L70: Model parameters, listed in Table 1, will be → The model parameters, listed in Table 1, are

L77: mass loss rates → mass-loss rates [and throughout]

L92: surface melt rate → the surface melt rate

L119: will be varied → are varied [modify to present tense throughout ensemble description]

L128: we will vary → we vary

L132: oceanfront → ocean front

L157: sea level forcing → sea-level forcing

L169: RMSE → root mean square error (RMSE)

L246: ice sheet configuration → ice-sheet configuration

L254-255: "Additionally, the grounded volume above flotation is 5.3 ± 0.3 m SLE larger, which contributed to the global mean sea-level rise." ← This sentence is ambiguous, should it be rise or reduction? Please modify.

L281: root mean square error (RMSE) → RMSE

L287: surface elevation histories → surface-elevation histories

L287: ice core locations → ice-core locations

L287: in interior Greenland → in the interior of Greenland

L358: the mass loss rates → those

L408: ice flow parameters → ice-flow parameters

L461: ice sheet evolution → ice-sheet evolution

L477: ice sheet simulations → ice-sheet simulations

Response: Thank you for the comment.

Thanks for catching these mistakes. We agree that the line about sea-level rise was ambiguous.

The compound nouns are now hyphenated and the model setup section is in present tense.