

**Thank you to the reviewer for considering our revisions and to the editor for further comments that have improved the clarity and flow of our manuscript. Responses to each point are in bold below.**

**\*\*Specific comments of reviewer\*\***

I only have technical corrections at this stage;

- Please update the notation of references in the text: all are missing comma's before the year

**Fixed.**

- L64: correct to "with most -of- the ice loss at the margin"

**Fixed (Line 61).**

- Figure 3: omit the "enhanced" in the title of panel c, and also in the label in panel a; spelling of "climate" in label panel a

**Fixed.**

- Figure 4 mentioned in text before Figure 3 -> numbering in text should be updated

**The numbering in the text has been updated so that Figure 3 appears and is mentioned before Figure 4.**

- Figure 5 gives an interesting overview, but is this not referred to in the text?

**Fixed – Figure 5 is referred to in line 366 and 382. A sentence has been added at Line 382 to better contextualize Figure 5 and integrate its purpose into the text: “Our work shows that parameter sensitivity varies geographically; for example, locations nearby to Camp Century are more sensitive to initialization and less sensitive to spatial climatology (Figure 5). For many sites...”**

**\*\*Specific comments\*\***

L15: sea level rise → sea-level rise [correct throughout]

**This has been corrected throughout.**

L15: Please change acronym from "GIS" to "GrIS" throughout. This has long been adopted by the community, which helps to avoid ambiguity with Geographic Information System (GIS).

**The acronym has been changed throughout.**

L15: Please revise this first sentence, maybe to just generally indicate we need to learn about the ice sheet's vulnerability to climate change. I suggest especially to modify "will contribute its first meter", as there is no particular need to estimate the first meter specifically, but rather to characterize where it is most vulnerable.

**The first sentence has been revised to read: "The contribution of the Greenland Ice Sheet (GrIS) to sea-level rise is accelerating and there is an urgent need to characterize which sectors of the ice sheet are the most vulnerable."**

L22: ice-free → ice free

**Fixed.**

L22: ice sheet modelling → ice-sheet modelling

**Fixed.**

L51: Here again, I recommend to rephrase away from "the next meter" to something more general, because it sounds like there is something inherently special about 1 m.

**This has been rephrased to read: "...motivating the questions of when, at what rate, and from where will the future contributions of the GrIS to global SLR come?"**

L54: augur → gives clues about [while technically augur could be correct here, I don't think it is appropriate in this context]

**Changed following this suggestion.**

L70: cause → causes

**Fixed.**

L86: ice surface conditions → ice-surface conditions

**Fixed.**

L95: the first meter of sea level will originate → the ice sheet is most vulnerable

**Changed.**

L109: ice sheet responses → ice-sheet responses

**This sentence has been removed following the integration of this paragraph with the end of the Introduction (see below).**

L119: for the first meter of → contributing to

**Fixed - changed to "future contributions to sea-level rise from Greenland."**

L109-120: This paragraph does not really describe the methodology and seems to be a bit redundant with the last two paragraphs in the Introduction. I would recommend merging this into the Introduction, so that you can focus this section directly on describing the Methodology.

**Thank you for this suggestion - this paragraph has been deleted from the methods. Parts that were not redundant were integrated into the Introduction section - see lines 102-105 and 113-116 in the revised manuscript.**

L148: to the first meter of global sea-level change → to global sea-level change

**Changed.**

Figure 1: I recommend making the colored dots a bit larger, as they are quite hard to distinguish as they are.

**The dots have been made larger so they can more easily be distinguished.**

L186: Ice Sheet Model → Ice-sheet Model

**Fixed.**

L278: Please clarify how ice temperature is initialized in the "cold-start" case. It sounds very surprising if the temperature is not consistent with the geometry and BCs following the initialization, but maybe I have misunderstood. Consider changing the name from "cold-start", which I assume refers to the procedure rather than temperature itself, in which case you could use "pd-start" or something similar to indicate it was initialized with PD conditions. Then your other set could be referred to as "paleo-start".

**Thank you for these helpful suggestions around language - you are correct that cold-start refers to the procedure used, not the temperature itself, which comes to equilibrium during the initialization with the given boundary conditions. In Figure 1, we have relabelled these scenarios "paleo-start" and "modern," and adjusted the text in the figure caption to match. We have also changed lines 277-281 to use this same language, so that our approach is clearer throughout.**

L295: Delete "of sea-level potential" since you mean that the ensemble spread is the range of values of the histogram. You defined sea-level potential as the median of that histogram, therefore, it has no spread. This might be clearer if you reword above to define sea-level potential as the ice-volume of a given simulation at the time of first deglaciation at that location. Then throughout the manuscript the median sea-level potential is reported with the uncertainty represented by the ensemble spread.

**"of sea-level potential" has been deleted here, so that we are being consistent with our own definition - thank you for catching that. After considering the second suggestion, we have opted to keep our current definition of sea-level potential as being particular to an ensemble rather than an individual simulation. We agree that a different approach might be clearer to some readers, but one of the takeaways of our manuscript is the importance of considering parametric uncertainty in determining sea-level potential, and assigning a sea-level potential to a single simulation could make this point less clear. Rather, we see each simulation as being able to answer the question, "Given one set of parameters, how much has Greenland contributed to global sea level when a**

**particular site is ice-free?" In this framing, knowing the sea-level potential requires consideration of how different parameters impact the course of deglaciation. We thank the Editor for this thoughtful suggestion and will continue to reflect on how to most effectively communicate this kind of information in the future.**

L301, 306: sea level potential → sea-level potential [check throughout]

**Fixed throughout.**

L363: provides a lower bound → provides a plausible lower bound

**Changed (line 373).**

Fig. 4a: In legend is "Climte" a typo?

**Yes - the reviewer caught this as well, and it has been fixed.**