

Response to the Editor

Editor's comments are in blue, our reply in black, quotes in the revised manuscript in red.

Dear Junshun Wang and co-authors,

Thank you for your prompt revision. The manuscript is close to being acceptable; however, I have a few minor technical comments that should be addressed before final acceptance:

- 130-35, I suggest removing the “1.” and “2.” labels and rephrasing the sentence for smoother readability in the abstract.
- 1130-1131, since there is no text between 2.1 and 2.1.1, it is a common practice to remove the third level subsection, e.g., change 2.1.1 to 2.1, 2.1.2 to 2.2, and so on.
- 1600-602, this sentence is not the conclusion from this study, remove it
- 1608, please change all the numbers (4 and 8) to words in this paragraph, double check the whole manuscript. For detailed instruction about numbers, see: <https://www.the-cryosphere.net/submission.html#manuscriptcomposition>, especially when mentioning numbers, “For items other than units of time or measure, use words for cardinal numbers less than 10; use numerals for 10 and above (e.g. three flasks, seven trees, 6 m, 9 d, 10 desks).”
- Data availability, please double check all the data sets listed in this section, make sure they ALL follow our data policy: <https://www.the-cryosphere.net/submission.html#assets>. They need to be stored in reliable FAIR-aligned data repositories with DOIs. Also, please make all the code/data used in this work publicly available.

Once these points are addressed, the manuscript can proceed to final acceptance.

Best regards,

Cheng Gong

Editor, The Cryosphere

Dear editor,

Thank you for your continued handling of our manuscript and for the additional minor technical comments. We have revised the manuscript accordingly, and we respond point-by-point below.

- 130-35, I suggest removing the “1.” and “2.” labels and rephrasing the sentence for smoother readability in the abstract.

Reply: We have removed the “1.” and “2.” labels from the abstract and rephrased the

corresponding sentences to improve readability and flow.

“To illustrate the method's utility, we identified an overcooling inconsistency across all GHFs near the western boundary of Totten Glacier (70°S-72°S), a region with a bedrock canyon and fast surface ice velocities, suggesting that all GHFs values are underestimated. Conversely, an overheating inconsistency exists in eastern Totten Glacier across all GHFs, indicating an overestimation of ice temperature that, in this case, is associated with a warm bias in surface temperature.”

- 1130-1131, since there is no text between 2.1 and 2.1.1, it is a common practice to remove the third level subsection, e.g., change 2.1.1 to 2.1, 2.1.2 to 2.2, and so on.

Reply: We agree and have revised the section numbering following common practice. Specifically, we removed the redundant third-level heading and renumbered subsequent subsections accordingly (e.g., former 2.1.1 → 2.1, former 2.1.2 → 2.2, etc.). We also checked cross-references in the text to ensure consistency after renumbering.

- 1600-602, this sentence is not the conclusion from this study, remove it.

Reply: We have removed this sentence as suggested.

- 1608, please change all the numbers (4 and 8) to words in this paragraph, double check the whole manuscript. For detailed instruction about numbers, see: <https://www.the-cryosphere.net/submission.html#manuscriptcomposition>, especially when mentioning numbers, “For items other than units of time or measure, use words for cardinal numbers less than 10; use numerals for 10 and above (e.g. three flasks, seven trees, 6 m, 9 d, 10 desks).”

Reply: We have corrected the format of the numbers in this paragraph, changing "4" and "8" to "four" and "eight," respectively. Furthermore, we have thoroughly reviewed the entire manuscript and converted all cardinal numbers less than 10 (that are not units of time or measure) into words, ensuring full compliance with The Cryosphere style guidance.

- Data availability, please double check all the data sets listed in this section, make sure they ALL follow our data policy: <https://www.the-cryosphere.net/submission.html#assets>. They need to be stored in reliable FAIR-aligned data repositories with DOIs. Also, please make all the code/data used in this work publicly available.

Reply: We have carefully reviewed the Data availability section and updated it to comply with The Cryosphere data policy. All datasets referenced are now explicitly linked to reliable FAIR-aligned repositories that provide DOIs.

We hope that these revisions fully address the remaining technical points and meet the criteria for final acceptance. Thank you again for your time and consideration.

Sincerely,

Liyun Zhao (on behalf of all co-authors)