

Response to Editors' Comments
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Wintertime Evolution of Landfast Ice Stability in Alaska from InSAR

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Overview

Below, we provide our responses explaining how we have addressed each of the reviewers' comments. For clarity and ease of reference, we have broken some comments into individual points. Our responses to all comments are highlighted in blue. Descriptive comments that we feel did not include specific points that required addressing are italicized in grey text.

Editor comments

The author's have better explained the distinction between stabilized and non-stabilized ice and how it can occur in the non-sheltered ice. Given that the strain threshold is above that for most of the sheltered ice, this approach appears reasonable. I am satisfied that the authors have now addressed the reviewers and editor comments.

Minor points

I note on page 315 of the current manuscript, this text "However, we only need a single threshold to differentiate sheltered from not sheltered landfast ice." appears in error, or is confusing. I believe you mean to say to differentiate stabilized from non-stabilized landfast ice.

Thank you for pointing out this confusing statement as the correct meaning is an important concept in the paper. We have adjusted the language to clarify and justify why we selected the lower threshold – “*We chose the threshold of the sheltered class to differentiate the sheltered class from the not-sheltered class. This was done since we assumed that stabilized landfast ice exists within the not-sheltered region, landfast ice that is stabilized by grounded ridges. Furthermore, we assumed the apparent strain values of landfast ice which is stabilized by barrier islands and grounded ridges are similar. Determining thresholds using Otsu's method yielded two objectively determined thresholds that define the apparent strain bounds for our three stability classes*”

Note, the inclusion of supplemental material is only for very specific instances (see here <https://www.the-cryosphere.net/submission.html>) It should not be used for text and figures that could be placed in the main manuscript. Your supplemental material explains a method that the author's may judge excessively long for the main text, so I recommend moving this material to an appendix.

Our apologies for not understanding the journals' specifications for supplementary versus an appendix material. We have formatted the supplementary section as an appendix.

There remain numerous instance of typographic errors in some of the text. Please check the manuscript carefully before resubmission.

We have done a detailed review of the document to identify and correct any grammatical or typographical errors. We fixed a numerous amount of them and believe we corrected all errors.