

Interactive comment on “The flexural strength of bonded ice” by Andrii Murdza et al.

Anonymous Referee #1

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Review Comments

I find this paper to give an very useful review of the strength of the freeze-bond formed between two contacting ice surfaces. Also, and of great importance, the authors present important new data and observations regarding the freeze-bond strength of bonded ice.

The paper is easily read and its main conclusions clearly understood. I enjoyed reading the paper.

I recommend that this paper be accepted for publication after several minor adjustments (evident to me) are made. The following adjustments struck me:

Line 14: I had expected a section (in Results and Observations) on temperature-increase effects. Though temperature is mentioned, I did not see a discussion of how

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temperature affects freeze-bond flexural strength. Perhaps, in line with the Abstract, such a section should be added.

Lines 31-40. The cohesion when using the Mohr-Coulomb model to describe bonding between ice blocks is often referred to as a "pseudo-cohesion", which to me indicates that the term "cohesion" is used as a convenience, with the actual nature of the "pseudo-convenience" left to be determined. "Cohesion" is a term understood in civil engineering and thus has its uses. I fully agree with the authors that "pseudo-cohesion" has been needed to be investigated, something that the authors have now largely accomplished. I do wonder, though whether the authors should mention "pseudo-cohesion" and the vagueness inherent in this term.

Line 56: How thick were the pucks?

Lines 210-211: Shouldn't semi-colons be used when listing? I.e., ...: (1) ...: (2) ...; and, (3)

Line 265: The authors sometimes use the second-person voice "one may..." when the remainder of the paper is in the third-person voice. I wonder is some consistency is needed.

Line 271: A space exists in front of the period (.).

Line 297, Conclusions: Should the authors relate back to the objective of the paper (and the paper's Abstract) and be more definitive about bond-strength variation with temperature?

Again a very interesting and useful paper.

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2020-301, 2020.

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