

The Cryosphere Discuss., author comment AC2
<https://doi.org/10.5194/tc-2021-2-AC2>, 2021
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Reply on RC2

James Ehrman et al.

Author comment on "Ice roughness estimation via remotely piloted aircraft and photogrammetry" by James Ehrman et al., The Cryosphere Discuss.,
<https://doi.org/10.5194/tc-2021-2-AC2>, 2021

In response to your major concerns:

- Re Flow of information in the Abstract and Introduction
 - Significant changes have been made to the wording and composition of the abstract and introduction to clarify and elaborate the introduction and hypothesis of the research.
- Re Novelty of the data
 - Text has been added to indicate that these results represent a first attempt, and require further validation.
- Re Overall writing and grammar
 - The manuscript has been thoroughly reviewed by the authors to improve the grammar and clarify the message.

In response to your specific comments:

- Re Abstract length
 - The abstract has been shortened and simplified
- Re Background
 - Subsections have been added, and the information has been somewhat distilled.
- Re Lines 129-130
 - The author was mistaken, while some other methods exist they are very niche in their application and not relevant to the paper. The text has been changed to reflect this.
- Re Doming errors
 - Doming errors are caused by lens distortion in the camera mounted to the RPA. These errors are addressed through an automatic calibration process within AgiSoft (the program used for the evaluation of photogrammetry in this study). The authors found that the discussion of doming errors within this text was outside of the scope of the paper, and it was removed.
- Re Site codes
 - Dauphin River Levelogger (DRLL) prefix is kept throughout the paper to allow for easy cross-referencing between other papers regarding this study site.
 - Text added to section 2 to clarify site naming
 - Superfluous sites removed from keymap
- Re Lines 236-247
 - The figure was simplified to streamline the explanation in the text. The text has also

been clarified.

- Figs 7a and 7b were deemed to be distracting to the overall message of the section, and have been removed.
- The components of the filter were selected through an extensive iterative process of visual analysis of the image. Wavelength values which were below or above the ideal values caused obvious edge-cutoff errors, or insufficient trend removal.
- Re Line 270
 - This paragraph has been reworked and expanded on to make the text more clear and correct.
 - The authors believe the naming convention mentioned in response to RC1 will help unify the discussion of roughness values across the paper.

Thank you very much for your time and effort in reviewing our work, we believe that the work is stronger from the input given here.