

Brief Communication: Expansion of meltwater lakes on the Greenland Ice Sheet by I. M. Howat et al.

Response to Reviewer 2

We thank the reviewer for his or her thorough evaluation. Original comments are below in italics, followed by our response.

Reviewer 2

The paper in object presents extremely interesting and crucial results concerning the trends of supra glacial lakes over Greenland from multiple satellite sensors over the past decades. This is an important issue as there is debate on whether the number and volume of such lakes will increase in a warming scenario and with increasing runoff.

The study 'builds' on a previously and recently published work in which the lakes are identified based on the distribution of reflectance rather than on physical retrieval, as proposed by many studies in the past. This is an interesting aspect as the paper in object was not published a long ago and the team is capable of using 'fresh' published work and turn it into an analysis of an extended time series.

I do have conflictual feelings about the paper: as a short communication it is will written, it is succinct and shows the results in a clear way.

However, I sam wondering whether this should be a Brief Communication or if t should not be expanded to, at least, a letter. There are many things that are important that are currently missing, such as, the sensitivity of the approach to the different sensors (in terms of spatial and spectral resolution, and in terms of spectral bands); it would be nice to have error bars on the results reflecting this issue.

We now include an error estimate as estimated from the threshold uncertainty. This error will inherently capture the effect of pixel resolution, since the error will scale with pixel size.

Also, the authors present the results connected by lines and that might induce the reader to think that there is temporal continuity between the early and late estimates.

We changed the lines to hashes and made the data points larger circles to accentuate where we have data. The hashes are still needed to make it easier to visually connect the overlapping time series.

A summary of the approach used would help the reader to better understand how lakes are detected.

We have added text to explain the lake selection procedure.

I think that translating the Brief Communication into a letter would make it more elegant and selfcontained. I leave the editor the final decision, considering that I do not see any

problem with its current version as a Brief Communication but also thinking that the paper (and the Journal) might gain a lot in style and quality when re-arranging things into a letter format.

While we appreciate and understand the reviewers concern, we feel that this study is straightforward enough to be well described in a brief communication. Also, our intention is to present a single, focused, result (that lake elevations have increased) and not a thorough study of lake distributions. We have, however, made several changes and expansions that we hope will help elevate the reviewer's concerns.