

Dear Reviewers and Editor Lhermitte,

Thank you very much for the fast response and positive feedback on our manuscript and the verdict of acceptance after minor corrections. We are pleased to upload the final version of the manuscript and a tracked-changes version. We also outline our response to reviewer 1 below. We very much appreciate the time taken for a second review and the additional comments. We are pleased with the manuscript now and are happy to have it published in The Cryosphere.

Best wishes,  
Jenny Turton, on behalf of all authors.

### Summary

Turton et al. have submitted. A thorough revision to the comments of reviewer #2 and myself. The manuscript is a pleasure to read and the new content helps to clearly visualise and communicate the valuable contributions of the study. I have very few further comments (below).

### Comments

L62 and elsewhere – I still think the authors should avoid referring to Sentinel-2 as VHR – although it may be in the modelling world, VHR has a very definite meaning when applied to satellites.

Thank you for your suggestion, we have now removed this from the manuscript throughout.

It is good to see the teleconnection patterns now represented in the introduction. However, I think it could be slightly better integrated. For instance, sentence L76-L79 refers to ‘these stand-out years’ (L77), which I think, after checking the track changes document, is a reference to 2007, 2010 and 2012 (L64), with the new content inserted in between. A rewrite should better integrate the text. I also think it is worth a sentence at the start of the paragraph highlighting the (complete?) lack of studies linking teleconnections to SGLs. This will better set the stage for the study.

Thank you for catching this. We have now re-written part of this paragraph for better understanding and to integrate it better with the rest of the introduction. More specifically, we have changed ‘these stand-out years’ to ‘extreme melting years’ and included an additional sentence about the extreme melting years. We have also included a sentence about the lack of teleconnection-melt pond studies, however at the end of the paragraph, to better connect with the following section. This is written in answer to the next comment. Or see lines 64 to 80 for changes.

L74 – “More recently, atmospheric rivers...” Unclear why paragraph begins here. Important to include but in above paragraph on atmospheric events more generally maybe.

We have now added an additional line to the start of this paragraph and one at the end of the previous paragraph to connect the two and enable a better flow between large-scale and smaller-scale atmospheric features. Specifically: *‘Extreme Greenland-wide melt seasons, such as in 2012, have been linked to specific teleconnection patterns (Tedesco et al. 2013),*

*however no studies have assessed the potential role of teleconnections on the development of SGLs or localised melt conditions. Along with large-scale teleconnection influences, smaller-scale mesoscale processes also influence the climate and melting over Greenland. Recently, atmospheric rivers...'*

Section 3.3.5, beginning L471 – this new text is incredibly useful, but I wonder whether it is interpretation that belongs in the discussion (perhaps as an opener) rather than in results. Thank you for your positive comments. We have now moved this section to the discussion as an introductory paragraph. We have also included an additional sentence at the start and end to better flow between paragraphs. Please see lines 541 onwards (for tracked changed manuscript or lines 511 in non-tracked version).

Figure 1: Commendable new panels but text should now be larger to be readable. Our apologies, we have now made all the text larger.

Figure 6 and 7 caption: Perhaps 'monthly average' wind direction and speed? This has been changed as suggested, thank you.