

Answers to referee #2

We thank the reviewer for the encouraging review of our manuscript. Answer to the referee's comment is below. Our answer is marked with blue color.

The authors undertake a proof-of-concept investigation into how accurately optical satellite observations, namely Sentinel-2 surface reflectance-based grain size and microwave-based snow water equivalent (SWE) estimates can detect snowfalls over the Arctic. The technique developed by the authors is capable to detect at least 77% cases of snowfall using optical measurements alone in a correct way, which is a success taking into account that the method can be further elaborated (especially selecting a better cloud detection scheme (thermal infrared measurements?)). I would advice to retrieve the value of L from Eq. (4) and use it in the analysis. This is related to the fact that the conversion of L to SSA may lead to additional errors, which are difficult to assess. On the other hand, this shortcoming may not influence the results of this paper aimed not to the SSA determination but to the detection of snowfalls. The authors may comment on this issue in the paper. I advice the publication of this paper.

As it happens, we already retrieve the value of L from the Eq. (4). We will add a clarification about that to the text.