

Re-review of the manuscript of “Volumetric evolution of supraglacial lakes in southwestern Greenland using ICESat-2 and Sentinel-2”

I thank the authors for their revisions and addressing the concerns raised in the first round of review. The manuscript has improved significantly; however, I still have some concerns which are detailed below.

Major comment:

Section 3.1. Shadows can be misclassified as supraglacial lakes in the optical satellite imagery since they have similar spectral properties. I noticed that the section (3.1.) describing cloud and shadow removal was removed from the current version of the manuscript.

It would be helpful if the authors could clarify how they addressed shadow misclassification, especially considering the limited number of lake pixels used for training, which might not capture the spatial variability of lakes to distinguish between shadows and lakes.

Minor comments:

I suggest moving the sampling strategy for RF classification, the explanation of IoU and MAE evaluation metrics, and formulas 3 and 4 from the Results section to the Methods. It would be clearer to know this information before the results are presented.

I recommend including a cross-validation or comparison with in situ supraglacial lake depth measurements from other studies. For example, the study by Lutz et al. (2024), which is already cited in the manuscript and provides direct lake depth measurements from Northeast Greenland using a remote-controlled sonar boat. The data is also publicly available:

Lutz, Katrina; Bever, Lily; Sommer, Christian; Seehaus, Thorsten; Humbert, Angelika; Scheinert, Mirko; Braun, Matthias Holger (2024): In situ supraglacial lake depth measurements using remote controlled sonar boat in Northeast Greenland, July 2022 [dataset]. PANGAEA, <https://doi.org/10.1594/PANGAEA.971782>