

Dear authors,

Thank you for your thorough response to the reviewer's comments and the revised manuscript. I am satisfied that the changes you have incorporated address the majority of their concerns, though I note they both asked for a little revision of the language. I therefore add some suggestions below that should aid interpretation and style.

I suggest beginning the paper at paragraph 2. Paragraph 1 is largely not necessary. The final sentence could be incorporated into paragraph 2, for example:

'Sixty-four subglacial lakes have been identified beneath the GrIS in Greenland from airborne radio-echo sounding (Bowling et al., 2019; Livingstone et al., 2022). Most of them are stable, showing little or no evidence of volume change or input from the surface, and are located above the Equilibrium Line Altitude (ELA) and the relatively flat, frozen-bedded ice sheet interior (Bowling et al., 2019). Only a few hydrologically active lakes that are recharged by surface meltwater have been identified from ice surface elevation change measurements (Bowling et al., 2019; Howat et al., 2015; Livingstone et al., 2019; Livingstone et al., 2022; Palmer et al., 2015; Willis et al., 2015). Compared to the more widely distributed stable subglacial lakes, active subglacial lakes are affected more directly by surface meltwater and their drainage would may significantly influence the glacier flow dynamics (Davison et al., 2020; Livingstone et al., 2019). Despite this importance, our understanding of Greenland's subglacial lakes has been primarily developed from theoretical studies or inferences from geophysical exploration due to sparsity of the limited direct observations (Davison et al., 2019). The presence and movement of meltwater at the ice bed interface significantly affect ice dynamics (Meierbachtol et al., 2013). Given the expected increases in surface meltwater production in a warming climate (Motttram et al., 2017; Sellevold and Vizcaino, 2021), it is of critical importance to understand the hydrology of the Greenland Ice Sheet (GrIS), especially the routing, storage, drainage and recharge of subglacial water'

I am not sure why all the methods have changed from past to present tense: I suggest reverting

L216: 'relatively low polar latitude' – I know what you mean, but it is confusing to have 'low latitude' and 'polar' in the same sentence. Suggest removing the final part of the sentence, so it ends with 'sparse track density'.

L218: replace 'in addition' with 'finally,'

L220: missing 'which'

L221: remove 'despite this'

L224: 'remove 'as a result' – the collapse basin did not form as a result of Willis et al discovering it

L253: rather than 'Lacking elevation measurements' suggest 'A lack of elevation measurements'

L258: 'the volume of water drained in the 2019 event **was likely** much less'

L259: How do you know this process is rare, when you've told us there are so few observations? Suggest instead 'The ubiquity of partial subglacial lake drainage is unknown in Greenland, but similar processes have been observed....'

L270: remove 'in addition'

L284: 'increasing efficiency of drainage until'

L288: remove 'Additionally'

L289: remove 'based on the above findings'

L290-295 is quite confusing. Please state more simply.

L311: 'The remainder may be locally refrozen in the underlying snowpack (Harper) or in firn aquifers that have been detected around the collapse basin area (refs). Ice slabs are also likely to exist locally (ref), so meltwater may be restricted or travel via other drainage paths that our study is unable to detect.'

L322-3: this new sentence is awkward here. I suggest moving it to the final sentence of the paper.

L330: remove 'furthermore'

Thank you for your submission to The Cryosphere.

Dr Liz Bagshaw, Editor