

Response to review by Anonymous Referee #1 of manuscript TC-2021-65:

Development of a subglacial lake monitored with radio echo sounding: Case study from the Eastern Skaftá Cauldron in the Vatnajökull ice cap, Iceland

This is a nicely presented and well written paper, covering a topic suitable for publication in The Cryosphere. The approach is valid and clearly explained; conclusions are supported by results; and study limitations are considered in appropriate detail. I suggest publication subject to the very minor edits listed below.

Ln 44. 'a depression' is singular, 'ice cauldrons' is plural. I suggest 'an ice cauldron'.

Sentence has been changed according to suggestion by reviewer 1.

Ln 52. Replace 'date at back' with 'date back'.

Done.

Line 77. Replace 'made it possible to map of the' with 'made it possible to map the'.

Sentence has been changed according to suggestion by reviewer 1.

Line 78. Delete 'possible' (following the word 'observations').

Sentence has been changed according to suggestion by reviewer 1.

Line 84. Replace 'not be a clear' with 'not a clear'.

Sentence has been changed according to suggestion by reviewer 1.

Line 102. Replace 'as well as an annual estimate the area' with 'as well as annual estimates of the area'.

Sentence has been changed according to suggestion by reviewer 1.

Line 110. Replace 'Eastern Skaftá Cauldron' with ESC.

Done.

Line 116. Replace 'were defect' with 'were defective' [or something similar].

Changed according to suggestion. This text has however, now been moved to a table according to suggestion from reviewer 1.

Line 124. Replaces 'by towing with a snowmobile a low frequency transmitter' with 'by towing a low frequency transmitter with a snowmobile'.

Sentence has been changed according to suggestion by reviewer 1.

Line 128-130. This sentence (starting 'The y-axis'...) is unclear. I suggest re-wording.

This text has been re-written.

Line 134. Delete 'the' (before the word 'half').

Done.

Line 195. Delete 'now' (before the word 'split').

Done.

Line 197. Delete 'now' (before the word 'merged').

Done.

Line 216. Delete 'now' (before the word 'compared').

This text has been rewritten.

Line 217. The word lake 'thickness' is used here and throughout the manuscript. Though a subglacial lake, is 'depth' more appropriate than 'thickness'?

We agree that the word "thickness" is strange. However the word "depth" sort of indicates something relative to a fixed flat upper surface (as for a normal lake), which is not at all the case for the roof of the subglacial lake beneath ESC. For this reason we find the word "depth" misleading and therefore worse than the term "thickness" and we have not found a good and more appropriate replacement.

Line 277. Replace 'areas of' with 'area of'.

Done.

Line 287. Replace 'August same' with 'August the same'.

Done.

Line 294. Replace 'possible' with 'possibly'.

Done.

Line 296. Replace 'volume few' with 'volume a few'.

Done.

Line 321-21. Replace 'east of boreholes' with 'east of the boreholes'.

Done.

Line 354. Replace 'approximately same' with 'approximately the same'.

Done.

Line 390. 'observations on roof elevation there is also an observation on bedrock' with 'observations of roof elevation there is also an observation of bedrock'.

Done.

Line 584-585. Delete the second 'near' in the sentence: 'The ice surface geometry near the station near in the village'.

Done.

Line 634. Replace 'on the lake volume' with 'of the lake volume'. Also, this is the first point in the conclusions where 'the lake' is mentioned. It might be worth stating at this point that you are referring to a subglacial lake beneath an ice cauldron (rather than saving this to later in the conclusions).

Done. The text has also been rephrased to mention the subglacial lake beneath the first cauldron in the first sentences.

Line 365. Replace 'a key knowledge' with 'key knowledge'.

Done.

Figure 1 caption. Replace 'inlet' with 'inset'.

Inset now labelled with 'b'. The word 'inlet' therefore omitted.

Figure 2 caption. Replace 'inlet' with 'inset'.

Inset now labelled with 'b'. The word 'inlet' therefore omitted.

Figure 6 caption. Replace 'ESK' with 'ESC'.

Done.