I would like to thank the authors for robustly addressing all of the reviewers' comments.

In the revised manuscript you have carried out a number of revisions that have improved the quality and presentation of the article and I am happy that there are no further major issues to be addressed. I list below a number of very minor technical points. Once these are addressed, I would be happy to accept this article for publication.

Kind regards,

Pippa Whitehouse

Line 47-48: hyphen needed in 'sea-level rise'

Line 88: there is an extra space after 'streams'

Line 120: "We develop the FASTER algorithm…" rephrase to indicate that you adapt/update the FASTER algorithm

Line 129: needs another closing bracket

Line 148: word missing?

Line 162: upon -> on

Line 222: I see you've converted numbers less than 10 into text, but here I think values are best expressed as '0 to 1' (but check the guidelines)

Line 228: S2 -> Sentinel-2

Line 291-292: clarify that you are still talking about Landsat 8 here

Line 312: odd phrasing "pixel with an ice cover" (and at the start of the sentence)

Line 383: is -> are

Line 387: listing the period covered by the model is confusing because later in the sentence you state that the model is used to provide a continuous time series from November 2016 to April 2017 – perhaps delete "for the period 20151231T1200Z to 20171230T0000Z" or split the sentence in two, making it clear that you are extracting data from a longer run

Line 392: why not extract data from the grid point immediately to the north of Schirmacheroasen, since this is where the lakes are?

Line 466: it does not make sense to say that the volume increases at a greater rate than the area because these quantities have different units (similarly line 469)

Line 490: figure 9b suggests the elevation of the ES decreases by ~7 m over 27 km

Line 556: perhaps mark the downstream extent of the WS and ES at various dates on figure 9, and include a reference to this figure in the text

Line 570: clarify that you are talking about figure 11b when you mention 'dark areas'

Line 570: there is an unexplained reference to 'tributary glaciers' on this line

Line 572: where relevant, clarify what aspect of these factors would result in low backscatter, e.g. particularly large/small/variable snow-grain size?

Line 577: there is no scale bar to allow the reader to identify the backscatter values

Line 602: topography -> ice shelf surface topography

Line 604: do you know this, and can you make any comment about what happens to the water in the WS and ES at the end of the 2016-17 melt season?

Line 653: hyphen needed in 'meltwater-driven instabilities' ?

Some text is green! Or blue.

Fig. 1: I suggest labelling the ice shelf (or say that the orange shape roughly delineates the ice shelf)

Fig. 2: why are there dot-dash lines around some boxes? May need a little re-designing around the 'Average Water Body Depths' box because this step is not carried out for Sentinel-2 data

Fig. 4: could refer to this figure in section 3.5, i.e. where you first mention the maximum extent mask

Fig. 5: mention the date stamp in the caption; scale bar text is very small

Fig. 5 caption (line 1020): there is reference to 'lake and stream' masks rather than circular and linear features

Fig. 10 caption (line 1058): space missing after 'Schirmacheroasen'

Fig. 10: 'total volume lost' is plotted as a volume on a specific date, but presumably the meltwater disappears sometime between the previous image and that date? This could be clearer in the caption. Also, if this is correct, then should the volume be scaled to reflect the time period over which the meltwater disappeared?

Table 2: terminology refers to 'lakes' and 'streams' rather than linear and circular water bodies

---

I note a couple of very recent papers that are relevant to this study. One is just published, and one has just come online in The Cryosphere Discussions (and I'm not sure whether you would be allowed to cite it, but I thought it worth mentioning). Entirely up to you as to whether you feel it would be useful to include them:

Arthur, J.F., Stokes, C.R., Jamieson, S.S.R., Carr, J.R. & Leeson, A.A. (2020). Recent understanding of Antarctic supraglacial lakes using satellite remote sensing. *Progress in Physical Geography*

Fair, Z., Flanner, M., Brunt, K. M., Fricker, H. A., and Gardner, A. S.: Using ICESat-2 and Operation IceBridge altimetry for supraglacial lake depth retrievals, *The Cryosphere Discuss*., https://doi.org/10.5194/tc-2020-136, in review, 2020.