

Once again, we thank the reviewer for clarifying their feedback on the hypothesized structure for the sub-glacial reflection beneath Thwaites Glacier. We hope the following adjustments to our manuscript will satisfy any remaining concerns the reviewer may have regarding the manuscript:

- We have added a new figure, (Figure 12) that displays the observed specular content data from THW2/ UBH0c/ X243a. We note the manuscript's primary focus was on the modeling methodology. In previous drafts specular content was only briefly discussed because we could not simulate it well. However, the reviewer is correct that it does offer additional evidence for the nature of the reflector in question. The observed specular content in the area of interest on THW2/ UBH0c/ X243a is elevated, which may further support the hypothesis of a lake or canals.
- We added an additional example of distributed sub-glacial structures to Figure 6 that are within the downstream zone on Thwaites as proposed by Schroeder et al. (2013). It is not our intent to challenge the hypothesis that Thwaites' downstream hydrology is dominated by channelized structures, however, there is at least one example of a proposed sub-glacial lake within this region (Smith et al. 2017).

We would also like to clarify that the downstream hydrological system proposed by Schroeder et al. (2013) was based on RES data collected in 2003-2004 covering the entire Thwaites catchment. Schroeder et al. (2013) followed several flow lines from the upper region of Thwaites to the grounding zone, and hypothesized that "a significant decrease in specular content accompanying a comparatively high relative echo strength" was evidence for a hydrological transition from primarily distributed canals to R thlisberger channels.

Our RES survey is comprised of new data collected in 2022 over a relatively confined geographic footprint in the downstream Thwaites region. We do not feel the broader hypothesis from Schroeder et al. (2013) is compromised by isolated reflectors with high specular content and reflectivity, such as the reflection we have identified as an example from THW2/ UBH0c/ X243a. However, as the reviewer notes, we demonstrated through our simulations that R thlisberger channels are unlikely to produce reflectivity comparable to canals.

Further, our manuscript simulated the sub-glacial environment for a 4km segment from a single flight line. Our simulations and the RES data (both specular content and reflectivity) could be consistent with canals or lakes, as we have shown. We consider it inappropriate to extrapolate our conclusions to the wider Thwaites hydrological system, although of course a future objective will be to expand our simulation efforts to a wider geographic footprint. We hope the reviewer agrees with this approach.