

Re-Review of the TC manuscript “Variability of internal Snow properties over Antarctic late summer sea ice on different spatial scales” by Paul et al.

The authors carefully considered the review comments and improved the manuscript.

We thank Martin Schneebeli for re-reviewing the manuscript and the positive response.

Below, we provide a point-by-point response. Reviewer comments are shown in black text, our responses in blue text. Manuscript text is quoted and manuscript changes are set in bold. Line numbers refer to the re-submitted manuscript.

It remains in my view only that the authors include in their manuscript their reply "Snow-pit temperatures in our dataset ranged mainly from 0 to -7°C , with a mean of -3.3°C and a mode of -1.7°C , and therefore fall within the temperature range relevant to the Calonne et al. (2020) parameterization." This sentence explains with a physical reason why they choose (in addition to the SSA parameterization) why they choose the Calonne parameterization. This sentence would best fit around line 170 in the manuscript.

We agree that this detail helps the reader better understand the choice of parametrization. We have therefore added this sentence to line 170:

“This parametrization was selected because it yields density profiles consistent with the co-located snowpit density and stratigraphy observations, and provides both density and SSA, which are required for this study. **Also, snow pit temperatures within our dataset ranged from 0 to -7°C , with a mean of -3.3°C and a mode of -1.7°C , and therefore still fall within the temperature range relevant to the Calonne et al. (2020) parameterization.** Although Arctic sea-ice...”