

Public justification (visible to the public if the article is accepted and published):

I see the authors addressed all comments from 3 reviewers mostly in an appropriate manner.

Thank you for pointing out these last few issues. Please find our response to each comment added in blue.

We also updated the contact information in response to the comments from the editorial staff.

The only place I find it awkward is at L.561: "it seems unlikely". The reason why the authors consider it "unlikely" can be found in the reply to Reviewer 3 (Comment 1), but not obvious in the revised manuscript. I understand the sentence is added in response to the comment, but I think the sentence might appear superfluous and in my opinion awkward.

If this phrase is to remain, the authors might add the reference to introduction to remind the scope of the work and/or add a comment to the effect that addition of more data with similar conditions is difficult.

Thank you for this comment. We have rephrased/expanded the sentence to *"Adding more profiles will undoubtedly lead to better comparisons between the direct microstructure observations and the indirect parameterizations, but it seems unlikely that it will change the key conclusions, as the focus of this paper is on individual differences between methods rather than the assimilation of a large quantity of microstructure profiles (see also Sec. 1)."*

L.167 "smoothest out" ?

Rephrased as "smooths out"

L.392 "de Lavergne et al. (2019, 2020)" → (de Lavergne et al, 2019, 2020)

Corrected

L.673 "(Piccolroaz et al., 2021; Ruddick., 2000)" → Piccolroaz et al. (2021) and Ruddick (2000)

Corrected

L. = Line numbers in the revised manuscript (egusphere-2025-3165-manuscript-version2.pdf)

Otherwise, the manuscript is almost ready for publication. Thank you for choosing Ocean Science.