

Regarding the revised manuscript egusphere-2025-3022 “A suite of coupled ocean-sea ice simulations examining the effect of regime shift changes in sea-ice thickness distribution on ice-ocean interaction in the Arctic Ocean” by Sumata, Granskog and Duarte.

Dear Authors, and Editors

First, I want to thank you for your careful revision of the manuscript and clear response back to us reviewers. I find that you have solidly implemented the comments by us both and provided well-motivated justifications for when keeping things 'as is' to remain at their intended scope.

The revision has strengthened the manuscript with clarified scope, intentions, outputs and material (hence the change of Scientific Significance from (Very) Good to Excellent). I particularly value the addition of supplementary material.

The only two details I would wish that you actually (briefly) include in the manuscript are the requested specifics on the mixed layer density threshold (R1 L262) and the filter type (R2 L261/265). This info was provided as replies to us but is valuable also to the readers and adds to the reproducibility/comparability aspect, since there are many ways to calculate/extract the ML and many various types of filters.

These additions are the reason for my recommendation for the manuscript to be "Accepted subject to technical corrections", rather than "as is" (judging such edits as more straightforward than the “minor revisions” options).

Congratulations on this strong piece of work. I look forward to seeing your future studies on sea-ice physical processes and biogeochemical implications.