Reviewer 1

We sincerely thank the reviewer for the positive assessment of our revised manuscript and for the helpful minor suggestions. We have carefully addressed the two comments as follows:

1) Abstract and Section 2.1
We appreciate the reviewer's suggestion.

- We have **updated the abstract** to briefly mention the limitations of both configurations in reproducing winter SST.
- In **Section 2.1**, we have restored the description indicating that the **surface layer thickness is 2 m**, which was unintentionally removed during revision.

2) Clarification of the target density specification
We thank the reviewer for pointing out this inconsistency. We have revised the text to clearly state that:

- The **target density used in this study ranges from 1010 to 1037.2479 kg/m^3 referenced at 2000 dbar**,
- The previous sentence referencing the SIGMA2 10.00–38.00 kg/m^3 range has been removed to avoid confusion.

We appreciate the reviewer's thorough reading and constructive feedback, which helped further improve the clarity of the manuscript.

Reviewer 2

We sincerely thank the reviewer for the positive assessment of our revised manuscript and for recommending it for publication. We also appreciate the reviewer's constructive suggestion regarding the figure presentation. We have addressed the comment as follows:

1) Revision of difference panels in Figures 3–11
We agree with the reviewer that the high density of contour lines made it difficult to distinguish land from the closely spaced contours in the difference panels.

- To improve visual clarity, we have removed the gray and black contour lines entirely from all difference plots.

We appreciate the reviewer's helpful feedback, which improved the readability and overall quality of the figures.