Dear Editor,

Thank you for the extensive work of the editorial office in organizing the review process, coordinating with experts, and providing feedback, as well as for the detailed suggestions on verifying the metadata of the references. In response to the manuscript entitled “A new High-Resolution daily Mean South China Sea Ocean Reanalysis dataset: SCSORA” (Manuscript Number: essd-2026-440), we have checked all references one by one against the verification report and revised each problematic entry individually. The line numbers mentioned in the following correction notes refer to the line numbers in the revised manuscript without track changes (Revised_Manuscript_without_Track_Changes.pdf). The specific corrections are as follows:

1. Reference 3 (Argo Science Team, 1998).

Response: This reference is the official design report of the International Argo Program and has no formal journal DOI (**Line 650**). We have added the official stable access URL of the report: https://argo.ucsd.edu/wp-content/uploads/sites/361/2020/05/argo-design.pdf, to ensure that the source is traceable and the link is stable and valid.

2. Reference 8 (Carnes, 2009).

Response: This reference is a technical report of the U.S. Naval Research Laboratory and has no formal DOI. We have added the official publication URL of the report (**Line 661**): https://www7320.nrlssc.navy.mil/pubs/2009/carnes-2009.pdf, providing an authoritative and stable access path.

3. Reference 10 (Chapman, 1985).

Response: In response to the issue that the original DOI could not be resolved, we have removed the invalid DOI and replaced it with the official stable full-text URL of the American Meteorological Society (AMS) journal (**Line 666**): https://journals.ametsoc.org/view/journals/phoc/15/8/1520-0485_1985_015_1060_ntocso_2_0_co_2.xml. The link is accessible, and the source fully matches the reference metadata.

4. Reference 26 (Flather, 1976).

Response: This is an older conference proceedings-type reference and has no formal DOI. We have added the stable academic database record URL for this reference (**Lines 699–700**): http://pascal-francis.inist.fr/vibad/index.php?action=getRecordDetail&idt=PASCAL7730150079.

5. Reference 66 (Paul & Mahadevan, 2025).

Response: This reference is an arXiv preprint, and we have added its standard arXiv DOI (**Line 792**): 10.48550/arXiv.2511.23460.

6. Reference 67 (Qiu et al., 2025).

Response: We have added the official publication DOI of this reference in Earth System Science Data (**Line 795**): 10.5194/essd-17-3189-2025, which is fully consistent with the official journal metadata.

In addition, we conducted a comprehensive self-check of all references in the manuscript and removed two duplicate entries: Oke et al. (2008, **Lines 780–781**) and Shchepetkin and McWilliams (2005, **Lines 813–815**).

The revised manuscript has been resubmitted, and we kindly request the editorial office to review it. Please feel free to contact us if there are any other questions.

Sincerely,

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Response to Reviewers:

Dear Reviewers,

Thank you very much for your careful review and valuable suggestions during the two rounds of review of the manuscript entitled “A new High-Resolution daily Mean South China Sea Ocean Reanalysis dataset: SCSORA” (Manuscript Number: essd-2026-440). Regarding the second-round review comments, we thank Reviewer 1 for recognizing the manuscript and recommending publication; we also thank Reviewer 2 for the four detailed comments. We have carefully studied each comment and made targeted revisions. The line numbers mentioned in the following revision notes refer to the line numbers in the revised manuscript without track changes (Revised_Manuscript_without_Track_Changes.pdf). The specific revisions are as follows:

1. (L164) "... the two products are mutually independent..." The statement that OSTIA and OISST are "mutually independent" seems too strong, as the two products may share some underlying observations. Please consider using more cautious wording.

Response: Thank you for your professional correction. We fully agree that this statement was not sufficiently rigorous. We have removed the absolute wording “mutually independent” and instead emphasized the significant differences between the two products in data sources, blending algorithms, and spatial resolution. The revised statement is as follows (**Lines 162–164**):

"Given the differences between OSTIA and OISST products in data sources, blending algorithms, and spatial resolution, OSTIA serves as a suitable reference dataset for SST accuracy assessment."

2. (L319-321) The statement regarding the reliability of SCSORA, especially "at the basin scale" seems too broad, given the limited spatial coverage of the glider observation. Please consider using more cautious wording.

Response: Thank you for your suggestion. We have revised the scope of applicability of this conclusion, explicitly limiting the reliability conclusion to the regions and periods covered by the glider observations, and no longer extrapolating beyond the basin scale. The revised statement is as follows (**Lines 318–320**):

"Overall, SCSORA shows satisfactory agreement with the UG observations, particularly in the subsurface and deeper layers, indicating that the model can reliably reproduce subsurface thermohaline structures within the regions and periods sampled by the UG. "

3. (L448-450) "... with particular strength in resolving submesoscale current variability at spatial scales of approximately 10 km .." The claim that SCSORA can effectively resolve

submesoscale variability at approximately 10-km scales seems too strong and is inconsistent with the discussion of effective resolution in L478-485. Please consider using more cautious wording.

Response: Thank you for your rigorous suggestion. We have adjusted the wording here, changing “effectively resolve” to “have the potential to capture part of the submesoscale current variability,” which echoes the later discussion that “grid resolution does not equal effective resolution and high-wavenumber signals should be interpreted with caution,” making the conclusion more rigorous. The revised statement is as follows (**Lines 447–449**):

"SCSORA thus represents ocean dynamical processes over a broader range of spatiotemporal scales, and its approximately 4-km horizontal resolution gives it the potential to capture part of the submesoscale current variability. "

In addition, we have replaced "smaller-scale" with "submesoscale" in the revised manuscript (**Line 478**) to make the terminology consistent with the rest of the text. The revised sentence now reads:

"The above spectral analysis results indicate that SCSORA holds potential for characterizing submesoscale oceanic variability."

4. Figure 12. Please check the inconsistency between the main text (surface current velocity PSD) and the figure caption (SSH PSD).

Response: Thank you for identifying this oversight. We have corrected the caption of Figure 12 to uniformly read “two-dimensional frequency–wavenumber power spectral density of surface current velocity,” which is fully consistent with the description in the main text, eliminating the inconsistency between the figure and the text (**Line 457**).

"Figure 12. Two-dimensional frequency-wavenumber power spectral density (PSD) of sea surface velocity from SCSORA (top), GLORYS (middle), and AVISO (bottom). The horizontal axis K denotes spatial wavenumber (cpkm, cycles per kilometer) and the vertical axis W denotes temporal frequency (cph, cycles per hour). The color shading indicates spectral energy density in units of $m^2/(cpkm \cdot cph)$. "