

Interactive comment on “Impact of model resolution on sea-level variability characteristics at various space and time scales: insights from four DRAKKAR global simulations and the AVISO altimeter data” by T. Penduff et al.

Anonymous Referee #2

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Review of "Impact of model resolution on sea-level variability characteristics at various space and time scales: insights from four DRAKKAR global simulations and the AVISO altimeter data", T. Penduff et al., Ocean Sci. Discuss., 6, 1513–1545, 2009, www.ocean-sci-discuss.net/6/1513/2009/.

This paper presents a systematic comparison of results from a widely-used ocean model across a range of model resolutions. It provides a valuable contribution that will interest the readership of Ocean Science. In my opinion, it will require only minor revision in order to be accepted for publication. Accordingly, I list minor points for

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consideration by the authors.

Minor Points:

- 1) Pages 1518-9: A few words could be provided comparing this forcing dataset to the commonly used CORE forcing.
- 2) Section 2.2: Some discussion of the scales that are accurately captured within Aviso, and of the limitations of the scatterometer-derived data, would be appropriate.

Subsection 2.2.2 could use a little bit of clarification:

- 3) The notation used in eqn 4 is problematic. In order to be consistent with the clearer notation used in the closely related eqn 3, I believe that the " Λ s" associated with time-averaging overbars should be replaced with " i ", the index of the cell within a particular latitudinal band denoted by Λ band.
- 4) I would prefer to see eqn 2 presented, without the mostly redundant eqn 1, but just followed immediately by the explanation that the temporal standard deviation of the Aviso data is denoted as σ^A .
- 5) I would like to see an eqn presented for $\alpha^m(\Lambda)$.
- 6) page 1521, line 22: "The 1-D and 2-D filtering techniques are described in Duchon (1979)." Would it be possible to very briefly describe the filtering technique, while still referring to the paper for detail?
- 7) page 1533, line 25: "With respect to $\sigma^m(\Lambda)$ and $C_s^m(\Lambda)$...". Here, and elsewhere throughout the paper, I would prefer to see these measures referred to by name, with the eqn given parenthetically, in order to reduce the reader's need to translate.
- 8) Captions of figs 3-5: Generally speaking, I would like to see the layout of the figure described more briefly, freeing up some space to comment more on what it is that the reader should understand from the figure.

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Very Minor Points:

Caption, fig 6:

9) Each circle concern a latitude band Λ -> Each circle corresponds to a single band of latitude Λ

10) located at abscissae... and at ordinates... -> located on the abscissa at point... and on the ordinate at...

11) page 1518, line 22: "250 unitm" – just a missing control character here?

12) page 1520, line 13: All simulation outputs are started -> All simulations are started

13) page 1523, line 15: reach their maxima -> reach high values

14) page 1533, line 17: are maximum in -> are greatest in

15) page 1533, lines 22, 23: does thus not -> thus does not

16) of the model skills -> of model skill

17) page 1534, line 9: These (beneficial) impacts of -> The beneficial impact of

Interactive comment on Ocean Sci. Discuss., 6, 1513, 2009.