

Interactive
Comment

***Interactive comment on* “Evaluation of an operational ocean model configuration at 1/12° spatial resolution for the Indonesian seas – Part 1: Ocean physics” by B. Tranchant et al.**

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General Suggestions:

(1) As suggested by the referee, bias and RMSD of temperature and salinity between observations and models have been added, see Figures 21 and 23. It is also true that biases found in the MLD could have an effect on SSS and SST, mainly in region where vertical mixing is crucial.

(2) T/S profiles and statistics (bias and RMSD) have been plotted on each side of LUZON strait as suggested by the referee.

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Specific comments: p.6616, lines 21-23 - We included two following sentences: In semi-enclosed seas, an approximate value of $1.5 \text{ cm}^2 \text{ s}^{-1}$ for eddy diffusivity has been estimated by Koch-Larrouy et al. (2007). Note that this background diffusivity is the same order of magnitude as that used by Jochum and Potemra (2008).

p.6623, lines 18-20 - The suggested paragraph has been included.

p.6623, lines 22-23 - The suggested paragraph has been included.

p.6624, lines 6-10 - We agree with the referee and we included the suggested sentence.

p.6627, lines 11-12 - For clarity, Figure 13 has been modified. The new Figure is Figure 20. Now, are only compared collocated T-S diagram models (INDO12 and PSY3) at in-situ locations. PSY3 data come from daily averages and INDO12 data come from hourly instantaneous mooring at the same time than INDOMIX moorings. It is also point out on the figure caption.

p.6628, lines 14-16 – In the parent model, a systematic salty bias (compared to WOA2013) exists in this area. That is the reason why compared to INDOMIX data, this bias still appears. It is certainly due to a wrong initialisation of the parent model that is unfortunately not constrained by data assimilation in this area because of a lack of available data.

Figures 2 and 3 – Units have been added.

Figures 5 – Caption has been changed. In fact, it is the module of the complex difference of surface tidal elevation which necessarily includes amplitude and phase. Text labels at the top of the figure have been added.

Figures 9 – Caption has been modified

Figure 13 – Table 3 has been removed and a map of profile locations has been added (see Figure 19). Figure 13 has changed, now it is Figure 20. As asked by the referee,

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bias and RMSD have been added, see Figure 21a,b,c,d,e,f. T/S diagrams have also changed. Now, collocated model variables (INDO12 and Parent model) to in-situ data are shown.

Figures 14a and 15a have changed for clarity.

Figure 14 has been modified. Now it is Figure 22 and 23. Two areas are shown, one is on the eastern side of Luzon strait and the other on the western side of Luzon strait, as suggested by the referee.

Figure 16 and 19 captions: Suggested modifications have been taken into account. Now, it is Figure 7 and 10.

Technical Comments: All suggested modifications have been taken into account.

Interactive comment on Geosci. Model Dev. Discuss., 8, 6611, 2015.

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