

Interactive comment on “An improved parameterization of tidal mixing for ocean models” by A. Schmittner and G. D. Egbert

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- This manuscript describes modifications to the St. Laurent, Simmons and Jayne, 2002: Estimating tidally driven mixing in the deep ocean., *Geophys. Res. Lett.*, 29, 2106. Although, oddly, that work is never cited in the paper. For example on the last line of page 4478 and continuing over to line 1 of page 4479, it is stated that the UVic model uses the Simmons et al. (2004) tidal mixing parameterization. This is incorrectly stated. The UVic models used the tidal mixing parameterization of St. Laurent et al (2002) as implemented by Simmons et al (2004). This should be corrected where it also occurs on line 16 of page 4481.

Thanks for pointing this out. We meant to cite this paper in the introduction but due to a typo we cited a different paper. This has been corrected. We now refer to the St.

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Laurent et al. (2002) parameterization with S02 throughout.

- The word "greater" is misspelled on line 14 of page 4481.

Corrected.

- The ETOPO20 dataset needs a reference on line 24 of page 4482.

Citation added.

- The sentence (lines 8-9 of page 4486) "This indicates that models using the JS01 are inferior to the using ER03." is an overly strong statement. It is only true for a few of the metrics you compared. There are a large number of other metrics that could have been tested...temperature, salinity, heat transport, Antarctic Circumpolar Current transport, and many, many others. The sentences needs to be rephrased to indicate that for a very metrics, the models with ER03 vs JS01 appear to work marginally better.

This has been rephrased to "The root-mean-squared-error (RMSE) indicates that experiments using ER03 are slightly better compared with JS01 based on the six indices considered. "

- Line 10, page 4489, it is actually Figure 12 that is being referred to, not Figure 11.

Corrected.

- Line 20, page 4489, "Our new parameterization..." The parameterization presented here is not "new", it is a modification to the St. Laurent et al. (2002) one.

Changed to "Our modifications to the S02 parameterization. . .".

- Line 22, which Simmons et al. (2004) reference is being referred to here, a or b?

Changed to S02.

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