

Response letter to the referee #1

Review of “An internal solitary wave forecasting model in the northern South China Sea (ISWFM-NSCS)” by Gong et al.

Reported is a three-dimensional internal solitary wave forecasting model in the northern South China Sea. The model performance was quantitatively evaluated with mooring observations. A series numerical experiments were implemented to test the choice of horizontal resolution, the minimum number of tidal constituents, as well as background stratification. The work is interesting and the results contribute to the advances of the ISWs modeling in the northern South China Sea. I would like to recommend the manuscript be accepted for publication after very minor technical corrections that are listed as follows:

Response:

We would like to thank the referee for this careful reading and valuable comments. In the revision, we have carefully considered them, and the necessary changes are provided to address them. Below, we provided point-by-point responses in blue to your comments.

In this manuscript, “three-dimensional” and “3D” are used interchangeably. Better to make them consistent throughout the text.

Response: We now mention the abbreviation of “three-dimensional” in the Introduction section, and use “3D” throughout the following text to keep the consistency.

Line 17, “precisely” should be changed to “accurately”.

Response: We now replace “precisely” with “accurately”.

Lines 59-61, “The questions that arise are whether a single tidal constituent can satisfy the reproduction of a real ISW field and how many tidal constituents are required for running an accurate 3D realistic ISW model.” I would suggest to rewrite the sentence as “The questions are whether a single tidal constituent can reproduce a real ISW field and, if not, how many tidal constituents are required for running an accurate 3D realistic ISW model.”

Response: We now revise this sentence to “The questions are whether a single tidal constituent can reproduce a real ISW field and, if not, how many tidal constituents are required for running an accurate 3D realistic ISW model.”

Lines 105-106, “The control run (500m_8HARs) runs at 1 h time interval” is confusing. Did you mean model output at one hour interval?

Response: We agree the description of sampling rate is a bit confusing and now we revise it to “The sampling rate of model outputs is 1 h interval for the entire model domain in the control run (500m_8HARs)”.

Lines 126-127, “respectively” should be added to the end of the sentences.

Response: We now add “respectively” at the end of the sentences.

Line 204, “them” should be removed from the sentence.

Response: We now remove “them” in this sentence.

Line 204, “In terms of wave propagation direction, we obtain by computing the angle ...” should be written as “We obtain wave propagation direction by computing the angle ...”

Response: We now revise this sentence to “We obtain wave propagation direction by computing the angle of baroclinic zonal and meridional components in the layer with maximum velocity”.

Line 382, “HYCOM” should be spelled out in the first time use in the paper. Also, it should be global HYCOM.

Response: We now spell out “HYCOM” as “Hybrid Coordinate Ocean Model” and add “global” in the front.

Lines 401-402, “... phenomenon, of which maximum amplitudes happen in the ocean interior” should be written as “... phenomenon, with maximum amplitudes in the ocean interior”.

Response: We now revise this sentence to “internal waves are a ubiquitous phenomenon with maximum amplitudes in the ocean interior”.

Line 406, “does” should be changed to “did”.

Response: “Does” has been replaced with “did”.