

Interactive comment on “Tidal elevation, current and energy flux in the area between the South China Sea and Java Sea” by Z. X. Wei et al.

Z. X. Wei et al.

weizx@fio.org.cn

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We thank Editor for the useful comments on the manuscript and our responses to the issues mentioned are given below.

1. This is a very good paper and should be published in Ocean Sciences.

Reply: Thanks for your positive evaluation.

2. There wasn't any description and discussion of how a current profiles were obtained from top to bottom. Wind driven influences may have contaminated the data and what about the lower frictional layer? Were these things ignored, if so it should be said. Have you assumed this is barotropic and why?

C1678

Reply: In response to your first concern we have added “The vertical bin size of ADCP measurements are 1m for A1 and 2m for other stations.” to the text to describe vertical sampling of the current profiles, and added a new column to Table 1 to show the bin size at each observational station. In response to your second concern the vertical distributions of tidal current ellipses of constituents K1, O1, Q1, M2, S2, and N2 have been added to Section 3.2, which are shown in supplement. We can see that there are little vertical changes in the ellipses for all constituents at all stations, the top layer (0.1H) was ignored, where the currents suffer strong disturbances due to winds, at some stations for some constituents. This vertical uniformity indicates that the tidal currents are basically of barotropic nature at all stations. Thus, we only use vertically averaged currents to reveal the characteristics of tidal currents in this study.

3. Section 3.4 why have you done this analysis in this section if you are not going to show the co-tidal charts? If it is not relevant why do it? You could put a selection of the co-tidal charts in an appendix. I certainly would have liked to see them.

Reply: In response to this comment the co-tidal charts based on DTU10 model have been added to Appendix (for details see supplement). For K1, the tidal waves from the SCS and the JS meet in the study area. For O1, the tidal wave propagates from the SCS to the JS. For M2, the tidal wave propagates clockwise around the Belitung Island. For S2, the tidal wave also propagates clockwise around the Belitung Island, and one clockwise amphidromic system exists near Station A1. K1 has the largest amplitude (exceeding 0.6 m near the Bangka Island), and then the next is O1, the amplitudes of M2 and S2 are significantly smaller.

4. Specific Comments P3 line 9 add “an” before “inversion”

Reply: Added as suggested.

P4 line 7-8, even the satellite....into the models. Phrase doesn't make sense. Suggest... even when the satellite altimeter data has been assimilated into models.

C1679

Reply: Revised as suggested.

P4 line 17 Remove inverted commas from the word “is” in text.

Reply: Revised as suggested.

P4 line 19 Prefix last phrase by “Finally a summary. . .

Reply: Added as suggested.

P12 Line 15 Please use “anti-nodal” not “loop” at the above locations in the script. It is not used in the scientific community in the U.K.

Reply: The usage of “loop” is common in the US (see NOAA’s “Tide and Current Glossary”, which is available in NOAA’s website, initially written by Paul Schureman). However, it is truly more appropriate to use “anti-nodal” instead of “loop” in our paper which is submitted to Ocean Science, an European journal. Thus we have changed “loop” to “anti-nodal” at all places in the revised manuscript.

Please also note the supplement to this comment:

<http://www.ocean-sci-discuss.net/12/C1678/2016/osd-12-C1678-2016-supplement.pdf>

Interactive comment on Ocean Sci. Discuss., 12, 2831, 2015.