

Interactive comment on “Comparison and validation of global and regional ocean forecasting systems in the South China Sea” by X. Zhu et al.

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1. General comments

This paper assessed and validated the performance of two operational ocean forecasting systems, the global Mercator Ocean operational forecast system developed in France and the regional South China Sea operational forecasting system developed in the National Marine Environmental Forecasting Center in China by comparing the model results from the two systems with a comprehensive set of observations from satellite and in-situ measurements. The recommendations were proposed for future improvement of both systems based on comparison results. The methodology and matrix of evaluation and validation are reasonable, the observations are well quality controlled. My detail edits were added in the manuscript with review “track changes”

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and sent the revised Microsoft word document back to the authors. I would recommend accept this paper for publication after further editing of grammars.

We are really appreciate the reviewer for the constructive comments and detail edits of grammars. We answered all the comments and revised the manuscript to significantly improve the manuscript in the revision as follow:

(1) Line 260: What are three results referring? Results from MO and SCISOFS, what is the third? (geostrophic flow?)

The three results refer the observations of AVISO, the model results from MO and SCISOFS. We have changed the text at line 259 of the revised manuscript.

(2) Line 332: It is not clear which layer, “Fig.7 for the layer above 300 m and Fig.8 for the layer of 300-1200m”

Figure 7 shows the vertical distribution of TS at the layer of depth shallower than 300 m, Fig. 8 shows the vertical distribution of TS at the layer of depth from 300 m to 1200 m. We have changed the text at line 331 of the revised manuscript.

(3) Line 399: What “A number multitude” is this?

Sorry, there is a typo over there. We have removed the word “multitude” at line 400 of the revised manuscript.

(4) Line 437: What does “several branches” refer?

It means the main branches of the SCS ocean circulations. We have changed the text at line 438 of the revised manuscript.

(5) Line 455: It is not clear for “It indicates that the good relativity between MO, SCISOFS and in-situ, the relativity of temperature is better agreement with in-situ than those of salinity for both MO and SCISOFS, and SCISOFS is better agreement with in-situ than MO for salinity.

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We have pointed out that “the correlation coefficients are 0.987 and 0.982 for temperature, 0.717 and 0.897 for salinity, between model results from MO and SCSOFS and in-situ data, over the 95% significance level, respectively”. The correlation coefficients are over 0.7, they can indicate the good relativity between the model results and in-situ observations. The correlation coefficients of temperature, 0.987 and 0.982 between model results and in-situ observations, are larger than the correlation coefficients of salinity, 0.717 and 0.897. It indicates that the “the relativity of temperature is better agreement with in-situ than those of salinity for both MO and SCSOFS”. The correlation coefficient (0.897) of salinity between SCSOFS and the in-situ observations is larger than the one (0.717) between MO and the in-situ observations. It indicates that “the result from SCSOFS is better agreement with in-situ data than MO for salinity”.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-60/nhess-2016-60-AC2-supplement.pdf>

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