

Responses to Reviewer's Comments

We appreciate very much the constructive comments and suggestions of the reviewer, and have revised the manuscript accordingly. In the following, we explain our response to each comment of the reviewer. All revisions are highlighted with red color in the marked manuscript.

General Comments: This manuscript evaluates the performance of a newly proposed formula which considers the wave breaking effect/air-flow separation effect in a more realistic way. The formula is added in the widely used ocean wave model WaveWatch III and verified in both deep and shallow waters under controlled normal conditions and hurricane conditions. The improved formula is proved to excel the existing formula previously embedded in the ocean wave model, therefore representing a significant contribution to the ocean wave modeling community.

Response:

First, we would like to express our sincere thanks to the reviewer for his/her positive comments on the contribution of this study.

Comment 1: In section 3, when only the inter-formula comparison is involved, more reasoning is expected to convince readers that the proposed formula performs better than other formulae. Explanations presented in line 340-342 should be given more details.

Response:

Thanks for the comment. More detailed explanations are added in the revised manuscript [Pages 15-16, Lines 348-352].

Comment 2: In section 4.3, more information should be given to explain why all the formulae perform worse for the mean wave period T_{02} ? Figure 12 deserves several sentences of description.

Response:

The possible reason for the underestimation of T02 is added in the revised manuscript [Page 22, Lines 488-491]. Since the simulation results for Hurricane Ivan and Hurricane Katrina show common characters, descriptions of Figs. 11 and 12 are blended [Page 22, Lines 476-488].

Comment 3: Section 4.4, line 510-520, the comparison among different models is too brief. The readers will appreciate if the authors could provide more insight about the performance of others models and why.

Response:

Thanks for the comment. More explanations on the merits of ST-XY as compared to other source term packages are added in the revised manuscript [Page 31, Lines 587-598; Pages 31-32, Lines 610-623; Page 32, Lines 631-636]. Comparisons of the mean absolute error (MAE) and the root mean square error (RMSE) for different models are also presented [Page 23, Lines 492-495; Page 25, Lines 509-511].

Minor Comment 1: Line 38, Line 40: citations should be added

Response:

The citations are added accordingly. [Page 3, Lines 41-42]

Minor Comment 2: Figure 10, move the color-bar of the bathymetry outside to the right side of the figure, add the explanation of purple line? to the legend.

Response:

The figure is revised accordingly. [Page 22, Line 471]