

Authors' response

We thank Bo Hong for the harsh comments and most suggestions which improved the manuscript.

1. The description of the methods and its applicability are not clear. The ms need to be reorganized to clarify the methodology and its related physical meaning in the storm surge study. This will lead to a better oceanographic view with the statistic method as a tool.

This is a good suggestion. I will describe the processes more compactly. This work is doing, but it can't be finished before deadline of discussion.

2. There are only two tidal gauge stations being used in this study. The storm surge usually propagate along the coastline as the typhoon approaching. The comparison is made between simulation and observation at station Beihai in Fig. 5. Which station is used while doing the simulation? Only station Dongfang or both stations?

For Beibu Gulf, the typhoon usually get to the Beihai from Hailan island, this is a reason why choose the Beibu gulf as the example.

Fig 5 shows the simulation under $N=10000$ and $N=100000$ respectively. Two stations is used when doing the simulation.

3. L137: 'The duration of a typhoon surge in the Beibu Gulf is approximately 100 h'. How to get this specific value of '100 h'? The authors should at least explained this duration hours are estimated based on how many typhoon events in this area. Will this duration hours affect the final conclusion if someone else get different duration hours?

In the extreme analysis, the time window for determining block. Actually, this is a difficulties. In lots of papers about extreme analysis (Coles and Tawn, 1994), the time windows weren't determined by factual arguments. So we choosed the time windows by simply analysis in the paper.

(Coles, S. G. and Tawn, J. A.: Statistical methods for multivariate extremes: an application to structural design, J. Roy. Stat. Soc. C-App., 43, 1-48, 1994.)

4. It will be great if the authors can choose a specific period to compare the predicted and observed CP. For example, using the data from 1975 to 1995 to do the statistical analyses, and comparing it with the observed results from 1996-1997. Another question is if the data length can impact the simulation result? This should be indicated in the ms because data samples can be vary at different area.

Yes, data length can impact the simulation. Comparing the result in a specific period is a good method, which can do better for validating the simulation way. We will try to do this.

5. Wording. The ms need to be edited carefully. There are several obviously misspelled and improperly used words in the ms.

Thank you. We will continue polishing the ms. The work is doing always.