

Interactive comment on “Risk Zoning of Typhoon Disasters in Zhejiang Province, China” by Yi Lu et al.

Yi Lu et al.

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Dear Editor and the reviewer,

We do appreciate your constructive, thoughtful, careful, and helpful comments and suggestions. After careful discussions, calculations, and analyses, we finished the preparation of responses to you. The responses are structured in 3 sequence: (1) comments from Referees, (2) author's response, (3) author's changes in manuscript. If there are any new comments or suggestions, please let us know.

Best Regards

Yi Lu and the coauthors

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Response to Short Comments

1. Please use word “Tropical Cycle” instead of Typhoon.

Reply: Thanks for your comment. Considering to be consistent with some published researches (Chen, 2007; Chen et al., 2011; Ding et al., 2002; Niu et al., 2011), we tend to introduce a definition of typhoon rather than change the name. At the beginning of “Introduction”, “Tropical cyclones cause” has been changed into “Typhoon, which means tropical cyclone in this paper, often causes”.

2. In your paper, you mentioned many times risk. In my knowledge, risk is future probability of hazard events. However, your paper studied the disaster events happened during 2004-2012. In this period, I would not like to mention risk. In your paper, you can only name disaster probability.

Reply: We do appreciate the comment. We agree and understand that risk is future probability of hazard events. However, suppose future probability is the same as historical probability for a specific period, we can understand risk by learning from past events. We tend to make a specific statement about this rather to change “risk” into “disaster probability”.

According to the comments, modifications include:

(1)A sentence “As risk is future probability of hazard events, when suppose future probability is the same as historical probability for a specific period, we can understand risk by learning from past events.” is added and becomes the first sentence of “Abstract”.

(2)A sentence “For risk analyses of typhoon precipitation and typhoon wind (please see detail in sections 3.1 and 3.2), suppose future probability is the same as historical probability, we then select the period of 1980 – 2014.” is added as the first sentence of the third paragraph in section 2.1.1.

3. Wind and precipitation data. Please clarify wind and precipitation data during TC events or not.

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Reply: Thanks for your suggestion. As described in 3.1.1, the original daily precipitation data and maximum wind speed in this paper are from the National Meteorological Information Center. Then we distinguish typhoon precipitation and winds by using the OSAT method (3.2.1). Therefore, all typhoon wind and rain mentioned later in this paper were during TC events.

To clarify wind and precipitation data, we have added following sentences at the end of section 3.2.1. "With the application of the OSAT method, daily precipitation and wind data over the mainland of China during 1980 to 2014 are used for identifying typhoon precipitation and wind data."

4. The figure should be redrawn as figures have no latitude and longitude.

Reply: Thanks for your suggestion. Figures have been modified according to the suggestion.

5. Latest references should be cited.

Reply: Thanks for your suggestion. According to the suggestion, we have added some latest references in "1 Introduction " and "Reference". At the end of line 44, we add following sentences. "Recently, some research built quantitative assessment in some provinces and carried out preliminary studies on pre-evaluating typhoon disasters (Huang and Wang, 2015; Yin and Li, 2017)." At the end of line 56, we add following sentences. "Xu et al. (2015) comprehensively assessed the impact of typhoons across China using the geographical information system. The future direction of tropical cyclone risk management is quantitative risk models (Chen et al., 2017)."

Added references:

Chen, W. F., Duan, Y. H., and Lu, Y.: Review on Tropical Cyclone Risk Assessment, *Journal of Catastrophology*, 32(4), 2017. (in Chinese)

Huang, W. K. and Wang, J. J.: Typhoon damage assessment model and analysis in Taiwan, *Natural Hazards*, 79(1), 497-510, 2015.

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Xu, X., Sun, D., and Guo, T.: A systemic analysis of typhoon risk across china, *Natural Hazards*, 77(1), 461-477, 2015.

Yin, Y. Z. and Li, H. L.: Preliminary study on pre-evaluation method of typhoon disaster in China, *Meteorological Monthly*, 43(6):716-723, 2017. (in Chinese)

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-14/nhess-2018-14-AC1-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-14>, 2018.