Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
https://doi.org/10.5194/nhess-2021-263-RC2, 2021
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Comment on nhess-2021-263

Anonymous Referee #2

Referee comment on "Dynamic risk assessment of compound hazards based on VFS–IEM–IDM: a case study of typhoon–rainstorm hazards in Shenzhen, China" by Wenwu Gong et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-263-RC2, 2021

In this paper, the authors propose a risk assessment model called VFS-IEM-IDM based on the variable fuzzy set and information diffusion method. And to examine the efficacy of VFS-IEM-IDM, a case study of typhoon rainstorm hazards that occurred in Shenzhen, China is presented. The method of the article is reasonable, but there are several problems, which need to be further improved. Therefore, a major revision is recommended.

Major Comments:

- Lines 74-81, if I understand it correctly based on the description, the main contribution of the paper is reflected in the first point, and the others are the improvement and verification of this method. Therefore, integrating this part with the last paragraph of introduction is recommended.
- At the end of the introduction, it is recommended to clearly point out the innovations of the paper and the main contributions of the authors. Technological innovation?
- Table 1. Classification standards of Typhoon-Rainstorm hazards. What is the reference for this standard? The precipitation in this table is the daily maximum precipitation or total precipitation? The strong wind here represents the maximum wind speed or extreme wind speed? Please define and explain them in detail.
- The monthly differences of different types of disasters may be closely related to the frequency of typhoons and the intensity of typhoons. What are the considerations in this paper?
- The data in the “Table A1”is the precipitation and strong wind data during the period affected by the typhoon rainstorms in Shenzhen, China. The source is the website of Shenzhen Meteorological Bureau. But there are big problems with the data in the table.

(1) According to the website guidelines, I checked the original data in 2017 and 2019, and

found that the data given in the MP column in 2017 and 2018 are the maximum daily rainfall. However, the data given in the MP column in 2019 is the total rainfall. These two kinds of data are inconsistent.

(2) Similarly, I checked the wind data in 2017 and 2019, and found that SWI should represent extreme wind speeds. First, the English description needs to be revised. Second, compared with the original data, there are several wind speed errors. Please check carefully, because it is the basic data for this research.

(3) The Time column of this table may misleading the readers. It is recommended to give it according to the typhoon number, impact time, maximum daily rainfall / total rainfall, extreme wind speed, etc.

Minor comments:

- Line 101, please provide references as evidence.
- Line 194, please provide references or related websites.
- The limitations of this study and future plans are suggested to be addedin the conclusion.