

Journal NHESS Referee Report for “Risk Zoning of Typhoon Disasters in Zhejiang Province, China” by Yi Lu et al.

General Comments:

1. Manuscript required a lot of editing for proper English language usage. Some of this reviewer’s recommended changes may have changed the intent of the authors. If that is the case, then the sentence or paragraph should be rewritten.
2. The study mentions storm surge as one of the three factors affecting “typhoon” disasters, yet there is no assessment of the effects of storm surge. Storm surge kills many more people than wind. If wind intensity is used as a proxy for storm surge, that should be indicated. Tropical cyclone size is an important consideration for storm surge and is sometimes more important than intensity. This should be mentioned as a limitation of the study.
3. The first line of the Introduction equates “typhoon” to “tropical cyclone”. The term “tropical cyclone” generally includes tropical depressions, tropical storms, and typhoons. This should be clarified at the beginning.
4. How do you define a disaster? What are the criteria?
5. For consistency, use either “indices” or “indexes”.

Specific Comments:

1. Abstract:

- a. Lines 463-464: Doesn’t make sense: Do you mean “Assuming that risk signifies probability of hazard events and that future probability is the same as historical probability for a specific period, we can understand risk by learning from past events.” If not, please rewrite the sentence.
- b. Line 465: “...over mainland China during 1980-2014 and disaster and ...”
- c. Line 470: “The above analyses...”
- d. Line 474: Locate Hangzhou Bay on your map.
- e. Lines 475-477: Move this sentence to the end of the paragraph (after line 482).

2. Introduction:

- a. Lines 486-487: See Item 3 under General Comments.
- b. Line 490: Delete “the”.
- c. Line 497: Delete “had”.

d. Line 504: I believe that this reference is for R. A. Pielke, Jr. (not his father Sr.). Check this out here and at lines 857-860 in the reference section.

e. Lines 521: Consider making two separate sentences: "...disaster loses. Few studies..."

3. Data and Methods:

a. Line 531: Do you mean "north of" instead of "south of"?

b. Line 534 and Figure 1: Identify Hangzhou Bay on the map and add to Legend. The legend is not as clear as stating "(in red)" after 'major cities' and add "in provinces (in black)". Also, does the scale need to be in kilometers as well as in miles?

c. Line 540: "...from the National..."

d. Line 544: "...from 2004 to 2012. So when calculating the intensity index of factors causing typhoon disasters, the time..."

e. Lines 547-549: Do you mean: "... (see details in section 3.1 and 3.2), we assume that future probability is the same..."? Otherwise, please rewrite.

f. Line 551: "...period for both. In addition, the Objective Synoptic Analysis Technique (OSAT) method..."

g. Line 552: "...details..."

h. Line 559: "...being 17 at XXXX"; add either Wenzhou or Taizhou. Also, see General comments Item 4.

i. Where is "Quzhou"; indicate on the map.

j. Figure 2, line 566: See comment in General Comments Line 4.

k. Line 572: "...structural analysis of a precipitation..."

l. Line 584: "...combinations..."

m. Line 595: "...calculating the intensity..."

n. Line 597: "...calculating the typhoon..."

o. Lines 592-599: Reference "MIN-MAX standardization" and "Z-score standardization" techniques' Explain rationale for selecting the Z-score technique as you did for the MAX-MIN technique.

p. Lines 607-608: Consider: "Based on various SoVIs derived for disaster social vulnerability in America, Chen et al. (2014) selected 29 variables as proxies..."

q. Line 609: Consider: "... We then use these vulnerability indexes to calculate the population..."

4. Typhoon Disaster Losses and Factors:

- a. Page 19: Discuss Figure 3c and 3d in the text. Do not need the term “unit” in the caption.
- b. Line 630: Locate “Quzhou city” on the map.
- c. Line 632: “...typhoon disasters, “typhoon rainstorm” means...and “torrential rainstorm” means...”
- d. Lines 652-661: I assume that “grades” pertains to some kind of typhoon wind-damage scale. Is that correct. In any event, you need to define wind values for Grades 6, 8, 10, and 12.
- e. Line 661: “...and are only...”
- f. Line 663: Do you mean: “...with those with a high risk of typhoon...”
- g. Line 667: Rewrite: “...typhoon winds of (a) grade 6 or above, (b) grade 8 or above, (c) grade 10 or above, and (d) grade 12 or above.”

5. Risk Assessment and Regionalization of Typhoon Disasters

- a. Line 676: Are factors and hazards used interchangeably? Storm surge is mentioned again as a “main factor”, yet there is not storm surge losses or assessments in then study.
- b. Line 680: “...includes...”
- c. Table 1, line 690, first row of Table: Spelling/typo: “Disasters”
- d. Lines 699-700: “...and Ningbo cities are identified, which is consistent with the nresults of Chen et al. (2011)....”
- e. Line 708, Table 2: Define how “primary”, “secondary’ and “tertiary” industries differ.
- f. Lines 744 and 766, Figures 10 and 11: Why is the island northeast of Ningbo city of “low risk”, while Ningbo is medium to high risk?
- g. Lines 777-778: “...and a better educated population.”
- h. Line 787: “...further study....”

6 References:

- a. Lines 798, 846, and 888: Capitalize: “China”.
- b. Line 859: Capitalize “United States”

c. Lines 857-860 Check Pielke Jr vice Pielke (the father).