

Nat. Hazards Earth Syst. Sci. Discuss., author comment AC3
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Reply on RC3

Wei Li et al.

Author comment on "Spatial Distribution of Vulnerability to Extreme Flood: in provincial scale of China" by Wei Li et al., Nat. Hazards Earth Syst. Sci. Discuss.,
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The authors used the Cloud-improved Entropy Method and the Fuzzy Variable Theory to calculate the vulnerability of Chinese provinces to extreme floods. The trend and law of vulnerability distribution are analyzed, which provides a reference for regional risk management. This manuscript is very interesting and valuable. I do not have strong suggestions, only the following small suggestions.

(1) Add relevant contents of index SI and PI in Table 1.

response:

According to your comment, the index SI and PI have been added in Table 1.

(2) In section 2.1, it is written that the subjectivity and objectivity of weights are considered. Where are the subjectivity and objectivity embodied respectively?

response:

Considering the expectation and entropy of the Cloud Model, the subjective judgment of experts is treated by the Cloud Model as a key representative parameter representing uncertainty, which reflects subjectivity. Entropy weight Method has the characteristics of strong objectivity. It reflects objectivity by using entropy weight method to deal with the differences between indicators.

(3) In section 2.2.1, RP is defined as the population at risk. In fact, it is more appropriate to call it population density.

response:

According to your comment, the P_D (population density) has been substituted for R_p (risk population).

(4) The method proposed in this study is to conduct flood vulnerability research and assessment on a provincial basis. Compared with the research on City, county and district scale, does it have more advantages in some aspects?

response:

We believe that the study of each scale has its advantages and necessity. The distribution of population, economy and natural environment among different provinces in China has strong regional heterogeneity. Carrying out provincial-level research can provide a research basis for the overall risk management of the country, which cannot be macro grasped by other scales.

(5) The severity of disasters caused by floods is largely related to the intensity of floods. Are the results of this study applicable to flood analysis on any scale? When the flood intensity is different, how does it affect the final evaluation result?

response:

On the one hand, the severity of a regional disaster is related to the intensity of floods, on the other hand, it is related to its ability to resist floods, that is, the vulnerability mentioned in this paper. Therefore, the vulnerability assessment results are not affected by the flood intensity, and can be applied to extreme floods of any scale.