Editor's or Referees 's Comments

1. General comments

The paper "GIS-models with fuzzy logic for Susceptibility Maps of debris flow using multiple types of parameters: A Case Study in Pinggu District of Beijing, China" presents a quantitative susceptibility assessment model for debris flow, which was established in the Pinggu District of Beijing. The authors claim that the method and the resulting susceptibility map are particularly helpful for decision makers in dealing with regional-scale land use planning and debris flow hazard mitigation in data scarce mountainous areas.

I agree with the authors, that such a simple but sound and sufficiently accurate method is helpful in practical terms. Still, there are aspects which need to be improved to make this manuscript interesting for the international scientific community.

Response: Thank you very much for your valuable and constructive comments on this manuscript. We have carefully studied your comments. Your summary of our article is very accurate and your comments are very helpful for us to improve the manuscript. In the following, we will reply to explain the comments one by one. Please see the specific responses below for more details.

2. Specific comments

Comment 1: (a) NOVELTY OF YOUR STUDY. Your presented model established in the Pinggu District of Beijing is an interesting case study, but you do not sufficiently tell us what is novel. This needs to be done both at the beginning so we understand, but also in discussion, telling us 'why should someone outside of your study area be interested in the results'. If you were to explain the results of your case study to someone in another country, what would they gain from your case study? Do they learn from your methodology and what you encountered when applying it? What is novel and what might they learn?

Response: Thank you very much for your valuable and constructive comments on this manuscript. Your comments are very helpful for us to improve the manuscript. We have revised our manuscript to complement our novelty in the section *Abstract* (line 27-30) *and Conclusion* (line 370-374).

Comment 2: (b) DECISION MAKING UNDER UNCERTAINTY. The accuracy of your models are assessed in detail, but what does this mean for decision makers. Please elaborate more about communicating uncertainty, how can decision makers deal with different levels of uncertainty and how can quantitative information about uncertainty be used in decision making

34　processes.

35　*Response:* Thank you for your professional comments. We have revised the original manuscript in
36　the section ***Results and Discussion*** (line 351-357) as follows:

37　　　Finally, we should consider decision making under uncertainty, because the debris flow
38　phenomenon is extremely complex. The classification of geologists (high, moderate and low) is
39　ambiguous for decision makers. It is more beneficial for them to use mathematically rigorous
40　definitions. Considering that geological conditions tend to vary greatly from region to region, it is
41　not appropriate to define a fixed limit. the Jenks method (chosen in this paper) can be used to
42　classify sensitivity maps according to the characteristics of the data itself. We can also further
43　process the data according to the needs of decision makers, such as identifying 10% of the
44　watersheds in the entire region as very high risk. However, the applicability of the model to
45　extreme rainfall and seismic conditions is not considered.

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47　　　***Comment 3***: (c) ENGLISH. Although your manuscript will undergo a copy editing at the
48　final stage, there are still sentences in your manuscript which one cannot follow due to the issues
49　of English. Further improvement of your English text is necessary.

50　*Response:* Thank you for your professional comments. We have read our manuscript carefully
51　again and revised the language. We believe the new revision is more suitable to read and
52　understand.

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54　　　***Comment 4***: (d) CONCLUSION. Please remove the parts which are just summarising your
55　results from the conclusion. This conclusion part of the paper should be as concise as possible.

56　*Response:* Thank you for your professional comments. We have revised the original manuscript in
57　the section ***Conclusion*** and deleted some duplicate content.

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59　　　Thank you for your professional comments. We have tried our best to improve the
60　manuscript and make changes in the manuscript. We appreciate for Editors/Reviewer's warm
61　work earnestly, and hope that the revision will meet with approval. Once again, thank you very
62　much for your comments and suggestions! Please feel free to contact me, if any further changes
63　are required. We look forward to hearing from you.

64　Yours sincerely,

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