

**Dear Editors and Reviewers,**

We sincerely appreciate your constructive feedback on our manuscript entitled "**Assessment of the vulnerability of buildings destroyed during postfire debris flow events in Kule village, Yajiang County, China**" (Manuscript ID: egusphere-2025-772). Thank you for your recognition of our work and your valuable suggestions for its improvement. We have carefully addressed all comments and revised the manuscript accordingly. Should further suggestions arise, we remain fully prepared to incorporate them. Our primary task is to carefully revise to meet the standards of the journal, and we hope this research merits your consideration for publication. Once again, we extend our deepest gratitude for your insightful review and endorsement.

Our point-by-point responses and corresponding revisions are detailed below:

Reviewer	Comments	Response
1	This is an interesting and valuable paper on debris flow disaster mitigation in mountainous regions. It contributes meaningfully to enhancing disaster prevention and mitigation capabilities in these areas. The study offers important insights into advancing post-fire debris flow assessments, refining vulnerability models, and guiding emergency evacuation strategies. I sincerely appreciate the authors for sharing such inspiring and impactful work. Overall, the work is quite detailed, but it needs to improve the conciseness and logic of its expression, the following is several comments and suggestions that may help improve the manuscript.	<p>Dear Reviewer,</p> <p>Thank you sincerely for your exceptionally generous and insightful review of our manuscript. We are deeply honored by your praise and positive comments, which have greatly encouraged our team.</p> <p><b>1. Regarding your affirmation of our work:</b> We are truly honored and grateful that you found our study "interesting and valuable" for advancing debris flow disaster mitigation in mountainous regions. Your recognition that it meaningfully contributes to enhancing disaster prevention capabilities and offers important insights into post-fire debris flow assessments, vulnerability modeling, and emergency evacuation strategies is incredibly motivating. We especially appreciate your kind acknowledgment of the study's impact and detailed nature. Knowing that</p>

		<p>our research resonates with experts like you, whose perspectives are vital to the field, is immensely rewarding.</p> <p><b>2. Regarding your praise for the discussion and emergency responses:</b> We greatly appreciate your recognition and high praise of our discussion section and the proposed emergency responses. We fully agree with your assessment that promoting this work as a reference for future research is worthwhile, and we are pleased that you see its potential value for local residents.</p> <p><b>3. Regarding your constructive suggestions:</b> We sincerely appreciate your insightful comments and constructive suggestions for improving the manuscript. Following your guidance, we have carefully revised and supplemented the relevant sections. Our specific responses and modifications are detailed below.</p> <p><b>4. Final thanks:</b> Thank you once again for your valuable suggestions and recognition. We are deeply grateful for your encouraging feedback and actionable advice, which have significantly strengthened our study. Should any omissions remain in our revisions, we would welcome your further corrections. Please accept our profound gratitude for your mentorship throughout this revision process.</p>
2	<p><b>Abstract</b></p> <p>1. Lines 21-22, the background and research questions are too disconnected, lacking a summary of</p>	<p>Thank you for your valuable suggestion. We will improve the expression of the abstract section, and provide a more comprehensive summary of the current research status.</p>

	<p>the current state of research within a broader context, which would help highlight the existing research gaps.</p> <p>2. Authors emphasize using the quantitative approach, but the results did not show any number or quantitative result. Please give the quantitative description.</p> <p>3. In the abstract, authors should highlight the significance of this research.</p>	<p>Thank you for your valuable suggestion. The original abstract was intended to provide a condensed perspective on our proposed vulnerability assessment framework, with specific quantitative figures described in the Results and Discussion section. We will modify and supplement some quantitative numbers in the abstract according to your suggestions. Thank you again for your valuable suggestion.</p> <p>Thank you for your valuable suggestion. We will continue to improve the abstract section and explain the significance of the research: “The proposed physical vulnerability model can be used to evaluate the structural resistance of buildings to debris flows in wildfire-affected areas, thus providing a systematic foundation for formulating risk management and mitigation strategies.” We will further highlight this expression more clearly. Thank you again for your valuable comments and assistance.</p>
3	<p><b>Introduction</b></p> <p>1. Lines 42-66, Shorten the introduction to highlight the current status of the research in this paper and the problems that need to be solved. Directly point out why the debris flow disasters after wildfires are worthy of being focused on and then the vulnerability is significant...</p>	<p>Thank you for your valuable suggestion. We will continue to improve the introduction section. The importance of post fire debris flow disasters will be advanced before vulnerability analysis according to your suggestion.</p> <p>Thank you again for your careful guidance and assistance in improving our paper.</p>

4	2. Line 57: Suggest changing "continuous curve" to "monotonically increasing curve".	Thank you for your valuable suggestion. We will revise this expression to make it clearer, and change it to "monotonically increasing curve".
5	3. Line 75, means "previous study"?	Thank you for your valuable suggestion. This means previous study.
6	4. Lines 77-98, please use the logic sentences to connect your reviewing work, don't list the researchers one-by-one. And you should finally conclude why you choose FLO-2D to simulate.	Thank you for your careful guidance and suggestions. According to your suggestion, we will use logical connectors to connect previous research work, and finally summarize the reasons for our selection. Thank you again for your suggestions on enhancing the expression of our paragraphs.
7	5. Line 88: It is suggested to clarify that the "relative intensity" here refers to "relative burial height". This can be consistent with the article.	Thank you for your valuable suggestion. The term used in Zhang et al. (2018)'s research is "relative intensity", but in order to be consistent with the entire text, we will clarify that relative strength here refers to "relative burial height". Thank you again for your careful suggestion.
8	6. Lines 137-144: This paragraph in the introduction should not be treated as a separate paragraph and should be added to the end of the previous paragraph as a follow-up explanation. It is recommended to adjust it.	We greatly appreciate your valuable advice and professional guidance. We will adjust the position of this paragraph, not as an independent paragraph, but as a continuation of the previous paragraph's expression. Thank you again for your valuable help in adjusting.
9	7. Line 138: Suggest changing "thereby burning" to ", burning".	Thank you for your careful suggestion. We will modify it to "burning" according to your suggestion.
10	<b>Study area</b> 1. Authors should pay attention to the paper framework: introduction, methods and materials, results, discussion, conclusion. So, study area should be	Thank you for your valuable suggestion, and we also fully agree with your general framework for the chapter structure of the paper. Here, we referred to the article structure of similar regional studies (Wei et al., 2024; Xu et al., 2024; McGuire et al., 2024) in the journal in the past. In

	<p>in the section of Methods and materials. And I suggest combine study area and field investigation section.</p>	<p>these papers, they all treated the research area as a separate section for detailed background introduction. Thank you again for your valuable advice and guidance.</p> <p>References:</p> <p>Wei, L., Hu, K., Liu, S., Ning, L., Zhang, X., Zhang, Q., and Rahim, Md. A.: The vulnerability of buildings to a large-scale debris flow and outburst flood hazard cascade that occurred on 30 August 2020 in Ganluo, southwest China, Nat. Hazards Earth Syst. Sci., 24, 4179–4197, <a href="https://doi.org/10.5194/nhess-24-4179-2024">https://doi.org/10.5194/nhess-24-4179-2024</a>, 2024.</p> <p>Xu, J., Takahashi, M., and Li, W.: Identifying vulnerable populations in urban society: a case study in a flood-prone district of Wuhan, China, Nat. Hazards Earth Syst. Sci., 24, 179–197, <a href="https://doi.org/10.5194/nhess-24-179-2024">https://doi.org/10.5194/nhess-24-179-2024</a>, 2024.</p> <p>McGuire, L. A., Rengers, F. K., Youberg, A. M., Gorr, A. N., Hoch, O. J., Beers, R., and Porter, R.: Characteristics of debris-flow-prone watersheds and debris-flow-triggering rainstorms following the Tadpole Fire, New Mexico, USA, Nat. Hazards Earth Syst. Sci., 24, 1357–1379, <a href="https://doi.org/10.5194/nhess-24-1357-2024">https://doi.org/10.5194/nhess-24-1357-2024</a>, 2024.</p>
11	<p>2. Line 191, please provide the right information of China map, change it.</p>	<p>Thank you for your valuable suggestion. We have provided the correct Chinese map based on the publication of the Ministry of Natural Resources, and the approval number (GS (2023) 2767) has been indicated</p>

		on the map. Thank you again for your advice and help.
12	3. Line 269, as for the 2.3 Debris flow peak discharge calculation, please give the main formula and list the derivation process to the Supplementary file.	Thank you for your valuable suggestion. We will keep the main calculation formulas in the main text, and the detailed calculation process will be included in the appendix. Thank you again for your careful help.
13	4. Line 213 (Fig 3): Capitalize "Flo-2D" consistently as "FLO-2D" in text within the figure.	Thank you for your careful inspection and valuable feedback. We will correct it to capital letters.
14	5. Lines 240-242: I suggest changing the expression of slope here. Generally, slope is described as steep or gentle. Suggest replacing “high” and “lower” with “steeper” and “gentler”.	We greatly appreciate your professional advice and guidance, which has made our expression clearer and more accurate. We will describe this slope as steep and gentle.
15	6. Line 326: Please clearly define $n$ as Manning's coefficient and use the symbol " $n$ " to express it uniformly in Eq. 7. 7. Line 326: Similarly, please clearly define $K$ in Eq.	Thank you very much for your careful inspection and professional suggestions. Following your suggestion, we will explain symbol " $n$ " and " $K$ " in the formula.
16	8. Line 399: Suggest changing 'power law' to 'power-law'.	Thank you for your valuable suggestion, which has made our word expression more accurate. We will use the terminology 'power-law' you suggested.
17	9. Line 405: Please define " $V$ " explicitly in Eq. 15 is "vulnerability value (0-1)".	Thank you for your careful suggestion. We have added the definition of $V$ in the revised manuscript according to your suggestion.

18	<b>Results</b> 1. Line 426: Please add the annotation "in G1 gully" to the title of Figure 7.	Thank you for your careful guidance to make our figure titles clearer. We will add this detail "in G1 gully" to the title of Figure 7. Thank you again for your help and suggestions.
19	2. Line 463: What's the meaning of $P = 2$ ?	Thank you for your careful inspection. We apologize for this writing error and have corrected it to $P = 2\%$ .
20	3. Lines 484-642: I greatly appreciate the author's extensive and in-depth exploration in the discussion section. They have done a lot of meaningful and commendable work on different indicators of debris flow intensity and vulnerability functions, as well as comparisons with previous research. This can provide important reference value for future researchers.	We greatly appreciate your recognition and high praise of our discussion section, which we believe is a meaningful and worthwhile work to promote. Thank you very much for agreeing with our comprehensive comparative analysis of different indicators and vulnerability functions. This is an important reference for future research. Thank you again for your praise and positive comments, which have given us great confidence. It is our honor to receive your affirmation.
21	<b>Discussion</b> 1. In the section 5.1, authors should shorten the pages, just focus on the simulation result, don't show the calculation process, and don't list 3 subtitles.	Thank you for your valuable suggestions and professional guidance. We will continue to improve the length of this section and explain the evaluation calculation process in the Methods section. Thank you again for your help with our manuscript.
22	2. Change the order of 5.1.4 and 5.2; limitation and future work should be a separate	We greatly appreciate your adjustment of our chapter position. Following your guidance, we will treat limitations and future work as separate sections.

23	3. Lines 490-523 & Fig 13-14: In-depth comparative analysis of intensity indicators (sensitivity vs. precision) is highly valuable and a key contribution.	Thank you very much for your affirmation and appreciation. We fully agree with your point of view that this comparative approach is necessary and valuable. Thank you again for your recognition and praise of our discussion.
24	4. Table 5, The expression in the second column is inaccurate. Please modify it. Adjust the format of the content in the table.	Thank you for your careful suggestion. We will correct the expressions and adjust the format of the content in the table.
25	5. Lines 587-589: I suggest simplifying the expression of this paragraph and changing it to “Table 6 provides the existing vulnerability function models, including Logical, Weibull, Exponential, LNCDF and Avrami functions”.	We appreciate your professional guidance for making our expression clearer and more concise. We will revise this paragraph to “Table 6 provides the existing vulnerability function models, including Logical, Weibull, Exponential, LNCDF and Avrami functions” according to your suggestion.
26	6. Line 643: The authors' honest discussion of limitations enhances this excellent paper. I commend their approach to complex challenges and anticipate future work.	We greatly appreciate your high praise, your recognition of our detailed limitations, and your interest and anticipation for our future work. Thank you again for your affirmation and confidence in us.
27	7. Lines 689: These suggestions on emergency response and evacuation strategies for disasters are valuable for local residents.	Thank you for your positive and affirmative comments. We completely agree with your point of view that these emergency responses are very helpful for local residents.



28	8. 17, Modify the display legend of the elevation.	Thank you for your valuable suggestion. We will further improve the legend of the elevation display in the figure.
29	<b>Conclusion and references</b> 1. Line 772: Add DOI number to references 2. Check the “Figure” or “Fig” used in the paper, the format should be uniform. Unify the format of the tables in the full paper.	Thank you for this important reminder. The DOI for all references has been added. Thank you for your careful suggestion. We will check and unify it. Thank you for your valuable suggestion. We will further improve the conclusion.
30	3. Further refine the conclusion section. 4. Line 745, revise the author’s names. 5. Check the references’ style, just like “-” and “—”, the space in the middle of the name abbreviation.	Thank you for your comment, author name abbreviation in this place has been modified according to the style and requirements of the journal, using capital letters of the name. Thank you for your careful suggestion. We will check and revise the format of the references. Finally, we are profoundly grateful for your thorough review and expert guidance. Thank you again for your high recognition of our manuscript, which has given us great confidence to strengthen this study. we greatly appreciate your suggestions for helping us improve our manuscript, and we hope these improvements meet the journal’s standards for publication. Should further clarifications be needed, we are fully committed to addressing them promptly.