

Dear Editor and Referee,

We appreciate the editor and reviewer' positive and constructive comments 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 the opportunity to revise our manuscript with the recommendation for **Minor Revision**.

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. Our point-by-point responses and corresponding revisions are shown in the **Appendix**. Once again, we extend our deepest gratitude for your insightful review and endorsement.

We would like to express our great appreciation to you for comments and recognition on our paper.

Looking forward to hearing from you. Thank you and best regards.

Yours sincerely,

Jinshui Wang, Jiangang Chen, Lu Zeng, Fei Yang, Xiao Li, Wanyu Zhao, Huayong Chen

Appendix:

Editor	Comments	Response
1	<p>Dear Drs. Jinshui Wang, Jiangan Chen, Lu Zeng, Fei Yang, Xiao Li, Wanyu Zhao, and Huayong Chen</p> <p>Thank you for the submission of your very interesting manuscript “Assessment of the vulnerability of buildings destroyed during postfire debris flow events in Kule village, Yajiang County, China” (EGUSPHERE-2025-772).</p> <p>As you know, one of the reviewers has now provided detailed reviews and (s)he recommended minor revisions, and therefore I would like to invite you to submit a revised version of your manuscript.</p> <p>Would you please also provide an ‘author’s reply’ to the reviewers? Please can you also include a track changes document between the old manuscript and the new one?</p> <p>I look forward to seeing the next version of your manuscript, which I will not send out for further review; rather, I will make the decision myself, assuming no major items come up in the revised manuscript that I need outside reviewers to aid me in my decision.</p> <p>Regards</p>	<p>Dear Editor,</p> <p>Thank you very much for your thoughtful handling of our manuscript and for your encouraging words. We are truly grateful that you found our work “very interesting,” and we sincerely appreciate the opportunity to revise the manuscript with minor revisions.</p> <p>We have carefully considered the detailed comments from the reviewer and have undertaken a thorough revision to address all points raised. In the revised manuscript, all changes are clearly marked using track changes. We have also prepared a detailed point-by-point response to the reviewer’s comments.</p> <p>We are deeply grateful for the time and expertise that you and the reviewer have dedicated to improving our work. Your thoughtful guidance has helped us enhance both the clarity and quality of the manuscript. Our primary goal is to carefully revise the manuscript to meet the standards of the journal, and we hope this research merits your consideration for publication.</p> <p>Thank you once again for your support and professional guidance throughout this process. We look forward to hearing from you.</p> <p>Sincerely,</p>

Anonymous Referee #2 (Report #1)	Comments	Response
1	<p>Overall, the authors have carefully addressed the reviewers' comments from the first review. The manuscript has improved substantially, and all major concerns raised previously have been adequately addressed. There are no remaining issues affecting the scientific validity or the suitability of the study for publication. Nevertheless, a few points could still be clarified or improved to further enhance the clarity and presentation of the manuscript. I therefore recommend minor revisions before acceptance. Specific suggestions are provided below:</p>	<p>Dear Referee,</p> <p>We are deeply grateful for your positive and encouraging feedback on our revised manuscript. It is a great honor that you find the study scientifically valid and suitable for publication, and we truly appreciate your recognition of the improvements made during the first revision.</p> <p>Firstly, we sincerely thank you for recommending minor revisions before acceptance. Thank you for your overall positive assessment and for acknowledging that all major concerns have been adequately addressed. Your thoughtful suggestions to further enhance the clarity and presentation of the manuscript are very valuable to us. Thank you for recognizing the impact and thoroughness of our work.</p> <p>Secondly, we sincerely appreciate your insightful comments and constructive suggestions. Following your guidance, we have carefully revised and supplemented. Our specific point-by-point responses and modifications are detailed below.</p> <p>Finally, 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. Please accept our profound gratitude for your mentorship throughout this revision process.</p>

2	<p>Introduction (line 83)</p> <p>This alone doesn't justify choosing of FLO-2D. It would be better to briefly highlight why FLO-2D is preferable or what advantages it has over other models.</p>	<p>Thank you for your valuable suggestion. Following your professional guidance, we have added a brief justification for selecting FLO-2D. Specifically, we now state that FLO-2D is a depth-integrated continuum method and a volume-conservation model capable of simulating non-Newtonian flows (Wang et al., 2024; Wei et al., 2024), and it has been the most frequently utilized model for debris flow simulations (Quan Luna et al., 2011; Zhang et al., 2018; Chen et al., 2021; Wang et al., 2024). The changes have been made in the Introduction (line 83) and are marked with track changes. We appreciate your valuable suggestion. Thank you again for your suggestions on enhancing the expression.</p> <p>References</p> <p>Wang, T., Yin, K., Li, Y., Chen, L., Xiao, C., Zhu, H., & van Westen, C. (2024). Physical vulnerability curve construction and quantitative risk assessment of a typhoon-triggered debris flow via numerical simulation: A case study of Zhejiang Province, SE China. <i>Landslides</i>, 21(6), 1333-1352.</p> <p>Wei, L., Hu, K., Liu, S., Ning, L., Zhang, X., Zhang, Q., & Rahim, M. A. (2024). 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. <i>Natural Hazards and Earth System Sciences</i>, 24(11), 4179-4197.</p>
3	<p>Figure 2</p> <ul style="list-style-type: none"> • Please add subfigure labels (a, b, c...). • DEM maps should include a legend showing elevation. 	<p>Thank you for your careful guidance and suggestions. Under your guidance, we have carefully revised Figure 2 accordingly: (1) Subfigure labels (a, b, c) have been added; (2) A legend showing elevation has been</p>

	<ul style="list-style-type: none"> • Make sure the font sizes within each figure are balanced so that no text or labels look too large or too small compared to the rest. • Try to keep subfigure heights consistent where possible. 	<p>included in the DEM maps; (3) Font sizes within each subfigure have been balanced to ensure consistency and readability; (4) Subfigure heights have been made as consistent as possible. The revised Figure has been updated in the manuscript. Thank you again for these constructive suggestions.</p>
4	<p>Figure 5:</p> <ul style="list-style-type: none"> • Clarify what “horizontal distance” represents. Specify what horizontal distance = 0 corresponds to, and explain what “left” and “right” indicate. • Currently, numbers 1-6 appear twice. It’s better to renumber them 1-12, and also number the cross-sectional view consistently. 	<p>Thank you for your valuable suggestion. Following your recommendation, we have clarified the meaning of “horizontal distance” and the numbering in Fig. 5 as follows. (1) In the main text, we now explicitly state: “In Fig. 5, ‘horizontal distance’ is lateral distance from the channel center, with zero at the center; ‘left’ and ‘right’ indicate the two banks of the channel.” (Lines 221-224). Thus, horizontal distance = 0 corresponds to the channel center, and left/right refer to the left and right banks, respectively. (2) To avoid duplicate numbering, we have renumbered the cross-sections consistently as 1 to 12 (six sections per gully) in the figure. Thank you again for your constructive comments.</p>
5	<p>Figure 7</p> <ul style="list-style-type: none"> • Subfigure (a) should be oriented to true north, to be consistent with other figures. • Remove the word “legend” from subfigures b and c. The same applies to Figures 9 and 16. 	<p>Thank you for your professional guidance and valuable suggestions. Under your suggestions, we have made the following corrections: (1) In Fig. 7, subfigure (a) has been rotated to orient to true north, ensuring consistency with other figures. (2) The word “legend” has been removed from subfigures (b) and (c) in Fig. 7, and the same modification has been applied to Figures 9 and 16. All changes are clearly marked in the revised figures. Thank you again for your guidance and help.</p>
6	<p>Figure 8</p> <ul style="list-style-type: none"> • The legend “LNCFD (0.44, 0.60)” is unclear. Please clarify what the values in parentheses mean. 	<p>Thank you for this valuable suggestion. According to your suggestion, in the revised manuscript, we have clarified the legend and figure caption of Figure 8 to clearly explain the meaning of the values in parentheses. The</p>

		caption now reads: “Figure 8. Vulnerability curves for debris flow intensities: (a) Flow depth, (b) flow velocity, (c) impact pressure, (d) momentum flux, (e) overturning moment, and (f) relative burial height. The legend “LNCDF (μ , σ)” denotes the lognormal cumulative distribution function (LNCDF), where μ is the mean and σ is the standard deviation for each curve.” (Lines 456-457). Thus, the values in parentheses (e.g., 0.44, 0.60) represent the specific (μ , σ) parameters of LNCDF. Thank you again for helping us improve our expression.
7	<p>Figure 11</p> <ul style="list-style-type: none"> • There is an inconsistency between the figure caption and subfigure labels. The caption says (a) P=1%, (b) P=2%, but this does not match the figure itself. Please check and correct. 	Thank you for your careful suggestion. We have carefully re-examined Figure 11 and confirm that the original figure caption incorrectly listed the subfigure order. To correct this, we have revised the figure caption as follows: “Figure 11. Predicted building counts with degree of damage and the spatial distribution in the G2 gully under different recurrence periods: (a) P=2%; (b) P=1%.”. Thank you again for your suggestion.
8	<p>Rainfall Description (lines 177-178)</p> <ul style="list-style-type: none"> • Please clarify whether these coordinates correspond to the rainfall monitoring station or the rainstorm center. 	Thank you for your valuable suggestions. The coordinates originally given in the manuscript correspond to the location of the rainfall monitoring station. Thank you again for your guidance and assistance.
9	<p>Tables</p> <ul style="list-style-type: none"> • Table 1: Make sure decimal places or significant figures are used consistently and appropriately. • Table 2: Manning’s roughness coefficient is listed as 0.1. A brief explanation or reference for this value should be included, since it can significantly affect debris-flow simulations. 	<p>Thank you very much for your careful observation. We have now unified the format of all numerical values in Table 1 to two decimal places for consistency. Specifically, we have corrected the watershed relief value for G2 Gully from “1,015.00” to “1015.00” (removing the comma). Thank you again for your careful suggestion.</p> <p>Thank you for this valuable suggestion. According to your suggestion, in the revised manuscript (Lines 314-316), we have added a brief explanation</p>

		<p>and the corresponding references. Specifically, this value is selected referring to the FLO-2D manual, and the same value adopted in previous debris-flow simulation studies (Zhang et al., 2018; Chen et al., 2021). Thank you again for your valuable advice and guidance.</p> <p>References</p> <p>Zhang, S., Zhang, L., Li, X., & Xu, Q. (2018). Physical vulnerability models for assessing building damage by debris flows. <i>Engineering Geology</i>, 247, 145-158. https://doi.org/10.1016/j.enggeo.2018.10.017</p> <p>Chen, M., Tang, C., Zhang, X., Xiong, J., Chang, M., Shi, Q., ... & Li, M. (2021). Quantitative assessment of physical fragility of buildings to the debris flow on 20 August 2019 in the Cutou gully, Wenchuan, southwestern China. <i>Engineering Geology</i>, 293, 106319. https://doi.org/10.1016/j.enggeo.2021.106319</p>
10	<p>Model Input Parameters (Section 2.1.3)</p> <ul style="list-style-type: none"> • The model uses many parameters (e.g., P2, P0.05, α, β...). It would be helpful to add a summary table listing all input parameters and their values. 	<p>Thank you for this constructive suggestion. In the revised manuscript, we have added a summary table (Table 2) in Section 2.1.3 that lists key input parameters (including P2, P0.05, α, β, etc.) and their values. The change is clearly marked with track changes. We appreciate your helpful advice.</p> <p>Finally, we are profoundly grateful for your thorough review and expert guidance. we greatly appreciate your suggestions for helping us improve our manuscript, and we hope these improvements meet the journal's standards for publication. Thank you again for your suggestion.</p>