

Response letter for
“Projecting changes in rainfall-induced landslide susceptibility across inhabited areas of China
under climate change”
(egusphere-2025-3834)

Response to Editor Comments

Editor: I have read the new version, and appreciate the work carried out to respond to all previous comments.

Still small modifications are needed in my opinion to improve the overall clarity/readability of your work.

Dear Editor,

Thank you very much for your thoughtful and constructive comments on our manuscript. We have carefully considered all of your suggestions and revised the manuscript accordingly. We are truly grateful for the time and expertise you devoted to reviewing our work. Your valuable feedback has greatly helped us improve the manuscript.

1. Editor: Figure 1 should show also the mask of the inhabited areas together with the landslides distribution. It may be a second panel, or probably even better if you may use the mask as a light background colour overprinted by the landslide distribution. Please adopt the representation style that most clearly shows both the study area and, in the end, the very reason why it was necessary to limit the analyses to the inhabited area.

Response:

Thank you for this helpful suggestion. We agree with this suggestion and have revised Figure 1 accordingly. The inhabited-area extent is now shown as a light grey background, and the landslide-related records are overprinted on it. This presentation makes the landslide distribution, the modelling domain, and the reason for restricting the analysis to inhabited areas visible in the same map.

We also revised the caption of Figure 1 to explain that the grey background denotes the inhabited-area extent used to define the study area. Because the landslide-related records are post-event operational inventory data compiled from human-inhabited areas, restricting the analysis to the inhabited-area domain improves the consistency among the inventory, positive samples, and negative samples. This restriction helps maintain sample representativeness within the selected study area and reduces the influence of inventory incompleteness in sparsely inhabited regions.

2. Editor: Figure 8 should also include a map of the difference between the two baselines. So it could probably become a three-panels figure in column.

Response:

Thank you for this helpful suggestion. We have revised Figure 8 into a three-panel figure. The revised figure now shows: (a) landslide susceptibility during the historical baseline period (1950–2014), (b) landslide susceptibility during the long-term future period (2076–2100) under SSP5-8.5, and (c) the spatial change in susceptibility between these two periods.

The new difference panel indicates areas of increased susceptibility, no change, and decreased susceptibility. The caption has also been revised to describe the meaning of the difference map and to

make the interpretation of the three panels clearer.

3. Editor: Figure 10 is missing a legend of the red line in the plot, as well as its description in the caption.

Response:

Thank you for this helpful suggestion. We have added the missing legend for the red line in Figure 10. We also revised the caption to explicitly describe the red line. The caption now states that the red line represents landslide frequency, calculated as the proportion of positive samples among all samples within each classified interval.

4. Editor: In the text please refer to supplementary figures when appropriate.

Response:

Thank you for this helpful suggestion. We have carefully checked the manuscript and added references to supplementary figures where appropriate. For example, we now refer to Fig. S1 for additional information on the landslide inventory, Fig. S2 for the spatial distributions of conditioning factors, Fig. S3 for RF feature importance, Fig. S4 for regional susceptibility changes, Figs. S5–S6 for supplementary comparisons related to model setting and non-landslide sampling strategy, and Figs. S7–S9 for additional tests examining the effects of inventory incompleteness on susceptibility mapping results. These additions improve the connection between the main text and the Supplementary Materials.

5. Editor: In the discussion section I noticed some confusion between thematic accuracy and completeness. Thematic accuracy does not refer to size or completeness, but only to attributes of the single polygons (e.g. type of landslide, material involved, estimated depth), completeness refers to how close the landslide distribution represented in the inventory is to the ground truth. Please revise the relevant text in the discussion and elsewhere accordingly.

Response:

Thank you for this important clarification. We have revised the relevant text in the Discussion section and elsewhere to clearly distinguish thematic accuracy from completeness. In the revised manuscript, thematic accuracy is now defined as the correctness of attributes assigned to individual records, such as geohazard type, material involved, and estimated depth. Completeness is defined as how close the landslide distribution represented in the inventory is to the ground truth. Accordingly, the discussion of small-landslide omission and regional under-sampling has been revised under inventory completeness rather than thematic accuracy. We also revised the relevant statements in the Supplementary Materials to avoid confusing thematic accuracy with completeness.

We are grateful for the editor's constructive suggestions. These revisions have improved the clarity of the figures, strengthened the links between the main text and supplementary materials, and made the discussion of inventory quality more scientifically precise.

Sincerely,

Jinqi Wang, on behalf of all co-authors.