

Dear Editor,

We sincerely thank you and the reviewer for your careful evaluation of our revised manuscript entitled “*Multi-Data Source Based Quantifying Urban Flood Severity in Major Chinese Cities (2000–2024) Using a Hybrid Machine-Learning Weighting Framework*” and for your constructive comments and positive assessment of the improvements made during the previous revision.

We have carefully addressed the remaining revision requested by the reviewer. Specifically, we have corrected the description in Section 3.3 to accurately reflect the five regression algorithms retained in the final framework, removing the remaining reference to Support Vector Regression (SVR). In accordance with your recommendation, we have also carefully reviewed the entire manuscript to ensure consistency, accuracy, and clarity throughout the text, figures, tables, and methodological descriptions. As requested, we have prepared a detailed Author's Reply addressing the comments from the second round of review. We have also provided a tracked-changes version of the manuscript to clearly indicate the modifications made since the previous submission.

We sincerely appreciate the time and effort you and the reviewers have devoted to evaluating our manuscript. Your valuable comments and suggestions have greatly contributed to improving its quality. We hope that the revised manuscript will be suitable for publication in *Natural Hazards and Earth System Sciences*.

Yours sincerely,

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Response to Referee

Manuscript ID: egusphere-2026-2501

Manuscript title: Multi-Data Source Based Quantifying Urban Flood Severity in Major Chinese Cities (2000–2024) Using a Hybrid Machine-Learning Weighting Framework

Dear anonymous reviewer,

We sincerely thank the reviewer for their careful evaluation and constructive comments on our revised manuscript. We have carefully addressed the remaining comment and made the necessary revisions. In this response letter, the reviewer's comment is presented with a gray background, followed by our response. The corresponding revisions are highlighted in yellow in the manuscript, with page and line numbers provided for reference. Detailed responses are presented below.

Reviewer Comment

Dear Authors, I have only one minor correction before recommending this manuscript for publication. In your response letter, you noted that the Support Vector Machine (SVM) model was removed from the revised framework due to lower performance. While the model has been successfully removed from your results, such as Table 1 and Figure 3, there is a lingering reference in Section 3.3 that still states: "Six regression algorithms are evaluated, including... Support Vector Regression (SVR)". Please update this sentence to reflect the final five models used. Congratulations on a much-improved manuscript.

Response:

We sincerely thank the reviewer for the positive assessment of our revised manuscript and for identifying this remaining inconsistency. We apologize for the oversight. As correctly pointed out by the reviewer, the Support Vector Regression (SVR) model had been removed from the revised framework, but its reference was inadvertently retained in Section 3.3. We have now corrected this sentence to accurately reflect the five regression algorithms used in the final framework, ensuring consistency with Table 1 and Figure 3. We have also carefully checked the manuscript for similar inconsistencies.

The specific revision can be found in Section 3.3, Page 8, Lines 190–192 of the revised manuscript. The corrected sentence reads as follows: "Five regression algorithms are evaluated, including Random Forest (RF), Gradient Boosting Decision Tree (GBDT), XGBoost, LightGBM, and Multi-Layer Perceptron (MLP). "

We greatly appreciate the reviewer's careful reading and constructive feedback, which have helped us further improve the accuracy and consistency of the manuscript.