

Response to comments on Manuscript egosphere-2025-6543

Title: What can hydrological modelling gain from spatially explicit parameterization and multi-gauge calibration?

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Dear Editor and Reviewers,

Please find enclosed our responses to the manuscript assessment entitled “What can hydrological modelling gain from spatially explicit parameterization and multi-gauge calibration?”.

We would like to express our sincere gratitude to the Editor, Hongkai Gao and the reviewers, Brandi Gaertner and one anonymous reviewer for their invaluable support and constructive suggestions throughout the peer-review process.

We have performed two technical corrections to ensure the clarity of the manuscript, which include:

- (1) Several figures and tables have been moved to the Supplement Material to streamline the main text (Table 8, Fig. 10, and Fig. 13);
- (2) The color of the “Single-gauge” label in Fig. 3 has been darkened to improve its visibility.

In the point-by-point responses below, the original comments are displayed in **bold**. **EC-n/**, **RC1-n/**, and **RC2-n/** correspond to the Editor, Referee 1, and Referee 2 comments, respectively. The corresponding responses begin with **R/** and the revisions is highlighted in **red**, while important content are marked in **blue**. The quoted content is displayed in *italics*. All references cited in this response are listed at the end of the reply. Line numbers from the revised manuscript with marked-up changes are provided where relevant.

We thank you for your time and support,

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Responses to Editor

Thank you for your timely coordination and support regarding our manuscript. Your professional suggestions have significantly improved the depth of our study, and we would like to express our gratitude to you once again for your efforts.

EC-1/ One reviewer suggested moving some figures and tables to the Supplementary Material. With this technical correction, the paper can be published in HESS. Congratulations!

R/ In response to the suggestions from Referee #1, we have moved several tables and figures to the Supplementary Materials to streamline the main text. Specifically, Table 8 has been moved to Table S1, Fig. 10 to Fig. S6, and Fig. 13 to Fig. S10. Consequently, the revised manuscript now contains 13 essential figures and 12 tables. All numbering and corresponding citations have been updated throughout the text.

Responses to Referee #1

We sincerely appreciate the time you have dedicated to reviewing our manuscript and for your supportive feedback.

RC1-1/ The authors have addressed my comments very well. I only have a few minor suggestions. At present, the manuscript contains a rather large number of figures and tables. I am not sure whether this fully complies with the journal's requirements, but moving some of them to the Supplementary Material might help make the main text more concise and easier to follow. In addition, the label "Single-gauge" in Figure 3 is not clearly visible and should be changed to a more distinguishable color.

R/ We sincerely appreciate your valuable suggestions. Following your advice, we have relocated several items to the Supplementary Materials to streamline the main text; specifically, Table 8 has been moved to Table S1, Fig. 10 to Fig. S6, and Fig. 13 to Fig. S10. As a result, the revised manuscript now retains a concise set of 13 essential figures and 12 tables. Additionally, we have darkened the "Single-gauge" label in Fig. 3 to enhance its visibility. All figure/table numbering and corresponding in-text citations have been updated throughout the manuscript.

Responses to Referee #2

We would like to express our sincere gratitude for your constructive comments throughout the peer-review process and for your continued support of our manuscript.

RC1-1/ To the authors: You did an excellent job in both implementing the reviewers recommendations as well as specifically responding to the comments. I was impressed with the amount of additional analysis you conducted including the LULC analysis, the expanded/new sections, and implementation of the pairwise t-test. Thank you for your hard work and timely publication.

R/ Once again, thank you for your support.

Finally, we would like to once again thank the Editor and all reviewers for their invaluable comments and support throughout the peer-review process.