

## Review – Egusphere-2025-1629

Thank you for responding to my comments on the initial manuscript submission. However, some of my previous comments (RC1) do not appear to have been fully addressed, and I believe they should be considered before the manuscript can be published.

- Major initial comment: “*Since the analysis focuses on extreme dry–hot and wet–cold years, how does the model perform during drier years (e.g., MAP < 25th percentile) and wetter years (e.g., MAP > 75th percentile)?*” I believe my initial comment may not have been sufficiently clear. My question refers to the model’s performance under years with relatively low (<25th percentile) and high (>75th percentile) precipitation during the analysis period (2001–2019). Evaluating model performance under these conditions is important because hydrological models often perform well during “normal” years, while their accuracy may decline during particularly dry–hot or wet–cold years.
- Minor initial comment: “*Figures 8 and 9: I suggest presenting the anomalies as percentages or standardized anomalies to better account for spatial variability across Germany.*” Your response was: “*Thank you for the suggestion. Presenting anomalies as percentages or standardized values would indeed help account for spatial variability. However, implementing this transformation for all watersheds would require additional data processing beyond the resources available for the current revision. We appreciate the recommendation and will consider incorporating standardized anomaly analyses in future work.*” While I understand that addressing this comment requires additional effort, the necessary data already appear to be available, as the simulations span from 2001 to 2019. Therefore, computing the anomalies (e.g., standardized anomalies) should be feasible using the existing dataset. For example, standardized anomalies could be calculated as follows:

$$Z_{2013} = \frac{X_{2013} - \bar{X}_{2001-2019}}{\sigma_{2001-2019}}$$

This is important because a decrease of –100 mm does not have the same meaning for annual precipitation and water yield. Similarly, the magnitude of the anomaly has a different interpretation for watersheds with low versus high carbon sequestration.

- Minor initial comment: “*Figure 2: Add the performance metrics in each*

*panel. You can order the panels according to a criterion such as watershed area, natural/transformed land-cover area, or annual precipitation.”* As with my previous comment, addressing this suggestion would require some additional effort, but it does not appear to be beyond the scope of the current revision. Reordering the panels according to simple criteria, such as watershed area, could improve the figure's clarity (e.g., first panel: smallest watershed; last panel: largest watershed).