"Unveiling the Limits of Deep Learning Models in Hydrological Extrapolation Tasks"

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General feedback

The authors have addressed the reviewer's comments in a satisfactory and thoughtful manner. The revisions improve the clarity and rigor of the manuscript, and the responses to the concerns raised during the review process are appropriate and well-reasoned.

A few minor issues remain, mostly related to clarity and phrasing, as detailed below. I recomment to address these issues before publication, but they do not significantly affect the overall quality of the manuscript. Therefore, I suggest accepting the manuscript subject to technical corrections.

Minor remarks

Here I list some typos and suggestions for improving clarity. Line numbers refer to the diff PDF.

L5 I wonder whether hybrid models are known in the community or if a brief explanation of the term would help. Probably "hybrid process/machine learning model"?

L9 CAMELS-CH is mentioned here for the first time, but not defined. I suggest "below the maximum value of 183 mm d^{-1} in the training data.", and suggest not mentioning CAMELS-CH here.

L121 Would the maximum for the combined dataset not be the 299 mm d^{-1} from the US dataset?

L375 "but accompanied by a decrease in overall performance" instead of "by a loss"?

L376 "Both strategies ..." instead of "Both the strategies ...".

L377 Not sure if this is a typo, do you really believe that these issues can be resolved completely? Maybe you meant "**cannot** be resolved completely"? In both cases, I suggest rephrasing, either tone down or further elaborate why this can be resolved completely.

L429 "This suggests ..." instead of "It is thereby obvious ..."?

L433 Sentence seems to be incomplete. "While ..." should be followed by a contrastive statement.

L420-442 This part would benefit from a rewrite to enhance clarity and readability.

L455 You could highlight that the hybrid model, by following the physical constraints, is also biased in a way towards prior knowledge and assumptions.