



Interactive comment on “Hydrologically Informed Machine Learning for Rainfall-Runoff Modelling: Towards Distributed Modelling” by Herath Mudiyanse Viraj Vidura Herath et al.

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Received and published: 12 April 2021

Overall I agree with the reviewers that this is an interesting application, but deserves some clarification and restructuring to highlight the main contribution.

I agree with both reviewers that the introduction and background material could be shortened. The sections on distributed modelling, fixed vs flexible, neural networks, etc. are all well written and interesting, but rather belong to some textbook material than to a paper. Hence, they should be shortened to cover the aspects that the current study wants to challenge or improve.

I think framing this study in the context of distributed modelling is unwarranted. First, the application appears to focus on simulation on a single outlet. I would argue that a distributed model, at a minimum, requires testing model predictions on multiple gauges. Second, as the authors mention in their paper, building a distributed model requires several layers of decisions. But here, the authors focus only on one of such layers, namely the model structures for each HRU.

I also think that the benefit of the proposed models would appear clearer if there was a benchmark of comparison. I agree with Reviewer 1 that this benchmark could be a lumped model at the same location.

Both reviewers have provided some valuable comments to improve the paper, to which I generally agree. Therefore, I recommend the authors to carefully consider these comments in their next submission.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-487>, 2020.

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Discussion paper