

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1  
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## Comment on hess-2021-393

Anonymous Referee #1

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Referee comment on "Ensemble streamflow forecasting over a cascade reservoir catchment with integrated hydrometeorological modeling and machine learning" by Junjiang Liu et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-393-RC1>, 2021

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The authors proposed an integrated ensemble prediction approach based on hydrometeorological modeling and machine learning for streamflow forecasting over a cascade reservoir catchment. The performance of the prediction with different model settings is compared. Results show the potential of the integrated hydro-meteorological and machine learning approach. Some comments are provided as follows and need to be addressed before the potential publication of this study.

Line 114: Please give the full name of CSSPv2.

Lines 145-146: The authors calibrate the model based on the runoff at each grid (instead of using the streamflow at the control station). What is the motivation or advantage of this model calibration?

Line 217, equation (2); Here " $y > \text{observation}$ " is assigned "1". In other words, no matter how high the simulation is (if higher than the observation), it will result in a low CRPS, right? By the way, is this commonly used in previous studies?

Lines 234-235: The simulation is better for the downstream. Is there any specific reason for this pattern?

Lines 276-278 (Figure 7): For the CRPS and RMSE for the lead time of seven days, there is a strong cycle in the performance. What is the reason for the strong cycle? In addition, from the RMSE, we see low RMSE values for the lead time within 1-day, and relatively high values after 1-day. However, for the CRPS, such a pattern does not exist. In addition,

for the lead time beyond 1-day, the variation of CRPS and RMSE does not seem to depend on the lead time (prediction performance generally degraded for longer lead time, right?). Please clarify.

Figure 1. It is hard to read the station name in this figure. Please improve it.

Other comments: Are reservoir data used in the simulation or incorporated in the model?