

## ***Interactive comment on “Subseasonal hydrometeorological ensemble predictions in small-and medium-size mountainous catchments: Benefits of the NWP approach” by Samuel Monhart et al.***

**Anonymous Referee #3**

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General comments. The main motivation of this study is to fill the gap in small scale researches in determination of the propagation positive skill extent in meteorological prediction models further into the streamflow forecasts. To address this problem, a traditional ESP approach was compared with prediction driven by ECMWF subseasonal ensemble system in three alpine catchments with varying hydroclimatic conditions. To emphasize the effect of applying pre-processing (QM-based) of NWP output, prediction verification was done against the reference simulation (pseudo observations). Thus hydrological model errors were excluded from the analysis. Summary. There was in-

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depth discussion on hydroclimatic variability and predictability, the role of forcing and model parameters' uncertainty. The verification metrics used were relevant and applied in a logical manner. The results well supported the conclusions. Some sections recommend recompiling for better logically organized and easy follow.

I recommend publishing the manuscript but encourage the authors:

- 1) Give a more justification on choice of these watersheds for sub-seasonal forecasting. Initially, it can be supposed that the study is a part of a large numerical experiment where the results were confirmed only for the three arbitrary watersheds.
- 2) Add meteorological observations network on fig. 2 and give some comments explaining the good modeling quality (tab. 1) when using the grid product obtained at a low observations network density.
- 3) Give a number of predictions made for evaluation.
- 4) Comment on how the processing of only temperature and precipitation affects and propagate through the hydrological simulation.
- 5) Specify if the ESP method can outperform the NWP if ensemble takes not all but only individual years guided by a certain criterion for the similarity of the initial conditions.
- 6) Recompile the sections 2 and 3 referred to each other to make them more consistent.

Specific comments.

P.13, L5. The upper (reads like nested) Thur subcatchment Halden (1750 km<sup>2</sup>) is little bit bigger than Thur watershed itself (1696 km<sup>2</sup>).

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