

## ***Interactive comment on “Precipitation and temperature ensemble forecasts from single-value forecasts” by J. Schaake et al.***

### **Anonymous Referee #1**

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#### General Comments.

The National Weather Service Office of Hydrological Development have prepared an excellent paper describing the method they use for statistical post-processing of meteorological forecasts so that they are suitable for use in hydrological models to produce ensemble forecasts of streamflow. This method is viewed by many in the community as a thoughtful approach to post-processing output from numerical weather prediction models, but, up until now, it has never been described in a peer-reviewed journal article. As such, it is important to publish the method as soon as possible, to provide the community an opportunity to rigorously compare new methods with the methods that are currently used operationally in the USA.

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My only major gripe with the paper is that the approaches used to account for the space- and time-scale dependence of the forecasts is hidden in different parts of the manuscript, and are not well described. I suggest first describing the methods used to construct conditional distributions, and the ensemble generation with the Schaake Shuffle. Then, as a separate section, describe the methods used to address the space- and time-scale dependence of the forecasts.

I am also wondering if it is possible to improve the presentation of effects of aggregation time on forecast skill, for example as a "brick wall" with forecast lead time on the x-axis and aggregation time on the y-axis, with separate plots for different seasons?

Editorial Comments.

1. Second sentence of the abstract. Can the text "spatial forecast domain and" be deleted, as it is described in the following sentence?
2. Last sentence, second paragraph of the introduction. I had to read this sentence five times before I understood it. Is it possible to re-word?
3. Paragraph discussing Clark and Hay (2004). For completeness, please add a sentence describing Clark and Hay's experience producing streamflow forecasts. For example, they used forecasts from the NWP model to produce forecasts of streamflow for four river basins in the USA, and showed that forecast skill was highest in mountainous snowmelt-dominated river basins where daily variations in streamflow are tied closely to daily variations in temperature.
4. End of section 3.2 (before 3.2.1), should be Clark et al. not Clark and Hay.
5. Description of Figure 10. "each plot shows how average minimum temperature forecasts or observations..." – do you mean precipitation?

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