

Interactive comment on “A national-scale seasonal hydrological forecast system: development and evaluation over Britain” by Victoria A. Bell et al.

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Thank you for the positive "overall" comments. In answer to your specific comments:

The objective of the seasonal forecasting system is not really clear. From the introduction I assume the focus on flood forecasting, from the forecast variables, regional mean flow 1-month / 3-month ahead, I assume the focus on drought forecasting. Please specify! If the focus is flood forecasting, the relationship between regional mean flow and relevant flood properties (peak, volume,...) should be shown to demonstrate the potential flood predictability of the system.

Author reply: The Abstract, Introduction and Summary will be amended to make this

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clearer. The forecasts issued provide seasonal mean river flows over the next 1 and 3 months (not flood peaks). The objective is to provide a wide audience, ranging from water managers to members of the public, with insight into whether river flows might be expected to be above, below, or in the normal range over the next few months based on the best information available.

p 7 l 15: What is UK mean SAAR? Please add explanation / reference.

Author reply: SAAR is Standard-period Average Annual Rainfall (mm) (e.g. <http://nrafa.ceh.ac.uk/rainfall-statistics>). However, we will amend the manuscript to say "average annual rainfall", instead of "SAAR". We created annual mean rainfall for a 49-year period that is longer than a standard period of 30 years, so we should not have used the acronym "SAAR" in the first place.

p 12 l 6: do you use ensemble mean of GloSea5 / historical rainfall 1-month / 3-month ahead as input for WBM or do you use the ensemble mean of the WBM seasonal flow forecasts?

Author reply: We intended to say that the ensemble mean GloSea5 rainfall forecast was used as input to the WBM. The manuscript will be amended to say "the skill of ensemble mean GloSea5 rainfall forecasts has been evaluated for all seasons...".

What is the difference in skill between the two ensemble mean forecasts (rainfall ensemble mean as input vs. flow ensemble mean)?

Author reply: We have not evaluated the skill in the ensemble mean flow forecast, just the skill in the flow forecast using an ensemble mean rainfall forecast. I would expect these two variants to be very similar, if not identical, as the equations are all linear (i.e. construction of the mean and the WBM are linear). It is also quicker to make one flow forecast from an ensemble mean rainfall forecast, rather than average an ensemble of flow forecasts.