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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Monthly streamflow forecasting at varying spatial scales in the Rhine basin" *by* Simon Schick et al.

Simon Schick et al.

simon.schick@giub.unibe.ch

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We would like to take up again the point concerning the resolution of the lead time, since we probably misunderstood the suggestion of J. Beckers in his review.

In the following, we use 'lead time' as the time interval between the release of a forecast and the onset of its validity. For example a mean streamflow forecast for April 21 - 30, produced at March 31, has a lead time of 20 days.

The MOS approach of our study is based on the assumption of linearity and thus needs a certain time window to average the actual predictand. For monthly streamflow averages this assumption seems to be more or less valid. Increasing the temporal resolution of the predictand (e.g. the prediction of 5, 10, 15, ... day mean streamflow

at zero lead time) could be an interesting experiment, but rather to test the assumption of linearity than for a detailed ESP-revESP analysis. This is clearly a disadvantage of using regression instead of a hydrological simulation model.

However (and this was eventually already proposed by J. Beckers) shifting the time window in steps of 5,10,15... days (that is using short lead times) could also reveal some insights. It does not help concerning the ESP-revESP experiment, which remains unresolved at a submonthly time scale, but to detect the skillful time range of the seasonal climate predictions. For example, if the monthly streamflow forecasts based on the seasonal predictions arrive at the MAE of the ESP model at 15 days lead time, we could argue that skill of the seasonal climate predictions is restricted to the first 15 days.

Do you agree with that line of argumentation?

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