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Hydrology and Earth System Sciences Discussions

Interactive comment on "A past discharge assimilation system for ensemble streamflow forecasts over France – Part 2: Impact on the ensemble streamflow forecasts" *by* G. Thirel et al.

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The authors would like to thank the anonymous referee #2 for his comments on the manuscript.

- The overall quality of the paper is good. The authors made a useful attempt to incorporate data assimilation into ensemble streamflow forecasts. It is also very good that the authors used various scores to assess the performance before and after data assimilation. The authors didn't focus on any single event but rather cover the entire range of hydrograph using different thresholds. I would say this is a very comprehen-

sive study, although the study time period is a bit short to be more convincing.

Authors response: We agree that for a better statistical relevance, a longer period would have been desirable. However, it was not possible to extend the period for a much longer period, due to the CPU costs of the whole study, including the research on the assimilation system.

- Page 2457, Introduction: A good review paper on EPS can be considered to add to your reference: Ensemble flood forecasting: A review, H.L. Cloke, F. Pappenberger / Journal of Hydrology 375 (2009) 613-626

Authors response: This reference has been added in the new version of the manuscript.

- Page 2457, Introduction L17-18: Please consider to refer to the following paper: Tracking the uncertainty in flood alerts driven by grand ensemble weather predictions He, Y, F Wetterhall, HL Cloke, F Pappenberger, M Wilson, J Freer, and G McGregor. Meteorological Applications 16(1): 91-101

Authors response: This reference has been added in the new version of the manuscript.

- Page 2464, L6 and L15: can the authors please consider replacing 'duration' or 'range' with 'lead time'?

Authors response: These expressions have now been replaced by "lead time".

- Page 2470, L2-3: ': : :, with a perfect prediction if the resolution is zero, and a bad score if the resolution is equal to 1'. Do you mean 'reliability' here?

Authors response: Yes, indeed, this mistake has been corrected.

- Page 2476, L3: what do you mean by 'global models'?

Authors response: Global models has been changed to lumped models.

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- Page 2480, A6 False Alarm Rate: a, b and c are not defined in this context, or mention Table 1 in A6 for the convenience of the readers.

Authors response: Table 1 was already referred in A6.

- TECHNICAL CORRECTIONS: Page 2464, L5: ': : :decreased the most rapidly: : :' –> : : :decreased most rapidly : : :

Authors response: This correction has been made.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 2455, 2010.