Interactive comment on "Impact of the quality of hydrological forecasts on the managementand revenue of hydroelectric reservoirs – a conceptual approach" *by* Manon Cassagnole et al.

Anonymous Referee #2

Received and published: 14 October 2020

The paper studies the interactions of hydraulic forecasts with the economic value of the forecast. They go beyond the existing literature in the level detail that they investigate these interactions - studying how different biases in forecasts can interact with economic value (a question of both scientific but also practical importance). The experiments are performed on multiple catchments (10), for multiple types of forecasting biases (4), assessed by multiple measures of forecast quality (3), and multiple measures of forecast value are compared (5) - thus, I consider these to be very robust results.

Beyond this the authors demonstrate a good command of the literature, written English

of a high standard, and clear results with well supported conclusions.

In general, I would say just a little more effort might be made to help the reader understand where this work falls in terms of a practical perspective. The comments below will go some of the way to achieving this.

As far as I understood, the synthetic forecasts are not compared against historic forecasts that have been made nor against a real forecasting system. I understand this comparison would be outside the scope of the paper. However, have any of the cited authors who work with synthetic forecasts made this comparison? It seems to me that understanding whether the biases in synthetic forecasts reflect the types of biases in real forecasts is important information for a reader to know regarding the practical value of synthetic forecast-based studies.

L234/5: This seems a rather arbitrary choice for reservoir storage capacity. In fact, I am left slightly confused as to whether the reservoirs under study are real or not (I think they are not, but '10 reservoirs in France' is used in the abstract). If they are not, that needs to be explained more clearly. If they are real, then surely real capacities can be identified?

I was not clear from the explanation in 2.3, is there some accounting for the state of the reservoir storages at the end of the 7-day optimization period? It is OK if there is not, but the authors should note this, as it may lead to reservoirs becoming overdrawn in the long run.

Editorial comments:

L35/36: The word 'interesting' is an unusual choice, I would suggest 'beneficial'

L38: Grammar should be '..within integrated river basin management..'

L40: You can't have the 'most' optimal. Simply use the word 'optimal', or if you want to avoid the implications that releases are truly optimal, then use the word 'best'.

L44: Personally I would extend 'linear programming' to 'linear and nonlinear programming' since there are many nonlinear approaches (see any of the cited reviews for references) here that could not be said to fall under the term dynamic/heuristic programming.

Figures 11 & 12 - why switch to number of hours instead of % difference as in the other plots?