The Authors have already adequately replied to the comments by Referees #1 and #2. I invite them to address the points raised by Referee #3 and in particular the most important one, on the meaning of the "ungauged" simulation carried out by forecasting the results of a SWMM model instead of actually observed levels: The use of neural networks (as of any systemic model) in ungauged case studies is far from straightforward, given their very same 'nature' of data-driven approaches. Reasons for justifying the use of neural networks instead of SWMM in ungauged basins should be better explained. Rather than an ungauged case study, I would consider the RNN based on SWMM outputs a synthetic case study where, in absence of real observations, a model is applied for simulating the output of another model (as it is often the case also for streamflow simulation case studies with inadequate data sets): it may be useful to enlarge the number of case studies but I would not consider it an 'ungauged' framework.

Response:

We sincerely appreciate for the encouragement and comment. The major purpose of this study is to "**predict**" the water levels at both gauged and ungauged sites by using the dynamic neural networks. We agree a well calibrated SWMM is able to generate accurate estimations of water levels. The SWMM is a physically based simulation model, which usually needs to be fed with the whole series of input information to gain its corresponding series of estimation outputs. For the prediction of water levels, the SWMM is unable to be implemented because future rainfall pattern is not available. Whereas the RNN can produce future water level (time t+n) by being fed with current data (time t) and the model can be executed through a step by step procedure. The RNN is a data-driven model, which can produce precise predictions if sufficient data are provided. In order to obtain accurate predictions of water levels at ungauged sites, it is necessary to apply SWMM to generating a number of water level estimations at specific ungauged site as the learning targets of RNN. Once the RNN is well trained, it can be practically applied to predicting the water levels at ungauged site because all inputs of the constructed RNN only consist of current measurements, such as precipitations and the water levels at nearby gauging stations. As mentioned in many previous applications of ungauged studies (Besaw et al., 2010), it is acceptable to verify the model at a single or fewer sites. This paper provided an applicable way to predict water levels at ungauged site and the preliminary investigation showed that the result of prediction obtained from RNN trained with data generated from SWMM is reliable. Besides, as the replies to referee 3's comments, the practicability of this model can be easily extended to other sites by using the procedure proposed in this study.

In addition, as the comments made by all the Referees indicate, applications of ANN in urban hydrology is not as common as in streamflow forecasting literature and more (also basic) details on their implementation (type of networks and their implementation, and especially a description of the input variables: the use – in real-time - of past water levels in input, for example, is not usual in conceptual and hydraulic models) are probably needed in the Introduction section.

Response:

More descriptions of the model implementation are added in the text (lines 304-318, 359-364, and 372-380).

References

Besaw, L.E., Rizzo, D.M., Bierman, P.R. and Hackett, W.R., 2010. Advances in ungauged streamflow prediction using artificial neural networks. Journal of Hydrology, 386(1-4): 27-37.