

Interactive comment on “On-line multistep-ahead inundation depth forecasts by recurrent NARX networks” by H.-Y. Shen and L.-C. Chang

Anonymous Referee #1

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1. The manuscript presents on-line multistep-ahead inundation depth forecasts by recurrent NARX networks, which is interesting. The subject addressed is within the scope of the journal. 2. However the manuscript, in its present form, contains several weaknesses. Adequate revisions to the following points should be undertaken in order to justify recommendation for publication. 3. Full names should be shown for all abbreviations in their first occurrence in texts. For example, 2-D in p. 12002, HEC-1 in p. 12008, etc. 4. For readers to quickly catch the contribution in this work, it would be better to highlight major difficulties and challenges, and your original achievements to overcome them, in a clearer way in abstract and introduction. 5. It is shown in the reference list that the authors have several recent publications in this field. This raises some concerns regarding the potential overlap with their previous works. The authors

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should explicitly state the novel contribution of this work, the similarities and the differences of this work with their previous publications. 6. The key ANN parameters are not mentioned. The rationale on the choice of the particular set of parameters should be explained. Have the authors experimented with other sets of values? What are the sensitivities of these parameters on the results? 7. It is mentioned in p. 12004 that the back-propagation algorithm, which has the drawbacks of local convergence and slowness, is adopted. Some justifications should be furnished on this. 8. Many assumptions are stated in various sections. More justifications should be provided on these assumptions. Evaluation on how they will affect the results should be made. 9. Moreover, the manuscript could be substantially improved by relying and citing more on recent literatures about real-life case studies of soft computing techniques in hydrologic prediction elsewhere such as the followings: Āñ Cheng, C.T., Wang, W.C., Xu, D.M. and Chau, K.W., “Optimizing hydropower reservoir operation using hybrid genetic algorithm and chaos,” *Water Resources Management*, Vol. 22, No. 7, 2008, pp 895-909. Āñ Chen, W. and Chau, K.W., “Intelligent manipulation and calibration of parameters for hydrological models,” *International Journal of Environment and Pollution*, Vol. 28, No. 3-4, 2006, pp. 432-447. Āñ Lin, J.Y., Cheng, C.T. and Chau, K.W., “Using support vector machines for long-term discharge prediction,” *Hydrological Sciences Journal*, Vol. 51, No. 4, 2006, pp. 599-612. Āñ Wu, C.L., Chau, K.W. and Li, Y.S., “Predicting monthly streamflow using data-driven models coupled with data-preprocessing techniques,” *Water Resources Research*, 45, W08432, doi:10.1029/2007WR006737, 2009. Āñ Wang, W.C., Cheng, C.T., Chau, K.W. and Xu, D.M., “Calibration of Xinanjiang model parameters using hybrid genetic algorithm based fuzzy optimal model,” *Journal of Hydroinformatics* 14 (3): 784-799 2012. Āñ Chau, K.W., Wu, C.L. and Li, Y.S., “Comparison of several flood forecasting models in Yangtze River,” *Journal of Hydrologic Engineering*, ASCE, Vol. 10, No. 6, 2005, pp. 485-491. 10. Some inconsistencies and minor errors that needed attention are: Āñ Replace “. . .are high than 30% . . .” with “. . .are higher than 30% . . .” in lines 10-11 of p. 12013 11. In the conclusion section, the limitations of this study, suggested improvements of this work, and

future directions should be added.

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