Hydrology and Earth System Sciences Discussions

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Interactive comment on "Generalized versus Non-Generalized Neural Network model for multi-lead inflow forecasting at Aswan High Dam" *by* A. El-Shafie and A. Noureldin

Anonymous Referee #1

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1. The manuscript presents generalized versus non-generalized neural network model for multi-lead inflow forecasting at Aswan High Dam, 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, NN in p.7972, 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. Many assumptions

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are stated in various sections. More justifications should be provided on these assumptions. Evaluation on how they will affect the results should be made. 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.7964 that the back-propagation algorithm, which has the drawbacks of local convergence and slowness, is adopted. Some justifications should be furnished on this. 8. 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: ïĄň Cheng, C.T., Ou, C.P. and Chau, K.W., "Combining a fuzzy optimal model with a genetic algorithm to solve multiobjective rainfall-runoff model calibration," Journal of Hydrology, Vol. 268, No. 1-4, 2002, pp. 72-86. ïĄň 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. ïĄň Wang, W.C., Chau, K.W., Cheng, C.T. and Qiu, L., "A comparison of performance of several artificial intelligence methods for forecasting monthly discharge time series," Journal of Hydrology, Vol. 374, No. 3-4, 2009, pp 294-306. ïĄň 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. ïĄň 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. ïĄň 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. 9. Some inconsistencies and minor errors that needed attention are: ïĄň Replace ". . .performance function of Eq. (10). . ." with ". . .performance function of Eq. (5). . ." in line 3 of p.7966 ïĄň Replace ". . .Assembly Neural Network Procedure. . ." with ". . .Assembling Neural Network Procedure . . ." in line 6 of p. 7966 10. In the conclusion section, the limitations of this study, suggested improvements of this work, and future

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directions should be added.

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