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# *Interactive comment on* "Multi-step-ahead predictor design for effective long-term forecast of hydrological signals using a novel wavelet-NN hybrid model" *by* J.-S. Yang et al.

**Anonymous Referee #1**

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The authors aimed to establish a long-lead time forecast procedure for water levels of two stations. There are some points given below that should be cleared.

1. Please give the expansion of the CDW-NN in the abstract.

2. Page 9248, line 24, Figure 2 should be read as Figure 5.

3. What is the average changing periodicity. Please explain it more detail.

4. Page 9249 Line 6 28 years should be read as 28 days.

5. Using correlation coefficient, R in the model accuracy evaluation can mislead. To

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prevent this situation, the use of squared errors is recommended. Please evaluate your results by $R^2$ or Nash-Sutcliffe sufficiency score.

6. The methodology explained for multistep long lead forecasting is confusing. They used CWT to determine significant cycles (12 days and 23 days). These values are used as lag-time to predict future water levels. Then this process is called CW-NN or CW-NF. In my opinion this is not a hybrid model and should not be named in this way. In fact this is a simple NN or NF model that used lagged inputs.

7. When we look at Table 1, it is seen that there is no significant differences in correlation coefficients between S and TD. So why do you need decompose S series instead of using the original series. The correlations between S and lagged S are already same.

8. In Table 2, I have seen any improvement of results by CDW over NF, ANN, and LR. Also the scores of hybrid CDW is very low which is not within the acceptable limits.

9. As far as I understand from Figure 7, the correlation coefficient results is for whole period. To reflect the unbiased conditions, the results should be for testing period.

10. Since the manuscript related to continuous wavelet application The authors can give references to Ozger et al (2012) who used continuous wavelet decomposition with neuro-fuzzy approach in their study.

References

Ozger, M., Mishra, A. K.; and Singh, V. P. 2012. Long Lead Time Drought Forecasting Using a Wavelet and Fuzzy Logic Combination Model: A Case Study in Texas, Journal of Hydrometeorology, 13 (1), 284-297.

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