The authors gratefully thank to the Referee for the constructive comments and recommendations which definitely help to improve the readability and quality of the paper. All the comments are addressed accordingly and have been incorporated to the revised manuscript. Detailed responses to the comments and recommendations are asfollows.

Please note that all the comments are bold-faced and authors reply follow immediately below the comments.

The manuscript presented anunivariate analysis of river flow series based on a global nonlinear approach. Using a threshold for the water level series, the Authors improved significantly the performance of the forecasting results. However, the assumptions must be more clearly explained, the global nonlinear approach may not be the best approach and the forecasting assessment should be extended.

Major Comments:

1. **The Authors assumed that the river flow has a stochastic behaviour, i.e. a linear random nature, but proposed an artificial neural network approach (ANN), a global nonlinear approach. This seems contradictory; please explain your assumptions more clearly. In this way, in order to clarify your motivations, you should cite the studies which presented poor results of regression models (ARMA?) and explain why these models should not work.**

   Reply:

   The authors admit not enough description explaining the nature of river flow and the use of ANN that makes the section has a conflicting argument.

   The motivation of the use of ANN has been rewritten in the introduction section where several papers are referenced to why the use of ANN in river forecasting studies. Among the authors that are cited in the paper are Toth et al. (2000), Maier and Dandy (2000), El-Shafie et al. (2008), and Gibson and Cowan (1990).

2. **Since your main goal is to improve predictions of water level above the flood alert level using a zoning matching approach (ZMA), you should test different data driven**

approaches, instead of ANN only. Moreover, we still cannot conclude that global non-linear approaches always outperform global linear or locally (non)linear ones based on the previous works about runoff series forecasting. Also, note that the best approach for a lead-time, e.g. 3 hours, must not be the best for another lead-time, e.g. 6 hours, because the river flow behaviour may change through the time-scales.

- Reply:

- This comment has two points. The first is the main goal of this study is to improve ANN based model approach in forecasting water level so that the accuracy of the forecasting model can be improved. It has been described in the paper, however we agree with you that it is NOT clear enough especially in the objective section. A wrong placing of the ANN based model words is the cause of the unclear perspectives. The objective of this study has been rewritten to state the original objective. Thus, other data driven approaches are not tested in this study. We strongly agree if the objective is to improve the prediction of water level using zoning matching approach, then the other data driven approaches should also be tested.
  Second, the authors agree that the best lead-time, e.g. 3 hours is not necessarily best approach for the lead-time of 6 hours. Thus, we added in the conclusion the restriction and suggestion to improve the prediction for the lead-time that is not within the high accuracy prediction results.
  - Thanks for the suggestion which definitely helps to improve this paper.

3. **You should plot the errors of the forecasting vs. the observed water level, in order to investigate overestimation and underestimation in your results.**

- Reply:
  The errors of the forecasting vs. the observed water level are plotted in Fig. 13 (Previously Fig. 12) with a caption “Distribution of errors for forecasting results”. This figure shows the error distribution of the forecasting vs observed water levels for three cases. Negative values in the chart are for the underestimate cases and positive values are for the overestimate cases. Several sentences are added to the current section that discussed distribution of errors.
  - The authors admit to miss this issue which is one of the critical issues that should be discussed.

4. **Please validate your approach also for the 11 flood events of the training set (Fig. 3) as you did for the 2 flood events of the validating set, because they have low recurrence and, consequently, are important to achieve the objectives of this work.**

    - Reply:

      owing to the referee feedback, a new figure and a new stage have been added in the paper to discuss the validity of the high accuracy forecasting model. There are five stages in the analysis in this paper where the fifth is the verification of the performance of the high accuracy model on the training data. Four cases of flood events are in shown in Fig. 14 to demonstrate the accuracy of the model. There are actually 13 flood events during the period of training dataset, but 5 cases of the flood events are not in the data (missing/not available). The other 4 cases of flood events have very similar results as in Fig. 14.Thus, only 4 are shown.

        - The authors appreciated this comment that makes the paper more complete.

5. **On the one hand, the ZMA improved significantly your results. On the other hand, it restricts even more the application of time series models to hydrological data because needs even longer discharge or water level series. You should stress this in the conclusions.**

    - Reply:

      The restriction as recommended has been included in the conclusion section.

        - Thanks for the comment and recommendation.

Technical comments:

1. **Include a schematic diagram about the stages of your analysis in the section 3.5.**

   - Reply:

     A schematic diagram has been added with caption – "Fig. 7. The stages in developing of forecasting models based on ZMA using the ANN."

     - The authors appreciate this recommendation that help to improve the reading and presentation of this paper.

2. **Change the range of Figures 7-11 from [0, 1400] to [8000 to1300].**

   - Reply:

     Figure 7 – 11 has been updated with 8000 to 1300 mm scale. However, the figures are now changed to Figure 8 – 12 due to addition of new in figure (Fig. 7) based on technical comment #1.

     - The authors appreciate this recommendation which help to improve the readability of the figures.

3. **In the text, "data training" may be training and "data forecasting" forecasting.**

   - Reply:

     All data training and data forecasting have been changed to training and forecasting.

     - The authors agree the two terms are already properly described the processes.

4. **See on page 9359 line 11: "water leve1".**

   - Reply:

     Corrected.

     - The authors thank for the correction.

5. **See on p. 9360 l. 5 "underestimating overestimating".**

   - Reply:

     The "underestimating overestimating" has been changed to "underestimating and overestimating".

     - The authors admit to make the mistake of the writing.

6. **Substitute "with more than 12 flood events" by the exact number of flood events (see Fig. 3).**

- Reply:

  "with more than 12 flood events" has been changed to "with 15 flood events". One of the reasons of the use of "more than 12" is that there are water levels that are just above 9000 mm that are not recorded as flood events. However, the need to change from 12 to 15 is actually when we realized that the 12 is for the cases that have correlation to flood events in Kota Tinggi.

  - The authors appreciate therecommendation that has help to correct the mistake and improved the technical writing aspect ofthis paper.

7. **First paragraph of the Methodology should be in the introduction section.**

- Reply:

  The paragraph has been removed and blend into the objective in the introduction section. A sentence "The initial target lead-time for testing the model is 3 hours and the target forecasted water level is above 8000 mm." which is part of the paragraph has been moved to second sentence in "3.5 Stages of analysis" section.

  - The authors appreciate the recommendation.

8. **See p. 9364 l. 10: "The reason a minimum".**

- Reply:

  The sentence has been rewritten to " The reason a minimum of three data inputs are used to determine the best number of inputs for forecasting is that pre-analysis using less than three resulted in a poorer forecasting performance."

  - The authors appreciate the comment to correct the sentence.

9. **I think you do not need on p. 9364 l. 22-26: "Among the data... required for validation."**

- Reply:

  The sentences have been removed.

  - The authors appreciate the recommendation.

10. Rewrite lines 8-10 on page 9367: "The third... 8000mm."".

- Reply:

  The lines have been rewritten to "The third stage is to determine the best lead-time for achieving high accuracy and satisfactory accuracy models for water levels above 8000 mm."

  - Thanks for the correction.

11. "are" instead of "is" on page 9374 line 2 and "assumed" on page 9374 line 6.

- Reply:

  Corrected.

  - The authors appreciate the grammar correction by the reviewer.

12. See last columns of Tables 3 and 4.

- Reply:

  The last columns where two data are merged together have been separated by placing 2nd data in bracket.

  - The authors believe the errors are caused by text alignment. Thanks for the correction.

13. See caption of Fig. 7.

- Reply:

  The legends description have been changed accordingly to reflect the caption of the figure.

  - The authors thanks for the comment.