Reply to Anonymous Referee #2

We thank you very much for reviewing the manuscript. The following are our supplementary reply for a lot of research has been done to your comments.

7. Concerning inflow predictions, please indicate efficiency of the proposed model to simulate and predict extreme values which are of great importance.

Response: Thank you for your careful review and suggestion. The root mean square error (RMSE) and mean absolute error (MAE) are the most commonly used criteria to assess model performance (Luo et al., 2019; Chau, 2005; Chau, 2006). The Pearson correlation coefficient (CORR) is a good measurement of the average error. According to Referee (#2) and (#3)'s suggestions, Kling-Gupta efficiency metrics (KGE), the percent bias in flow duration curve high-segment volume (BHV) and the Index of Agreement (IA) are introduced as supplements. Kling–Gupta efficiency scores (KGE) (Knoben et al., 2019) is also a widely used evaluation index. It can be provided as following Eq. (1) and (2).

$$KGE = 1 - \sqrt{(CORR - 1)^2 + \left(\frac{\hat{\sigma}}{\sigma} - 1\right)^2 + \left(\frac{\bar{Q}}{\bar{Q}} - 1\right)^2} \quad (1)$$

$$\mathrm{CORR} = \frac{\sum_{i=1}^{n}(Q_i - \bar{Q})\left(\widehat{Q_i} - \bar{\widehat{Q}}\right)}{\sqrt{\sum_{i=1}^{n}(Q_i - \bar{Q})^2 \sqrt{\sum_{i=1}^{n}\left(\widehat{Q_i} - \bar{\widehat{Q}}\right)^2}}}, \hat{\sigma} = \sqrt{\frac{1}{n}\sum_{i=1}^{n}\left(\widehat{Q_i} - \bar{\widehat{Q}}\right)^2}, \sigma = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(Q_i - \bar{Q})^2} \quad (2)$$

where $\widehat{Q_i}$ and Q_i are the inflow estimation and observed value at time *i*, respectively and *n* is the number of samples. $\bar{\widehat{Q}}$ is the mean of the estimation values. σ is the standard deviation of the observed values, $\hat{\sigma}$ is the standard deviation of the inflow estimation.

The percent bias in flow duration curve high-segment volume (BHV) (Yilmaz et al., 2008; Vogel and Fennessey, 1994) is used to evaluate performance of peak inflow forecasting. It can be provided as following Eq. (3).

$$\mathrm{BHV} = \frac{\sum_{h=1}^{H}(\hat{Q}_h - Q_h)}{\sum_{h=1}^{H} Q_h} \times 100 \quad (3)$$

where h = 1, 2,. . .H are the flow indices for flows with exceedance probabilities lower than 0.02.

The Index of Agreement (IA) (Willmott, 1981) plays a significant role in evaluating the degree of the agreement between observed values and inflow estimation. It is given by Eq. (4).

$$IA = 1 - \frac{\sum_{i=1}^{n}(\widehat{Q_i} - Q_i)^2}{\sum_{i=1}^{n}(|\hat{Q}_i - \bar{Q}| + |Q_i - \bar{Q}|)^2} \quad (4)$$

More details will be given in the revised version.