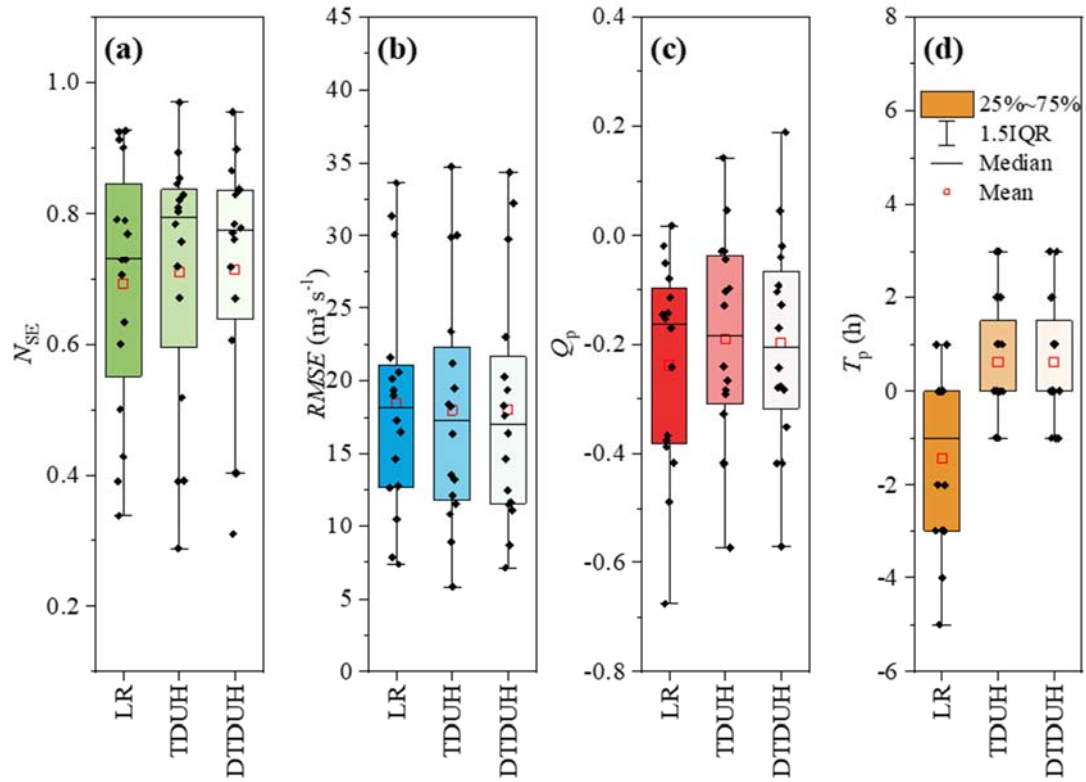


**Figure S1.** Distributions of the evaluation index based on different runoff routing methods for the Dongshi River basin, where the XAJ+LR, XAJ+TDUH and XAJ+DTDUH models are calibrated, respectively. (a) Distribution of  $N_{SE}$ . (b) Distribution of  $RMSE$ . (c) Distribution of  $Q_p$ . (d) Distribution of  $T_p$ .



**Figure S2.** Distributions of the evaluation index based on different runoff routing methods for the Longhu River basin, where the XAJ+LR, XAJ+TDUH and XAJ+DTDUH models are calibrated, respectively. (a) Distribution of  $N_{SE}$ . (b) Distribution of  $RMSE$ . (c) Distribution of  $Q_p$ . (d) Distribution of  $T_p$ .