Hydrometeorological information (i.e., yearly averaged wtd, ET, soil moisture, snow water equivalent, and soil type and dominant PFT)

TSMP-G2A data set

Calculate anomalies

Select pixels to construct local LSTM networks

Analyze the network reaction to local factors

P and wtd data

Anomalies

Local network performances

Separate data

Training set

Train one hidden layer LSTM networks having hidden neurons from 1 to 100

Trained LSTM networks

Validate the trained networks

Validation set

Validation loss

Number of epoch >= 50 and validation loss increases?

Yes

Test the networks achieving the top three validation performances

Optimal network results

Test set

No

Network training

Network validation

Network testing

Average optimal network results for evaluation