S4 Table. Coefficient of determination of our proposed approach against the other model setups from the ensemble mean mean $\pm$sd estimate of the 50 runs. $LSTM$ = LSTM model using the full depth of the Landsat time series and climate data; $LSTM_{perm} = LSTM$ model but the temporal patterns of both the predictive and the target variables were randomly permuted while instantaneous relationships between predictive and target variables were kept; $LSTM_{msc} = LSTM$ model but the Landsat time series for each band were replaced by their mean seasonal cycle, while using the actual values of air temperature (T_{air}), precipitation (P), global radiation (Rg), and vapor pressure deficit (VPD); $LSTM_{annual} = LSTM$ model but the Landsat time series for each band were replaced by their annual mean, while using the actual values of T_{air}, P, Rg, and VPD, RF = Random Forest model using the actual values of the Landsat time series and climate data.

	Seasonal	Seasonal anomaly	Across-site	Interannual anomaly
LSTM	**0.66** $\pm$0.01	**0.10** $\pm$0.006	**0.43** $\pm$0.04	**0.09** $\pm$0.02
LSTM$_{msc}$	**0.64** $\pm$0.01	**0.05** $\pm$0.006	**0.40** $\pm$0.04	**0.02** $\pm$0.008
LSTM$_{annual}$	**0.60** $\pm$0.02	**0.07** $\pm$0.008	**0.37** $\pm$0.04	**0.07** $\pm$0.01
LSTM$_{perm}$	**0.62** $\pm$0.01	**0.08** $\pm$0.005	**0.39** $\pm$0.04	**0.11** $\pm$0.02
RF	**0.58** $\pm$0.00003	**0.06** $\pm$0.00003	**0.39** $\pm$0.0001	**0.07** $\pm$0.0004