

S2 Table. RMSE of the *LSTM* setup per PFT and climate region from the ensemble mean mean \pm sd estimate of the 50 runs. Statistics for the anomalies were not calculated in the arid and tropical climate (i.e. NA) because there was no site with at least 2 years of complete data after data quality control.

	Seasonal cycle	Seasonal anomaly	Across-site	Interannual anomaly
Deciduous forest	1.18 \pm 0.03	0.61 \pm 0.01	0.51 \pm 0.02	0.27 \pm 0.007
Evergreen forest	1.15 \pm 0.02	0.58 \pm 0.006	0.72 \pm 0.03	0.31 \pm 0.006
Mixed forest	1.10 \pm 0.05	0.68 \pm 0.007	0.50 \pm 0.08	0.37 \pm 0.008
Savanna	0.75 \pm 0.02	0.58 \pm 0.007	0.34 \pm 0.09	0.19 \pm 0.01
Arid	0.71 \pm 0.03	NA	0.20 \pm 0.07	NA
Boreal	1.02 \pm 0.02	0.45 \pm 0.006	0.52 \pm 0.03	0.18 \pm 0.004
Temperate	1.18 \pm 0.02	0.71 \pm 0.006	0.65 \pm 0.03	0.38 \pm 0.006
Tropical	1.40 \pm 0.08	NA	1.03 \pm 0.12	NA