Supplementary information

Table S1. Temporal scale, time aggregation, sample size and number of random forests utilized in the Random Forest analysis.

Temporal scale	Time aggregation	Sample size	Number of random forests (per variable and per flux)
Diurnal	Hourly	23323	24 (every hour)
Seasonal	Hourly	23323	8 (every 2 weeks)
Annual	Hourly	23323	5 (every year + entire period)

Table S2. Seasonally aggregated environmental drivers and C fluxes in the late growing season of 2014, 2015, and 2018 and their relative difference between years.

Period	Ta (℃)	SWC (%)	NEE (g C/m2)	Re (g C/m2)	GPP (g C/m2)
2014 Late GS	6.8±2.6	80.7±4.1	-175.6	152.7	328.3
2015 Late GS	6.8±2.5	68.3±4.3	-141.6	191.9	333.5
2018 Late GS	8.5±3.4	80.8±3.8	-134.3	225.4	359.7
2015 - 2014	0.8%	-15.4%	-19.4%	25.7%	1.6%
2018 - 2014	25%	0.1%	-23.5%	47.6%	9.6%

Note: late GS represents late (Aug. - Sep.) growing season.
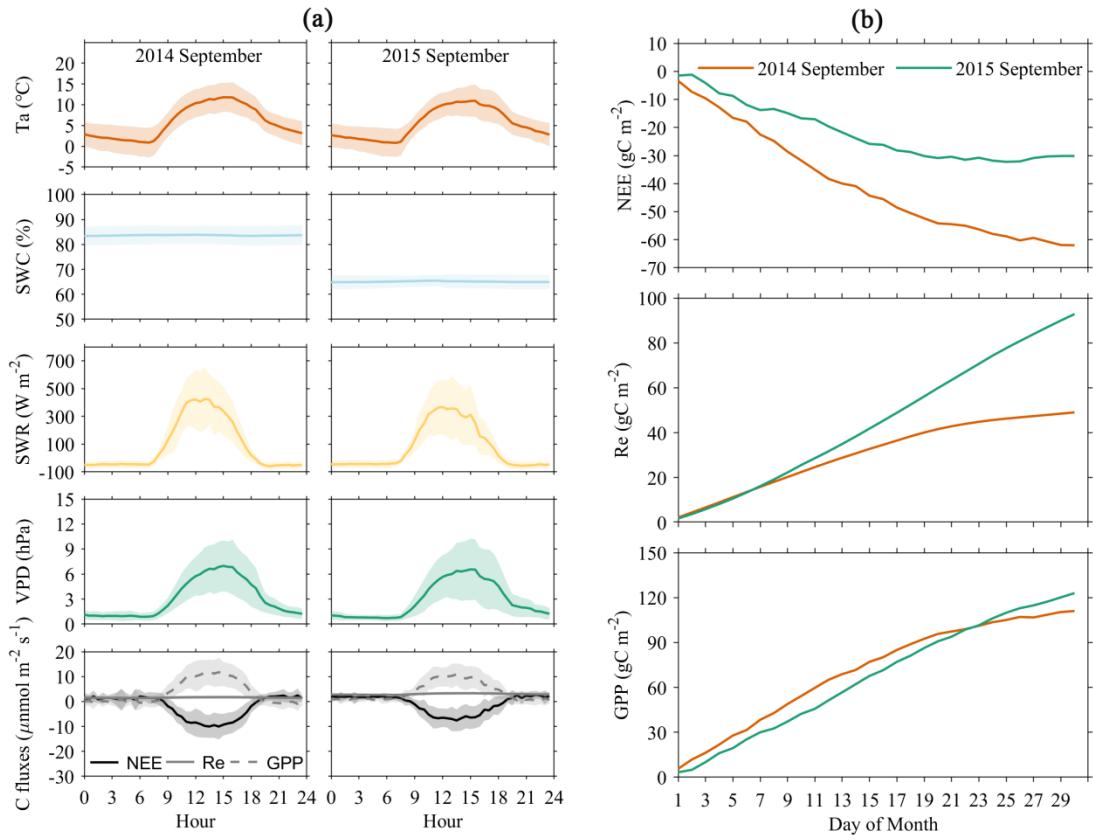
Fig. S1. (a) Comparisons of the diurnal variations of environmental drivers (Ta, SWC, Rn, and VPD) and C fluxes (NEE, Re, and GPP) between September 2014 and September 2015. The shading represents the mean ± standard deviation of the presented variables. (b) Comparisons of the daily accumulated C fluxes (NEE, Re, and GPP) between September 2014 and September 2015.

Table S3. Daily aggregated environmental drivers and C fluxes in 2014 and 2015September.

Period	Ta (°C)	SWC (%)	NEE (g C/m2)	Re (g C/m2)	GPP (g C/m2)
2014 September	5.8±2.5	83.7±3.7	-62.0	49.0	111.0
2015 September	5.4±2.2	65.1±2.4	-30.2	92.8	123.0
2015 - 2014	-6.8%	-22.2%	-51.3%	89.4%	11.0%