

Site name	Latitude	Longitude	Elevation (m)	Biome <sup>a</sup>	Average $T_A$ (°C)	Average annual $P$ (mm)	Climate <sup>b</sup>	Aridity index (AI <sup>c</sup> )	Reference
US-Me2	44.4523	-121.557	1253	ENF	6.28	523	M	1.004	Thomas et al. (2009)
US-Ton	38.4316	-120.966	177	WSA	15.8	559	M	0.440	Baldocchi et al. (2004)
US-SRM	31.8200	-110.8700	1120	WSA	17.92	380	ASC	0.258	Scott et al. (2015)
US-SRG	31.7894	-110.828	1291	GRA	17	420	ASC	0.317	Scott et al. (2015)
US-Wkg	31.7365	-109.942	1531	GRA	15.64	407	ASC	0.225	Scott et al. (2015)
US-NR1	40.0329	-105.546	3050	ENF	1.5	800	SA	0.478	Monson et al. (2005)
US-Kon	39.0824	-96.5603	330	GRA	12.77	867	HS	0.674	Logan and Brunsell (2015)
US-KFS	39.0561	-95.1907	310	GRA	12	1014	HS	0.807	Logan and Brunsell (2015)
US-ARM	36.6058	-97.4888	314	CRO	14.76	843	HS	0.551	Fischer et al. (2007)
US-Ne1	41.1651	-96.4766	361	CRO	10.07	790	HC	0.645	Suyker (2016)
US-MMS	39.3232	-86.4131	275	DBF	10.85	1032	HS	0.984	Philip and Novick (2016)
US-NC1	35.8118	-76.7119	5	ENF	16.6	1320	HS	1.031	Domec et al. (2015), Sun et al. (2010)
US-NC2	35.8030	-76.6685	5	ENF	16.6	1320	HS	1.031	Domec et al. (2015), Sun et al. (2010)

<sup>a</sup> WSA = Woody savanna, GRA = Grassland, ENF = Evergreen needleleaf forest, DBF = Deciduous broadleaf forest, CRO = croplands; <sup>b</sup> M = Mediterranean, ASC = Arid steppe cold, SA = sub arctic, HS = Humid subtropical, HC = Humid continental; <sup>c</sup> AI =  $P/E_p$  (Food and Agriculture Organization, FAO, 2015). We categorized the sites into arid (AI < 0.30), semiarid (0.50 > AI > 0.30), subhumid (0.65 > AI > 0.50), and humid (AI > 0.65) zones, such that each AI category contained at least two validation sites.