Table Main site characteristics, and studied periods of flux sites used in this analysis. All the data gathered from www.fluxdata.org.

Site name	Lon[1]	Lat[2]	Alt	Year start	Year end	Veg[3]	Ref[4]
AR-SLu	-66.4598	-33.4648	887	2009	2011	MF	[Ulke et al., 2015]
AR-Vir	-56.1886	-28.2395	74	2009	2012	ENF	[Posse et al., 2016]
AT-Neu	11.3175	47.1167	970	2002	2012	GRA	[Wohlfahrt et al., 2008]
AU-Ade	131.1178	-13.0769	188	2007	2009	WSA	[Beringer et al., 2011a]
AU-ASM	133.249	-22.283	615	2010	2013	ENF	[Cleverly et al., 2013]
AU-Cpr	140.5891	-34.0021	51	2010	2014	SAV	[Meyer et al., 2015]
AU-Cum	150.7225	-33.6133	107	2012	2014	EBF	[Beringer et al., 2016a]
AU-DaP	131.3181	-14.0633	160	2007	2013	GRA	[Beringer et al., 2011b]
AU-DaS	131.3881	-14.1593	160	2008	2014	SAV	[Hutley et al., 2011]
AU-Dry	132.3706	-15.2588	204	2008	2014	SAV	[Cernusak et al., 2011]
AU-Emr	148.4746	-23.8587	220	2011	2013	GRA	[Schroder et al., 2014]
AU-Fog	131.3072	-12.5452	90	2006	2008	WET	[Beringer et al., 2013]
AU-Gin	115.7138	-31.3764	127	2011	2014	WSA	[Beringer et al., 2016b]
AU-GWW	120.6541	-30.1913	511	2013	2014	SAV	[Prober et al., 2012]
AU-How	131.1523	-12.4943	6	2001	2014	WSA	[Beringer et al., 2007]
AU-Lox	140.6551	-34.4704	51	2008	2009	DBF	[Stevens et al., 2011]
AU-RDF	132.4776	-14.5636	187	2011	2013	WSA	[Bristow et al., 2016]
AU-Rig	145.5759	-36.6499	278	2011	2014	GRA	[Beringer et al., 2016c]
AU-Rob	145.6301	-17.1175	492	2014	2014	EBF	[Beringer et al., 2016d]
AU-Stp	133.3502	-17.1507	240	2008	2014	GRA	[Beringer et al., 2011c]
AU-TTE	133.64	-22.287	609	2012	2013	OSH	[Cleverly et al., 2016]
AU-Tum	148.1517	-35.6566	817	2001	2014	EBF	[Leuning et al., 2005]
AU-Wac	145.1878	-37.4259	309	2005	2008	EBF	[Kilinc et al., 2013]
AU-Whr	145.0294	-36.6732	164	2011	2014	EBF	[McHugh et al., 2017]
AU-Wom	144.0944	-37.4222	705	2010	2012	EBF	[Hinko-Najera et al., 2017]
AU-Ync	146.2907	-34.9893	133	2012	2014	GRA	[Yee et al., 2015]
BE-Bra	4.5206	51.3092	16	1996	2014	MF	[Carrara et al., 2004]
BE-Lon	4.7461	50.5516	167	2004	2014	CRO	[Moureaux et al., 2006]
BE-Vie	5.9981	50.3051	493	1996	2014	MF	[Aubinet et al., 2001]
BR-Sa3	-54.9714	-3.018	100	2000	2004	EBF	[Wick et al., 2005]
CA-Man	-98.4808	55.8796	259	1994	2008	ENF	[Dunn et al., 2007]
CA-NS1	-98.4839	55.8792	260	2001	2005	ENF	[Goulden et al., 2006a]
CA-NS2	-98.5247	55.9058	260	2001	2005	ENF	[Goulden et al., 2006b]
CA-NS3	-98.3822	55.9117	260	2001	2005	ENF	[Goulden et al., 2006c]
CA-NS4	-98.3822	55.9117	260	2002	2005	ENF	[Goulden et al., 2006d]
CA-NS5	-98.485	55.8631	260	2001	2005	ENF	[Goulden et al., 2006e]
CA-NS6	-98.9644	55.9167	244	2001	2005	OSH	[Goulden et al., 2006f]
CA-NS7	-99.9483	56.6358	297	2002	2005	OSH	[Goulden et al., 2006g]
CA-Qfo	-74.3421	49.6925	382	2003	2010	ENF	[Bergeron et al., 2007]
CA-SF1	-105.8176	54.485	536	2003	2006	ENF	[Mkhabela et al., 2009a]
CA-SF2	-105.8775	54.2539	520	2001	2005	ENF	[Mkhabela et al., 2009b]
CA-SF3	-106.0053	54.0916	540	2001	2006	OSH	[Mkhabela et al., 2009c]
CH-Cha	8.4104	47.2102	393	2005	2014	GRA	[Merbold et al., 2014]
CH-Dav	9.8559	46.8153	1639	1997	2014	ENF	[Zielis et al., 2014]
CH-Fru	8.5378	47.1158	982	2005	2014	GRA	[Imer et al., 2013]
CH-Lae	8.365	47.4781	689	2004	2014	MF	[Etzold et al., 2011]

Site name	Lon[1]	Lat[2]	Alt	Year start	Year end	Veg[3]	Ref[4]
CH-Oe1	7.7319	47.2858	450	2002	2008	GRA	[Ammann et al., 2009]
CH-Oe2	7.7343	47.2863	452	2004	2014	CRO	[Dietiker et al., 2010]
CN-Cha	128.0958	42.4025	1057	2003	2005	MF	[Guan et al., 2006]
CN-Cng	123.5092	44.5934	130	2007	2010	GRA	[?]
CN-Dan	91.0664	30.4978	4764	2004	2005	GRA	[Shi et al., 2006]
CN-Din	112.5361	23.1733	70	2003	2005	EBF	[Yan et al., 2013]
CN-Du2	116.2836	42.0467	1353	2006	2008	GRA	[Chen et al., 2009]
CN-Ha2	101.3269	37.6086	3563	2003	2005	WET	[?]
CN-HaM	101.18	37.37	3516	2002	2004	GRA	[Kato et al., 2006]
CN-Qia	115.0581	26.7414	238	2003	2005	ENF	[Wen et al., 2010]
CN-Sw2	111.8971	41.7902	1469	2010	2012	GRA	[Shao et al., 2017]
CZ-BK1	18.5369	49.5021	875	2004	2008	ENF	[Acosta et al., 2013]
CZ-BK2	18.5429	49.4944	855	2004	2006	GRA	[?]
CZ-wet	14.7704	49.0247	426	2006	2014	WET	[Dušek et al., 2012]
DE-Akm	13.6834	53.8662	-1	2009	2014	WET	[?]
DE-Geb	10.9143	51.1001	161.5	2001	2014	CRO	[Anthoni et al., 2004]
DE-Gri	13.5125	50.9495	385	2004	2014	GRA	[Prescher et al., 2010a]
DE-Hai	10.453	51.0792	430	2000	2012	DBF	[Knohl et al., 2003]
DE-Kli	13.5225	50.8929	478	2004	2014	CRO	[Prescher et al., 2010b]
DE-Lkb	13.3047	49.0996	1308	2009	2013	ENF	[Lindauer et al., 2014]
DE-Obe	13.7196	50.7836	735	2008	2014	ENF	[?]
DE-RuR	6.3041	50.6219	514.7	2011	2014	GRA	[Post et al., 2015]
DE-RuS	6.4472	50.8659	102.8	2011	2014	CRO	[Mauder et al., 2013]
DE-Seh	6.4497	50.8706	103	2007	2010	CRO	[Schmidt et al., 2012]
DE-SfN	11.3275	47.8064	590	2012	2014	WET	[Hommeltenberg et al., 20
DE-Spw	14.0337	51.8923	63	2010	2014	WET	[?]
DE-Tha	13.5669	50.9636	380	1996	2014	ENF	[Grünwald and Bernhofer,
DK-Fou	9.5872	56.4842	51	2005	2005	CRO	[?]
DK-NuF	-51.3861	64.1308	50	2008	2014	WET	[Westergaard-Nielsen et al
DK-Sor	11.6446	55.4859	40	1996	2014	DBF	[Pilegaard et al., 2011]
DK-ZaF	-20.5545	74.4814	38	2008	2011	WET	[Stiegler et al., 2016]
DK-ZaH	-20.5503	74.4732	38	2000	2014	GRA	[Lund et al., 2012]
ES-LgS	-2.9658	37.0979	2267	2007	2009	OSH	[Reverter et al., 2010]
ES-Ln2	-3.4758	36.9695	2249	2009	2009	OSH	[Serrano-Ortiz et al., 2011
FI-Hyy	24.295	61.8475	181	1996	2014	ENF	[Suni et al., 2003]
FI-Jok	23.5135	60.8986	109	2000	2003	CRO	[Lohila, 2004]
FI-Lom	24.2092	67.9972	274	2007	2009	WET	[Aurela et al., 2015]
FI-Sod	26.6378	67.3619	180	2001	2014	ENF	[Thum et al., 2007]
FR-Fon	2.7801	48.4764	103	2005	2014	DBF	[Delpierre et al., 2015]
FR-Gri	1.9519	48.8442	125	2004	2013	CRO	[Loubet et al., 2011]
FR-LBr	-0.7693	44.7171	61	1996	2008	ENF	[Berbigier et al., 2001]
FR-Pue	3.5958	43.7414	270	2000	2014	EBF	[Rambal et al., 2004]
GF-Guy	-52.9249	5.2788	48	2004	2014	EBF	[Bonal et al., 2008]
IT-BCi	14.9574	40.5238	20	2004	2014	CRO	[Vitale et al., 2015]
IT-CA1	12.0266	42.3804	200	2011	2014	DBF	[Sabbatini et al., 2016a]
IT-CA2	12.026	42.3772	200	2011	2014	CRO	[Sabbatini et al., 2016b]
IT-CA3	12.0222	42.38	197	2011	2014	DBF	[Sabbatini et al., 2016c]
IT-Col	13.5881	41.8494	1560	1996	2014	DBF	[Valentini et al., 1996]
IT-Cp2	12.3573	41.7043	19	2012	2014	EBF	[Fares et al., 2014]

Site name	Lon[1]	Lat[2]	Alt	Year start	Year end	Veg[3]	Ref[4]
IT-Cpz	12.3761	41.7052	68	1997	2009	EBF	[Garbulsky et al., 2008]
IT-Isp	8.6336	45.8126	210	2013	2014	DBF	[Ferréa et al., 2012]
IT-La2	11.2853	45.9542	1350	2000	2002	ENF	[Marcolla et al., 2003a]
IT-Lav	11.2813	45.9562	1353	2003	2014	ENF	[Marcolla et al., 2003b]
IT-MBo	11.0458	46.0147	1550	2003	2013	GRA	[Marcolla et al., 2011]
IT-Noe	8.1515	40.6061	28	2004	2014	CSH	[Papale et al., 2014]
IT-PT1	9.061	45.2009	60	2002	2004	DBF	[Migliavacca et al., 2009]
IT-Ren	11.4337	46.5869	1730	1998	2013	ENF	[Montagnani et al., 2009]
IT-Ro1	11.93	42.4081	235	2000	2008	DBF	[Rey et al., 2002]
IT-Ro2	11.9209	42.3903	160	2002	2012	DBF	[Tedeschi et al., 2006]
IT-SR2	10.291	43.732	12	2013	2014	ENF	[Hoshika et al., 2017]
IT-SRo	10.2844	43.7279	6	1999	2012	ENF	[Chiesi et al., 2005]
IT-Tor	7.5781	45.8444	2160	2008	2014	GRA	[Galvagno et al., 2013]
JP-MBF	142.3186	44.3869	296	2003	2005	DBF	[Matsumoto et al., 2008a]
JP-SMF	137.0788	35.2617	319	2002	2006	MF	[Matsumoto et al., 2008b]
NL-Hor	5.0713	52.2404	2.2	2004	2011	GRA	[Jacobs et al., 2007]
NL-Loo	5.7436	52.1666	25	1996	2013	ENF	[Moors, 2012]
NO-Adv	15.923	78.186	17	2011	2014	WET	[?]
NO-Blv	11.8311	78.9216	25	2008	2009	SNO	[Lüers et al., 2014]
RU-Che	161.3414	68.613	4	2002	2005	WET	[Merbold et al., 2009b]
RU-Cok	147.4943	70.8291	48	2003	2014	OSH	[van der Molen et al., 200
RU-Fyo	32.9221	56.4615	265	1998	2014	ENF	[Kurbatova et al., 2008]
RU-Ha1	90.0022	54.7252	446	2002	2004	GRA	[Marchesini et al., 2007]
SD-Dem	30.4783	13.2829	500	2005	2009	SAV	[Ardo et al., 2008]
SN-Dhr	-15.4322	15.4028	40	2010	2013	SAV	[Tagesson et al., 2014]
US-AR1	-99.42	36.4267	611	2009	2012	GRA	[Raz-Yaseef et al., 2015a]
US-AR2	-99.5975	36.6358	646	2009	2012	GRA	[Raz-Yaseef et al., 2015b]
US-ARb	-98.0402	35.5497	424	2005	2006	GRA	[Raz-Yaseef et al., 2015c]
US-ARc	-98.04	35.5465	424	2005	2006	GRA	[Raz-Yaseef et al., 2015d]
US-ARM	-97.4888	36.6058	314	2003	2012	CRO	[Fischer et al., 2007]
US-Blo	-120.6328	38.8953	1315	1997	2007	ENF	[Goldstein et al., 2000]
US-Cop	-109.39	38.09	1520	2001	2007	GRA	[Bowling et al., 2010]
US-GBT	-106.2397	41.3658	3191	1999	2006	ENF	[Zeller and Nikolov, 2000]
US-GLE	-106.2399	41.3665	3197	2004	2014	ENF	[Frank et al., 2014]
US-Ha1	-72.1715	42.5378	340	1991	2012	DBF	[Urbanski et al., 2007]
US-KS2	-80.6715	28.6086	3	2003	2006	CSH	[Powell et al., 2006]
US-Los	-89.9792	46.0827	480	2000	2014	WET	[Sulman et al., 2009]
US-Me1	-121.5	44.5794	896	2004	2005	ENF	[Irvine et al., 2007]
US-Me2	-121.5574	44.4523	1253	2002	2014	ENF	[Irvine et al., 2008]
US-Me6	-121.6078	44.3233	998	2010	2014	ENF	[Ruehr et al., 2012]
US-MMS	-86.4131	39.3232	275	1999	2014	DBF	[Dragoni et al., 2011]
US-Myb	-121.7651	38.0498	-1	2010	2014	WET	[Matthes et al., 2014]
US-Ne1	-96.4766	41.1651	361	2001	2013	CRO	[Verma et al., 2005a]
US-Ne2	-96.4701	41.1649	362	2001	2013	CRO	[Verma et al., 2005b]
US-Ne3	-96.4397	41.1797	363	2001	2013	CRO	[Verma et al., 2005c]
US-NR1	-105.5464	40.0329	3050	1998	2014	ENF	[Monson et al., 2002]
US-ORv	-83.0183	40.0201	221	2011	2011	WET	[Morin et al., 2014]
US-PFa	-90.2723	45.9459	470	1995	2014	MF	[Desai et al., 2015]
US-Prr	-147.4876	65.1237	210	2010	2013	ENF	[Nakai et al., 2013]

Site name	Lon[1]	Lat[2]	Alt	Year start	Year end	Veg[3]	Ref[4]
US-SRG	-110.8277	31.7894	1291	2008	2014	GRA	[Scott et al., 2015a]
US-SRM	-110.8661	31.8214	1120	2004	2014	WSA	[Scott et al., 2009]
US-Syv	-89.3477	46.242	540	2001	2014	MF	[Desai et al., 2005]
US-Ton	-120.966	38.4316	177	2001	2014	WSA	[Baldocchi et al., 2010]
US-Tw1	-121.6469	38.1074	-9	2012	2014	WET	[Oikawa et al., 2017]
US-Tw2	-121.6433	38.1047	-5	2012	2013	CRO	[Knox et al., 2016]
US-Tw3	-121.6467	38.1159	-9	2013	2014	CRO	[Baldocchi et al., 2015]
US-Tw4	-121.6414	38.103	-5	2013	2014	WET	[Baldocchi, 2016]
US-Twt	-121.653	38.1087	18	2009	2014	CRO	[Hatala et al., 2012]
US-UMB	-84.7138	45.5598	234	2000	2014	DBF	[Gough et al., 2013a]
US-UMd	-84.6975	45.5625	239	2007	2014	DBF	[Gough et al., 2013b]
US-Var	-120.9507	38.4133	129	2000	2014	GRA	[Ma et al., 2007]
US-WCr	-90.0799	45.8059	520	1999	2014	DBF	[Cook et al., 2004]
US-Whs	-110.0522	31.7438	1370	2007	2014	OSH	[Scott et al., 2015b]
US-Wi0	-91.0814	46.6188	349	2002	2002	ENF	[Noormets et al., 2007a]
US-Wi3	-91.0987	46.6347	411	2002	2004	DBF	[Noormets et al., 2007b]
US-Wi4	-91.1663	46.7393	352	2002	2005	ENF	[Noormets et al., 2007c]
US-Wi6	-91.2982	46.6249	371	2002	2003	OSH	[Noormets et al., 2007d]
US-Wi9	-91.0814	46.6188	350	2004	2005	ENF	[Noormets et al., 2007e]
US-Wkg	-109.9419	31.7365	1531	2004	2014	GRA	[Scott et al., 2010]
ZA-Kru	31.4969	-25.0197	359	2000	2010	SAV	[Archibald et al., 2009]
ZM-Mon	23.2528	-15.4378	1053	2000	2009	DBF	[Merbold et al., 2009a]

[1] Negative value indicates west longitude. [2] Positive value indicates north latitude. [3] Vegetation types: deciduous broadleaf forest (DBF); evergreen broadleaf forest (EBF); evergreen needleleaf forest (ENF); grassland (GRA); mixed deciduous and evergreen needleleaf forest (MF); savanna ecosystem (SAV); shrub ecosystem (SHR); wetland (WET); unknown (UNK). [4] References.

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