

**Table. S1:** The information on the forest sites, where LD is the absolute value of the linear distance between the site pairs; ED is the difference obtained by subtracting the elevation of the meteorological stations from that of the forest sites, and Valid Years refers to the number of valid years we used in the study. See references for more information. For the sites without references, see [www.fluxdata.org](http://www.fluxdata.org) for site information.

<b>Abbr.</b>	<b>Site name</b>	<b>Lat.(N)</b>	<b>Lon. (E)</b>	<b>Elev.(m)</b>	<b>LD (°)</b>	<b>ED(m)</b>	<b>Valid Years</b>	<b>Site reference</b>
BEBra	Brasschaat(DeInslagForest)	51.31	4.52	16	0.13	4.1	14	Gielen et al.(2010) [1]
BEVie	Vielsalm	50.31	5.99	450	0.20	-32	11	Aubinetetal.(2001)[2]
CHDav	Davos (Seehorn forest)	46.82	9.85	1639	0.01	47	14	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
CHLae	Laegeren	47.48	8.36	689	0.04	-154	11	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
CZBK1	Bily Kriz forest	49.50	18.54	875	0.10	-451.8	9	Reichstein et al. (2005)[3]
DEHai	Hainich	51.08	10.45	430	0.87	162	7	Kutsch et al.(2010)[4]
DELnf	Leinefelde	51.33	10.37	451	0.99	174.2	7	Anthoni et al. (2004)[5]
DEMeh	Mehrstedt	51.28	10.66	286	0.72	18	3	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
DEObe	Oberbarenburg	50.79	13.72	735	0.32	-107.6	8	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
DETha	Anchor Station Tharandt	50.96	13.57	380	0.54	1.4	20	Grünwald et al.(2007)[6]
DEWet	Wetzstein	50.45	11.46	785	0.55	517	5	Anthoni et al. (2004)[5]
DKSor	Soroe(LilleBogeskov)	55.49	11.65	40	0.25	27	12	Pilegaard et al.(2003)[7]
ESES1	El Saler	39.35	-0.32	10	0.22	-58.6	7	Reichstein et al.(2005)[3]
FIHyy	Hyytiala	61.85	24.29	181	0.49	35	7	Suni et al.(2003)[8]
FILet	Lettosuo	60.64	23.96	119	0.36	2	2	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
FISod	Sodankyla	67.36	26.64	180	0.04	-3.5	13	Hatakka et al.(2003)[9]
FRBil	Bilos	44.49	-0.96	38	0.17	12.4	2	Hibbard et al. (2005)[10]
FRFBn	Font-Blanche	43.24	5.68	420	0.30	286	3	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>

FRFon	Fontainebleau	48.48	2.78	90	0.17	-2	9	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
FRHes	Hesse Forest(Sarrebourg)	48.67	7.06	300	0.58	146.1	13	Granier et al.(2008)[11]
FRLBr	Le Bray	44.72	-0.77	61	0.12	11.6	12	Berbigier et al.(2001)[12]
FRPue	Puechabon	43.74	3.59	270	0.36	193	13	Reichstein et al.(2003)[13]
ITBon	Bonis	39.48	16.53	1170	0.20	-507	2	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
ITCA1	Castel d'Asso 1	42.38	12.03	200	0.35	-70	1	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
ITCA3	Castel d'Asso 3	42.38	12.02	197	0.36	-73	1	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
ITCol	Collelongo	41.85	13.59	1550	0.86	-325	9	Valentini et al. (1996)[14]
ITCpz	Castelporziano	41.71	12.38	68	0.08	55.5	8	Reichstein et al.(2002)[15]
ITIspr	Ispra ABC-IS	45.81	8.63	210	0.20	-23.8	3	Ferré et al. (2012) [16]
ITLav	Lavarone	45.96	11.28	1353	0.31	-776	10	Fiora et al. (2006)[17]
ITLMa	La Mandria	45.15	7.58	350	0.19	-360	6	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
ITNon	Nonantola	44.69	11.09	25	0.25	-12.5	5	Reichstein et al. (2005)[3]
ITPT1	Parco Ticino forest	45.20	9.06	60	0.33	-47.6	2	Migliavacca et al. (2009)[18]
ITRen	Renon	46.59	11.43	1730	0.45	-276	15	Cescatti et al. (2004)[19]
ITRo1/2	Roccarespani	42.41	11.93	197.5	0.14	-104.3	7	Reichstein et al.(2003)[13]
ITSRo	San Rossore	43.73	10.28	4	0.12	2.2	11	Reichstein et al.(2005)[3]
ITTo1	Tolfa wet	42.19	11.92	474	0.28	172.2	3	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
NLLoo	Loobos	52.17	5.74	25	0.17	-23.2	18	Dolman et al.(2002)[20]
PTCor	Coruche	39.14	-8.33	170	0.74	-76	2	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
PTEsp	Espirra	38.64	-8.6	95	0.44	81	7	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
PTMi1	Mitra (Evora)	38.54	-8	250	0.10	4	4	M. Reichstein et al. (2003)[21]
RUFyo	Fyodorovskoye	56.46	32.92	265	0.70	47	15	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>

SEFla	Flakaliden	64.11	19.46	226	0.89	218.7	6	W. Eugster et al. (2000) [22]
SEKno	Knottasen	61.00	16.22	317	0.22	155	2	Berggren D et al. (2004) [23]
SENor	Norunda	60.09	17.48	43	0.22	22.3	12	Tanja et al.(2003)[24]
SESk1	Skyttorp1	60.13	17.92	42	0.48	0.2	4	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
UKGri	Aberfeldy-Scotland	56.61	-3.80	340	0.30	305	6	U. Seibt et al. (2004)[25]
UKHam	Hampshire	51.15	-0.86	80	0.12	-43.4	4	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>
UKPL3	Pang/ Lambourne (forest)	51.45	-1.27	115	0.24	46.1	3	see <a href="http://www.fluxdata.org">www.fluxdata.org</a>

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