

Bridging scales: a temporal approach to evaluate global transpiration products using tree-scale sap flow data

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Contents of this file

Tables S1

Introduction

This supplementary material presents a list of the SAPFLUXNET sites whose sap flow data was used in this work, including data availability dates and site meteorological summaries.

1 **Table S1.** Summary of the SAPFLUXNET sites used in this study (site codes given here correspond to those in SAPFLUXNET), temporal range of available
2 data, total number of months of available data (n) and site summaries. P – mean precipitation (mm month⁻¹); Temp – mean surface temperature (°C); VPD
3 – mean vapour pressure deficit (kPa); S_↓– mean monthly incoming surface solar radiation (MJ m⁻²); T, ET_p and ET – GLEAM mean tall vegetation T, potential
4 ET and actual ET, respectively (mm month⁻¹); T/ET – mean tall vegetation T to total ET fraction; S – mean GLEAM evaporative stress factor (i.e. ET/ET_p). Site
5 climatic data from ERA5 and CRUJRA for the period 2001–2020.

	Range			n	P	Temp.	VPD	S _↓	T	ET _p	ET	T/ET	S	Lat.	Long.
AUS_ELL_UNB	08/2010	to	02/2012	28	89	12.8	0.80	15.1	55.7	80.9	72.6	0.91	0.77	146.6	-36.8
AUS_MAR_UBD	02/2011	to	02/2012	24	92	12.9	0.72	13.9	58.5	82.5	79.7	0.97	0.73	145.6	-37.7
AUS_MAR_UBW	01/2011	to	02/2012	21	85	13.1	0.72	13.7	58.6	79.3	75.9	0.96	0.77	145.6	-37.9
AUS_RIC_EUC_ELE	08/2013	to	08/2014	24	74	17.1	0.73	14.2	57.9	79.5	67.0	0.86	0.86	150.7	-33.6
AUS_WOM	05/2014	to	10/2015	34	53	11.9	0.79	14.1	47.3	65.0	53.6	0.85	0.88	144.1	-37.4
AUT_PAT_FOR	07/2007	to	10/2007	6	143	4.1	0.20	9.4	28.8	49.9	48.9	0.97	0.59	11.5	47.3
AUT_TSC	06/2012	to	10/2012	8	135	2.5	0.18	9.3	28.1	50.2	49.5	0.98	0.57	10.8	47.2
BRA_CAM	07/2011	to	11/2011	9	152	16.6	0.40	15.1	69.9	85.8	81.6	0.95	0.86	-45.5	-22.7
BRA_CAX_CON	11/2015	to	11/2016	24	189	26.6	0.63	15.2	39.2	132.8	131.4	0.99	0.30	-51.4	-1.7
BRA_SAN	01/2009	to	09/2009	15	157	18.5	0.38	14.2	72.4	102.2	101.2	0.99	0.72	-45.2	-23.3
CHE_DAV_SEE	06/2010	to	12/2010	12	122	-0.6	0.19	9.6	29.6	41.8	40.5	0.97	0.73	9.9	46.8
CHE_LOT_NOR	01/2014	to	11/2015	34	147	-1.3	0.24	8.1	20.8	44.4	39.8	0.94	0.52	7.8	46.5
CHN_YUN_YUN	04/2011	to	10/2011	13	132	20.5	0.65	13.3	52.1	88.8	81.7	0.92	0.64	117.4	24.0
CRI_TAM_TOW	10/2015	to	07/2016	19	204	22.6	0.62	13.7	78.6	100.0	98.9	0.99	0.80	-84.6	10.4
CZE_LIZ_LES	08/2008	to	10/2009	28	91	6.6	0.35	10.1	32.2	49.9	48.6	0.97	0.66	13.7	49.1
CZE_STI	07/2016	to	10/2016	7	71	8.7	0.36	9.7	33.7	48.1	46.3	0.96	0.73	18.0	49.0
DEU_HIN_OAK	07/2013	to	09/2014	15	57	9.4	0.34	8.9	25.3	42.4	38.1	0.92	0.66	13.2	53.4
DEU_HIN_TER	07/2013	to	09/2014	15	57	9.4	0.34	8.9	25.3	42.4	38.1	0.92	0.66	13.2	53.4
ESP_ALT_ARM	05/2012	to	10/2014	54	50	11.6	0.66	14.6	28.5	59.0	37.1	0.72	0.77	-2.3	40.8
ESP_ALT_HUE	06/2011	to	04/2013	41	49	11.4	0.66	14.5	28.5	59.0	37.1	0.72	0.77	-2.3	40.8
ESP_ALT_TRI	05/2012	to	10/2014	58	49	11.3	0.66	14.5	28.3	58.1	38.1	0.74	0.74	-2.2	40.8
ESP_CAN	12/2011	to	12/2012	23	54	14.6	0.69	13.6	15.1	78.4	63.1	0.86	0.24	2.1	41.5

ESP_GUA_VAL	12/2012	to	10/2013	14	62	9.7	0.65	13.9	24.8	57.7	35.1	0.71	0.71	-4.0	40.9
ESP_MAJ_MAI	09/2016	to	05/2018	39	71	16.1	0.86	14.2	33.0	64.4	38.0	0.70	0.87	-5.8	39.9
ESP_MAJ_NOR_LM1	09/2016	to	05/2018	39	71	16.1	0.86	14.2	33.0	64.4	38.0	0.70	0.87	-5.8	39.9
ESP_MON_SIE_NAT	09/2011	to	07/2013	35	58	9.7	0.65	14.0	27.6	57.9	37.6	0.74	0.73	-3.5	41.1
ESP_ROM_PIL	06/2012	to	11/2013	25	59	14.6	0.71	15.6	33.4	77.4	40.2	0.63	0.83	-5.0	36.8
ESP_TIL_MIX	01/2012	to	10/2013	42	47	13.7	0.74	14.0	28.3	65.8	37.2	0.66	0.76	1.0	41.4
ESP_TIL_OAK	01/2011	to	10/2011	17	47	13.7	0.74	14.0	28.3	65.8	37.2	0.66	0.76	1.0	41.4
ESP_TIL_PIN	03/2011	to	11/2011	15	47	13.6	0.74	14.0	28.3	65.8	37.2	0.66	0.76	1.0	41.4
ESP_VAL_BAR	06/2004	to	08/2005	17	73	8.2	0.46	13.8	43.8	65.2	56.9	0.89	0.77	1.8	42.2
ESP_VAL_SOR	07/2004	to	08/2005	27	72	8.1	0.46	13.6	43.8	65.2	56.9	0.89	0.77	1.8	42.3
ESP_YUN_C1	07/2012	to	10/2014	37	55	15.0	0.78	15.5	32.3	79.5	38.9	0.61	0.83	-5.0	36.8
ESP_YUN_C2	05/2013	to	10/2014	26	55	15.0	0.78	15.5	32.3	79.5	38.9	0.61	0.83	-5.0	36.8
ESP_YUN_T1_THI	09/2012	to	11/2014	36	59	14.5	0.78	15.9	32.3	79.5	38.9	0.61	0.83	-5.0	36.7
ESP_YUN_T3_THI	04/2012	to	11/2014	55	55	15.0	0.78	15.5	32.3	79.5	38.9	0.61	0.83	-5.0	36.8
FIN_HYY_SME	02/2015	to	11/2016	32	60	4.7	0.23	7.4	22.1	37.3	36.9	0.99	0.60	24.3	61.8
FRA_FON	08/2010	to	12/2014	77	60	11.7	0.45	9.9	30.6	47.8	41.4	0.88	0.74	2.8	48.5
FRA_HES_HE2_NON	01/2003	to	11/2005	24	86	10.1	0.40	9.9	35.2	48.6	46.6	0.96	0.76	7.1	48.7
FRA_PUE	12/2007	to	12/2015	156	91	13.3	0.67	13.2	37.8	64.7	47.5	0.80	0.80	3.6	43.7
GBR_GUI_ST1	07/2003	to	10/2003	6	124	5.8	0.16	6.6	22.1	37.5	37.2	0.99	0.59	-4.8	57.4
GUF_GUY_GUY	03/2015	to	05/2016	29	207	25.8	0.53	15.6	0.0	139.2	132.1	0.96	0.00	-52.9	5.3
GUF_GUY_ST2	10/2008	to	01/2009	7	208	25.8	0.53	15.6	0.0	139.2	132.1	0.96	0.00	-52.9	5.3
HUN_SIK	02/2015	to	11/2015	12	64	9.5	0.44	10.4	31.9	53.6	43.9	0.84	0.73	20.4	48.0
IDN_PON_STE	06/2008	to	12/2008	12	257	19.4	0.61	14.5	87.5	128.0	127.9	1.00	0.68	120.1	-1.5
ITA_KAE_S20	11/2013	to	11/2014	17	92	-0.9	0.15	8.0	24.9	42.6	39.0	0.93	0.64	10.6	46.8
ITA_MAT_S21	05/2013	to	11/2014	19	94	-0.5	0.15	7.2	24.9	42.6	39.0	0.93	0.64	10.7	46.7
ITA_REN	07/2016	to	10/2016	7	90	5.5	0.18	10.9	32.0	46.1	44.1	0.95	0.73	11.4	46.6
ITA_RUN_N20	07/2013	to	11/2014	25	93	1.5	0.15	9.1	24.9	42.6	39.0	0.93	0.64	10.6	46.7
ITA_TOR	01/2016	to	12/2016	22	109	3.5	0.29	9.2	15.6	45.9	40.1	0.92	0.39	7.6	45.8
MEX_VER_BSI	08/2015	to	02/2016	6	135	16.4	0.52	15.9	81.5	105.2	100.5	0.96	0.81	-97.0	19.5
MEX_VER_BSM	08/2015	to	02/2016	6	138	15.8	0.52	15.5	81.5	105.2	100.5	0.96	0.81	-97.0	19.6
NZL_HUA_HUA	07/2013	to	09/2015	51	97	15.5	0.25	13.9	0.0	84.9	84.6	1.00	0.00	174.5	-36.8

PRT_LEZ_ARN	12/2007	to	09/2008	18	43	16.8	0.70	14.6	27.9	78.1	45.3	0.70	0.62	-8.8	38.8
PRT_MIT	06/2002	to	12/2003	12	48	16.5	0.72	14.1	35.5	71.7	39.6	0.67	0.90	-8.0	38.5
RUS_CHE_Y4	08/2014	to	08/2015	7	25	-9.6	0.14	6.5	8.1	21.2	19.1	0.96	0.42	161.4	68.7
RUS_FYO	11/2001	to	09/2004	13	68	5.4	0.24	8.0	27.2	43.5	42.2	0.97	0.64	32.9	56.6
SWE_NOR_ST1_AF1	01/2010	to	10/2010	12	54	6.7	0.22	8.1	21.6	39.7	37.1	0.96	0.58	17.5	60.1
SWE_NOR_ST1_AF2	03/2010	to	10/2010	11	54	6.7	0.22	8.1	21.6	39.7	37.1	0.96	0.58	17.5	60.1
SWE_NOR_ST1_BEF	02/2008	to	09/2008	8	54	6.7	0.22	8.1	21.6	39.7	37.1	0.96	0.58	17.5	60.1
SWE_NOR_ST3	12/2004	to	10/2007	19	54	6.7	0.22	8.1	21.6	39.7	37.1	0.96	0.58	17.5	60.1
SWE_SVA_MIX_NON	12/2016	to	06/2017	12	57	2.8	0.18	7.2	19.8	32.9	31.8	0.98	0.62	19.8	64.4
USA_BNZ_BLA	08/2014	to	09/2016	32	34	-1.7	0.27	7.9	15.0	29.4	25.6	0.94	0.58	-148.3	64.8
USA_DUK_HAR	12/2003	to	12/2005	29	91	14.9	0.62	13.1	56.8	74.7	69.8	0.94	0.81	-79.1	37.0
USA_HIL_HF1_POS	10/2013	to	09/2016	62	95	15.4	0.59	13.1	57.5	79.7	74.2	0.93	0.78	-78.9	36.3
USA_HIL_HF1_PRE	10/2010	to	01/2011	7	95	15.4	0.59	13.1	57.5	79.7	74.2	0.93	0.78	-78.9	36.3
USA_HIL_HF2	09/2013	to	12/2016	74	95	15.4	0.59	13.1	57.5	79.7	74.2	0.93	0.78	-78.9	36.3
USA_MOR_SF	07/2012	to	08/2013	6	98	12.2	0.47	12.3	45.5	62.6	58.2	0.93	0.78	-86.4	39.4
USA_PJS_P04_AMB	10/2012	to	12/2015	73	22	13.7	0.85	16.9	6.9	63.9	20.8	0.38	0.33	-106.5	34.4
USA_PJS_P08_AMB	10/2012	to	12/2015	73	22	13.7	0.85	16.9	6.9	63.9	20.8	0.38	0.33	-106.5	34.4
USA_PJS_P12_AMB	06/2010	to	12/2013	73	22	13.7	0.85	16.9	6.9	63.9	20.8	0.38	0.33	-106.5	34.4
USA_SIL_OAK_1PR	02/2010	to	11/2010	16	99	12.7	0.59	12.3	48.1	66.7	63.6	0.96	0.76	-74.6	40.0
USA_SIL_OAK_2PR	05/2007	to	11/2008	30	99	12.7	0.59	12.3	48.1	66.7	63.6	0.96	0.76	-74.6	40.0
USA_SIL_OAK_POS	07/2012	to	12/2013	34	99	12.7	0.59	12.3	48.1	66.7	63.6	0.96	0.76	-74.6	40.0
USA_SMI_SCB	03/2014	to	12/2014	15	88	12.2	0.55	12.4	49.8	67.5	63.4	0.94	0.79	-78.1	38.9
USA_SMI_SER	03/2015	to	12/2015	16	101	13.8	0.66	12.7	42.3	70.6	64.9	0.94	0.65	-76.6	38.9
USA_SYL_HL1	03/2003	to	12/2003	9	74	4.9	0.24	10.8	28.1	55.9	53.1	0.97	0.53	-89.3	46.3
USA_SYL_HL2	02/2016	to	12/2016	19	74	4.9	0.24	10.8	28.1	55.9	53.1	0.97	0.53	-89.3	46.3
USA_UMB_CON	10/2013	to	09/2016	30	75	6.6	0.24	11.7	24.5	57.2	55.4	0.98	0.44	-84.7	45.6
USA_UMB_GIR	11/2013	to	09/2016	29	75	6.6	0.24	11.7	24.5	57.2	55.4	0.98	0.44	-84.7	45.6
USA_WIL_WC2	03/2016	to	11/2016	17	73	5.2	0.27	11.0	33.4	54.7	52.7	0.98	0.63	-90.1	45.8
ZAF_FRA_FRA	08/2015	to	02/2016	13	66	15.3	0.68	16.6	37.7	81.7	48.5	0.68	0.78	19.1	-33.8
ZAF_WEL_SOR	05/2014	to	10/2014	11	51	17.4	0.88	16.1	29.7	78.4	37.2	0.58	0.80	19.0	-33.4