

Table S1: Colourized version of Table 3 showing test statistics measuring how reliably each metric corresponds to the sensible, latent, or total ground heat content for a given averaging window and data quality. Numeric values represent the percentage of significantly positive (blue, left) or negative (orange, right) percentage relationships across all observation windows. The intensity of the colouring in each cell corresponds to its magnitude.

	Window Dataset	20 years			10 years			5 years			20 years			10 years			5 years		
		Q_0	Q_1	Q_2	Q_0	Q_1	Q_2	Q_0	Q_1	Q_2	Q_0	Q_1	Q_2	Q_0	Q_1	Q_2	Q_0	Q_1	Q_2
H_l	<i>MAGST</i>	72	71	71	49	49	49	22	22	22	0	0	0	0	0	0	0	0	0
	T_{10}	93	92	90	64	62	57	28	26	18	0	0	0	0	0	0	0	0	0
	T_{15}	85	85	83	52	52	48	32	32	24	0	0	0	0	0	0	0	0	0
	T_{20}	73	75	48	47	47	23	32	32	9	0	0	22	0	0	19	1	2	8
	$\bar{\tau}_{10}^0$	88	88	88	57	57	56	27	27	27	0	0	0	0	0	0	0	0	0
	$\bar{\tau}_{15}^0$	90	90	90	57	57	57	26	26	26	0	0	0	0	0	0	0	0	0
	$\bar{\tau}_{20}^0$	90	90	90	57	57	56	26	26	25	0	0	0	0	0	0	0	0	0
	$d_{za}(warm)$	10	10	10	5	5	6	2	2	3	48	48	47	20	21	19	10	10	9
	d_{za}	44	44	44	32	32	32	14	14	14	22	22	24	9	9	10	4	4	4
	$d_{za}(cold)$	74	75	71	57	57	54	26	25	23	0	0	0	0	0	1	0	0	0
	T_{za}	59	59	55	32	34	26	14	14	11	0	0	4	1	0	2	1	1	1
	TOP	96	97	86	90	91	68	57	55	38	0	0	0	0	0	0	0	0	0
H_s	<i>MAGST</i>	75	75	75	54	54	54	22	22	22	0	0	0	0	0	0	0	0	0
	T_{10}	91	91	92	72	75	78	48	50	54	0	0	0	0	0	0	0	0	0
	T_{15}	92	93	92	64	64	67	28	27	28	0	0	0	0	0	0	0	0	0
	T_{20}	90	92	70	54	55	44	17	17	13	0	0	16	0	0	4	0	0	1
	$\bar{\tau}_{10}^0$	96	96	95	81	81	80	66	66	65	0	0	0	0	0	0	0	0	0
	$\bar{\tau}_{15}^0$	98	98	98	85	85	85	71	71	71	0	0	0	0	0	0	0	0	0
	$\bar{\tau}_{20}^0$	99	99	99	89	89	88	74	74	74	0	0	0	0	0	0	0	0	0
	$d_{za}(warm)$	2	2	2	3	3	4	2	2	2	62	62	55	25	24	19	7	7	5
	d_{za}	29	29	30	24	24	25	16	15	16	26	26	24	10	10	8	2	2	2
	$d_{za}(cold)$	48	48	48	41	41	39	26	26	25	0	0	0	0	0	0	0	0	0
	T_{za}	68	70	68	47	47	42	20	20	18	2	1	4	2	1	1	1	0	0
	TOP	78	78	64	39	38	34	18	17	16	0	0	0	0	0	0	0	0	0
H_t	<i>MAGST</i>	65	65	65	41	41	40	17	17	17	0	0	0	0	0	0	0	0	0
	T_{10}	97	98	96	86	86	86	51	51	50	0	0	0	0	0	0	0	0	0
	T_{15}	98	98	96	78	78	77	34	34	29	0	0	0	0	0	0	0	0	0
	T_{20}	93	95	71	67	68	43	27	27	11	0	0	18	0	0	16	0	0	4
	$\bar{\tau}_{10}^0$	94	94	93	69	69	68	50	50	50	0	0	0	0	0	0	0	0	0
	$\bar{\tau}_{15}^0$	97	97	97	75	75	75	55	55	55	0	0	0	0	0	0	0	0	0
	$\bar{\tau}_{20}^0$	98	98	98	79	79	78	58	58	58	0	0	0	0	0	0	0	0	0
	$d_{za}(warm)$	2	2	3	4	4	4	2	2	3	50	50	47	21	21	20	10	10	9
	d_{za}	34	34	34	29	29	29	18	18	18	20	20	21	9	9	9	4	4	3
	$d_{za}(cold)$	56	56	54	47	48	47	29	29	28	0	0	0	0	0	0	0	0	0
	T_{za}	77	77	71	51	52	45	22	22	18	0	0	3	0	0	1	0	0	1
	TOP	87	88	71	61	62	45	33	32	20	0	0	0	0	0	0	0	0	0