Intraseasonal variability of air-sea fluxes over the Bay of Bengal during the southwest monsoon

Article

Supplemental Material

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Table Captions:

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Figure Captions:

Fig. S1. Difference (a), correlation (b), variance ratio (c), and skill score (d) for reanalysis products (ERA-I, TropFlux, JRA-55, MERRA-2 and CFSR) against data from the RAMA buoy at b27 (12°N and 90°E). The variables evaluated are the meteorological, SST (°C), V (m s^{-1}), T_a (°C), q_a (g kg^{-1}), ΔT (°C), Δq (g kg^{-1}), and fluxes, Q_{SW} (W m^{-2}), Q_{LW} (W m^{-2}), Q_{SH} (W m^{-2}), Q_{LH} (W m^{-2}), Q_{net} (W m^{-2}), for summer (JJAS) from 2007 to 2015. Panel (a) shows a split scale to differentiate between meteorological and flux parameters.

Fig. S2. Difference (a), correlation (b), variance ratio (c), and skill score (d) for reanalysis products (ERA-I, TropFlux, JRA-55, MERRA-2 and CFSR) against data from the RAMA buoy at b26 (8°N and 90°E). The variables evaluated are the meteorological, SST (°C), V (m s^{-1}), T_a (°C), q_a (g kg^{-1}), ΔT (°C), Δq (g kg^{-1}), and fluxes, Q_{SW} (W m^{-2}), Q_{LW} (W m^{-2}), Q_{SH} (W m^{-2}), Q_{LH} (W m^{-2}), Q_{net} (W m^{-2}), for summer (JJAS) from 2007 to 2015. Panel (a) shows a split scale to differentiate between meteorological and flux parameters.

Fig. S3. The mean and standard deviation of the fluxes, Q_{SH} (a, f), Q_{LH} (b, g), Q_{SW} (c, h), Q_{LW} (d, i), Q_{net} (e, j) across an ensemble of the reanalysis products (ERA-I, TropFlux, JRA-55, MERRA-2 and CFSR) for summer (JJAS) from 2007 to 2015.

Fig. S4. Mean Q_{net} (W m^{-2}) for ERA-I (a), TropFlux (b), JRA-55 (c), MERRA-2 (d), and CFSR (e). All fields are averaged for the SW monsoon season (JJAS) from 2007 to 2015. The black square indicates the location of the RAMA buoy, b28, in the Bay of Bengal.

Fig. S5. RAMA b28 time series of V (a), Q_{SW} (b), Q_{LH} (c), and Q_{NET} (d) for SW monsoon season (JJAS) of 2015. Phases 2 to 8 of a single BSISO1 event are marked above panel (a), and phases 2 and 5 are highlighted in grey boxes.

Mean	B28	ERA-I	TropFlux	JRA-55	MERRA2	CFSR
SST	29.03	28.85	28.88	29.02	28.85	29.08
V	7.92	7.82	8.21	7.55	8.02	8.74
T_a	28.56	28.13	28.55	28.38	28.41	28.70
q_a	20.99	20.20	21.30	20.49	20.50	20.16
Q_{SW}	176.23	172.25	162.25	172.02	147.81	247.67
Q_{LW}	-34.02	-36.74	-27.79	-43.85	-40.33	-42.83
Q_{SH}	-5.10	-10.75	-4.74	-24.30	-4.78	-3.66
Q_{LH}	-104.94	-146.36	-97.94	-154.90	-147.29	-167.02
Q_{net}	31.61	-21.60	31.77	-51.03	-44.6	34.15
STD	**B28**	**ERA-I**	**TropFlux**	**JRA-55**	**MERRA2**	**CFSR**
SST	0.52	0.58	0.60	0.49	0.55	0.52
V	2.40	2.44	2.70	2.31	2.41	2.86
T_a	0.64	0.69	0.73	0.63	0.52	0.54
q_a	0.91	0.70	0.73	0.58	0.72	0.71
Q_{SW}	73.86	47.86	54.29	41.53	42.26	48.53
Q_{LW}	7.62	5.66	6.62	3.34	5.69	6.50
Q_{SH}	6.42	8.07	8.59	7.55	4.74	6.17
Q_{LH}	30.48	36.76	30.18	36.24	41.97	64.20
Q_{net}	89.51	72.62	70.37	65.36	60.43	88.00
Max	**B28**	**ERA-I**	**TropFlux**	**JRA-55**	**MERRA2**	**CFSR**
SST	30.88	30.80	30.83	30.44	30.77	30.75
V	13.40	17.96	18.95	14.40	15.18	18.27
T_a	30.26	30.42	30.93	30.24	30.06	30.68
q_a	24.10	22.93	24.30	22.74	23.35	23.27
Q_{SW}	295.56	283.95	280.99	280.61	272.36	298.68
Q_{LW}	-18.81	-20.22	-11.12	-34.79	-26.5	-21.93
Q_{SH}	10.04	6.55	8.09	-4.08	7.68	11.75
Q_{LH}	-26.99	-57.74	-33.71	-70.85	-42.41	-31.25
Q_{net}	175.07	153.34	193.50	109.22	149.04	190.50
Min	**B28**	**ERA-I**	**TropFlux**	**JRA-55**	**MERRA2**	**CFSR**
SST	27.49	26.83	26.89	28.06	27.41	27.48
V	1.07	0.76	0.07	0.89	1.05	1.39
T_a	26.58	26.30	26.71	26.19	26.92	27.27
q_a	17.72	17.96	19.01	17.11	17.77	17.66
Q_{SW}	11.16	6.68	21.29	69.35	56.25	34.75
Q_{LW}	-67.16	-65.95	-61.73	-64.78	-69.56	-77.75
Q_{SH}	-26.33	-70.01	-73.12	-58.75	-26.18	-22.75
Q_{LH}	-230.27	-400.42	-293.36	-335.40	-332.67	-454.75
Q_{net}	-225.25	-497.19	-311.69	-308.41	-270.05	-348.63

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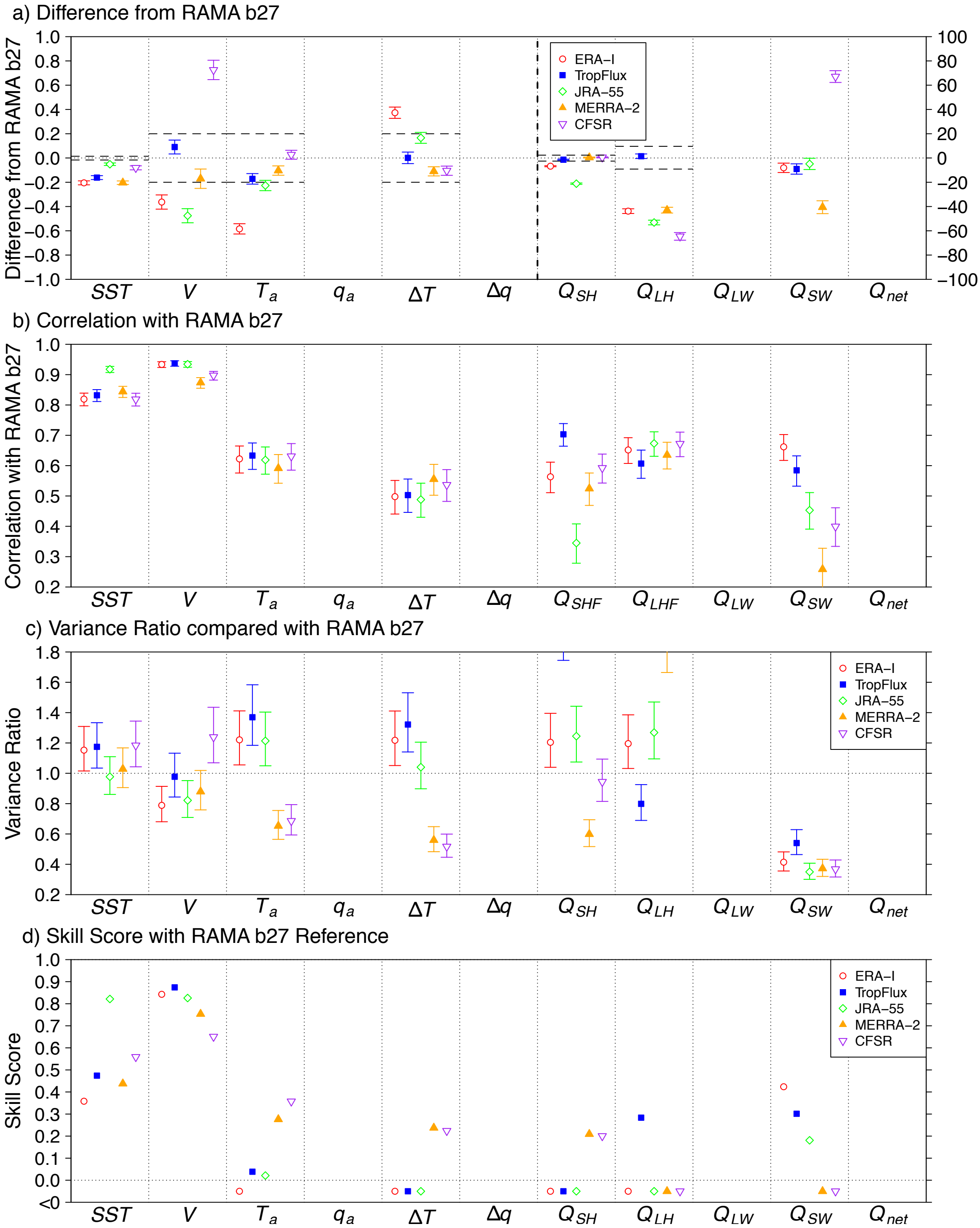

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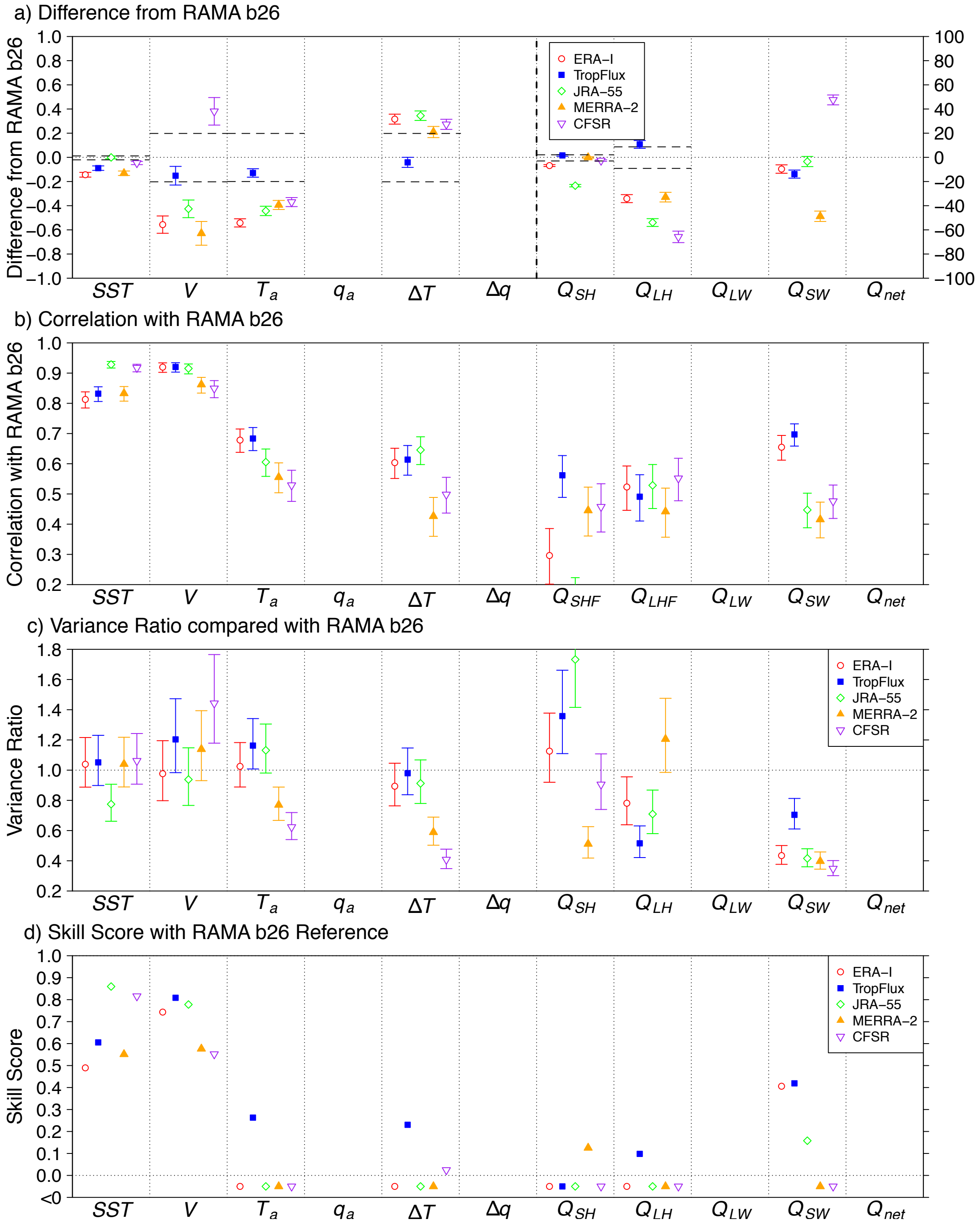

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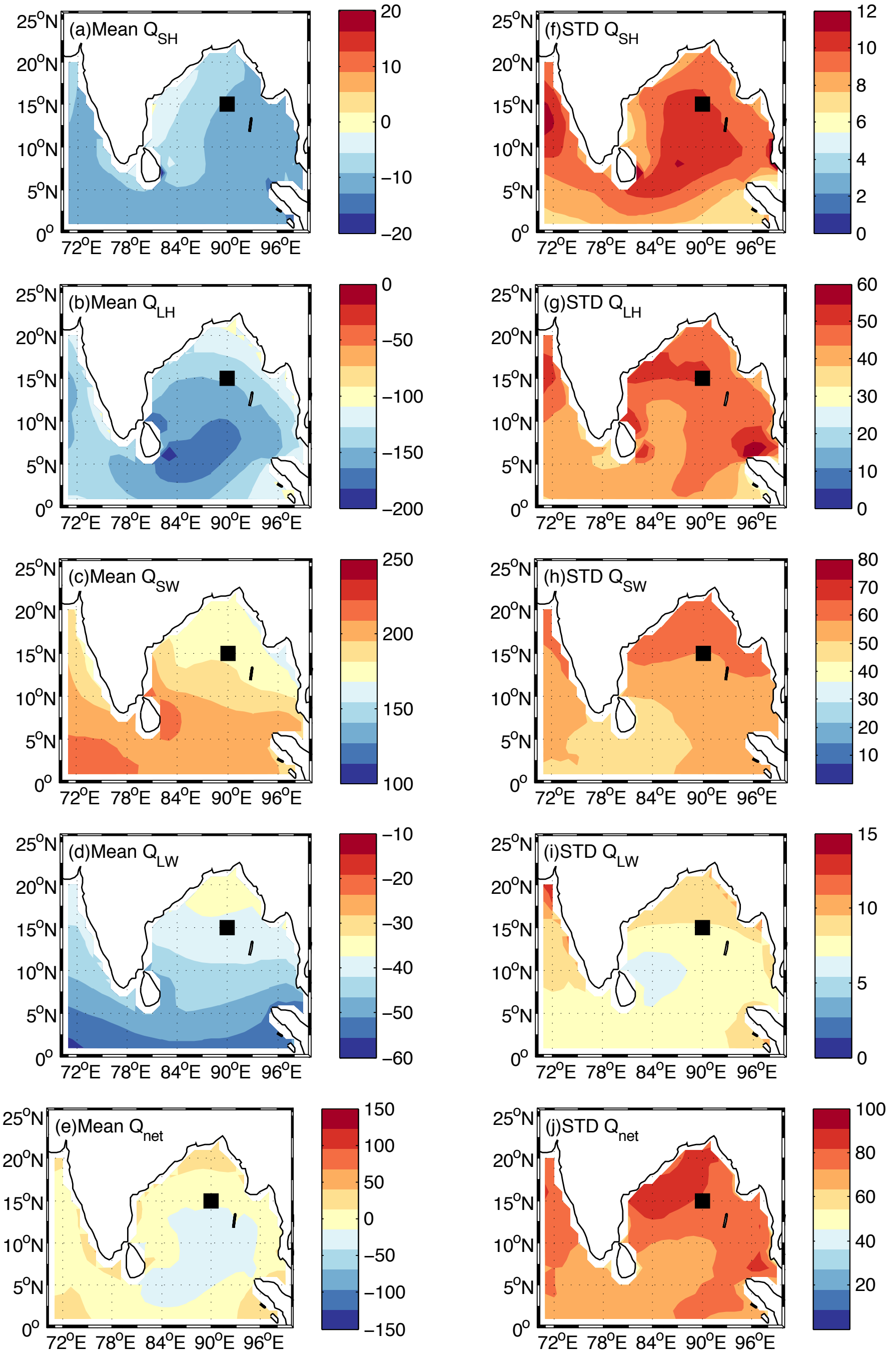

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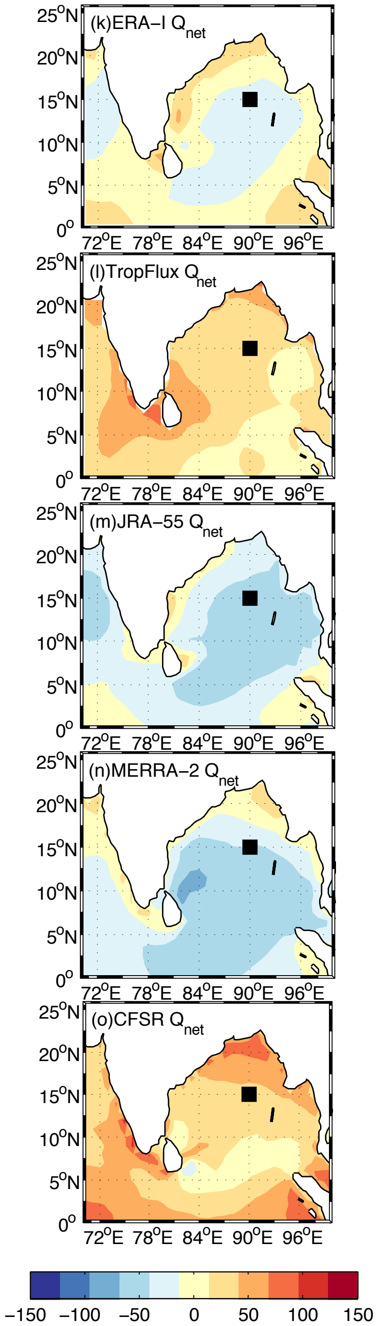

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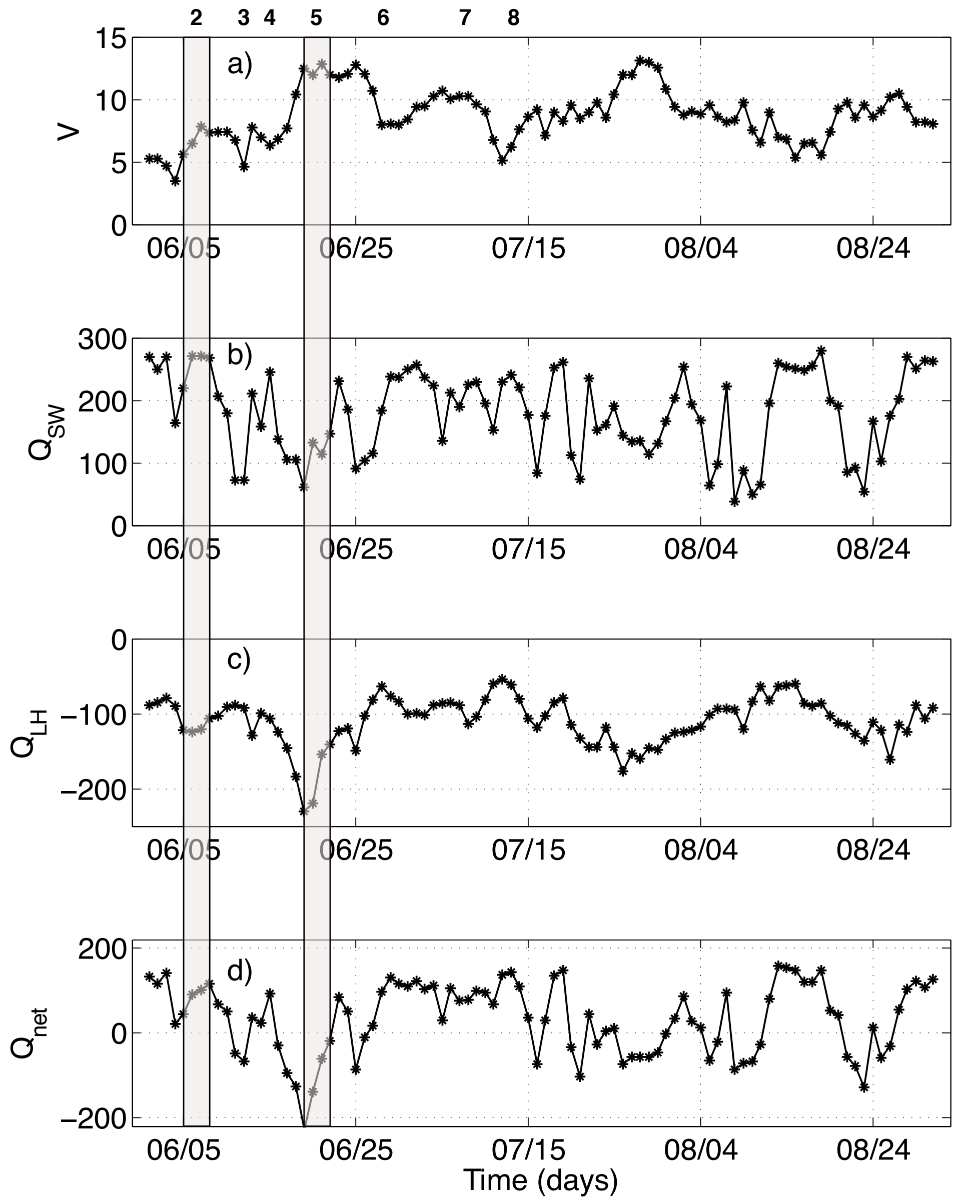

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