

Hotspots of sensitivity to GCM biases in global modelling of mean and extreme runoff.

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Supplement

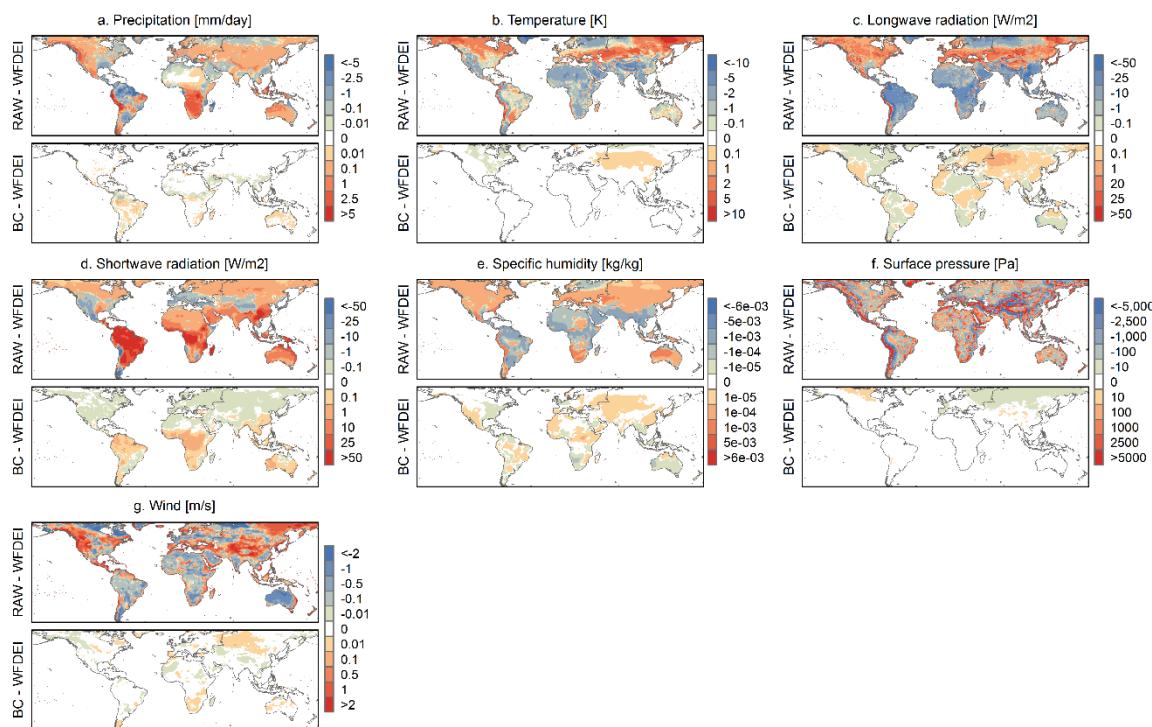


Figure S 1. 1981-2010 December, January, February Averages (DJF) of Forcing Data, differences of WFDEI from raw and bias adjusted input.

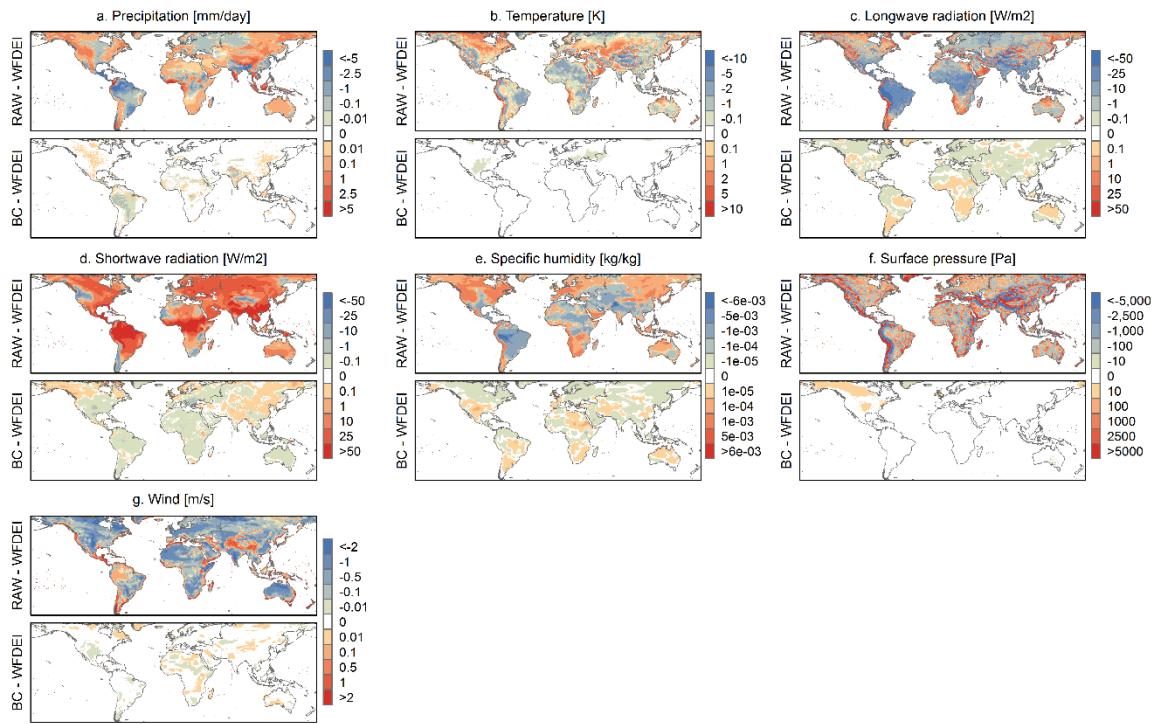


Figure S 2. 1981-2010 June, July, August Averages (JJA) of Forcing Data, differences of WFDEI from raw and bias adjusted input.

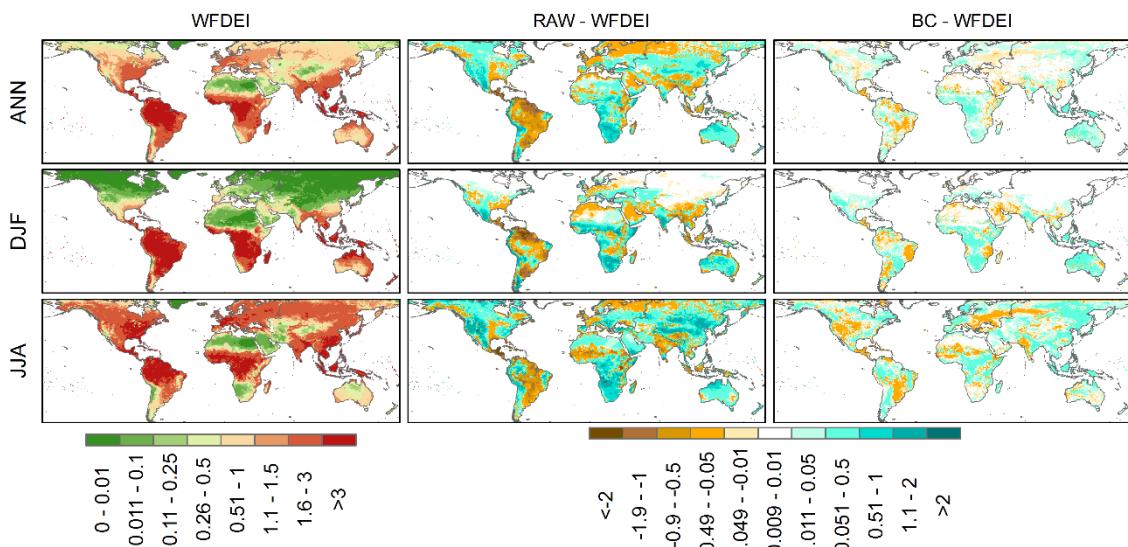


Figure S 3. Evapotranspiration [mm/day], for WFDEI input forcing (left column), and differences in evapotranspiration forced the GCM ensemble and WFDEI, for raw (middle column) and bias adjusted (left column) forcing. Results are shown for ANN, DJF and JJA averages of the 1981-2010 period.

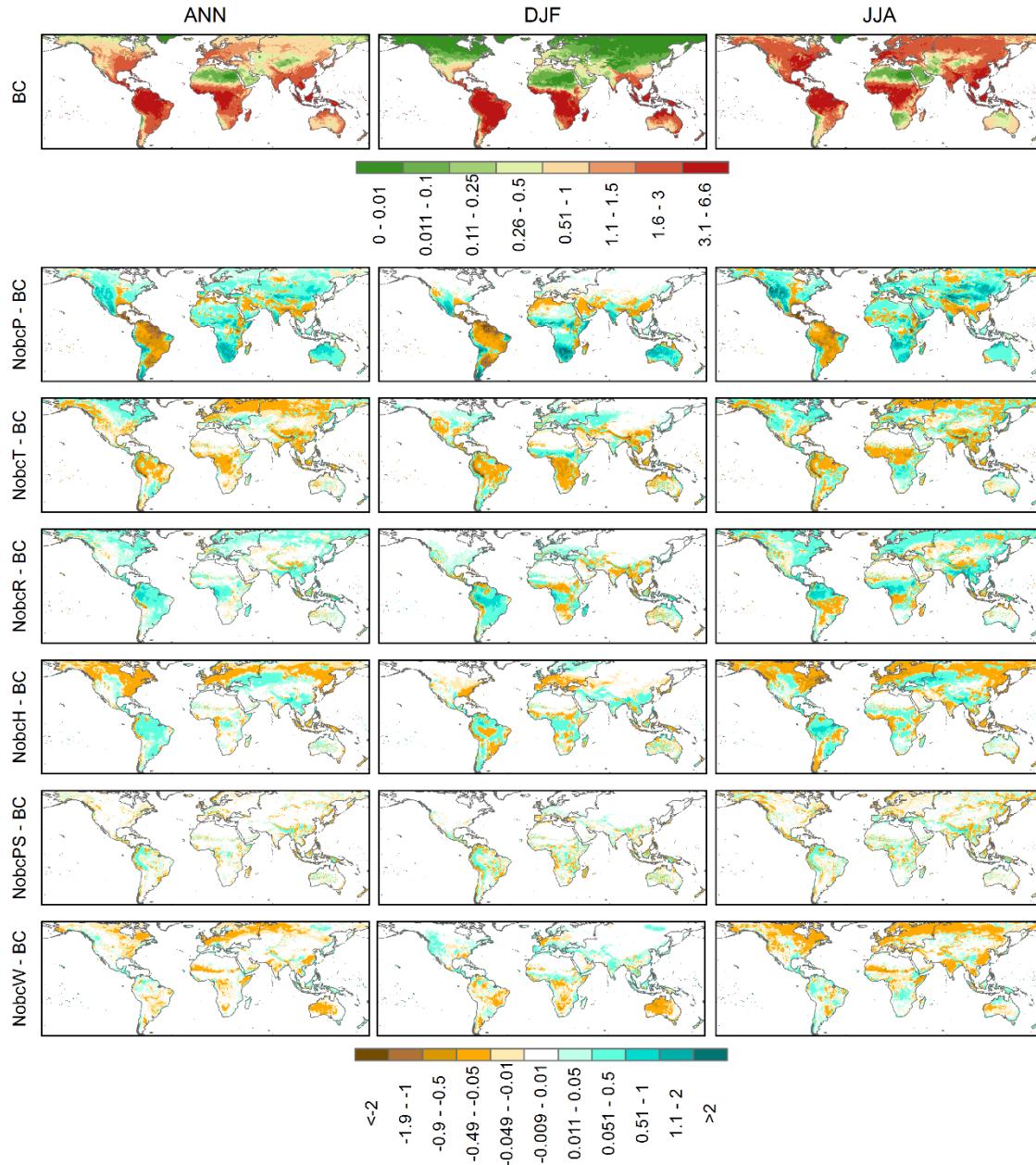


Figure S 4. Evapotranspiration [mm/day], from all bias corrected GCM ensemble forcing (top row), and differences in evapotranspiration forced with one variable uncorrected and all bias corrected ensemble. Results are shown for ANN, DJF and JJA averages of the 1981-2010 period.

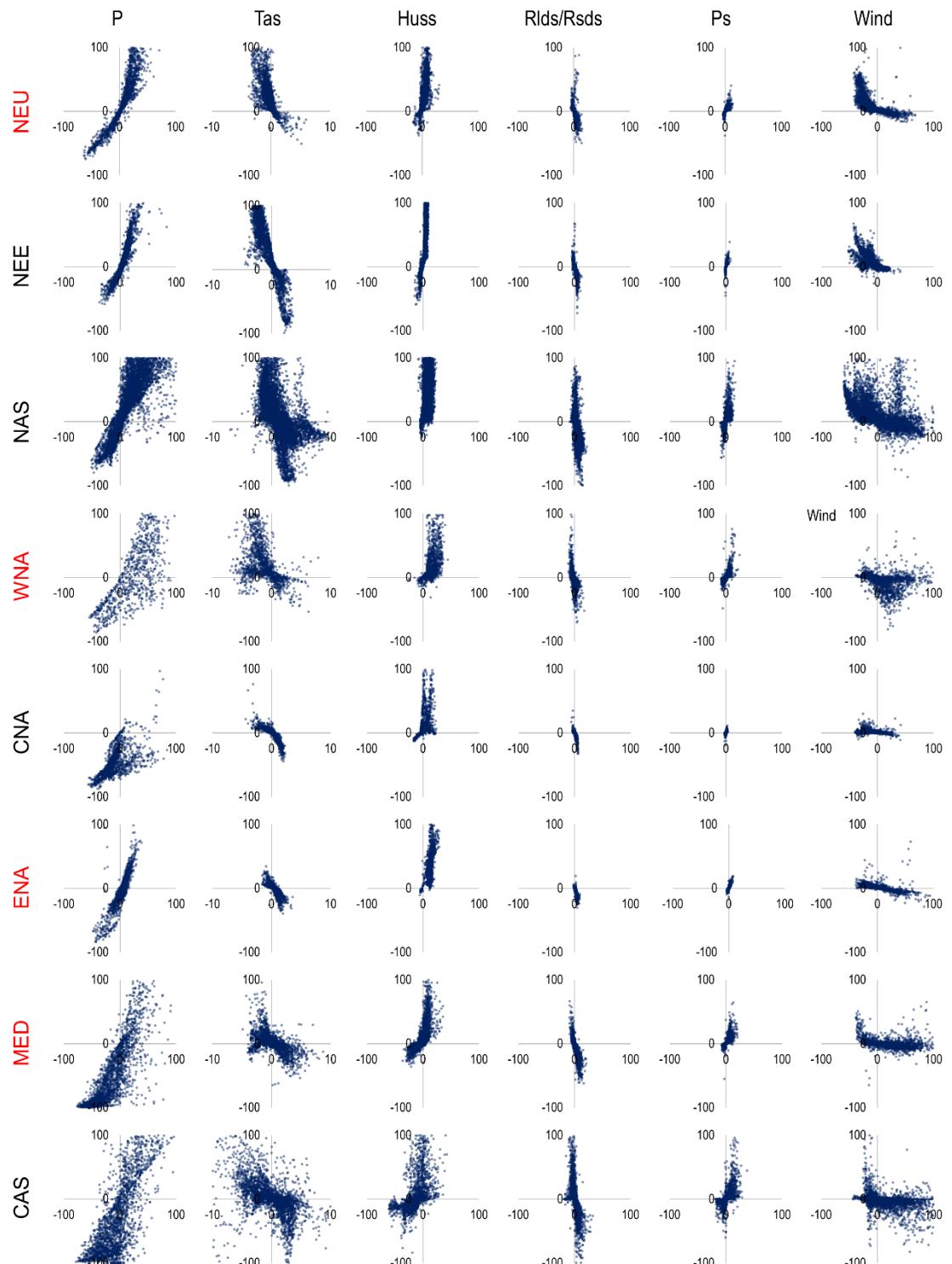


Figure S 5. Scatterplots of percent bias of a non-bias corrected variable and its effect on output runoff. Horizontal axis expresses the percent bias of the input variable and vertical axis expresses the change in output runoff caused by the input variable bias. Scatterplots are shown for the input variables P, Tas, Huss, Rlds/Rsds, Ps and Huss and for 24 land regions.

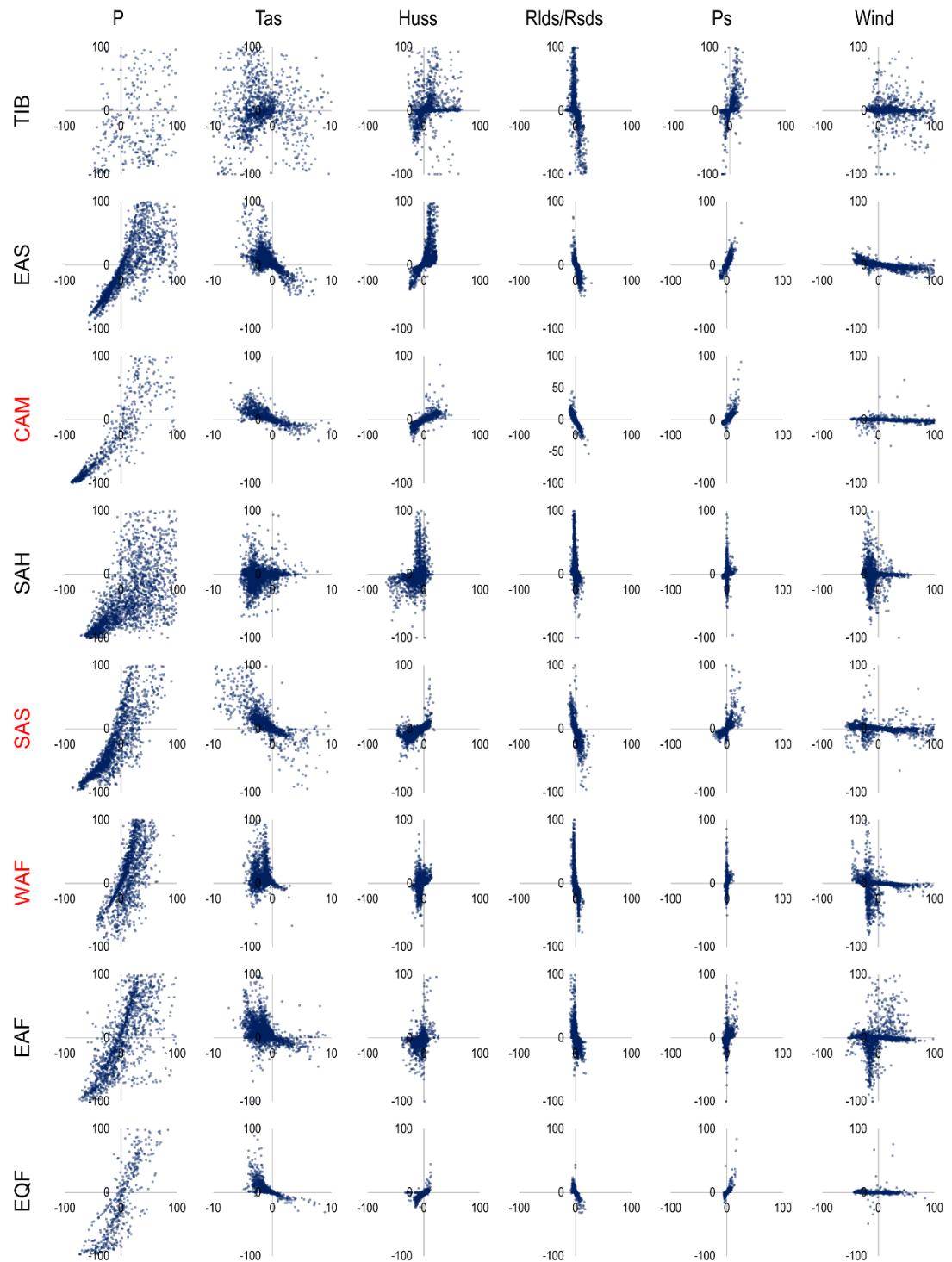


Figure S 5 (continued).

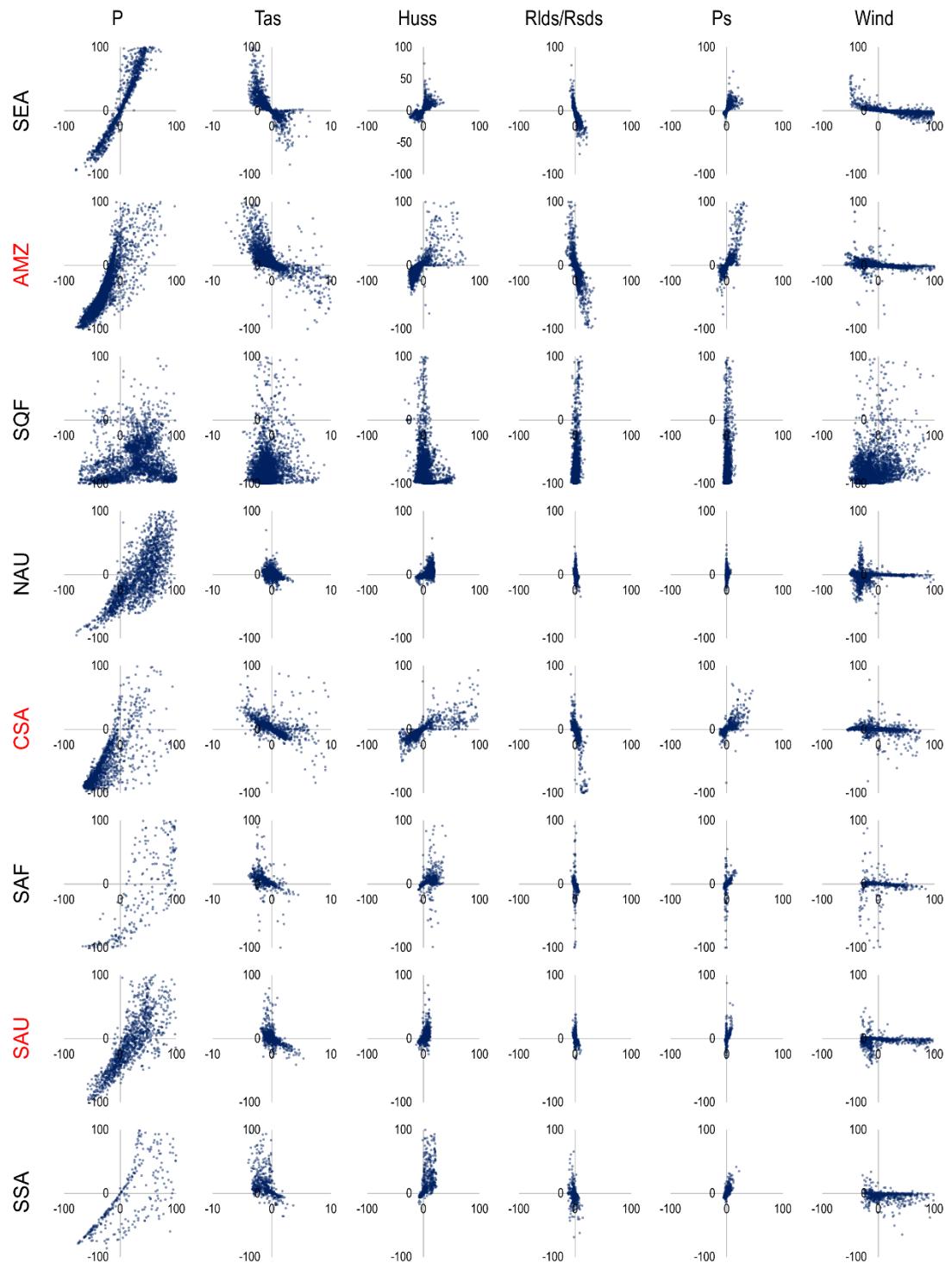


Figure S 5 (continued).

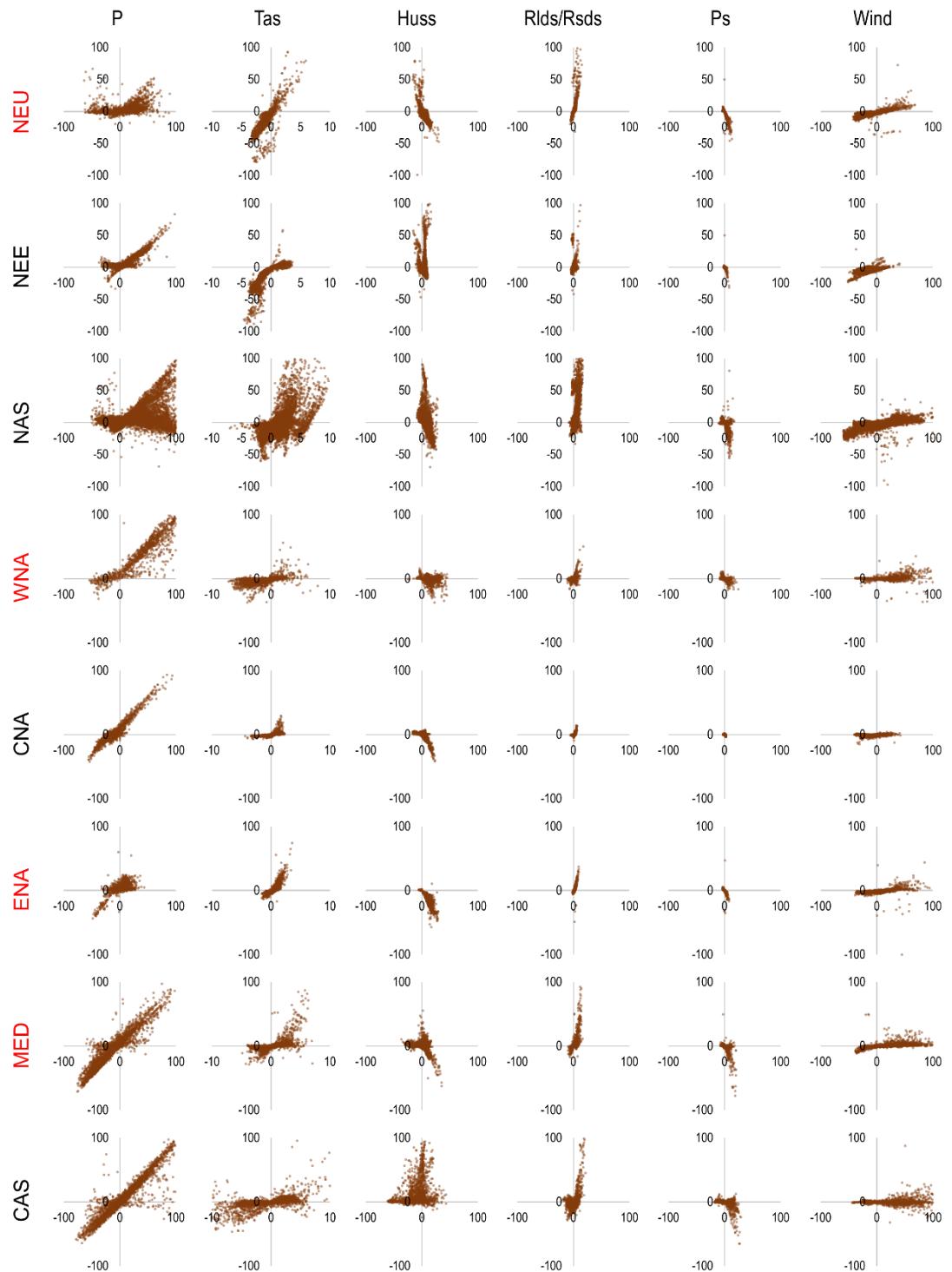


Figure S 6. Scatterplots of percent bias of a non-bias corrected variable and its effect on output ET. Horizontal axis expresses the percent bias of the input variable and vertical axis expresses the change in output runoff caused by the input variable bias. Scatterplots are shown for the input variables P, Tas, Huss, Rlds/Rsds, Ps and Huss and for 24 land regions.

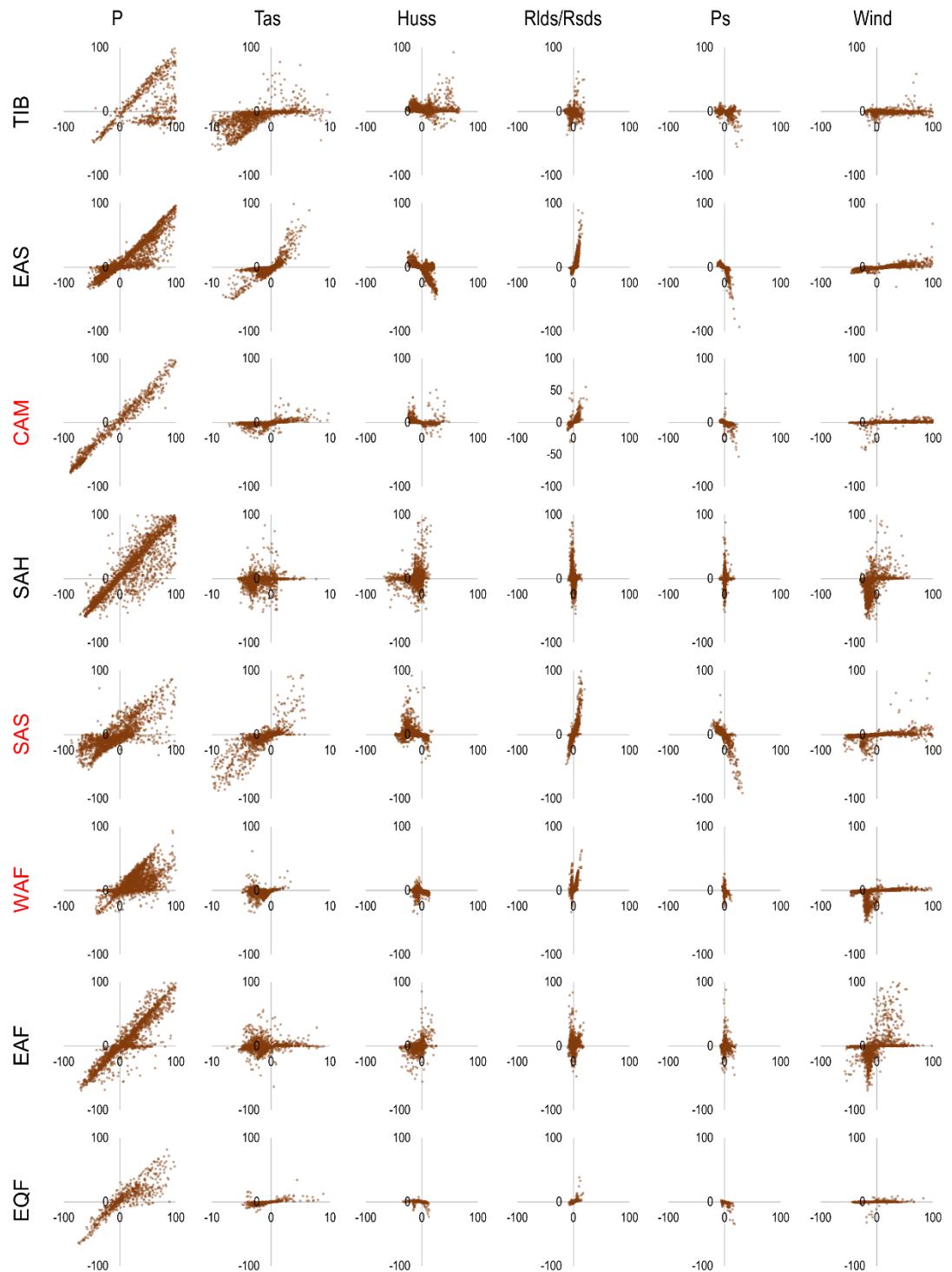


Figure S 6 (continued).

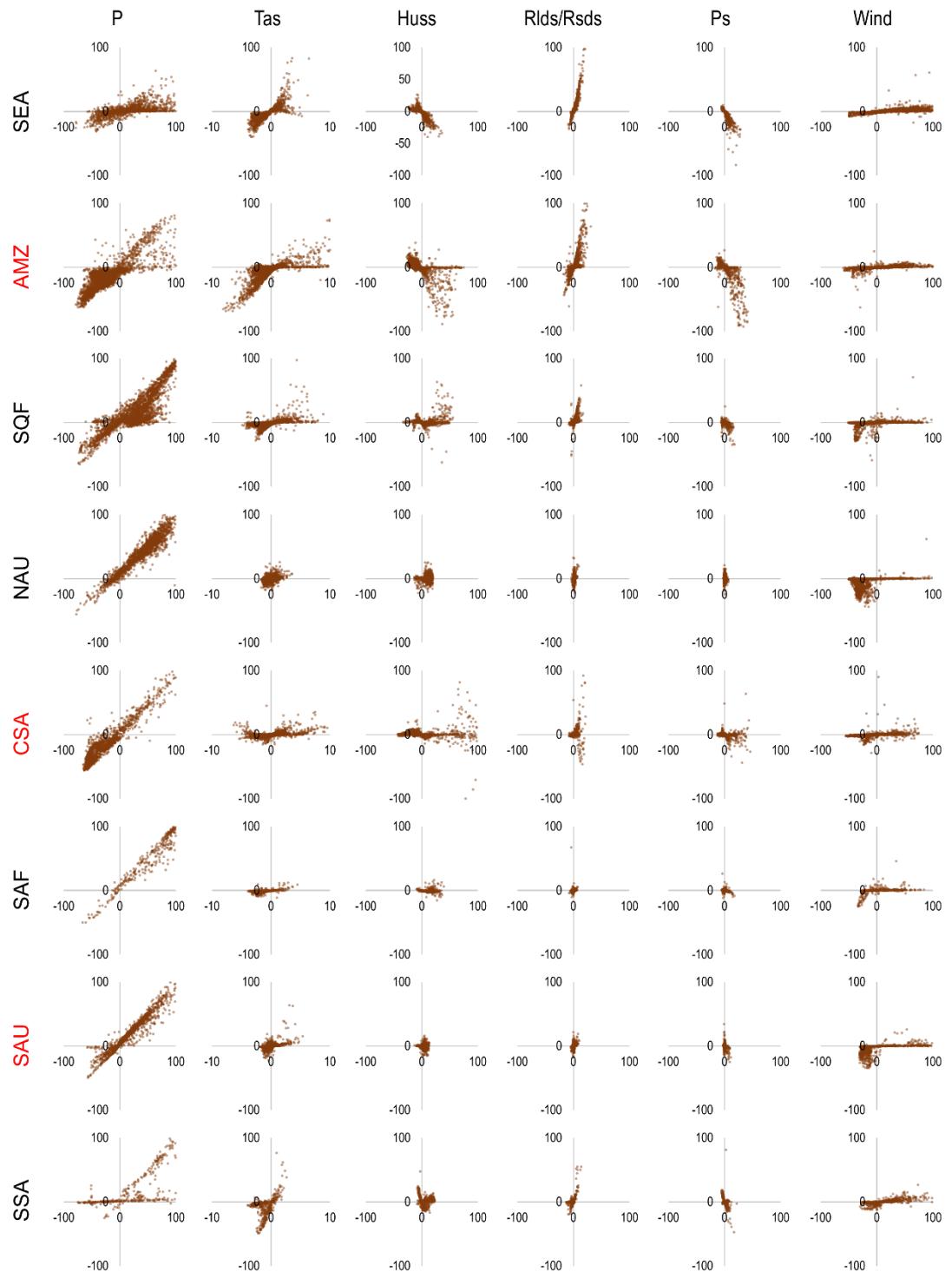


Figure S 6 (continued).

Table S 1. Percent bias of input variable and resulting change in output evapotranspiration. The median value of all gridboxes of 24 land regions are shown.

		% Difference	Pr [kg/m2/s]	Tas [K]	Huss [kg/kg]	Rlds/Rsd [W/m2]	Ps [Pa]	Wind [m/s]
GLOBAL	Variable	14.46	-0.57	0.91	1.73	-0.02	-5.86	
	ET	4.12	-1.52	0.08	0.61	-0.01	-0.20	
NEU	Variable	14.60	-0.46	4.10	1.86	-0.05	-9.79	
	ET	2.96	-6.54	-7.09	1.85	-0.11	-3.29	
NEE	Variable	4.89	-1.44	3.32	2.44	0.10	-11.77	
	ET	2.80	-11.88	-1.85	1.63	-0.17	-3.20	
NAS	Variable	26.05	0.67	8.05	3.53	-0.06	-1.08	
	ET	3.95	-6.68	-4.59	3.39	-0.08	-1.12	
WNA	Variable	65.92	-1.75	13.55	-1.23	0.14	10.23	
	ET	58.43	-2.64	0.29	-0.35	-0.02	0.00	
CNA	Variable	-12.84	0.11	2.29	1.68	-0.08	-14.79	
	ET	-0.43	-0.52	0.47	0.59	-0.01	-0.49	
ENA	Variable	4.08	0.49	13.40	2.71	0.10	5.47	
	ET	2.95	0.60	-16.94	2.31	-0.08	-1.63	
MED	Variable	-14.39	-0.15	-1.34	0.55	0.41	14.94	
	ET	-1.40	-0.15	0.20	0.18	-0.05	0.29	
CAS	Variable	6.44	-0.03	-13.00	1.37	-0.41	8.09	
	ET	3.99	0.26	1.91	-0.34	0.01	-0.11	
TIB	Variable	128.47	-2.94	7.69	-1.14	-0.12	12.59	
	ET	61.67	-4.64	1.34	-0.37	-0.03	0.00	
EAS	Variable	19.25	-0.94	2.92	2.51	-0.20	-3.55	
	ET	8.36	-2.20	-0.18	0.82	0.00	-0.14	
CAM	Variable	11.43	-0.98	-6.16	-0.40	0.15	25.27	
	ET	13.70	-0.60	0.66	0.12	-0.01	0.24	
SAH	Variable	54.11	-2.73	-8.96	-0.47	0.22	-13.59	
	ET	49.75	0.05	0.01	0.03	0.00	-0.17	
SAS	Variable	-9.19	-1.08	-13.11	1.39	-0.05	-6.81	
	ET	-4.88	-2.64	0.61	1.94	0.00	-0.40	
WAF	Variable	26.74	-1.51	-5.79	-0.88	-0.10	-15.13	
	ET	9.68	-1.14	0.04	0.61	0.02	-0.15	
EAF	Variable	23.22	-1.68	-5.76	-0.06	-0.25	-12.11	
	ET	12.98	-0.56	0.14	0.31	0.01	-0.07	
EQF	Variable	5.64	-1.55	-2.15	-0.25	-0.20	-10.09	
	ET	5.53	-1.17	0.22	-0.19	-0.04	0.00	
SEA	Variable	19.76	-0.87	0.89	1.11	0.23	34.57	
	ET	0.88	-4.61	-1.18	2.13	-0.22	1.00	
AMZ	Variable	-26.58	-0.35	-13.19	4.06	-0.19	-4.00	
	ET	-19.01	-2.26	2.98	5.07	0.10	-0.02	
SQF	Variable	36.45	-0.90	0.89	0.90	-0.03	-15.60	
	ET	14.83	-1.16	0.04	0.11	0.00	-0.09	
NAU	Variable	41.15	-0.04	7.71	1.43	0.10	-28.46	
	ET	41.15	-0.38	0.12	0.40	-0.02	-1.36	

CSA	Variable	-32.80	0.70	-11.53	3.05	-0.23	-7.50
	ET	-16.97	0.75	1.55	1.23	0.03	-0.23
SAF	Variable	89.80	-1.41	14.28	-0.38	0.68	-4.74
	ET	82.76	-0.57	-0.29	-0.08	-0.03	0.06
SAU	Variable	18.92	-0.28	2.00	0.85	-0.13	-11.20
	ET	19.88	-0.10	-0.07	0.06	-0.01	-0.12
SSA	Variable	72.07	-1.22	5.07	-1.77	0.08	9.91
	ET	25.78	-3.62	1.75	-0.12	-0.03	0.07