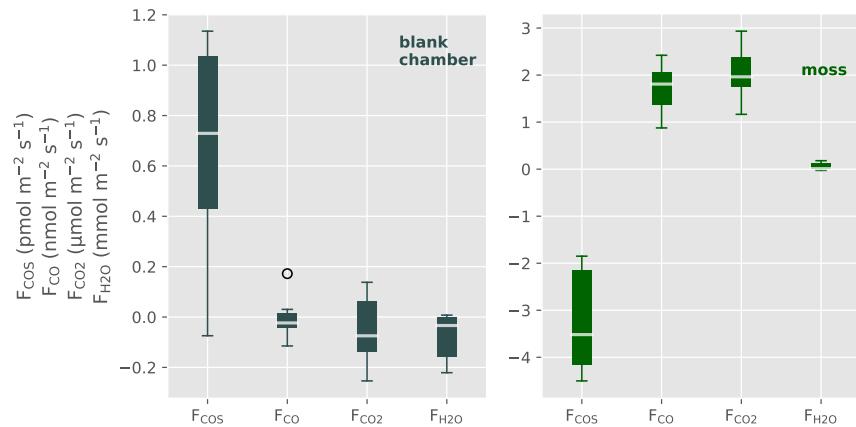
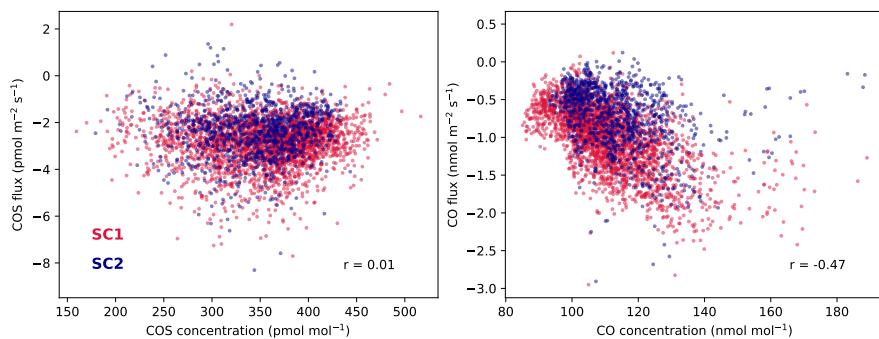


Table S1. Numbers of valid observations from the two chambers

	no. of total possible obs.			no. of missing obs.			no. of misfit obs. and outliers [†]			no. of valid obs.			% of valid obs.		
	SC1	SC2	both	SC1	SC2	both	SC1	SC2	both	SC1	SC2	both	SC1	SC2	both
F_{COS}							549	859	1408	3076	1035	4111	81.63	51.96	71.37
F_{CO}	3768	1992	5760	143	98	241	601	870	1471	3024	1024	4048	80.25	51.41	70.28
F_{CO_2}							544	868	1412	3081	1026	4107	81.77	51.51	71.30
$F_{\text{H}_2\text{O}}$							534	854	1388	3091	1040	4131	82.03	52.21	71.72

[†]Misfits are measurements affected by severe instrument drift or fluctuation, whereas outliers are unusual peaks identified from the Iglewicz-Hoaglin modified Z-score statistic.

**Figure S1.** Boxplots of fluxes from blank chamber test (left) and moss incubation (right), showing medians (thin white bars), interquartile ranges (boxes), and inlier ranges (whiskers). Note the units of fluxes are different among gas species.**Figure S2.** COS and CO fluxes versus their respective concentrations. COS uptake do not show a correlation with concentration, whereas CO uptake is relatively well correlated with concentration.

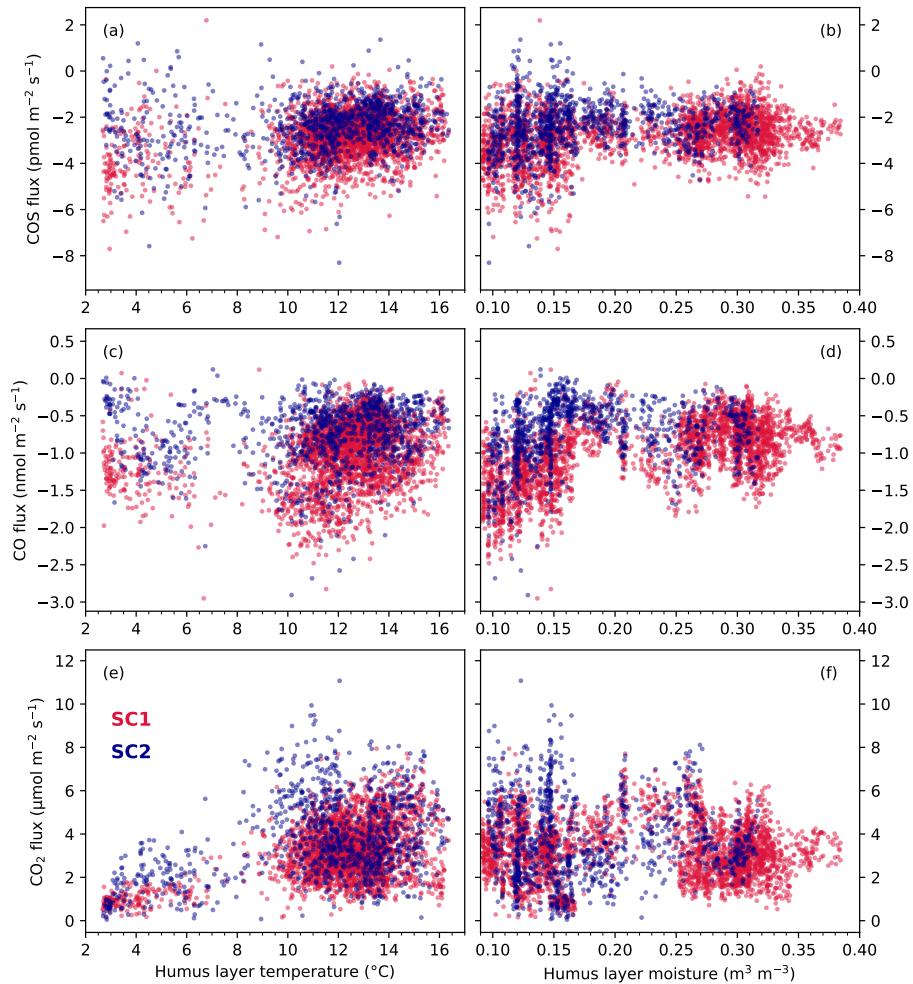


Figure S3. Soil fluxes of COS, CO, and CO₂ versus temperature and moisture in soil humus layer.

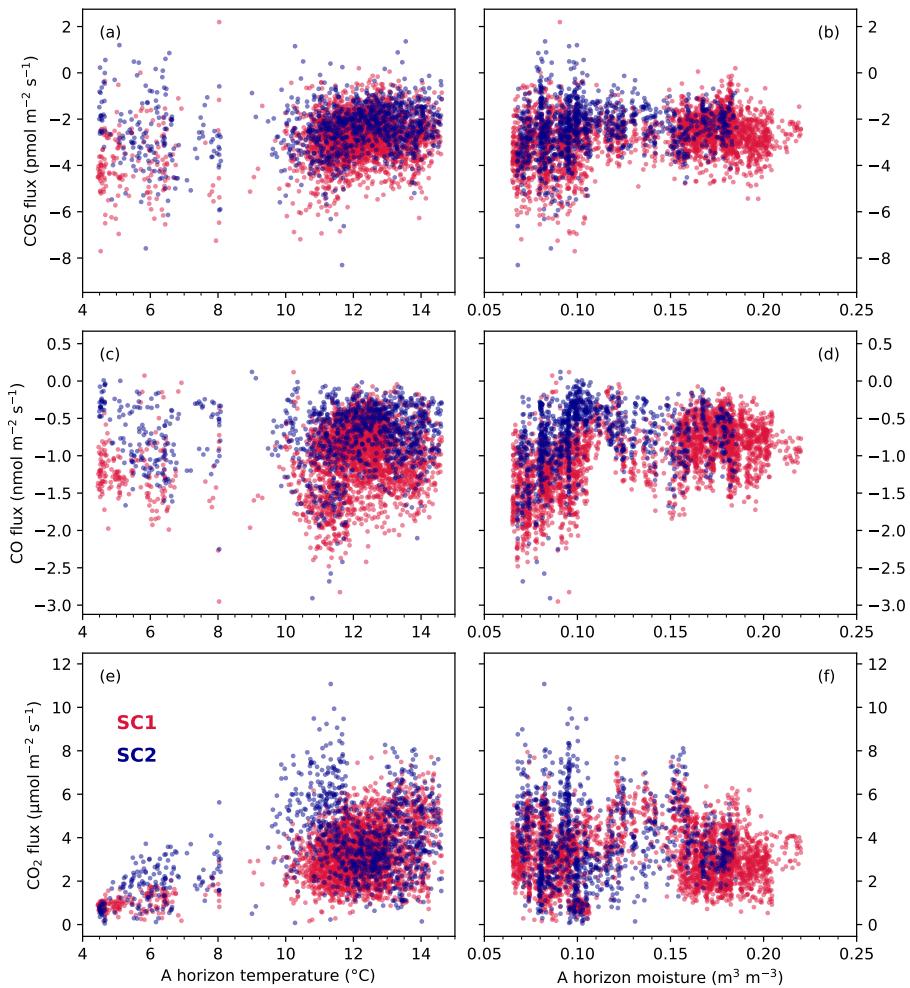


Figure S4. Soil fluxes of COS, CO, and CO₂ versus temperature and moisture in soil A horizon.

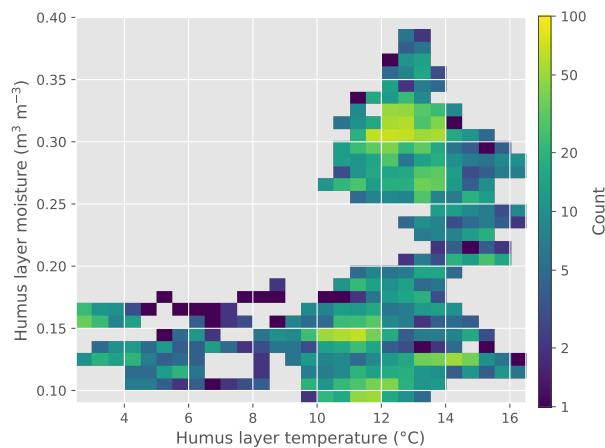


Figure S5. A 2D histogram for sample counts in temperature and moisture bins. Note that the scale is logarithmic for better visualization.

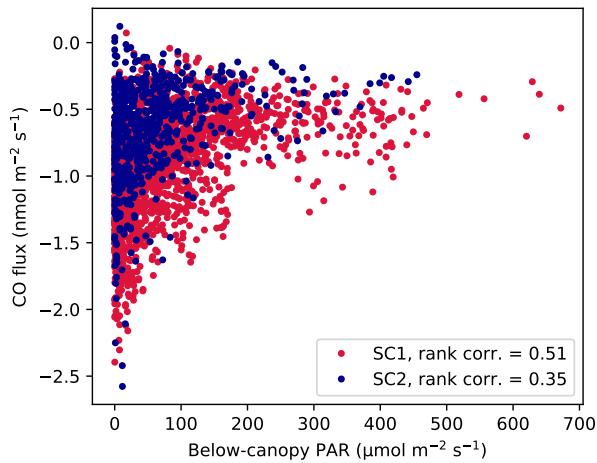


Figure S6. Daytime CO flux correlates well with below-canopy photosynthetically available radiation (PAR).

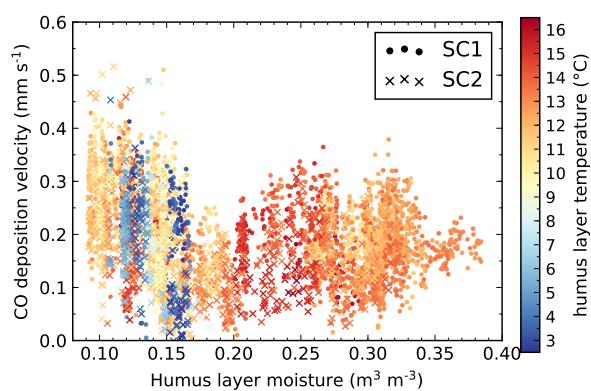


Figure S7. Apparent CO deposition velocity ($-F_{\text{CO}}/[\text{CO}]_{0.5 \text{ m}}$) as a function of soil humus layer moisture (x -axis) and temperature (colors).