Supporting Information for "Sensitivity of the Shallow-to-Deep Convective Transition to Moisture and Wind Shear in the Amazon"

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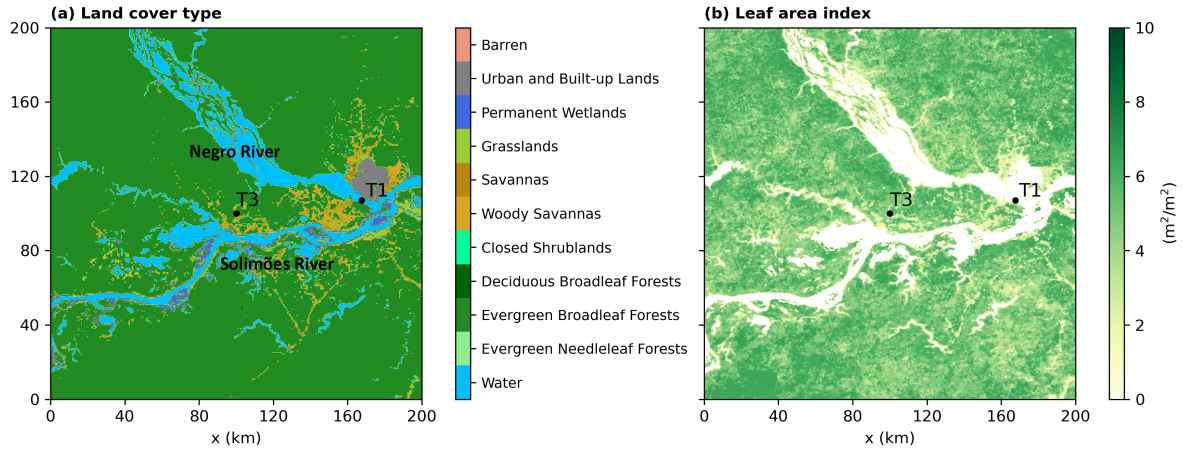

Figure S1. (a) Land cover type and (b) LAI on SAM's coordinate. The 200x200 km^2 domain is centered at the T3 site (3.21°S, 60.60°W). Land cover is from 2014, and LAI is based on the average for December 2014. We also indicate in (a) the Solimões River and Negro River.

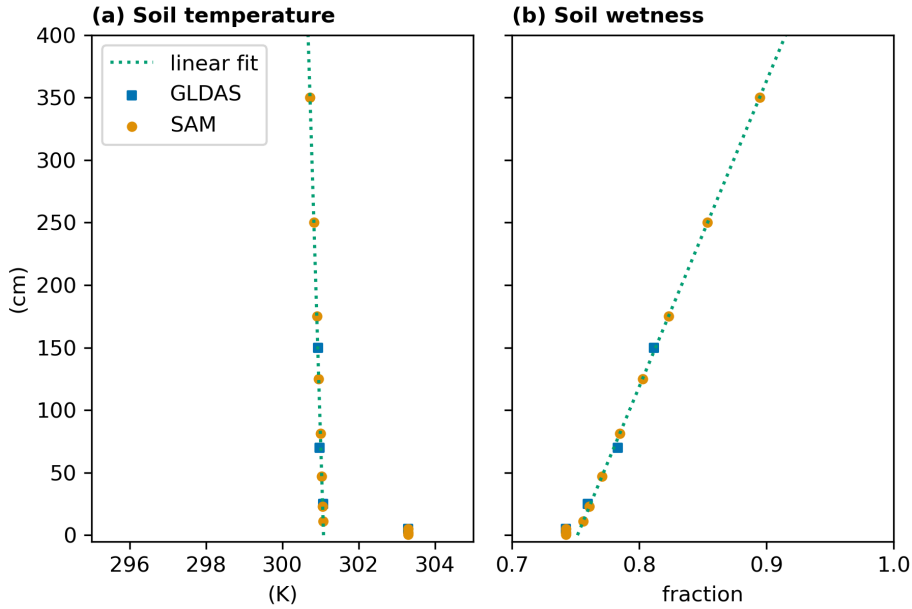

Figure S2. (a) Soil temperature and (b) soil wetness initial condition. GLDAS Noah data for 1 December 2014 at 00 UTC.

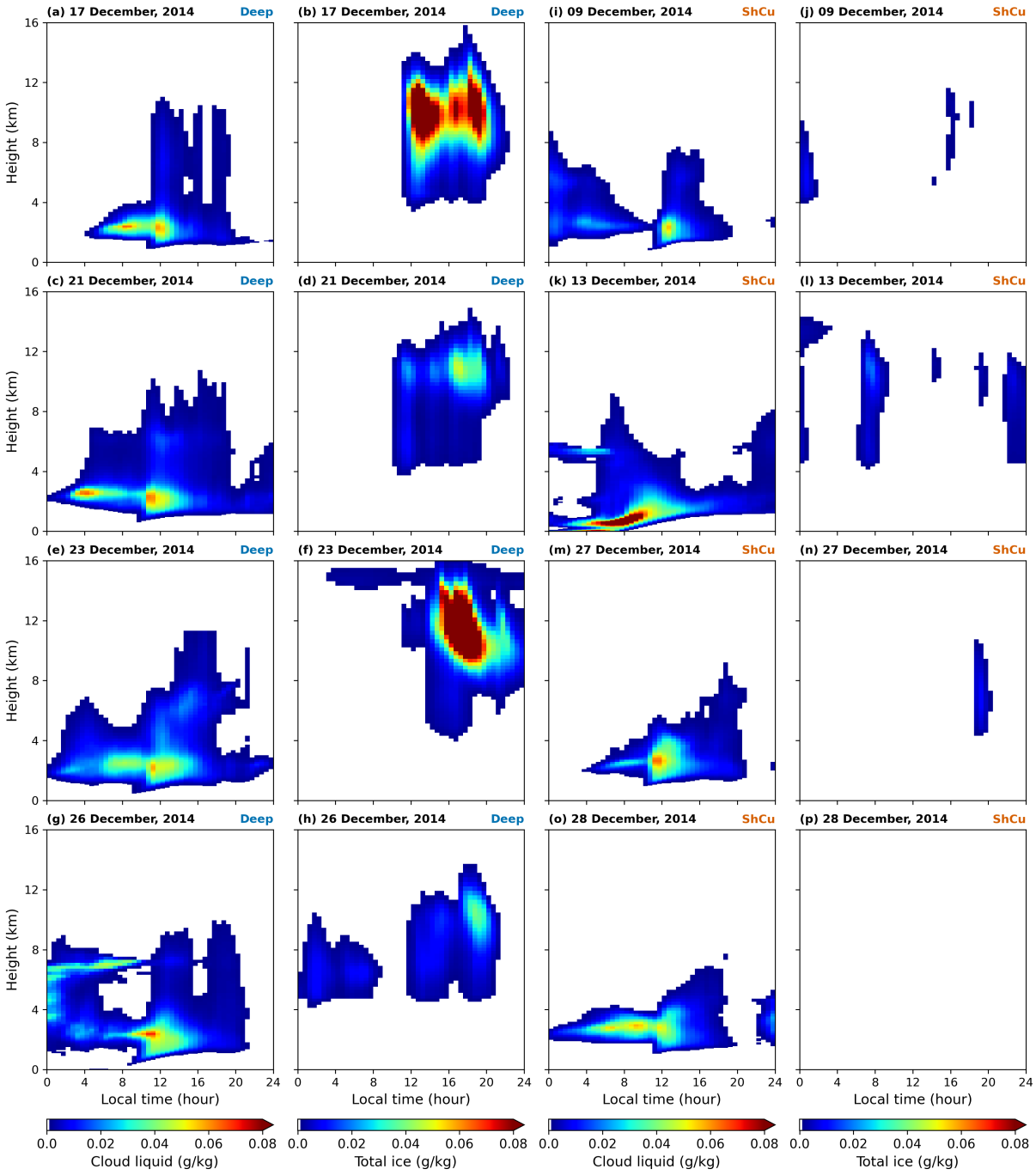

Figure S3. Cloud regime days. The first row (a,c,e,g) shows the cloud liquid, and the second row (b,d,f,h) shows the total ice mixing ratio profile for the selected Deep days. The third row (i,k,m,o) shows the cloud liquid, and the fourth row (j,l,n,p) shows the total ice mixing ratio profile for the selected ShCu days.

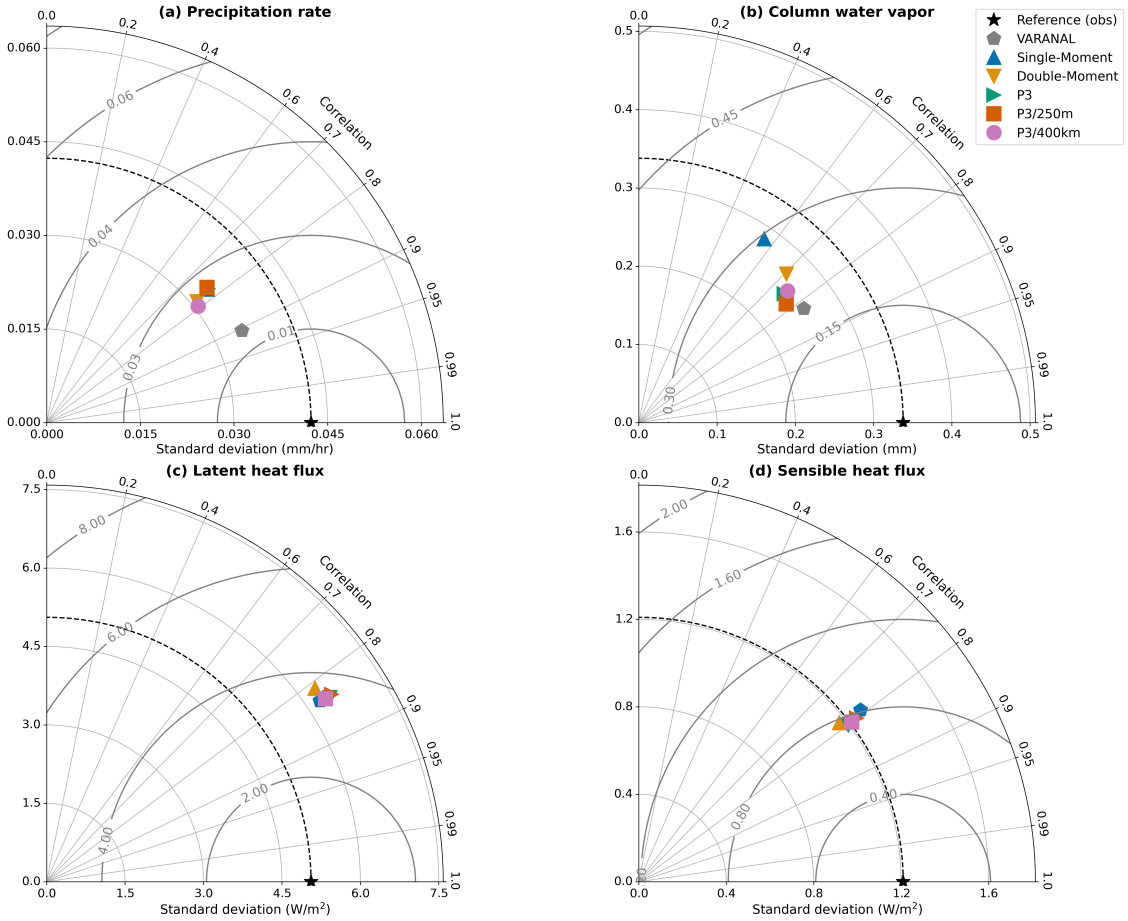

Figure S4. Taylor Diagrams. (a) Precipitation rate. (b) Column water vapor. (c) Latent heat flux. (d) Sensible heat flux. The statistics correspond to the standard deviation of the mean and Pearson correlation.

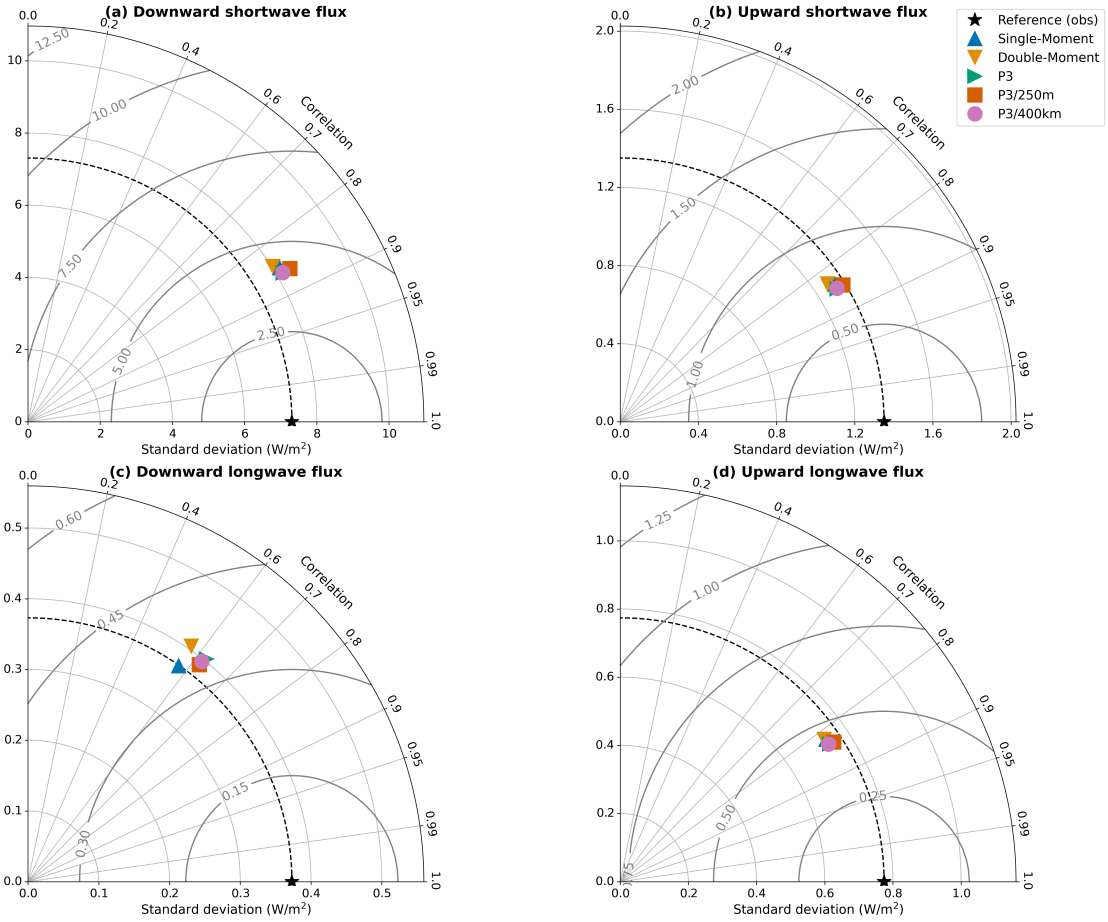

Figure S5. Taylor Diagrams. (a) Surface downward shortwave flux. (b) Surface upward shortwave flux. (c) Surface downward longwave flux. (d) Surface upward longwave flux. The statistics correspond to the standard deviation of the mean and Pearson correlation.

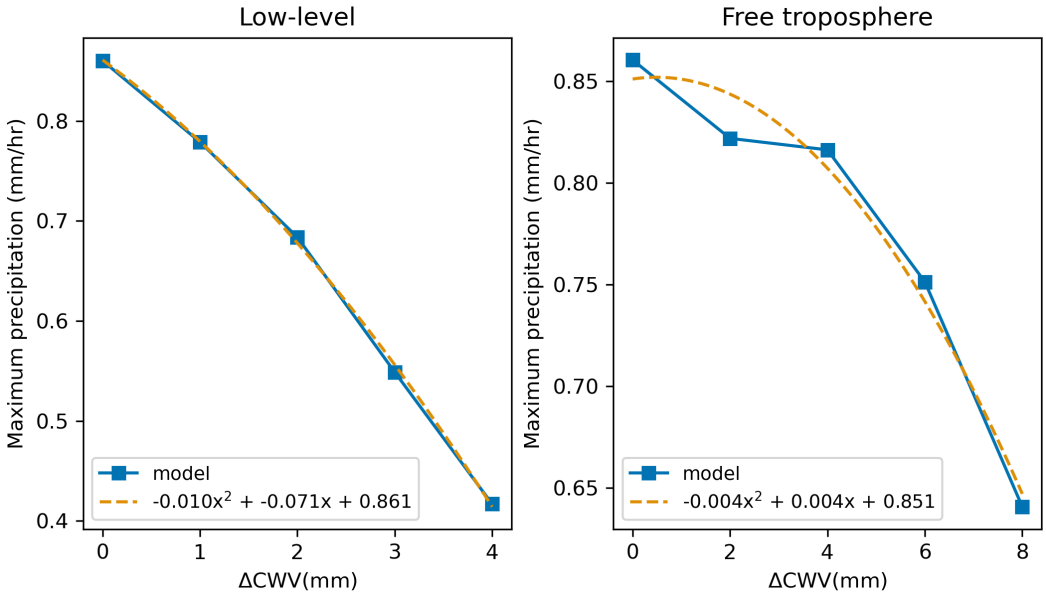

Figure S6. Maximum precipitation as a function of the change in CWV is depicted for the (a) Low-level and (b) free troposphere moisture experiments. The blue solid line with square markers represents the model results, while the orange dashed line shows the corresponding quadratic fit.

Table S1. Function parameters utilized in the idealization of the large-scale horizontal wind of the form: $v_{spd}(z) = v_0 + a_1 \exp\left(-\frac{(z-\overline{z}_1)^2}{2\sigma_1^2}\right) + a_2 \exp\left(-\frac{(z-\overline{z}_2)^2}{2\sigma_2^2}\right)$. For the control wind, $v_0 = 0.5$ m s^{-1}, $a_1 = 8.4$ m s^{-1}, $\overline{z}_1 = 2.1$ km, $\sigma_1 = 1.6$ km, $a_2 = 5.4$ m s^{-1}, $\overline{z}_2 = 11.75$ km, and $\sigma_2 = 2.5$ km. For the experiments (low- or high-level jets), the change in jet properties is achieved by varying only one control wind parameter at a time, as follows:

Experiment	Jet property	v_0	a_1	$\overline{z}_1$	σ_1	a_2	$\overline{z}_2$	σ_2
Both	Control	0.5	8.4	2.1	1.6	5.4	11.75	2.5
Low-level	strength		13					
Low-level	removed		0					
Low-level	position			4.5				
Low-level	width				2.7			
Upper-level	strength					10		
Upper-level	removed					0		
Upper-level	position						9	
Upper-level	width							3.5