

Supplementary Information for

The Novel Microwave Temperature Vegetation Drought Index (MTVDI) Captures Canopy Seasonality across Amazonian Tropical Evergreen Forests

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Supplementary Tables

Table S1 The slope, intercept and R of dry edges and wet edges of MNDVI -Ts triangle in 2004.

Month	Dry edge			Wet edge		
	Slope	Intercept	R	Slope	Intercept	R
200401	-14.409	314.873	0.866	6.271	286.115	0.536
200402	-18.299	317.759	0.914	5.360	286.252	0.459
200403	-15.822	314.920	0.861	0.831	289.715	0.062
200404	-17.014	315.796	0.917	2.670	288.642	0.228
200405	-7.130	306.508	0.839	1.574	288.951	0.150
200406	-8.248	307.680	0.880	3.988	286.131	0.332
200407	-12.339	311.663	0.973	1.796	287.623	0.170
200408	-14.975	315.019	0.990	0.808	289.109	0.064
200409	-18.733	318.246	0.975	2.122	288.695	0.162
200410	-12.001	312.607	0.884	0.525	290.635	0.030
200411	-14.141	314.947	0.841	2.109	289.191	0.143
200412	-15.991	315.640	0.827	1.715	289.637	0.123

Table S2 The NSE results of MTVDI against climatic dryness indicators and canopy photosynthesis proxies. The NA1, NA2, CA, WA, SA1, and SA2 are the abbreviation of each sub region in Figure 4a.

Indicator	Name	NSE						
		NA1	NA2	CA	WA	SA1	SA2	Whole
climatic dryness indicator	PDSI	-1.26	-1.20	-0.86	-0.53	0.13	-0.88	-0.56
	CWD	0.04	0.72	-0.15	0.24	0.63	0.29	0.25
	VPD	0.49	0.34	0.30	0.34	-0.32	0.53	0.40
	TWS	-0.69	0.51	-0.83	-0.46	0.61	-0.36	-0.72
canopy photosynthesis proxy	EVI	-2.38	-2.28	-0.02	0.75	-0.10	0.95	0.75
	SIF	-3.50	-2.38	-1.46	0.39	-0.45	0.79	0.35

Table S3 The statistics of the absolute value of regional mean correlation coefficient (R) of the regression between MTVDI and VPD, CWD, TWS and PDSI in each sub region. The NA1, NA2, CA, WA, SA1, and SA2 are the abbreviation of each sub region in Figure 4a.

Indicator	Absolute value of mean of R						Whole
	NA1	NA2	CA	WA	SA1	SA2	
VPD	0.34	0.43	0.41	0.31	0.44	0.70	0.44
CWD	0.30	0.27	0.37	0.25	0.29	0.55	0.35
TWS	0.39	0.08	0.08	0.15	0.35	0.28	0.24
PDSI	0.01	0.10	0.06	0.09	0.22	0.08	0.05

Supplementary Figures

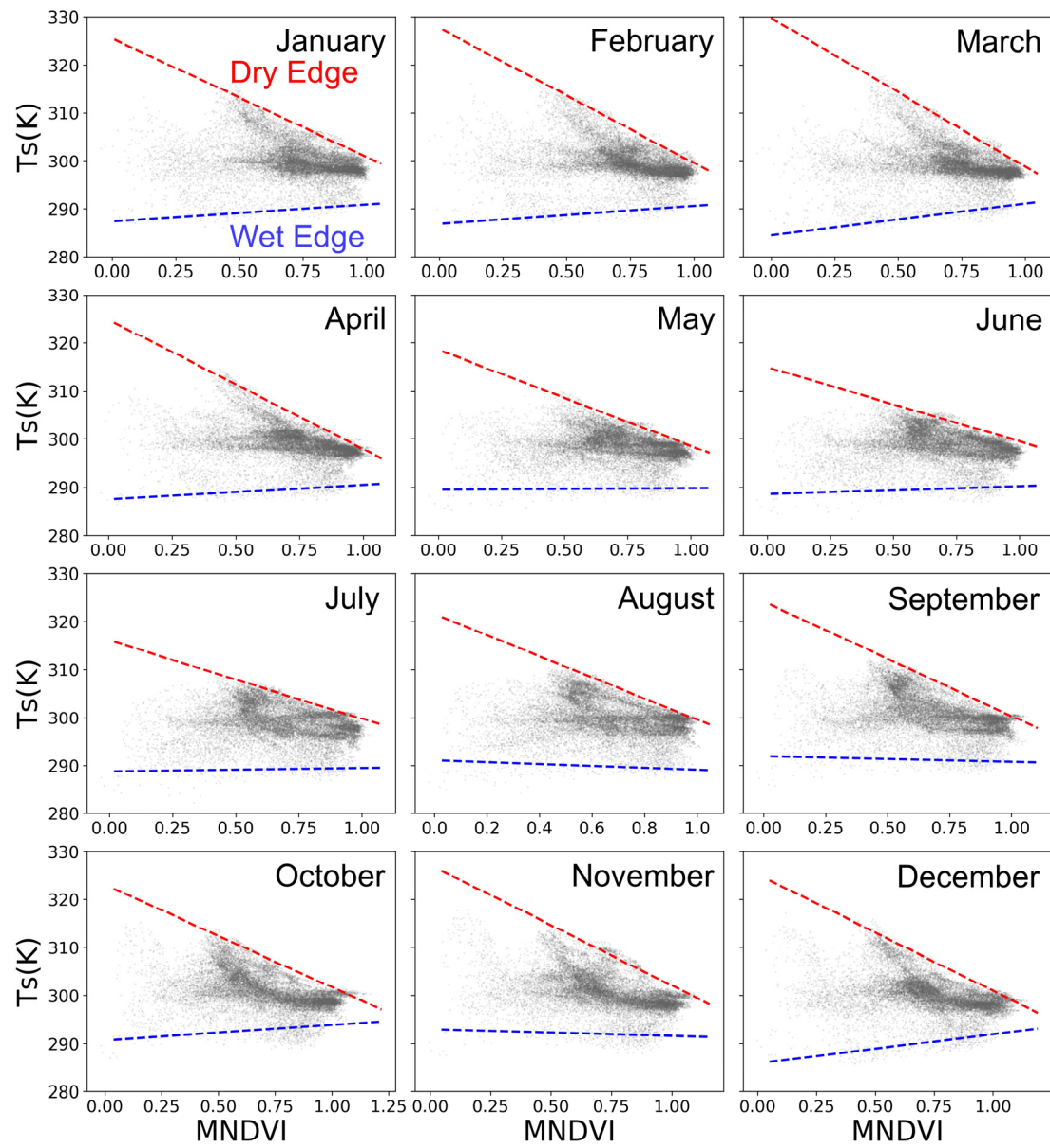


Figure S1 The monthly MNDVI- T_s space in 2003.

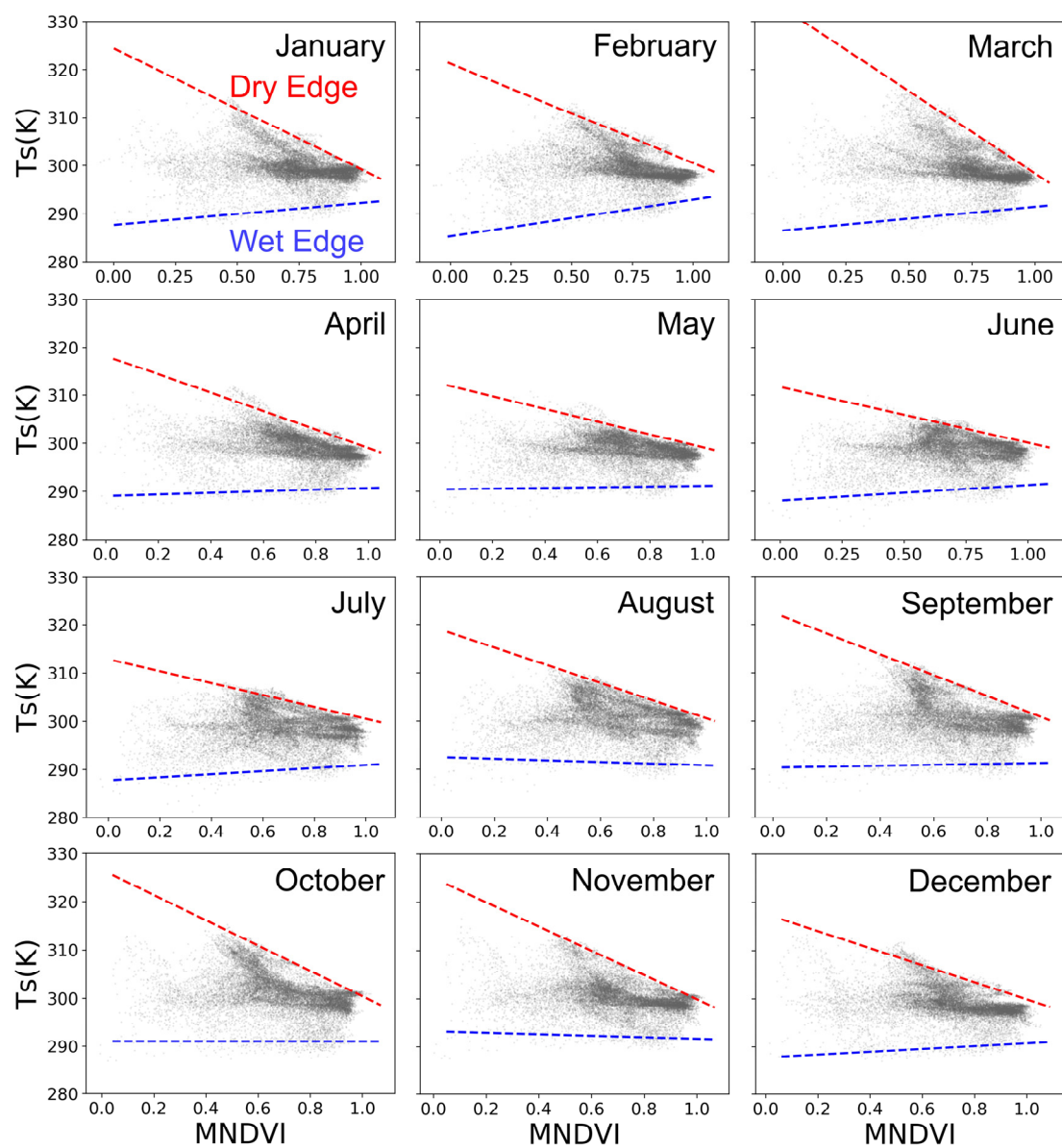


Figure S2 The monthly MNDVI- T_s space in 2005.

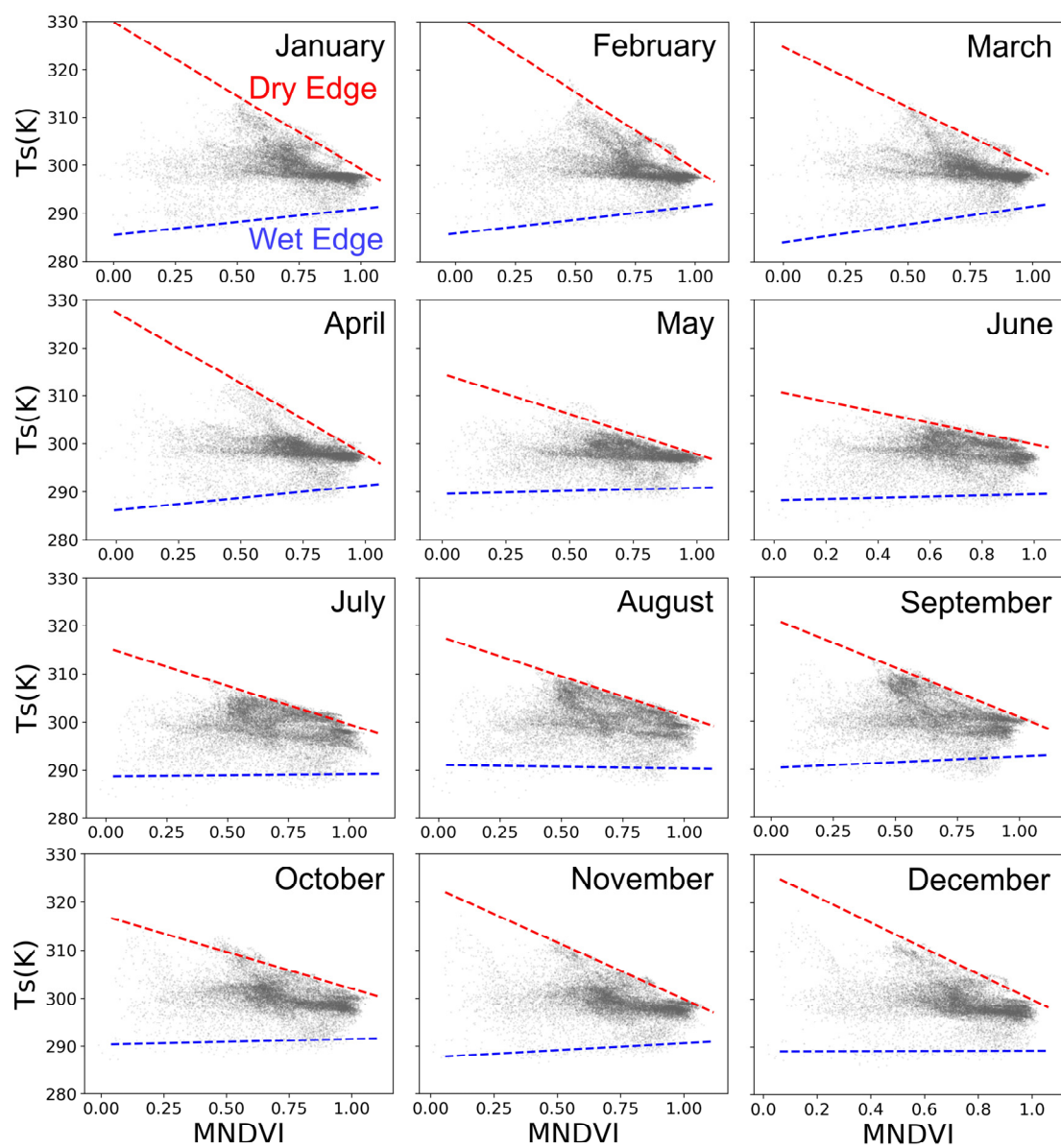


Figure S3 The monthly MNDVI-Ts space in 2006.

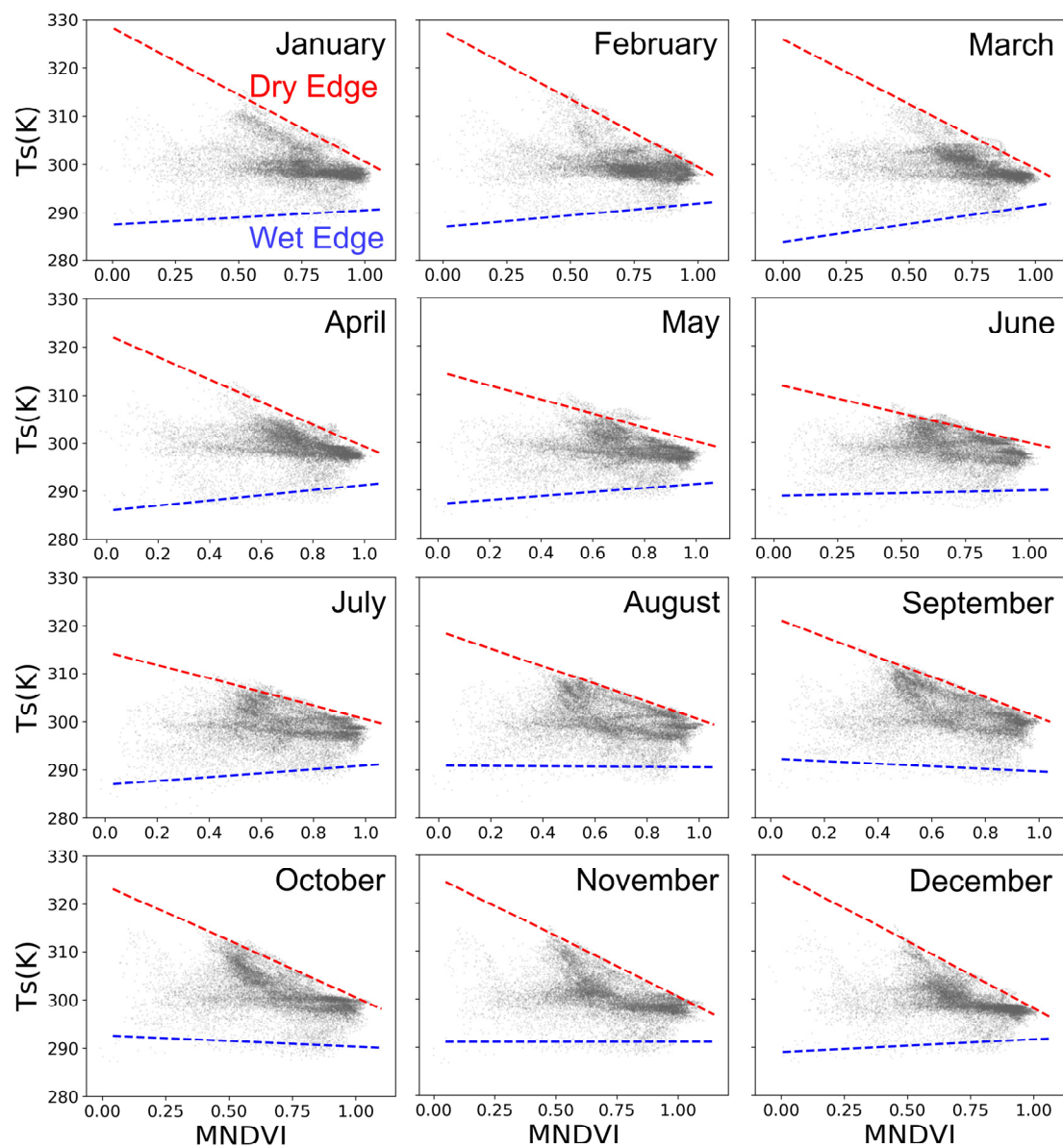


Figure S4 The monthly MNDVI-Ts space in 2007.

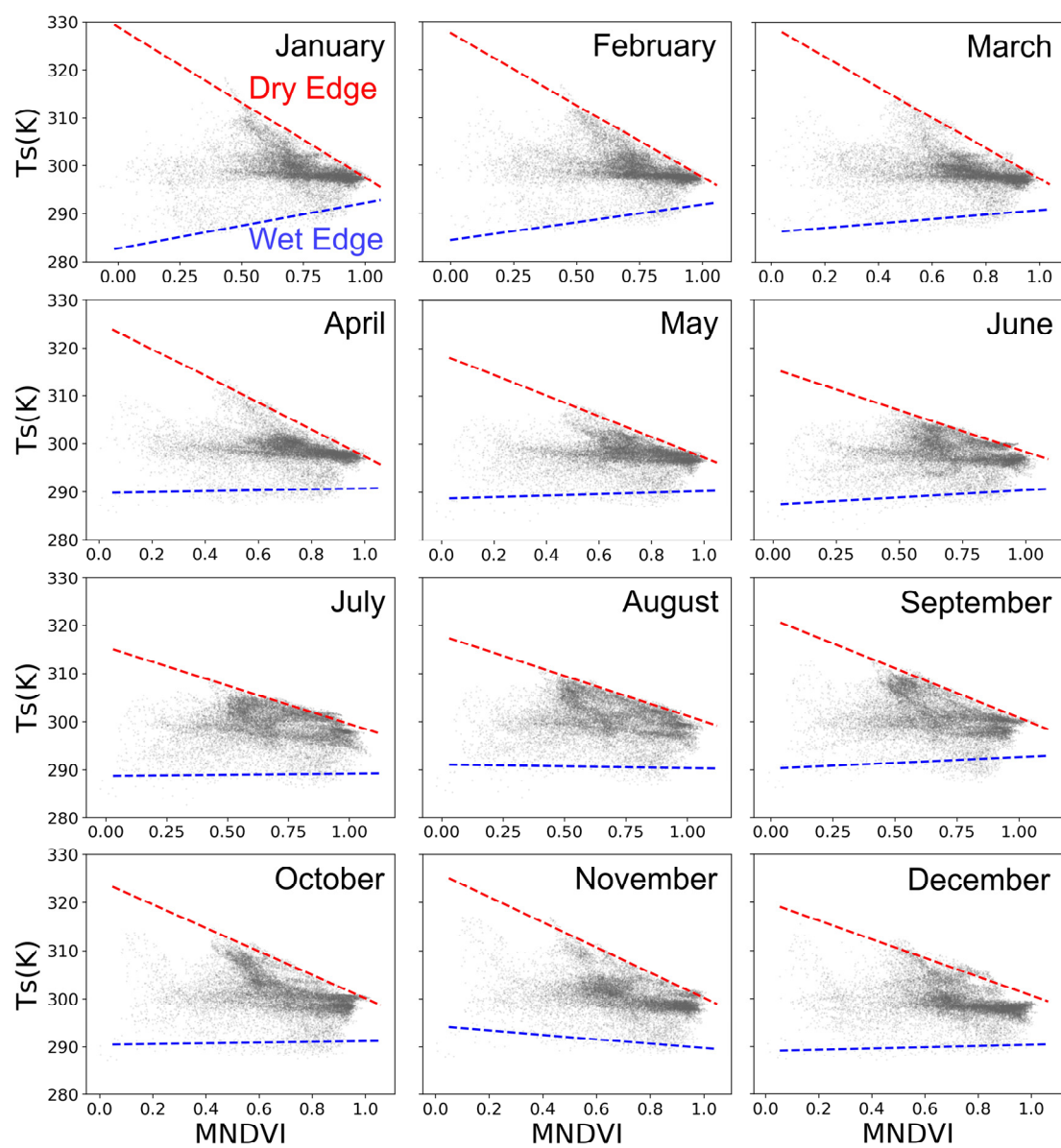


Figure S5 The monthly MNDVI-Ts space in 2008.

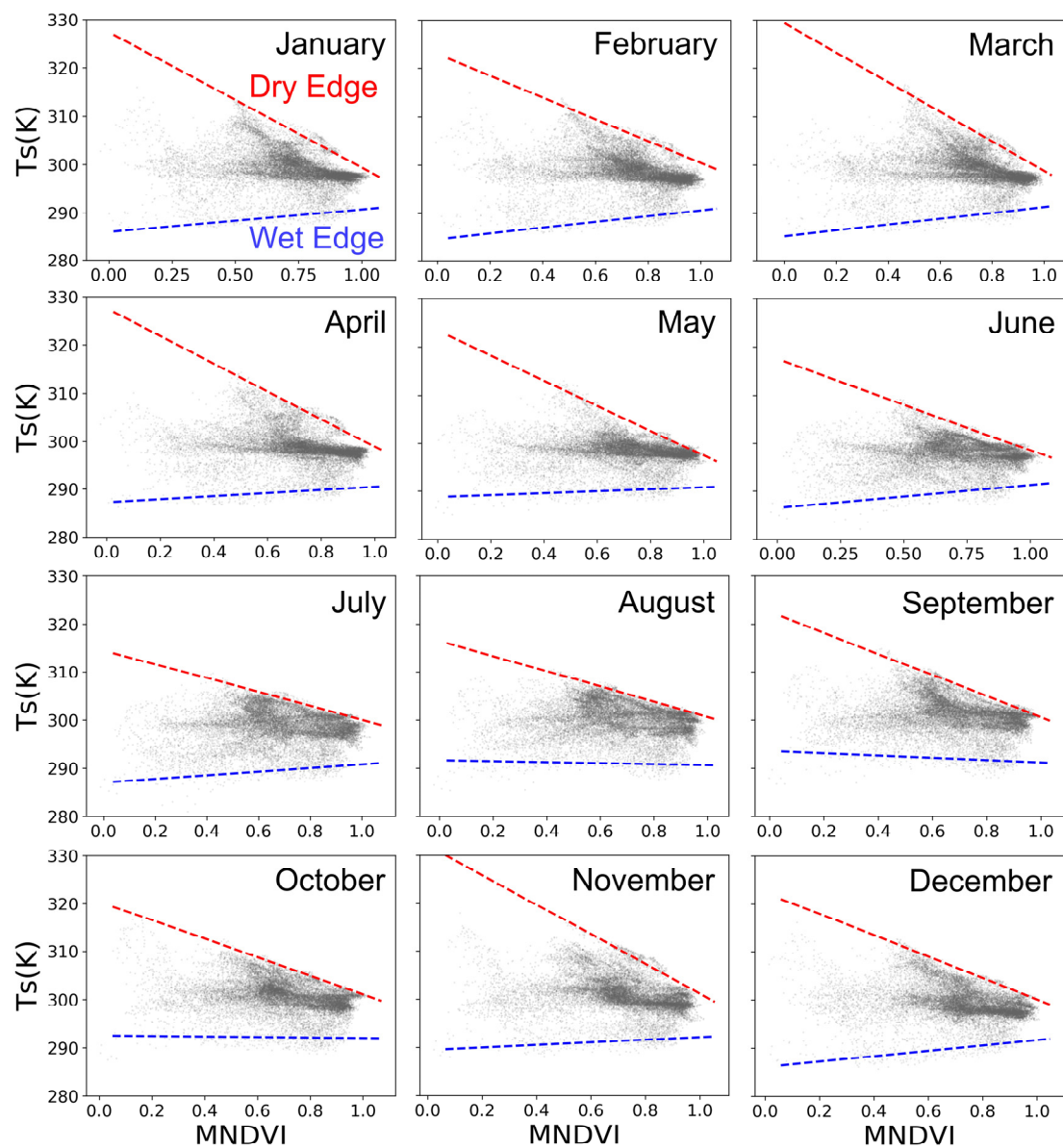


Figure S6 The monthly MNDVI-Ts space in 2009.

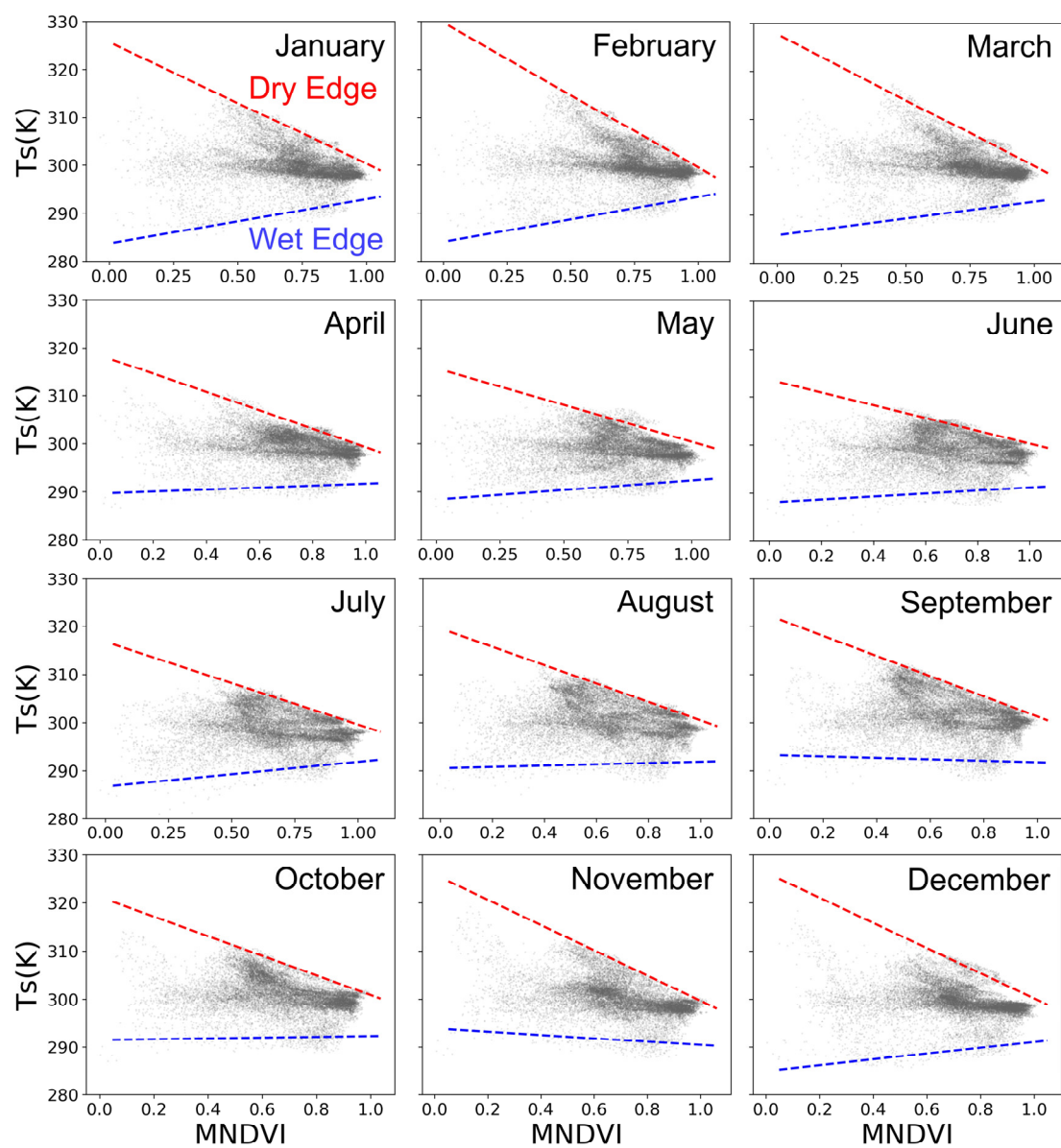


Figure S7 The monthly MNDVI- T_s space in 2010.

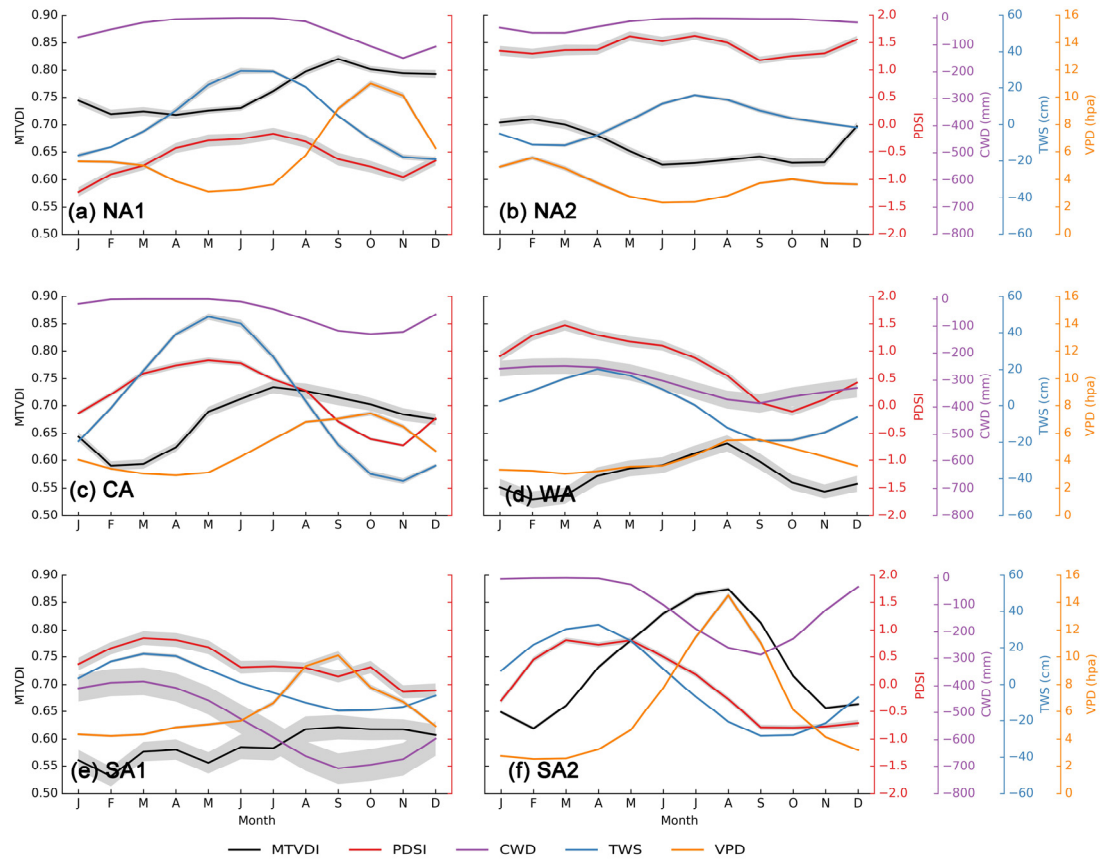


Figure S8 The seasonality of MTVDI, PDSI, CWD, VPD, and TWS in 6 sub regions of Amazonian tropical forests. The NA1, NA2, CA, WA, SA1, and SA2 are the abbreviation of each sub region in Figure 4a. The gray shadings represent Standard error of the mean (SEM)

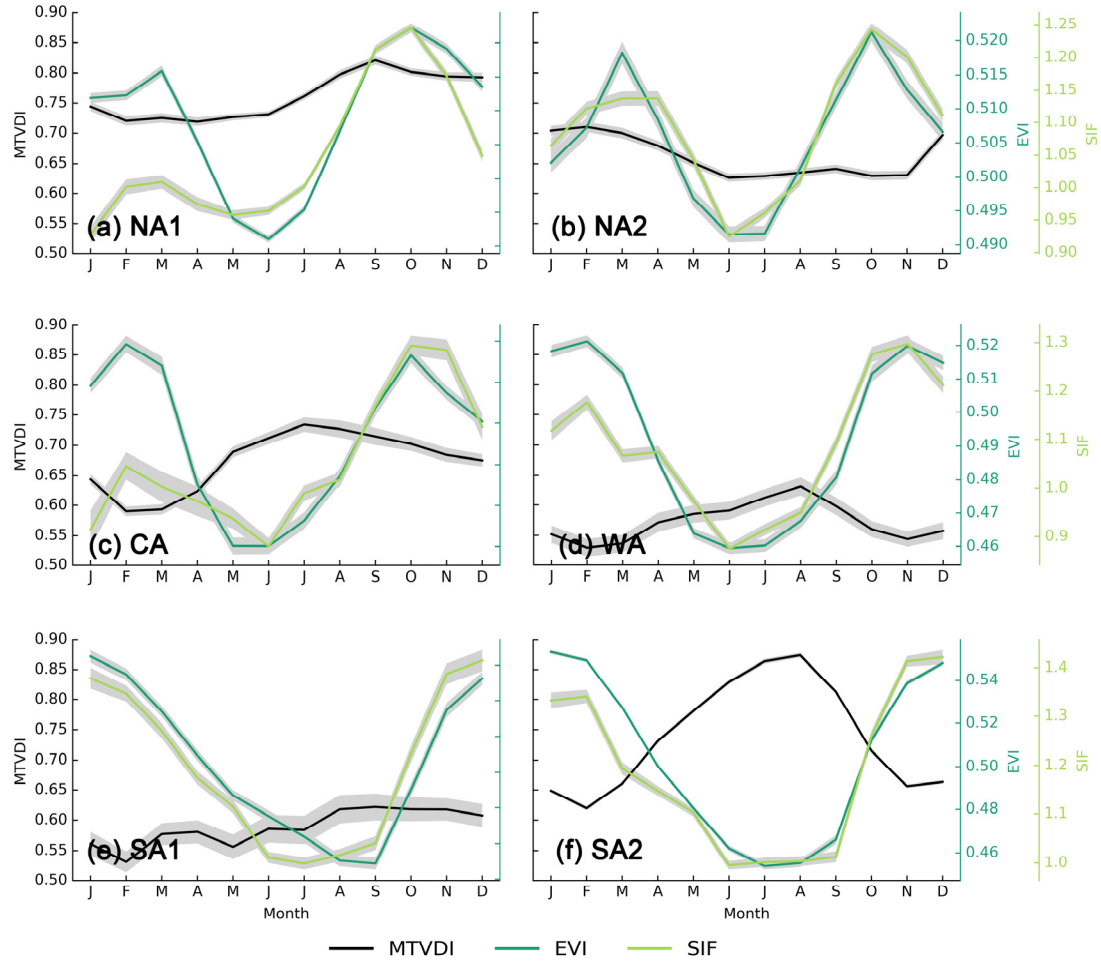


Figure S9 The seasonality curve of (a) EVI, (b) SIF in 6 sub regions of Amazonian tropical forests. The NA1, NA2, CA, WA, SA1, and SA2 are the abbreviation of each sub region in Figure 4a. The gray shadings represent Standard error of the mean (SEM)