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# Supplementary Materials: Atmospheric $p\text{CO}_2$ Reconstruction of Early Cretaceous Terrestrial Deposits in Texas and Oklahoma Using Pedogenic Carbonate and Occluded Organic Matter

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**Table S1.** Paleosol carbonate stable isotopic values of measured  $\delta^{13}\text{C}$  of calcite ( $\delta^{13}\text{C}_{\text{carb}}$  ‰ VPDB), measured  $\delta^{18}\text{O}$  of calcite ( $\delta^{18}\text{O}_{\text{carb}}$  ‰ VPDB), measured  $\delta^{13}\text{C}$  of acid-treated residues containing occluded organic matter ( $\delta^{13}\text{C}_{\text{oom}}$  ‰ VPDB), differences between paired calcite and co-existing occluded organic matter ( $\Delta^{13}\text{C}_{\text{cc-om}}$ ), weight percent carbon of organic matter residue, and estimated  $\delta^{13}\text{C}$  of soil-respired  $\text{CO}_2$  at the time of calcite crystallization ( $\delta^{13}\text{C}_s$ ) based on the measured values of the occluded organic matter corrected for diffusion enrichment assuming a soil temperature of  $30^\circ\text{C}$  ( $\delta^{13}\text{C}_s$  ‰ VPDB,  $30^\circ\text{C}$ ). Replicate analyses are marked with “R”.

Location	Sample	Formation (Age)	$\delta^{13}\text{C}_{\text{carb}}$ (‰ VPDB)	$\delta^{18}\text{O}_{\text{carb}}$ (‰ VPDB)	$\delta^{13}\text{C}_{\text{oom}}$ (‰ VPDB)	$\Delta^{13}\text{C}_{\text{cc-om}}$ (‰)	Weight (%) or- ganic carbon resi- due	$\delta^{13}\text{C}_s$ (‰ VPDB, $30^\circ\text{C}$ )
Oklahoma	Cross-C-10	Antlers	-10.84	-5.81	-25.22	14.38	0.67	-12.55
	Cross C-9	(Albian)	-10.93	-5.60	-25.87	14.94	0.89	-13.20
	Cross C-1		-10.92	-5.53	-25.00	14.08	0.73	-12.33
Jones Ranch, TX								
	CR13A	Twin Mountains	-4.72	-4.37	-24.70	19.98	0.61	-12.03
	CR13B	(Aptian)	-4.39	-4.36	-24.70	20.31	0.61	-12.03
	CR12A		-5.12	-4.14	-23.75	18.63	0.64	-11.07
	CR12B		-4.99	-4.12	-23.75	18.76	0.64	-11.07
	CR11A		-5.18	-4.21	-26.05	20.87	1.17	-13.38
	CR11B		-5.19	-4.23	-26.05	20.86	1.17	-13.38
	CR10A		-4.92	-4.33	-23.85	18.93	1.17	-11.17
	CR10B		-5.13	-4.23	-23.85	18.72	1.17	-11.17
	CR9A		-5.96	-4.40	-24.87	18.91	1.06	-12.20
	CR9B		-6.01	-4.34	-24.87	18.86	1.06	-12.20
	CR8A		-5.56	-4.17	-24.59	19.03	1.14	-11.92
	CR8B		-5.32	-4.05	-24.59	19.27	1.14	-11.92
	CR7A		-5.12	-4.08	-23.77	18.65	0.18	-11.09
	CR7B		-5.42	-4.02	-23.77	18.35	0.18	-11.09
	CR6B		-5.91	-4.32	-26.02	20.11	0.97	-13.35
	CR5A		-5.61	-4.45	-24.16	18.55	1.18	-11.49
	CR5B		-5.59	-4.30	-24.16	18.57	1.18	-11.49

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	CR4A		-5.49	-4.34	-27.30	21.81	0.99	-14.64
	CR4B		-5.64	-4.22	-27.30	21.66	0.99	-14.64
	CR3A		-5.54	-4.29	-23.53	17.99	0.25	-10.85
	CR3B		-5.70	-4.25	-23.53	17.83	0.25	-10.85
	CR2A		-5.71	-4.52	-27.03	21.32	1.10	-14.37
	CR2A-R		-5.56	-4.30	-27.03	21.47	1.10	-14.37
	CR2B		-5.67	-4.87	-27.03	21.36	1.10	-14.37
	CR1A		-5.89	-4.50	-23.20	17.31	0.51	-10.52
	CR1A-R		-5.89	-4.62	-23.20	17.31	0.51	-10.52
	CR1B		-5.67	-4.48	-23.20	17.53	0.51	-10.52
Proctor Lake, TX								
	PL-8	Twin Mountains	-7.84	-5.78	-21.08	13.24	1.02	-8.39
	PL-6	(Aptian)	-7.77	-4.87	-21.43	13.66	0.98	-8.74
	PL-3		-8.00	-4.74	-21.39	13.39	1.05	-8.70

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