

Supplemental Materials

Table 1. Soil Organic Matter $\delta^{13}\text{C}_{\text{org}}$ Data

Soil Series	Soil Pit	Sample	depth (cm)	$\delta^{13}\text{C}_{\text{org}}$
Guvo	Pit GS1	GS1	5	-22.05
		GS2	10	-20.78
		GS3	20	-21.50
	Pit GS2	GS4	5	-24.19
		GS5	10	-22.66
		GS6	20	-21.73
	Pit GS3	GS7	5	-22.49
		GS8	17	-20.65
		GS9	30	-20.52
	Pit GS4	GS10	5	-21.72
		GS11	15	-21.51
		GS12	25	-21.46
	Pit GS5	GS13	5	-23.74
		GS14	15	-21.44
		GS15	25	-20.51
Delthorny	Pit TS1	TS1	5	-19.06
		TS2	15	-19.08
	Pit TS2	TS3	5	-20.42
		TS4	15	-20.14
		TS5	27	-20.22
	Pit TS3	TS6	5	-20.91
		TS7	12	-20.16
	Pit TS4	TS8	5	-22.31
		TS9	10	-20.79
		TS10	20	-18.30

Table 2. Pedogenic Carbonate Isotope Data

Soil Series	Sample	PDB $\delta^{13}\text{C}_{\text{carb}}$	σ	PDB $\delta^{18}\text{O}_{\text{carb}}$	σ	SMOW
Delthorny	TSC1-1	-3.31	0.65	-7.56	0.06	23.11
	TSC1-2	-2.64	0.81	-7.85	0.31	22.82
	TSC1-3	-2.75	0.27	-2.75	0.27	28.08
	average	-2.90		-7.71		22.96
	stdev	0.36				
	TSC2-1	-4.07	0.23	-8.31	0.04	22.35
	TSC3-1	-2.83	0.49	-5.04	0.13	25.72
	TSC3-2	-3.99	0.77	-4.55	0.25	26.22
	TSC3-3	-3.35	0.55	-3.35	0.17	27.46
	average	-3.39		-4.79		25.97
	stdev	0.58				
	TSC4-1	-4.29	0.37	-8.01	0.18	22.65
	TSC4-2	-3.39	0.68	-3.39	0.68	27.42
	TSC4-3	-3.32	0.14	-9.34	0.24	21.28
	average	-3.67		-8.67		21.97
	stdev	0.54				
Guvo	GS1-1	-5.07	0.23	-8.36	0.11	22.29
	GS1-2	-5.22	0.32	-5.22	0.32	25.53
	GS1-3	-4.66	0.17	-4.66	0.17	26.11
	average	-4.98		-4.94		25.82
	stdev	0.29				
	GS2-1	-3.34	1.33	-3.90	2.02	26.89
	GS2-2	-6.22	0.08	-6.03	0.17	24.69
	GS2-3	-5.60	0.04	-6.20	0.37	24.52
	average	-5.05		-6.11		24.61
	stdev	0.43		0.12		
	GS3-1	-4.49	0.22	-8.65	0.62	22.00
	GS3-2	-4.78	0.38	-6.36	0.43	24.35
	GS3-3	-4.02	0.16	-6.99	0.97	23.70
	average	-4.43		-6.68		24.03
	stdev	0.38				

	GS4-1	-4.83	0.23	-4.83	1.23	25.93
	GS4-2	-4.79	0.49	-7.48	1.39	23.20
	GS4-3	-4.39	0.89	-5.86	1.31	24.86
	average	-4.67		-5.35		25.40
	stdev	0.24				
	GS5-1	-5.50	0.06	-7.71	0.33	22.96
	GS5-2	-5.41	0.15	-7.46	0.20	23.22
	GS5-3	-4.73	0.47	-7.85	0.60	22.81
	average	-5.21		-7.67		
	stdev	0.42				

σ values for individual nodules are based upon three discrete micro-samples of micritic calcite. The “stdev” refers to the σ value about the mean. Data in bold type represent outliers that were not considered part of the analysis.