Supplemental Table 2. Model basalt-seawater reaction parameters

	in Situ			STP	
$T(^oC)$	$\log(f_{CO_2})$	$\log(TCO_2)$	pH	$\log(f_{CO_2})$	pH
Reaction 1: Leonhardite + albite + CO_2 = calcite + paragonite + 4 quartz + 2.5 H_2O					
25	-5.48	-2.78	9.69	-5.48	9.69
50	-4.43	-2.75	9.06	-5.18	9.53
75	-3.53	-2.71	8.52	-4.78	9.31
100	-2.78	-2.67	8.05	-4.46	9.12
125	-2.13	-2.64	7.63	-4.14	8.92
150	-1.57	-2.59	7.25	-3.74	8.64
175	-1.08	-2.51	6.93	-2.64	7.7
200	-0.66	-2.37	6.67	-1.39	6.48
225	-0.29	-2.15	6.47	-0.87	5.95
250	0.04	-1.87	6.34	-0.45	5.54
Reaction 2: Leonhardite + CO_2 = calcite + kaolinite + 2 quartz + 1.5 H_2O					
25	-5.43	-2.78	9.67	-5.43	9.67
50	-4.29	-2.73	8.98	-4.97	9.42
75	-3.32	-2.67	8.39	-4.43	9.11
100	-2.49	-2.61	7.85	-3.95	8.79
125	-1.76	-2.56	7.35	-3.4	8.38
150	-1.14	-2.48	6.9	-2.09	7.17
175	-0.58	-2.31	6.5	-1.22	6.3
200	-0.10	-2.03	6.18	-0.67	5.76
225	0.33	-1.66	5.93	-0.2	5.28
250	0.71	-1.28	5.79	0.23	4.86
Reaction 3: Clinochlore-14A + 5 calcite + 5 CO_2 = 5 dolomite + kaolinite + 2 H_2O + quartz					
25	-4.41	-2.67	9.09	-4.41	9.09
50	-3.39	-2.61	8.41	-3.88	8.74
75	-2.52	-2.56	7.81	-3.39	8.36
100	-1.78	-2.52	7.27	-2.76	7.82
125	-1.13	-2.45	6.79	-1.79	6.87
150	-0.56	-2.29	6.37	-1.16	6.24
175	-0.05	-2	6.01	-0.63	5.72
200	0.40	-1.63	5.72	-0.16	5.24
225	0.80	-1.26	5.52	0.28	4.81
250	1.16	-0.84	5.44	0.68	4.41
Reaction 4: Clinochlore-14A + 5 CO_2 = 5 magnesite + kaolinite + quartz + 2 H_2O					
25	-2.78	-2.52	7.83	-2.78	7.83
50	-1.90	-2.48	7.12	-2.18	7.25
75	-1.15	-2.41	6.53	-1.55	6.63
100	-0.51	-2.22	6.05	-1.01	6.09
125	0.05	-1.91	5.64	-0.5	5.59
150	0.54	-1.53	5.3	-0.04	5.12
175	0.98	-1.11	5.04	0.4	4.69
200	1.36	-0.73	4.89	0.8	4.3
225	1.71	-0.35	4.83	1.19	3.93
250	2.02	0.01	4.85	1.54	3.61
Reaction 5: Daphnite-14A + 5 CO_2 = 5 siderite + kaolinite + quartz + 2 H_2O					
25	-2.05	-2.47	7.13	-2.05	7.13
50	-1.28	-2.4	6.51	-1.52	6.61
75	-0.62	-2.23	6	-1.01	6.1
100	-0.05	-1.94	5.59	-0.55	5.63
125	0.44	-1.59	5.26	-0.11	5.2
150	0.88	-1.21	4.98	0.3	4.79
175	1.26	-0.84	4.8	0.68	4.41
200	1.60	-0.49	4.71	1.05	4.06
225	1.91	-0.15	4.7	1.38	3.75
250	2.19	0.18	4.74	1.71	3.47
Reaction 6: 2 Albite + CO_2 + 3 H_2O = thermonatrite + kaolinite + 4 quartz					
25	3.92				
50	4.85				
75	5.68				
100	6.42				
125	7.08				
150	7.67				
175	8.21				
200	8.71				
225	9.15				
250	9.56				
Reaction 7: 3 Paragonite + CO_2 + 5 H_2O = thermonatrite + 3 kaolinite					
25	4.02				
50	5.12				
75	6.11				
100	7.00				
125	7.80				
150	8.53				
175	9.20				
200	9.82				
225	10.39				
250	10.91				

STP, Quenched fluid at standard temperature, 25^0C, and pressure, 1 bar.