

BECK SPRING DOLOMITE d13C AND d18O DATA

Sample	Height	d13C	d18O	Notes
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Beck Springs section northeast of pass at E end of Beck Canyon, N Kingston Range (BS3 collected 2009, EBC in 2010; N35.7838 W115.90864)

Sample	Height	d13C	d18O	Notes
EBC-y	0.2	7.81	-2.71	lam to intrclstc blk ls; sits sharply(faulted?) on underlying shales of HTS (Base of the BS placed at a seq. bound. at the base of an underlying qtzte unit)
EBC-x	1	9.42	-6.20	"
BS3-2	2	2.86	-12.39	"
BS3-3	3	2.82	-13.41	"
BS3-4	4	4.79	-14.46	"
BS3-5	5	2.33	-11.37	"
BS3-6	6	3.47	-10.56	"; becomes wavy-bdd w/ drk chrt lenses
BS3-7	9	3.41	-10.61	"; w/ 'flakey' intrclsts and blk chrt nodules
BS3-8	12	5.44	-8.56	thn bdd blk ls w/ crinkly lams, flake intrclsts and black chrt
BS3-9	14	4.68	-7.19	"
BS3-10	16	4.16	-11.16	"
BS3-11	18	4.07	-8.70	"
BS3-12	23	4.40	-12.2	"
BS3-13	26	2.22	-10.61	"
BS3-14	29	3.08	-9.44	"
EBC-1	30	2.17	-7.83	"
EBC-2	33	5.10	-0.03	"
EBC-3	36	4.93	-3.52	"
EBC-4	39	4.90	-1.08	"
EBC-5	42	5.25	-1.42	"
EBC-6	45	4.93	-2.24	"
EBC-7	48	4.53	-1.59	"
EBC-8	51	4.25	-3.58	"
EBC-9	54	5.03	-1.72	"
EBC-10	57	5.15	-0.06	"
EBC-11	60	5.02	-0.54	"
EBC-12	63	5.37	-0.15	"
EBC-13	66	4.65	-2.64	drkgy, thn bdd ds
EBC-14	69	4.65	-0.67	lam ltgy ds
EBC-15	72	4.67	-1.06	finely lam lt-mdgy ds ('barcode-ite')
EBC-16	75	5.10	-1.22	"
EBC-17	78	4.73	0.10	"
EBC-18	81	5.28	0.69	"
EBC-19	84	5.12	-0.50	"
EBC-20	87	5.30	-0.16	"
EBC-21	90	5.06	-0.46	"
EBC-22	93	5.56	-0.04	"
EBC-23	96	5.61	0.20	"
EBC-24	99	5.19	-1.34	"
EBC-25	102	5.45	-0.36	"
EBC-26	105	5.06	-2.05	"
EBC-27	108	4.82	0.10	"

EBC-28	111	4.54	-5.55	"
EBC-29	114	4.15	-6.31	"
EBC-30	117	4.57	-3.06	"
EBC-31	120	4.05	-4.78	"
EBC-32	123	4.15	-6.89	"
EBC-33	126	4.97	-3.95	"
EBC-34	129	4.59	-5.75	"
EBC-35	132	4.80	-3.73	"
EBC-36	135	3.57	-7.51	"
EBC-37	138	3.31	-9.44	lt-mdgy ds; mostly fine grained, stromatactis/isopachus cmnts locally
EBC-38	141	3.25	-8.91	"
EBC-39	144	4.16	-2.41	"
EBC-40	147	4.38	-2.98	"
EBC-41	150	4.48	-2.88	"
EBC-42	153	4.13	-4.46	"
EBC-43	156	4.70	-2.43	"
EBC-44	159	4.71	-3.91	"
EBC-45	162	4.71	-2.73	"
EBC-46	165	5.26	-2.25	"
EBC-47	168	4.52	-2.57	lt-mdgy bdd ds; oolitic, grainstne, intraclstc, micrbl, stromatactis/isopachus cmnts
EBC-48	171	4.83	-3.40	"
EBC-49	174	4.03	-4.52	"
EBC-50	177	4.73	-2.19	"
EBC-51	180	4.70	-2.63	mdgy oolitic unit
EBC-52	183	4.05	-5.54	"
EBC-53	186	5.01	-2.81	heavily stromatactis/isopachus cmnted interval
EBC-54	189	4.31	-3.16	mdgy oolitic interval
EBC-55	192	3.94	-4.35	"
EBC-56	195	4.15	-6.91	lt-mdgy bdd ds; oolitic, grainstne, intraclstc, micrbl, stromatactis/isopachus cmnts
EBC-57	198	4.54	-4.84	"
EBC-58	201	4.38	-4.76	"
EBC-59	204	3.96	-3.26	"
EBC-60	207	3.90	-4.20	"
EBC-61	210	3.50	-2.59	ltmdgy chipstone ds; weathers ltgy, drkgy fresh
EBC-62	213	2.72	-3.34	"
EBC-63	216	3.60	-3.98	"
EBC-64	219	2.34	-5.59	"; 3m recessive cvrd intrvl above this samp
EBC-65	224	10.79	2.25	blk chipstone ls
EBC-66	227	9.36	2.42	"
EBC-67	230	1.36	-9.18	md-ltgy chipstone ds
EBC-68	233	1.49	-8.35	blk chipstone ls; 4.5m recessive cvrd intrvl above this sample

Sample Height d13C d18O Notes
[western Beck Canyon, N Kingston Rng; chipstone-oncolite bed at top of BS \(N35.797056 W115.963417\)](#)

R2-33	237	0.14	-14.55	
R2-34	238	0.82	-10.73	

R2-35	239	0.83	-19.54	
R2-36	240	0.29	-11.43	
R2-37	241	0.61	-10.14	
R2-38	242	1.09	-12.43	
R2-39	243	1.29	-12.94	
R2-40	244	0.29	-10.41	
R2-41	245	0.28	-11.22	
R2-42	246	-0.27	-6.55	
R2-43	247	-0.98	-4.39	
R2-44	248	-1.09	-6.44	
R2-45	249	-0.59	-6.90	
R2-46	252	-3.09	-6.01	
R2-47	259	-1.12	-6.92	
R2-48	260	-1.62	-4.80	
R2-49	261	-0.92	-6.31	
R2-50	262	-0.92	-6.72	
R2-51	263.5	-1.48	-5.62	
R2-52	264.2	-0.42	-3.94	
R2-53	264.4	0.63	-1.39	overlain by 'KP1'

Sample Height d13C d18O Notes
central Saddle Peak Hills (collected 2010; N35.73221 W116.37369)

SPH-50	0.5	11.45	2.14	basal blk ls unit of BS sits sharply on shales of 'upper CS' (I place the depositional base of the BS at the seq. bound. at the base of an underlying qtzite unit ca. 60m below)
SPH-51	2.5	11.71	4.34	"
SPH-52	4	8.75	2.65	main unit of blk ls w/o shaley partings/intrbds
SPH-53	7	11.42	1.30	"
SPH-54	9	2.41	-7.38	top of blk ls
SPH-55	10	2.75	-9.58	typical gy BS ds ('barcode-ite')
SPH-56	14	3.80	-3.02	"
SPH-57	19	2.82	-4.22	"; top of shallowing cycle that started at top of blk ls at 18m
SPH-58	21	2.47	-5.30	intrbdd rd sh-sS w/ thin orgng-weath dolomcrte, gy fresh
SPH-59	23	1.94	-6.08	same as below but ds beds incr in thkns and proportion
SPH-60	25	2.73	-3.72	typical gy BS ds ('barcode-ite')
SPH-61	28	3.02	-3.97	"
SPH-62	33	2.26	-6.24	"
SPH-63	36	2.15	-3.41	"
SPH-64	39	2.16	-3.66	"
SPH-65	42	2.52	-5.90	ylw-tn-orgng mcrbl and intrclstc lithographic ds (prob. inter/supratidal) w/ brn-red sh interbds
SPH-66	45	2.63	-4.67	"
SPH-67	47	1.47	-5.84	"; top of shallowing cycle; above this BS becomes ledgy due to thnr depo cycles
SPH-68	48	2.09	-2.74	typical gy BS ds ('barcode-ite'); sits sharp on underlying unit
SPH-69	51	3.62	-2.78	"
SPH-70	53	3.18	-4.72	ylw-tn-orgng mcrbl and intrclstc lithogrphic ds (prob. inter/supratidal) w/ brn-red sh interbds
SPH-71	56	2.59	-6.22	"; top of shallowing cycle
SPH-72	57	3.12	-3.29	typical gy BS ds ('barcode-ite'); sits sharp on underlying unit
SPH-73	60	2.91	-1.41	"

SPH-75 (no 74)	63	3.24	-3.08	"
SPH-76	66	3.22	-3.45	ylw-tn-org mcrbl and intrclstc lithogrphic ds (prob. inter/supratidal) w/ brn-red sh interbds
SPH-77	67	1.78	-4.31	"; top of shallowing cycle
SPH-78	70	3.51	-3.40	typical gy BS ds ('barcode-ite'); sits sharp on underlying unit
SPH-79	72	4.31	-2.51	"
SPH-80	76	3.14	-2.77	ylw-tn-org mcrbl and intrclstc lithogrphic ds (prob. inter/supratidal) w/ brn-red sh interbds
SPH-81	78	2.90	-1.76	"; top of shallowing cycle
SPH-82	81	2.75	-5.25	1.5m thk blk ds marker bed; intrclstc, oolitic marks the start of 'deepening' cycles
SPH-83	83	2.58	-3.21	dcm-scale alternating beds of mdgy to ltgy, intrclstc to lam ds beds w/ some brn-gy cherty lenses/wisps
SPH-84	86	2.96	-2.97	"
SPH-85	91	2.81	-2.64	"
SPH-86	95	4.91	-5.45	"; top of shallowing cycle and the flood surf marks the start of 'deepening' cycles
SPH-87	99	3.39	-4.89	pale red-purp-gy sh and thn beds of gry-org ds (blk fresh)
SPH-88	107	1.86	-3.48	"
SPH-89	113	1.82	-4.93	"
SPH-90	117	3.15	-7.82	gy ds and orgng-gy ds in m-thk beds; much faulting
SPH-91	119	2.58	-9.09	"
SPH-92	124	0.6	-12.59	"
SPH-93	127	0.84	-17.72	"; top of shallowing cycle and overlain sharply by 3m of lt-md gry sh
SPH-94	129	-2.08	-9.41	4m thck lt-gy chipstone ds bed, no pisolites or oncolites observed
SPH-95	132	-2.20	-9.34	"
SPH-96	134	-2.48	-11.96	"; overlain by 3m of tan-org sh-marl rhythmites upward into 7m of KP1 finely lam sh-sS, then faulted

Sample Height d13C d18O Notes
E Kingston Range section through BS 'transitional' unit (N35.745025 W115.862742); this spans the uppermost BS through the BS 'transitional' unit to the base of 'KP1'

R5-1	0	2.73	-4.70	microbial lam ('barcode-ite') top BS
R5-2	1	2.55	-4.75	"
R5-3	2	2.46	-6.14	"
R5-4	3	1.60	-1.78	"
R5-5	4	2.18	-4.34	"
R5-6	5	2.96	-4.07	"
R5-7	6	3.65	-2.05	"
R5-8	7	3.20	-4.28	"
R5-9	8	2.95	-5.44	"
R5-10	9	3.02	-4.87	"
R5-11	10	3.02	-4.94	"
R5-12	10.4	2.14	-4.94	"; 2m mostly cvrd gy-rd sh above this sample
R5-13	12.4	1.69	-15.68	finely lam to thn-bd black ls
R5-14	13.4	1.67	-12.79	"
R5-15	14.4	1.59	-14.57	"
R5-16	15.5	1.37	-15.28	"
R5-17	16	-0.87	-10.99	ltgy weath drkgy fresh, mcrbl to chipstone ds w/ blk chrt blebs and nodules
R5-18	17	2.45	-13.46	"
R5-19	17.2	4.35	-17.65	blk ls top of chipstn bed; 0.5m drk gy sh above this sample
R5-20	18.2	1.41	-11.94	ltgy chippy ds
R5-21	18.4	3.62	-13.62	drk-lt lam ds; 5m mdgy sh above this sample

R5-22	23.5	-0.55	-11.21	ltgy weath drkgy fresh, mcrbl to chipstn ds w/ blk chrt blebs and nodules
R5-23	24.5	-0.64	-9.29	"
R5-24	25.5	0.00	-8.77	"
R5-25	26.5	-0.94	-9.05	"; 1.8m gy sh above this sample
R5-26	28.8	-1.26	-9.31	1m ltgy weath drkgy fresh, microbl to chpstne ds w/ blk chrt blebs and nodules; 0.5m drk gy sh above this sample
R5-27	30.2	-0.54	-9.62	mdgy f mass-appearing ds w/ siliceous concretions; 10m gy sh above this sample
R5-28	40.4	-2.16	-9.96	0.8m ltgy weath drkgy fresh, mcrbl to chpstne ds w/ blk chrt blebs and nodules; 1m gy sh above this sample
R5-29	42.2	-2.23	-11.35	0.5m ltgy ds-dkgy ls alternatively lam; 0.5m gy sh above this sample
R5-30	43.4	1.33	-13.70	blk micrbl lam to chpstne ls w/ blk chrt blebs and nodules; 0.7m gy sh above this sample
R5-31	45.3	-0.50	-5.86	mdgy microbl lam to chpstne ds w/ blk chrt blebs and nodules; 0.5m gy sh above this sample
R5-32	47	-0.68	-9.65	1m ltgy weath drkgy fresh, microbl to chppy ds w/ blk chrt blebs and nodules; 5m or-brn sh above this samp then overlain by f dkgy mica Ss
R5-33	57.7	1.58	-13.30	microbl lam to intrclstc blk ls
R5-34	58.7	3.04	-11.59	"
R5-35	59.7	2.72	-15.25	"
R5-36	60.7	2.43	-11.97	diagenetic front from gy lam to chpstne ds w /ls as below
R5-37	61.7	1.86	-11.86	"
R5-38	62.7	2.39	-11.20	"
R5-39	63.7	1.66	-10.39	"; 1.3m gy-org sh w/ red tints above this sample
R5-40	65	0.61	-10.62	ltgy weath drkgy fresh, microbl to chpstne ds w/ blk chrt blebs and nodules; basal 20cm chocbrwn
R5-41	66	0.03	-9.96	"
R5-42	67	1.14	-10.73	"
R5-43	67.8	1.81	-13.41	"; 0.2m dkgy sh above this sample
R5-44	68.2	0.33	-11.72	ltgy weath drkgy fresh, microbl to chpstne ds (no chrt); 1.1m gy sh above this sample
R5-45	69.9	-0.66	-11.47	ltgy weath drkgy fresh, microbl to chpstne ds w/ blk chrt blebs and nodules
R5-46	70.2	0.20	-15.81	"; 0.9m gy sh above this sample
R5-47	74	-0.72	-7.81	"; 3.7m gy sh to base sect R3

Sample Height d13C d180 Notes
E Kingston Rng uppermost BS bed (very well exposed at this locality; N35.743056 W115.8592---from this section, it is a lateral traverse N-ward to section R5); presumably this unit is approx. equiv. to the olistolith bed

R3-1	78	-2.37	-3.13	microbly lam chpstne-blk chert bed
R3-2	79	-0.05	-4.36	"
R3-3	80	-0.75	-4.47	"
R3-4	81	-1.79	-5.47	"
R3-5	82	-1.84	-4.33	"
R3-6	82.6	-1.58	-6.07	flat lam gy ds w/ sh partings
R3-7	82.85	-0.53	-3.79	"
R3-8	83.1	-0.80	-3.93	"
R3-9	83.35	0.01	-1.29	ds interbdd w/ f Ss-marl rhythmte
R3-10	85.65	-3.00	-4.59	"; passes upward into rhythmte ss-sh of basal 'KP1'

Sample Height d13C d180 Notes
N Kingston Rng olistostrome bed (Corsetti et al. Loc. 1)

R7-1	6.45	-2.51	-3.60	1.8m black-chrt chip-stone ds bed; basal 0.3m very cherty and sits sharply on KP2a (CO3-matrix diamictite, as opposed to siliciclastic-matrix diamictite)
R7-2	6.75	-2.23	-5.64	"
R7-3	7.05	-1.99	-7.98	"
R7-4	7.35	-0.69	-4.71	"
R7-5	7.95	-1.37	-7.17	0.35m oncolite-pisoid ds bed (15cm pisd, 7cm onc, 6cm pisd, 7cm ltgy ds)

R7-6	8	-0.84	-7.34	": pisoids
R7-7	8.14	-5.22	-4.75	": oncolites
R7-8	8.3	-0.72	-4.78	": Itgy ds sharply overlain by shaley interval (a block of 'KP1') itself overlain by unit of shale w/ dropstones and large blocks

VIRGIN SPRING LIMESTONE d13C, d18O, δ7Sr/86Sr and TE DATA

Sample set	Location	height	d13C	d18O	%carbonate	87Sr/86Sr	7Li	9Be	11B	31P (%)	45Sc	49Ti (%)	51V	55Mn (%)	59Co	60Ni	65Cu	66Zn	71Ga	85Rb	86Sr	89Y	90Zr	93Nb	95Mo	118Sn	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	159Tb	160Gd	163Dy	165Ho	166Er	172Yb	175Lu	178Hf	181Ta	205Tl	208Pb	232Th	238U
F1109	Virgin Spring Wash	0.1	1.381	-8.363	87.1	0.71386	2.61057	0.20043		0.00113	4.21313	0.00035	2.06726	0.36647	1.73896	13.98387	3.83284	4.98327	0.33606	0.83145	952.01018	13.18404	0.19263	-0.00436	0.10273	0.00876	0.01867	0.01030	43.86855	10.54730	19.35361	2.34264	9.93002	2.33548	0.74693	0.44239	2.83206	2.26643	0.38350	0.91750	0.74914	0.10352	0.01489	0.00268	0.00953	2.23977	0.27832	0.39392
F1109	Virgin Spring Wash	0.8	1.997	-7.670	93.8	0.71393	2.99210	0.17215		0.00937	4.34196	-0.00002	1.69629	0.13895	2.20752	16.02118	5.50901	6.56141	0.23931	0.72251	929.77736	11.61982	0.09332	-0.00783	0.07051	0.00151	0.01511	0.00543	12.42845	7.18370	13.61488	1.65695	6.66548	1.38128	0.25351	0.26387	1.62772	1.68990	0.32814	0.88798	0.81326	0.11771	0.00863	0.00211	0.00573	6.17907	0.18935	0.30889
F1109	Virgin Spring Wash	1.2	2.424	-7.274	95.3	0.71607	2.06255	0.15767		0.01417	3.41342	0.00072	1.00409	0.07083	2.19299	13.54191	5.58570	3.03402	0.14693	0.66363	1027.74702	8.67220	0.13431	-0.00046	0.02043	0.00401	0.02175	0.00650	9.88809	4.51556	8.06894	0.99616	3.94294	0.88518	0.23713	0.18654	1.09174	1.19064	0.63639	0.50153	0.06445	0.00766	0.00159	0.00468	1.04251	0.12208	0.31518	
F1109	Virgin Spring Wash	2	4.297	-6.482	93.7	0.71229	2.05160	0.17062		0.00754	4.52668	-0.00007	1.26983	0.07432	1.55876	16.78621	7.80733	7.98520	0.19739	0.51299	1012.40568	8.01967	0.10317	-0.00842	0.01406	-0.00006	0.00560	0.00506	14.94649	5.92318	11.06354	1.30389	5.02484	0.94628	0.30900	0.18183	1.11405	1.14402	0.22180	0.58385	0.51453	0.07462	0.00643	0.00098	0.00285	5.24235	0.22104	0.19861
F1109	Virgin Spring Wash	3	4.405	-5.492	92.4	0.71149	1.83715	0.17211		0.00555	3.67182	0.00060	2.25896	0.05012	2.57426	50.66674	2.65793	3.32196	0.25028	1.09338	766.50097	7.11627	0.08115	-0.00140	0.01481	-0.00109	0.00265	0.00928	37.85716	4.52738	8.41659	1.14458	4.57500	0.91596	0.24482	0.18959	0.50322	0.46536	0.07009	0.00479	0.00125	0.00513	2.02814	0.35112	0.74024	0.68005		
F1109	Virgin Spring Wash	3.7	4.704	-4.799	91.8	0.70938	1.51467	0.11130		0.00122	3.71253	-0.00006	1.48602	0.04127	2.92181	13.25690	1.93006	1.98334	0.13477	0.35297	946.96305	6.20518	0.05765	-0.00938	0.00353	0.00468	0.00468	60.52582	3.28960	6.46336	0.81401	3.25810	0.67933	0.17705	0.13211	0.79853	0.84474	0.17247	0.48282	0.46788	0.07083	0.00352	0.00057	0.00199	1.21378	0.17647		
F1109	Virgin Spring Wash	4.3	5.444	-4.205	90.8					0.00242	3.70351	0.00006	1.22081	0.03558	2.57872	12.70745	2.63206	3.52066	0.22924	0.64462	860.57699	12.07780	0.10392	-0.00851	-0.00108	0.00135	0.00305	0.00861	105.99219	11.01600	18.64732	2.39324	9.22571	1.86952	0.34813	0.32772	2.03556	1.89489	0.35422	0.93755	0.87053	0.13024	0.01003	0.00202	0.00334	2.08532	0.36006	0.75851
F1109	Virgin Spring Wash	6	5.042	-2.523	79.1					-0.00121	2.98975	0.00025	1.43205	0.16466	2.85128	13.15463	3.41482	3.02475	0.10314	0.44447	1176.66456	4.71467	0.02406	-0.00605	0.02369	0.00328	0.00283	0.00506	85.76145	1.93783	3.83110	0.45222	1.80515	0.38868	0.16537	0.08141	0.49878	0.54473	0.11404	0.33523	0.36401	0.05995	0.00093	0.00049	0.00357	3.06319	0.17206	0.58635
F1109	Virgin Spring Wash	6.7	4.663	-1.830	95.4					0.02691	3.44886	0.00017	0.60403	0.11028	1.71670	11.50315	5.95400	4.12219	0.16411	0.31063	2367.55355	3.29738	0.33371	0.00085	0.01386	0.00272	0.01348	22.23506	3.76779	6.33652	3.29852	3.29852	0.56229	0.29798	0.09116	0.54487	0.50670	0.11055	0.28072	0.24372	0.03819	0.00317	0.00047	0.00359	1.53042	0.26206	0.34282	
F1109	Virgin Spring Wash	7	4.463	-1.830	95.4					0.01175	3.36652	0.00098	0.95503	0.02097	2.70682	13.38900	4.04958	3.53800	0.11277	0.47328	3542.42035	3.87802	0.23217	0.00627	0.03363	0.01508	0.02352	0.01297	72.09560	3.65679	6.80581	0.80217	3.03351	0.56776	0.14497	0.09675	0.29828	0.27021	0.03940	0.00132	0.00299	0.00132	0.00299	2.56808	0.27232	0.34130		
F1109	Virgin Spring Wash	7.4	4.405	-5.492	92.4	0.71149	1.83715	0.17211		0.00555	3.67182	0.00060	2.25896	0.05012	2.57426	50.66674	2.65793	3.32196	0.25028	1.09338	766.50097	7.11627	0.08115	-0.00140	0.01481	-0.00109	0.00265	0.00928	37.85716	4.52738	8.41659	1.14458	4.57500	0.91596	0.24482	0.18959	0.50322	0.46536	0.07009	0.00479	0.00125	0.00513	2.02814	0.35112	0.74024	0.68005		
F1109	Virgin Spring Wash	8	5.042	-2.523	79.1					0.00242	3.70351	0.00006	1.22081	0.03558	2.57872	12.70745	2.63206	3.52066	0.22924	0.64462	860.57699	12.07780	0.10392	-0.00851	-0.00108	0.00135	0.00305	0.00861	105.99219	11.01600	18.64732	2.39324	9.22571	1.86952	0.34813	0.32772	2.03556	1.89489	0.35422	0.93755	0.87053	0.13024	0.01003	0.00202	0.00334	2.08532	0.36006	0.75851
F1109	Virgin Spring Wash	8.7	4.663	-1.830	95.4					0.00385	3.44673	0.00027	0.86163	0.05776	2.91900	15.58149	4.47818	1.91137	0.11944	0.45473	2230.60523	2.37204	0.20278	0.00028	0.04532	0.01024	0.00717	0.00981	60.08425	1.78930	3.31759	0.39999	1.58644	0.29440	0.11249	0.05264	0.18397	0.18795	0.03002	0.00255	0.00044	0.00361	0.45132	0.21292	0.28864			
F1109	Virgin Spring Wash	9	5.042	-2.523	79.1					0.00858	3.13340	0.00034	1.09585	0.00886	3.00667	13.81310	4.75370	2.24232	0.08066	0.47385	3579.91845	2.85084	0.23217	0.00627	0.03363	0.01508	0.02352	0.01297	72.09560	3.65679	6.80581	0.80217	3.03351	0.56776	0.14497	0.09675	0.29828	0.27021	0.03940	0.00132	0.00299	0.00132	0.00299	2.56808	0.27232	0.34130		
F1109	Virgin Spring Wash	9.6	5.042	-2.523	79.1					0.02008	3.23510	0.00057	1.71411	0.00822	2.77138	14.68919	6.27057	2.10878	0.08366	0.28308	3989.70194	3.75432	0.20157	0.00480	0.01829	0.00567	0.00769	0.01445	72.91640	2.10996	4.49422	0.51996	2.06024	0.40948	0.10837	0.07937	0.48581	0.50658	0.10149	0.27482	0.26010	0.03819	0.00353	0.00066	0.00179	0.40100	0.11875	0.32468
F1109	Virgin Spring Wash	10	5.042	-2.523	79.1					0.00385	3.44673	0.00027	0.86163	0.05776	2.91900	15.58149	4.47818	1.91137	0.11944	0.45473	2230.60523	2.37204	0.20278	0.00028	0.04532	0.01024	0.00717	0.00981	60.08425	1.78930	3.31759	0.39999	1.58644	0.29440	0.11249	0.05264	0.18397	0.18795	0.03002	0.00255	0.00044	0.00361	0.45132	0.21292	0.28864			
F1109	Virgin Spring Wash	10.7	4.663	-1.830	95.4					0.01175	3.36652	0.00098	0.95503	0.02097	2.70682	13.38900	4.04958	3.53800	0.11277	0.47328	3542.42035	3.87802	0.23217	0.00627	0.03363	0.01508	0.02352	0.01297	72.09560	3.65679	6.80581	0.80217	3.03351	0.56776	0.14497	0.09675	0.29828	0.27021	0.03940	0.00132	0.00299	0.00132	0.00299	2.56808	0.27232	0.34130		
F1109	Virgin Spring Wash	10.8	5.042	-2.523	79.1					0.00858	3.13340	0.00034	1.09585	0.00886	3.00667	13.81310	4.75370	2.24232	0.08066	0.47385	3579.91845	2.85084	0.23217	0.00627	0.03363	0.01508	0.02352	0.01297	72.09560	3.65679	6.80581	0.80217	3.03351	0.56776	0.14497	0.09675	0.29828	0.27021	0.03940	0.00132	0.00299	0.00132	0.00299	2.56808	0.27232	0.34130		
F1109	Virgin Spring Wash	10.9	5.042	-2.523	79.1					0.02008	3.23510	0.00057	1.71411	0.00822	2.77138	14.68919	6.27057	2.10878	0.08366	0.28308	3989.70194	3.75432	0.20157	0.00480	0.01829	0.00567	0.00769	0.01445	72.91640	2.10996	4.49422	0.51996	2.06024	0.40948	0.10837	0.07937	0.48581	0.50658	0.10149	0.27482	0.26010	0.03819	0.00353	0.00066	0.00179	0.40100	0.11875	0.32468
F1109	Virgin Spring Wash	11	5.042	-2.523	79.1					0.00385	3.44673	0.00027	0.86163	0.05776	2.91900	15.58149	4.47818	1.91137	0.11944	0.45473	2230.60523	2.37204	0.20278	0.00028	0.04532	0.01024	0.00717	0.00981	60.08425	1.78930	3.31759	0.39999	1.58644	0.29440	0.11249	0.05264	0.18397	0.18795	0.03002	0.00255	0.00044	0.00361	0.45132					

Age	87Sr/86Sr	d13C	Formation	Location	Reference
-625	0.70769		4 Tsagaan Olooi	Mongolia	Shields et al., 2002
-630.4	0.70755		-4 Maieberg	Namibia	Halverson et al., 2007
-630.8	0.70752		-5.2 Maieberg	Namibia	Halverson et al., 2007
-631.2	0.70756	-	Maieberg	Namibia	Halverson et al., 2007
-631.6	0.70756	-	Maieberg	Namibia	Halverson et al., 2007
-632	0.70744		-5.6 Maieberg	Namibia	Halverson et al., 2007
-632.4	0.70756		-4.3 Maieberg	Namibia	Halverson et al., 2007
-632.8	0.70748		-4.4 Maieberg	Namibia	Halverson et al., 2007
-633.2	0.70748		-4.4 Maieberg	Namibia	Halverson et al., 2007
-633.6	0.70758		-4.4 Maieberg	Namibia	Halverson et al., 2007
-634	0.70717		-6.3 Maieberg	Namibia	Halverson et al., 2007
-634.5	0.70714		-4.50 Hayhook	NW Canada	Halverson et al., 2007
-634.5	0.70716		-4.00 Hayhook	NW Canada	Halverson et al., 2007
-634.5	0.70716		-4.10 Hayhook	NW Canada	Halverson et al., 2007
-634.5	0.70714		-4.70 Hayhook	NW Canada	Halverson et al., 2007
-653	0.70725		8.3 Ombaatje	Namibia	Halverson et al., 2007
-662.2	0.70699		-0.92 Rasthof	Namibia	Yoshioka et al., 2003
-662.4	0.70698		-1.03 Rasthof	Namibia	Yoshioka et al., 2003
-662.6	0.70689		-1.01 Rasthof	Namibia	Yoshioka et al., 2003
-662.8	0.70685		-1.33 Rasthof	Namibia	Yoshioka et al., 2003
-663	0.70697		-1.96 Rasthof	Namibia	Yoshioka et al., 2003
-650	0.70720		-5.49 Keele	NW Canada	Halverson et al., 2007
-651	0.70718		-5.62 Keele	NW Canada	Halverson et al., 2007
-653	0.70718		9.50 Keele	NW Canada	Halverson et al., 2007
-654	0.70712		8.20 Middle Keele	NW Canada	Narbonne et al., 1994
-662	0.706749		Twitya	NW Canada	Narbonne et al., 1994
-661.1	0.706703		Twitya	NW Canada	Narbonne et al., 1994
-662.2	0.70669		-3.10 Twitya	NW Canada	Narbonne et al., 1994
-641	0.70725		7.3 Tsagaan Olooi	Mongolia	Shields et al., 2002
-643	0.70725		2.4 Tsagaan Olooi	Mongolia	Shields et al., 2002
-645	0.70735		9.2 Tsagaan Olooi	Mongolia	Shields et al., 2002
-647	0.70729		7.4 Tsagaan Olooi	Mongolia	Shields et al., 2002
-649	0.70734		9.5 Tsagaan Olooi	Mongolia	Shields et al., 2002
-651	0.70713		8.3 Tsagaan Olooi	Mongolia	Shields et al., 2002
-653	0.70729		4.9 Tsagaan Olooi	Mongolia	Shields et al., 2002
-657	0.70716		3.9 Tsagaan Olooi	Mongolia	Shields et al., 2002
-659	0.70720		3.9 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.3	0.70709		7 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.4	0.70709		3.2 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.5	0.70705		0.7 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.6	0.70694		-0.03 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.7	0.70699		-1.2 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.8	0.70684		-0.9 Tsagaan Olooi	Mongolia	Shields et al., 2002
-661.9	0.70680		-2 Tsagaan Olooi	Mongolia	Shields et al., 2002
-662	0.70675		-3.3 Tsagaan Olooi	Mongolia	Shields et al., 2002
-719	0.70676		6.2 Virgin Springs	Death Valley	This Paper
-720	0.70665		7.22 Bed 20	Greenland	Fairchild, 2001
-728	0.70639		6.77 Bed 21	Greenland	Fairchild, 2001
-730	0.70643		5.24 Bed 22	Greenland	Fairchild, 2001
-724	0.70666		8.10 Copper Cap	NW Canada	Halverson et al., 2007
-727	0.70663		7.60 Copper Cap	NW Canada	Halverson et al., 2007
-730	0.70664		6.40 Copper Cap	NW Canada	Halverson et al., 2007
-733	0.70669		-2.20 Copper Cap	NW Canada	Halverson et al., 2007
-736	0.70644		-1.50 Copper Cap	NW Canada	Halverson et al., 2007
-737	0.70675		-4.8 Russoya	Svalbard	Halverson et al., 2005
-740	0.70674		0.9 Russoya	Svalbard	Halverson et al., 2005
-742	0.70675		7.1 Russoya	Svalbard	Halverson et al., 2005
-744	0.70677		2.7 Russoya	Svalbard	Halverson et al., 2005
-735	0.70646		-4.71 u. Islay	Scotland	Sawaki et al., 2010
-736	0.70645		-5.39 u. Islay	Scotland	Sawaki et al., 2010
-737	0.70640		-4.57 u. Islay	Scotland	Sawaki et al., 2010
-738	0.70663		-3.72 u. Islay	Scotland	Sawaki et al., 2010
-741	0.70677		2.66 I. Islay	Scotland	Sawaki et al., 2010
-742	0.70677		2.63 I. Islay	Scotland	Sawaki et al., 2010
-743	0.70677		2.65 I. Islay	Scotland	Sawaki et al., 2010
-744	0.70686		2.88 I. Islay	Scotland	Sawaki et al., 2010
-745	0.70667		2.95 I. Islay	Scotland	Sawaki et al., 2010
-750	0.70670		4.03 Ballygrant	Scotland	Sawaki et al., 2010
-752	0.70690		-1.6 Ballygrant	Scotland	Sawaki et al., 2010