

Table DR13 Carbon and oxygen isotope record from pedogenic carbonates within the Indus River Basin

Sample name	Age (Ma)	$\delta^{13}\text{C}$ (PDB)	$\delta^{18}\text{O}$ (PDB)	Reference
9148 Gabhir Kas	15.93	-9.1	-7.6	Quade and Cerling, 1995
9143 Gabhir Kas	15.21	-9.2	-9.6	Quade and Cerling, 1995
9141 Gabhir Kas	15.21	-10	-10.7	Quade and Cerling, 1995
9135 Gabhir Kas	14.4	-10	-8.2	Quade and Cerling, 1995
9134 Gabhir Kas	14.38	-10.6	-8.7	Quade and Cerling, 1995
9132 Gabhir Kas	14.35	-11.4	-8.9	Quade and Cerling, 1995
7869 Gabhir Kas	13.87	-9.7	-10.8	Quade and Cerling, 1995
7826 Gabhir Kas	13.6	-9	-11.9	Quade and Cerling, 1995
7827 Gabhir Kas	13.63	-9	-10.3	Quade and Cerling, 1995
7828 Gabhir Kas	13.67	-9.2	-8.7	Quade and Cerling, 1995
7829 Gabhir Kas	13.69	-9.8	-9.3	Quade and Cerling, 1995
7862 Gabhir Kas	13.27	-9.4	-10.4	Quade and Cerling, 1995
7860 Gabhir Kas	12.64	-9.5	-10.6	Quade and Cerling, 1995
7859 Gabhir Kas	12.31	-9.2	-10.2	Quade and Cerling, 1995
7865 Gabhir Kas	12.2	-9.9	-10.6	Quade and Cerling, 1995
7857 Gabhir Kas	11.91	-9.9	-10.1	Quade and Cerling, 1995
7855 Gabhir Kas	11.47	-9.3	-9.8	Quade and Cerling, 1995
7916 Gabhir Kas	11.38	-10.6	-9.8	Quade and Cerling, 1995
7917? Gabhir Kas	11.02	-9.6	-9.9	Quade and Cerling, 1995
7918 Gabhir Kas	10.85	-10.7	-9.1	Quade and Cerling, 1995
7919 Gabhir Kas	10.39	-10.5	-9.4	Quade and Cerling, 1995
7935 Gabhir Kas	10.21	-10.5	-11.3	Quade and Cerling, 1995
7929 Gabhir Kas	10.05	-10.3	-9.5	Quade and Cerling, 1995
7931 Gabhir Kas	10.02	-9.4	-10.6	Quade and Cerling, 1995
7933 Gabhir Kas	9.9	-8.7	-11	Quade and Cerling, 1995
7934 Gabhir Kas	9.78	-11.3	-10.7	Quade and Cerling, 1995
9158 Kaulial Kas	9.15	-12.6	-5.4	Quade and Cerling, 1995
9160 Kaulial Kas	9.04	-10.6	-7.3	Quade and Cerling, 1995
9162 Kaulial Kas	8.97	-12.9	-8.7	Quade and Cerling, 1995
9168 Kaulial Kas	8.63	-11.8	-5.4	Quade and Cerling, 1995
9173 Kaulial Kas	8.34	-11.5	-7.4	Quade and Cerling, 1995
9174 Kaulial Kas	8.06	-8.9	-7	Quade and Cerling, 1995
9175 Kaulial Kas	8.11	-11.6	-8.9	Quade and Cerling, 1995
9177 Kaulial Kas	7.74	-8.6	-7.1	Quade and Cerling, 1995
9178 Kaulial Kas	7.63	-8.6	-7.5	Quade and Cerling, 1995
9180 Kaulial Kas	7.59	-7.5	-7.8	Quade and Cerling, 1995
9181 Kaulial Kas	7.52	-10.2	-7.4	Quade and Cerling, 1995
9182 Kaulial Kas	7.48	-9.5	-7.9	Quade and Cerling, 1995
9183 Kaulial Kas	7.37	-3.6	-7.1	Quade and Cerling, 1995
9184 Kaulial Kas	7.27	-10.1	-9.1	Quade and Cerling, 1995
9185 Kaulial Kas	7.1	-7.9	-7.6	Quade and Cerling, 1995
9186a Kaulial Kas	7.04	-9.5	-7.3	Quade and Cerling, 1995

9186b	7.04	-8.8	-6.5	Quade and Cerling, 1995
9187 Kaulial Kas	6.99	-7	-6.8	Quade and Cerling, 1995
8007 Mirpur	3.33	0.6	-6.7	Quade and Cerling, 1995
8012 Mirpur	3.28	0.9	-5.5	Quade and Cerling, 1995
8014 Mirpur	3.27	1.2	-6.9	Quade and Cerling, 1995
8016 Mirpur	3.24	0.7	-7.8	Quade and Cerling, 1995
8024 Mirpur	3.1	0.1	-7.2	Quade and Cerling, 1995
8037a Mirpur	2.89	2	-7.2	Quade and Cerling, 1995
8043 Mirpur	2.66	1.7	-7.5	Quade and Cerling, 1995
8051 Mirpur	2.55	1	-6.2	Quade and Cerling, 1995
8056 Mirpur	2.45	-1.9	-6.8	Quade and Cerling, 1995
8065 Mirpur	2.14	0.4	-6.2	Quade and Cerling, 1995
8068 Mirpur	1.9	0.8	-7	Quade and Cerling, 1995
8075 Mirpur	1.5	2.6	-6	Quade and Cerling, 1995
8076 Mirpur	1.48	0.8	-5	Quade and Cerling, 1995
7905 Pabbi Hills	1.76	1.8	-4.7	Quade and Cerling, 1995
9189 Pabbi Hills	1.76	1.1	-4.8	Quade and Cerling, 1995
9190 Pabbi Hills	1.76	2.3	-5.5	Quade and Cerling, 1995
9191 Pabbi Hills	1.76	2.8	-4.6	Quade and Cerling, 1995
9192 Pabbi Hills	1.64	1.3	-5.8	Quade and Cerling, 1995
9193 Pabbi Hills	1.56	0.8	-5.6	Quade and Cerling, 1995
9194 Pabbi Hills	1.54	2.1	-5.8	Quade and Cerling, 1995
9196 Pabbi Hills	1.49	1.9	-6.6	Quade and Cerling, 1995
9197 Pabbi Hills	1.43	0.2	-6.3	Quade and Cerling, 1995
9200 Pabbi Hills	1.41	-0.9	-5.9	Quade and Cerling, 1995
9201 Pabbi Hills	1.37	-0.8	-6	Quade and Cerling, 1995
9202 Pabbi Hills	1.36	1.2	-8.1	Quade and Cerling, 1995
9203 Pabbi Hills	1.26	-0.1	-7.9	Quade and Cerling, 1995
9204 Pabbi Hills	1.22	1.4	-6.4	Quade and Cerling, 1995
9205 Pabbi Hills	1.18	1.3	-5.2	Quade and Cerling, 1995
9206 Pabbi Hills	1.17	0.3	-4.4	Quade and Cerling, 1995
9207 Pabbi Hills	1.16	1.3	-5.2	Quade and Cerling, 1995
9208 Pabbi Hills	1.16	0.9	-5.6	Quade and Cerling, 1995
9209 Pabbi Hills	1.15	2.5	-6.6	Quade and Cerling, 1995
9210 Pabbi Hills	1.11	2.3	-6.8	Quade and Cerling, 1995
9211 Pabbi Hills	1.1	-0.1	-6.1	Quade and Cerling, 1995
9212 Pabbi Hills	1.05	-2.1	-8.5	Quade and Cerling, 1995
9216 Pabbi Hills	0.77	1.9	-6.5	Quade and Cerling, 1995
9217 Pabbi Hills	0.73	0.9	-6.8	Quade and Cerling, 1995
9718 Pabbi Hills	0.69	1.6	-6.1	Quade and Cerling, 1995
9720 Pabbi Hills	0.6	0.5	-6.7	Quade and Cerling, 1995
9721 Pabbi Hills	0.54	-2.4	-9	Quade and Cerling, 1995
9722 Pabbi Hills	0.48	2.1	-5.7	Quade and Cerling, 1995
9733 Jalalpur	2.27	2.5	-6.8	Quade and Cerling, 1995
9730 Jalalpur	2.58	-1.9	-7.8	Quade and Cerling, 1995
9701 Jalalpur	3.3	1.3	-6.6	Quade and Cerling, 1995
9698 Jalalpur	3.39	2	-6.3	Quade and Cerling, 1995
9694 Jalalpur	3.43	1.8	-6.2	Quade and Cerling, 1995

9693 Jalalpur	3.44	0.4	-6.1	Quade and Cerling, 1995
9689 Jalalpur	3.5	1.8	-6.5	Quade and Cerling, 1995
9683 Jalalpur	3.69	-2	-5.7	Quade and Cerling, 1995
9669 Jalalpur	3.74	-1.9	-7.2	Quade and Cerling, 1995
9676 Jalalpur	4.36	0.7	-6.5	Quade and Cerling, 1995
9671 Jalalpur	4.68	0.6	-7	Quade and Cerling, 1995
9665 Jalalpur	5.13	-1	-7.5	Quade and Cerling, 1995
9663 Jalalpur	5.77	-0.7	-8	Quade and Cerling, 1995
9657 Jalalpur	5.89	0.54	-6.4	Quade and Cerling, 1995
9655 Jalalpur	5.91	-2.3	-4.9	Quade and Cerling, 1995
9654 Jalalpur	5.94	0.1	-7.2	Quade and Cerling, 1995
9652 Jalalpur	5.98	-1.3	-4.9	Quade and Cerling, 1995
9648 Jalalpur	6.07	-0.3	-5.4	Quade and Cerling, 1995
9646 Jalalpur	6.13	0	-6.9	Quade and Cerling, 1995
9643 Jalalpur	6.43	-3.5	-6.9	Quade and Cerling, 1995
9640 Jalalpur	6.59	-1.4	-7.4	Quade and Cerling, 1995
9639 Jalalpur	6.61	-3	-7.7	Quade and Cerling, 1995
9637 Jalalpur	6.76	-0.7	-6.3	Quade and Cerling, 1995
9630 Jalalpur	7.48	-5	-7.4	Quade and Cerling, 1995
9625 Jalalpur	7.92	-7.9	-7.9	Quade and Cerling, 1995
9624 Jalalpur	7.95	-11.2	-6.2	Quade and Cerling, 1995
9622 Jalalpur	7.98	-8.8	-8	Quade and Cerling, 1995
9619 Jalalpur	8.4	-10.8	-9	Quade and Cerling, 1995
9613 Jalalpur	9.27	-11	-9.9	Quade and Cerling, 1995
9607 Jalalpur	9.41	-10	-9.9	Quade and Cerling, 1995
9611 Jalalpur	9.64	-10.1	-9.7	Quade and Cerling, 1995
9764 Jalalpur	10.14	-9.8	-9.4	Quade and Cerling, 1995
9762 Jalalpur	10.6	-9.9	-8	Quade and Cerling, 1995
9758 Jalalpur	11.67	-10.7	-9.5	Quade and Cerling, 1995
9757 Jalalpur	12.23	-10.8	-8.8	Quade and Cerling, 1995
9024 Rohtas	3.98	0.1	-5.8	Quade and Cerling, 1995
8083 Rohtas	4.3	-1.2	-6.9	Quade and Cerling, 1995
8085 Rohtas	4.39	-0.1	-7.3	Quade and Cerling, 1995
9796 Rohtas	4.49	-0.8	-6.8	Quade and Cerling, 1995
8086 Rohtas	4.53	-0.13	-7.8	Quade and Cerling, 1995
8088 Rohtas	4.56	2	-6.3	Quade and Cerling, 1995
8091 Rohtas	4.66	1.1	-7.6	Quade and Cerling, 1995
8092 Rohtas	4.78	0.8	-7	Quade and Cerling, 1995
8094 Rohtas	5.02	-3.5	-5.9	Quade and Cerling, 1995
8095 Rohtas	5.2	-5	-8.5	Quade and Cerling, 1995
9795 Rohtas	5.54	-2.5	-7.6	Quade and Cerling, 1995
9793 Rohtas	5.74	-9	-8.7	Quade and Cerling, 1995
9794 Rohtas	5.76	-7	-9.4	Quade and Cerling, 1995
9792 Rohtas	5.78	-10.2	-8.7	Quade and Cerling, 1995
9791 Rohtas	5.78	-9.1	-9.2	Quade and Cerling, 1995
9005 Rohtas	6.08	-10.1	-7.9	Quade and Cerling, 1995
9006 Rohtas	6.18	-11	-9.7	Quade and Cerling, 1995
9754 Rohtas	6.22	-11	-9.9	Quade and Cerling, 1995

9008 Rohtas	6.28	-8.9	-10.9	Quade and Cerling, 1995
9009 Rohtas	6.4	-10.4	-9.6	Quade and Cerling, 1995
9020 Rohtas	6.65	-10.4	-10.6	Quade and Cerling, 1995
9019 Rohtas	6.9	-9.9	-9.9	Quade and Cerling, 1995
ROT 94-26	7.99	-9.12	-9.6	Behrensmeyer et al., 2007
ROT 94-1	7.99	-9.59	-8.5	Behrensmeyer et al., 2007
ROT 94-8	7.99	-9.93	-8.9	Behrensmeyer et al., 2007
ROT94-4	7.99	-9.79	-9.5	Behrensmeyer et al., 2007
ROT 94-2	7.98	-9.27	-9	Behrensmeyer et al., 2007
ROT 121	7.98	-8.62	-8.91	Behrensmeyer et al., 2007
KB96-026	7.98	-9.92	-8.92	Behrensmeyer et al., 2007
ROT94-3	7.98	-9.55	-10.3	Behrensmeyer et al., 2007
ROT 94-6	7.98	-9.39	-8.8	Behrensmeyer et al., 2007
ROT 94-27	7.98	-11.06	-9.1	Behrensmeyer et al., 2007
ROT 94-73	7.98	-10.42	-8.9	Behrensmeyer et al., 2007
ROT 147	7.98	-9.95	-9.4	Behrensmeyer et al., 2007
ROT 94-9	7.98	-10.2	-9	Behrensmeyer et al., 2007
ROT 94-7	7.97	-9.94	-9.3	Behrensmeyer et al., 2007
ROT 94-74	7.97	-11.2	-8.6	Behrensmeyer et al., 2007
ROT-235-1	7.97	-9.9	-9.3	Behrensmeyer et al., 2007
ROT-235-2	7.97	-9.8	-9.1	Behrensmeyer et al., 2007
ROT-235-3	7.97	-9.6	-9.1	Behrensmeyer et al., 2007
ROT 94-71	7.97	-12.03	-8.6	Behrensmeyer et al., 2007
ROT 94-5	7.97	-10.61	-11.1	Behrensmeyer et al., 2007
ROT 152	7.97	-11.3	-7.04	Behrensmeyer et al., 2007
ROT 94-75	7.97	-10.16	-8.6	Behrensmeyer et al., 2007
ROT 94-72	7.97	-9.66	-8.8	Behrensmeyer et al., 2007
ROT-123n	7.94	-9.51	-9.42	Behrensmeyer et al., 2007
9005	7.94	-10.1	-7.9	Behrensmeyer et al., 2007
ROT-149.n	7.93	-10.72	-7.55	Behrensmeyer et al., 2007
ROT 124	7.93	-7.4	-7.48	Behrensmeyer et al., 2007
ROT-125.n	7.92	-10.13	-8.2	Behrensmeyer et al., 2007
ROT-153.n	7.92	-10.49	-8.98	Behrensmeyer et al., 2007
ROT 76	7.9	-10.22	-9.54	Behrensmeyer et al., 2007
ROT 78L	7.9	-10.03	-9.86	Behrensmeyer et al., 2007
ROT 78K	7.89	-9.89	-9.41	Behrensmeyer et al., 2007
ROT 78K	7.89	-10.36	-9.5	Behrensmeyer et al., 2007
ROT 78J	7.89	-10.41	-9.13	Behrensmeyer et al., 2007
ROT 75	7.89	-10.05	-9.78	Behrensmeyer et al., 2007
ROT 141	7.86	-9.01	-8.88	Behrensmeyer et al., 2007
ROT-142	7.83	-9.67	-8.64	Behrensmeyer et al., 2007
ROT 136	7.8	-11.28	-7.32	Behrensmeyer et al., 2007
ROT-237.n	7.73	-10.55	-8.55	Behrensmeyer et al., 2007
ROT-234	7.72	-9.74	-9	Behrensmeyer et al., 2007
ROT 163	7.43	-10.19	-8.83	Behrensmeyer et al., 2007
ROT 165	7.07	-6.79	-8.35	Behrensmeyer et al., 2007
ROT 164	7.07	-7.79	-7.97	Behrensmeyer et al., 2007
ROT 161	7.01	-7.45	-7.58	Behrensmeyer et al., 2007

ROT-160.n	7	-6.42	-12.58	Behrensmeyer et al., 2007
KB96-003	6.78	-5.86	-8.24	Behrensmeyer et al., 2007
KB96-032	6.78	-3.59	-8.04	Behrensmeyer et al., 2007
KB96-033	6.78	-4.88	-8.19	Behrensmeyer et al., 2007
KB96-029	6.78	-3.41	-7.94	Behrensmeyer et al., 2007
KB96-004	6.78	-4.21	-8.17	Behrensmeyer et al., 2007
KB96-005	6.78	-4.6	-8.85	Behrensmeyer et al., 2007
KB96-028	6.78	-5.06	-8.29	Behrensmeyer et al., 2007
KB96-030	6.78	-4.48	-7.97	Behrensmeyer et al., 2007
KB96-034	6.77	-7.66	-8.92	Behrensmeyer et al., 2007
ROT 16	6.77	-3.27	-8.24	Behrensmeyer et al., 2007
ROT 17	6.77	-3.74	-8.5	Behrensmeyer et al., 2007
ROT-36n	6.77	-7.83	-9.43	Behrensmeyer et al., 2007
ROT 71	6.77	-3.9	-7.27	Behrensmeyer et al., 2007
ROT-225	6.77	-2.68	-7.36	Behrensmeyer et al., 2007
9795	6.77	-2.5	-7.6	Behrensmeyer et al., 2007
ROT-37	6.76	-2.34	-7.52	Behrensmeyer et al., 2007
ROT 27	6.76	-5.85	-9.16	Behrensmeyer et al., 2007
ROT 26	6.76	-7.33	-9.73	Behrensmeyer et al., 2007
ROT-227	6.76	-3.29	-7.4	Behrensmeyer et al., 2007
ROT 28	6.76	-2.53	-8.06	Behrensmeyer et al., 2007
ROT 53	6.76	-8.96	-8.71	Behrensmeyer et al., 2007
ROT 94-58	6.75	-7.04	-8.1	Behrensmeyer et al., 2007
ROT 29	6.75	-7.49	-7.22	Behrensmeyer et al., 2007
ROT 29	6.75	-5.99	-7.14	Behrensmeyer et al., 2007
ROT 51	6.75	-4.26	-7.1	Behrensmeyer et al., 2007
ROT-51.n	6.75	-7.19	-8.1	Behrensmeyer et al., 2007
ROT 94-69	6.75	-8.02	-8.2	Behrensmeyer et al., 2007
ROT 94-70	6.75	-8.9	-8.2	Behrensmeyer et al., 2007
ROT 94-56	6.75	-5.18	-8.2	Behrensmeyer et al., 2007
KB96-038	6.75	-8.6	-8.5	Behrensmeyer et al., 2007
KB96-035	6.75	-9.66	-8.56	Behrensmeyer et al., 2007
ROT 94-14	6.75	-4.87	-7.7	Behrensmeyer et al., 2007
ROT 94-37	6.74	-7.81	-8.2	Behrensmeyer et al., 2007
ROT-73n	6.74	-6.39	-7.91	Behrensmeyer et al., 2007
ROT-52	6.74	-4.03	-7.59	Behrensmeyer et al., 2007
ROT 94-38	6.74	-8.57	-9.6	Behrensmeyer et al., 2007
ROT 54	6.74	-4	-7.93	Behrensmeyer et al., 2007
ROT 94-16	6.74	-10.11	-7.9	Behrensmeyer et al., 2007
ROT 94-40	6.74	-8.17	-8.6	Behrensmeyer et al., 2007
ROT 94-41	6.74	-9.72	-9.8	Behrensmeyer et al., 2007
ROT 94-13	6.74	-4.95	-7.9	Behrensmeyer et al., 2007
ROT 94-23	6.74	-8.43	-7.4	Behrensmeyer et al., 2007
ROT 49	6.74	-2.82	-7.28	Behrensmeyer et al., 2007
ROT 94-43	6.74	-8.37	-9.5	Behrensmeyer et al., 2007
ROT 94-18	6.74	-2.2	-6	Behrensmeyer et al., 2007
ROT 94-11	6.74	-4.44	-7.7	Behrensmeyer et al., 2007
ROT 94-44	6.74	-9.05	-10	Behrensmeyer et al., 2007

ROT 94-29	6.74	-9.34	-9.3	Behrensmeyer et al., 2007
ROT 94-24	6.74	-1.07	-6.1	Behrensmeyer et al., 2007
ROT 94-35	6.74	-5.29	-7.6	Behrensmeyer et al., 2007
ROT 94-57	6.74	-8.01	-8.5	Behrensmeyer et al., 2007
ROT 94-21	6.74	-8.52	-8.4	Behrensmeyer et al., 2007
ROT 94-30	6.74	-8.24	-8.5	Behrensmeyer et al., 2007
RJF-N	6.74	-8.48	-6.28	Behrensmeyer et al., 2007
RJF-O	6.74	-7.72	-7.17	Behrensmeyer et al., 2007
RJF-P	6.73	-8.75	-9.5	Behrensmeyer et al., 2007
RJF-L	6.73	-8.04	-9.66	Behrensmeyer et al., 2007
RJF-M	6.73	-8.66	-10.3	Behrensmeyer et al., 2007
RJF-H	6.73	-9.81	-8.7	Behrensmeyer et al., 2007
RJF-I	6.73	-8.85	-9.3	Behrensmeyer et al., 2007
RJF-J	6.73	-9.77	-8.3	Behrensmeyer et al., 2007
RJF-G	6.73	-7.9	-9.44	Behrensmeyer et al., 2007
RJF-C	6.73	-9.24	-9.3	Behrensmeyer et al., 2007
RJF-E	6.73	-8.54	-9.1	Behrensmeyer et al., 2007
RJF-F	6.73	-8.13	-8.9	Behrensmeyer et al., 2007
RJF-A	6.73	-8.16	-9.8	Behrensmeyer et al., 2007
RJF-B	6.73	-8.53	-9.5	Behrensmeyer et al., 2007
RJF-D	6.73	-8.31	-9.1	Behrensmeyer et al., 2007
ROT 32	6.73	-2.47	-7.47	Behrensmeyer et al., 2007
ROT 66	6.72	-7.87	-8.34	Behrensmeyer et al., 2007
ROT 59	6.72	-2.61	-6.38	Behrensmeyer et al., 2007
ROT 68	6.72	-8.84	-9.8	Behrensmeyer et al., 2007
ROT 114	6.23	-5.79	-5.36	Behrensmeyer et al., 2007
KB96-057	5.78	-5.11	-8.24	Behrensmeyer et al., 2007
ROT 94-64r	5.78	-7.12	-7.5	Behrensmeyer et al., 2007
ROT 94-65	5.78	-8.65	-8.8	Behrensmeyer et al., 2007
ROT 94-64	5.78	-9.63	-9.8	Behrensmeyer et al., 2007
KB96-058	5.78	-3.54	-9.08	Behrensmeyer et al., 2007
ROT 94-60	5.78	-9.78	-9.7	Behrensmeyer et al., 2007
ROT 92	5.78	-10.54	-9.37	Behrensmeyer et al., 2007
ROT 94-66	5.78	-8.07	-8.7	Behrensmeyer et al., 2007
ROT 94-66	5.78	-9.4	-9.2	Behrensmeyer et al., 2007
KB96-059	5.78	0.13	-6.6	Behrensmeyer et al., 2007
ROT 94-61r	5.78	-8.39	-9.4	Behrensmeyer et al., 2007
ROT 94-67	5.78	-8.14	-9	Behrensmeyer et al., 2007
ROT 94-61	5.78	-8.3	-8.7	Behrensmeyer et al., 2007
KB96-060	5.78	-6.75	-10.98	Behrensmeyer et al., 2007
ROT-82n	5.75	-6.47	-6.47	Behrensmeyer et al., 2007
KB96-043	4.91	-0.16	-7.68	Behrensmeyer et al., 2007
KB96-044	4.9	1.1	-6.9	Behrensmeyer et al., 2007
KB96-045	4.86	-1.09	-7.96	Behrensmeyer et al., 2007
KB96-047	4.86	1.48	-6.64	Behrensmeyer et al., 2007
KB96-061	4.86	0.64	-7.5	Behrensmeyer et al., 2007
KB96-046	4.86	0.91	-6.82	Behrensmeyer et al., 2007
KB96-067	4.85	0.41	-7.1	Behrensmeyer et al., 2007

KB96-075	4.85	0.38	-7.14	Behrensmeyer et al., 2007
KB96-077	4.85	0.61	-6.84	Behrensmeyer et al., 2007
ROT 212	4.85	-0.12	-6.2	Behrensmeyer et al., 2007
ROT 206	4.85	0.41	-6.69	Behrensmeyer et al., 2007
KB96-065	4.85	-0.27	-6.63	Behrensmeyer et al., 2007
KB96-071	4.85	-0.21	-6.25	Behrensmeyer et al., 2007
KB96-074	4.85	-0.51	-6.45	Behrensmeyer et al., 2007
KB96-064	4.85	-2.07	-6.62	Behrensmeyer et al., 2007
KB96-076	4.85	-2.13	-6.73	Behrensmeyer et al., 2007
KB96-070	4.85	-2.24	-6.71	Behrensmeyer et al., 2007
KB96-048	4.85	-0.17	-6.13	Behrensmeyer et al., 2007
ROT 207	4.85	-3.56	-6.34	Behrensmeyer et al., 2007
KB96-069	4.85	-1.61	-6.36	Behrensmeyer et al., 2007
KB96-063	4.85	-1	-6.08	Behrensmeyer et al., 2007
KB96-073	4.85	-1.68	-6.22	Behrensmeyer et al., 2007
ROT 216	4.85	-4.58	-9.38	Behrensmeyer et al., 2007
KB96-068	4.85	-6.37	-7.36	Behrensmeyer et al., 2007
KB96-072	4.85	-3.91	-6.75	Behrensmeyer et al., 2007
KB96-062	4.85	-2.68	-6.56	Behrensmeyer et al., 2007
KB96-050	4.84	-8.53	-6.59	Behrensmeyer et al., 2007
ROT 209	4.8	0.67	-6.19	Behrensmeyer et al., 2007
KB96-051	4.79	-2.31	-8.11	Behrensmeyer et al., 2007
KB96-008	4.78	-3.54	-8.81	Behrensmeyer et al., 2007
KB96-052	4.78	-2.91	-7.59	Behrensmeyer et al., 2007
KB96-056	4.74	-2.63	-6.56	Behrensmeyer et al., 2007
9006	4.79	-11	-9.7	Behrensmeyer et al., 2007
R-8	2.63	0.5	-7.4	Behrensmeyer et al., 2007
ROT 172	2.42	1.42	-6.3	Behrensmeyer et al., 2007
ROT 175	2.42	1.42	-5.9	Behrensmeyer et al., 2007
ROT 171	2.42	1.62	-6.18	Behrensmeyer et al., 2007
ROT 187	2.42	1.36	-3.86	Behrensmeyer et al., 2007
ROT-182n	2.42	2.65	-5.8	Behrensmeyer et al., 2007
ROT 184	2.42	3.44	-6.61	Behrensmeyer et al., 2007
ROT 188	2.42	3.42	-6.7	Behrensmeyer et al., 2007
ROT 184	2.42	2.33	-6.46	Behrensmeyer et al., 2007
ROT 183	2.42	2.25	-6.76	Behrensmeyer et al., 2007
ROT 104H	2.28	1.77	-6.02	Behrensmeyer et al., 2007
ROT-104En2	2.28	1.18	-4.87	Behrensmeyer et al., 2007
ROT 104F	2.28	2.05	-2.78	Behrensmeyer et al., 2007
ROT 104D	2.28	0.99	-5.21	Behrensmeyer et al., 2007
H1/4	2.96	-3.0	-4.1	Ghosh et al., 2004
LH2/2	2.98	-1.5	-11.4	Ghosh et al., 2004
LH2/3	2.98	0.1	-6.9	Ghosh et al., 2004
HL2/6	2.99	1.5	-6.1	Ghosh et al., 2004
HL2/4	2.99	-1.3	-5.7	Ghosh et al., 2004
LH2/5	2.99	-1.6	-8.2	Ghosh et al., 2004
H10/3	3.2	-1.2	-9.6	Ghosh et al., 2004
HL10/1	3.2	-1.0	-11.4	Ghosh et al., 2004

HL10/2	3.2	-1.8	-9	Ghosh et al., 2004
HL11	3.21	0.6	-9.5	Ghosh et al., 2004
HL21	3.39	2.0	-6.6	Ghosh et al., 2004
J2/1	3.85	-2.1	-8.1	Ghosh et al., 2004
J2/2	3.85	-2.8	-8.1	Ghosh et al., 2004
J2/3	3.85	-3.3	-7.1	Ghosh et al., 2004
J6/1	3.96	-0.8	-8.5	Ghosh et al., 2004
J6/2	3.96	-1.3	-8.9	Ghosh et al., 2004
J6/3	3.96	-3.2	-9	Ghosh et al., 2004
J6c	3.96	-6.7	-10.8	Ghosh et al., 2004
J7/b	4	-2.8	-7.1	Ghosh et al., 2004
J7/1	4	-5.8	-8.2	Ghosh et al., 2004
J7/2	4	-1.4	-7.9	Ghosh et al., 2004
J7/3	4	-1.8	-8.7	Ghosh et al., 2004
J7/4	4	-2.6	-8.1	Ghosh et al., 2004
J7/5	4	-4.9	-7	Ghosh et al., 2004
J7/6	4	-7.1	-7.3	Ghosh et al., 2004
J7/7	4	-9.3	-6.3	Ghosh et al., 2004
J11/1	4.14	-5.6	-8.3	Ghosh et al., 2004
J11/2	4.14	-7.5	-6.6	Ghosh et al., 2004
J11/3	4.14	-6.1	-6.8	Ghosh et al., 2004
J16/1/1	4.34	-1.2	-9.3	Ghosh et al., 2004
J16/1/2	4.34	-2.2	-7.8	Ghosh et al., 2004
J16/1/3	4.35	-2.1	-10.1	Ghosh et al., 2004
J16/1/4	4.35	-2.4	-8.4	Ghosh et al., 2004
J16/2	4.35	0.7	-8	Ghosh et al., 2004
J16/9	4.36	-3.1	-7.9	Ghosh et al., 2004
J16/10	4.36	-2.3	-7.5	Ghosh et al., 2004
J17/1	4.43	-3.3	-7.4	Ghosh et al., 2004
J25/2	4.9	2.4	-6.8	Ghosh et al., 2004
J25/3	4.9	-0.5	-5.3	Ghosh et al., 2004
J25/6	4.92	2.9	-6.7	Ghosh et al., 2004
J26/2	4.98	-0.2	-7.2	Ghosh et al., 2004
K0/1	5.29	1.6	-6.5	Ghosh et al., 2004
K0/2	5.36	-3.0	-7	Ghosh et al., 2004
KS-1	5.36	0.4	-6.5	Ghosh et al., 2004
K4/2	5.49	0.1	-7.5	Ghosh et al., 2004
K7/1	5.49	0.0	-6.9	Ghosh et al., 2004
K7/2	5.49	0.2	-6.7	Ghosh et al., 2004
K10/1	5.49	0.0	-7.2	Ghosh et al., 2004
K10/3	5.49	-1.8	-6.7	Ghosh et al., 2004
K11/1	5.61	1.6	-6.3	Ghosh et al., 2004
K11/2	5.84	-2.0	-6.6	Ghosh et al., 2004
K11/3	5.85	-0.4	-6.6	Ghosh et al., 2004
K11/5	5.98	-4.0	-10.6	Ghosh et al., 2004
K11/6	5.98	-2.0	-8.8	Ghosh et al., 2004
KS-13-2	5.99	-5.9	-12.1	Ghosh et al., 2004
K14/3	5.99	-8.0	-10.5	Ghosh et al., 2004



KS-16	5.17	-0.3	-8.4	Ghosh et al., 2004
K20/1	5.18	-0.2	-6.4	Ghosh et al., 2004
K20/2	5.47	-4.9	-8	Ghosh et al., 2004
K26/2	5.47	-2.6	-8	Ghosh et al., 2004
K26/3	5.24	-7.4	-8.2	Ghosh et al., 2004
K26/4	5.59	-4.8	-9.6	Ghosh et al., 2004
K26/5	5.72	-9.6	-6.4	Ghosh et al., 2004
KS-29	6.32	-5.8	-7.3	Ghosh et al., 2004

---

## References

Quade, J., and Cerling, T.E., 1995, Expansion of C4 grasses in the Late Miocene of Northern Pakistan: evidence from stable isotopes in paleosols: *Palaeogeography, palaeoclimatology, palaeoecology*, v. 115, no. 1-4, p. 91–116, doi: 10.1016/0031-0182(94)00108-K.

Ghosh, P., Padia, J.T., and Mohindra, R., 2004, Stable isotopic studies of palaeosol sediment from Upper Siwalik of Himachal Himalaya: evidence for high monsoonal intensity during late Miocene?: *Palaeogeography, palaeoclimatology, palaeoecology*, v. 206, no. 1-2, p. 103–114, doi: 10.1016/j.palaeo.2004.01.014.

Behrensmeyer, A.K., Quade, J., Cerling, T.E., Kappelman, J., Khan, I.A., COPELAND, P., Roe, L., Hicks, J., Stubblefield, P., Willis, B.J., and Latorre, C., 2007, The structure and rate of late Miocene expansion of C4 plants: Evidence from lateral variation in stable isotopes in paleosols of the Siwalik Group, northern Pakistan: *Geological Society of America Bulletin*, v. 119, no. 11-12, p. 1486–1505, doi: 10.1130/B26064.1.