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Supplement of

Spatiotemporal patterns of tundra fires: late-Quaternary charcoal records from Alaska

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Table S1: Radiocarbon ages and ^{210}Pb activity with modelled (^{210}Pb) and calibrated (^{14}C) dates from all study sites.

Sample depth (cm)	Material	Laboratory ID ^a	^{210}Pb Activity (dpm g ⁻¹) OR ^{14}C Date (yr BP) ^b	Modeled OR Calibrated Date (cal. yr BP) ^c
Perch Lake				
0.00 - 1.00	bulk sediment	UIUC F4-1	30.84 ± 2.8	-58 ± 0.0
1.00 - 2.00	bulk sediment	UIUC F4-2	23.64 ± 2	-56 ± 1.6
2.00 - 3.00	bulk sediment	UIUC F4-3	16.33 ± 1.44	-43 ± 2.2
3.00 - 4.00	bulk sediment	UIUC F4-4	9.24 ± 0.8	-25 ± 2.9
4.00 - 5.00	bulk sediment	UIUC F4-5	5.88 ± 0.53	-2 ± 3.9
5.00 - 6.00	bulk sediment	UIUC F4-6	3.15 ± 0.33	28 ± 7.1
6.00 - 7.00	bulk sediment	UIUC F4-7	2.85 ± 0.27	55 ± 13.0
7.00 - 8.00	bulk sediment	UIUC F4-8	2.28 ± 0.18	95 ± 27.4
8.00 - 9.00	bulk sediment	UIUC F4-9	2.04 ± 0.2	n/a
9.00 - 10.00	bulk sediment	UIUC F4-11	1.88 ± 0.2	n/a
10.00 - 10.50	bulk sediment	UIUC F4-12	2.05 ± 0.22	n/a
10.50 - 11.00	bulk sediment	UIUC F4-13	2.1 ± 0.23	n/a
11.00 - 11.50	bulk sediment	UIUC F4-14	2.08 ± 0.24	n/a
11.50 - 12.00	bulk sediment	UIUC F4-15	2.07 ± 0.28	n/a
12.00 - 12.50	bulk sediment	UIUC F4-16	1.81 ± 0.2	n/a
12.50 - 13.00	bulk sediment	UIUC F4-18	2.06 ± 0.23	n/a
14.00 - 33.00	twig	CAMS 140576	295 ± 35	382 ± 86
29.75 - 30.00	twig	CAMS 140577	925 ± 35	847 ± 84
50.00 - 50.25	wood	CAMS 140275	2460 ± 35	2538 ± 167
57.50 - 57.75	twig w/bark	CAMS 158760	2735 ± 30	2822 ± 71
73.25 - 73.50	twigs	CAMS 140578	3560 ± 60	3853 ± 176
77.00 - 78.00	leaf, wood, roots	CAMS 158761	3805 ± 35	4194 ± 134
104.00 - 104.50	bark	CAMS 156437	4290 ± 80	4864 ± 302
129.50 - 130.00	twigs w/bark	CAMS 156439	5915 ± 30	6733 ± 76.5
167.00 - 167.50	twig w/bark	CAMS 156438	8020 ± 35	8889 ± 131
216.00 - 216.50	twig w/bark	CAMS 156440	8445 ± 30	9478 ± 45
Upper Capsule Lake				
75.00 - 76.00	moss	CAMS 66740	1670 ± 50	1577 ± 135
100.00 - 101.00	leaves	CAMS 54634	650 ± 80	614 ± 97.5 ^d
155.00 - 157.00	avg. of 2 dates	---	3705 ± 67	4047 ± 187
207.00 - 208.00	terrestrial moss	CAMS64013	1070 ± 50	984 ± 109 ^d
230.00 - 231.00	woody material	CAMS 54635	6610 ± 60	7503 ± 77
250.00 - 251.00	terrestrial moss	CAMS 66744	8200 ± 50	9161 ± 163
260.00 - 261.00	leaf, moss,	CAMS 54636	8220 ± 50	9186 ± 174
310.00 - 311.00	avg. of 6 dates	---	9957 ± 32	11356 ± 163
325.00 - 326.00	plant and wood	CAMS 54637	9790 ± 50	11214 ± 74.5 ^d
Keche Lake				
0.00 - 0.50	bulk sediment	UIUC P3-1	7.95 ± 0.68	-57 ± 0.0
0.50 - 1.00	bulk sediment	UIUC P3-2	8.09 ± 0.64	-56 ± 1.9
1.00 - 1.50	bulk sediment	UIUC P3-3	6.08 ± 0.4	-55 ± 1.9

Sample depth (cm)	Material	Laboratory ID ^a	²¹⁰ Pb Activity (dpm g ⁻¹) OR ¹⁴ C Date (yr BP) ^b	Modeled OR Calibrated Date (cal. yr BP) ^c
1.50 - 2.00	bulk sediment	UIUC P3-4	4.81 ± 0.26	-53 ± 1.9
2.00 - 2.50	bulk sediment	UIUC P3-5	4.39 ± 0.33	-52 ± 1.9
2.50 - 3.00	bulk sediment	UIUC P3-6	4.49 ± 0.39	-51 ± 1.9
3.00 - 3.50	bulk sediment	UIUC P3-7	4.04 ± 0.32	-50 ± 1.9
3.50 - 4.00	bulk sediment	UIUC P3-8	4.38 ± 0.32	-48 ± 2.0
4.00 - 4.50	bulk sediment	UIUC P3-9	4.66 ± 0.39	-46 ± 2.0
4.50 - 5.00	bulk sediment	UIUC P3-11	4.40 ± 0.36	-45 ± 2.0
5.00 - 5.50	bulk sediment	UIUC P3-12	4.32 ± 0.38	-43 ± 2.0
5.50 - 6.00	bulk sediment	UIUC P3-16	5.67 ± 0.51	-41 ± 2.0
6.00 - 6.50	bulk sediment	UIUC P3-13	3.65 ± 0.29	-34 ± 2.3
6.50 - 7.00	bulk sediment	UIUC P3-14r	4.66 ± 0.17	-29 ± 2.4
7.00 - 7.50	bulk sediment	UIUC P3-15	3.98 ± 0.44	-26 ± 2.0
7.50 - 8.00	bulk sediment	UIUC P3-17	4.02 ± 0.33	-24 ± 2.1
8.00 - 8.50	bulk sediment	UIUC P3-18	3.38 ± 0.3	-21 ± 2.1
8.50 - 9.00	bulk sediment	UIUC P3-19	3.08 ± 0.27	-19 ± 2.1
9.00 - 9.50	bulk sediment	UIUC P3-21r	3.22 ± 0.2	-17 ± 2.1
9.50 - 10.00	bulk sediment	UIUC P3-22	5.01 ± 0.44	-15 ± 2.1
10.00 - 10.50	bulk sediment	UIUC P3-23	2.17 ± 0.19	-9 ± 2.4
10.50 - 11.00	bulk sediment	UIUC P3-24r	2.36 ± 0.17	-7 ± 2.6
11.00 - 11.50	bulk sediment	UIUC P3-25	2.49 ± 0.2	-3 ± 2.8
11.50 - 12.00	bulk sediment	UIUC P3-26	2.15 ± 0.18	3 ± 3.2
12.00 - 12.50	bulk sediment	UIUC P3-27	2.38 ± 0.18	5 ± 3.3
12.50 - 13.00	bulk sediment	UIUC P3-28	2.30 ± 0.15	11 ± 3.8
13.00 - 13.50	bulk sediment	UIUC P3-29	2.33 ± 0.18	17 ± 4.0
13.50 - 14.00	bulk sediment	UIUC P3-30	2.18 ± 0.17	25 ± 5.3
14.00 - 14.50	bulk sediment	UIUC P3-31	2.27 ± 0.22	31 ± 5.9
14.50 - 15.00	bulk sediment	UIUC P3-32	1.96 ± 0.2	43 ± 10.2
15.00 - 15.50	bulk sediment	UIUC P3-33	2.17 ± 0.24	44 ± 10.6
15.50 - 16.00	bulk sediment	UIUC P3-34	2.10 ± 0.21	56 ± 16.9
16.00 - 16.50	bulk sediment	UIUC P3-35	2.16 ± 0.23	67 ± 20.6
16.50 - 17.00	bulk sediment	UIUC P3-36	1.99 ± 0.19	n/a
17.00 - 17.50	bulk sediment	UIUC P3-37	1.95 ± 0.23	n/a
17.50 - 18.00	bulk sediment	UIUC P3-38	1.95 ± 0.23	n/a
18.00 - 18.50	bulk sediment	UIUC P3-39	2.06 ± 0.26	n/a
18.50 - 19.00	bulk sediment	UIUC P3-40	1.77 ± 0.2	n/a
19.00 - 19.50	bulk sediment	UIUC P3-41	2.39 ± 0.23	n/a
19.50 - 20.00	bulk sediment	UIUC P3-42	2.78 ± 0.24	n/a
20.00 - 21.00	bulk sediment	UIUC P3-43	2.18 ± 0.21	n/a
21.00 - 22.00	bulk sediment	UIUC P3-44	2.66 ± 0.29	n/a
22.00 - 23.00	bulk sediment	UIUC P3-45	2.43 ± 0.33	n/a
23.00 - 24.00	bulk sediment	UIUC P3-46	2.29 ± 0.35	n/a
24.00 - 25.00	bulk sediment	UIUC P3-47	2.01 ± 0.27	n/a
25.00 - 26.00	bulk sediment	UIUC P3-48	2.43 ± 0.34	n/a
26.00 - 27.00	bulk sediment	UIUC P3-49	2.49 ± 0.26	n/a
27.00 - 28.00	bulk sediment	UIUC P3-50	2.62 ± 0.29	n/a
28.00 - 29.00	bulk sediment	UIUC P3-51	2.44 ± 0.21	n/a

Sample depth (cm)	Material	Laboratory ID ^a	²¹⁰ Pb Activity (dpm g ⁻¹) OR ¹⁴ C Date (yr BP) ^b	Modeled OR Calibrated Date (cal. yr BP) ^c
29.00 - 30.00	bulk sediment	UIUC P3-52	2.32 ± 0.22	n/a
30.00 - 31.00	bulk sediment	UIUC P3-53	2.68 ± 0.27	n/a
31.00 - 32.00	bulk sediment	UIUC P3-54	1.93 ± 0.22	n/a
41.75 - 42.00	bark	NSRL-18153	935 ± 20	851 ± 61
84.25 - 84.50	2 twigs	NSRL-19851	2485 ± 20	2579 ± 121
107.00 - 107.25	wood (no bark)	NSRL-18154	5545 ± 20	6337 ± 49 ^d
112.25 - 112.50	needle	NSRL-19852	3565 ± 15	3863 ± 36
128.75 - 129.00	twig w/bark	NSRL-18155	4015 ± 15	4477 ± 46
285.25 - 286.50	twig w/bark	NSRL-19853	8990 ± 20	10194 ± 29
Tungak Lake				
0.00 - 1.00	bulk sediment	UIUC U5-1	18.94 ± 1.34	-62 ± 0.0
1.00 - 2.00	bulk sediment	UIUC U5-2	20.7 ± 1.66	-56 ± 0.3
2.00 - 3.00	bulk sediment	UIUC U5-3	16.33 ± 1.29	-49 ± 0.4
3.00 - 4.00	bulk sediment	UIUC U5-4	8.71 ± 0.76	-21 ± 1.3
4.00 - 5.00	bulk sediment	UIUC U5-5	0.748 ± 0.08	30 ± 4.5
5.00 - 6.00	bulk sediment	UIUC U5-6	2.057 ± 0.2	30 ± 4.3
6.00 - 7.00	bulk sediment	UIUC U5-7	0.707 ± 0.14	n/a
8.00 - 9.00	bulk sediment	UIUC U5-8	0.952 ± 0.13	n/a
10.00 - 11.00	bulk sediment	UIUC U5-9	0.889 ± 0.08	n/a
12.00 - 13.00	bulk sediment	UIUC U5-11	0.847 ± 0.07	n/a
14.00 - 15.00	bulk sediment	UIUC U5-12	1.047 ± 0.1	n/a
16.00 - 17.00	bulk sediment	UIUC U5-13	1.09 ± 0.11	n/a
4.50 - 5.00	tephra	n/a	3430 ± 70	3690 ± 182
23.00 - 23.50	leaf and wood	CAMS 160072	9460 ± 150	10753 ± 424
68.00 - 68.50	twig w/bark	CAMS 160073	11530 ± 35	13370 ± 101
208.5 - 209	wood and bark	CAMS 160074	15240 ± 260	18410 ± 530
323.50 - 324.50	bulk sediment	CAMS 161800	27590 ± 50	31622 ± 292

^a UIUC: University of Illinois, Urbana-Champaign; CAMS: Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, CA; NSRL: INSTAAR Radiocarbon Laboratory, University of Colorado, Boulder, CO.

^b Lead-210 activity, with SD, or conventional radiocarbon years before present (CE 1950), with SD.

^c Samples that fall within the range of supported ²¹⁰Pb activity do not have dates and are designated as n/a. See Sect. 3 for details on ²¹⁰Pb modeling and calibration of ¹⁴C dates.

^d Date omitted from chronology. For details of macrofossils from Upper Capsule Lake, see Oswald et al. (2003).