Little Ice Age Drought in Equatorial Africa: ITCZ Migrations and ENSO Variability

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Supplementary Online Data: ^{14}C and ^{210}Pb data for cores E72-4P and E03-1G, Lake Edward, Uganda

Table DR1. Radiocarbon dates from core Edw-4. Dates beginning with AA were analyzed at the University of Arizona, and dates beginning with OS were analyzed at the NOSAMS facility and Wood's Hole Oceanographic Institution. All ^{14}C ages were determined on fine-grained terrestrial macrofossils, primarily charcoal and wood fragments. These fossils were isolated from bulk sediment samples by sieving, followed by hand-picking macrofossils from other coarse-grained particles using a dissecting microscope at 20X magnification.

Lab #	Depth in core (cm)	C^{14} Age	Error	Calendar age
AA67028	17.5	53	36	0
AA67024	51.5	140	51	142
OS-49963	53.5	515	40	532
AA67022	90	218	54	287
AA67027	101	348	38	352
OS-49958	107	880	40	777
OS-49960	137	575	50	612
OS-49957	176	870	55	784
OS-49959	187	1060	40	959
AA67025	207.5	852	59	739
AA67023	270	1036	48	938
OS-49956	277	1330	55	1276
AA67026	301.5	1081	37	969
OS-50147	383	1270	35	1204
OS-27159	512	1560	45	1417

^{210}Pb Dating

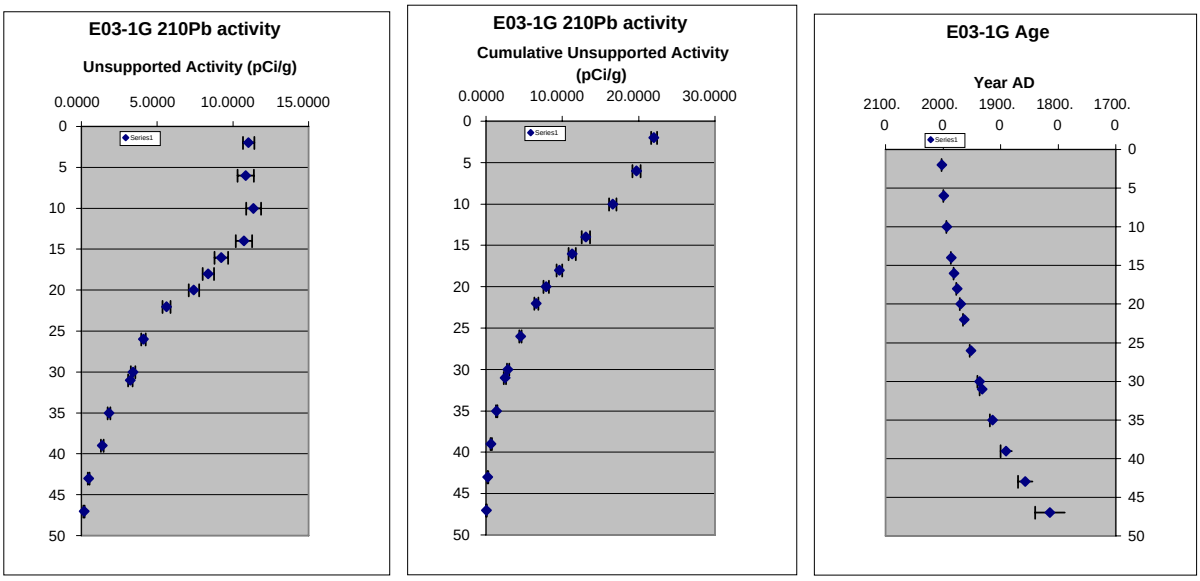
Core E03-1G was extruded in the field in 1-cm intervals and dated using ^{210}Pb. The ^{210}Pb chronology was determined by measuring ^{210}Pb activity through its granddaughter product ^{210}Po at 15 intervals within the 53 cm sediment core with ^{209}Po added as an internal tracer. 0.25 and 1.5 grams of dry sediments were pretreated with concentrated HCl, then Po isotopes were distilled at 550^{o}C and plated onto silver discs from a 0.5 N HCl solution. Activity was measured by alpha spectroscopy with an EG&G Nuclear system. Unsupported ^{210}Pb was calculated by

subtracting supported activity from the total activity at each level, with supported ^{210}Pb activity calculated from the activity at the base of the core. Dates and sedimentation rates were determined according to the constant rate of supply model (Appleby and Oldfield, 1978). Dating was performed at the Science Museum of Minnesota's St. Croix Watershed Research Station.

Table DR2. Depth, Unsupported ^{210}Pb activity, and age for each sample measured in E03-1G. Supported activity, determined at the base of the core, was 1.0028 $\pm$ -.0337 pCi/g.

Depth at Interval (cm)	Unsup. Activity (pCi/g)	Error of Unsup. Act. (±s.d.)	Cum. Act. below Int. (pCi/cm2)	Date A.D.	Error of Age (±s.d.)
2	11.0298	0.3747	22.0192	2002.1	0.99
6	10.8460	0.5303	19.7103	1998.5	1.04
10	11.3640	0.4888	16.6005	1993.0	1.14
14	10.7321	0.5325	13.1071	1985.4	1.31
16	9.2296	0.4524	11.2919	1980.6	1.45
18	8.3782	0.3665	9.6139	1975.5	1.64
20	7.4250	0.3547	7.9090	1969.2	1.91
22	5.6193	0.2651	6.6010	1963.4	2.18
26	4.0984	0.1457	4.5212	1951.2	2.55
30	3.4017	0.1445	2.8771	1936.7	3.67
31	3.2305	0.1531	2.4956	1932.2	4.21
35	1.8296	0.0945	1.4030	1913.7	4.97
39	1.3827	0.0926	0.6771	1890.3	9.43
43	0.4825	0.0561	0.2392	1856.9	12.51
47	0.1651	0.0498	0.0644	1814.7	25.61

Figure DR1. Unsupported ^{210}Pb activity (right), cumulative unsupported ^{210}Pb activity (center), and age modeled using the constant rate of supply model (right).



References:

Appleby, P.G., and Oldfield, F., 1978, The calculation of lead-210 dates assuming a constant rate of supply of unsupported 210Pb to the sediments: Cantena, v. 5, p. 1-8.