Data Repository item 2005105

Table DR1 More complete OxCal age and radiocarbon data for detrital macrofossils from Bradley Lake cores[1]

Disturbance Event[2]	OxCal age (cal yr BP)[3]	Calibrated age (cal yr BP)[4]	Lab-reported age (^{14}C yr BP)[5]	Radiocarbon Laboratory No.	Core No.	Depth in core (m)[6]	Sample wt. (mg)[7]	13C	Litho-facies[8]	Reworking class[9]	Proportions of fragment types[10]
DE 1	250 (assumed)	440-40	230±50	AA-17130	94E	0.59	22.3	-27.7	drm	C	2H, 2R, 1N, B
		510-300	360±60	CAMS-12825	93C	0.39	18.5(1.79)	--	drm	B	3S, 2B
		560-330	460±45	AA-17138	94F	0.50	10.6	-28.0	mo	C	2N, 2H, 1B, S, T
		Not used in analysis	1120±110 R	AA-20159	95BB	0.45	3 est	-32.0	mo	B	2H, 2R,1B, L
DE 2	1000-920	**1060-920***	1030±60*	CAMS-12288	93C	0.85	11.4(1.18)	--	drm	C	1H, 1N, 1B, 1T, 1R
			1085±70*	AA-19302	94F	1.03	5 est	-29.9	mo	C	4B, 1T, 1N, I
			1095±50*	AA-20175	94E	1.05	23.9s	-28.2	mo	A	2H, 1L, 1B, 1R, T, S, I
		1290-1060	1265±55 R?	AA-17126	93C	0.78	27.4	-28.2	flm	D	3T, 2R
		Not used in analysis	1780±110 R	AA-20160	95BB	0.79	5.3	-30.4	muddy sd	C	2T, 1L, 1H, 1B, R
DE 3	1130-980	**1170-930***	1100±45*	AA-23209	94N	0.97	9.0	-26.8	drm	A	2S, 1B, 1H, 1I
			1150±120*	AA-20176	94E	1.24	5.4s	-27.6	mo	B	2H, 1B, 1S, 1W, I, L, N, R
		1390-1170	1360±55	AA-23206	94D	1.34	9.9	-33.2	drm	A	3B, 1L, 1I
DE 4	1420-1310	**1520-1310***	1600±100*	AA-20161	95BB	1.01	1.7	-29.4	drm	C	2R, 1H, 1I, 1B, O, L, T
			1530±45*	AA-23210	94O	1.09	11.7	-32.1	drm	B	4B, 1L, I
			1495±45*	AA-23208	94I	1.55	8.1	-30.8	drm	B	2B, 2H, 1I, L
			1480±45*	AA-20177	94E	1.61	11.7s	-28.7	mo	B	1H, 1R, 1S, 1B, 1O, N, L, I, W
DE 5/6		**1820-1600***	1610±80*	CAMS-13056	93C	2.35	(0.96)	--	middle sd	D	5R
			1780±35*	OS-27153	94N	1.47	13.2	-27.9	mo	D	5R
	(light-dark		1792±30*	OS-27154	94D	2.23	14.2	-23.7	middle sd	D	5R
	couplets suggest	2010-1630	1915±70	AA-17127	93C	2.05	9.1	-22.7	upper sd	C	2R, 2B, 1S
	that DEs 5 and	2330-2000	2160±55	AA-17128	93C	2.63	7.8	-29.2	lower sd	E	2C, 2T, 1R
	6 differ in age	2150-1710	1985±85	AA-17131	94E	2.04	2.8	-25.0	lower sd	E	5T
	by >22 yrs.)	2310-2000	2150±45	AA-23207	94H	2.58	10.2	-33.2	middle sd	A	4B, 1I
		2150-1920	2070±45	AA-23217	95X	1.95	28.5	-32.6	mo	A	5B
		2750-2150	2325±60	AA-20162	95BB	1.36	8.9	-28.6	upper sd	B	2B, 1L, 1O, 1H, R, I
DE 7	2860-2740	**2860-2750***	2670±60*	AA-19300	94E	3.00	10 est	-35.5	drm	C	3B, 2N
			2695±45*	AA-26598	95P	3.24	20.8	-36.2	drm	A	5B
			2735±95*	AA-20163	95BB	2.15	6.5	-31.9	top of sd	B	2B, 1I, 1O, 1H, L, S
		2720-2350	2440±50	AA-20164	95BB	2.15	12.7	-28.3	top of sd	D	5N
		3210-2850	2870±55	OS-27152	94I	2.70	12.5	-24.1	sandy drm	D	5R
		Not used in analysis	3205±70 R	AA-20165	95BB	2.15	19.7	-27.8	top of sd	E	5W
		Insufficient carbon	No age reported	AA-23214	95X	2.84	0.8		drm	B	3B, 2H
DE 8	3270-3090	**3260-2990***	2960±60*	AA-20166	95BB	2.55	18.5	-26.1	top of sd	D	5R, O, B, S
			2950±50*	AA-23213	95X	3.19	4.8	-31.2	drm	A	3L, 2B, I
			2970±70*	AA-20178	94E	3.34	15.2s	-27.8	mo	D	3N, 1T, 1O, R, B, L, H, I
DE 9	3410-3240	**3470-3240***	3090±100*	AA-26596	95BB	2.73	2.2	-28.4	mo	B	3H, 1L, 1O, R, C
			3160±55*	AA-26595	95X	3.29	9.3	-27.8	mo	C	1S, 2H, 1R, 1N, C, O, L
DE 10	3830-3640	**3840-3630***	3430±60*	AA-20167	95BB	3.09	8.2	-28.3	drm	D	4N, 1H, L, R, O
			3480±50*	AA-23212	95X	3.64	8.5	-30.1	drm	B	2I, 1H, 1L, 1B
Peat clast		**4220-3920***	3740±55*	AA-17133	94E	3.73	21.5	-29.8	peat clast	A	3H, 2S
			3700±50*	AA-17134	94E	4.01	16.3	-29.0	peat clast	D	4N, 1H
DE 11	4240-4080	**4350-4080***	3790±90*	AA-20168	95BB	3.49	11.4	-28.8	sandy drm	B	2H, 1B, 1I, 1R, S, N
			3815±50*	AA-20181	95X	4.02	17.9	-28.2	drm	B	2O, 1H, 1N, 1B, R, S, T, L, I
			3805±50*	AA-20179	94E	4.39	25.8s	-28.2	drm	C	3N, 1H, 1O, R, B, L, S
DE 12	4420-4260	**4420-4150***	3985±55*	AA-20182	95X	4.29	31.8s	-27.8	drm	C	2N, 1L, 1H, 1T, B, R, S
			3840±65*	AA-17139	94F	4.43	37.7	-26.5	drm	E	5T
			3795±60*	AA-17132	94E	4.70	25.1	-27.7	sandy drm	E	5T
		4870-4520	4190±75 R?	AA-20169	95BB	3.75	19.0	-28.4	sandy drm	D	2N, 2R, 1B, H
DE 13	4630-4460	**4790-4400***	4135±75*	AA-20183	95X	4.49	8.2s	-28.7	drm	B	2H, 1L, 1R, 1B, S, T, I
			3965±50*	AA-26597	94E	4.86	6.8	-28.4	mo	C	1C, 1H, 1L, 1N, 1R, O, S
		5050-4600	4305±65	AA-20170	95BB	4.01	1.0	-28.6	mo	C	2R, 1N, 1I, 1H, O
DE 14	4730-4530	**4830-4550***	4180±60*	AA-20171	95BB	4.10	1.0	-29.1	drm	B	3H, 1N, 1I, R, O, B
			4150±55*	AA-20180	94E	4.96	25.1s	-28.6	drm	A	2L, 1N, 1H, 1O, T, S, B, R
DE 15	5600-5320	**5600-5320***	4780±50*	AA-26599	95BB	4.66	15.6	-29.6	drm	B	2H, 2L, 1B, O, R, S
			4735±75*	AA-20172	95BB	4.67	16.1s	-29.3	drm	A	2H, 1L, 1I, 1O, R, B
		Not used in analysis	5295±55	AA-17135	94E	5.41	14.8	-25.4	drm	E	5T
DE 16	6510-6310	**6510-6310***	5625±55*	AA-20173	95BB	5.28	12.0s	-27.9	mo	C	2H, 1L, 1N, 1C, R, S, I, W
			5635±60*	AA-23215	95X	5.69	11.4	-24.1	drm	C	2N, 1H, 1B, 1L, R
			5725±70*	AA-19301	94E	6.09	8 est	-27.5	drm	A	3H, 2L
DE 17		**7430-7260***	6325±65*	AA-20174	95BB	5.58	16.6s	-27.5	peaty mud	C	2N, 2H, 1O, L, R, B, S, T, I
			6480±60*	AA-23216	95X	5.89	11.6	-29.3	peaty mud	B	5H
Peaty		7670-7430	6675±70	AA-17136	94E	6.37	9.6	-27.2	peat	D	3S, 2T
mud		7840-7580	6870±65	AA-17137	94E	6.69	15.7	-26.8	peat	C	3S, 2R
		7960-7670	7005±80	AA-17140	94F	6.69	228.2	-26.7	peat	B	2L, 2H, R

[1]Selected fragments of plants (rarely animals) retained on a 0.5-mm sieve, scraped with dental tools under a binocular microscope at 6- 25X, and repeatedly rinsed with distilled water.

[2]Disturbance events (DE) as numbered on figures and explained in text. DEs 5 and 6 could be separately identified only in cores M and X; ^{14}C samples are from other cores where the two disturbance events are grouped as DE 5/6. . Thirty-centimeter-thick clast of freshwater marsh peat was found only in core E. Freshwater peaty mud lies below lake sediment in cores E, F, X, and BB.

[3]Ages (2) for each disturbance event obtained with the "V-sequence" feature of OxCal (version 3.4, Bronk Ramsey, 1998) using (1) the calibrated ages shown in bold one column to the right and (2) estimates (and 1 errors) of time intervals between disturbance events calculated from sedimentation rates and sediment thicknesses for intervals between disturbance events in cores P, M, J, D, C, X, F, E, and BB (Table DR2). Sedimentation rates based on light-dark couplet counts within finely laminated mud facies of DEs 2-9 successions and assumed uniform sedimentation rates for DEs 9-14 and DE 14-16 (Table DR2).

[4]Ages calculated using OxCal (version 3.4, Bronk Ramsey, 1998) and the INTCAL98 dataset of Stuiver et al. (1998). Dating laboratories state that no additional interlaboratory variance (error multiplier; e.g., Taylor et al., 1996) is required for calibration of ages; results from these laboratories in the Third International Radiocarbon Comparison show minimal interlaboratory variance. Calibrated ages show time intervals of >95% probability distribution at 2 . Bold ages are calibrated from the means of the ages marked with an asterisk within each disturbance event in the column to the right. Ages used for means meet chi-squared criteria at the 95% level (OxCal combined ages).

[5]AMS (accelerator mass spectrometer) ^{14}C ages reported by radiocarbon laboratory (^{14}C yr BP). "R" marks samples so old that they must contain fragments that are reworked. "R?" marks samples that contain fragments that are probably reworked. Asterisk marks ages that are averaged in the column to the left. Age of 1792±30 for DE5/6 is the mean of two ages on the same root fragment.

[6]Listed depths are not corrected for compaction or possible missing section.

[7]Weight of submitted sample. "est" indicates estimate of unweighed sample. "s" indicates a maximum weight for samples with some adhering sediment. Weights in parentheses are lab-reported mg of carbon analyzed.

[8]Lithofacies sampled within each disturbance event succession; "drm" – debris-rich mud; "mo" – massive organic-rich mud; "flm" – finely laminated mud; "top", "upper", "lower" refer to position within thick beds of clean sand.

[9]Five-class scale of likelihood of reworking as explained in Table 5. The most delicate fossils, which probably have the least chance of being reworked, are labeled "A". Wood and charcoal are labeled "E".

[10]Types of fragments of plants (rarely animals) in dated samples as explained in Table 5. Numbers indicate proportions of different fragment types in fifths; types with no number make up <10% of sample.

Table DR2 Estimates of sedimentation rates and years between disturbance events (DE) in Bradley Lake

Interval	Mean interval	No. of light-dark	Rate within lower finely laminated mud[5]		Mean rate for sediment interval[6]		Number of years for interval (thickness X rate)					Cumulative years downcore	
Cores used[1]	thickness (mm)[3]	couplets[4]	(mm/yr)	1	(mm/yr)	1	High	Low[7]	Mean	1	% error	yrs before 1994	years BP
Black soupy[2]													
MFKLIHGD			1.80	0.25									
0-DE1					1.60	0.26	362	261	311	51	16	311	267
DEFJMP	485												
J		216											
R		159											
D		126											
VTHGDJ IKMO			1.42	0.26									
DE1-DE2					1.14	0.35	619	328	474	145	31	785	741
CDFJMP	489												
J		179											
R		139											
D		198											
VTHGPJF IKLMO			0.91	0.23									
DE2-DE3					0.97	0.22	144	***106***	125	19	15	910	866
CDEFJP	108												
J		99											
D		106											
V		102											
VWTRHPDJ			1.06	0.19									
DE3-DE4					0.96	0.20	407	***268***	337	69	21	1247	1203
CDEFJP	309												
J		268											
R		261											
T		193											
V		245											
TRDJL			0.80	0.03									
DE4-DE5					0.81	0.17	461	301	381	80	21	1628	1584
CDEFJPM	295												
T		125											
R		179											
V		205											
EFMOWTRGPJ			0.81	0.21									
DE5-DE6					0.68	0.18	24	***22***	23	1		1651	1607
MX	12	22	0.55										
DE5/6-DE7					0.80	0.17	1443	937	1190	253	21	2841	2797
CDEFJPM	909												
R		361											
T		309											
DEFXBBITRP			0.80	0.13									
DE7-DE8					0.79	0.15	466	317	391	74	19	3233	3189
BBDEFPX	298												
P		144											
DEFXBBITRP			0.79	0.19									
DE8-DE9					0.78	0.15	133	90	112	22	19	3344	3300
BBEFX	84												
FXBB			0.75	0.06									
DE9-DE10					***0.83***	***0.17***	453	299	376	77	20	3720	3676
BBFX	299		Few or unreliable rate measurements in finely laminated mud below here.										
X		162											
FXBB			0.78	(1 core)									
DE10-DE11					***0.83***	***0.17***	462	305	384	79	20	4104	4060
BBFX	305												
XBB			0.72	0.01									
DE11-DE12					***0.83***	***0.17***	342	226	284	58	20	4388	4344
BBEFX	226												
X		152											
EX			0.90	0.07									
DE12-DE13					***0.83***	***0.17***	282	186	234	48	20	4622	4578
BBEFX	186												
X		110											
FXBB			0.72	0.02									
DE13-DE14					***0.83***	***0.17***	83	55	69	14	20	4691	4647
BBEFX	55												
X		33											
BB		41											
			--	--									

DE14-DE15					***0.60***	***0.23***	1173	523	848	325	38	5539	5495
	BBEFX	434											
			--	--									
DE15-DE16					***0.60***	***0.23***	1619	722	1170	449	38	6709	6665
	BBEX	599											
	EX		0.78	0.06									

[1]Sediment interval between disturbance events. Cores used located on Fig. 3.
[2]"Black Soupy" is the informal name of a 20-40-mm-thick finely laminated mud interval at a depth of about 0.2-0.3 m in uncompacted cores.
[3]Mean thickness of sediment interval in cores (P, M, J, D, C, X, F, E, and BB; Fig. 4); thickness corrected for minor erosion during disturbance events using correlation points as described in text. Errors on thickness means were not used in calculations because the 15-31% errors on interval sedimentation rates were judged to encompass all uncertainty in rates.
[4]Number of light-dark couplets counted in well-laminated mud in the sediment interval in the indicated core. All counts are minimum estimates of the number of years between disturbance events.
[5]Mean sedimentation rates calculated for finely laminated mud facies at base of sediment interval (the facies capping the underlying disturbance-event facies succession) in indicated cores.
[6]Average of mean sedimentation rates calculated from light-dark couplet counts in finely laminated mud facies above and below sediment interval. Because finely laminated mud facies are poorly preserved below DE9, we use the average sedimentation rates calculated from regressions of ^{14}C ages with depth (bold italics above; Fig. 14) for sediment intervals below DE9. We assume a rate of 0.83±0.17 mm/yr for DEs 9-14, and 0.46±0.23 mm/yr for DEs 14-16. In this table, we increased the error on the assumed DE 9-14 rate from 0.04 mm/yr (from regression calculation) to 0.17 mm/yr to make the error comparable to the 15-31% errors obtained for measured rates for the younger intervals.
[7]Low year values for the DE 2-3, 3-4, and 5-6 intervals (bold italics) were increased to match the highest of the light-dark couplet counts in well-laminated sediment in those intervals. Light-dark couplet counts in well-laminated sediment in all other intervals were less than the low year values for those intervals as a result of deposition of indistinct couplets in some years and mixing of previously deposited couplets.

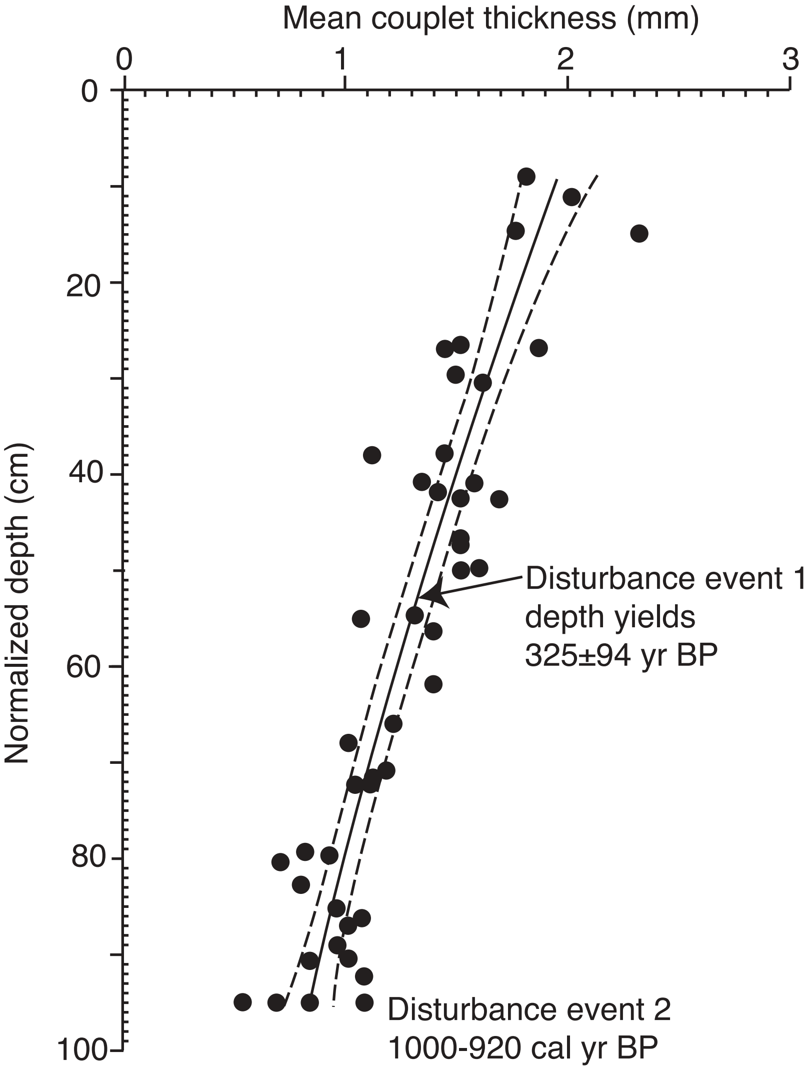

Fig DR1, Kelsey et al.

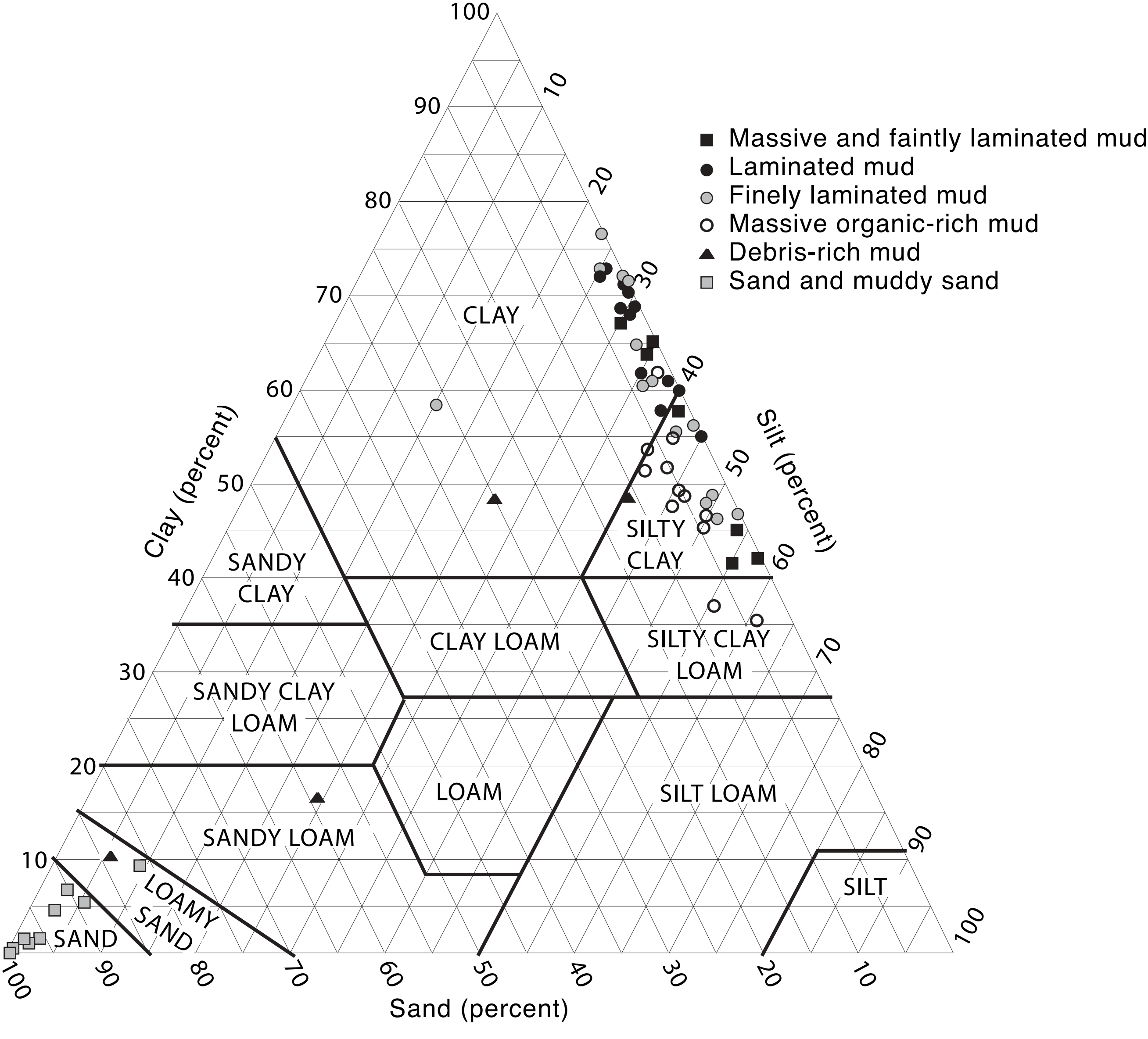

Fig DR2, Kelsey et al.