

Table T2. Age-depth data, Site 1170. (See table notes. Continued on next four pages.)

Source	Hole	Event	Age (Ma)	Alternate Age (Ma)	Core, section, interval (cm)		Depth (mbsf)			Depth error (m)
					Top	Bottom	Top	Bottom	Mean	
					189-1170A-	189-1170A-				
BOI	1170A	Core top	0.0002						0.000	0.000
BOI		Base Holocene plateau	0.0097						0.200	0.000
BOI		MIS 2.2	0.0179						0.300	0.000
BOI		MIS 3.1	0.0254						0.600	0.000
N		FO <i>Emiliana huxleyi</i> acme	0.085		1H-1, 60-61	1H-1, 110-111	0.605	1.105	0.855	0.250
BOI		MIS 3.3	0.0502						0.900	0.000
BOI		MIS 4.2	0.0652						1.100	0.000
BOI		MIS 5.1	0.0793						1.400	0.000
BOI		MIS 5.2	0.0910						1.510	0.000
BOI		MIS 5.4	0.1108						1.900	0.000
BOI		MIS 5.51	0.1226						1.950	0.000
BOI		MIS 6.2	0.1351						2.150	0.000
BOI		MIS 6.3	0.1423						2.550	0.000
N		FO <i>Emiliana huxleyi</i>	0.24		2H-1, 60-61	2H-1, 110-111	2.305	2.805	2.555	0.250
BOI		MIS 6.4	0.1526						2.700	0.000
BOI		MIS 6.5	0.1751						3.300	0.000
BOI		MIS 6.6	0.1833						3.450	0.000
BOI		MIS 7.1	0.1931						3.650	0.000
BOI		MIS 7.3	0.2155						4.050	0.000
BOI		MIS 7.4	0.2249						4.500	0.000
BOI		MIS 7.5	0.2402						5.050	0.000
BOI		MIS 8.02	0.2476						5.300	0.000
BOI		Maximum close to 8.4	0.2675						6.100	0.000
R		LO <i>Stylatractus universus</i>	0.45		1H-CC	2H-CC	1.570	11.635	6.603	5.033
BOI		MIS 8.5	0.287						6.550	0.000
BOI		MIS 9.1	0.310						7.500	0.000
BOI		MIS 9.3	0.331						7.800	0.000
BOI		MIS 10.2	0.341						8.800	0.000
BOI		MIS 11.3	0.405						10.700	0.000
N		LO <i>Pseudoemiliana lacunosa</i>	0.42		2H-7, 60-61	3H-1, 60-61	11.300	11.800	11.550	0.250
BOI		MIS 12.2	0.434						11.900	0.000
BOI		MIS 12.3	0.46						13.000	0.000
BOI		MIS 12.4	0.471						13.500	0.000
BOI		MIS 13.1	0.481						14.000	0.000
N		LO <i>Reticulofenestra asanoi</i>	0.83		3H-3, 60-61	3H-3, 110-111	14.805	15.305	15.055	0.250
BOI		MIS 13.3	0.524						16.000	0.000
Dm		LO <i>Actinocyclus ingens</i>	0.64		2H-CC	3H-CC	11.635	20.710	16.173	4.538
BOI		MIS 15.1	0.571						17.970	0.000
BOI		MIS 15.3	0.610						19.220	0.000
BOI		MIS 16.2	0.625						19.720	0.000
BOI		MIS 17.1	0.691						22.650	0.000
N		FO <i>Reticulofenestra asanoi</i>	1.16		4H-3, 60-61	4H-3, 110-111	23.635	24.135	23.885	0.250
BOI		MIS 18.2	0.722						24.080	0.000
F		FO <i>Globorotalia truncatulinoides</i>	XXX	2.0	3H-CC	4H-CC	20.710	29.005	24.858	4.148
N		LO <i>Helicosphaera sellii</i>	1.26		4H-4, 110-111	4H-5, 60-61	25.590	26.550	26.070	0.480
N		LO <i>Calcidiscus macintyreii</i>	1.59		4H-5, 60-61	4H-5, 110-110	26.555	27.055	26.805	0.250
Dm		LO <i>Fragilariopsis barronii</i>	XXX	1.40	4H-CC	5H-CC	29.005	39.385	34.195	5.190

Table T2 (continued).

Source	Hole	Event	Age (Ma)	Alternate Age (Ma)	Core, section, interval (cm)		Depth (mbsf)			Depth error (m)
					Top	Bottom	Top	Bottom	Mean	
					189-1170A-	189-1170A-				
Pliocene/Pleistocene boundary 1.77 Ma										
Dm		LO <i>Proboscia barboi</i>	1.80		4H-CC	5H-CC	29.005	39.385	34.195	5.190
M		Onset C2n	1.95						39.700	0.000
N		LO <i>Reticulofenestra pseudumbilica</i>	XXX	3.65	6H-3, 60–61	6H-4, 60–61	43.305	44.805	44.055	0.750
R		LO <i>Pseudocubus vema</i>	2.4		5H-CC	6H-CC	39.385	49.015	44.200	4.815
R		FO <i>Pseudocubus vema</i>	XXX	4.5	6H-CC	7H-CC	49.015	58.225	53.620	4.605
Dm		LO <i>Thalassiosira complicata</i>	2.5		7H-CC	Top C2An.1n	58.225	60.300	59.263	1.038
Dm		LO <i>Thalassiosira inura</i>	2.5		7H-CC	Top C2An.1n	58.225	60.300	59.263	1.038
M		Termination C2An.1n	2.581						60.300	0.000
Dm		LO <i>Fragilariopsis weaveri</i>	2.65		Top C2An.1n	Median 7H-CC to 8H-CC	60.300	63.120	61.710	1.410
F		FO <i>Globorotalia inflata</i>	3.2		7H-CC	8H-CC	58.225	68.015	63.120	4.895
R		LO <i>Lychnocanoma grande</i>	XXX	5.0	9H-CC	10H-CC	77.810	87.445	82.628	4.818
M		Onset C2An.3n	3.58						96.200	0.000
lower/upper Pliocene boundary 3.58 Ma										
Dm	1170A	FO <i>Thalassiosira complicata</i>	4.44		11H-CC	12H-CC	96.845	106.425	101.635	4.790
Dm		FO <i>Thalassiosira inura</i>	4.9		11H-CC	12H-CC	96.845	106.425	101.635	4.790
M	1170B	Termination C3n.3n	XXX	4.8					128.500	0.000
F	1170A	LO <i>Globorotalia pliozea</i>	XXX	4.6	14H-CC	15H-CC	123.700	133.905	128.803	5.103
N		LO <i>Triquetrorhabdulus rugosus</i>	5.23		15H-3, 60–61	15H-4, 60–61	128.320	130.320	129.320	1.000
Miocene/Pliocene boundary 5.3 Ma										
M	1170B	Onset C3n.3n	XXX	4.89					130.500	0.000
M		Termination C3n.4n	XXX	4.98					133.500	0.000
M		Onset C3n.4n	XXX	5.23					138.000	0.000
M		Termination C3An.1n	XXX	5.894					144.200	0.000
F	1170A	FO <i>Globorotalia punctulata</i>	XXX	5.3	16H-CC	17H-CC	143.715	153.485	148.600	4.885
Dm		LO <i>Actinocyclus ingens</i> var. <i>ovalis</i>	XXX	6.269	16H-CC	17H-CC	143.715	153.485	148.600	4.885
M	1170B	Onset C3An.1n	XXX	6.137					150.300	0.000
M		Termination C3An.2n	XXX	6.269					152.900	0.000
M		Onset C3An.2n	XXX	6.567					157.250	0.000
R	1170A	LO <i>Amphymenium challengerae</i>	6.137		17H-CC	18H-CC	153.485	163.610	158.548	5.062
N		<i>Reticulofenestra pseudumbilica</i> paracme top	7.1		17H-CC	19X-1, 60–61	153.570	163.800	158.685	5.115
N		FO <i>Amaurolithus delicatus</i>	7.3		17H-CC	19X-1, 60–61	153.570	163.800	158.685	5.115
N		FO <i>Amaurolithus primus</i>	7.4		17H-CC	19X-1, 60–61	153.570	163.800	158.685	5.115
R		FO <i>Amphymenium challengerae</i>	6.6	?	18H-CC	19X-CC	163.610	167.145	165.378	1.768
F		FO <i>Globorotalia conomiozea</i>	6.9	?	18H-CC	19X-CC	163.610	167.145	165.378	1.768
F		LO <i>Paragloborotalia continuosa</i>	8.0	?	18H-CC	19X-CC	163.610	167.145	165.378	1.768
F		LO <i>Paragloborotalia nympha</i>	XXX	10.1	19X-CC	20X-CC	167.145	174.460	170.803	3.658
R		FO <i>Dictyophimus splendeus</i>	XXX	11.8	19X-CC	20X-CC	167.145	174.460	170.803	3.658
N		<i>Reticulofenestra pseudumbilica</i> paracme bottom	8.78		21X-2, 60–61	21X-3, 60–61	178.400	179.900	179.150	0.750
F		LO <i>Paragloborotalia mayeri</i>	XXX	11.4	21X-CC	22X-CC	180.880	192.015	186.448	5.568
M	1170B	Termination C5n.1n	9.74						190.000	0.000
Dm	1170A	LO <i>Denticulopsis dimorpha</i>	10.7		22X-CC	23X-CC	192.015	201.095	196.555	4.540
M	1170B	Onset C5n.2n	10.949						210.000	0.000

Table T2 (continued).

Source	Hole	Event	Age (Ma)	Alternate Age (Ma)	Core, section, interval (cm)		Depth (mbsf)			Depth error (m)
					Top	Bottom	Top	Bottom	Mean	
					189-1170A-	189-1170A-				
		middle/upper Miocene boundary 11.2 Ma								
N	1170A	LO <i>Cyclicargolithus floridanus</i>	11.9		28X-4, 60–61	28X-5, 60–61	248.605	250.105	249.355	0.750
Dm		FO <i>Denticulopsis dimorpha</i>	12.2		Top 28X-CC	Base 28X-CC	250.500	253.100	251.800	1.300
R		LAO <i>Cyrtocapsella tetrapera</i>	12.71		Top 28X-CC	Base 28X-CC	250.500	253.100	251.800	1.300
Dm		LO <i>Actinocyclus ingens</i> var. <i>nodus</i>	12.71		Top 28X-CC	Base 28X-CC	250.500	253.100	251.800	1.300
M		Termination C5AAn	12.991						264.000	0.000
F		FO <i>Paragloborotalia mayeri</i>	XXX	12.1	29X-CC	30X-CC	259.415	270.200	264.808	5.393
M		Onset C5AAn	13.139						268.500	0.000
N		LO <i>Calcidiscus premacintyre</i>	12.700		30X-5, 60–61	31X-1, 60–61	269.300	272.900	271.100	1.800
M		Termination C5ABn	13.302						273.000	0.000
F		FO <i>Praeorbulina curva</i>	XXX	16.3	30X-CC	31X-CC	270.200	281.705	275.953	5.753
M		Onset C5ABn	13.51						277.000	0.000
M		Termination C5ACn	13.703						278.000	0.000
N		LCO <i>Cyclicargolithus floridanus</i>	13.200		31X-4, 60–61	31X-5, 60–61	277.400	278.900	278.150	0.750
M		Onset C5ACn	14.076						283.500	0.000
M		Termination C5ADn	14.178						286.000	0.000
Dm		FO <i>Actinocyclus ingens</i> var. <i>nodus</i>	14.38		32X-CC	Onset C5ADn	290.840	292.000	291.420	0.580
Dm		LO <i>Cavitatus jouseanus</i>	14.612		Onset C5ADn	Onset C5ADn	292.000	292.000	292.000	0.000
M		Onset C5ADn	14.612						292.000	0.000
M		Termination C5Bn.1n	14.8						294.000	0.000
R		FO <i>Lychnocanoma nipponica</i> s. str.	XXX	15.7	32X-CC	33X-CC	290.840	299.570	295.205	4.365
M		Onset C5Bn.1n	14.888						296.000	0.000
M		Termination C5Bn.2n	15.034						297.500	0.000
Dm		LO <i>Denticulopsis maccollumii</i>	XXX	14.7	33X-CC	34X-CC	299.570	310.310	304.940	5.370
M		Termination C5Cn.1n	16.014						308.000	0.000
M		Onset C5Cn.1n	16.293						310.500	0.000
		lower/middle Miocene boundary 16.4 Ma								
N	1170A	FO <i>Calcidiscus premacintyre</i>	17.4		35X-2, 60–61	35X-3, 60–61	312.200	313.700	312.950	0.750
M		Termination C5Cn.2n	XXX	16.327					311.000	0.000
M		Onset C5Cn.2n	XXX	16.488					312.000	0.000
R		LO <i>Cenosphaera coronata</i>	XXX	16.7	35X-CC	36X-CC	318.360	327.465	322.913	4.553
M		Onset C5Dn	XXX	17.615					323.000	0.000
M		Onset C5En	18.781						338.000	0.000
F		FO <i>Globigerinoides trilobus</i>	18.8		Base C5En	37X-CC	338.000	338.745	338.373	0.373
M		Termination C6n	19.048						341.000	0.000
F		FO <i>Globoturborotalita connecta</i>	20.9		37X-CC	38X-CC	338.745	347.140	342.943	4.197
F		FO <i>Globoturborotalita woodi</i>	21.8	22.60	38X-CC	39X-CC	347.140	356.460	351.800	4.660
M		Onset C6AAn	21.859						370.500	0.000
M		Termination C6AAr.1n	22.151						372.200	0.000
M		Onset C6AAr.1n	22.248						373.600	0.000
M		Termination C6AAr.2n	22.459						374.900	0.000
M		Onset C6AAr.2n	22.493						375.4	0.000
M		Termination C6Bn.1n	22.588						375.800	0.000
M		Termination C6Bn.2n	22.804						377.400	0.000
M		Onset C6Cn.1n	23.535						380.000	0.000

Table T2 (continued).

Source	Hole	Event	Age (Ma)	Alternate Age (Ma)	Core, section, interval (cm)		Depth (mbsf)			Depth error (m)
					Top	Bottom	Top	Bottom	Mean	
Dm		LO <i>Azpeitia gombosi</i>	XXX	21.1	189-1170A-41X-CC	189-1170A-42X-CC	376.410	387.050	381.730	5.320
F		FO <i>Globoquadrina dehiscens</i>	23.2		41X-CC	42X-CC	376.410	387.050	381.730	5.320
R		FO <i>Cyrtocapsella tetrapera</i>	23.62		41X-CC	42X-CC	376.410	387.050	381.730	5.320
M		Termination C6Cn.2n	23.677						382.000	0.000
N		LO <i>Reticulofenestra bisecta</i> s. str.	23.9		42X-3, 110-111	42X-4, 60-61	381.500	382.505	382.003	0.502
M		Onset C6Cn.2n	23.8						382.900	0.000
Oligocene/Miocene boundary 23.8 Ma										
M	1170A	Termination C6Cn.3n	23.999						383.5	0.000
M		Onset C6Cn.3n	24.118						386	0.000
Dm		LO <i>Coscinodiscus lewisianus</i> var. <i>levis</i>	XXX	28.2	42X-CC	43X-CC	387.050	396.585	391.818	4.768
F		FO <i>Chiloguembelina cubensis</i>	XXX	28.5	42X-CC	43X-CC	387.050	396.585	391.818	4.768
M		Termination C7n.1n	24.73						393.400	0.000
M		Onset C7n.1n	24.781						394.000	0.000
M		Termination C7An	25.496						395.000	0.000
Dm		LO <i>Rocella vigilans</i> var. B	25.0		43X-6, 28-30	3X-7, 41-43	394.790	396.420	395.605	0.815
M		Onset C7An	25.648						396.200	0.000
Dm		FO <i>Rocella gelida</i>	25.823		43X-7, 41-43	44X-1, 40-42	396.420	397.010	396.715	0.295
M		Termination C8n.1n	25.823						397.000	0.000
N		LO <i>Chiasmolithus altus</i>	26.1		44X-1, 10-11	44X-2, 10-11	396.705	398.205	397.455	0.750
M		Onset C8n.2n	26.554						398.600	0.000
M		Termination C9n	27.027						402.000	0.000
M		Onset C9n	27.972						403.000	0.000
M		Termination C10n.1n	XXX	28.283					406.500	0.000
F		LO <i>Subbotina angiporoides</i>	XXX	30.0	44X-CC	45X-CC	405.700	409.925	407.813	2.113
Dm		FO <i>Rocella vigilans</i> var. B	28.0		46X-2, 40-42	46X-3, 40-42	417.710	419.210	418.460	0.750
Dm	1170D	FO <i>Coscinodiscus lewisianus</i> var. <i>levis</i>	28.5		1R-CC	2R-CC	427.240	437.465	432.353	5.113
lower/upper Oligocene boundary 28.5 Ma										
Dm	1170D	LO <i>Rocella vigilans</i> var. A	29.0		2R-3, 40-42	Top C11n.1n	436.910	440.000	438.455	1.545
M		Termination C11n.1n	29.401						440.000	0.000
M		Termination C13n	33.058						460.000	0.000
Dm		FO <i>Rocella vigilans</i> var. A	30.24		4R-2, 40-42	7R-2, 39-41	454.610	478.500	466.555	11.945
Dm		FO <i>Cavitatus jouseanus</i>	30.62		4R-2, 40-42	7R-2, 39-41	454.610	478.500	466.555	11.945
Dm		LO <i>Hemiaulus characteristicus</i>	33.5		4R-2, 40-42	7R-2, 39-41	454.610	478.500	466.555	11.945
Dm		LO <i>Distephanosira architecturalis</i>	33.5		4R-2, 40-42	7R-2, 39-41	454.610	478.500	466.555	11.945
M		Onset C11n	30.098						470.000	0.000
Eocene/Oligocene boundary 33.7 Ma										
D	1170D	FO <i>Stoveracysta kakanuiensis</i>	34.5		6R-CC	7R-1, 0-2	472.600	476.620	474.610	2.010
N		FO <i>Isthmolithus recurvus</i>	36.0		8R-5, 50-51	9R-CC	478.970	482.370	480.670	1.700
D		LAO <i>Spinidinium</i> spp.	36.0		7R-2, 85-87	8R-1, 85-87	478.970	482.370	480.670	1.700
N		FO <i>Cyclicargolithus abisectus</i>	XXX	31.1	7R-1, 90-91	8R-5, 10-11	477.505	487.605	482.555	5.050
N		LO <i>Reticulofenestra umbilicus</i>	XXX	31.3	7R-1, 90-91	8R-5, 10-11	477.505	487.605	482.555	5.050
N		LO <i>Isthmolithus recurvus</i>	XXX	32.0	7R-1, 90-91	8R-5, 10-11	477.505	487.605	482.555	5.050
N		LO <i>Reticulofenestra reticulata</i>	35.9		7R-1, 90-91	8R-5, 10-11	477.505	487.605	482.555	5.050
M		Onset C16n.1n	35.526						485.000	0.000
D		FO <i>Stoveracysta ornata</i>	39.95		Base C16n.2n	8R-CC	485.000	488.385	486.693	1.693
D		LO <i>Hystrichosphaeridium truswelliae</i>	38.5		8R-4, 85-87	8R-5, 82-84	486.870	488.340	487.605	0.735

Table T2 (continued).

Source	Hole	Event	Age (Ma)	Alternate Age (Ma)	Core, section, interval (cm)		Depth (mbsf)			Depth error (m)
					Top	Bottom	Top	Bottom	Mean	
					189-1170A-	189-1170A-				
M		Termination C16n.2n	35.685						490.000	0.000
D		FO <i>Deflandrea</i> sp. A	35.2		8R-5, 82-84	9R-1, 85-87	488.340	491.970	490.155	1.815
D		FCO <i>Alterbidinium distinctum</i>	36.0		9R-4, 85-87	9R-CC	496.470	497.635	497.053	0.582
M		Onset C17n.3n	38.113						520.000	0.000
D		LO <i>Arachnodinium antarcticum</i>	38.5		11R-CC	12R-CC	518.255	524.540	521.398	3.142
N		LO <i>Chiasmolithus solitus</i>	38.2		12R-4, 10-11	13R-1, 40-41	524.105	529.805	526.955	2.850
N		FO <i>Reticulofenestra reticulata</i>	XXX	41.2	12R-CC	13R-1, 40-41	524.540	529.805	527.173	2.632
D		FO <i>Hemiplacophora semilunifera</i>	XXX	41.4	12R-CC	13R-CC, 16-21	524.590	534.830	529.710	5.120
M		Termination C18n.1n	38.426						530.000	0.000
M		Onset C18n.2n	40.13						580.000	0.000
M		Termination C19n	41.257						590.000	0.000
M		Onset C19n	41.521						605.000	0.000
M		Termination C21n	42.536						620.000	0.000
D		FAO <i>Vozzhennikovia</i> spp.	XXX	50.24	30R-CC	32R-CC	701.350	722.085	711.718	10.368
N		FO <i>Reticulofenestra umbilicus</i>	XXX	42.0	34R-CC	35R-5, 10-11	741.400	747.305	744.353	2.953
M		Onset C21n	43.789						748.2	0.000
D		FAO <i>Enneadocysta partridgei</i>	48.5		36R-CC	38R-CC	760.490	779.590	770.125	9.550

Notes: BOI = benthic oxygen isotope data, D = dinocyst, Dm = diatom, F = planktonic foraminifer, M = magnetostratigraphic event, N = nannofossil, R = radiolarian. FO = first occurrence, FCO = first common occurrence, LO = last occurrence, LAO = last abundant occurrence, LCO = last common occurrence. MIS = marine isotope stage. Top sample = Last downhole occurrence of marker (FO); next sample up in case of LO. Bottom sample = first downhole occurrence of marker (LO); next sample down in case of FO. Error = half depth of top-bottom sample range. Tables are arranged by depth (mbsf). The primary age model comprises the most robust data available. XXX = alternate data provided. Alternative datums remain less robust until further work can resolve them. We include these data in the tables to highlight problem areas. See text for datum references.