Bralower, T.J., Premoli Silva, I., and Malone, M.J. (Eds.)
Proceedings of the Ocean Drilling Program, Scientific Results Volume 198

15. Data Report: Revised Composite Depth Records for Shatsky Rise Sites 1209, 1210, and 1211[1]

Thomas Westerhold[2] and Ursula Röhl[2]

ABSTRACT

We present new revised composite depth scales for Ocean Drilling Program Leg 198 Sites 1209, 1210, and 1211, drilled at Shatsky Rise in the western Pacific Ocean. Reinterpretation of high-resolution physical property data, with the main focus on magnetic susceptibility as the primary parameter for hole-to-hole correlation, revealed that the shipboard composite records had to be revised below 124.87 meters composite depth (mcd) for Site 1209, below 142.45 mcd for Site 1210, and below 88.64 mcd for Site 1211. The revised composite records comprise Paleogene and Cretaceous sediments at all three sites. As a result of the additional adjustments, the revised mcd records of Sites 1209 and 1210 are 13.48 and 2.69 m longer than the original spliced records, respectively. The original splice of Site 1211 has undergone minor adjustments only to match those of Sites 1209 and 1210. Moreover, detailed correlation of sections outside the new spliced records enable samples already taken to be placed into the new revised composite depth scale.

INTRODUCTION

The pelagic sediment cores from Shatsky Rise in the western Pacific, drilled during Ocean Drilling Program Leg 198, provide the first complete records for the entire Paleogene and the first Paleogene depth transects for the Pacific Ocean. Complete sections of Paleocene and Eocene sediments were recovered at four sites spanning the modern depth range of >500 m from 2387 m at Site 1209 to 2907 m at Site 1211

[1]Westerhold, T., and Röhl, U., 2006. Data report: Revised composite depth records for Shatsky Rise Sites 1209, 1210, and 1211. *In* Bralower, T.J., Premoli Silva, I., and Malone, M.J. (Eds.), *Proc. ODP, Sci. Results,* 198, 1–26 [Online]. Available from World Wide Web: <http://www-odp.tamu.edu/publications/198_SR/VOLUME/CHAPTERS/122.PDF>. [Cited YYYY-MM-DD]
[2]MARUM—Zentrum für Marine Umweltwissenschaften, Universität Bremen, Postfach 330 440, 28334 Bremen, Germany. Correspondence author: **tho@uni-bremen.de**

Initial receipt: 4 March 2005
Acceptance: 16 June 2005
Web publication: 17 January 2006
Ms 198SR-122

(Shipboard Scientific Party, 2002a). The recovery of complete sediment sections of advanced piston corer (APC)-cored intervals was crucial to fulfilling the primary paleoceanographic objectives of Leg 198. To identify, characterize, and resolve paleoceanographic/climatic variations on orbital timescales for the Paleocene and Eocene at Shatsky Rise, a complete and undisturbed sequence is necessary. Hence, improving the shipboard composite section is essential because correlation of physical property records from parallel holes was not unambiguous in all cases. For these reasons, we reassessed the Site 1209, 1210, and 1211 composite depth scales and established revised meters composite depth (rmcd) records.

MATERIALS AND METHODS

Multisenor track and spectral reflectance data collected from Site 1209 (Holes 1209A, 1209B, and 1209C), Site 1210 (Holes 1210A and 1210B), and Site 1211 (Holes 1211A, 1211B, and 1211C) were used to redetermine depth offsets and revise the shipboard composite sections. Magnetic susceptibility was the primary parameter used for core-to-core correlation, and we shifted the individual cores vertically without permitting expansion or contraction of the relative depth scale within any core. This is an analog to the shipboard software Splicer. Next, we assembled a new single spliced record of the revised composite depth section for Sites 1209, 1210, and 1211. Intervals having significant disturbance or distortion were avoided. For the construction of the revised records, we left the tie points between holes at the original (shipboard) position where possible. Changes in the position of tie points in the new revised spliced record have been highlighted as bold letters in the splice tables of each site (see **"Results—New Revised Composite Depth,"** below). Cores outside the revised composite splice have been stretched or squeezed using the time-series analysis program AnalySeries (Paillard et al., 1996) to conform to the overall rmcd depth scale and to align samples from outside the shipboard and revised splices. This enables samples taken already to be placed into the new revised composite depth scale.

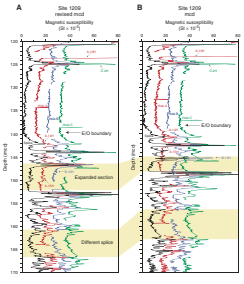
RESULTS—NEW REVISED COMPOSITE DEPTH

Site 1209

No adjustments in the shipboard splice (Shipboard Scientific Party, 2002b) were made for all cores stratigraphically above Core 198-1209A-13H (i.e., 124.87 meters composite depth [mcd] = 124.87 rmcd) (Table **T1**). The uppermost modification of the composite section depth occurs at Core 198-1209A-13H, which is offset by 31 cm downcore with respect to mcd (Table **T1**). This modification gives a better fit for the high peak in magnetic susceptibility in Cores 198-1209A-13H and 198-1209C-2H at 124.87 mcd (Fig. **F1**). The first major difference between rmcd and mcd occurs at ~146 rmcd (Fig. **F1**), where we offset Core 198-1209A-15H by 4.35 m with respect to the shipboard splice. According to shipboard splicing, the top of Core 198-1209A-15H overlaps the base of Core 198-1209A-14H (Fig. **F1B;** ~141 mcd). Visual comparison of Cores 198-1209A-15H and 198-1209B-15H reveals a clear mismatch from ~142 to ~147 mcd. This mismatch is corrected by moving Core

T1. Offsets, Holes 1209A, 1209B, and 1209C, p. 16.

F1. Site 1209 135–170 rmcd and mcd, p. 7.



1209A-15H 4.35 m downcore (Fig. F1A). The revised splice reveals an expanded section from ~146.5 to ~152.2 rmcd. This is ~2 m more than in the shipboard splice, representing about ~1 m.y., according to shipboard biostratigraphy. As seen in Figure F1, we chose a different splice from ~161 to ~167 rmcd. The shipboard splice follows Core 198-1209C-6H from 159.11 to 162.90 mcd, although a coring disturbance occurs in Section 198-1209C-6H-5. Alternatively, we suggest jumping to Core 198-1209B-17H from 163.07 to 166.29 rmcd to circumvent the disturbed section.

The most prominent change in the revised composite record is located at ~205 rmcd, ~10 m above the Paleocene/Eocene Thermal Maximum (PETM). The shipboard splice runs along Core 198-1209C-10H from 199.87 to 208.06 mcd, which features, in contrast to Holes 1209A and 1209B, a strong increase in magnetic susceptibility from ~201 to ~203 mcd (Fig. F2). Furthermore, the magnetic susceptibility record of Core 198-1209C-10H can not be correlated to the equivalent record in Holes 1209A and 1209B; however, the magnetic susceptibility record of Holes 1209A and 1209B can be easily correlated (Fig. F2). The photo of Core 198-1209C-10H shows no major disturbance and thus suggests inaccurate physical property data.

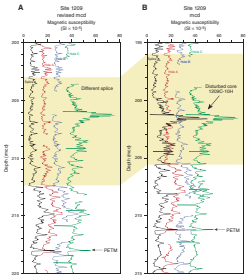
Another important change is the expanded section prior to the Early Late Paleocene Biotic Event (ELPE) (Röhl et al., 2004) from ~239 to ~248 rmcd. Revised correlation suggests that more than ~2 m representing >500 k.y. is missing in the shipboard splice (Fig. F3). This is due to the mismatch of Cores 198-1209A-24H and 198-1209B-24H to 198-1209C-13H in the shipboard splice.

The data used to construct the composite section and to determine core overlaps are presented on a revised composite depth scale for Site 1209 in Figure F4. The depth offsets that compose the new composite section for Holes 1209A, 1209B and 1209C are given in Table T1. The new spliced composite section for Site 1209 is reported in Table T2. The composite data show that the APC cores from Site 1209 provide a continuous overlap to at least 273.87 rmcd (Section 198-1209A-26H-7, 63 cm). As a result of the additional adjustments, the revised composite depth record is 13.48 m longer than the original splice (Fig. F5). The mcd to mbsf growth factors for Holes 1209A, 1209B, and 1209C are 6%, 7%, and 5%, respectively (Fig. F6). The rmcd to mbsf growth factors for Holes 1209A, 1209B, and 1209C are 11%, 12%, and 14%, respectively (Fig. F6). The growth factors for the rmcd are 5% (Holes 1209A and 1209B) to 9% (Hole 1209C) higher than the mcd growth rates. As can be seen in Figure F6, the average growth factor for Sites 1210 and 1211 is 10%–11%; therefore, the revised composite section for Site 1209 with an average growing factor of 12% suggests that it is more consistent to follow the rmcd than the mcd depth. Cores that are not in the revised composite section were adjusted to the rmcd composite depth scale by correlation of magnetic susceptibility data given in Table T3. As an example, the interval from 200 to 220 is plotted in Figure F7.

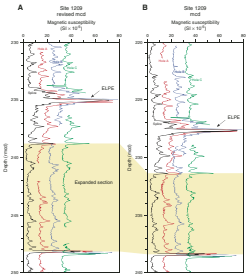
Site 1210

No adjustments in the shipboard splice (Shipboard Scientific Party, 2002c) were made for all cores stratigraphically above Core 198-1210B-14H (i.e, 142.45 mcd = 142.45 rmcd) (Table T4). The uppermost modification of the composite section depth occurs at Core 198-1210B-14H, which is offset by 26 cm downcore with respect to the mcd (Table T4) to fit the peak in magnetic susceptibility at 142.36 mcd to Core 198-

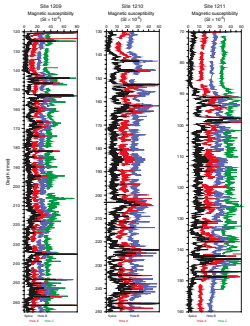
F2. Site 1209 200–220 rmcd and 195–215 mcd, p. 8.



F3. Site 1209 230–250 rmcd and 220–240 mcd, p. 9.

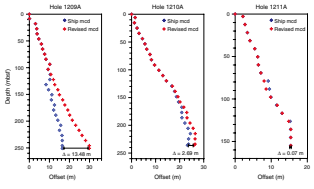


F4. Sites 1209, 1210, and 1211 rmcd, p. 10.



T2. Site 1209 tie points, p. 17.

F5. Core offsets, Holes 1209A, 1210A, and 1211A, p. 11.



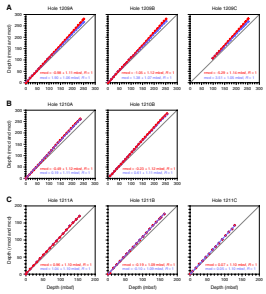
1210A-14H. The only major difference between rmcd and mcd occurs at ~198 rmcd (Fig. F8), where we offset Core 198-1210A-20H 2.11 m downcore with respect to the shipboard splice. Visual comparison of Cores 198-1210A-20H and 198-1210B-19H reveals a mismatch from ~200 to ~202 mcd. This mismatch is corrected by moving Core 198-1210A-20H 2.11 m downcore (Fig. F8A). According to shipboard splicing, the top of Core 198-1210B-20H overlaps the base of Core 198-1210B-19H (Fig. F8B; ~202 mcd). Because of the downward shift of Core 198-1210A-20H, Core 198-1210B-20H is shifted 2.11 m downcore as well. Hence, as seen in Figure F8, we chose a different splice in the interval from ~197 to ~211 rmcd, which contains the PETM. This change in revised composite depth is similar to the most prominent change in the rmcd record of Site 1209. The revised correlation suggests that more than ~1.5 m is missing in the shipboard splice.

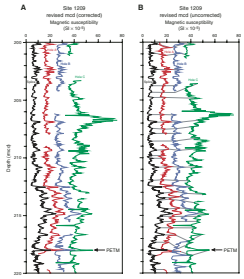
The data used to construct the composite section and to determine core overlaps are presented on a revised composite depth scale for Site 1210 in Figure F4. The depth offsets that compose the new composite section for Holes 1210A and 1210B are given in Table T4. The new spliced composite section for Site 1210 is reported in Table T5. The composite data show that the APC cores from Site 1210 provide a continuous overlap to at least 260.37 rmcd (Section 198-1210A-25H-7, 57 cm). As a result of the additional adjustments, the revised composite depth record is 2.69 m longer than the original splice (Fig. F5). The rmcd to mbsf growth factor is 12% for both Holes 1210A and 1210B (Fig. F6), which is 1% more than the mcd to mbsf growth rate. The rather small offset of 1% is due to the small adjustments made at Site 1210. Cores that are not in the revised composite section were adjusted to the rmcd composite depth scale by correlation of magnetic susceptibility data given in Table T6.

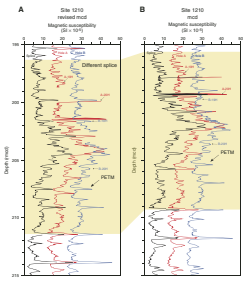
Site 1211

Cross-hole correlation of magnetic susceptibility data reveal only minor changes to the shipboard meters composite section (mcd) (Shipboard Scientific Party, 2002d) of Site 1211. No adjustments in the shipboard splice were made for all cores stratigraphically above Core 198-1211C-9H (i.e., 88.64 mcd = 88.64 rmcd). The uppermost modification and the major difference to the composite section depth occurs at Core 198-1211A-10H at ~90 rmcd, which is offset by 1.12 cm upcore with respect to the mcd (Table T7). As shown in Figure F9, a different splice was chosen for the interval from ~89 to ~97 rmcd because the bottom of Core 198-1211A-10H is stretched compared to the cores from Holes 1211B and 1211C. Investigation of the photo of Core 198-1211A-10H shows drilling disturbance below Section 198-1211A-10H-5 (~93.50 rmcd), supporting its exclusion from the new revised composite section.

The data used to construct the composite section and to determine core overlaps are presented on a revised composite depth scale for Site 1211 in Figure F4. Revised offsets, the rmcd scale, and new splice tie points are presented in Tables T7 and T8. The composite data show that the APC cores from Site 1211 provide a continuous overlap to at least 160.71 rmcd (Section 198-1211A-16H-7, 48 cm) (Fig. F4). The adjustments to the revised composite depth record are rather small compared to the original splice (Fig. F5). The rmcd to mbsf growth factor of 9% (Hole 1211B) and 10% (Holes 1211A and 1211C) is equal to the mcd to mbsf growth rate (Fig. F6). This is because of minor adjustments made







at Site 1211. Finally, cores that are not in the revised composite section were adjusted to the rmcd composite depth scale by correlation of magnetic susceptibility data given in Table T9.

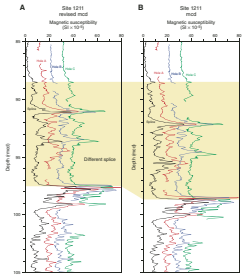
SUMMARY

Major revision of the shipboard composite depth scale (mcd) by detailed reinvestigation of shipboard physical property data yielded new revised composite depth scales (rmcd) for Sites 1209, 1210, and 1211. As a result of the additional adjustments, the rmcd record of Sites 1209 and 1210 are 13.48 and 2.69 m longer than the original spliced records, respectively. Minor adjustments had to be made at Site 1211. Comparison of rmcd and mcd to mbsf growth factors of all holes drilled at the three sites suggests that the new spliced record of Site 1209 is more consistent than the mcd record. Finally, to enable samples already taken to be placed into to the new revised composite depth scale, cores outside the revised composite sections were adjusted to the rmcd composite depth scale at each site by correlation of magnetic susceptibility data.

ACKNOWLEDGMENTS

We are grateful to Lucas Lourens for the constructive review and to Mitch Malone for valuable suggestions on the manuscript. Funding for this research was provided by the Deutsche Forschungsgemeinschaft (DFG). This research used data provided by the Ocean Drilling Program (ODP). ODP is sponsored by the U.S. National Science Foundation (NSF) and participating countries under the management of Joint Oceanographic Institutions (JOI), Inc.

F9. Site 1211 85–105 rmcd and mcd, p. 15.



T8. Site 1211 tie points, p. 25.

T9. Mapping pairs, Site 1211, p. 26.

REFERENCES

Paillard, D., Labeyrie, L., and Yiou, P., 1996. Macintosh program performs time-series analysis. *Eos, Trans. Am. Geophys. Union,* 77:379.

Röhl, U., Westerhold, T., Bralower, T.J., Petrizzo, M.-R., and Zachos, J.C., 2004. An early late Paleocene global dissolution event and new constraints for an astronomically-tuned early Paleogene time scale. [ICP VIII, 8th International Conference on Paleoceanography, Biarritz, France, 5–10 September, 2004]. (Abstract)

Shipboard Scientific Party, 2002a. Leg 198 summary. *In* Bralower, T.J., Premoli Silva, I., Malone, M.J., et al., *Proc. ODP, Init. Repts.,* 198, 1–148 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

Shipboard Scientific Party, 2002b. Site 1209. *In* Bralower, T.J., Premoli Silva, I., Malone, M.J., et al., *Proc. ODP, Init. Repts.,* 198, 1–102 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

Shipboard Scientific Party, 2002c. Site 1210. *In* Bralower, T.J., Premoli Silva, I., Malone, M.J., et al., *Proc. ODP, Init. Repts.,* 198, 1–89 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

Shipboard Scientific Party, 2002d. Site 1211. *In* Bralower, T.J., Premoli Silva, I., Malone, M.J., et al., *Proc. ODP, Init. Repts.,* 198, 1–81 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

Figure F1. Site 1209 magnetic susceptibility data for 120–170 (**A**) revised meters composite depth and (**B**) meters composite depth. Holes 1209A, 1209B, and 1209C are offset from the Site 1209 splice by a constant (10×10^{-5}, 20×10^{-5}, and 30×10^{-5}, respectively). The shaded areas highlight important differences between rmcd and mcd. This interval includes the middle Eocene and the Eocene/Oligocene (E/O) boundary interval.

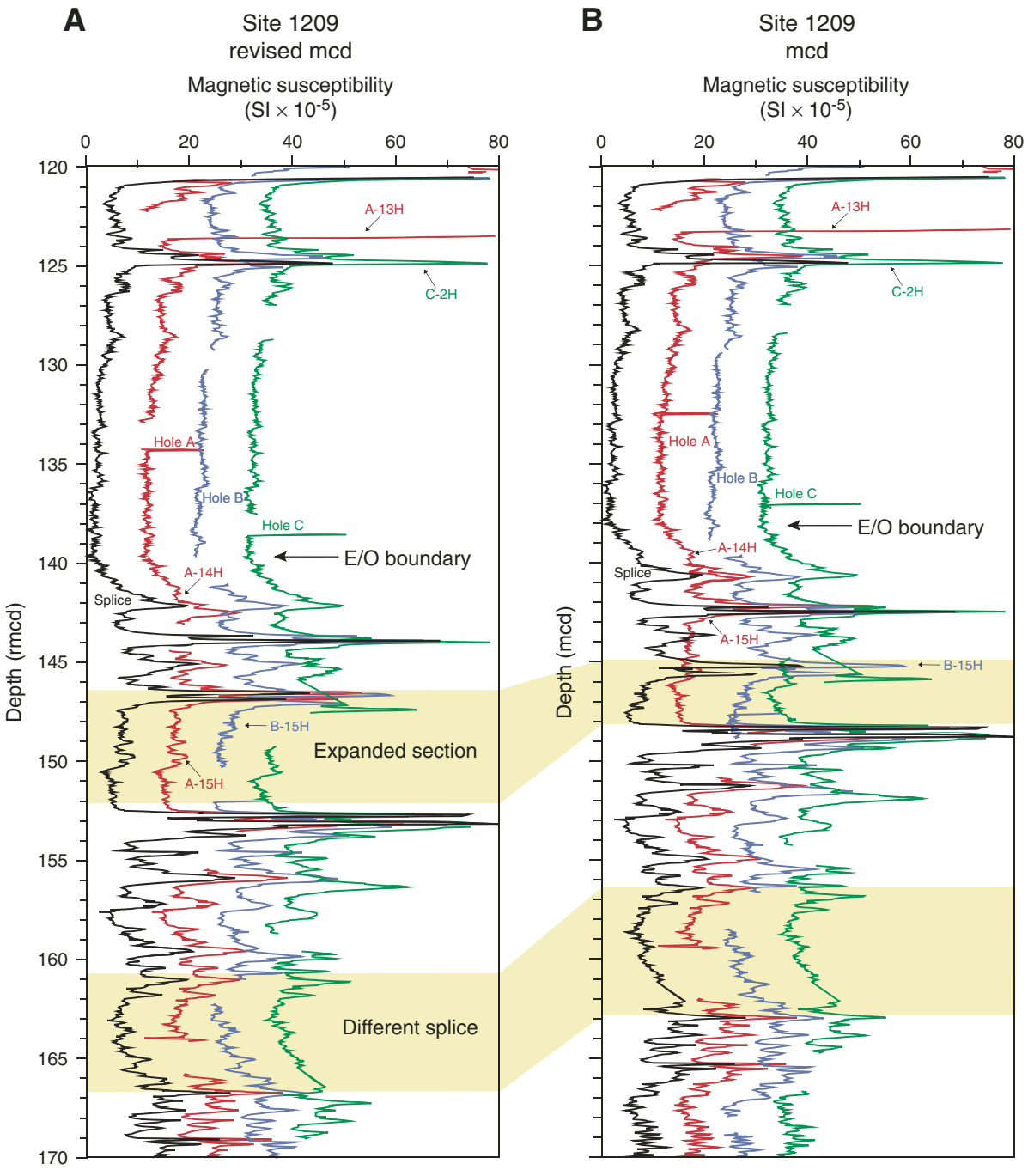


Figure F2. Site 1209 magnetic susceptibility data for (**A**) 200–220 rmcd and (**B**) 195–215 mcd. Holes 1209A, 1209B, and 1209C are offset from the Site 1209 splice by a constant (10×10^{-5}, 20×10^{-5}, and 30×10^{-5}, respectively). The shaded areas highlight important differences between mcd and rmcd splice. In the shipboard splice, Core 198-1209C-10H has been used. Correlation of the magnetic susceptibility record of Holes 1209A and 1209B is straightforward (see text). This interval includes the Paleocene/Eocene boundary (Paleocene/Eocene Thermal Maximum [PETM]).

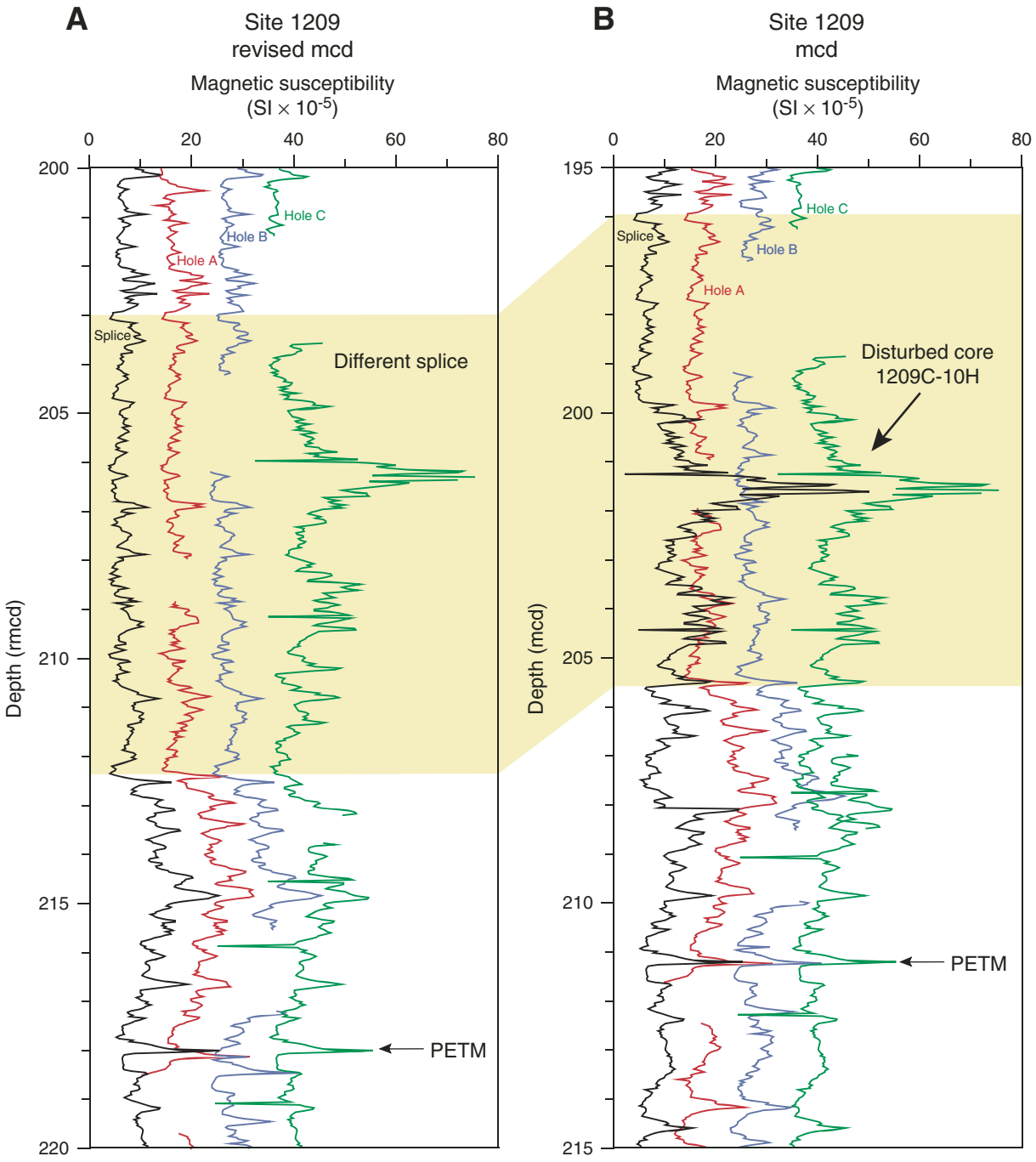


Figure F3. Site 1209 magnetic susceptibility data for (**A**) 230–250 rmcd and (**B**) 220–240 mcd. Holes 1209A, 1209B, and 1209C are offset from the Site 1209 splice by a constant (10×10^{-5}, 20×10^{-5}, and 30×10^{-5}, respectively). The shaded areas highlight expanded sections in the rmcd splice compared to the mcd splice. This interval includes the Early Late Paleocene Biotic Event (ELPE).

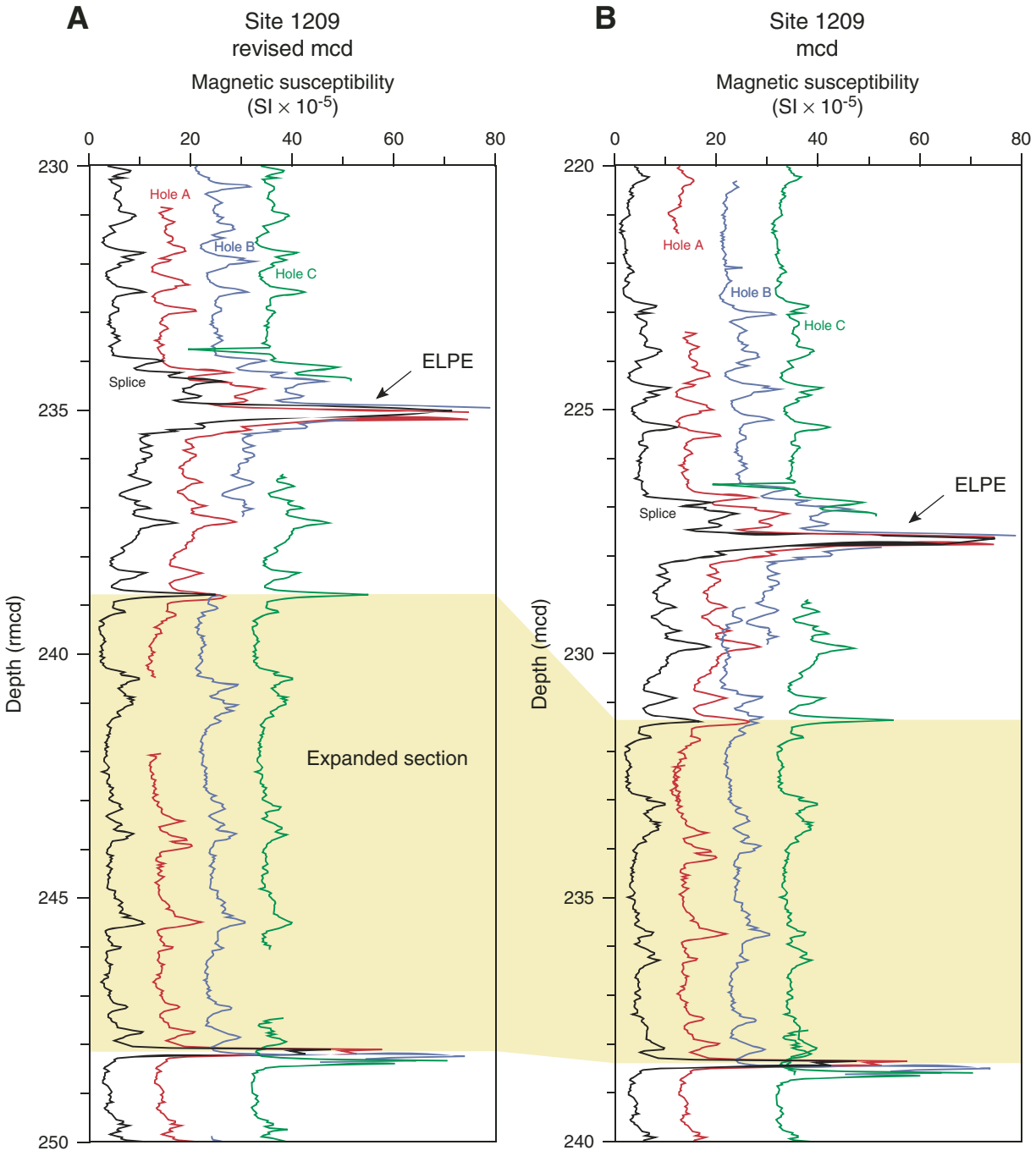


Figure F4. Magnetic susceptibility data against rmcd for Sites 1209, 1210, and 1211. In each plot, the A, B, and C holes are offset from the splice by a constant (10×10^{-5}, 20×10^{-5}, and 30×10^{-5}, respectively).

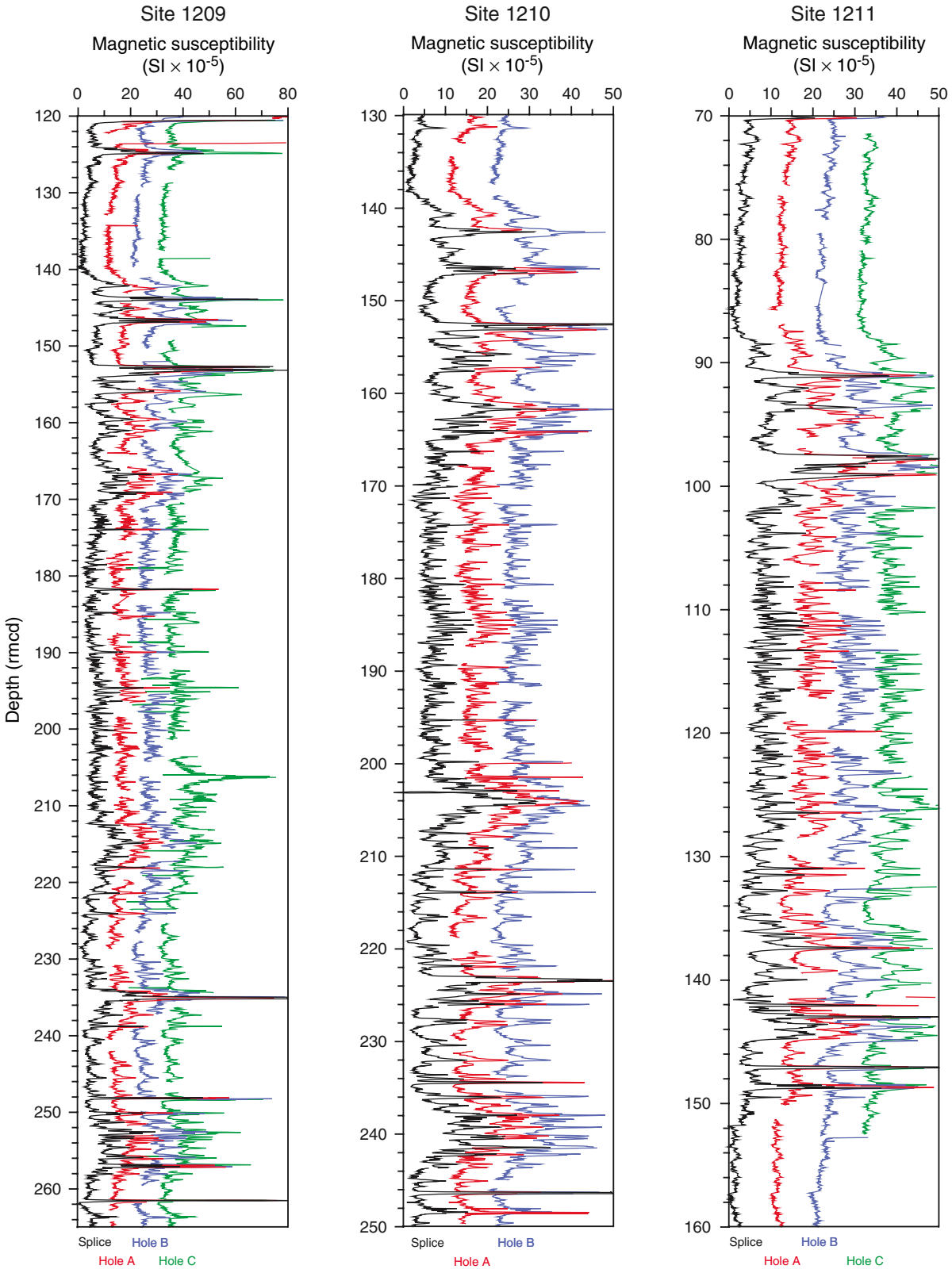


Figure F5. Core offsets applied to Holes 1209A, 1210A, and 1211A plotted against standard ODP mbsf. Note the linear increase in the revised offsets in Hole 1209A. The maximum differences between mcd and rmcd offsets at the bottom of the spliced records are indicated by the bar.

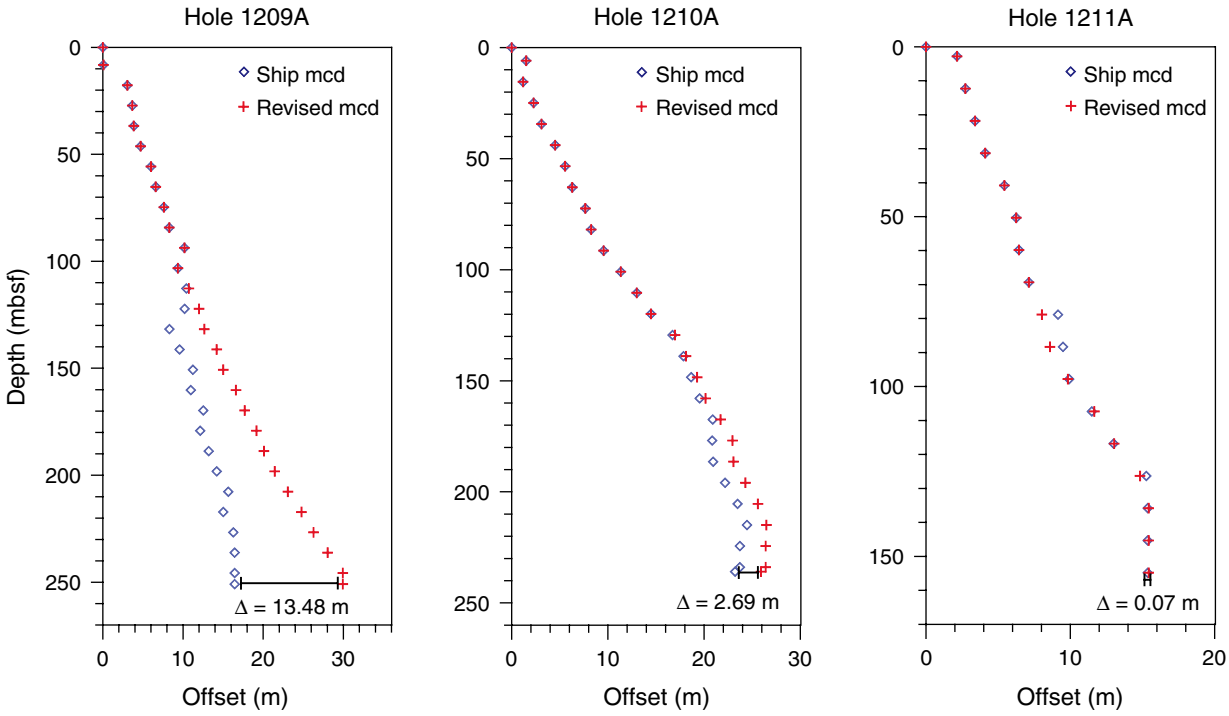


Figure F6. mbsf vs. mcd and rmcd growth rates for (**A**) Site 1209 (Holes 1209A, 1209B, and 1209C), (**B**) Site 1210 (Holes 1210A and 1210B), and (**C**) Site 1211 (Holes 1211A, 1211B, and 1211C).

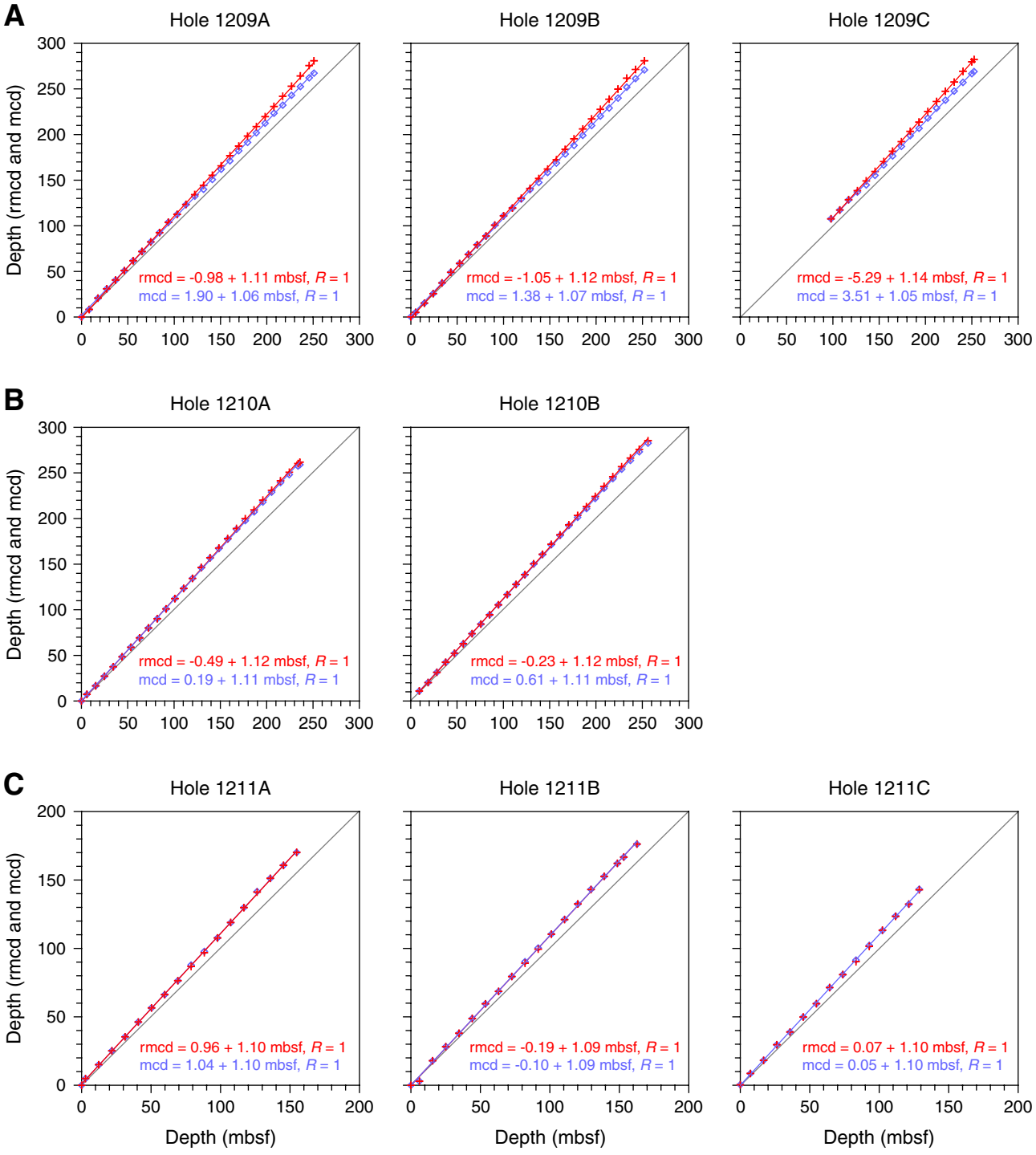


Figure F7. Site 1209 magnetic susceptibility data for 200–220 rmcd. Holes 1209A, 1209B, and 1209C are offset from the 1209 splice by a constant (10×10^{-5}, 20×10^{-5}, and 30×10^{-5}, respectively). **A.** Adjusted cores. **B.** Correlation of Holes 1209A, 1209B, and 1209C to the revised splice. The detailed correlation of sections outside the new spliced records allows samples already taken to be placed into the new revised composite depth scale. PETM = Paleocene/Eocene Thermal Maximum.

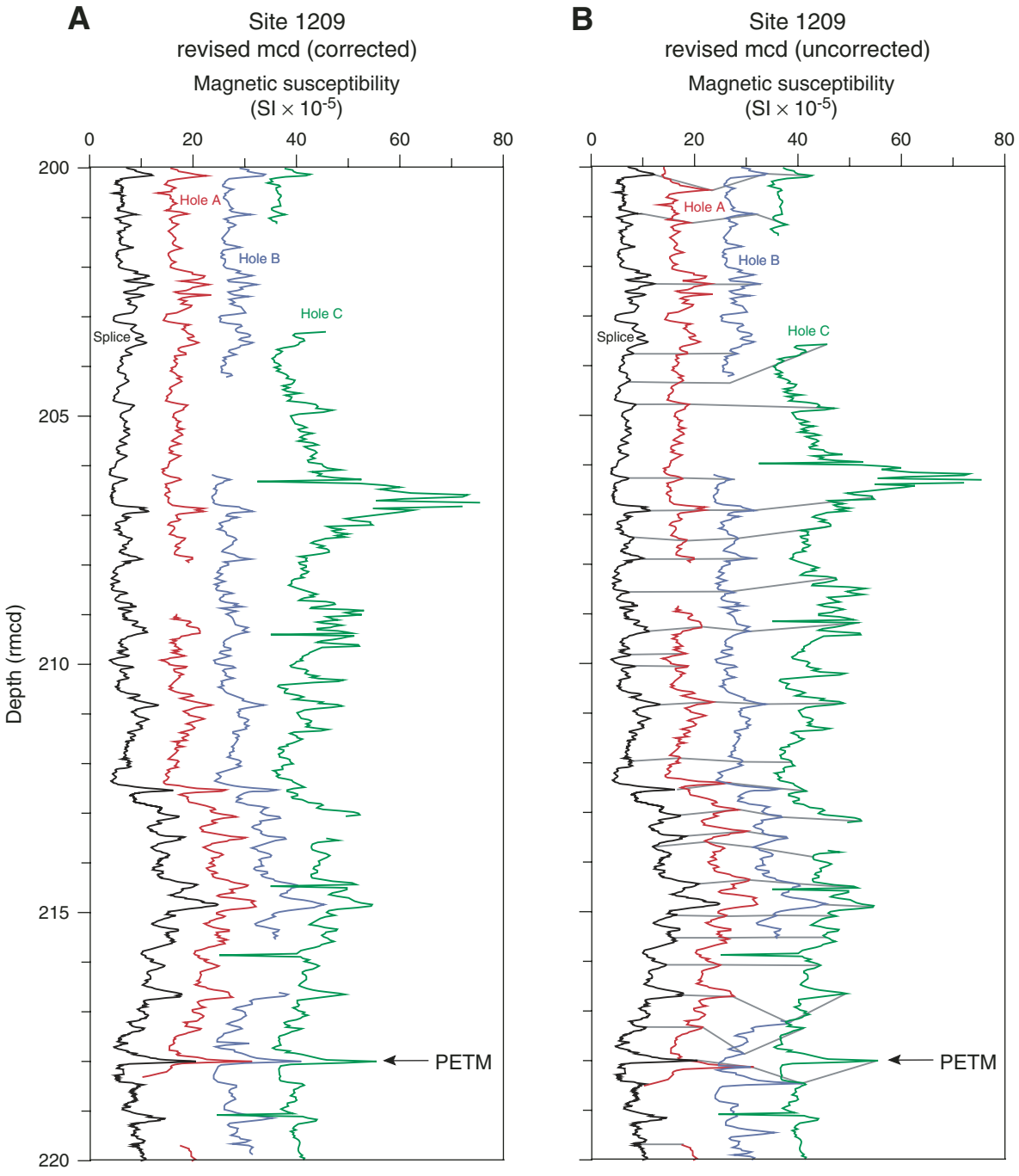


Figure F8. Site 1210 magnetic susceptibility data for 195–215 (**A**) revised meters composite depth and (**B**) meters composite depth. Holes 1210A and 1210B are offset from the Site 1210 splice by a constant (10×10^{-5} and 20×10^{-5}, respectively). The shaded area highlights differences in the splice. This interval includes the Paleocene/Eocene boundary (Paleocene/Eocene Thermal Maximum [PETM]).

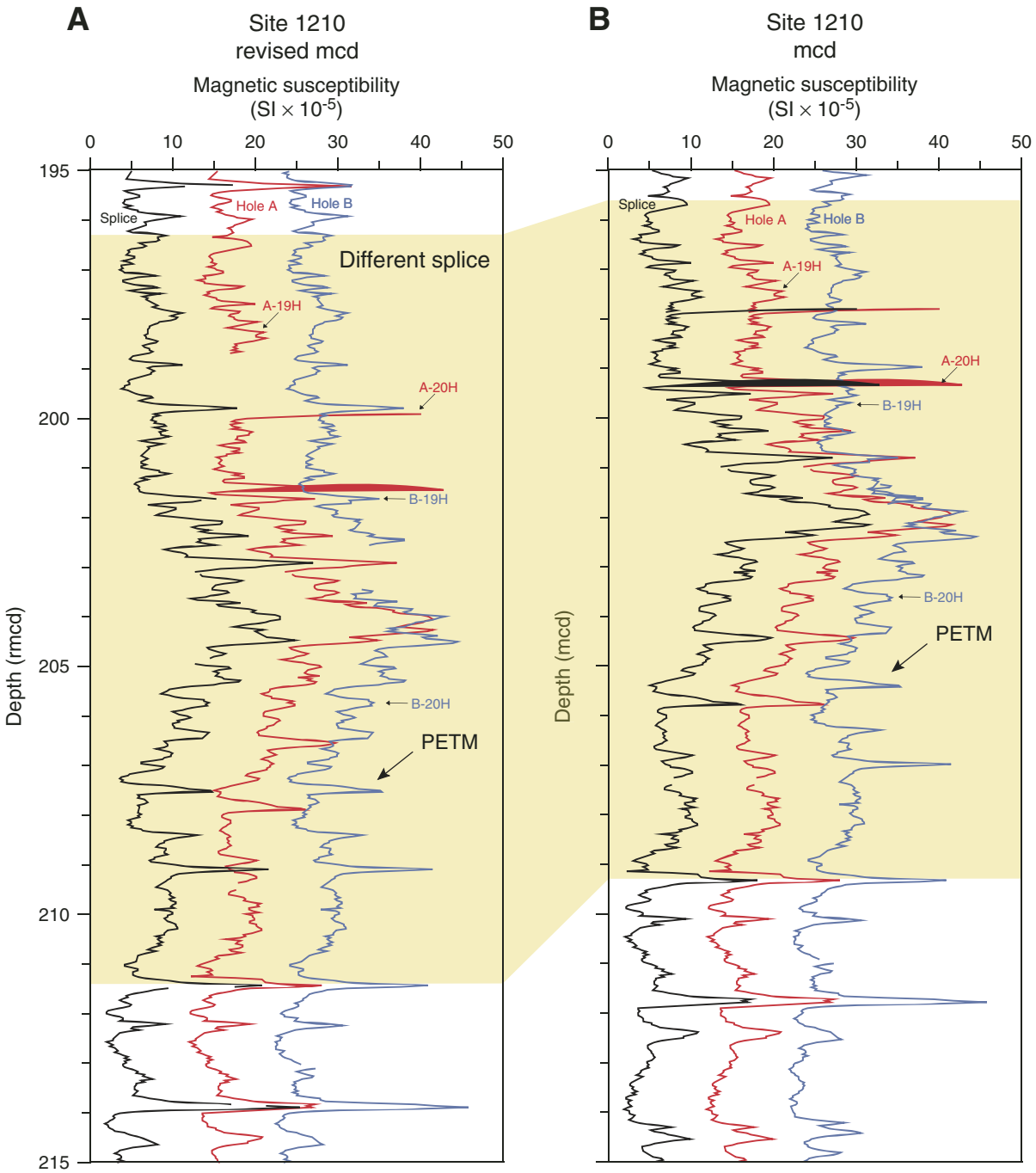


Figure F9. Site 1211 magnetic susceptibility data for 85–105 (**A**) revised meters composite depth and (**B**) meters composite depth. Holes 1211A, 1211B, and 1211C are offset from the Site 1211 splice by a constant (10×10^{-5}, 20×10^{-5}, and 30×10^{-5}, respectively). The shaded area highlights differences in the splice.

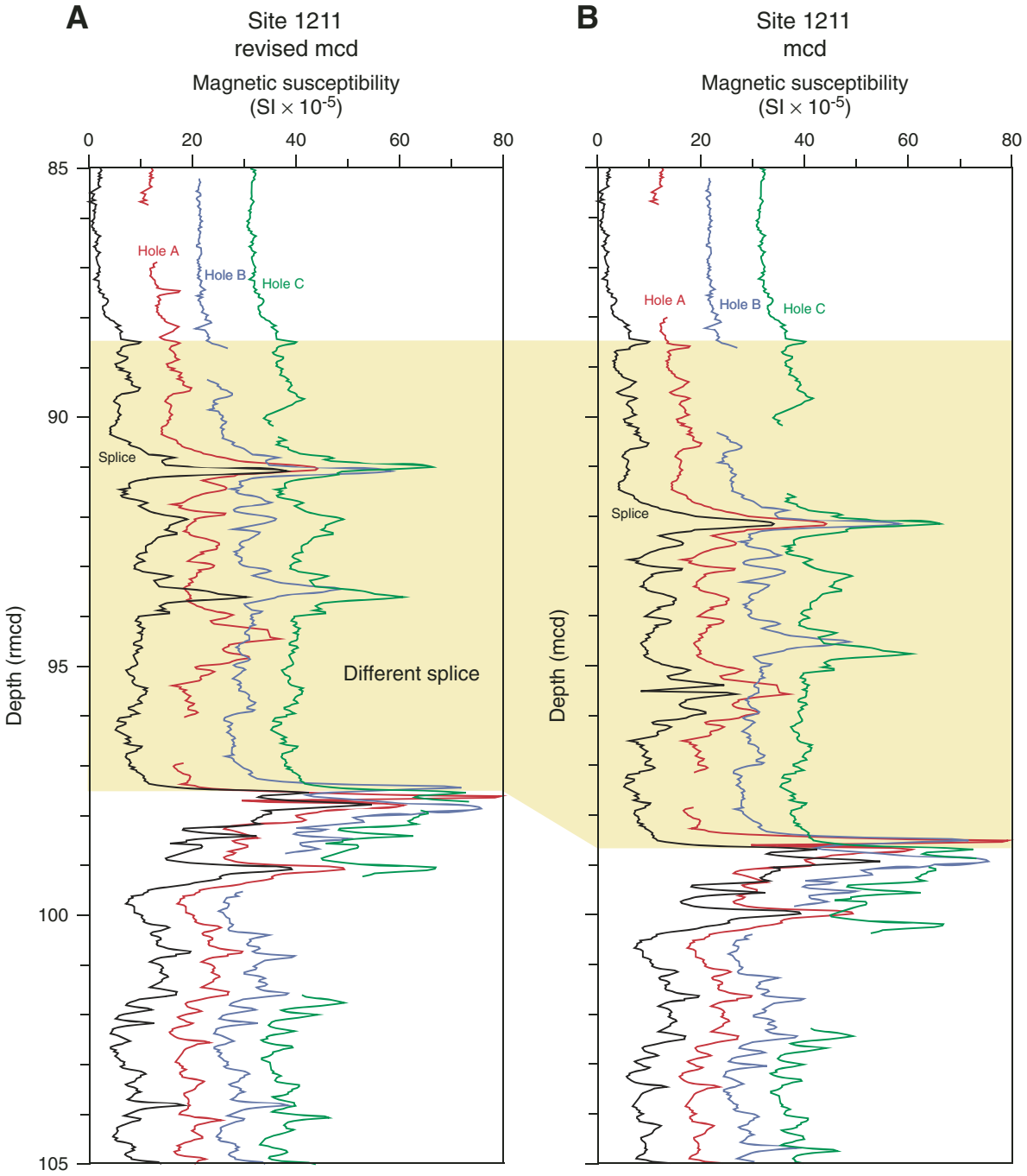


Table T1. Offsets applied to cores from Holes 1209A, 1209B, and 1209C.

Core	Depth (mbsf)	Offset (m)	Revised composite depth (rmcd)	Offset to mcd (m)
198-1209A-				
1H	0.00	0.00	0.00	0.00
2H	8.20	0.08	8.28	0.00
3H	17.70	3.06	20.76	0.00
4H	27.20	3.67	30.87	0.00
5H	36.70	3.86	40.56	0.00
6H	46.20	4.71	50.91	0.00
7H	55.70	6.01	61.71	0.00
8H	65.20	6.59	71.79	0.00
9H	74.70	7.62	82.32	0.00
10H	84.20	8.29	92.49	0.00
11H	93.70	10.18	103.88	0.00
12H	103.20	9.36	112.56	0.00
13H	112.70	10.73	123.43	0.31
14H	122.20	12.00	134.20	1.81
15H	131.70	12.66	144.36	4.35
16H	141.20	14.20	155.40	4.63
17H	150.70	15.02	165.72	3.78
18H	160.20	16.60	176.80	5.62
19H	169.70	17.70	187.40	5.17
20H	179.20	19.16	198.36	7.01
21H	188.70	20.10	208.80	6.89
22H	198.20	21.44	219.64	7.24
23H	207.70	23.08	230.78	7.43
24H	217.20	24.78	241.98	9.75
25H	226.70	26.28	252.98	10.00
26H	236.20	28.04	264.24	11.59
27X	245.70	29.93	275.63	13.48
28X	250.90	29.93	280.83	13.48
198-1209B-				
1H	0.00	0.12	0.12	0.00
2H	5.10	–0.06	5.04	0.00
3H	14.60	0.61	15.21	0.00
4H	24.10	1.49	25.59	0.00
5H	33.60	3.72	37.32	0.00
6H	43.10	5.92	49.02	0.00
7H	52.60	6.11	58.71	0.00
8H	62.10	6.57	68.67	0.00
9H	71.60	7.63	79.23	0.00
10H	81.10	7.73	88.83	0.00
11H	90.60	10.13	100.73	0.00
12H	100.10	10.86	110.96	0.00
13H	109.60	9.86	119.46	0.00
14H	119.10	11.07	130.17	0.81
15H	128.60	12.40	141.00	1.44
16H	138.10	13.77	151.87	4.38
17H	147.60	14.60	162.20	3.77
18H	157.10	15.23	172.33	3.61
19H	166.60	17.20	183.80	5.14
20H	176.10	19.26	195.36	7.31
21H	185.60	20.54	206.14	7.02
22H	195.10	22.04	217.14	7.23
23H	204.60	23.03	227.63	7.37
24H	214.10	24.63	238.73	9.74
25H	223.60	26.23	249.83	9.76
26H	233.10	28.75	261.85	10.01
27H	242.60	28.75	271.35	10.01
28H	252.10	28.75	280.85	10.01
29H	261.60	28.75	290.35	10.01
30H	271.10	28.75	299.85	10.01
31H	280.60	28.75	309.35	10.01
32H	290.10	28.75	318.85	10.01
33H	297.60	28.75	326.35	10.01
198-1209C-				
1H	98.00	9.66	107.66	0.00
2H	107.50	9.81	117.31	0.00
3H	117.00	11.65	128.65	0.31
4H	126.50	11.97	138.47	1.52
5H	136.00	13.20	149.20	4.44
6H	145.50	14.03	159.53	4.30
7H	155.00	15.40	170.40	3.78
8H	164.50	17.25	181.75	5.13
9H	174.00	18.19	192.19	5.13
10H	183.50	20.01	203.51	4.72
11H	193.00	20.71	213.71	6.80
12H	202.50	22.79	225.29	7.22
13H	212.00	24.26	236.26	7.42
14H	221.50	25.90	247.40	9.74
15H	231.00	26.62	257.62	9.99
16H	240.50	28.78	269.28	12.15
17H	250.00	29.76	279.76	13.13
18H	252.50	29.76	282.26	13.13
19H	262.00	29.76	291.76	13.13
20H	268.40	29.76	298.16	13.13
21H	277.90	29.76	307.66	13.13
22H	287.40	29.76	317.16	13.13
23X	299.70	29.76	329.46	13.13

Table T2. Tie points used to create the revised composite depth section, Site 1209.

Core, section, interval (cm)	Depth (mbsf)	Depth (rmcd)		Core, section, interval (cm)	Depth (mbsf)	Depth (rmcd)
198-				198-		
1209B-1H-2, 144	2.94	3.06	Tie to	1209A-1H-3, 6	3.06	3.06
1209A-1H-6, 6	7.06	7.06	Tie to	1209B-2H-2, 51	7.12	7.06
1209B-2H-7, 45	14.55	14.49	Tie to	1209A-2H-5, 21	14.41	14.49
1209A-2H-6, 75	16.45	16.53	Tie to	1209B-3H-1, 132	15.92	16.53
1209B-3H-7, 6	23.66	24.27	Tie to	1209A-3H-3, 51	21.21	24.27
1209A-3H-6, 108	26.28	29.34	Tie to	1209B-4H-3, 75	27.85	29.34
1209B-4H-6, 87	32.47	33.96	Tie to	1209A-4H-3, 9	30.29	33.96
1209A-4H-6, 24	34.94	38.61	Tie to	1209B-5H-1, 129	34.89	38.61
1209B-5H-5, 96	40.56	44.28	Tie to	1209A-5H-3, 72	40.42	44.28
1209A-5H-6, 117	45.37	49.23	Tie to	1209B-6H-1, 21	43.31	49.23
1209B-6H-6, 60	51.20	57.12	Tie to	1209A-6H-5, 21	52.41	57.12
1209A-6H-7, 42	55.62	60.33	Tie to	1209B-7H-2, 12	54.22	60.33
1209B-7H-5, 114	59.74	65.85	Tie to	1209A-7H-3, 114	59.84	65.85
1209A-7H-6, 105	64.25	70.26	Tie to	1209B-8H-2, 9	63.69	70.26
1209B-8H-7, 48	71.58	78.15	Tie to	1209A-8H-5, 36	71.56	78.15
1209A-8H-6, 141	74.11	80.70	Tie to	1209B-9H-1, 147	73.07	80.70
1209B-9H-7, 27	80.87	88.50	Tie to	1209A-9H-5, 18	80.88	88.50
1209A-9H-7, 36	84.06	91.68	Tie to	1209B-10H-2, 135	83.95	91.68
1209B-10H-6, 111	89.71	97.44	Tie to	1209A-10H-4, 45	89.15	97.44
1209A-10H-7, 60	93.80	102.09	Tie to	1209B-11H-1, 135	91.96	102.09
1209B-11H-5, 48	97.08	107.21	Tie to	1209A-11H-3, 33	97.03	107.21
1209A-11H-6, 90	102.10	112.28	Tie to	1209B-12H-1, 132	101.42	112.28
1209B-12H-5, 135	107.45	118.31	Tie to	1209C-2H-1, 99	108.50	118.31
1209C-2H-6, 96	**115.96**	**125.77**	Tie to	**1209A-13H-2, 84**	**115.04**	**125.77**
1209A-13H-5, 30	119.00	**129.73**	Tie to	1209C-3H-1, 108	118.08	**129.73**
1209C-3H-6, 107	**125.57**	**137.22**	Tie to	**1209A-14H-3, 2**	**125.55**	**137.22**
1209A-14H-4, 140	**128.10**	**140.10**	Tie to	**1209C-4H-2, 13**	**128.11**	**140.10**
1209C-4H-3, 108	**130.58**	**142.55**	Tie to	**1209B-15H-2, 5**	**130.15**	**142.55**
1209B-15H-4, 27	**133.37**	**145.77**	Tie to	**1209A-15H-1, 141**	**133.11**	**145.77**
1209A-15H-6, 75	139.95	152.61	Tie to	**1209B-16H-1, 74**	**138.84**	**152.61**
1209B-16H-3, 97	**142.07**	**155.84**	Tie to	**1209A-16H-1, 44**	**141.64**	**155.84**
1209A-16H-5, 112	**147.61**	**161.81**	Tie to	**1209C-6H-2, 78**	**147.78**	**161.81**
1209C-6H-3, 54	**149.04**	**163.07**	Tie to	**1209B-17H-1, 87**	**148.47**	**163.07**
1209B-17H-3, 109	**151.69**	**166.29**	Tie to	**1209A-17H-1, 57**	**151.27**	**166.29**
1209A-17H-6, 72	**158.52**	**173.94**	Tie to	**1209B-18H-2, 11**	**158.71**	**173.94**
1209B-18H-5, 15	163.25	178.48	Tie to	**1209A-18H-2, 18**	**161.88**	**178.48**
1209A-18H-4, 111	**165.81**	**182.41**	Tie to	**1209C-8H-1, 66**	**165.16**	**182.41**
1209C-8H-2, 141	**167.41**	**184.66**	Tie to	**1209B-19H-1, 86**	**167.46**	**184.66**
1209B-19H-5, 18	172.78	189.98	Tie to	**1209A-19H-2, 108**	**172.28**	**189.98**
1209A-19H-7, 39	**178.59**	**196.29**	Tie to	**1209B-20H-1, 93**	**177.03**	**196.29**
1209B-20H-5, 99	**183.09**	**202.35**	Tie to	**1209A-20H-3, 99**	**183.19**	**202.35**
1209A-20H-6, 94	**187.64**	**206.80**	Tie to	**1209B-21H-1, 66**	**186.26**	**206.80**
1209B-21H-6, 141	**194.51**	**215.05**	Tie to	**1209A-21H-5, 25**	**194.95**	**215.05**
1209A-21H-5, 135	**196.05**	**216.15**	Tie to	**1209C-11H-2, 94**	**195.44**	**216.15**
1209C-11H-6, 13	**200.63**	**221.34**	Tie to	**1209A-22H-2, 20**	**199.90**	**221.34**
1209A-22H-5, 144	**205.64**	**227.08**	Tie to	**1209C-12H-2, 29**	**204.29**	**227.08**
1209C-12H-5, 120	**209.70**	**232.49**	Tie to	**1209B-23H-4, 36**	**209.46**	**232.49**
1209B-23H-7, 15	**213.75**	**236.78**	Tie to	**1209C-13H-1, 52**	**212.52**	**236.78**
1209C-13H-5, 76	**218.76**	**243.02**	Tie to	**1209B-24H-3, 129**	**218.39**	**243.02**
1209B-24H-5, 79	**220.89**	**245.52**	Tie to	**1209A-24H-3, 54**	**220.74**	**245.52**
1209A-24H-6, 54	**225.24**	**250.02**	Tie to	**1209C-14H-2, 112**	**224.12**	**250.02**
1209C-14H-3, 105	**225.55**	**251.45**	Tie to	**1209B-25H-2, 12**	**225.22**	**251.45**
1209B-25H-6, 69	**231.79**	**258.02**	Tie to	**1209A-25H-4, 54**	**231.74**	**258.02**
1209A-25H-6, 86	**235.06**	**261.34**	Tie to	**1209C-15H-3, 72**	**234.72**	**261.34**
1209C-15H-6, 48	**238.48**	**265.10**	Tie to	**1209A-26H-1, 86**	**237.06**	**265.11**
1209A-26H-7, 63	**245.83**	**273.87**		End of splice		

Note: Bold indicates changes to ship mcd.

Table T3. Mapping pairs for adjusting cores to the rmcd splice, Site 1209. (See table notes. Continued on next page.)

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
198-1209A-				
14H	122.25	134.25	134.25	Corr
	125.22	137.22	137.22	Splice
	128.10	140.10	140.10	Splice
	130.48	142.48	142.129	Corr
15H	131.76	144.42	144.57	Corr
	133.11	145.77	145.77	Splice
	139.95	152.61	152.61	Splice
	140.44	153.10	153.13	Corr
	140.89	153.55	153.55	Corr
16H	141.26	155.46	155.46	Corr
	141.64	155.84	155.84	Splice
	147.61	161.81	161.81	Splice
	149.08	163.277	163.06	Corr
17H	150.76	165.78	165.78	Corr
	151.27	166.29	166.29	Splice
	158.92	173.94	173.94	Splice
	159.64	174.66	174.61	Corr
	160.24	175.26	175.12	Corr
18H	160.32	176.92	176.77	Corr
	161.25	177.85	177.85	Corr
	161.88	178.48	178.48	Splice
	165.81	182.41	182.41	Splice
	167.89	184.49	184.03	Corr
	168.22	184.82	184.39	Corr
	168.70	185.30	184.82	Corr
19H	170.03	187.73	187.67	Corr
	170.33	188.03	187.97	Corr
	171.56	189.26	189.08	Corr
	172.28	189.98	189.98	Splice
	178.59	196.29	196.29	Splice
	178.80	196.50	196.50	Corr
20H	179.32	198.48	198.21	Corr
	179.74	198.90	198.63	Corr
	180.13	199.29	198.99	Corr
	181.30	200.46	200.16	Corr
	183.19	202.35	202.35	Corr
	184.57	203.73	203.73	Corr
	185.62	204.78	204.78	Corr
	187.12	206.28	206.28	Corr
	187.75	206.91	206.92	Corr
	188.35	207.51	207.46	Corr
	188.74	207.90	207.88	Corr
21H	189.15	209.25	209.35	Corr
	189.70	209.80	209.83	Corr
	189.98	210.075	210.07	Corr
	190.68	210.775	210.82	Corr
	191.80	211.90	211.96	Corr
	192.30	212.40	212.53	Corr
	193.28	213.375	213.49	Corr
	194.25	214.35	214.45	Corr
	194.95	215.05	215.05	Splice
	196.05	216.15	216.15	Splice
	197.23	217.325	217.34	Corr
	198.03	218.125	218.00	Corr
22H	198.26	219.70	219.70	Corr
	199.90	221.34	221.34	Splice
	205.64	227.08	227.08	Splice
	206.12	227.56	227.48	Corr
23H	207.79	230.87	230.09	Corr
	208.90	231.98	231.35	Corr
	209.89	232.97	232.58	Corr
	211.15	234.23	233.99	Corr
	211.48	234.56	234.41	Corr
	211.72	234.80	234.71	Corr
	213.37	236.45	236.48	Corr
	214.26	237.29	237.31	Corr
	215.74	238.82	238.78	Corr
	216.43	239.51	239.38	Corr
	217.30	240.38	240.07	Corr
24H	218.64	243.42	243.14	Corr
	219.15	243.93	243.71	Corr
	220.74	245.52	245.52	Splice
	225.24	250.02	250.02	Splice
	226.74	251.52	251.33	Corr
25H	227.05	253.33	253.10	Corr
	227.73	254.005	253.73	Corr
	228.53	254.805	254.57	Corr
	230.65	256.93	256.88	Corr
	231.74	258.02	258.02	Splice
	235.06	261.34	261.34	Splice
	236.48	262.755	262.755	Corr
26H	236.47	264.51	264.44	Corr
	237.07	265.11	265.11	Splice
	245.83	273.87	273.87	Splice
198-1209B-				
14H	119.16	130.23	129.73	Corr
	122.04	133.11	133.09	Corr
	125.28	136.35	136.30	Corr
	128.58	139.65	139.70	Corr
15H	128.66	141.06	141.06	Corr
	130.15	142.55	142.55	Splice
	133.37	145.77	145.77	Splice
	134.24	146.64	146.55	Corr
	134.66	147.06	146.85	Corr
	136.37	148.77	148.41	Corr
	137.88	150.28	149.79	Corr
16H	138.22	151.99	151.99	Corr
	138.84	152.61	152.61	Splice
	142.07	155.84	155.84	Splice
	146.08	159.85	159.565	Corr
	146.90	160.67	160.415	Corr
17H	147.81	162.41	162.2	Corr
	148.47	163.07	163.07	Splice
	151.69	166.29	166.29	Splice
	153.00	167.60	167.61	Corr
	154.89	169.49	169.35	Corr
	156.81	171.41	171.24	Corr
18H	157.34	172.57	172.62	Corr
	157.52	172.75	172.86	Corr
	157.70	172.93	173.04	Corr
	158.00	173.23	173.28	Corr
	158.71	173.94	173.94	Splice
	163.25	178.48	178.48	Splice
	165.71	180.94	180.76	Corr
19H	166.96	184.16	184.03	Corr
	167.46	184.66	184.66	Splice
	172.78	189.98	189.98	Splice
	175.76	192.96	192.8	Corr
20H	176.16	195.42	195.26	Corr
	177.03	196.29	196.29	Splice
	183.09	202.35	202.35	Splice
	184.26	203.52	203.52	Corr
	184.95	204.21	204.21	Corr
21H	185.75	206.29	206.28	Corr
	186.26	206.80	206.80	Splice
	194.51	215.05	215.05	Splice
	194.99	215.53	215.53	Corr
22H	195.19	217.23	216.65	Corr
	196.42	218.46	218.00	Corr
	200.08	222.12	222.22	Corr
	201.94	223.98	224.02	Corr
	204.52	226.56	226.56	Corr

Table T3 (continued).

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
23H	204.78	227.81	227.45	Corr
	207.39	230.42	230.12	Corr
	208.23	231.26	231.05	Corr
	209.46	232.49	232.49	Splice
	213.75	236.78	236.78	Splice
	214.14	237.17	237.17	Corr
24H	214.43	239.06	239.14	Corr
	216.02	240.65	240.52	Corr
	218.39	243.02	243.02	Splice
	220.89	245.52	245.52	Splice
	222.62	247.25	247.23	Corr
	223.61	248.24	248.10	Corr
25H	223.9	250.13	250.10	Corr
	224.02	250.25	250.25	Corr
	225.22	251.45	251.45	Splice
	231.79	258.02	258.02	Splice
	233.29	259.52	259.33	Corr
198-1209C-				
3H	117.06	128.71	128.58	Corr
	118.08	129.73	129.73	Splice
	125.57	137.22	137.22	Splice
	125.88	137.53	137.53	Corr
4H	127.474	139.444	139.36	Corr
	128.13	140.10	140.10	Splice
	130.58	142.55	142.55	Splice
	131.81	143.78	143.67	Corr
	132.02	143.99	143.91	Corr
	133.34	145.31	145.05	Corr
	135.43	147.40	146.85	Corr
5H	136.782	149.982	149.43	Corr
	137.364	150.564	150.11	Corr
	137.785	150.985	150.51	Corr
	138.327	151.527	151.07	Corr
	138.688	151.888	151.61	Corr
	139.51	152.71	152.74	Corr
	140.02	153.22	153.13	Corr
	143.14	156.34	155.88	Corr
	145.48	158.68	158.015	Corr
6H	145.71	159.74	159.49	Corr
	146.58	160.61	160.44	Corr
	147.78	161.81	161.81	Splice
	149.04	163.07	163.07	Splice
	150.57	164.6	164.45	Corr
	152.81	166.84	166.38	Corr
	153.59	167.62	167.13	Corr
	154.13	168.16	167.61	Corr
7H	155.21	170.61	170.64	Corr
	155.72	171.12	171.27	Corr
	156.86	172.26	172.26	Corr
	157.79	173.19	173.04	Corr
	158.54	173.94	173.94	Corr
	159.2	174.60	174.52	Corr
	160.22	175.62	175.75	Corr
	161.18	176.58	176.56	Corr
	162.44	177.84	177.85	Corr
	163.19	178.59	178.54	Corr
8H	164.65	181.90	181.75	Corr
	165.16	182.41	182.41	Splice
	167.41	184.66	184.66	Splice
	169.51	186.76	186.89	Corr
	170.41	187.66	187.67	Corr
	171.94	189.19	189.08	Corr
	172.66	189.91	189.92	Corr
	173.02	190.27	190.28	Corr
9H	174.12	192.31	192.14	Corr
	174.66	192.85	192.65	Corr
	176.34	194.53	194.57	Corr
	177.90	196.09	196.38	Corr
	180.78	198.97	198.99	Corr
	181.98	200.17	200.13	Corr
	182.97	201.16	200.94	Corr
10H	183.54	203.55	203.28	Corr
	184.30	204.31	204.18	Corr
	184.85	204.86	204.87	Corr
	186.60	206.61	206.86	Corr
	188.30	208.31	208.57	Corr
	189.12	209.13	209.26	Corr
	190.79	210.80	210.82	Corr
	193.16	213.17	213.1	Corr
11H	193.21	213.92	213.70	Corr
	193.66	214.37	214.27	Corr
	194.17	214.88	214.84	Corr
	195.44	216.15	216.15	Splice
	200.63	221.34	221.34	Splice
	202.84	223.55	223.55	Corr
12H	202.56	225.35	225.35	Corr
	204.29	227.08	227.08	Splice
	209.70	232.49	232.49	Splice
	210.21	233.00	232.94	Corr
	211.60	234.39	234.26	Corr
13H	212.06	236.32	236.18	Corr
	212.52	236.78	236.78	Splice
	218.76	243.02	243.02	Splice
	221.78	246.04	246.04	Corr
14H	221.56	247.46	247.26	Corr
	222.46	248.36	248.16	Corr
	224.12	250.02	250.02	Splice
	225.55	251.45	251.45	Splice
	226.72	252.62	252.56	Corr
	227.35	253.25	253.13	Corr
	227.98	253.88	253.73	Corr
	228.76	254.66	254.57	Corr
	230.05	255.95	255.89	Corr
	231.04	256.94	256.97	Corr
15H	231.39	258.01	258.02	Corr
	232.17	258.79	258.805	Corr
	233.58	260.20	260.105	Corr
	234.72	261.34	261.34	Splice
	238.49	265.11	265.11	Splice
	240.67	267.29	267.29	Corr

Notes: Splice = splice tie point. Corr = correlated using AnalySeries.

Table T4. Offsets applied to cores, Holes 1210A and 1210B.

Core	Depth (mbsf)	Offset (m)	Revised composite depth (rmcd)	Offset to mcd (m)
198-1210A-				
1H	0.00	0.00	0.00	0.00
2H	5.90	1.51	7.41	0.00
3H	15.40	1.19	16.59	0.00
4H	24.90	2.28	27.18	0.00
5H	34.40	3.10	37.50	0.00
6H	43.90	4.52	48.42	0.00
7H	53.40	5.55	58.95	0.00
8H	62.90	6.29	69.19	0.00
9H	72.40	7.65	80.05	0.00
10H	81.90	8.26	90.16	0.00
11H	91.40	9.56	100.96	0.00
12H	100.90	11.34	112.24	0.00
13H	110.40	13.00	123.40	0.00
14H	119.90	14.48	134.38	0.00
15H	129.40	16.97	146.11	0.26
16H	138.90	18.12	156.76	0.26
17H	148.40	19.27	167.05	0.62
18H	157.90	20.15	177.43	0.62
19H	167.40	21.71	188.29	0.82
20H	176.90	22.95	197.74	2.11
21H	186.40	23.05	207.34	2.11
22H	195.90	24.29	218.08	2.11
23H	205.40	25.59	228.88	2.11
24H	214.90	26.47	239.35	2.02
25H	224.40	26.40	248.11	2.69
26H	233.90	26.40	257.61	2.69
27H	235.90	25.91	259.12	2.69
198-1210B-				
1H	0.00	–0.18	–0.18	0.00
2H	9.20	1.75	10.95	0.00
3H	18.70	1.49	20.19	0.00
4H	28.20	3.24	31.44	0.00
5H	37.70	4.78	42.48	0.00
6H	47.20	5.12	52.32	0.00
7H	56.70	6.03	62.73	0.00
8H	66.20	7.58	73.78	0.00
9H	75.70	8.61	84.31	0.00
10H	85.20	9.25	94.45	0.00
11H	94.70	10.70	105.40	0.00
12H	104.20	12.51	116.71	0.00
13H	113.70	14.11	127.81	0.00
14H	123.20	15.40	138.34	0.26
15H	132.70	17.75	150.19	0.26
16H	142.20	18.63	160.57	0.26
17H	151.70	20.11	171.19	0.62
18H	161.20	20.96	181.54	0.62
19H	170.70	22.46	192.34	0.82
20H	180.20	23.19	201.28	2.11
21H	189.70	23.35	210.94	2.11
22H	199.20	24.98	222.07	2.11
23H	208.70	26.49	233.08	2.11
24H	218.20	27.65	243.76	2.09
25H	227.70	29.13	254.14	2.69
26H	237.20	29.13	263.64	2.69
27H	246.70	29.13	273.14	2.69
28H	256.20	29.13	282.64	2.69
29H	265.70	29.13	292.14	2.69
30H	269.90	29.13	296.34	2.69
31H	278.90	29.13	305.34	2.69
32H	288.40	29.13	314.84	2.69
33H	292.90	29.13	319.34	2.69
34H	301.30	29.13	327.74	2.69
35H	309.60	29.13	336.04	2.69
36H	318.60	29.13	345.04	2.69
37H	326.20	29.13	352.64	2.69
38H	331.20	29.13	357.64	2.69
39H	339.00	29.13	365.44	2.69
40H	348.50	29.13	374.94	2.69
41H	358.00	29.13	384.44	2.69
42H	367.50	29.13	393.94	2.69

Table T5. Tie points used to create the revised composite depth section, Site 1210.

Core, section, interval (cm)	Depth (mbsf)	Depth (rmcd)		Core, section, interval (cm)	Depth (mbsf)	Depth (rmcd)
198-				198-		
1210A-1H-2, 60	2.10	2.10	Tie to	1210B-1H-2, 78	2.28	2.10
1210B-1H-6, 108	8.58	8.40	Tie to	1210A-2H-1, 99	6.89	8.40
1210A-2H-4, 60	11.00	12.51	Tie to	1210B-2H-2, 6	10.76	12.51
1210B-2H-5, 96	16.16	17.91	Tie to	1210A-3H-1, 132	16.72	17.91
1210A-3H-5, 33	21.73	22.92	Tie to	1210B-3H-2, 123	21.43	22.92
1210B-3H-6, 27	26.47	27.96	Tie to	1210A-4H-1, 78	25.68	27.96
1210A-4H-4, 108	30.48	32.76	Tie to	1210B-4H-1, 132	29.52	32.76
1210B-4H-5, 108	35.28	38.52	Tie to	1210A-5H-1, 102	35.42	38.52
1210A-5H-6, 96	42.86	45.96	Tie to	1210B-5H-3, 48	41.18	45.96
1210B-5H-7, 30	47.00	51.78	Tie to	1210A-6H-3, 36	47.26	51.78
1210A-6H-7, 12	53.02	57.54	Tie to	1210B-6H-4, 72	52.42	57.54
1210B-6H-7, 21	56.41	61.53	Tie to	1210A-7H-2, 108	55.98	61.53
1210A-7H-5, 120	60.60	66.15	Tie to	1210B-7H-3, 46.5	60.12	66.15
1210B-7H-6, 36	64.51	70.54	Tie to	1210A-8H-1, 135	64.25	70.54
1210A-8H-5, 6 6	8.96	75.25	Tie to	1210B-8H-1, 147	67.67	75.25
1210B-8H-5, 117	73.37	80.95	Tie to	1210A-9H-1, 90	73.30	80.95
1210A-9H-4, 21	77.11	84.76	Tie to	1210B-9H-1, 45	76.15	84.76
1210B-9H-7, 51	85.21	93.82	Tie to	1210A-10H-3, 66	85.56	93.82
1210A-10H-6, 141	90.81	99.07	Tie to	1210B-10H-4, 12	89.82	99.07
1210B-10H-6, 96	93.66	102.91	Tie to	1210A-11H-2, 45	93.35	102.91
1210A-11H-6, 102	99.92	109.48	Tie to	1210B-11H-3, 108	98.78	109.48
1210B-11H-6, 48	102.68	113.38	Tie to	1210A-12H-1, 114	102.04	113.38
1210A-12H-7, 42	110.32	121.66	Tie to	1210B-12H-4, 45	109.15	121.66
1210B-12H-6, 81	112.51	125.02	Tie to	1210A-13H-2, 12	112.02	125.02
1210A-13H-4, 87	115.77	128.77	Tie to	1210B-13H-1, 96	114.66	128.77
1210B-13H-7, 51	123.21	137.32	Tie to	1210A-14H-2, 144	122.84	137.32
1210A-14H-6, 57	127.97	142.45	Tie to	1210B-14H-3, **85**	**127.05**	142.45
1210B-14H-6, 84	131.54	**146.94**	Tie to	1210A-15H-1, 57	129.97	**146.94**
1210A-15H-5, 18	135.58	**152.55**	Tie to	1210B-15H-2, 60	134.80	**152.55**
1210B-15H-5, 114	139.84	**157.59**	Tie to	1210A-16H-1, 57	139.47	**157.59**
1210A-16H-4, 24	143.64	**161.76**	Tie to	1210B-16H-1, 93	143.13	**161.76**
1210B-16H-7, 15	**151.35**	**169.98**	Tie to	**1210A-17H-2, 81**	**150.71**	**169.98**
1210A-17H-5, 48	154.88	**174.15**	Tie to	1210B-17H-2, 84	154.04	**174.15**
1210B-17H-6, 135	160.55	**180.66**	Tie to	**1210A-18H-2, 111**	160.51	**180.66**
1210A-18H-5, 93	164.83	**184.98**	Tie to	1210B-18H-2, 132	164.02	**184.98**
1210B-18H-6, 120	**169.90**	**190.86**	Tie to	**1210A-19H-2, 25**	**169.15**	**190.86**
1210A-19H-5, 21	173.61	**195.32**	Tie to	1210B-19H-2, 66	172.86	**195.32**
1210B-19H-6, 96	179.16	**201.62**	Tie to	**1210A-20H-2, 27**	**178.67**	**201.62**
1210A-20H-4, 48	**181.88**	**204.83**	Tie to	**1210B-20H-1, 144**	**181.64**	**204.83**
1210B-20H-6, 60	188.30	**211.49**	Tie to	1210A-21H-2, 54	188.44	**211.49**
1210A-21H-3, 138	190.78	**213.83**	Tie to	1210B-21H-1, 78	190.48	**213.83**
1210B-21H-6, 144	**198.64**	**221.99**	Tie to	**1210A-22H-2, 30**	**197.70**	**221.99**
1210A-22H-4, 141	**201.81**	**226.10**	Tie to	**1210B-22H-2, 42**	**201.12**	**226.10**
1210B-22H-6, 36	207.06	**232.04**	Tie to	1210A-23H-1, 105	206.45	**232.04**
1210A-23H-7, 18	214.58	**240.17**	Tie to	1210B-23H-4, **48**	213.68	**240.17**
1210B-23H-6, 96	**217.16**	**243.65**	Tie to	**1210A-24H-2, 78**	**217.18**	**243.65**
1210A-24H-5, 64	**221.54**	**248.01**	Tie to	**1210B-24H-2, 66**	**220.36**	**248.01**
1210B-24H-5, 28	**224.47**	**252.13**	Tie to	**1210A-25H-1, 133**	**225.73**	**252.13**
1210A-25H-7, 57	233.97	**260.37**				

Note: Bold indicates changes to ship mcd.

Table T6. Mapping pairs for adjusting cores to the rmcd splice, Site 1210. (**See table notes.** Continued on next page.)

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
198-1210A-				
14H	119.96	134.44	134.44	Corr
	122.84	137.32	137.32	Splice
	127.97	142.45	142.45	Splice
	128.06	142.54	142.54	Corr
15H	129.46	146.43	146.43	Corr
	129.97	146.94	146.94	Splice
	135.58	152.55	152.55	Splice
	136.15	153.12	153.06	Corr
	137.20	154.17	153.93	Corr
	138.34	155.31	154.89	Corr
16H	138.96	157.08	157.08	Corr
	139.47	157.59	157.59	Splice
	143.64	161.76	161.76	Splice
	145.32	163.44	163.44	Corr
	146.04	164.16	164.04	Corr
	146.88	165.00	164.73	Corr
	147.09	165.21	164.94	Corr
	147.57	165.69	165.39	Corr
	148.14	166.26	165.99	Corr
17H	148.55	167.82	167.46	Corr
	148.79	168.06	167.70	Corr
	149.15	168.42	168.18	Corr
	149.99	169.26	169.08	Corr
	150.60	169.87	169.77	Corr
	150.71	169.98	169.98	Splice
	154.88	174.15	174.15	Splice
	155.78	175.05	175.02	Corr
	157.04	176.31	176.25	Corr
	157.61	176.88	176.76	Corr
18H	158.11	178.26	177.99	Corr
	159.97	180.12	180.00	Corr
	160.51	180.66	180.66	Splice
	164.83	184.98	184.98	Splice
	165.79	185.94	185.82	Corr
	166.66	186.81	186.57	Corr
	167.11	187.26	186.96	Corr
19H	167.85	189.56	189.33	Corr
	168.57	190.28	190.17	Corr
	169.15	190.86	190.86	Splice
	173.61	195.32	195.32	Splice
	173.91	195.62	195.53	Corr
	174.27	195.98	195.89	Corr
	175.62	197.33	197.09	Corr
	175.98	197.69	197.36	Corr
	176.55	198.26	197.87	Corr
20H	176.96	199.91	199.79	Corr
	177.14	200.09	199.94	Corr
	177.59	200.54	200.45	Corr
	178.19	201.14	201.08	Corr
	178.67	201.62	201.62	Splice
	181.88	204.83	204.83	Splice
	182.60	205.55	205.55	Corr
	183.92	206.87	206.66	Corr
	184.25	207.20	206.96	Corr
	184.94	207.89	207.53	Corr
	185.96	208.91	208.40	Corr
21H	186.55	209.60	209.45	Corr
	187.27	210.32	210.26	Corr
	187.72	210.77	210.74	Corr
	188.44	211.49	211.49	Splice
	190.78	213.83	213.83	Splice
	191.56	214.61	214.64	Corr
	193.36	216.41	216.32	Corr
	193.99	217.04	216.92	Corr
	195.70	218.75	218.84	Corr
22H	196.47	220.76	220.49	Corr
	197.16	221.45	221.24	Corr
	197.61	221.90	221.84	Corr
	197.70	221.99	221.99	Splice
	201.81	226.10	226.10	Splice
	203.52	227.81	227.66	Corr
	205.44	229.73	229.37	Corr
23H	205.46	231.05	231.05	Corr
	206.45	232.04	232.04	Splice
	214.58	240.17	240.17	Splice
	214.82	240.41	240.47	Corr
24H	215.29	241.76	241.82	Corr
	216.79	243.26	243.26	Corr
	217.18	243.65	243.65	Splice
	221.54	248.01	248.01	Splice
	221.98	248.45	248.43	Corr
198-1210B-				
14H	123.86	139.26	139.06	Corr
	124.20	139.60	139.40	Corr
	126.10	141.50	141.42	Corr
	127.05	142.45	142.45	Splice
	131.54	146.94	146.94	Splice
	132.89	148.29	148.29	Corr
15H	132.76	150.51	150.51	Corr
	134.80	152.55	152.55	Splice
	139.84	157.59	157.59	Splice
	141.85	159.60	159.36	Corr
16H	142.59	161.22	161.16	Corr
	143.13	161.76	161.76	Splice
	151.35	169.98	169.98	Splice
	151.71	170.34	170.34	Corr
17H	152.00	172.11	171.84	Corr
	152.24	172.35	172.05	Corr
	152.72	172.83	172.56	Corr
	152.99	173.10	172.89	Corr
	153.53	173.64	173.58	Corr
	154.04	174.15	174.15	Splice
	160.55	180.66	180.66	Splice
	160.82	180.93	180.87	Corr
18H	161.47	182.43	182.22	Corr
	162.01	182.97	182.79	Corr
	162.28	183.24	183.09	Corr
	162.79	183.75	183.69	Corr
	163.06	184.02	183.96	Corr
	163.24	184.20	184.17	Corr
	163.57	184.53	184.50	Corr
	164.02	184.98	184.98	Splice
	169.90	190.86	190.86	Splice
	170.59	191.55	191.39	Corr
19H	170.94	193.40	193.34	Corr
	172.86	195.32	195.32	Splice
	179.16	201.62	201.62	Splice
	180.00	202.46	202.37	Corr
20H	180.50	203.69	203.72	Corr
	181.64	204.83	204.83	Splice
	188.30	211.49	211.49	Splice
	189.05	212.24	212.21	Corr
21H	189.91	213.26	213.32	Corr
	190.48	213.83	213.83	Splice
	198.64	221.99	221.99	Splice
	199.03	222.38	222.38	Corr
22H	199.26	224.24	224.24	Corr
	199.86	224.84	224.84	Corr
	201.12	226.10	226.10	Splice
	207.06	232.04	232.04	Splice
	208.74	233.72	233.60	Corr

Table T6 (continued).

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
23H	208.76	235.25	235.25	Corr
	209.45	235.94	236.03	Corr
	210.29	236.78	236.78	Corr
	210.50	236.99	236.93	Corr
	211.46	237.95	237.95	Corr
	211.88	238.37	238.34	Corr
	212.51	239.00	239.03	Corr
	212.75	239.24	239.21	Corr
	213.68	240.17	240.17	Splice
	217.16	243.65	243.65	Splice
	218.45	244.94	244.94	Corr
24H	218.26	245.91	245.91	Corr
	220.36	248.01	248.01	Splice
	225.34	252.99	252.99	Splice
	227.92	255.57	255.59	Corr

Notes: Splice = splice tie point. Corr = correlated using AnalySeries.

Table T7. Offsets applied to cores from Holes 1211A, 1211B, and 1211C.

Core	Depth (mbsf)	Offset (m)	Revised composite depth (rmcd)	Offset to mcd (m)
198-1211A-				
1H	0.00	0.00	0.00	0.00
2H	2.80	2.15	4.95	0.00
3H	12.30	2.73	15.03	0.00
4H	21.80	3.40	25.20	0.00
5H	31.30	4.10	35.40	0.00
6H	40.80	5.43	46.23	0.00
7H	50.30	6.25	56.55	0.00
8H	59.80	6.44	66.24	0.00
9H	69.30	7.13	76.43	0.00
10H	78.80	8.03	86.83	–1.12
11H	88.30	8.59	96.89	–0.9
12H	97.80	9.83	107.63	–0.09
13H	107.30	11.66	118.96	0.17
14H	116.80	13.04	129.84	0.04
15H	126.30	14.83	141.13	–0.43
16H	135.80	15.43	151.23	0.07
17H	145.30	15.43	160.73	0.07
18H	154.80	15.43	170.23	0.07
198-1211B-				
1H	0.00	0.00	0.00	0.00
2H	6.10	-3.13	2.97	0.00
3H	15.60	2.31	17.91	0.00
4H	25.10	3.07	28.17	0.00
5H	34.60	3.44	38.04	0.00
6H	44.10	4.68	48.78	0.00
7H	53.60	5.92	59.52	0.00
8H	63.10	5.48	68.58	0.00
9H	72.60	6.86	79.46	0.00
10H	82.10	7.09	89.19	–1.07
11H	91.60	7.87	99.47	–0.87
12H	101.10	9.29	110.39	–0.09
13H	110.60	10.46	121.06	–0.10
14H	120.10	12.44	132.54	0.10
15H	129.60	13.38	142.98	–0.20
16H	139.10	13.57	152.67	0.04
17H	148.60	13.57	162.17	0.04
18H	153.20	13.57	166.77	0.04
19H	162.70	13.57	176.27	0.04
198-1209C-				
1H	0.00	0.36	0.36	0.00
2H	7.30	1.31	8.61	0.00
3H	16.80	1.38	18.18	0.00
4H	26.30	3.31	29.61	0.00
5H	35.80	3.11	38.91	0.00
6H	45.30	4.59	49.89	0.00
7H	54.80	4.81	59.61	0.00
8H	64.30	7.10	71.40	0.00
9H	73.80	7.07	80.87	0.00
10H	83.30	7.04	90.34	–1.15
11H	92.80	8.75	101.55	–0.68
12H	102.30	11.06	113.36	0.30
13H	111.80	11.63	123.43	–0.25
14H	121.30	11.06	132.36	0.10
15H	128.80	14.04	142.84	–0.46

Table T8. Tie points used to create the revised composite depth section, Site 1211.

Core, section, interval (cm)	Depth (mbsf)	Depth (rmcd)		Core, section, interval (cm)	Depth (mbsf)	Depth (rmcd)
198-1211-				198-1211-		
1211B-1H-4, 78	5.28	5.28	Tie to	1211C-1H-4, 42	4.92	5.28
1211C-1H-5, 45	6.45	6.81	Tie to	1211A-2H-2, 36	4.66	6.81
1211A-2H-7, 12	11.92	14.07	Tie to	1211C-2H-4, 96	12.76	14.07
1211C-2H-7, 6	16.36	17.67	Tie to	1211A-3H-2, 114	14.94	17.67
1211A-3H-6, 111	20.91	23.64	Tie to	1211C-3H-4, 96	22.26	23.64
1211C-3H-7, 48	26.28	27.66	Tie to	1211A-4H-2, 96	24.26	27.66
1211A-4H-6, 66	29.96	33.36	Tie to	1211C-4H-3, 75	30.05	33.36
1211C-4H-7, 18	35.48	38.79	Tie to	1211A-5H-3, 39	34.69	38.79
1211A-5H-6, 144	40.24	44.34	Tie to	1211C-5H-4, 93	41.23	44.34
1211C-5H-6, 144	44.74	47.85	Tie to	1211A-6H-2, 12	42.42	47.85
1211A-6H-6, 129	49.59	55.02	Tie to	1211C-6H-4, 63	50.43	55.02
1211C-6H-6, 81	53.61	58.20	Tie to	1211A-7H-2, 15	51.95	58.20
1211A-7H-7, 57	59.72	65.97	Tie to	1211C-7H-5, 36	61.16	65.97
1211C-7H-7, 57	64.37	69.18	Tie to	1211A-8H-2, 144	62.74	69.18
1211A-8H-7, 21	69.01	75.45	Tie to	1211C-8H-3, 105	68.35	75.45
1211C-8H-7, 57	73.12	80.22	Tie to	1211A-9H-3, 78	73.09	80.22
1211A-9H-7, 27	78.57	85.70	Tie to	1211C-9H-4, 33	78.63	85.70
1211C-9H-6, 50	**81.80**	**88.87**	Tie to	**1211A-10H-2, 54**	**80.84**	**88.87**
1211A-10H-3, 61	**82.41**	**90.44**	Tie to	**1211B-10H-1, 125**	**83.35**	**90.44**
1211B-10H-2, 55	**84.15**	**91.24**	Tie to	**1211C-10H-1, 90**	**84.20**	**91.24**
1211C-10H-7, 22	**91.92**	**98.96**	Tie to	**1211A-11H-2, 57**	**90.37**	**98.96**
1211A-11H-4, 24	**93.04**	**101.63**	Tie to	**1211B-11H-2, 66**	**93.76**	**101.63**
1211B-11H-4, 105	**97.15**	**105.02**	Tie to	**1211C-11H-3, 47**	**96.27**	**105.02**
1211C-11H-6, 87	**101.17**	**109.92**	Tie to	**1211A-12H-2, 79**	**100.09**	**109.92**
1211A-12H-4, 21	**102.51**	**112.34**	Tie to	**1211B-12H-2, 45**	**103.05**	**112.34**
1211B-12H-5, 75	**107.85**	**117.14**	Tie to	**1211C-12H-3, 78**	**106.08**	**117.14**
1211C-12H-5, 136	**109.66**	**120.72**	Tie to	**1211A-13H-2, 26**	**109.06**	**120.72**
1211A-13H-6, 63	**115.28**	**126.94**	Tie to	**1211C-13H-3, 51**	**115.31**	**126.94**
1211C-13H-5, 139	**119.19**	**130.82**	Tie to	**1211A-14H-1, 98**	**117.78**	**130.82**
1211A-14H-6, 30	**124.60**	**137.64**	Tie to	**1211B-14H-4, 60**	**125.20**	**137.64**
1211B-14H-7, 24	**129.34**	**141.78**	Tie to	**1211A-15H-1, 65**	**126.95**	**141.78**
1211A-15H-5, 127	**133.57**	**148.40**	Tie to	**1211B-15H-4, 92**	**135.02**	**148.40**
1211B-15H-6, 129	**138.39**	**151.77**	Tie to	**1211A-16H-1, 54**	**136.34**	**151.77**
1211A-16H-7, 48	**145.28**	**160.71**		End of splice		

Note: Bold indicates changes to ship mcd.

Table T9. Mapping pairs for adjusting cores to the rmcd splice, Site 1211.

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
198-1211A-				
10H	79.52	87.55	87.62	Corr
	80.48	88.51	88.49	Corr
	80.84	88.87	88.87	Splice
	82.41	90.44	90.44	Splice
	83	91.03	91.08	Corr
	84.5	92.53	92.08	Corr
	84.95	92.98	92.32	Corr
	85.94	93.97	93.19	Corr
	86.42	94.45	93.61	Corr
	87.81	95.84	94.93	Corr
11H	89.02	97.61	97.54	Corr
	89.53	98.12	98.17	Corr
	90.37	98.96	98.96	Splice
	93.04	101.63	101.63	Splice
	93.61	102.2	102.17	Corr
	95.53	104.12	103.82	Corr
	96.13	104.72	104.24	Corr
	96.76	105.35	104.96	Corr
12H	98.01	107.84	108.15	Corr
	98.25	108.08	108.36	Corr
	99.45	109.28	109.29	Corr
	99.66	109.49	109.5	Corr
	100.09	109.92	109.92	Splice
	102.51	112.34	112.34	Splice
	102.93	112.76	112.76	Corr
	103.53	113.36	113.27	Corr
	104.04	113.87	113.72	Corr
	104.34	114.17	113.96	Corr
	105.54	115.37	115.04	Corr
	105.9	115.73	115.43	Corr
	106.62	116.45	116.27	Corr
	107.34	117.17	117.05	Corr
13H	107.66	119.32	119.45	Corr
	108.44	120.1	120.2	Corr
	109.06	120.72	120.72	Splice
	115.28	126.94	126.94	Splice
	116.81	128.47	128.26	Corr
14H	116.86	129.9	129.82	Corr
	117.78	130.82	130.82	Splice
	124.6	137.64	137.64	Splice
	125.98	139.02	138.78	Corr
	126.19	139.23	138.99	Corr
15H	126.36	141.19	141.15	Corr
	126.95	141.78	141.78	Splice
	133.57	148.4	148.4	Splice
	134.52	149.35	149.49	Corr
16H	135.86	151.29	151.23	Corr
	136.34	151.77	151.77	Splice
	145.28	160.71	160.71	Splice

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
198-1211B-				
10H	82.49	89.58	89.47	Corr
	83.35	90.44	90.44	Splice
	84.15	91.24	91.24	Splice
	86.36	93.45	93.61	Corr
	88.79	95.88	95.95	Corr
	90.35	97.44	97.54	Corr
	90.74	97.83	97.78	Corr
	91.4	98.49	98.41	Corr
11H	92.53	100.4	100.25	Corr
	92.95	100.82	100.73	Corr
	93.76	101.63	101.63	Splice
	97.15	105.02	105.02	Splice
	98.23	106.1	105.9	Corr
	98.77	106.64	106.38	Corr
	99.76	107.63	107.34	Corr
	100.29	108.16	107.76	Corr
	100.59	108.46	108.03	Corr
12H	101.22	110.51	110.48	Corr
	101.61	110.9	110.9	Splice
	103.05	112.34	112.34	Splice
	107.85	117.14	117.14	Corr
	109.11	118.4	118.34	Corr
	109.62	118.91	118.79	Corr
	110.46	119.75	119.75	Corr
13H	110.84	121.3	121.15	Corr
	111.23	121.69	121.48	Corr
	111.89	122.35	122.29	Corr
	112.46	122.92	122.89	Corr*
	113	123.46	123.79	Corr*
	113.81	124.27	124.9	Corr
	116.51	126.97	126.97	Corr
	118.4	128.86	128.74	Corr
	119.06	129.52	129.37	Corr
	120.08	130.54	130.45	Corr
14H	121	133.44	132.78	Corr
	123.22	135.66	135.27	Corr
	124.3	136.74	136.59	Corr
	124.96	137.4	137.43	Corr
	125.2	137.64	137.64	Splice
	129.34	141.78	141.78	Splice
	129.46	141.9	141.94	Corr
15H	129.72	143.1	142.99	Corr
	130.41	143.79	143.59	Corr
	131.52	144.9	144.73	Corr
	132.69	146.07	145.9	Corr
	133.11	146.49	146.38	Corr
	133.8	147.18	147.07	Corr
	135.02	148.4	148.4	Splice
	138.39	151.77	151.77	Splice
	139.23	152.61	152.61	Corr

Core	Depth (mbsf)	Depth (rmcd)	Splice depth (rmcd)	Type
198-1211C-				
10H	83.78	90.82	90.81	Corr
	84.2	91.24	91.24	Splice
	91.92	98.96	98.96	Splice
	92.18	99.22	99.22	Corr
11H	92.89	101.64	101.45	Corr
	93.25	102	101.9	Corr
	93.58	102.33	102.17	Corr
	94.48	103.23	102.98	Corr
	95.32	104.07	103.82	Corr
	96.27	105.02	105.02	Splice
	101.17	109.92	109.92	Splice
	101.59	110.34	110.39	Corr
12H	102.57	113.63	113.27	Corr
	103.35	114.41	113.96	Corr
	104.13	115.19	114.83	Corr
	104.34	115.4	115.04	Corr
	104.82	115.88	115.61	Corr
	105.09	116.15	115.97	Corr
	105.93	116.99	116.99	Corr
	106.08	117.14	117.14	Splice
	109.66	120.72	120.72	Splice
	110.4	121.46	121.48	Corr
	110.92	121.98	122.02	Corr
	111.16	122.22	122.29	Corr
	111.28	122.34	122.47	Corr
13H	111.86	123.49	123.55	Corr
	114.86	126.49	126.46	Corr*
	115.31	126.94	126.94	Corr*
	119.19	130.82	130.82	Splice
	119.87	131.5	131.49	Splice
	121.19	132.82	132.72	Corr
14H	122.05	133.11	132.78	Corr
	122.35	133.41	133.05	Corr
	124.51	135.57	135.27	Corr
	125.41	136.47	136.29	Corr
	126.31	137.37	137.4	Corr
	128.11	139.17	139.02	Corr
	130.12	141.18	140.76	Corr
15H	129.01	143.05	142.99	Corr
	132.94	146.98	147.01	Corr
	134.44	148.48	148.5	Corr
	134.65	148.69	148.74	Corr
	138.43	152.47	152.47	Corr

Notes: Splice = splice tie point. Corr = correlated using AnalySeries. * = difficult to match, core disturbed.