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8. Data Report: Compilation of Total Organic and Inorganic Carbon Data from Peru Margin and Eastern Equatorial Pacific Drill Sites (ODP Legs 112, 138, and 201)[1]

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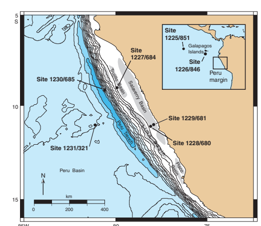
F1. Map of Peru margin and the eastern equatorial Pacific, p. 7.



INTRODUCTION

Organic matter deposited and buried under the seafloor is one of the major carbon sources for microbial life in the deep subsurface of the ocean. In this report, we present a compilation of all available total organic carbon (TOC) and total inorganic carbon (TIC) data for the sites drilled during Ocean Drilling Program (ODP) Leg 201. We include the TOC and TIC data from sites of Deep Sea Drilling (DSDP) Leg 34 and ODP Legs 112 and 138 (Yeats, Hart, et al., 1976; Suess, von Huene, et al., 1988; Mayer, Pisias, Janecek, et al., 1992), which were reoccupied during ODP Leg 201. Additional data from Leg 201 shore-based analyses are also included in the compilation.

STUDIED SITES

Reoccupied Leg 201 drill sites are located in different contrasting geological settings (Fig. F1). Sites 1225/851 and 1226/846 are located in the eastern equatorial Pacific. They show an open-ocean stratigraphic sequence dominated by nannofossil and diatom ooze of the high-productivity south equatorial boundary current (Mayer, Pisias, Janecek, et al., 1992). In contrast, sediments of the Peru margin shelf sites (Sites 1227, 1228, and 1229) show variable contents of siliciclastic material and low

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contents of carbonaceous nannoplankton (Suess, von Huene, et al., 1988). Strong coastal upwelling increases productivity at these sites, and most of these sediments are deposited at low oxygen content. Sediments of the Peru Trench (Site 1230) also show upwelling-related sedimentation with mainly diatom ooze and variable siliciclastic content (Suess, von Huene, et al., 1988). At this site, methanogenic activity is enhanced and gas hydrates were found (D'Hondt, Jørgensen, Miller, et al., 2003). Site 1231 is located in the Peru Basin, far away from high organic matter input, showing low productivity with mixed pelagic sedimentation (Yeats, Hart, et al., 1976).

METHODS

Total organic and inorganic carbon were measured onboard the drill ship and in shore-based laboratories using six different methods. Shipboard coulometry was used for analysis of total carbon (TC) and TIC during Leg 112. For analytical procedures, we refer to the "Explanatory Notes" chapter in the Leg 112 *Initial Reports* volume (Shipboard Scientific Party, 1988) and Emeis et al. (1990). During Legs 138 and 201, a carbon-nitrogen-sulfur elemental analyzer was available for TC measurements (Mayer, Pisias, Janecek, et al., 1992; D'Hondt, Jørgensen, Miller, et al., 2003).

Additional TOC data are available from Rock-Eval pyrolysis, from both shipboard (Suess, von Huene, et al., 1988; Mayer, Pisias, Janecek, et al., 1992; D'Hondt, Jørgensen, Miller, et al., 2003) and Leg 112 shore-based measurements (Emeis et al., 1990; Emeis and Morse, 1990).

A high-resolution profile of carbonate and organic carbon for Leg 112 Site 680 was analyzed on shore by Wefer et al. (1990) using the method of Weliky et al. (1983). Using a combined wet-oxidation acidification method, carbonate and organic carbon were discriminated and CO_2 was analyzed using a thermal conductivity detector.

During Leg 201 shore-based investigation, samples from Sites 1227, 1229, and 1230 were analyzed for $\delta^{13}C$ of TC and weight percent of TC at University of Southern California (Los Angeles, USA) using an Isoprime GV Instruments mass spectrometer interfaced with Carlo Erba 2500 NC elemental analyzer in the continuous flow mode. Precision (2σ) for daily runs for $\delta^{13}C$ is ± 0.1‰ or better, based on internal standards. Precision for TC (weight percent) is 0.1 wt% or better (based on duplicate runs on different days). Weight percent TOC is reported based on the isotopic mass balance, where it was assumed that $\delta^{13}C$ of TOC is –21‰ and $\delta^{13}C$ TIC is 0‰. Mass balance calculations using $\delta^{13}C$ values of –20‰ or –22‰ for organic matter produced variations of estimated TOC content of ±0.15 wt%. Compared to the high variations of ±5 to 10 wt% measured at the Peru margin shelf sites, a possible contribution of terrestrial organic matter would only slightly affect TOC values (< ±1 wt%) calculated by this method.

High-resolution profiles of total organic matter (TOM) in the uppermost 5–10 meters below seafloor (mbsf) at the Peru margin sites were also measured during Leg 201 shore-based investigation at the Department of Environmental Sciences (University of Technology at Sydney, Australia), using the method of Dean (1974). Between 0.4 and 1.2 g of dried sediment was combusted for 1 hr at 550°C in a Moloney furnace. The difference in weight at room temperature before and after the combustion (TOM in weight percent) was converted to TOC using the formula of Redfield et al. (1963) for the average composition of marine organic matter. As mixing with terrestrial organic matter would increase the carbon concentration of the organic matter, using the Redfield ratio gives minimum values for the TOC. But in any case, a contribution of terrestrial material at the Peru margin sites, would not strongly affect TOC compared to the high variations observed at these sites. For measurement of inorganic carbon, the residual TOM sample was combusted for an additional hour at 1000°C.

A few samples from Legs 201 and 112 (including the dolomitic samples; 10 mg each) were analyzed on shore using a UIC, Inc. coulometer system at the Geological Institute, ETH Zurich (Switzerland).

RESULTS AND DISCUSSION

Although the samples were measured using different methods, the overall patterns and the range of values were reproducible (Figs. F2, F3, F4, F5, F6, F7, F8, F9; Tables T1, T2, T3, T4, T5; only new data are listed in the tables). Dolomitic samples typically show a much lower TOC content and do not follow the general trends (Tables T2, T3, T4, T5; not shown in the figures).

Eastern Equatorial Pacific (Sites 1225/851 and 1226/846)

TIC values measured from the eastern equatorial Pacific Sites 1225/851 and 1226/846 vary in major part between 6 and 10 wt%, reflecting the high content of calcareous nannoplankton (Mayer, Pisias, Janecek, et al., 1992) (Figs. F2, F3; Table T1). In contrast, the late Miocene carbonate crisis is well documented by a low TIC content in the diatom-rich zone between 200 and 300 mbsf at Site 1225/851 and at 262.7 and 317 mbsf at Site 1226/846 (Mayer, Pisias, Janecek, et al., 1992). At Site 1226/846, the TIC content is also relatively depleted in upper Pliocene (50–70 mbsf) and upper Pleistocene sediments (uppermost 10 mbsf).

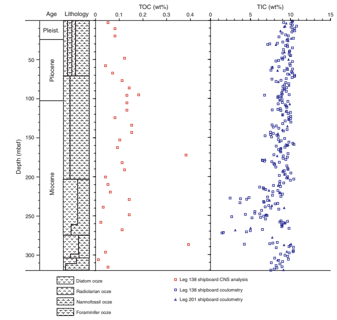
TOC at Site 1225/851 varies between 0 and 0.4 wt% throughout the profile (Fig. F2), whereas at Site 1226/846, the TOC value reaches 1–2 wt% in the diatomaceous zones (Fig. F3; Table T1). The TOC-rich zone at Site 1226/846 between 270 and 315 mbsf correlates with the peak Mn concentration and probably reflects high Mn-reducing microbial activity (D'Hondt, Jørgensen, Miller, et al., 2003).

Peru Shelf and Upper Slope (Sites 1227/684, 1228/680 and 1229/681)

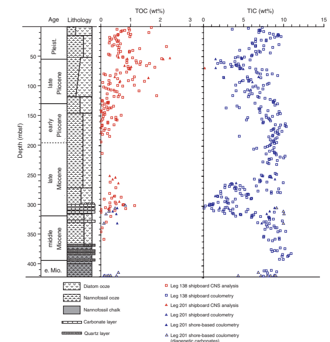
Peru margin sediments generally have a low inorganic carbon content (mostly <2.5 wt%), reflecting the upwelling-related siliceous and siliciclastic delivery (see "Lithostratigraphy" sections in the site chapters in D'Hondt, Jørgensen, Miller, et al., 2003) (Figs. F4, F5, F7; Tables T2, T3, T4). TIC decreases from average distal Site 1227 values of 2 wt% (Fig. F4) to <1 wt% at Site 1229 (Fig. F7), which is located at the center of the upwelling cell (Suess, von Huene, et al., 1988). Zones with ~20 wt% $CaCO_3$ tend to occur in diatomaceous layers at Sites 1227 and 1228, whereas carbonate is almost absent in siliciclastic sediments.

TOC values at Site 1227 vary between 1 and 11 wt% (Fig. F4; Table T2). They decrease from ~6 wt% in the uppermost diatom ooze, which is late Pleistocene in age (Skilbeck and Fink, this volume), to 2 wt% in

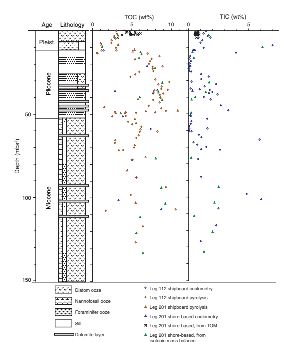
F2. Compiled TOC and TIC, Site 1225/851, p. 8.



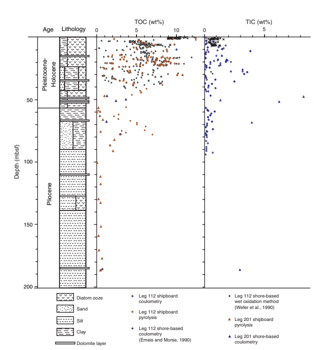
F3. Compiled TOC and TIC, Site 1226/846, p. 9.



F4. Compiled TOC and TIC, Site 1227/684, p. 10.



F5. Compiled TOC and TIC, Site 1228/680, p. 11.



a winnowed coarse foraminiferal sand layer at 12 mbsf. Another low-TOC peak appears at the base of Pliocene siliciclastic sediments, in a winnowed glauconitic sand at 50 mbsf reported in D'Hondt, Jørgensen, Miller, et al. (2003). These two zones of low TOC in the condensed stratigraphic column correlate with high natural gamma radiation (D'Hondt, Jørgensen, Miller, et al., 2003) and are probably horizons of low deposition and erosion. Elevated oxygen indexes at these depths (400 at 12 mbsf and 200 at 50 mbsf; Suess, von Huene, et al., 1988) might be due to degradation of organic matter. Bacterial cell numbers (D'Hondt, Jørgensen, Miller, et al., 2003) match with TOC concentration at this site.

In the uppermost 1.5 mbsf at Site 1228, the highest TOC values, up to 12 wt%, were measured in Holocene siliciclastic sediments (Figs. F5, F6; Table T3). In general, the Pleistocene–Holocene sediments (0–56 mbsf) show 10-m-scale variations from 1 to 8 wt% TOC (Wefer et al., 1990). These variations correlate with variations in diatom content and color reflectance values (D'Hondt, Jørgensen, Miller, et al., 2003) (Fig. F5). They were interpreted by Wefer et al. (1990) as glacial–interglacial cycles. A relative low TOC interval is present at ~60 mbsf and is correlated with the top of Pliocene siliciclastic sediments. Rock-Eval pyrolysis data indicate immature organic matter of marine origin (kerogen type II; Suess, von Huene, et al., 1988). Below 100 mbsf, all TOC values are <1 wt% in the Pliocene siliciclastic sediments.

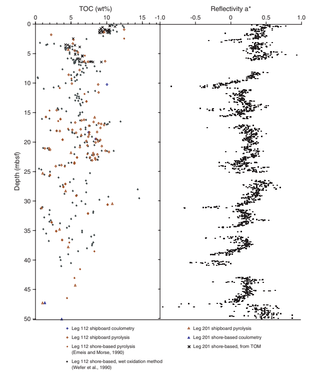
In the Holocene surface sediments of Site 1229, TOC values up to 7 wt% rapidly decrease to 2 wt% at 5 mbsf (Fig. F7; Table T4). Between 10 and 40 mbsf, relatively high TOC values up to 6 wt% were measured. Variations in TOC match the paleobathymetric curve based on a study of benthic foraminifers (Resig, 1990) and can thus be correlated with eustatic sea level variations. Intervals with more siliclastic input generally show increased oxygen indexes (kerogen type III), indicating degradation or a terrigenous origin of the organic matter. A middle Pleistocene siliciclastic zone at 40–100 mbsf is generally low in TOC, except in the interval from 90 to 100 mbsf, where TOC values are >3 wt%. This relatively high TOC layer correlates with the lower boundary of the methanogenic zone, where the highest bacterial cell concentrations up to 10^9 cell/cm^3 were counted (D'Hondt, Jørgensen, Miller, et al., 2003). The occurrence of diagenetic dolomite layers also correlates with TOC (Meister et al., in prep.).

All three Peru shelf sites are characterized by a relatively thick sulfate reduction zone. An S-shaped curve of dissolved sulfate in the pore water at Site 1229 (D'Hondt, Jørgensen, Miller, et al., 2003) is reflected in the TOC profile. This can be explained by the presence of erosion surfaces and noncontinuous sedimentation at the Peru shelf sites (Sites 1227, 1228, and 1229), allowing the pore water sulfate to diffuse deeper into the sediment (see also **Skilbeck and Fink,** this volume; DeVries and Schrader, 1981). The non-steady-state conditions seem to be reflected in the high variation of the TOC values.

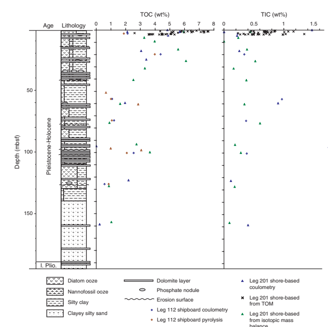
Peru Trench (Site 1230/685)

In general, TIC values are <1 wt% throughout the recovered series drilled at Site 1230 on the lower slope of the Peru margin (Fig. F8; Table T5). TOC values scatter between 2 and 3 wt% in the upper 200 mbsf but decrease to 1–2 wt% below 250 mbsf. The 1- to 2-wt% decrease at 200 mbsf correlates with a decrease in diatom content but is also associated with increased compaction and deformation related to tectonic pro-

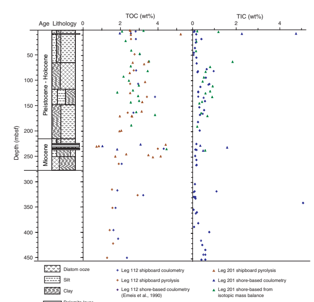
F6. Compiled TOC, Site 1228/680, p. 12.



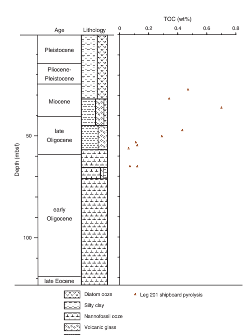
F7. Compiled TOC and TIC, Site 1229/681, p. 13.



F8. Compiled TOC and TIC, Site 1230/685, p. 14.



F9. Compiled TOC, Site 1231/321, p. 15.



cesses in the accretionary prism (Kemp and Lindsley-Griffin, 1990). At 230 and 340 mbsf, peak concentrations of >4 wt% TOC were reached.

Despite the relatively low TOC, sulfate is consumed rapidly in the uppermost 7 mbsf (see D'Hondt, Jørgensen, Miller, et al., 2003). Below, methanogenic activity and gas hydrates are present.

Peru Basin (Site 1231/321)

A few TOC values of ~0.5 wt% were measured in the open Peru Basin during DSDP Leg 34 (Yeats, Hart, et al., 1976). They reflect the relatively low microbial activity found at this site (D'Hondt, Jørgensen, Miller, et al., 2003) within low-productivity open-ocean sediments (Fig. F9). Values decrease to near 0 wt% in the diatom-free nannofossil ooze below 55 mbsf.

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Shipboard Scientific Party, 1988. Explanatory notes: Leg 112. *In* Suess, E., von Huene, R., et al., *Proc. ODP, Init. Repts.,* 112: College Station, TX (Ocean Drilling Program), 25–44.

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Yeats, R.S., Hart, S.R., et al., 1976. *Init. Repts DSDP,* 34: Washington (U.S. Govt. Printing Office).

Figure F1. Map of Peru margin and the eastern equatorial Pacific with the ODP Leg 201 sites and the redrilled sites of ODP Legs 112 and 138 and DSDP Leg 34.

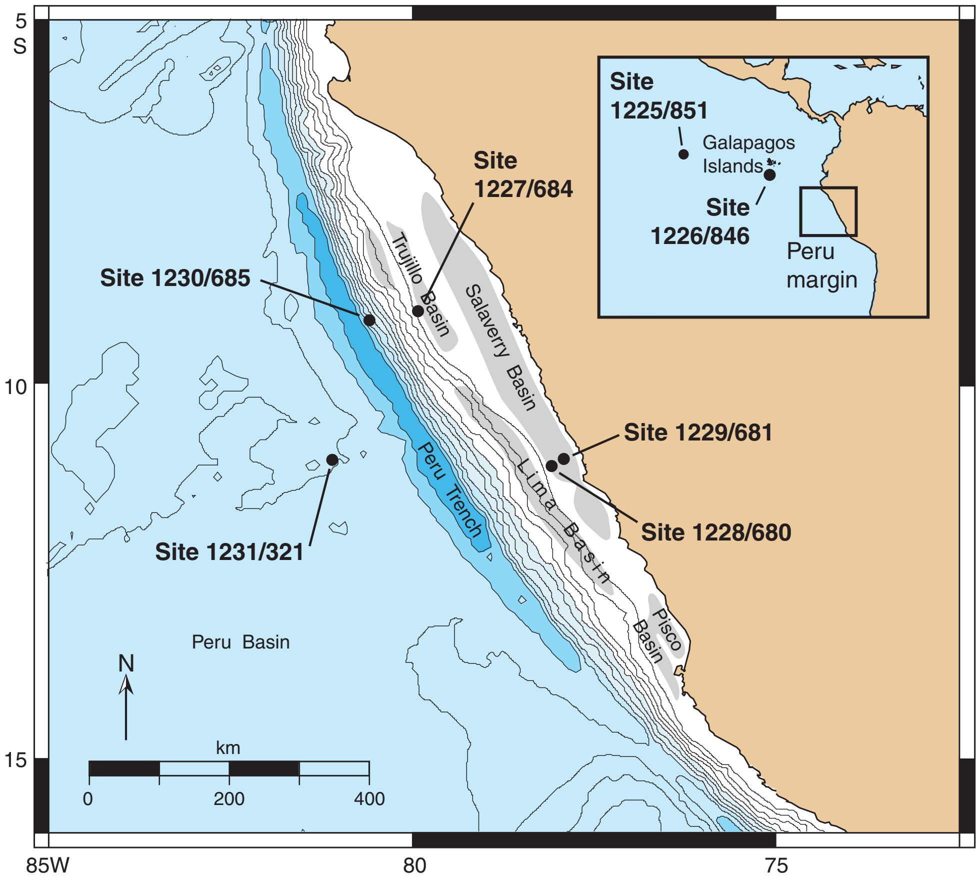

Figure F2. Compiled total organic and inorganic carbon in correlation with lithostratigraphy of Site 1225/851. TOC = total organic carbon, TIC = total inorganic carbon, CNS = carbon-nitrogen-sulfur.

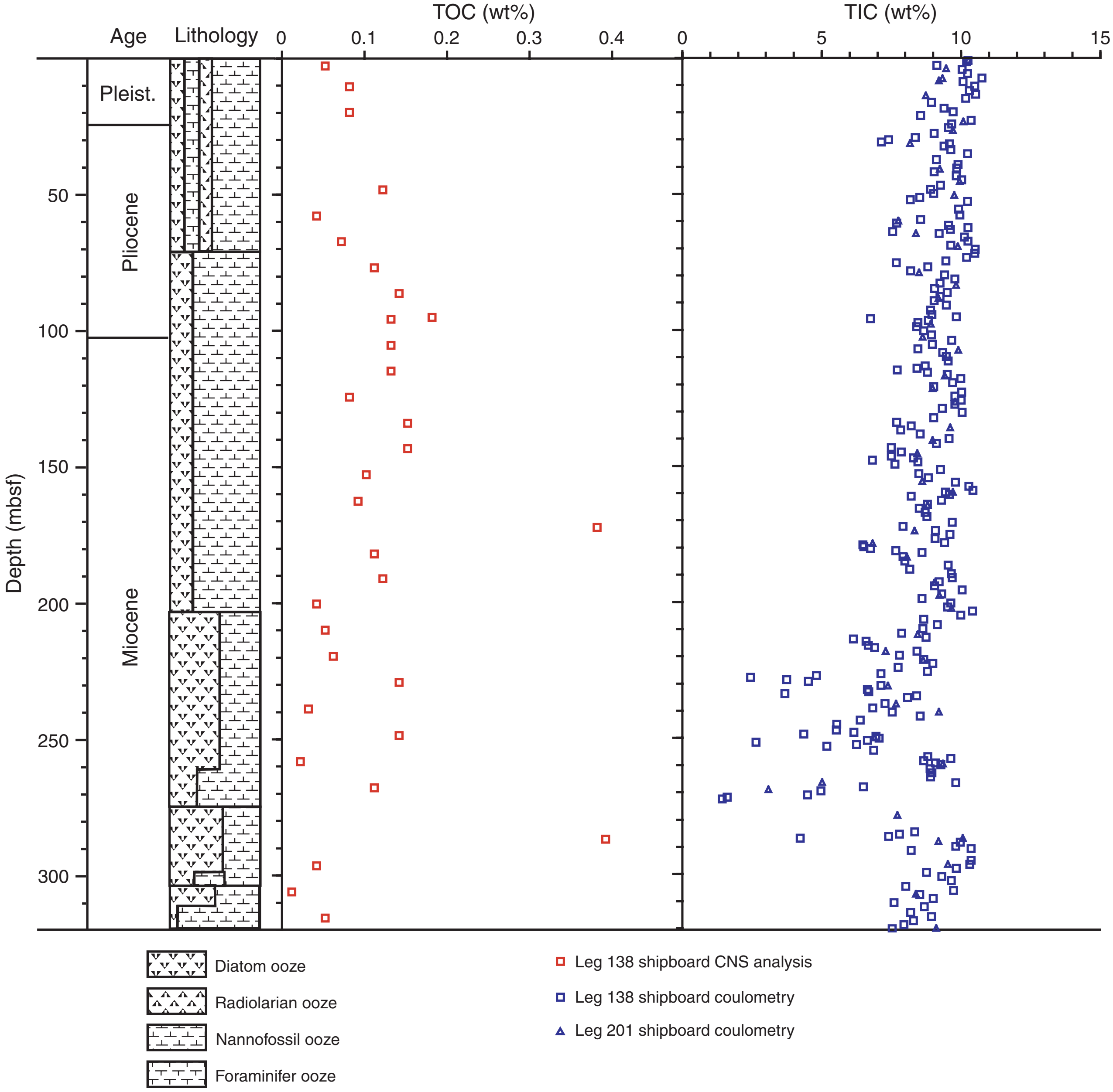

Figure F3. Compiled total organic and inorganic carbon in correlation with lithostratigraphy of Site 1226/846. TOC = total organic carbon, TIC = total inorganic carbon, CNS = carbon-nitrogen-sulfur.

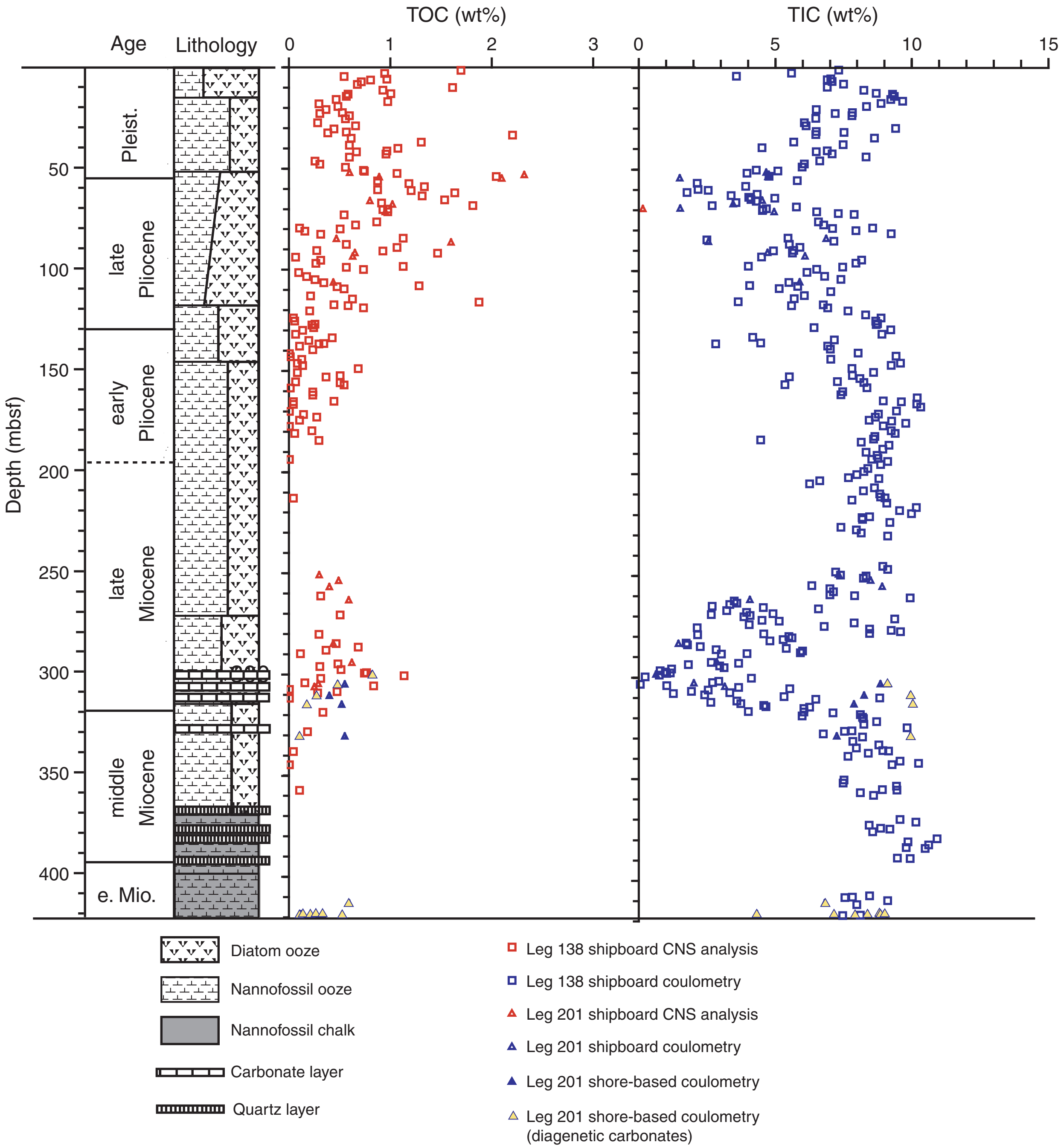

Figure F4. Compiled total organic and inorganic carbon in correlation with lithostratigraphy of Site 1227/684. TOC = total organic carbon, TIC = total inorganic carbon, TOM = total organic matter.

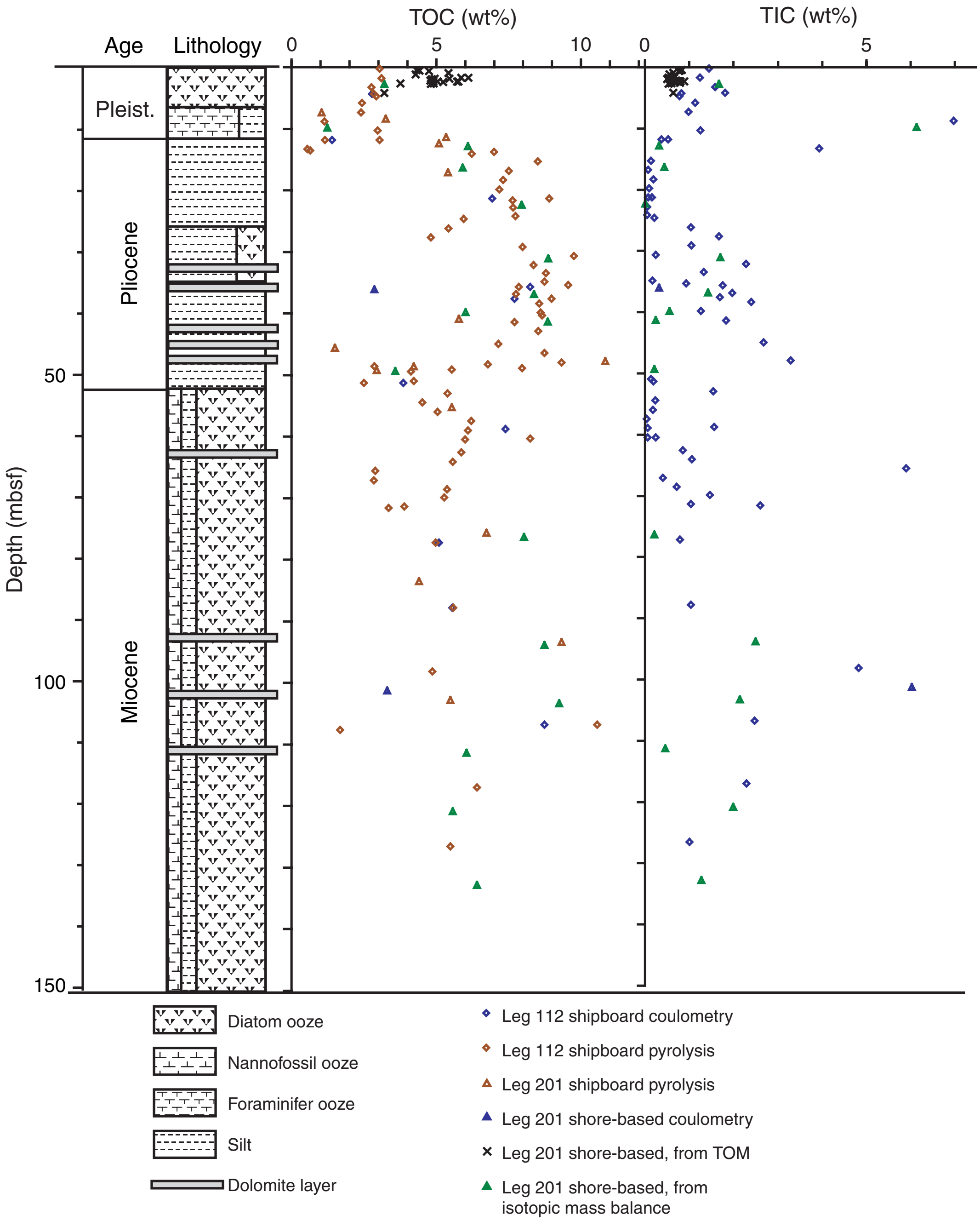

Figure F5. Compiled total organic and inorganic carbon in correlation with lithostratigraphy of Site 1228/680. TOC = total organic carbon, TIC = total inorganic carbon, TOM = total organic matter.

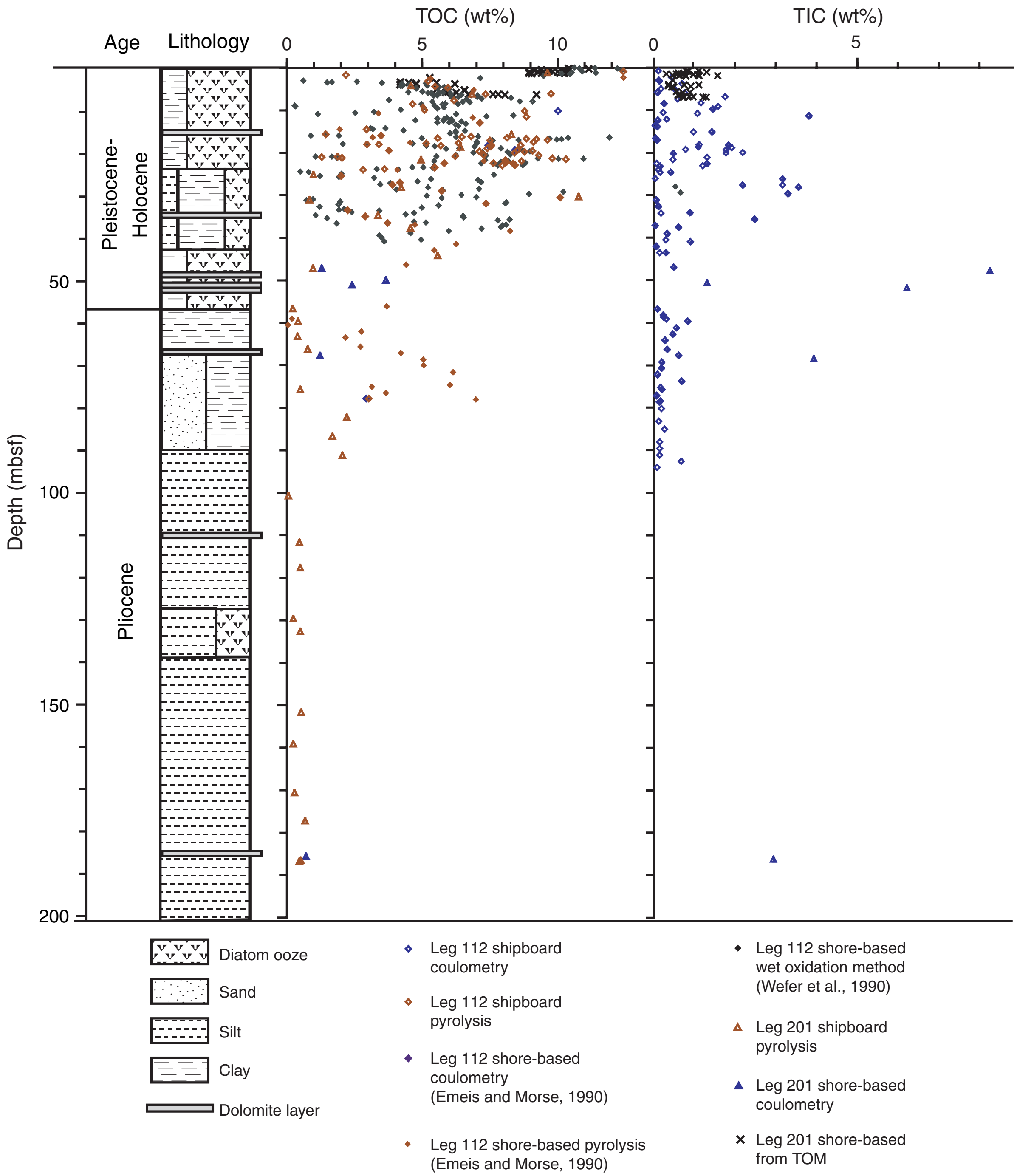

Figure F6. Compiled total organic carbon at Site 1228/680 in correlation with color reflectance value a* (D'Hondt, Jørgensen, Miller, et al., 2003). TOC = total organic carbon, TOM = total organic matter.

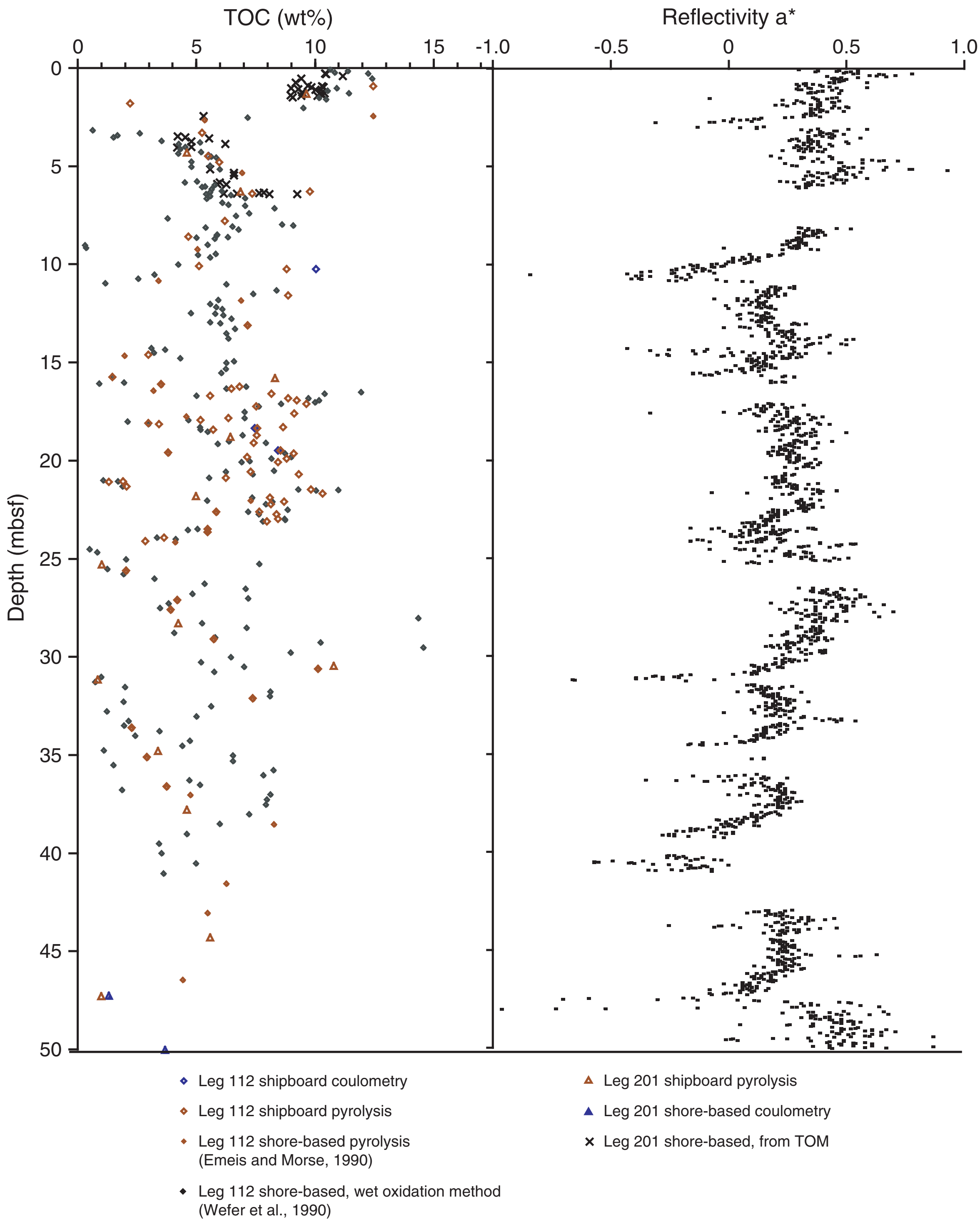

Figure F7. Compiled total organic and inorganic carbon in correlation with lithostratigraphy of Site 1229/681. TOC = total organic carbon, TIC = total inorganic carbon, TOM = total organic matter.

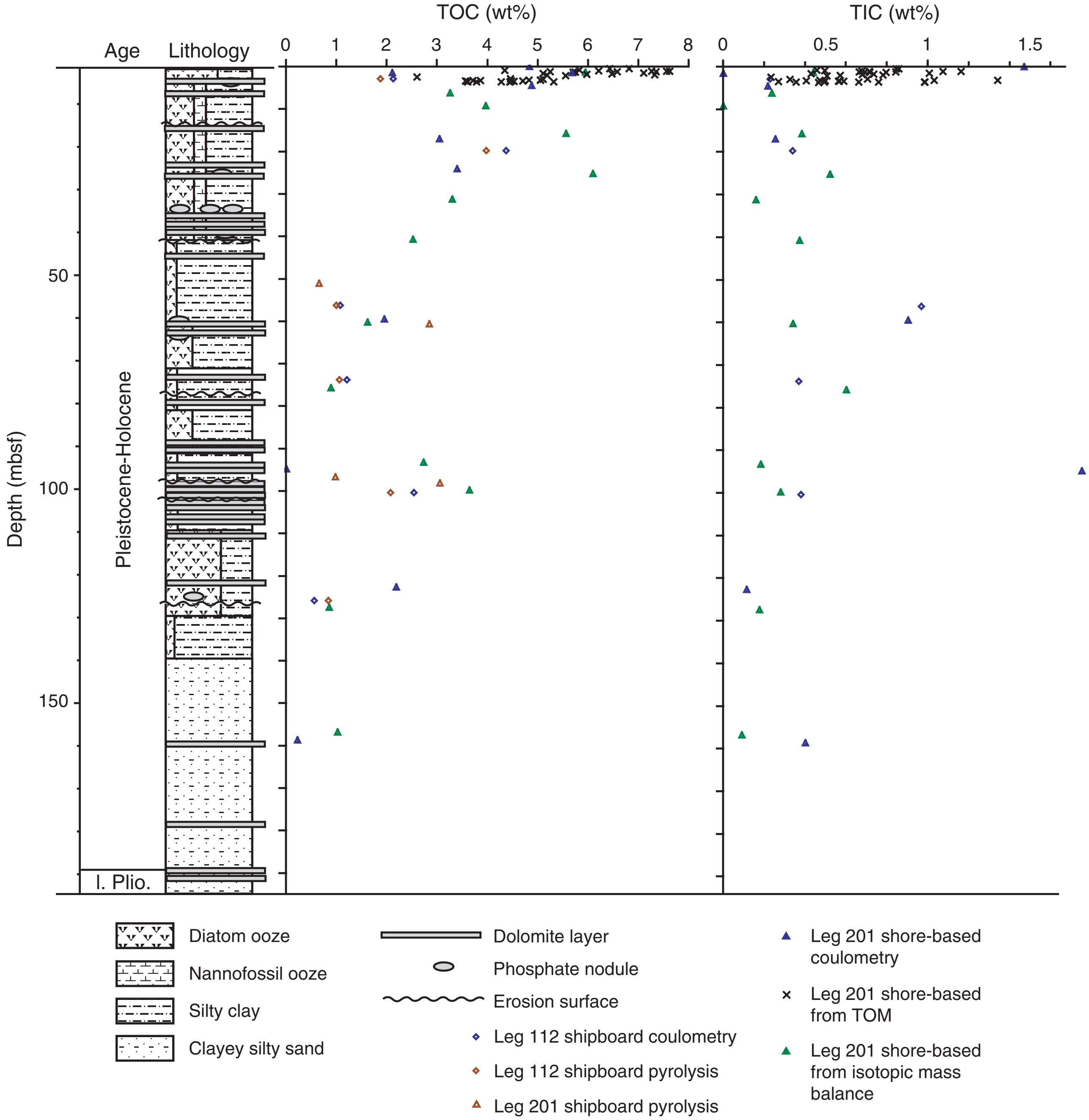

Figure F8. Compiled total organic and inorganic carbon in correlation with lithostratigraphy of Site 1230/685. TOC = total organic carbon, TIC = total inorganic carbon.

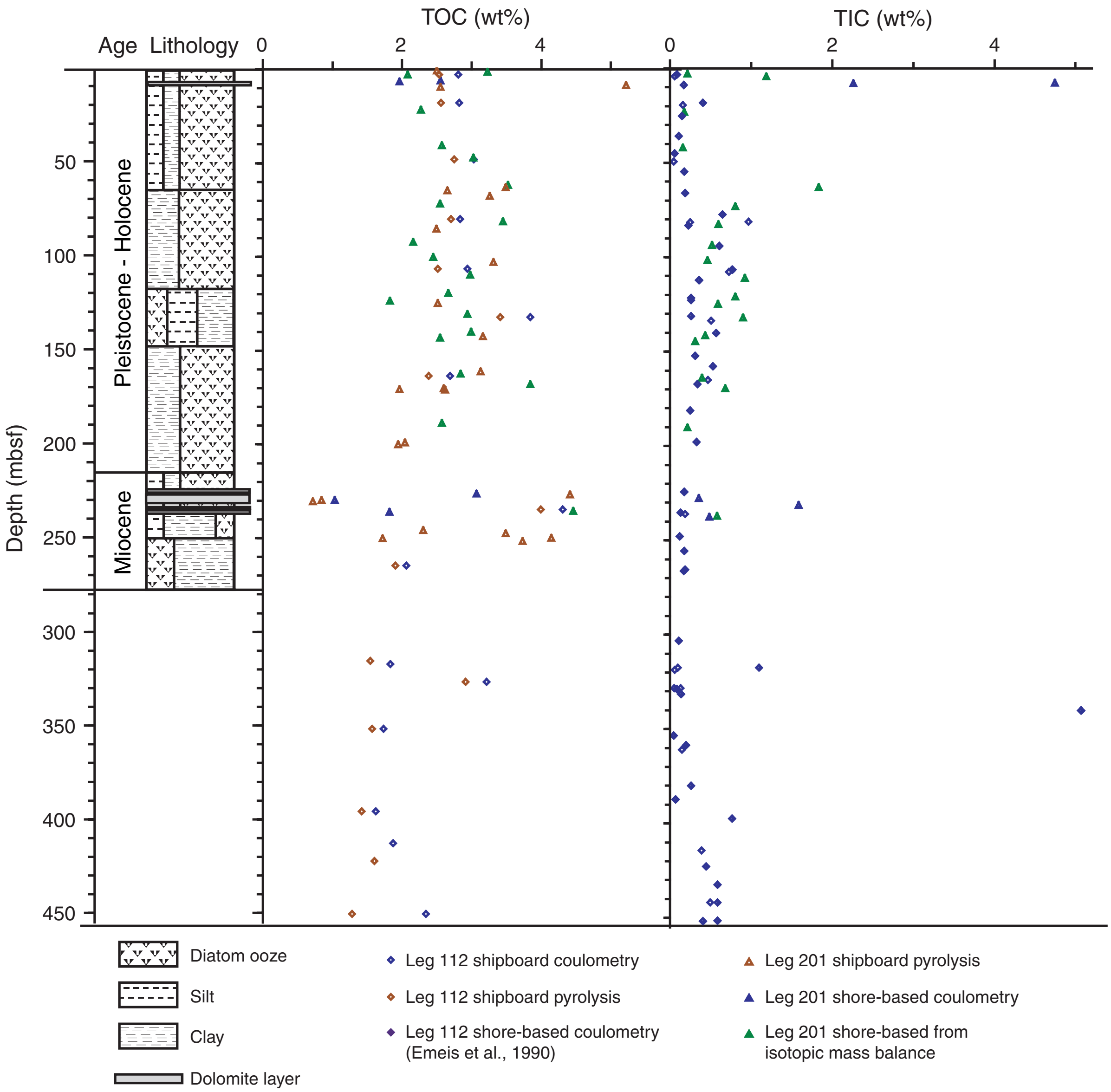

Figure F9. Compiled total organic carbon in correlation with lithostratigraphy of Site 1231/321. TOC = total organic carbon.

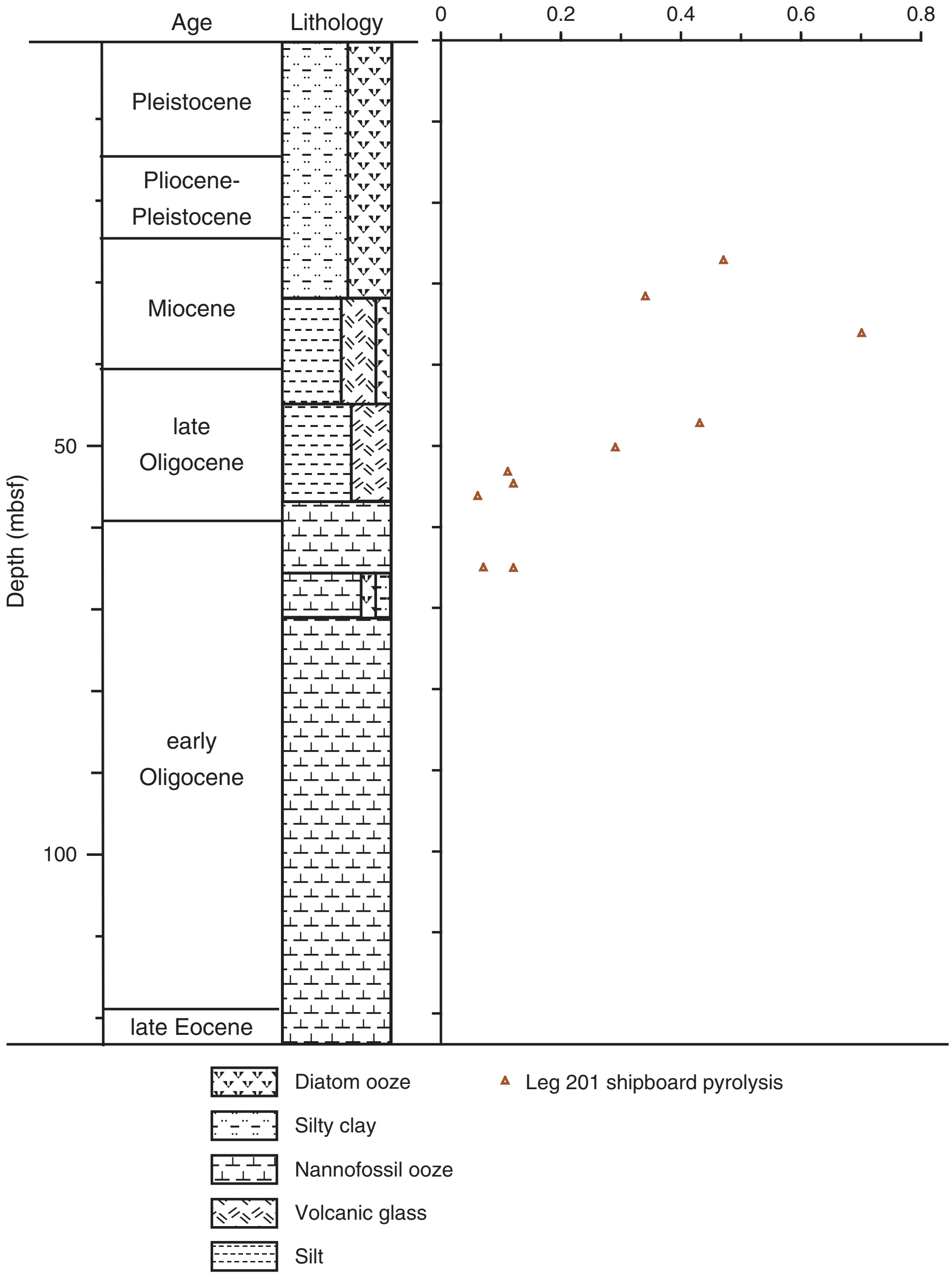

Table T1. Total inorganic and organic carbon, Site 1226/846.

Core, section, interval (cm)	Depth (mbsf)	Total carbon (wt%)		Method
		Inorganic	Organic	
Soft sediment				
201-1226B-				
33X-3, 117–131	304.67	8.83	0.55	C
36X-1, 100–107	330.40	7.23	0.55	C
201-1226E-				C
19H-3, 27–39	310.27	8.23	0.40	C
19H-6, 2–15	314.52	7.86	0.52	C
Chalk				
201-1226B-				
47X-2, 30–35	418.20	8.37	0.12	
47X-2, 38–43	418.28	8.99	0.14	C
47X-2, 46–50	418.36	8.79	0.11	C
47X-2, 46–50	418.36	4.30	0.33	C
47X-2, 55–60	418.45	8.86	0.27	C
47X-2, 55–60	418.45	7.13	0.53	C
47X-2, 81–85	418.71	7.91	0.22	C
201-1226E-				
25X-3, 104–105	412.83	6.80	0.60	C
Carbonate layers				
201-1226B-				
33X-3, 117–131	304.67	9.08	0.48	C
36X-1, 100–107	330.40	9.93	0.11	C
201-1226E-				
19H-3, 27–39	310.27	9.93	0.27	C
19H-6, 2–15	314.52	10.01	0.18	C

Note: C = coulometric.

Table T2. Total inorganic and organic carbon, Site 1227/684.

Core, section, interval (cm)	Depth (mbsf)	Total carbon (wt%)		Data Source
		Inorganic	Organic	
Soft sediment				
201-1227A-				
1H-2, 135–150	2.9	1.69	3.21	MB
2H-3, 135–150	10.0	6.23	1.25	MB
2H-5, 135–150	13.0	0.31	6.11	MB
3H-1, 135–150	16.5	0.44	5.93	MB
3H-5, 135–150	22.5	0.00	7.97	MB
4H-5, 135–150	31.2	1.72	8.89	MB
5H-2, 135–150	37.0	1.44	8.38	MB
5H-4, 135–150	40.0	0.56	6.02	MB
5H-5, 135–150	41.5	0.24	8.87	MB
6H-4, 135–150	49.5	0.20	3.60	MB
9H-3, 135–150	76.5	0.20	8.05	MB
11H-2, 135–150	94.0	2.54	8.75	MB
12H-2, 135–150	103.5	2.17	9.25	MB
13H-1, 135–150	111.5	0.46	6.05	MB
14H-1, 135–150	121.0	2.02	5.57	MB
17H-1, 85–100	133.0	1.29	6.42	MB
201-1227B-				
1H-1, 61–62	0.6	0.85	4.84	TOM
1H-1, 71–72	0.7	0.80	4.95	TOM
1H-1, 75–76	0.8	0.78	5.31	TOM
1H-1, 106–107	1.1	0.65	6.06	TOM
1H-1, 133–134	1.3	0.56	4.80	TOM
1H-2, 35–36	1.9	0.66	6.57	TOM
1H-2, 36–37	1.9	0.53	6.84	TOM
1H-2, 51–52	2.0	0.56	5.54	TOM
1H-2, 52–53	2.0	0.56	6.10	TOM
1H-2, 59–60	2.1	0.50	5.43	TOM
1H-2, 82–83	2.3	0.71	5.36	TOM
1H-2, 95–96	2.5	0.78	6.40	TOM
1H-2, 96–97	2.5	0.80	5.49	TOM
1H-2, 97–98	2.5	0.89	6.45	TOM
1H-2, 100–101	2.5	0.74	5.64	TOM
1H-2, 103–104	2.5	0.70	5.86	TOM
1H-2, 125–126	2.8	0.79	4.21	TOM
1H-2, 129–130	2.8	0.60	5.49	TOM
1H-2, 137–138	2.9	0.53	5.38	TOM
1H-3, 135–137	4.4	0.64	3.60	TOM
Barite				
201-1227D-				
5H-1, 18–24	36.2	0.32	2.87	C
5H-1, 18–24	36.2	0.00	1.65	C
Dolomite				
201-1227A-				
4H-5, 62–62	30.9	11.87	0.17	C
8H-CC, 30–36	62.9	11.45	0.74	C
8H-1, 30–36	62.9	11.40	0.86	C
8H-1, 30–36	62.9	10.39	0.28	C
11H-1, 21–24	91.3	3.28	6.27	C
11H-1, 40–50	91.5	11.91	0.12	C
11H-1, 40–50	91.5	11.68	0.69	C
11H-1, 40–50	91.5	1.63	1.42	C
12H-1, 79–91	101.4	10.82	1.13	C
12H-1, 79–91	101.4	6.12	3.31	C
13H-1, 28–30	110.4	11.24	0.34	C

Notes: MB = data from isotopic mass balance, TOM = data converted from total organic matter using the formula of Redfield et al. (1963), C = coulometric data.

Table T3. Total inorganic and organic carbon, Site 1228/680.

Core, section, interval (cm)	Depth (mbsf)	Total carbon (wt%)		Data source
		Inorganic	Organic	
Soft sediment				
201-1228B-				
1H-1, 24–25	0.2	1.09	11.61	TOM
1H-1, 26–27	0.3	0.78	11.65	TOM
1H-1, 35–36	0.4	0.83	12.44	TOM
1H-1, 50–51	0.5	1.29	10.47	TOM
1H-1, 69–70	0.7	0.58	10.22	TOM
1H-1, 85–86	0.9	0.71	10.81	TOM
1H-1, 89–90	0.9	0.27	11.46	TOM
1H-1, 92–93	0.9	0.66	10.95	TOM
1H-1, 94–95	0.9	0.53	11.54	TOM
1H-1, 99–100	1.0	0.96	10.00	TOM
1H-1, 102–103	1.0	0.95	10.34	TOM
1H-1, 106–107	1.1	1.06	11.16	TOM
1H-1, 119–120	1.2	0.61	10.54	TOM
1H-1, 124–125	1.2	0.43	11.40	TOM
1H-1, 125–126	1.3	1.07	11.58	TOM
1H-1, 131–132	1.3	0.76	11.44	TOM
1H-1, 134–135	1.3	1.56	9.98	TOM
1H-1, 136–137	1.4	1.10	10.47	TOM
1H-1, 138–139	1.4	0.59	11.24	TOM
1H-1, 145–146	1.5	0.77	10.08	TOM
1H-2, 90–91	2.4	0.43	5.88	TOM
1H-3, 44–45	3.4	0.33	4.67	TOM
1H-3, 48–49	3.5	0.72	5.02	TOM
1H-3, 53–54	3.5	1.08	6.15	TOM
1H-3, 70–71	3.7	0.33	5.32	TOM
1H-3, 82–83	3.8	0.88	6.91	TOM
1H-3, 98–99	4.0	0.46	5.30	TOM
1H-3, 100–101	4.0	0.41	4.65	TOM
1H-4, 61–62	5.1	0.53	6.20	TOM
1H-4, 78–79	5.3	0.86	7.32	TOM
1H-4, 92–93	5.4	0.69	7.31	TOM
1H-4, 129–130	5.8	0.63	6.65	TOM
1H-4, 137–138	5.9	0.58	6.53	TOM
1H-4, 138–139	5.9	0.57	6.97	TOM
1H-5, 30–31	6.3	0.72	8.71	TOM
1H-5, 32–33	6.3	0.84	8.50	TOM
1H-5, 35–36	6.4	0.94	7.47	TOM
1H-5, 36–37	6.4	1.28	6.83	TOM
1H-5, 37–38	6.4	0.69	10.29	TOM
1H-5, 38–39	6.4	1.20	8.98	TOM
Dolomite				
201-1228A-				
5H-1, 5–10	33.45	11.43	1.18	C
6H-6, 62–70	51.2	6.29	2.41	C
6H-6, 62–70	51.2	10.05	0.26	C
8H-4, 144–150	67.8	3.97	1.22	C
8H-4, 144–150	67.8	9.68	0.27	C
22H-1, 22–26	185.6	2.95	0.70	C
22H-1, 22–26	185.6	7.00	0.23	C
22H-1, 22–26	185.6	4.99	0.39	C
22H-1, 22–26	185.6	5.13	0.46	C
201-1228B-				
6H-2, 92–109	47.2	8.37	1.28	C
6H-4, 68–83	50.0	1.30	3.65	C
6H-2, 97–101	50.0	11.31	0.48	C
6H-4, 73–77	50.0	9.91	0.44	C

Notes: TOM = data converted from total organic matter using the formula of Redfield et al. (1963), C = coulometric data.

Table T4. Total inorganic and organic carbon, Sites 1229/681.

Core, section, interval (cm)	Depth (mbsf)	Total carbon (wt%)		Data Source
		Inorganic	Organic	
Soft sediment				
201-1229A-				
1H-1	1.4	0.44	5.94	MB
2H-1	6.3	0.24	3.25	MB
2H-3	9.3	0.00	3.96	MB
3H-1	15.8	0.38	5.56	MB
4H-1	25.3	0.52	6.09	MB
4H-5	31.3	0.16	3.29	MB
5H-5	40.8	0.37	2.52	MB
8H-1	60.3	0.34	1.61	MB
9H-5	75.8	0.60	0.89	MB
11H-3	93.3	0.18	2.73	MB
12H-1	99.8	0.28	3.64	MB
15H-1	127.4	0.18	0.85	MB
18H-1	156.8	0.09	1.02	MB
201-1229E-				
1H-1, 47–48	0.5	0.85	3.03	TOM
1H-1, 48–49	0.5	0.86	2.86	TOM
1H-1, 83–84	0.8	0.46	2.59	TOM
1H-1, 92–93	0.9	0.50	1.93	TOM
1H-1, 108–109	1.1	0.68	2.76	TOM
1H-1, 116–117	1.2	0.71	3.23	TOM
1H-1, 117–118	1.2	1.08	3.37	TOM
1H-1, 118–119	1.2	1.16	3.39	TOM
1H-1, 122–123	1.2	0.84	2.93	TOM
1H-1, 124–125	1.2	0.69	3.27	TOM
1H-1, 127–128	1.3	0.67	2.33	TOM
1H-1, 130–131	1.3	0.80	2.54	TOM
1H-1, 139–140	1.4	0.72	2.56	TOM
1H-2, 7–8	1.6	1.01	3.16	TOM
1H-2, 18–19	1.7	0.43	2.27	TOM
1H-2, 28–29	1.8	0.74	2.88	TOM
1H-2, 41–42	1.9	0.68	2.66	TOM
1H-2, 50–51	2.0	0.78	3.26	TOM
1H-2, 60–61	2.1	0.57	2.31	TOM
1H-2, 63–64	2.1	0.51	2.47	TOM
1H-2, 141–142	2.9	0.71	1.98	TOM
1H-2, 146–147	3.0	0.33	2.27	TOM
1H-3, 18–19	3.2	1.03	2.15	TOM
1H-3, 19–20	3.2	1.34	2.25	TOM
1H-3, 22–23	3.2	0.47	2.25	TOM
1H-3, 30–31	3.3	0.50	1.72	TOM
1H-3, 35–36	3.4	0.41	1.65	TOM
1H-3, 40–41	3.4	0.59	1.59	TOM
1H-3, 45–46	3.5	0.56	2.09	TOM
1H-3, 46–47	3.5	0.57	1.99	TOM
1H-3, 53–54	3.5	0.27	2.01	TOM
1H-3, 57–58	3.6	0.49	1.60	TOM
1H-3, 61–62	3.6	0.99	2.37	TOM
1H-3, 62–63	3.6	0.36	1.68	TOM
1H-3, 63–64	3.6	0.99	1.98	TOM
1H-3, 64–65	3.6	0.66	1.98	TOM
1H-3, 66–67	3.7	0.76	1.90	TOM
1H-3, 68–69	3.7	0.47	1.61	TOM
White layer				
201-1229E-				
1H-2, 101–102	2.5	2.89	3.13	TOM
Soft sediment				
112-681A-				
1H-1, 0–150	1.5	0.00	2.10	C
1H-1, 0–150	1.5	0.00	5.67	C
1H-3, 0–150	4.5	0.22	4.87	C
3H-1, 100–130	17.0	0.25	3.04	C
3H-6, 55–93	24.1	4.84	3.39	C
11H-2, 130–150	94.8	1.76	0.00	C
14X-2, 60–95	122.6	0.11	2.19	C
18X-CC, 0–18	158.7	0.40	0.22	C
201-1229A-				
1H-3, 85–91	3.9	1.47	4.83	C
8H-1, 57–72	59.5	0.90	1.94	C
Dolomite				
112-681A-				
3H-6, 55–93	24.1	10.22	1.54	C
11H-2, 130–150	94.8	6.89	0.17	C
18X-CC, 0–18	158.7	5.49	0.26	C
201-1229A-				
3H-1, 53–59	14.9	8.41	1.03	C
4H-1, 18–19	24.1	10.36	1.29	C
4H-2, 95–96	26.4	11.14	0.86	C
4H-2, 93–97	26.3	10.74	1.24	C
5H-3, 80–86	37.2	9.84	0.85	C
5H-4, 81–84	38.7	10.29	0.86	C
8H-1, 55–64	59.5	7.95	0.55	C
8H-4, 82–84	64.2	1.13	0.78	C
8H-4, 84–99	64.2	9.15	0.19	C
10H-1, 93–114	80.3	6.45	1.76	C
10H-1, 133–136	80.7	9.88	0.87	C
11H-1, 31–34	89.2	10.26	1.28	C
12H-1, 64–65	99.0	9.50	0.73	C
12H-2, 86–88	100.8	10.77	0.63	C
12H-4, 36–50	100.8	2.23	0.74	C
12H-5, 68–69	105.1	11.33	0.48	C
13H-2, 109–112	110.5	6.09	0.80	C
13H-2, 106–118	110.5	5.24	1.04	C
14H-3, 135–135	121.8	5.87	0.35	C
201-1229D-				
2H-1, 71–72	7.5	8.91	0.76	C
5H-3, 24–29	38.5	10.46	0.57	C
8H-2, 105–120	61.4	8.02	1.02	C
8H-2, 105–120	61.4	2.81	1.73	C

Notes: MB = data from isotopic mass balance, TOM = data converted from total organic matter using the formula of Redfield et al. (1963), C = coulometric data.

Table T5. Total organic and inorganic carbon, Site 1230/685.

Core, section, interval (cm)	Depth (mbsf)	Total carbon (wt%)		Method
		Inorganic	Organic	
Soft sediment				
201-1230A-				
1H-1, 135–150	1.4	0.19	3.22	MB
1H-2, 135–150	2.9	1.17	2.07	MB
3H-5, 135–150	21.7	0.16	2.26	MB
5H-5, 135–150	40.7	0.14	2.56	MB
6H-3, 143–158	47.2	0.00	3.01	MB
8H-5, 135–150	61.7	1.82	3.51	MB
10H-1, 135–150	71.7	0.79	2.53	MB
11H-1, 135–150	81.2	0.58	3.44	MB
12H-2, 135–150	92.2	0.50	2.15	MB
13H-1, 135–150	100.2	0.45	2.44	MB
14H-1, 135–150	109.7	0.91	2.96	MB
15H-2, 135–150	119.5	0.79	2.65	MB
15H-5, 85–98	123.5	0.58	1.81	MB
17H-1, 135–150	130.7	0.88	2.93	MB
18H-2, 135–150	141.7	0.42	2.98	MB
18H-4, 0–20	143.3	0.29	2.54	MB
21H-4, 69–84	162.5	0.38	2.83	MB
22H-1, 75–90	169.1	0.66	3.83	MB
24H-2, 0–98	188.8	0.20	2.56	MB
33X-1, 130–150	235.7	0.56	4.45	MB
112-685A-				
2H-2, 45–60	6.2	4.73	2.54	C
2H-2, 60–95	6.5	2.24	1.96	C
201-1230A-				
30X-1, 10–24	226.4	0.34	3.06	C
31X-1, 29–43	229.9	1.57	1.02	C
33X-2, 23–38	236.2	0.47	1.81	C
Dolomite				
112-685A-				
2H-2, 45–60	6.5	9.10	1.54	C
201-1230A-				
30X-1, 0–5	226.3	11.28	0.43	C
31X-1, 0–19	229.6	11.79	0.27	C
31X-1, 0–19	229.6	11.83	0.21	C
30X-CC, 22–25	228.0	11.72	0.26	C
33X-1, 46–49	234.9	9.88	0.58	C
34H-CC, 18–19	244.8	0.22	4.15	C

Notes: MB = data from isotopic mass balance, C = coulometric data.