13. CALCIUM CARBONATE SEDIMENTATION AT SUBTROPICAL SOUTH PACIFIC DRILL SITES FROM LEG 92 AND THE CARBONATE STRATIGRAPHY OF SITE 598: PRELIMINARY STUDIES[1]

Margaret Leinen, Graduate School of Oceanography, The University of Rhode Island[2]

ABSTRACT

The carbonate contents of sediments recovered at Leg 92 Sites 597, 598, and 601 were determined at 5-cm intervals. The long-term record of carbonate variation at Sites 597 and 598 shows the effect of decreasing dilution by hydrothermal phases as the sites moved away from the ridge crest at which they formed. Superimposed on this trend are high-amplitude variations in carbonate content. In the lower portions of Sites 597 and 598 the high-amplitude variations have a duration of a few hundred thousand years. The upper portion of the sediment column at both sites was deposited below the lysocline, and high-amplitude variations in this interval represent 1 to 2 m.y. The data suggest that only very intense carbonate dissolution events can be identified reliably at sites with low accumulation rates. At sites like Site 598, where the sedimentation rate is higher, the details of carbonate variation can be correlated with the carbonate lithostratigraphies developed for sites in the equatorial and North Pacific oceans.

INTRODUCTION

Variations in the calcium carbonate content of deep-sea sediments result from the interplay of changes in the supply of calcium carbonate from surface-water productivity and changes in the dissolution of carbonate by bottom waters. Carbonate contents in specific locations also reflect local variation in bottom-water erosion and dilution and burial by fluxes of noncalcareous biogenic debris and terrigenous detritus. When these diluting fluxes and bottom-water erosion are minimal, the temporal variations in calcium carbonate can be correlated across large areas of the ocean floor. Correlations based on detailed studies of the calcium carbonate content of sediments (e.g., Hays et al., 1969; Kaneps, 1973; Dunn and Moore, 1981; Vincent, 1981) have resulted in a generalized carbonate stratigraphy for late Neogene sediments. Although this stratigraphy cannot be used in the absence of other age control, it enhances the resolution of other age determinations and correlations. Studies of short-term variations in the calcium carbonate content of deep-sea sediment cores also provide a means for evaluating the dynamics of the response of calcium carbonate sedimentation to changing oceanic conditions and changing carbonate supply. The amplitude and duration of variations can be examined as a function of depth, of sedimentation rate, and of geographic position to establish the way in which such variables control carbonate sedimentation.

In spite of their potential value, high-resolution studies of the calcium carbonate content of deep-sea sediments have been made for only a few areas. There are continuous high-resolution carbonate profiles for only two Pacific sites outside the equatorial zone: DSDP Site 310 on the Hess Rise in the central North Pacific (Vincent, 1981) and DSDP Site 591 on the Lord Howe Rise (a coarse-fraction study; Gardner et al., 1986). Only the carbonate stratigraphy for the Hess Rise site has been correlated with other dated sections. Limited intervals of the sections from two other sites, DSDP Site 319 at 13°S in the subtropical southeastern Pacific and Site 206 in the southwestern Pacific, have also been described (Dunn, 1982). The sediments recovered from the Leg 92 drill sites (Fig. 1) provide an opportunity to extend high-resolution studies of carbonate stratigraphy and sedimentation into the eastern subtropical South Pacific. The sediments recovered from these sites also provide an opportunity to evaluate the usefulness of carbonate stratigraphy in sediment records with limited age control: siliceous microfossils were not present at the sites, and the paleomagnetic properties of the sites were not stable.

For this preliminary study, the calcium carbonate contents of samples taken at 5-cm intervals from Hole 597 and Site 598, as well as from intervals of Hole 597A and Site 601, were analyzed to evaluate the potential of the sites for carbonate stratigraphy. More widely spaced samples were taken for $CaCO_3$ analysis from Sites 599 and 602 to provide carbonate profiles for these sites.

METHODS

Carbonate Analyses

The sediment thickness above basement at the Leg 92 sites suggested that sedimentation rates were very low and that samples would have to be closely spaced to allow the section's carbonate record to be correlated with previously published carbonate curves from high-sedimentation-rate sites in the equatorial Pacific and on the Hess Rise. Samples were taken every 5 cm for the high-resolution carbonate analyses. Closely spaced samples were also desirable for the time-series analysis of the carbonate record. Such analyses constrain the periodicity of carbonate variations in the past, and the results can be compared with the periodicity of the carbonate variations calculated by Pisias and Prell (1985) for the equatorial Pacific.

Calcium carbonate data were obtained by using "Karbonat Bombe" analysis (Müller and Gastner, 1971; Dunn, 1980). For all sites, at least one sample per section was analyzed on board the *Glomar Chal-*

[1] Leinen, M., Rea, D. K., et al., *Init. Repts. DSDP*, 92: Washington (U.S. Govt. Printing Office).
[2] Address: Graduate School of Oceanography, The University of Rhode Island, Narragansett, RI 02882-1197.

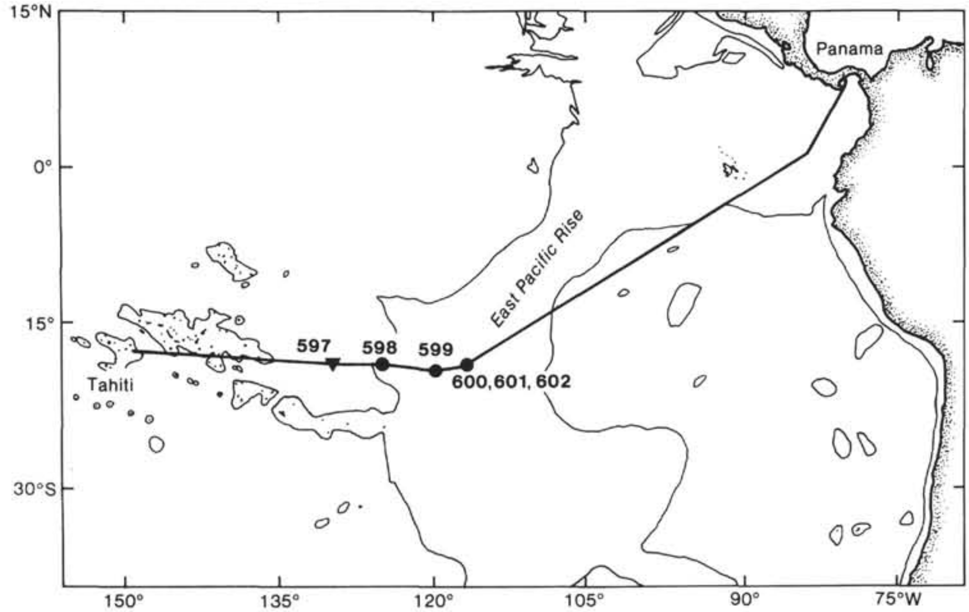

Figure 1. Locations of sites drilled on Leg 92. Inverted triangle denotes re-entry site.

lenger to characterize the sediments. About 300 additional samples from Site 597 were analyzed; these samples were dried before analysis in a 60°C drying oven. Because of the difficulty of weighing the samples accurately at sea, splits of the samples were saved for analysis on shore. All samples analyzed on shore were freeze dried and homogenized before analysis. Carbonate contents were determined by using carbonate bombs similar to those used on the *Challenger*. A subset of the samples analyzed at sea was reanalyzed on shore to intercalibrate the analyses. The analyses done on shore were systematically lower by about 4 wt.% carbonate. The shore-based lab results were intercalibrated with results of calcium carbonate analysis by other techniques used by Leg 92 investigators. The methods and results are reported in Owen and Ruhlin (this volume). These intercalibrations suggested that the shore-based analyses were more accurate than those done on board the *Challenger*. The samples analyzed for $CaCO_3$ from Site 598 were also compared with the detailed carbonate curves estimated by Lyle (this volume) from Ca analyses. All shipboard calcium carbonate data used in this study have been corrected to agree with the lab data.

The precision of the carbonate bomb analyses of $CaCO_3$ was determined from the average of replicate analyses performed on different days and is approximately ± 2 wt.% carbonate. This precision is equivalent to that reported by Dunn (1980). Replicate analyses of pure $CaCO_3$ standards indicated a much greater precision ($\pm < 0.5$ wt.% carbonate), however. In addition, within a single batch of samples, relative differences in carbonate concentration could be duplicated that were smaller than the precision indicated by replicate analyses on different days. A relative difference of 0.7 to 1.0% carbonate between two samples within a batch was generally reflected in replicate determinations even if the absolute values changed slightly. The shift may have been due to slight differences in laboratory procedure, since a number of people performed the analyses. Therefore samples were always run in order by depth to take advantage of this higher precision within sample batches. In order to document these small, but apparently real, differences in carbonate content, data are reported with two decimal places, the precision with which the pressure gauge on the carbonate bomb can be read. Nonetheless, maxima and minima in the data of less than 2 wt.%. $CaCO_3$ were not interpreted; single-point maxima and minima were also ignored.

Carbonate Stratigraphy

Recent studies of long, high-resolution calcium carbonate records (Dean et al., 1981; Dunn and Moore, 1981; Vincent, 1981; Gardner, 1982; Moore et al., 1982; Pisias and Prell, 1985; Prell, 1985) have developed a nomenclature for calcium carbonate concentration maxima and minima. This nomenclature, which is based on that of Hays et al. (1969), is distinct from that used for oxygen isotope variations in foraminiferal calcite, because the maxima and minima in calcium carbonate concentration do not generally coincide with isotopic variations (see, e.g., Gardner, 1982). Carbonate maxima and minima (termed events) are numbered or lettered sequentially within paleomagnetic polarity epochs. For polarity epochs with names, the events have sequential number designations that follow the code for the epoch (e.g., GI17 is the 17th event within the Gilbert paleomagnetic polarity epoch). For numbered polarity epochs, the events have sequential letter designations that follow the polarity epoch number (e.g., 15c is the third event within paleomagnetic polarity Epoch 15). This nomenclature has been adopted here.

Biostratigraphic resolution was adequate to permit a comparison of carbonate variation with other published data in only the core from Site 598. Preliminary correlations between this core and other data were made by using the biostratigraphy of Knüttel (this volume) and Romine (this volume). The biostratigraphic samples were assigned to zones by using the scheme of Haq (1984). Because of the generally low sedimentation rates at Site 598, the biostratigraphic sampling done was widely spaced in time, and it was not possible to identify first and last occurrence datum levels. To construct a preliminary age model, the midpoints of the distances between samples that represented two different zones were arbitrarily selected as zone boundaries and assigned the ages given by Haq (1984).

Berggren et al. (in press) have proposed changes of up to 2 m.y. in the ages of the middle to late Miocene foraminiferal and nannofossil datums used in this and other Leg 92 studies. In order to maintain a uniform stratigraphy in this volume, I have chosen not to incorporate these changes in the age scale used in this chapter. Therefore, the carbonate contents and accumulation rates can be compared directly with the other types of sediment analysis. Other detailed carbonate stratigraphies in the literature are only slightly different from that of Haq (1984), so the carbonate variations documented in this paper are also fairly easy to compare with those studies.

For some portions of the middle to late Miocene, the record of carbonate variation at Site 598 is more continuous than at any previously studied site. Because of the lack of stable paleomagnetic data for the sites drilled on this leg, however, the Site 598 data cannot be tied directly to the paleomagnetic reversal stratigraphy. I have, therefore, adopted the correlation method used by Moore et al. (1982) for Site 158. The positions of the magnetic polarity epoch boundaries were estimated by correlating the biostratigraphy and carbonate lithostratigraphy with nearby cores on which paleomagnetic measurements have been made. To correlate the late Miocene intervals, the Site 598 carbonate data and biostratigraphy were compared with those of Cores RC12-66 and RC12-65 (Saito et al., 1975; Dunn and Moore, 1981). To correlate the middle Miocene intervals, the Site 598 carbonate data and biostratigraphy were compared with the carbonate stratigraphy and biostratigraphy of Dunn (1982). The magnetic polarity epoch boundaries are those of LaBrecque et al. (1977) as modified by Mankinen and Dalrymple (1979).

A comparison of the carbonate record based on the preliminary age model with other high-resolution carbonate-variation records showed that some carbonate events, such as GI17 (a prominent minimum in the Gilbert paleomagnetic polarity epoch that generally falls in the CN10 [*Amaurolithus tricorniculatus*] Zone), 6a (a prominent minimum in paleomagnetic polarity Epoch 6, which generally falls in the CN9B [*Amaurolithus primus*] Subzone), and the mid-Epoch 10 minimum (Vincent, 1981), were present and quite distinct. Kaneps (1973) and Dunn and Moore (1982) suggest that such carbonate events occur synchronously throughout ocean basins and are often more suitable for correlation than biostratigraphic datum levels, because the latter may be diachronous. These distinct features were, therefore, used as additional points of correlation.

RESULTS

Only Sites 597, 598, and 601 were analyzed in detail for this study. Shipboard sedimentological and micropaleontological studies indicated that portions of Sites 599 and 600 contained slumps. The sediment column at Site 602 was very thin, and the sediment section in the core was repeated by double coring.

Site 597

Four holes were drilled on the 28.63-Ma crust at Site 597 (18°49′S, 129°46′W, 4157 m depth). Sediments were recovered from Holes 597, 597A, and 597C, and calcium carbonate determinations were made at 5-cm intervals in Hole 597 and parts of Hole 597A (Appendix A, Fig. 2). The sediments consist of 52.6 m of clay, clay-bearing nannofossil ooze, and clayey nannofossil ooze, which overlie a thin layer (< 1 m) of silty chalk. No siliceous microfossils were present in the sediments. The smear slide descriptions and sediment chemistry analyses of Lyle (this volume) have demonstrated that the sediments are primarily biogenic carbonate and hydrothermal phases, with a small amount of terrigenous detritus and trace amounts of hydrogenous and volcanic sediment. The sedimentation rates based on the nannofossil and foraminiferal biostratigraphy (Table 1) indicate that the sample spacing represents approximately 450×10^3 yr. in the top 1.4 m of the core, about 30 to 50×10^3 yr. between depths of 1.4 and 20 m in the core, and about 10 to 16×10^3 yr. in the lower 30 m of the core.

The variations in calcium carbonate content with depth suggest that the section can be divided into four intervals (Fig. 2): 0 to 1.4 m, 1.4 to 7 m, 7 to 35 m, and 35 to 54.7 m. A small amount of carbonate is present in the upper few centimeters of the interval between 0 and 1.4 m. The rest of the interval contains <5% carbonate (Appendix A). The calcium carbonate content of the sediments ranges from 33 to 87% in the interval between

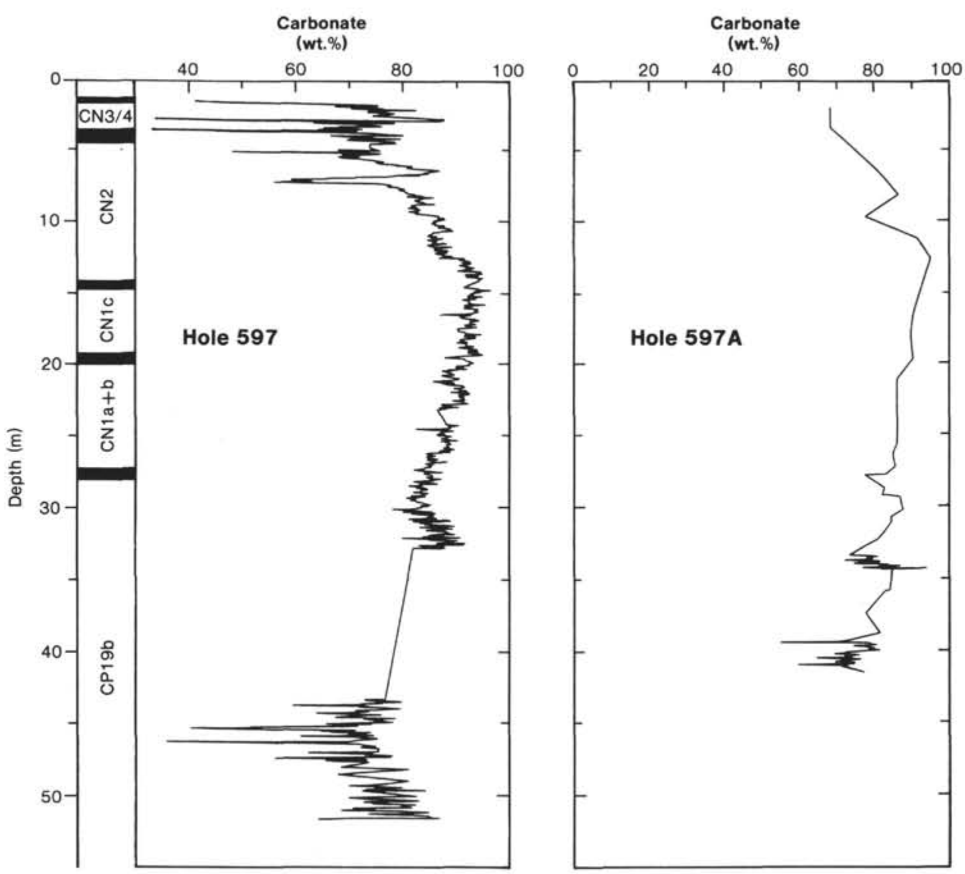

Figure 2. Calcium carbonate contents of sediments from Holes 597 and 597A. Nannofossil zonation of Knüttel (this volume) is shown to the left of the Hole 597 profile. Black bars between zones show uncertainty due to sample spacing.

Table 1. Sedimentation and carbonate accumulation rate estimates for Sites 597, 598, and 601.

Sub-bottom depth (m)	Age[a] (m.y.)	Sedimentation rate (m.y.)	Mean density[b] (g/cm^3)	Mean $CaCO_3$ (%)	$CaCO_3$ mass accumulation rate ($mg/[cm^2 \times 10^3$ yr.])
Site 597					
0–1.55	0–14.2	0.11	0.511	12.5	0.6
1.55–4.1	14.2-17.0	0.93	0.774	71.66	52
4.1–14.5	17.0–18.7	6.71	1.026	83.26	577
14.5–19.7	18.7–22.0	1.12	1.113	92.37	115
19.7–27.8	22.0–24.8	3.07	1.052	88.22	284
27.8–54.7	24.8–<30	±7.69	0.975	78.44	>588
Site 598					
0–1.1	0–1.6	0.69	0.60	66.79	28
1.1–1.9	1.6–3.5	0.42	0.60	77.21	20
1.9–2.5	3.5–3.7	3.00	0.67	53.37	107
2.5–4.8	3.7–5.4	1.35	0.67	74.83	68
4.8–6.5	5.4–6.7	1.31	0.89	83.32	97
6.5–10.5	6.7–8.6	2.11	0.85	88.14	158
10.5–12.5	8.6–9.2	3.33	0.85	81.90	232
12.5–16.1	9.2–12.0	1.29	0.89	75.29	86
16.1–16.9	12.0–12.5	1.60	0.84	71.76	96
16.9–29.7	12.5–14.2	7.11	0.73	77.64	403
29.7–48.8	14.2–<17.2	>6.37	0.67	68.16	>291
Site 601					
0–8.0	0–1.9	4.26	0.89	91.49	347
8.0–8.9	1.9–3.5	0.56	0.88	83.48	41
8.9–10.5	3.5–3.7	8.00	0.84	82.78	556

[a] Ages are based on the nannofossil biostratigraphy reported by Knüttel (this volume).
[b] Mean dry-bulk density is calculated from the average wet-bulk densities and water contents for the given interval as reported in the site summary chapter. The equation is as follows:

$$\text{Dry-bulk density} = 100\ (\text{wet-bulk density} - 0.01025 \times \text{porosity})$$

1.4 and 7 m and is characterized by four pronounced minima in concentration. Between 7 and 35 m depth, the carbonate content is much greater (between 75 and 95%) and much more uniform (Fig.2). A low-amplitude (5 to 7%) high-frequency variation is superimposed on a broad carbonate maximum at about 15 m depth. Below about 35 m depth, the carbonate content is lower (between 36 and 92%) and has a higher-amplitude variation.

There is a general increase in the carbonate content with decreasing age until about 19 Ma (14 m depth in hole); after that, the carbonate content decreases gradually until about 14 Ma (1.55 m depth in hole), when the sediments become noncalcareous. The interval during which the increase in carbonate content occurred was one in which the site was moving away from the East Pacific Rise as the result of seafloor spreading and sinking as the result of cooling. This was also an interval in which carbonate sedimentation was becoming more restricted in the equatorial and southeastern Pacific (van Andel et al., 1975). The mass accumulation rate values for carbonate (Table 1), which are independent of dilution, show a decrease in carbonate accumulation from 28 Ma to 19 Ma. The increase in carbonate concentration over this interval is best explained by decreasing dilution of the carbonate sediment by hydrothermal phases produced at the ridge crest.

Site 598

Site 598 (19°00′S 124°41′W, 3703 m depth) was drilled on crust of early to middle Miocene age (approximately 17 Ma, Anomaly 5B). It comprises 44.6 m of dark brown clay-bearing and clayey nannofossil ooze and 7.8 m of underlying foraminifer-bearing nannofossil chalk and limestone. The drilling rates suggest that some softer layers may have been present in the lower unit, but they were not recovered. No siliceous microfossils were found in the sediments. The sediments at Site 598, like those at Site 597, are dominated by biogenic carbonate and hydrothermal phases. Smear slide descriptions, sediment chemistry (Lyle, this volume), and studies of the inorganic sediment fraction (Bloomstine and Rea, this volume) suggest that there are small amounts of terrigenous (eolian) detritus and trace amounts of hydrogenous and volcanic sediments. The sedimentation rates calculated from the biostratigraphy indicate that the sample spacing represents about 52×10^3 yr. in the upper 7 m of the site, about 16×10^3 yr. between 7 and 35 m depth, and about 8×10^3 yr. below 35 m depth.

The record of calcium carbonate concentration versus depth (Fig. 3, Appendix B) is very similar to that of Site 547, but it lacks the interval of very low carbonate content at the core top. The variations in the carbonate record suggest that the section can be divided into three intervals: 0 to 7 m, 7 to 35 m, and 35 to 44 m (Table 2). The calcium carbonate content of the sediments varies from 35 to 93% in the upper 7 m (Table 2), and, as in the sediments above 7 m in Site 597, is characterized by pronounced minima. Between 7 and 35 m depth the carbonate content varies from 46 to 94% and is characterized by low-amplitude (5 to 7% carbonate), high-frequency variations that are superimposed on higher-amplitude

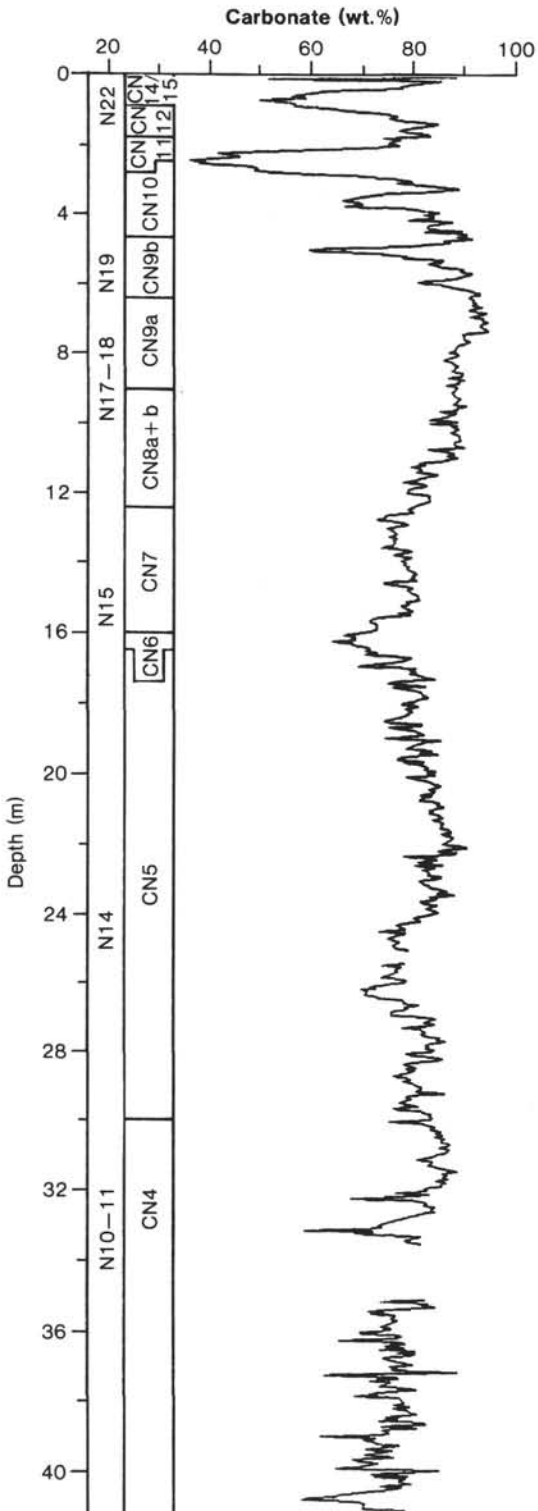

Figure 3. Calcium carbonate content profile of Site 598 with nannofossil zonation of Knüttel (this volume). Planktonic foraminiferal zone numbers are at the location of the samples studied by Romine (this volume). Because of the wide sample spacing, no foraminiferal zone boundaries are included in the figure.

Table 2. General statistics for calcium carbonate records from Sites 597, 598, and 601.

Depth interval (m)	Time interval (Ma)	Number of samples	Mean $CaCO_3$ (%)	Range $CaCO_3$ content (%)	Variance (%)2
Site 597					
0–1.55	0–14.2	27	12.5	0–75	316
1.55–4.1	14.2–17.0	52	71.66	26–87	140
4.1–14.5	17.0–18.7	206	83.26	48–95	65
14.5–19.7	18.7–22.0	114	92.37	86–96	1.86
19.7–27.8	22.0–24.8	159	88.22	82–93	5.56
27.8–54.7	24.8–<30	225	78.44	52–92	70
Site 598					
0–7.0	0–7.0	140	75	35–93	214
7.0–35	7.0–15.4	490	79	46–94	42
35.0–43.5	15.4–17.4	165	65	45–84	50
Site 601					
0–8.0	0–1.9	99	91.49	81.9–96.9	8.18
8.0–8.9	1.9–3.5	18	83.48	80.8–86.9	2.80
8.9–10.5	3.5–3.7	13	82.78	78.1–89.5	7.51

(15 to 20% carbonate) variations. The latter variations take place over intervals of about 10 m. In the sediments below 35 m depth, carbonate content varies between 45 and 84% and, as in the sediments at Site 597, displays higher-amplitude variations than in the sediments above. At Site 598 the high-amplitude variations in the lower part of the sediment column appear to be more regular, with a pronounced minimum every 1 to 2 m. The sedimentation rates calculated from the nannofossil biostratigraphy indicate that these variations represent periods of about 300 $\times$ 10^3 yr.

Site 601

At Site 601 (18°55′S, 116°11′W, 3448 m depth; 4.6-Ma crust), 20.4 m of clay-bearing to clayey nannofossil ooze were recovered. As at the other sites, no siliceous microfossils were preserved in the sediments. Carbonate analyses were completed at 5-cm intervals for the upper 10 m of the section (Fig. 4A). Carbonate content ranges from 78 to 97%; it decreases gradually downcore (Tables 1 and 2; Appendix C). The sedimentation rates suggest that the sample spacing represents about 12 $\times$ 10^3 yr. between 0 and 8 m, about 100 $\times$ 10^3 yr. between 8 and 8.9 m, and about 7 $\times$ 10^3 yr. between 8.9 and 10 m. The interval between 8 and 8.9 m accumulated very slowly and was characterized by the strong dissolution of nannofossils. The nannofossil biostratigraphy suggested that 1 or 2 m of sediment might have been missing at the top of the core. Figure 4B shows analyses of carbonate contents in sediments from a site survey gravity core (Ariadne II GC 8) that was taken a few tens of meters from Site 601. (Positions for Site 601 and for the gravity core were based on acoustic transponder navigation.) Faunal analysis (see Leinen and Graybeal, this volume) indicates that the nannofossil zones missing from Site 601 are present in the sediments from GC 8. The carbonate contents at the base (2.3 m depth) of GC 8 (Appendix C) are equal to those at the top of Site 601 (Fig. 4), but

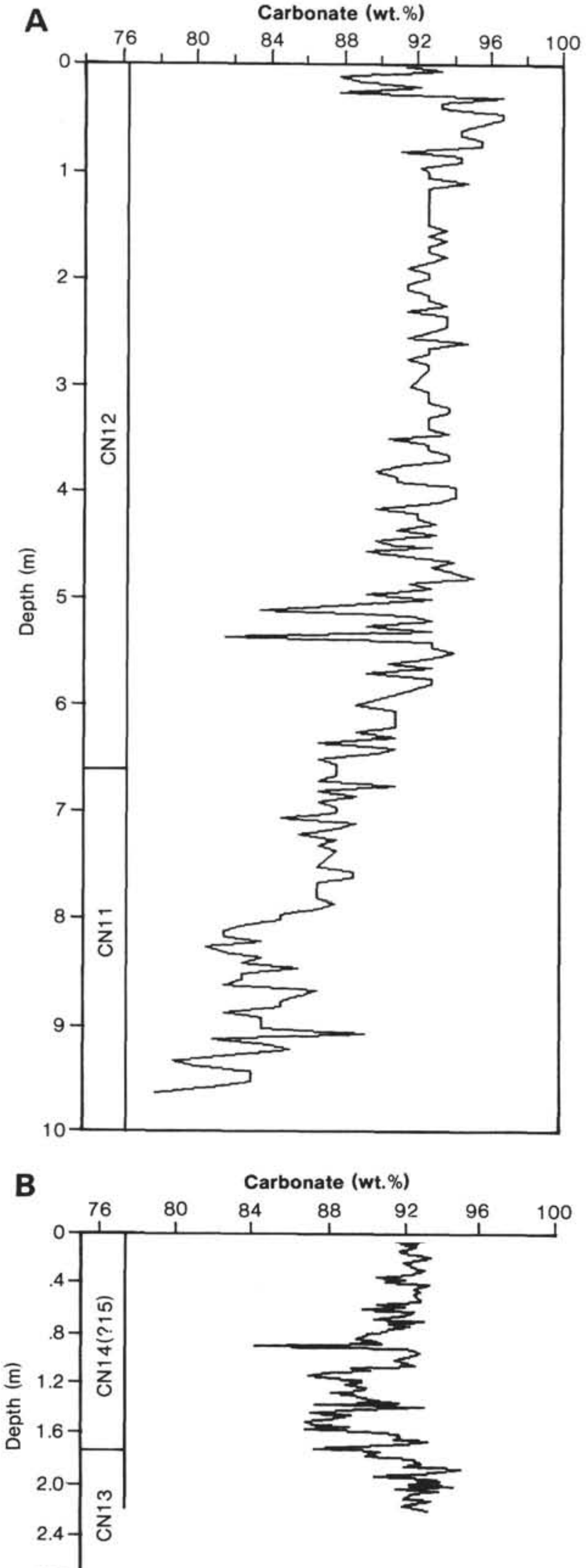

Figure 4. A. Calcium carbonate content profile of Site 601 (Core 1). B. Calcium carbonate content profile of site survey gravity core Ariadne II GC 8. Nannofossil zonation of Knüttel (this volume).

it is not clear whether or not the entire interval missing from the top of Site 601 is included in the gravity core.

CARBONATE STRATIGRAPHY OF SITE 598

Because the upper few meters of Site 598 were deposited after the site sank beneath the lysocline during the late Miocene (Rea and Leinen, this volume), only broad carbonate minima associated with the most pronounced carbonate events are recorded in the upper few meters. The age model (Table 3; Fig. 5) suggests that the high-amplitude variations in carbonate content in the upper 7 m of the core occur over time intervals of 1 to 2 m.y. and represent large-scale features of the temporal carbonate record. The Pliocene and Pleistocene variations in the carbonate content of several equatorial Pacific piston cores and DSDP Site 157 were correlated with those of Site 310 in the central North Pacific by Vincent (1981). All of the equatorial Pacific sites have prominent minima in carbonate content in the middle of the Matuyama polarity epoch (events M11 and M17). In piston cores V24-59, RC12-66 (Saito et al., 1975), and RC11-209 (Hays et al., 1969) and at Site 157 these events lie within a broad zone of low carbonate content (Fig. 6). The calcium carbonate record for DSDP Site 503 (Gardner, 1982) from the eastern equatorial Pacific also shows a broad minimum in carbonate concentration between 1.6 and 1.8 Ma (mid-Matuyama epoch). The age model for Site 598 indicates that the carbonate minimum between 0.5 and 1 m depth is early Pleistocene (*Globorotalia oceanica* Zone, CN14), consistent with a Matuyama age. The carbonate minimum at the site certainly represents a much longer time interval than the individual events identified at equatorial sites, however, and cannot be associated with a specific carbonate event. It is most likely to represent the entire broad low carbonate zone at equatorial Pacific sites associated with M11–M17.

The second prominent carbonate minimum at Site 598 is between 2 and 3 m depth in mid-Pliocene sediments (lower *Reticulofenestra pseudoumbilica* Zone, CN11, and upper *Amaurolithus tricorniculatus* Zone, CN10; late Gilbert epoch). Equatorial Pacific sediments show a broad minimum in carbonate sedimentation during the early to mid-Pliocene, with the lowest carbonate contents (10 to 30%) occurring in events GU3 and GI1, 3.4 to 3.6 Ma (Fig. 6). The lowest mid-Pliocene carbonate contents

Table 3. Age model for Site 598.

Depth in hole (m)	Age (m.y.)	Biostratigraphy
0.35	0.27	Top CN14
1.05	1.88	Top CN12
1.85	3.50	Top CN11
2.50	3.70	Top CN10
4.80	5.40	Top CN9b
6.50	8.10	Top CN8b
10.55	8.60	Top CN8a
12.45	9.20	Top CN7
16.10	12.00	Top CN6
16.85	12.50	Top CN5
29.75	14.20	Top CN4

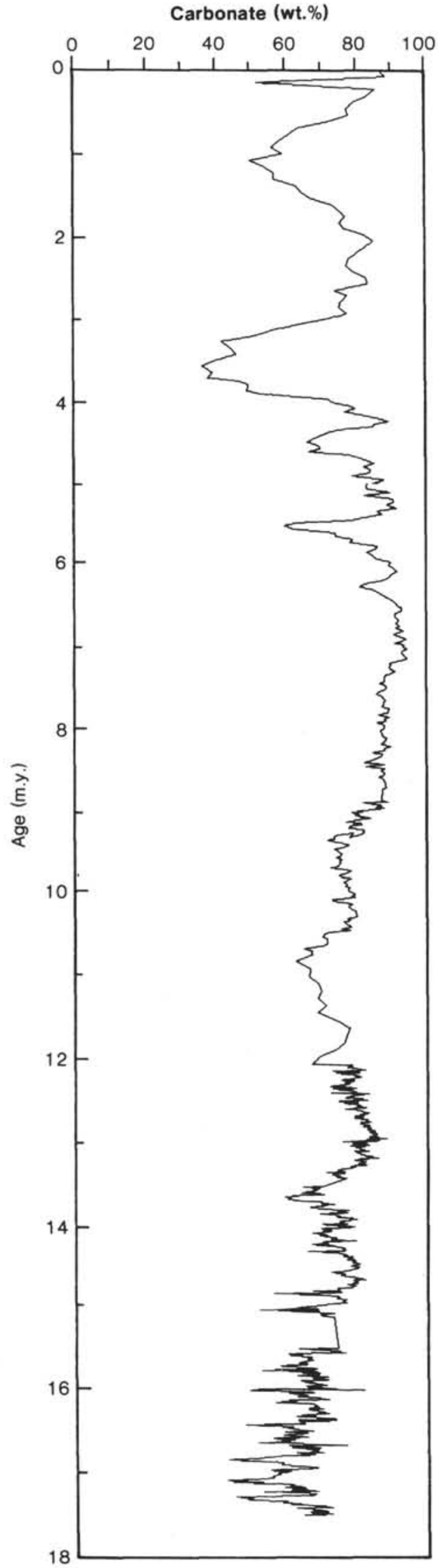

Figure 5. Time series of calcium carbonate content at Site 598. Age model is given in Table 3.

in equatorial Pacific sediments are in the GU3 event (Hays et al., 1969). The very detailed carbonate records for the interval from 2 to 5.6 Ma in high-sedimentation-rate central equatorial Pacific Holes 572C (Pisias and Prell, 1985) and 573A (Prell, 1985) show minima at 2.5, 3.0, 3.1, 3.4, and 3.7 to 3.9 Ma. The authors have correlated the events at 3.0 and 3.1 Ma to GU3 and the events between 3.7 and 3.9 Ma to GI1. The 3.7-to-3.9-Ma events in Hole 572C fall within CN11 (*Reticulofenestra pseudoumbilica* Zone). This is the same stratigraphic position that GI1 occupies at all sites and within all piston cores in which it has been recognized. Thus, it is likely that the minimum that occurs at Site 598 between 2 and 3 m depth corresponds to the broad minimum in carbonate contents that includes events GU3 and GI1 (3.1 to 3.7 Ma; Prell, 1985). The Site 503 (Gardner, 1982) sediments have two additional periods of very low carbonate concentration during the late Pliocene (about 2.4 Ma); these periods correspond to events M19 and M21 near the Matuyama/Gauss boundary. The M19 and M21 events appear to be present as small features in the Site 598 sediments.

The remaining prominent carbonate minimum in the upper part of Site 598 is early Pliocene in age (*Amaurolithus tricorniculatus* Zone, CN10). Its position suggests that it represents the minimum associated with events GI15 to GI17. The maxima and minima between 3 and 4.5 m depth would then represent the carbonate events of Gilbert age. The amplitude of the events within the interval is much lower than that of the carbonate events in the central equatorial Pacific, and individual events are impossible to correlate with certainty.

The late Miocene and early Pliocene carbonate events were correlated with those identified for the central and eastern equatorial Pacific by Dunn and Moore (1981). The variation in the Site 598 carbonate record for this interval is insufficient to permit low-amplitude named events to be identified. The correlation is based on the biostratigraphy and on the most prominent events. Dunn and Moore (1981) noted that one of the principal levels of correlation in this time period is represented by the carbonate event maxima 5d to 5f, which fall within an interval of generally high carbonate content. These two events fall within the lowermost *Amaurolithus tricorniculatus* Zone in RC12-66, but they are within the *Amaurolithus primus* Subzone (CN9b) of the *Discoaster quinqueramus* Zone (CN9) in DSDP Hole 77B and at Sites 158 and 310 (Figs. 6, 7). The carbonate maximum between 4 and 5 m depth at Site 598 is near the top of the *Amaurolithus primus* Subzone and has been correlated with events 5d to 5f. Below the maximum associated with events 5d to 5f at equatorial Pacific sites there is an interval of low carbonate content from event 5i to event 6a. These events are in the upper to middle *Discoaster quinqueramus* Zone. The low carbonate interval near a depth of 6 m in the *Amaurolithus primus* Subzone at Site 598 has been correlated with these events.

In Figure 7, the middle Miocene features of the calcium carbonate record at Site 598 are compared with equatorial Pacific cores and sites and with Hess Rise Site 310. The sediments within Epoch 6 record several of the car-

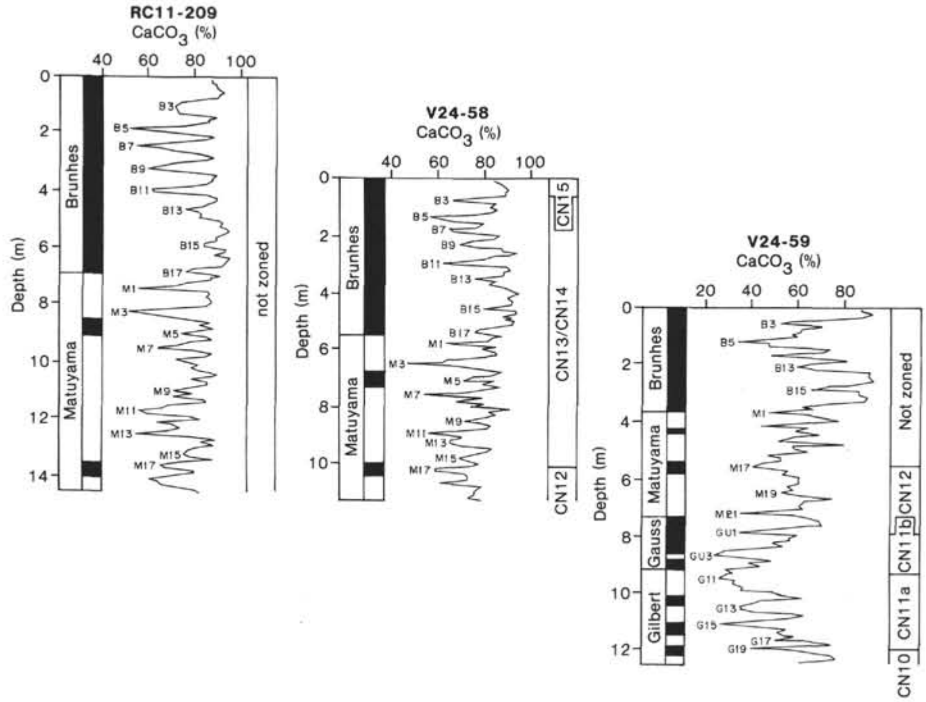

Figure 6. Comparison of carbonate contents of Pliocene and Pleistocene sediments from Site 598 with those of equatorial Pacific cores and DSDP sites. Events identified for equatorial Pacific sites are from authors cited in text. All data are plotted versus depth in core. Magnetostratigraphy and nannofossil zonations indicated where available.

bonate maxima and minima described in equatorial Pacific sediments. The 6d maximum and 6e minimum are especially prominent, as at Site 310. The carbonate events in Epochs 7 and 8 are far less distinct, although the 8c minimum is present. The long-term pattern of low carbonate content in Epoch 7 and high carbonate content in Epoch 8 that characterizes the equatorial Pacific is not present. This time interval at Site 598 is characterized by a significant decrease in the accumulation of hydrothermal sediment (Lyle et al., this volume), which is the main diluent. Thus, the difference between Epochs 7 and 8 here and at other sites may be an artifact of the reduced dilution of Epoch 7 sediments by hydrothermal phases. The low-amplitude record with low concentrations in Epoch 8 relative to Epoch 7 may also reflect core disturbance. The sediments in Core 2, Sections 2 and 3 (7.7 to 10.7 m sub-bottom depth) were more soupy than those above and below and were somewhat disturbed by handling.

The detailed sampling done for this study provides the best available record for Epochs 9 to 11. It shows far more detail than previous analyses of equatorial Pacific Hole 77B, Site 158, and Core RC12-65, which formed the basis of previous carbonate event stratigraphies for this interval (Dunn and Moore, 1981). The data from Site 598 suggest that there are several previously unidentified carbonate events in this interval. Epoch 9 is characterized at the equatorial Pacific sites by a broad low in carbonate content with two minima in the upper *Discoaster hamatus* (CN7) Zone. These minima have been named 9c and 9e by Dunn and Moore (1981) and by Vincent (1981). The data suggest that earlier studies failed to recognize at least two minima before event 9c, perhaps because sample spacing over this interval was wider.

Epoch 10 also has significantly more character than has been apparent in other studies. Its primary feature is an interval with carbonate content values as low as 63%. This minimum in the CN7 (*Discoaster hamatus*) Zone has been identified as the mid-Epoch 10 event by Vincent (1981). Because of the detail available at this site, I have named the additional maxima and minima, using the standard nomenclature.

Epoch 11 is short, but it contains a sharp minimum in carbonate content, the upper Epoch 11 event of Vincent (1981). Because there is considerable dissolution over the depth interval of Epoch 11 (see Knüttel, this volume) and little detail in the carbonate curve, I have not attempted to apply new nomenclature to this event.

There is much additional detail in the Site 598 carbonate curve below Zone CN6 (Fig. 3). The carbonate records in the literature for intervals older than the mid-Epoch 10 carbonate minimum lack enough detail for comparison with Site 598, however.

DISCUSSION

It is clear that the sediments at subequatorial Pacific Site 598 do not preserve the high-amplitude, short-duration carbonate events that are so well defined in the late Miocene to Pleistocene sediments of the equatorial Pacific and Hess Rise. The absence of the events is not an artifact of sampling interval. For example, the events within the *Amaurolithus tricorniculatus* Zone (CN10) oc-

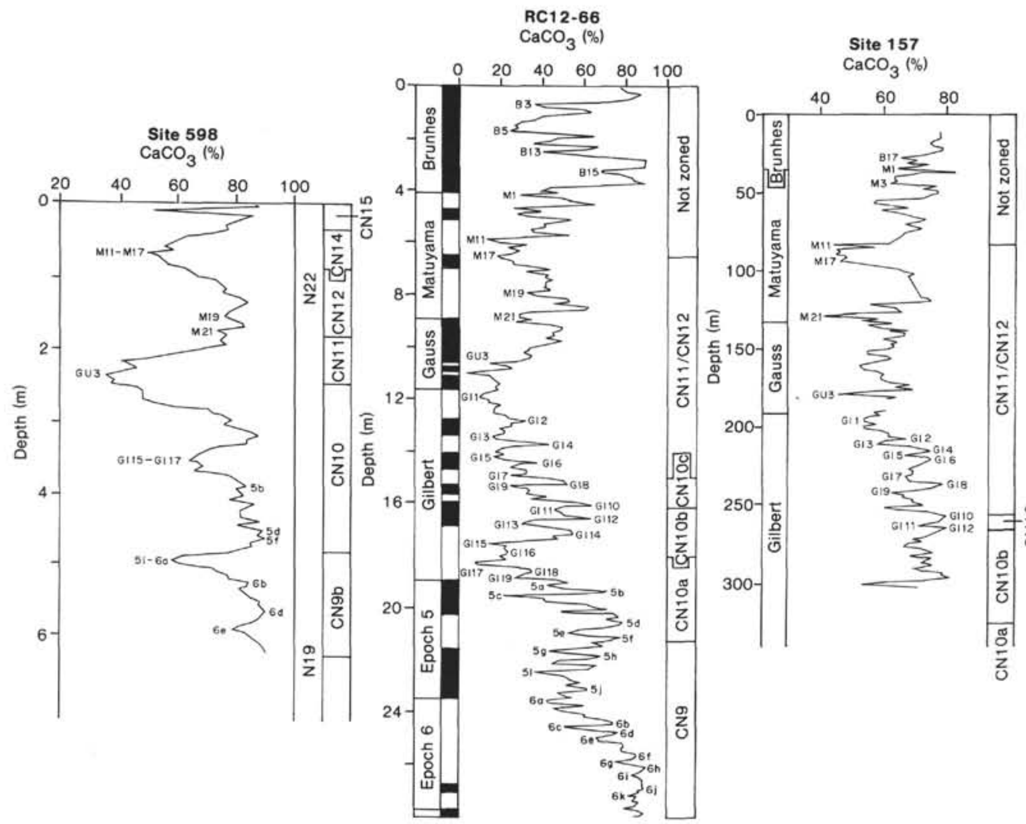

Figure 6 (continued).

cur in a 3-m interval in Site 598, about half the thickness of the interval in which they occur in RC12-66. Therefore, the 5-cm sample spacing at Site 598 was equivalent to the 10-cm sample spacing at RC12-66 (Fig. 6) and was sufficient to reveal such variability if it existed.

Some of the carbonate-minimum events that have been reported are associated with indicators of carbonate dissolution—assemblages dominated by resistant microfossil forms and large numbers of fragments (Vincent, 1981); but not all events show evidence of dissolution. If the events are caused by an excess of dissolution over supply, one possible explanation for the lack of high-amplitude, short-duration carbonate events in the subtropical Pacific sites is that they are not preserved because the carbonate accumulation rate is insufficient for carbonate minima and maxima to become buried before they are blended into previously deposited sediment by bioturbation. In that case, only long-term dissolution/supply events would be preserved in slowly accumulating sediments. The record for DSDP Site 310, which is at 3516 m depth in the central North Pacific and was well above the nonequatorial calcium carbonate compensation depth (CCD) for the Pacific during the mid-Pliocene (4250 m, van Andel et al., 1975), would tend to corroborate this hypothesis. The site has about 16 m of sediment equivalent in age to the GU3-to-GI17 interval. The average carbonate content within this interval is about 75%, and the accumulation rate is roughly 5 times that at Site 598. Site 310 was characterized by well-developed short-duration carbonate minima.

The equatorial Pacific cores that have been used previously to develop carbonate stratigraphies are from much greater depths than Site 598, and the average carbonate content in them is lower. Cores RC12-66 (4755 m) and V24-59 (4662 m), for example, were near the 4800 m mid-Pliocene CCD (van Andel et al., 1975). The average carbonate content between GU3 and GI17 is 30 to 40% at RC12-66 and V24-59, and the amplitude of the variation (about 30 wt.%) is roughly equivalent in the two cores. The average carbonate content over the same interval is 75% at Site 598, but there are no high-amplitude carbonate events. The carbonate accumulation rate at RC12-66 and V24-59 for the interval is roughly equivalent to that at Site 598. About twice as much noncarbonate sediment is accumulating at these sites, however. Thus, a second hypothesis is that the preservation of

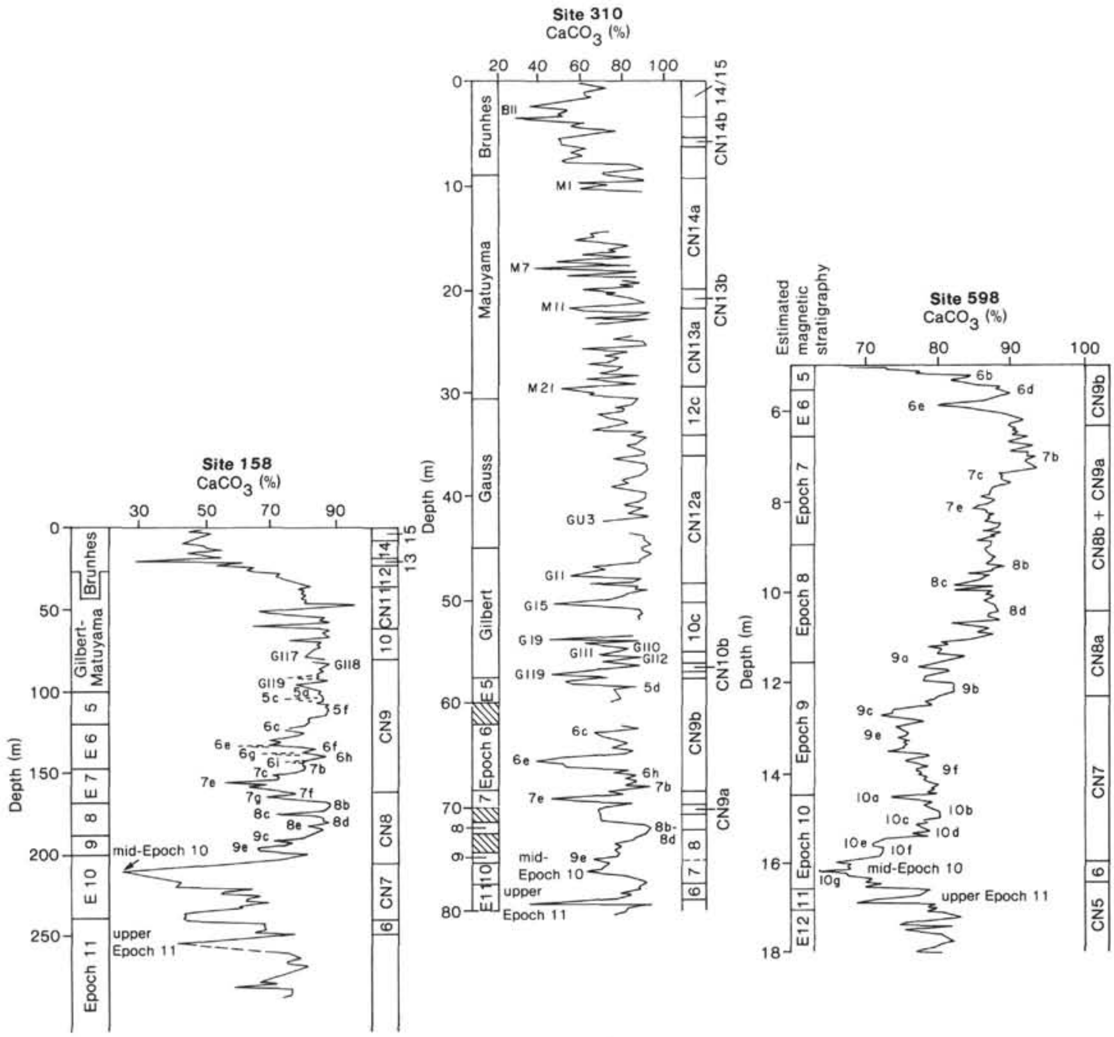

Figure 7. Comparison of carbonate contents of middle to late Miocene sediments from Site 598 with those of equatorial and North Pacific piston cores and DSDP sites. Events identified for equatorial Pacific sites are from Dunn and Moore (1981). Events identified for Site 310 are from Vincent (1981).

carbonate events is dependent on the accumulation rate of noncarbonate sediment.

A third hypothesis is that the short-term events are controlled by the varying dilution of the carbonate by biogenic silica. The noncarbonate fraction of all of the equatorial Pacific sediments and the Hess Rise sediments is dominated by biogenic silica, but silica is absent from Site 598. Where silica dominates the noncarbonate fraction, changes in the flux of silica could produce carbonate minima. However, although changes in biogenic silica flux to the sediment or in its dissolution at the sediment surface can affect the carbonate record in cores with low carbonate content, major basin-wide minima in the calcium carbonate content of sediments are almost certainly not an artifact of changing proportions of biogenic silica. Such changes in carbonate content would require changes of 75 to 100% in the amount of silica preserved in the sediment, and the changes in silica would have to be synchronous over the entire area for which correlatable carbonate events have been described. Changes in silica of 75 to 100% would require factor of 2 changes in silica supply or dissolution, which are unlikely (Heath, 1974). For the changes to be synchronous, the distribution of siliceous productivity increases or bottom-water dissolution of silica would have to be uniform over the entire ocean basin. Further evidence against this hypothesis is that many short-duration, high-amplitude events are preserved in the sediments from the lower parts of Sites 597 and 598 (Figs. 2 and 3), where no biogenic silica was present to dilute the carbonate. Differences in the importance of silica as a diluent may, however, affect the amplitude of the maxima and minima in a carbonate stratigraphy, especially at equatorial Pacific sites, where silica dominates the noncarbonate sediment fraction.

A comparison of very detailed carbonate records like those from Gardner (1982), Pisias and Prell (1985), Prell (1985), and the Miocene record from Site 598 indicates that the most pronounced carbonate minima can be correlated with confidence between distant sites without detailed paleomagnetic reversal stratigraphy. The similarity of the moderate-sedimentation-rate portions of the

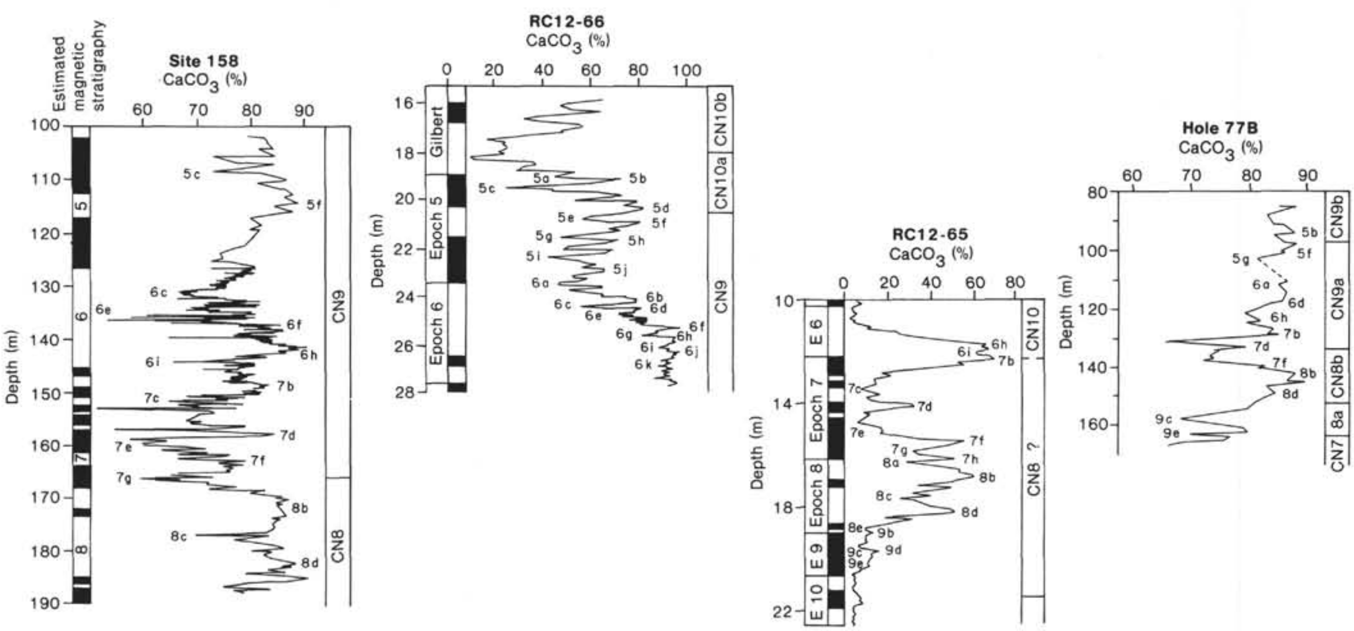

Figure 7 (continued).

Site 598 carbonate record to other records suggests that moderate- to high-resolution stratigraphy can be developed even in these sediments.

The high-resolution study of carbonate variation in Holes 572C and 573A by Prell (1985) and the carbonate variation in the high-accumulation-rate portions of Site 598 clearly show that maxima and minima are often missing. For example, Prell has demonstrated that in the high-accumulation-rate eastern equatorial Pacific, the GU3 event has two minima. The Site 598 record suggests that there are additional events in Epoch 9 that were not present in equatorial Pacific cores and sites. Because the details of the records vary with accumulation rate, numbered peaks represented by one or two points in earlier calcium carbonate studies cannot be correlated with certainty over great distances.

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APPENDIX A
$CaCO_3$ Concentrations in Samples from Site 597

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
29.12	1-1, 0	0
24.83	1-1, 5	5
22.68	1-1, 10	10
20.54	1-1, 15	15
17.32	1-1, 20	20
1.73	1-1, 25	25
4.79	1-1, 30	30
4.33	1-1, 35	35
3.31	1-1, 39	39
0.00	1-1, 44	44
0.26	1-1, 58	58
0.05	1-1, 65	65
2.06	1-1, 70	70
2.06	1-1, 75	75
1.06	1-1, 79	79
1.06	1-1, 85	85
1.06	1-1, 90	90
1.06	1-1, 100	100
1.06	1-1, 105	105
1.06	1-1, 110	110
1.06	1-1, 126	126
6.07	1-1, 130	130
10.08	1-1, 135	135
41.18	1-1, 140	140
53.61	1-1, 145	145
65.02	1-2, 0	150
75.17	1-2, 5	155
75.17	1-2, 9	159
67.05	1-2, 15	165
74.16	1-2, 20	170
75.17	1-2, 25	175
76.19	1-2, 26	176
70.10	1-2, 30	180
82.29	1-2, 35	185
74.16	1-2, 40	190
75.17	1-2, 45	195
73.14	1-2, 50	200
78.22	1-2, 59	209
77.21	1-2, 65	215
76.19	1-2, 70	220

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
74.16	1-2, 75	225
77.21	1-2, 80	230
80.25	1-2, 85	235
87.37	1-2, 95	245
87.37	1-2, 100	250
87.37	1-2, 106	256
76.19	1-2, 110	260
33.52	1-2, 116	266
67.05	1-2, 120	270
75.04	1-2, 125	275
78.28	1-2, 126	276
63.13	1-2, 130	280
72.29	1-2, 135	285
75.96	1-3, 0	300
67.71	1-3, 5	305
67.71	1-3, 10	310
64.97	1-3, 14	314
72.29	1-3, 19	319
64.05	1-3, 24	324
66.08	1-3, 26	326
71.38	1-3, 30	330
25.57	1-3, 36	336
32.90	1-3, 40	340
71.69	1-3, 45	345
74.79	1-3, 50	350
77.88	1-3, 55	355
79.94	1-3, 60	360
73.37	1-3, 65	365
66.35	1-3, 70	370
72.37	1-3, 75	375
74.20	1-3, 76	376
70.36	1-3, 80	380
79.39	1-3, 85	385
70.36	1-3, 90	390
69.36	1-3, 95	395
74.37	1-3, 100	400
78.38	1-3, 105	405
76.38	1-3, 110	410
77.38	1-3, 115	415
78.71	1-7, 1	416
73.69	1-7, 6	421
73.69	1-7, 11	426
73.69	1-7, 16	431
75.70	1-7, 21	436
70.68	2-1, 0	460
67.67	2-1, 5	465
70.68	2-1, 10	470
72.69	2-1, 15	475
73.69	2-1, 20	480
48.04	2-1, 25	485
72.79	2-1, 26	486
75.77	2-1, 30	490
73.31	2-1, 35	495
68.50	2-1, 40	500
70.82	2-1, 45	505
71.84	2-1, 50	510
67.79	2-1, 55	515
68.30	2-1, 60	520
71.33	2-1, 65	525
72.54	2-1, 70	530
73.45	2-1, 75	535
74.43	2-1, 76	536
74.26	2-1, 80	540
76.39	2-1, 85	545
74.87	2-1, 90	550
74.97	2-1, 95	555
75.99	2-1, 100	560
79.03	2-1, 105	565

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
78.42	2-1, 110	570
81.67	2-1, 115	575
80.56	2-1, 120	580
80.76	2-1, 125	585
80.56	2-1, 130	590
82.98	2-1, 135	595
85.41	2-1, 140	600
86.73	2-1, 145	605
85.41	2-2, 0	610
84.91	2-2, 5	615
83.69	2-2, 10	620
84.60	2-2, 15	625
83.29	2-2, 20	630
80.14	2-2, 24	634
83.05	2-2, 26	636
78.93	2-2, 30	640
77.91	2-2, 35	645
76.90	2-2, 40	650
71.12	2-2, 45	655
71.02	2-2, 50	660
66.06	2-2, 55	665
65.45	2-2, 60	670
59.26	2-2, 64	674
59.06	2-2, 70	680
62.34	2-2, 75	685
63.06	2-2, 80	690
55.88	2-2, 85	695
74.64	2-2, 90	700
76.79	2-2, 95	705
77.82	2-2, 100	710
77.72	2-2, 105	715
77.00	2-2, 110	720
79.05	2-2, 114	724
79.46	2-2, 120	730
80.28	2-2, 125	735
80.18	2-2, 126	736
79.05	2-2, 130	740
80.07	2-2, 135	745
80.69	2-3, 0	760
80.87	2-3, 5	765
82.10	2-3, 10	770
82.00	2-3, 15	775
83.64	2-3, 20	780
80.67	2-3, 25	785
81.28	2-3, 26	786
85.69	2-3, 30	790
83.13	2-3, 35	795
83.54	2-3, 40	800
82.92	2-3, 45	805
82.10	2-3, 50	810
82.31	2-3, 55	815
82.61	2-3, 60	820
84.05	2-3, 65	825
83.84	2-3, 75	835
85.89	2-3, 76	836
83.02	2-3, 80	840
81.38	2-3, 85	845
82.00	2-3, 90	850
81.69	2-3, 95	855
82.61	2-3, 100	860
80.87	2-3, 105	865
82.72	2-3, 110	870
83.23	2-3, 115	875
82.82	2-3, 120	880
82.31	2-3, 125	885
81.69	2-3, 126	886
80.97	2-3, 130	890
82.92	2-3, 135	895

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
82.20	2-3, 140	900
82.31	2-3, 145	905
84.97	2-4, 0	910
85.77	2-4, 5	915
86.78	2-4, 10	920
86.48	2-4, 15	925
86.28	2-4, 20	930
87.59	2-4, 25	935
86.48	2-4, 26	936
87.80	2-4, 35	945
85.77	2-4, 40	950
85.47	2-4, 44	954
86.18	2-4, 50	960
85.77	2-4, 55	965
85.26	2-4, 60	970
85.97	2-4, 64	974
85.77	2-4, 68	978
86.28	2-4, 74	984
87.76	2-4, 80	990
86.48	2-4, 90	1000
88.89	2-4, 100	1010
88.28	2-4, 105	1015
88.07	2-4, 109	1019
89.41	2-4, 115	1025
87.25	2-4, 120	1030
85.50	2-4, 125	1035
85.70	2-4, 130	1040
85.29	2-4, 135	1045
84.57	2-5, 0	1060
86.32	2-5, 0	1060
86.22	2-5, 5	1065
85.09	2-5, 10	1070
86.01	2-5, 15	1075
87.56	2-5, 20	1080
86.01	2-5, 25	1085
86.43	2-5, 26	1086
84.47	2-5, 30	1090
86.22	2-5, 35	1095
85.50	2-5, 40	1100
85.50	2-5, 45	1105
85.81	2-5, 50	1110
88.28	2-5, 55	1115
85.50	2-5, 60	1120
84.47	2-5, 65	1125
85.09	2-5, 70	1130
85.29	2-5, 75	1135
85.81	2-5, 77	1137
89.30	2-5, 80	1140
86.84	2-5, 85	1145
85.81	2-5, 90	1150
87.05	2-5, 95	1155
85.91	2-5, 100	1160
88.50	2-5, 105	1165
87.25	2-5, 110	1170
87.98	2-5, 115	1175
85.94	2-5, 120	1180
88.29	2-5, 120	1180
86.42	2-5, 125	1185
87.57	2-5, 130	1190
87.51	2-5, 135	1195
87.19	2-5, 140	1200
89.09	2-5, 145	1205
88.25	2-6, 0	1210
86.67	2-6, 5	1215
91.50	2-6, 10	1220
90.45	2-6, 15	1225
90.45	2-6, 20	1230
91.50	2-6, 25	1235

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
91.76	2-6, 25	1235
92.22	2-6, 30	1240
92.59	2-6, 35	1245
90.84	2-6, 40	1250
92.59	2-6, 45	1255
91.85	2-6, 50	1260
91.20	2-6, 55	1265
90.38	2-6, 55	1265
90.93	2-6, 60	1270
91.76	2-6, 65	1275
92.78	2-6, 70	1280
92.04	2-6, 75	1285
93.32	2-6, 75	1285
91.85	2-6, 80	1290
91.30	2-6, 85	1295
92.59	2-6, 90	1300
90.10	2-6, 94	1304
94.63	2-6, 100	1310
93.60	2-6, 105	1315
94.07	2-6, 110	1320
94.82	2-6, 115	1325
91.42	2-6, 120	1330
92.48	2-6, 120	1330
93.14	2-6, 123	1333
93.98	2-6, 130	1340
91.65	2-6, 135	1345
93.42	2-6, 140	1350
93.70	2-6, 145	1355
94.91	2-7, 0	1355
94.16	2-7, 5	1360
94.26	2-7, 10	1365
91.27	3-1, 0	1420
93.04	3-1, 5	1425
94.26	3-1, 10	1430
93.88	3-1, 15	1435
96.40	3-1, 20	1440
94.44	3-1, 25	1445
93.24	3-1, 26	1446
94.54	3-1, 30	1450
93.70	3-1, 35	1455
92.78	3-1, 40	1460
92.84	3-1, 45	1465
92.42	3-1, 45	1465
93.15	3-1, 50	1470
92.33	3-1, 55	1475
91.96	3-1, 60	1480
94.90	3-1, 65	1485
92.05	3-1, 70	1490
92.78	3-1, 75	1495
92.51	3-1, 76	1496
93.61	3-1, 80	1500
91.04	3-1, 85	1505
92.14	3-1, 90	1510
92.14	3-1, 95	1515
92.42	3-1, 100	1520
92.42	3-1, 105	1525
92.69	3-1, 110	1530
92.05	3-1, 115	1535
95.47	3-1, 120	1540
91.32	3-1, 125	1545
93.15	3-1, 126	1546
92.51	3-1, 130	1550
92.42	3-1, 135	1555
91.59	3-1, 140	1560
91.32	3-1, 145	1565
94.07	3-2, 0	1570
93.43	3-2, 5	1575
93.79	3-2, 10	1580

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
93.24	3-2, 15	1585
94.16	3-2, 20	1590
92.78	3-2, 30	1600
92.05	3-2, 35	1605
86.93	3-2, 40	1610
92.78	3-2, 40	1610
92.23	3-2, 45	1615
91.22	3-2, 50	1620
90.58	3-2, 55	1625
91.32	3-2, 60	1630
90.95	3-2, 65	1635
93.52	3-2, 70	1640
92.42	3-2, 75	1645
93.61	3-2, 76	1646
94.25	3-2, 80	1650
93.15	3-2, 85	1655
92.40	3-2, 90	1660
92.58	3-2, 95	1665
92.40	3-2, 100	1670
93.68	3-2, 105	1675
91.48	3-2, 110	1680
91.64	3-2, 115	1685
92.76	3-2, 120	1690
92.58	3-2, 125	1695
93.87	3-2, 126	1696
92.67	3-2, 130	1700
90.74	3-2, 135	1705
90.19	3-2, 139	1709
90.37	3-3, 0	1720
90.46	3-3, 5	1725
91.66	3-3, 10	1730
91.48	3-3, 15	1735
91.75	3-3, 20	1740
94.14	3-3, 25	1745
94.79	3-3, 26	1746
92.67	3-3, 30	1750
91.48	3-3, 35	1755
91.42	3-3, 40	1760
93.32	3-3, 40	1760
93.59	3-3, 45	1765
93.78	3-3, 50	1770
92.58	3-3, 55	1775
90.96	3-3, 60	1780
90.59	3-3, 65	1785
91.50	3-3, 70	1790
90.14	3-3, 85	1805
91.96	3-3, 90	1895
91.78	3-3, 95	1900
92.05	3-3, 100	1905
91.78	3-3, 105	1910
93.42	3-3, 110	1915
91.87	3-3, 115	1920
90.43	3-3, 120	1925
92.41	3-3, 125	1930
93.05	3-3, 128	1933
93.87	3-3, 130	1935
94.05	3-3, 135	1940
92.14	3-3, 140	1945
94.15	3-3, 145	1950
94.15	3-4, 0	1870
92.14	3-4, 5	1875
93.87	3-4, 10	1880
94.87	3-4, 15	1885
95.06	3-4, 20	1890
92.84	3-4, 25	1895
92.30	3-4, 26	1896
91.04	3-4, 30	1900
89.51	3-4, 35	1905

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
87.88	3-4, 40	1910
89.69	3-4, 45	1915
91.67	3-4, 50	1920
91.58	3-4, 55	1925
91.94	3-4, 60	1930
92.12	3-4, 65	1935
92.66	3-4, 70	1940
93.38	3-4, 75	1945
93.38	3-4, 76	1946
93.02	3-4, 80	1950
92.39	3-4, 85	1955
92.12	3-4, 90	1960
92.66	3-4, 95	1965
90.05	3-4, 100	1970
91.49	3-4, 105	1975
89.96	3-4, 110	1980
92.56	3-4, 115	1985
92.08	3-4, 120	1990
90.05	3-4, 120	1990
90.41	3-4, 125	1995
88.52	3-4, 126	1996
89.60	3-4, 130	2000
87.49	3-4, 135	2005
89.29	3-5, 0	2020
89.47	3-5, 5	2025
89.83	3-5, 10	2030
87.49	3-5, 15	2035
87.49	3-5, 20	2040
88.93	3-5, 25	2045
89.29	3-5, 30	2050
90.73	3-5, 35	2055
90.60	3-5, 40	2060
89.65	3-5, 45	2065
88.66	3-5, 50	2070
85.78	3-5, 55	2075
87.58	3-5, 60	2080
89.74	3-5, 65	2085
87.40	3-5, 70	2090
89.02	3-5, 75	2095
89.92	3-5, 80	2100
88.57	3-5, 85	2105
88.93	3-5, 90	2110
91.36	3-5, 95	2115
91.45	3-5, 100	2120
91.90	3-5, 105	2125
91.63	3-5, 110	2130
89.83	3-5, 115	2135
91.16	3-5, 120	2140
90.89	3-5, 125	2145
92.26	3-5, 130	2150
92.26	3-5, 135	2155
89.24	3-5, 140	2160
92.81	3-5, 145	2165
92.45	3-6, 0	2170
92.72	3-6, 5	2175
90.61	3-6, 10	2180
91.53	3-6, 15	2185
90.98	3-6, 20	2190
90.80	3-6, 25	2195
91.81	3-6, 26	2196
91.71	3-6, 30	2200
91.16	3-6, 35	2205
91.81	3-6, 40	2210
91.99	3-6, 45	2215
89.60	3-6, 50	2220
91.62	3-6, 55	2225
91.44	3-6, 60	2230
91.90	3-6, 65	2235

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
92.54	3-6, 70	2240
89.60	3-6, 75	2245
87.31	3-6, 76	2246
88.36	3-6, 80	2250
88.99	3-6, 85	2255
87.81	3-6, 90	2260
90.78	3-6, 95	2265
87.36	3-6, 100	2270
88.72	3-6, 105	2275
87.17	3-6, 110	2280
86.81	3,CC, 0	2285
85.81	3,CC, 5	2290
86.45	3,CC, 10	2295
85.63	3,CC, 15	2300
85.45	3,CC, 20	2305
88.36	4-1, 0	2380
88.27	4-1, 5	2385
88.63	4-1, 10	2390
90.72	4-1, 15	2395
88.72	4-1, 20	2400
88.81	4-1, 25	2405
89.36	4-1, 26	2406
89.17	4-1, 30	2410
89.17	4-1, 35	2415
82.77	4-1, 40	2420
87.99	4-1, 45	2425
88.54	4-1, 50	2430
89.81	4-1, 55	2435
87.43	4-1, 60	2440
87.43	4-1, 65	2445
86.89	4-1, 70	2450
88.25	4-1, 75	2455
86.61	4-1, 76	2456
88.80	4-1, 80	2460
88.34	4-1, 85	2465
89.42	4-1, 90	2470
88.34	4-1, 95	2475
88.52	4-1, 100	2480
87.43	4-1, 105	2485
88.43	4-1, 110	2490
89.24	4-1, 115	2495
90.11	4-1, 120	2500
90.65	4-1, 120	2500
89.15	4-1, 120	2500
87.34	4-1, 125	2505
88.15	4-1, 126	2506
88.15	4-1, 130	2510
88.97	4-1, 135	2515
88.97	4-1, 140	2520
89.42	4-1, 145	2525
88.34	4-2, 0	2530
88.43	4-2, 5	2535
88.52	4-2, 10	2540
89.06	4-2, 15	2545
87.87	4-2, 20	2550
88.42	4-2, 25	2555
89.34	4-2, 26	2556
89.98	4-2, 30	2560
88.79	4-2, 35	2565
87.15	4-2, 40	2570
88.51	4-2, 45	2575
89.25	4-2, 50	2580
85.30	4-2, 55	2585
84.66	4-2, 60	2590
85.76	4-2, 65	2595
85.21	4-2, 70	2600
86.49	4-2, 75	2605
84.93	4-2, 76	2606

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
84.93	4-2, 80	2610
84.93	4-2, 85	2615
84.93	4-2, 90	2620
86.95	4-2, 95	2625
86.68	4-2, 100	2630
84.84	4-2, 105	2635
85.58	4-2, 110	2640
86.03	4-2, 115	2645
88.68	4-2, 120	2650
86.68	4-2, 120	2650
85.85	4-2, 125	2655
85.39	4-2, 126	2656
84.47	4-2, 130	2660
86.03	4-2, 135	2665
85.21	4-2, 140	2670
85.67	4-3, 0	2680
84.47	4-3, 5	2685
84.66	4-3, 10	2690
83.92	4-3, 15	2695
83.46	4-3, 20	2700
82.36	4-3, 25	2705
84.75	4-3, 30	2710
86.40	4-3, 35	2715
87.81	4-3, 40	2720
85.21	4-3, 40	2720
84.20	4-3, 45	2725
84.47	4-3, 50	2730
85.02	4-3, 55	2735
85.85	4-3, 60	2740
86.03	4-3, 65	2745
85.85	4-3, 70	2750
84.75	4-3, 75	2755
85.76	4-3, 76	2756
85.21	4-3, 80	2760
87.59	4-3, 85	2765
86.03	4-3, 90	2770
86.13	4-3, 95	2775
84.16	4-3, 100	2780
82.34	4-3, 105	2785
83.61	4-3, 110	2790
86.42	4-3, 115	2795
86.93	4-3, 120	2800
84.79	4-3, 120	2800
83.43	4-3, 125	2805
84.16	4-3, 126	2806
83.61	4-3, 130	2810
81.43	4-3, 135	2815
82.80	4-3, 140	2820
84.52	4-3, 145	2825
82.98	4-4, 0	2830
84.88	4-4, 5	2835
85.15	4-4, 10	2840
83.70	4-4, 15	2845
83.70	4-4, 20	2850
83.91	4-4, 25	2855
82.36	4-4, 30	2860
84.74	4-4, 35	2865
85.20	4-4, 36	2866
83.83	4-4, 45	2875
84.38	4-4, 50	2880
81.90	4-4, 55	2885
84.65	4-4, 60	2890
82.45	4-4, 65	2895
80.98	4-4, 70	2900
82.91	4-4, 75	2905
82.18	4-4, 80	2910
81.81	4-4, 85	2915
82.91	4-4, 90	2920

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
82.91	4-4, 95	2925
84.01	4-4, 100	2930
84.19	4-4, 105	2935
84.65	4-4, 110	2940
85.75	4-4, 115	2945
85.48	4-4, 116	2946
83.73	4-4, 120	2950
85.20	4-4, 125	2955
83.73	4-4, 130	2960
83.83	4-4, 135	2965
81.45	4-5, 0	2980
78.40	4-5, 0	2980
80.58	4-5, 5	2985
83.75	4-5, 10	2990
80.50	4-5, 10	2990
85.94	4-5, 15	2995
85.00	4-5, 15	2995
80.36	4-5, 20	3000
85.18	4-5, 20	3000
84.30	4-5, 25	3005
86.55	4-5, 26	3006
82.00	4-5, 30	3010
84.74	4-5, 35	3015
86.16	4-5, 40	3020
85.50	4-5, 45	3025
85.94	4-5, 50	3030
84.85	4-5, 55	3035
86.71	4-5, 60	3040
82.00	4-5, 65	3045
81.45	4-5, 70	3050
88.79	4-5, 75	3055
87.00	4-5, 76	3056
89.34	4-5, 80	3060
85.72	4-5, 85	3065
82.22	4-5, 85	3065
83.75	4-5, 90	3070
83.64	4-5, 95	3075
83.86	4-5, 95	3075
85.94	4-5, 100	3080
84.52	4-5, 105	3085
87.70	4-5, 110	3090
90.11	4-5, 115	3095
85.18	4-5, 120	3100
83.42	4-5, 125	3105
88.46	4-5, 130	3110
89.67	4-5, 135	3115
88.79	4-5, 135	3115
87.37	4-5, 140	3120
84.74	4-5, 145	3125
87.48	4-6, 0	3130
88.68	4-6, 5	3135
88.35	4-6, 10	3140
89.23	4-6, 15	3145
86.71	4-6, 20	3150
90.11	4-6, 25	3155
85.82	4-6, 25	3155
85.18	4-6, 30	3160
88.02	4-6, 35	3165
87.26	4-6, 40	3170
84.08	4-6, 40	3170
91.20	4-6, 45	3175
80.25	4-6, 50	3180
84.52	4-6, 55	3185
85.18	4-6, 55	3185
85.29	4-6, 60	3190
90.65	4-6, 65	3195
88.68	4-6, 70	3200
89.78	4-6, 75	3205

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
86.71	4-6, 80	3210
92.08	4-6, 85	3215
86.71	4-6, 90	3220
91.75	4-6, 95	3225
83.31	4-6, 100	3230
88.13	4-6, 105	3235
83.86	4-6, 110	3240
87.26	4-6, 115	3245
88.35	4-6, 120	3250
82.27	4-6, 120	3250
77.18	6-1, 0	4300
73.35	6-1, 5	4305
73.79	6-1, 10	4310
79.59	6-1, 15	4315
80.36	6-1, 20	4320
75.32	6-1, 25	4325
75.91	6-1, 26	4326
76.74	6-1, 30	4330
72.47	6-1, 35	4335
73.46	6-1, 40	4340
59.98	6-1, 45	4345
74.22	6-1, 50	4350
72.36	6-1, 55	4355
77.40	6-1, 60	4360
80.14	6-1, 65	4365
77.51	6-1, 70	4370
76.30	6-1, 75	4375
73.64	6-1, 76	4376
71.70	6-1, 80	4380
74.33	6-1, 85	4385
73.79	6-1, 90	4390
70.50	6-1, 95	4395
64.37	6-1, 100	4400
68.20	6-1, 105	4405
76.63	6-1, 110	4410
72.14	6-1, 115	4415
67.87	6-1, 130	4430
69.55	6-1, 130	4430
79.26	6-1, 135	4435
73.24	6-1, 140	4440
74.66	6-1, 145	4445
76.96	6-2, 0	4450
75.21	6-2, 5	4455
78.82	6-2, 10	4460
75.87	6-2, 15	4465
71.16	6-2, 20	4470
66.23	6-2, 25	4475
74.82	6-2, 26	4476
67.32	6-2, 30	4480
72.25	6-2, 40	4490
63.49	6-2, 45	4495
52.21	6-2, 50	4500
54.18	6-2, 55	4505
40.82	6-2, 60	4510
47.82	6-2, 65	4515
71.82	6-2, 70	4520
65.27	6-2, 75	4525
67.09	6-2, 76	4526
66.99	6-2, 80	4530
69.84	6-2, 85	4535
74.64	6-2, 85	4535
73.27	6-2, 90	4540
73.18	6-2, 95	4545
70.28	6-2, 100	4550
75.21	6-2, 105	4555
61.41	6-2, 110	4560
71.59	6-2, 115	4565
73.24	6-2, 120	4570

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
75.87	6-2, 125	4575
75.65	6-2, 130	4580
72.47	6-2, 135	4585
70.45	6-3, 0	4600
36.36	6-3, 5	4605
65.36	6-3, 10	4610
72.36	6-3, 15	4615
73.00	6-3, 20	4620
74.36	6-3, 25	4625
74.82	6-3, 26	4626
75.55	6-3, 30	4630
72.91	6-3, 35	4635
72.69	6-3, 40	4640
72.91	6-3, 40	4640
76.18	6-3, 45	4645
75.73	6-3, 50	4650
75.91	6-3, 55	4655
75.82	6-3, 60	4660
76.09	6-3, 65	4665
75.27	6-3, 70	4670
62.82	6-3, 75	4675
67.36	6-3, 76	4676
70.27	6-3, 80	4680
75.00	6-3, 85	4685
73.45	6-3, 90	4690
78.64	6-3, 95	4695
77.64	6-3, 100	4700
78.18	6-3, 105	4705
63.09	6-3, 110	4710
56.64	6-3, 115	4715
73.24	6-3, 120	4720
73.91	6-3, 125	4725
66.09	6-3, 130	4730
67.91	6-3, 135	4735
74.36	6-3, 140	4740
73.73	6-3, 145	4745
68.91	6-4, 26	4776
81.67	6-4, 40	4640
68.45	6-4, 76	4676
81.67	6-4, 120	4720
75.64	6-5, 0	4900
70.45	6-5, 5	4905
80.45	6-5, 15	4915
75.27	6-5, 20	4920
78.91	6-5, 25	4925
77.73	6-5, 26	4926
73.55	6-5, 30	4930
84.82	6-5, 35	4935
72.91	6-5, 40	4940
81.18	6-5, 70	4970
83.18	6-5, 75	4975
82.36	6-5, 76	4976
77.55	6-5, 80	4980
73.18	6-5, 85	4985
70.45	6-5, 90	4990
74.27	6-5, 95	4995
78.18	6-5, 100	5000
83.64	6-5, 105	5005
81.55	6-5, 110	5010
74.55	6-5, 115	5015
73.24	6-5, 120	5020
73.36	6-5, 120	5020
77.67	6-5, 125	5025
75.00	6-5, 130	5030
83.00	6-5, 135	5035
80.18	6-5, 140	5040
81.55	6-5, 145	5045
81.36	6-6, 0	5050

Appendix A (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
82.27	6-6, 5	5055
71.18	6-6, 10	5060
75.45	6-6, 15	5065
73.36	6-6, 20	5070
69.00	6-6, 25	5075
73.18	6-6, 26	5076
80.73	6-6, 30	5080
85.45	6-6, 35	5085
82.77	6-6, 40	5090
81.18	6-6, 40	5090
82.55	6-6, 45	5095
74.09	6-6, 50	5100
80.27	6-6, 55	5105
85.55	6-6, 60	5110
85.18	6-6, 65	5115
85.55	6-6, 70	5120
86.36	6-6, 75	5125
87.45	6-6, 76	5126
70.91	6-6, 80	5130
68.73	6-6, 85	5135
64.82	6-6, 90	5140
64.04	6-6, 95	5145

APPENDIX B
$CaCO_3$ Concentrations in Samples from Site 598

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
85.83	1-1, 0	0
87.33	1-1, 5	5
50.65	1-1, 10	10
84.48	1-1, 15	15
82.01	1-1, 20	20
78.50	1-1, 25	25
76.37	1-1, 30	30
76.81	1-1, 35	35
70.78	1-1, 40	40
62.44	1-1, 45	45
59.81	1-1, 50	50
57.25	1-1, 55	55
55.16	1-1, 60	60
58.00	1-1, 65	65
48.88	1-1, 70	70
52.73	1-1, 75	75
55.71	1-1, 80	80
55.55	1-1, 85	85
61.99	1-1, 90	90
63.39	1-1, 95	95
66.04	1-1, 100	100
72.12	1-1, 105	105
74.34	1-1, 110	110
75.84	1-1, 115	115
74.27	1-1, 120	120
75.70	1-1, 125	125
80.78	1-1, 130	130
83.72	1-1, 135	135
76.77	1-2, 0	150
76.18	1-2, 5	155
78.20	1-2, 10	160
81.90	1-2, 15	165
82.32	1-2, 20	170
73.06	1-2, 25	175
76.42	1-2, 30	180
74.60	1-2, 35	185

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
74.04	1-2, 40	190
76.24	1-2, 45	195
71.06	1-2, 50	200
62.86	1-2, 55	205
55.51	1-2, 60	210
49.60	1-2, 65	215
40.66	1-2, 70	220
43.18	1-2, 75	225
45.00	1-2, 80	230
39.50	1-2, 85	235
35.24	1-2, 90	240
38.16	1-2, 95	245
36.82	1-2, 100	250
45.59	1-2, 105	255
48.14	1-2, 110	260
48.33	1-2, 115	265
47.77	1-2, 120	270
51.39	1-2, 125	275
58.79	1-2, 130	280
70.93	1-2, 135	285
72.15	1-2, 140	290
76.42	1-2, 145	295
78.70	1-3, 0	300
75.70	1-3, 5	305
84.77	1-3, 15	315
88.01	1-3, 20	320
84.17	1-3, 25	325
83.86	1-3, 30	330
74.13	1-3, 35	335
70.92	1-3, 40	340
68.82	1-3, 45	345
66.70	1-3, 50	350
65.04	1-3, 55	355
68.19	1-3, 60	360
68.95	1-3, 65	365
65.56	1-3, 70	370
76.56	1-3, 75	375
79.65	1-3, 80	380
81.52	1-3, 85	385
84.05	1-3, 90	390
81.10	1-3, 95	395
83.01	1-3, 100	400
82.74	1-3, 105	405
77.89	1-3, 110	410
86.66	1-3, 115	415
84.97	1-3, 120	420
82.03	1-3, 125	425
81.56	1-3, 130	430
82.03	1-3, 135	435
88.51	1-3, 140	440
81.25	1-3, 145	445
89.39	1-4, 0	450
89.45	1-4, 5	455
87.50	1-4, 10	460
90.42	1-4, 15	465
84.97	1-4, 20	470
86.25	1-4, 25	475
81.58	1-4, 30	480
77.88	1-4, 35	485
62.23	1-4, 40	490
58.55	1-4, 45	495
61.08	1-4, 50	500
73.00	1-4, 55	505
72.48	1-4, 60	510
77.74	1-4, 65	515
77.00	1-4, 70	520
84.82	1-4, 75	525
84.34	1-4, 80	530

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
81.91	1-4, 85	535
83.62	1-4, 90	540
84.74	1-4, 95	545
88.83	1-4, 100	550
88.19	1-4, 105	555
89.56	1-4, 110	560
90.52	1-4, 115	565
89.01	1-4, 120	570
88.11	1-4, 125	575
86.37	1-4, 130	580
81.33	1-4, 135	585
80.00	1-4, 140	590
84.01	1-4, 145	595
87.48	1,CC, 5	605
89.56	1,CC, 10	610
91.44	1,CC, 20	620
92.02	2-1, 0	620
92.05	2-1, 5	625
90.06	2-1, 10	630
89.94	2-1, 15	635
91.00	2-1, 20	640
90.47	2-1, 25	645
91.35	2-1, 30	650
90.41	2-1, 35	655
92.48	2-1, 40	660
90.64	2-1, 45	665
89.88	2-1, 50	670
91.88	2-1, 55	675
93.27	2-1, 60	680
92.15	2-1, 65	685
90.06	2-1, 70	690
92.73	2-1, 75	695
92.47	2-1, 80	700
93.65	2-1, 85	705
92.37	2-1, 90	710
92.11	2-1, 95	715
93.27	2-1, 105	725
93.65	2-1, 110	730
88.64	2-1, 120	740
89.08	2-1, 125	745
88.77	2-1, 130	750
89.05	2-1, 135	755
90.21	2-1, 140	760
89.31	2-1, 145	765
87.65	2-2, 0	770
87.42	2-2, 5	775
87.31	2-2, 10	780
87.25	2-2, 15	785
85.98	2-2, 20	790
87.53	2-2, 25	795
87.92	2-2, 30	800
86.98	2-2, 35	805
85.59	2-2, 40	810
84.86	2-2, 45	815
86.71	2-2, 50	820
86.81	2-2, 55	825
87.75	2-2, 60	830
86.98	2-2, 65	835
87.09	2-2, 70	840
86.48	2-2, 75	845
88.60	2-2, 80	850
88.54	2-2, 85	855
88.37	2-2, 90	860
85.84	2-2, 95	865
88.76	2-2, 100	870
87.40	2-2, 105	875
87.85	2-2, 110	880
85.25	2-2, 115	885

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
87.40	2-2, 120	890
87.34	2-2, 125	895
87.07	2-2, 130	900
86.33	2-2, 135	905
87.17	2-3, 0	920
88.03	2-3, 5	925
87.57	2-3, 10	930
87.40	2-3, 15	935
86.55	2-3, 20	940
89.22	2-3, 25	945
87.51	2-3, 30	950
87.51	2-3, 35	955
84.00	2-3, 40	960
87.17	2-3, 45	965
86.50	2-3, 50	970
85.67	2-3, 55	975
84.13	2-3, 60	980
82.00	2-3, 65	985
87.51	2-3, 70	990
82.16	2-3, 75	995
87.51	2-3, 80	1000
86.44	2-3, 85	1005
87.70	2-3, 90	1010
87.28	2-3, 95	1015
86.10	2-3, 100	1020
86.94	2-3, 105	1025
87.68	2-3, 110	1030
87.81	2-3, 115	1035
87.91	2-3, 120	1040
88.14	2-3, 125	1045
86.94	2-3, 130	1050
86.77	2-3, 135	1055
87.28	2-3, 140	1060
88.70	2-3, 145	1065
81.61	2-4, 0	1070
84.71	2-4, 5	1075
86.53	2-4, 10	1080
86.77	2-4, 15	1085
85.20	2-4, 20	1090
87.51	2-4, 25	1095
85.61	2-4, 30	1100
84.29	2-4, 35	1105
79.92	2-4, 40	1110
81.27	2-4, 45	1115
78.32	2-4, 50	1120
80.14	2-4, 55	1125
80.45	2-4, 60	1130
79.50	2-4, 65	1135
82.85	2-4, 70	1140
83.69	2-4, 75	1145
81.79	2-4, 80	1150
80.14	2-4, 85	1155
78.93	2-4, 90	1160
76.83	2-4, 95	1165
80.85	2-4, 100	1170
81.36	2-4, 105	1175
79.50	2-4, 110	1180
77.81	2-4, 115	1185
77.88	2-4, 120	1190
77.57	2-4, 125	1195
81.44	2-4, 130	1200
82.01	2-4, 135	1205
81.75	2-4, 140	1210
82.01	2-5, 0	1220
80.85	2-5, 5	1225
79.54	2-5, 10	1230
79.08	2-5, 15	1235
77.73	2-5, 20	1240

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
78.86	2-5, 30	1250
74.65	2-5, 35	1255
73.48	2-5, 40	1260
73.48	2-5, 45	1265
71.63	2-5, 50	1270
76.58	2-5, 60	1280
77.68	2-5, 65	1285
75.81	2-5, 70	1290
73.61	2-5, 75	1295
74.46	2-5, 80	1300
74.99	2-5, 85	1305
75.66	2-5, 90	1310
75.18	2-5, 95	1315
74.11	2-5, 100	1320
75.56	2-5, 105	1325
74.89	2-5, 110	1330
75.27	2-5, 115	1335
74.89	2-5, 120	1340
74.74	2-5, 125	1345
72.49	2-5, 130	1350
77.02	2-5, 135	1355
78.42	2-5, 140	1360
74.83	2-6, 0	1370
75.70	2-6, 5	1375
78.33	2-6, 10	1380
77.40	2-6, 15	1385
76.37	2-6, 20	1390
77.29	2-6, 25	1395
76.81	2-6, 30	1400
78.03	2-6, 35	1405
77.55	2-6, 40	1410
77.85	2-6, 45	1415
79.12	2-6, 50	1420
79.57	2-6, 55	1425
78.63	2-6, 60	1430
79.10	2-6, 65	1435
78.05	2-6, 70	1440
79.41	2-6, 75	1445
72.91	2-6, 80	1450
73.19	2-6, 85	1455
76.92	2-6, 90	1460
78.63	2-6, 95	1465
77.55	2-6, 100	1470
78.05	2-6, 105	1475
78.66	2-6, 110	1480
79.72	2-6, 115	1485
79.87	2-6, 130	1500
77.40	2-6, 135	1505
78.03	2-6, 140	1510
76.37	2-6, 145	1515
76.92	2-7, 0	1520
77.85	2-7, 5	1525
78.50	2-7, 10	1530
75.79	2-7, 15	1535
78.22	2-7, 20	1540
72.05	2-7, 25	1545
70.90	2,CC, 0	1550
70.41	2,CC, 5	1555
70.36	2,CC, 10	1560
71.66	2,CC, 15	1565
71.63	3-1, 0	1580
70.36	3-1, 5	1585
67.84	3-1, 10	1590
65.12	3-1, 15	1595
67.53	3-1, 20	1600
66.97	3-1, 25	1605
67.45	3-1, 30	1610
62.94	3-1, 35	1615

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
66.94	3-1, 40	1620
66.81	3-1, 54	1625
69.57	3-1, 50	1630
70.23	3-1, 55	1635
69.25	3-1, 60	1640
71.54	3-1, 65	1645
69.19	3-1, 70	1650
74.79	3-1, 75	1655
78.30	3-1, 80	1660
77.49	3-1, 85	1665
77.07	3-1, 90	1670
74.66	3-1, 95	1675
69.90	3-1, 100	1680
67.92	3-1, 105	1685
79.13	3-1, 110	1690
78.04	3-1, 115	1695
79.29	3-1, 120	1700
77.84	3-1, 125	1705
80.20	3-1, 130	1710
80.87	3-1, 135	1715
82.94	3-1, 140	1720
80.20	3-1, 145	1725
75.01	3-2, 0	1730
73.87	3-2, 5	1735
81.25	3-2, 11	1741
74.61	3-2, 15	1745
78.98	3-2, 26	1756
80.09	3-2, 29	1759
80.87	3-2, 37	1767
81.67	3-2, 43	1773
79.53	3-2, 50	1780
79.01	3-2, 56	1786
76.94	3-2, 60	1790
76.34	3-2, 64	1794
79.74	3-2, 69	1799
78.90	3-2, 73	1803
77.10	3-2, 78	1808
78.33	3-2, 85	1815
77.88	3-2, 90	1820
76.44	3-2, 95	1825
74.67	3-2, 100	1830
72.88	3-2, 106	1836
74.26	3-2, 110	1840
80.40	3-2, 116	1846
80.04	3-2, 120	1850
73.80	3-2, 125	1855
76.57	3-2, 130	1860
79.06	3-2, 135	1865
80.72	3-3, 0	1880
73.17	3-3, 5	1885
84.00	3-3, 10	1890
81.38	3-3, 15	1895
80.58	3-3, 20	1900
79.02	3-3, 25	1905
78.33	3-3, 30	1910
77.32	3-3, 35	1915
82.25	3-3, 40	1920
79.85	3-3, 45	1925
83.53	3-3, 50	1930
78.35	3-3, 55	1935
75.80	3-3, 60	1940
75.49	3-3, 65	1945
80.71	3-3, 70	1950
76.91	3-3, 75	1955
79.32	3-3, 80	1960
80.91	3-3, 85	1965
81.68	3-3, 90	1970
80.85	3-3, 95	1975

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
83.21	3-3, 100	1980
81.45	3-3, 105	1985
82.85	3-3, 110	1990
77.32	3-3, 115	1995
79.51	3-3, 120	2000
81.07	3-3, 125	2005
82.16	3-3, 130	2010
82.50	3-3, 135	2015
84.09	3-3, 140	2020
83.65	3-3, 145	2025
81.53	3-4, 0	2030
82.82	3-4, 5	2035
82.49	3-4, 10	2040
80.13	3-4, 15	2045
82.36	3-4, 20	2050
80.68	3-4, 23	2053
79.98	3-4, 29	2059
83.47	3-4, 35	2065
83.78	3-4, 41	2071
83.30	3-4, 45	2075
84.71	3-4, 50	2080
83.22	3-4, 55	2085
81.92	3-4, 60	2090
82.42	3-4, 65	2095
81.76	3-4, 70	2100
83.86	3-4, 73	2103
84.41	3-4, 79	2109
82.56	3-4, 85	2115
84.11	3-4, 90	2120
84.66	3-4, 95	2125
83.94	3-4, 101	2131
84.35	3-4, 105	2135
83.94	3-4, 110	2140
85.46	3-4, 114	2144
86.13	3-4, 117	2147
84.28	3-4, 124	2154
85.29	3-4, 130	2160
86.62	3-4, 135	2165
85.10	3-5, 0	2180
84.40	3-5, 5	2185
87.54	3-5, 10	2190
89.21	3-5, 15	2195
84.90	3-5, 20	2200
83.52	3-5, 25	2205
87.20	3-5, 30	2210
85.94	3-5, 35	2215
76.76	3-5, 40	2220
81.92	3-5, 45	2225
83.48	3-5, 50	2230
79.70	3-5, 55	2235
80.44	3-5, 60	2240
84.50	3-5, 65	2245
79.06	3-5, 70	2250
82.92	3-5, 72	2252
80.47	3-5, 80	2260
81.58	3-5, 85	2265
81.84	3-5, 90	2270
81.69	3-5, 95	2275
84.17	3-5, 100	2280
83.00	3-5, 105	2285
80.00	3-5, 110	2290
80.64	3-5, 115	2295
80.78	3-5, 120	2300
81.84	3-5, 125	2305
81.95	3-5, 130	2310
83.95	3-5, 135	2315
85.25	3-5, 140	2320
83.48	3-5, 145	2325

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
86.78	3-6, 0	2330
81.76	3-6, 5	2335
83.48	3-6, 10	2340
82.06	3-6, 15	2345
80.04	3-6, 20	2350
80.81	3-6, 23	2353
83.32	3-6, 30	2360
82.37	3-6, 35	2365
81.23	3-6, 40	2370
82.41	3-6, 45	2375
83.51	3-6, 50	2380
82.37	3-6, 55	2385
80.92	3-6, 60	2390
78.88	3-6, 65	2395
80.20	3-6, 70	2400
77.40	3-6, 80	2410
75.29	3-6, 85	2415
75.74	3-6, 90	2420
76.65	3-6, 95	2425
77.40	3-6, 100	2430
72.18	3-6, 105	2435
77.40	3-6, 110	2440
75.78	3-6, 115	2445
74.77	3-6, 120	2450
73.83	3-6, 125	2455
76.01	3,CC, 0	2460
74.77	3,CC, 5	2465
75.37	3,CC, 10	2470
77.82	3,CC, 15	2475
71.10	4-1, 0	2540
65.75	4-1, 5	2545
70.21	4-1, 10	2550
70.01	4-1, 15	2555
68.63	4-1, 20	2560
69.50	4-1, 25	2565
67.12	4-1, 35	2575
65.40	4-1, 40	2580
69.81	4-1, 45	2585
71.71	4-1, 50	2590
70.98	4-1, 55	2595
66.64	4-1, 60	2600
62.63	4-1, 65	2605
63.90	4-1, 70	2610
60.37	4-1, 75	2615
62.11	4-1, 80	2620
61.38	4-1, 90	2630
64.28	4-1, 95	2635
64.97	4-1, 100	2640
70.64	4-1, 105	2645
70.95	4-1, 110	2650
70.73	4-1, 115	2655
74.47	4-1, 120	2660
71.03	4-1, 125	2665
71.78	4-1, 130	2670
71.09	4-1, 135	2675
67.76	4-1, 140	2680
67.76	4-1, 145	2685
67.75	4-2, 0	2690
76.03	4-2, 5	2695
78.70	4-2, 10	2700
77.05	4-2, 15	2705
75.69	4-2, 20	2710
78.41	4-2, 25	2715
75.83	4-2, 30	2720
70.37	4-2, 35	2725
74.81	4-2, 40	2730
75.20	4-2, 45	2735
76.32	4-2, 50	2740

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
75.25	4-2, 55	2745
76.00	4-2, 60	2750
79.77	4-2, 65	2755
78.86	4-2, 70	2760
81.02	4-2, 75	2765
77.49	4-2, 80	2770
76.10	4-2, 85	2775
76.93	4-2, 90	2780
76.10	4-2, 95	2785
78.40	4-2, 100	2790
77.64	4-2, 105	2795
71.32	4-2, 110	2800
72.69	4-2, 115	2805
77.50	4-2, 120	2810
80.23	4-2, 125	2815
79.31	4-2, 130	2820
73.19	4-2, 135	2825
70.70	4-2, 140	2830
73.87	4-3, 0	2840
71.35	4-3, 5	2845
73.48	4-3, 10	2850
72.00	4-3, 15	2855
70.35	4-3, 20	2860
68.43	4-3, 25	2865
71.27	4-3, 30	2870
72.46	4-3, 35	2875
70.44	4-3, 40	2880
72.87	4-3, 45	2885
73.49	4-3, 50	2890
75.05	4-3, 55	2895
75.10	4-3, 60	2900
74.43	4-3, 65	2905
73.69	4-3, 70	2910
80.78	4-3, 75	2915
72.45	4-3, 80	2920
71.40	4-3, 85	2925
72.80	4-3, 90	2930
71.03	4-3, 95	2935
69.65	4-3, 100	2940
71.81	4-3, 105	2945
74.39	4-3, 110	2950
68.27	4-3, 115	2955
70.14	4-3, 120	2960
75.20	4-3, 125	2965
75.46	4-3, 130	2970
77.50	4-3, 135	2975
77.03	4-3, 140	2980
77.81	4-3, 145	2985
77.23	4-4, 0	2990
67.35	4-4, 5	2995
75.10	4-4, 10	3000
76.41	4-4, 15	3005
78.27	4-4, 20	3010
77.81	4-4, 25	3015
77.36	4-4, 30	3020
80.07	4-4, 35	3025
78.56	4-4, 40	3030
80.25	4-4, 45	3035
78.41	4-4, 50	3040
80.98	4-4, 55	3045
80.06	4-4, 60	3050
80.07	4-4, 65	3055
82.32	4-4, 70	3060
81.70	4-4, 75	3065
79.61	4-4, 80	3070
81.85	4-4, 85	3075
81.73	4-4, 90	3080
81.30	4-4, 95	3085

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
79.61	4-4, 100	3090
78.34	4-4, 105	3095
76.43	4-4, 110	3100
73.92	4-4, 115	3105
77.89	4-4, 120	3110
77.59	4-4, 125	3115
76.86	4-4, 130	3120
78.62	4-4, 135	3125
83.89	4-5, 0	3140
80.33	4-5, 5	3145
81.35	4-5, 10	3150
80.22	4-5, 15	3155
81.66	4-5, 20	3160
78.65	4-5, 25	3165
81.16	4-5, 30	3170
79.99	4-5, 35	3175
80.11	4-5, 40	3180
75.85	4-5, 45	3185
75.84	4-5, 50	3190
76.57	4-5, 55	3195
68.83	4-5, 60	3200
77.01	4-5, 65	3205
69.00	4-5, 70	3210
57.65	4-5, 75	3215
72.15	4-5, 80	3220
75.41	4-5, 85	3225
76.57	4-5, 90	3230
75.70	4-5, 95	3235
78.34	4-5, 100	3240
77.61	4-5, 105	3245
77.59	4-5, 110	3250
78.34	4-5, 115	3255
75.25	4-5, 120	3260
64.43	4-6, 0	3290
65.31	4-6, 5	3295
61.93	4-6, 10	3300
46.38	4-6, 15	3305
63.33	4-6, 20	3310
58.75	4-6, 25	3315
66.20	4-6, 30	3320
74.98	4-6, 35	3325
72.85	4,CC, 0	3330
71.04	4,CC, 5	3335
71.73	4,CC, 10	3340
74.80	4,CC, 15	3345
76.14	5-1, 0	3500
75.99	5-1, 5	3505
65.09	5-1, 10	3510
76.71	5-1, 15	3515
75.15	5-1, 20	3520
78.34	5-1, 25	3525
70.62	5-1, 30	3530
62.03	5-1, 35	3535
65.99	5-1, 40	3540
62.74	5-1, 45	3545
68.60	5-1, 50	3550
68.72	5-1, 55	3555
67.64	5-1, 60	3560
69.03	5-1, 65	3565
68.21	5-1, 70	3570
66.86	5-1, 75	3575
65.24	5-1, 80	3580
67.44	5-1, 85	3585
67.32	5-1, 90	3590
60.03	5-1, 95	3595
60.37	5-1, 100	3600
68.12	5-1, 105	3605
70.15	5-1, 110	3610

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
68.87	5-1, 115	3615
54.90	5-1, 120	3620
69.38	5-1, 125	3625
71.00	5-1, 130	3630
66.23	5-1, 135	3635
70.89	5-1, 140	3640
64.86	5-1, 145	3645
73.41	5-2, 0	3650
69.05	5-2, 5	3655
73.61	5-2, 10	3660
72.34	5-2, 15	3665
65.49	5-2, 20	3670
66.44	5-2, 25	3675
68.40	5-2, 30	3680
71.05	5-2, 35	3685
72.91	5-2, 40	3690
67.34	5-2, 45	3695
69.06	5-2, 50	3700
67.78	5-2, 55	3705
83.76	5-2, 60	3710
54.33	5-2, 65	3715
51.34	5-2, 70	3720
68.38	5-2, 75	3725
69.33	5-2, 80	3730
62.46	5-2, 85	3735
67.61	5-2, 90	3740
66.38	5-2, 95	3745
64.85	5-2, 100	3750
70.20	5-2, 105	3755
73.76	5-2, 110	3760
67.87	5-2, 115	3765
62.46	5-2, 120	3770
64.15	5-2, 125	3775
58.65	5-2, 130	3780
69.45	5-2, 135	3785
70.74	5-3, 0	3800
68.00	5-3, 5	3805
72.26	5-3, 10	3810
68.13	5-3, 15	3815
71.56	5-3, 20	3820
71.90	5-3, 25	3825
73.80	5-3, 30	3830
71.50	5-3, 35	3835
66.27	5-3, 40	3840
69.23	5-3, 45	3845
64.65	5-3, 50	3850
75.39	5-3, 55	3855
75.85	5-3, 60	3860
65.01	5-3, 65	3865
73.90	5-3, 70	3870
65.26	5-3, 75	3875
66.39	5-3, 80	3880
66.89	5-3, 85	3885
60.65	5-3, 90	3890
50.30	5-3, 95	3895
63.69	5-3, 100	3900
60.70	5-3, 105	3905
63.57	5-3, 110	3910
63.65	5-3, 115	3915
69.45	5-3, 120	3920
66.14	5-3, 125	3925
61.43	5-3, 130	3930
67.91	5-3, 135	3935
61.05	5-3, 145	3945
64.53	5-4, 0	3950
68.13	5-4, 5	3955
58.02	5-4, 10	3960
59.76	5-4, 15	3965

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
64.41	5-4, 20	3970
62.05	5-4, 25	3975
59.65	5-4, 30	3980
54.00	5-4, 35	3985
79.27	5-4, 40	3990
71.70	5-4, 45	3995
62.64	5-4, 50	4000
71.74	5-4, 55	4005
63.55	5-4, 60	4010
70.94	5-4, 65	4015
69.43	5-4, 70	4020
69.32	5-4, 75	4025
72.43	5-4, 80	4030
64.96	5-4, 85	4035
69.86	5-4, 90	4040
67.32	5-4, 95	4045
62.35	5-4, 100	4050
58.70	5-4, 105	4055
54.50	5-4, 110	4060
53.68	5-4, 115	4065
48.07	5-4, 120	4070
45.59	5-4, 125	4075
57.51	5-4, 130	4080
60.93	5-4, 135	4085
60.59	5-5, 0	4100
70.80	5-5, 5	4105
70.88	5-5, 10	4110
67.73	5-5, 15	4115
57.49	5-5, 20	4120
58.97	5-5, 25	4125
63.29	5-5, 30	4130
61.21	5-5, 35	4135
59.61	5-5, 40	4140
60.24	5-5, 45	4145
58.50	5-5, 50	4150
58.10	5-5, 55	4155
58.39	5-5, 60	4160
55.21	5-5, 65	4165
53.66	5-5, 70	4170
45.19	5-5, 75	4175
46.19	5-5, 76	4176
55.32	5-5, 80	4180
47.00	5-5, 85	4185
57.88	5-5, 90	4190
64.06	5-5, 95	4195
63.11	5-5, 100	4200
67.29	5-5, 105	4205
61.69	5-5, 110	4210
65.74	5-5, 115	4215
68.64	5-5, 120	4220
71.34	5-5, 125	4225
55.50	5-5, 130	4230
66.29	5-5, 135	4235
70.38	5-5, 140	4240
69.58	5-5, 145	4245
62.44	5-6, 0	4250
58.86	5-6, 5	4255
47.72	5-6, 10	4260
52.30	5-6, 15	4265
51.06	5-6, 20	4270
51.64	5-6, 25	4275
62.39	5-6, 30	4280
61.04	5-6, 35	4285
66.29	5-6, 40	4290
63.43	5-6, 45	4295
72.71	5-6, 50	4300
75.44	5-6, 55	4305
65.04	5-6, 60	4310

Appendix B (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
68.38	5-6, 65	4315
72.99	5-6, 70	4320
74.01	5-6, 75	4325
68.77	5-6, 80	4330
69.78	5-6, 85	4335
75.30	5-6, 90	4340
67.26	5-6, 95	4345

APPENDIX C
$CaCO_3$ Concentrations from Site 601 and Piston Core Ariadne II GC 8

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
SITE 601		
91.4	1-1, 0	0
93.6	1-1, 5	5
88.1	1-1, 10	10
89.2	1-1, 15	15
92.5	1-1, 20	20
88.1	1-1, 25	25
96.9	1-1, 30	30
93.6	1-1, 35	35
93.6	1-1, 40	40
96.9	1-1, 45	45
96.9	1-1, 50	50
95.8	1-1, 55	55
94.7	1-1, 60	60
94.7	1-1, 65	65
95.8	1-1, 70	70
95.8	1-1, 75	75
91.4	1-1, 80	80
94.7	1-1, 85	85
94.7	1-1, 90	90
92.5	1-1, 95	95
92.9	1-1, 100	100
92.9	1-1, 105	105
95.0	1-1, 110	110
92.9	1-1, 115	115
92.9	1-1, 120	120
92.9	1-2, 0	150
93.9	1-2, 5	155
92.9	1-2, 10	160
93.9	1-2, 15	165
92.9	1-2, 20	170
92.9	1-2, 25	175
93.9	1-2, 30	180
92.9	1-2, 35	185
91.9	1-2, 40	190
92.9	1-2, 45	195
92.9	1-2, 50	200
91.8	1-2, 55	205
91.8	1-2, 60	210
92.9	1-2, 65	215
92.9	1-2, 70	220
93.9	1-2, 75	225
91.8	1-2, 80	230
93.9	1-2, 85	235
93.9	1-2, 90	240
93.9	1-2, 95	245
92.9	1-2, 100	250
91.8	1-2, 105	255
95.0	1-2, 110	260

Appendix C (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
SITE 601 (Cont.)		
92.9	1-2, 115	265
92.9	1-2, 120	270
91.8	1-2, 125	275
92.9	1-2, 130	280
92.9	1-2, 135	285
91.9	1-3, 0	300
92.9	1-3, 5	305
92.9	1-3, 10	310
92.9	1-3, 15	315
94.0	1-3, 20	320
94.0	1-3, 25	325
92.9	1-3, 30	330
92.9	1-3, 35	335
92.9	1-3, 40	340
94.0	1-3, 45	345
90.8	1-3, 50	350
92.9	1-3, 55	355
92.9	1-3, 60	360
94.0	1-3, 65	345
94.0	1-3, 70	370
91.2	1-3, 75	375
90.1	1-3, 80	380
91.2	1-3, 85	385
91.2	1-3, 90	390
94.4	1-3, 95	395
94.4	1-3, 100	400
94.4	1-3, 105	405
93.3	1-3, 110	410
90.1	1-3, 115	415
92.3	1-3, 120	420
92.3	1-3, 125	425
93.3	1-3, 130	430
91.2	1-3, 135	435
93.3	1-3, 140	440
90.1	1-3, 145	445
91.2	1-3, 150	450
93.1	1-4, 0	451
89.6	1-4, 5	455
91.9	1-4, 10	460
94.3	1-4, 15	465
93.1	1-4, 20	470
94.3	1-4, 25	475
95.4	1-4, 30	480
91.9	1-4, 35	485
93.1	1-4, 40	490
89.6	1-4, 45	495
93.1	1-4, 50	500
88.5	1-4, 55	505
83.8	1-4, 60	510
91.9	1-4, 65	515
93.1	1-4, 70	520
89.6	1-4, 75	525
93.1	1-4, 80	530
81.9	1-4, 85	535
93.1	1-4, 90	540
93.1	1-4, 95	545
94.3	1-4, 100	550
93.1	1-4, 105	555
90.8	1-4, 110	560
93.1	1-4, 115	565
89.6	1-4, 120	570
93.1	1-4, 125	575
93.1	1-4, 130	580
89.0	1-5, 0	600
91.1	1-5, 5	605
91.1	1-5, 10	610

Appendix C (continued).

Calcium carbonate concentration (wt.%)	Core-Section (level in cm)	Sub-bottom depth (cm)
SITE 601 (Cont.)		
91.1	1-5, 15	615
91.1	1-5, 20	620
89.0	1-5, 25	625
91.1	1-5, 30	630
87.0	1-5, 35	635
91.1	1-5, 40	640
90.1	1-5, 45	645
87.0	1-5, 50	650
88.0	1-5, 55	655
88.0	1-5, 60	660
88.0	1-5, 65	665
87.0	1-5, 70	670
91.1	1-5, 75	675
87.0	1-5, 80	680
89.0	1-5, 85	685
87.0	1-5, 90	690
88.0	1-5, 95	695
88.0	1-5, 100	700
84.9	1-5, 105	705
89.0	1-5, 110	710
88.0	1-5, 115	715
85.9	1-5, 120	720
88.0	1-5, 125	725
87.0	1-5, 130	730
88.0	1-5, 135	735
86.9	1-6, 0	750
88.9	1-6, 5	755
88.9	1-6, 10	760
86.9	1-6, 15	765
86.9	1-6, 20	770
86.9	1-6, 25	775
86.9	1-6, 30	780
87.9	1-6, 35	785
86.9	1-6, 40	790
84.9	1-6, 45	795
84.9	1-6, 50	800
82.8	1-6, 55	805
81.8	1-6, 60	810
81.8	1-6, 65	815
83.9	1-6, 70	820
80.8	1-6, 75	825
81.8	1-6, 80	830
83.9	1-6, 85	835
82.8	1-6, 90	840
85.9	1-6, 95	845
82.8	1-6, 100	850
82.8	1-6, 105	855
81.8	1-6, 110	860
86.9	1-6, 115	865
85.9	1-6, 120	870
84.9	1-6, 125	875
84.9	1-6, 130	880
81.8	1-6, 135	885
83.9	1-6, 140	890
83.9	1-7, 0	900
89.5	1-7, 5	905
81.2	1-7, 10	910
84.3	1-7, 15	915
85.4	1-7, 20	920
82.2	1-7, 25	925
79.1	1-7, 30	930
80.2	1-7, 35	935
83.3	1-CC, 0	940
83.3	1-CC, 5	945
83.3	1-CC, 10	950
81.2	1-CC, 15	955
78.1	1-CC, 20	960

Appendix C (continued).

Calcium carbonate concentration (wt.%)	Sub-bottom depth (cm)
PISTON CORE ARIADNE II GC 8	
89.6	0
89.6	2
90.0	4
90.9	6
89.8	8
90.5	10
90.3	12
89.7	14
89.9	16
90.7	18
91.2	20
90.5	22
89.9	24
90.2	26
90.4	28
90.9	30
90.2	34
88.7	36
90.0	38
89.1	40
91.1	42
90.7	44
90.4	46
90.7	48
90.4	50
90.7	54
90.7	56
88.7	58
90.0	60
88.0	62
90.4	64
90.2	66
89.6	68
88.5	70
90.9	72
89.2	74
90.2	76
89.2	78
89.1	80
88.2	82
88.1	84
87.7	86
88.7	88
88.9	90
82.8	92
90.1	94
90.5	96
90.7	98
90.4	100
89.5	104
90.5	108
87.5	110
88.4	112
86.6	114
85.4	116
86.6	118
88.0	120
88.0	122
87.2	124
88.2	126
88.0	128
86.5	130
87.3	132
87.8	134
88.5	136
89.7	138
85.7	140

Appendix C (continued).

Calcium carbonate concentration (wt.%)	Sub-bottom depth (cm)
PISTON CORE ARIADNE II GC 8 (Cont.)	
90.9	142
88.0	144
85.5	146
87.5	148
87.0	150
86.5	152
85.3	154
85.7	156
87.4	158
85.3	160
88.0	162
89.7	164
89.8	166
89.5	168
91.1	170
90.0	172
85.7	176
88.9	178
88.6	180
88.2	182
90.4	184

Appendix C (continued).

Calcium carbonate concentration (wt.%)	Sub-bottom depth (cm)
PISTON CORE ARIADNE II GC 8 (Cont.)	
90.5	186
90.8	188
90.0	190
92.7	192
91.8	194
90.9	196
88.6	198
91.1	200
91.7	202
90.2	204
92.3	206
89.6	208
91.6	210
90.4	212
90.2	214
90.0	216
91.3	218
90.5	220
89.9	222
90.5	224
91.1	226