19. X-RAY MINERALOGY STUDIES – LEG 14[1]

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INTRODUCTION

The semi-quantitive analyses of mineral composition in bulk samples, 2-20μm and <2μm fractions of Leg 14, have been performed according to the methods described in the DSDP reports of Legs 1 and 2 and in Appendix III of Volume IV. The mineral analyses of 2-20μm and <2μm fractions were performed on $CaCO_3$ free residues. The results are presented in Tables 1 through 9 and in Figures 1 through 27. A list of the samples which have been analysed appears in Table 10. The ages of the sediments and the lithological units presented in Figures 1 through 27, and used in the text of this report, are from the data of Deep Sea Drilling Project hole summaries of Leg 14. The revised calibration table for minerals under investigation, and comments on some of the factors for Leg 14, are listed in the Appendix to this report.

RESULTS

Site 135

This site is located about 35 km southeast of the Horseshoe Abyssal Plain and northeast of the African continent. Four lithological units were recognized.

The upper unit (Cores 1, 2, 3, and 4) consists of pelagic calcareous ooze of Pleistocene to late Oligocene age. Calcite is the major mineral in the bulk samples. Quartz, K-feldspar, plagioclase, kaolinite, mica, and montmorillonite are also present (Figures 1, 2 and 3; Table 1).

The second unit is olive gray to brown mud with sand layers and brown clay and is of early Eocene to late Campanian age (Cores 5, 6, and 7). Abundant quartz and feldspar in the bulk samples indicate that they are derived from terrigenous sediments. Dolomite, which is present throughout the unit, is probably of detrital origin. In the decalcified 2-20μm fractions the quartz, K-feldspar, mica, and chlorite content is almost identical with the overlying unit with the exception that kaolinite is absent in this unit. Palygorskite is present in the <2μm fraction and occurs as the major mineral in some intervals. Sepiolite was only found in one interval and is associated with a high palygorskite content.

The third unit consists of a black shale and green siliceous mudstone that also contains limestone and chert layers (Only one meter was recovered in Core 8.). The age of this unit is probably late Cretaceous. Cristobalite is the dominant mineral. Palygorskite, clinoptilolite, pyrite, quartz, feldspars, and mica are also present.

The fourth unit consists of early Cretaceous, dark, calcareous shale (Core 9). Mica, calcite, quartz, and palygorskite are the dominant minerals. Feldspars, montmorillonite, chlorite, and pyrite are also present.

Site 136

Site 136 is located about 160 km north of Madeira and 900 km southwest of Gibraltar in an area of abyssal hills. Four lithological units were recognized.

The upper lithological unit recovered in Cores 1, 2, and 3 is a nannofossil chalk ooze of early Pliocene to early Miocene age. Calcite is the main constituent of the bulk samples (Figure 4). Quartz is the only mineral present besides calcite in the upper 140 cm of the lithologic unit. Below that, mica, palygorskite, dolomite, K-feldspar and kaolinite are also present. The decalcified 2-20μm fractions contain quartz, mica, K-feldspar, plagioclase, kaolinite Hematite and magnetite are also present (Figure 5). Mica, palygorskite, montmorillonite, quartz, kaolinite, and chlorite are present in the decalcified <2μm fractions throughout the unit (Figure 6).

The second unit consists of silty clay of early Miocene age (bottom of Cores 3, 4 and section 1 of Core 5). There is a hiatus separating the lower Miocene from the upper Cretaceous in section 5 of Core 5. Palygorskite, quartz, and mica are the dominant minerals in the bulk sample; montmorillonite, K-feldspar, plagioclase and chlorite are also present but in smaller amounts. Dolomite is only present in certain layers. In decalcified 2-20μm fractions, quartz and mica are the major minerals. K-feldspar, plagioclase, and chlorite are also present. Kaolinite and barite are noted in the interval 245 to 248 meters. In the decalcified <2μm fractions, over 50 per cent palygorskite is present in the 254 meter layer. Quartz, kaolinite, mica and montmorillonite are also present (Table 2).

The third unit consists of pelagic silty clays with ash and clayey carbonate silts of Senonian to Albian age (Cores 5, 6, 7, and 8). In the bulk samples, K-feldspar and montmorillonite are the main constituents. Quartz, kaolinite, mica, hematite, anatase, and magnetite are also present. The calcite content varies from a few per cent to seventy-five per cent. Ninety per cent palygorskite is noted in a bed at 231 meters. In the decalcified 2-20μm fractions, K-feldspar, and quartz are the major minerals with hematite and magnetite also present throughout the unit. In decalcified <2μm fractions, montmorillonite is the only dominant mineral. Small amounts of anatase, quartz, K-feldspar, kaolinite, and magnetite are also present. Mica, palygorskite, and hematite are found in several layers of the unit.

The fourth unit is a thick nannofossil marl of Albian-Aptian age. It consists mostly of calcite and lesser amounts of palygorskite, mica, quartz, and K-feldspar in the bulk

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samples. In the decalcified 2-20μm fraction, quartz, mica, and K-feldspar are the major minerals. Pyrite, montmorillonite, plagioclase, and chlorite are also present. Palygorskite, mica montmorillonite, and quartz make up most of the samples in the decalcified <2μm fraction. K-feldspar, chlorite and pyrite are also present.

Site 137

Site 137 is located about 1,000 km west of Cap Blanc in an area of abyssal hills next to the foot of the African continental rise. Four lithological units were recognized.

The upper unit consists of brown clay (Core 1) of unknown age. Quartz, mica, kaolinite and mica are the dominant minerals. Plagioclase, K-feldspar, and palygorskite are also present (Figures 7, 8, and 9).

Zeolitic brown clays were recovered in the second unit (Cores 2 to 5). A late Cretaceous age was assigned to the lowermost part of this unit. Clinoptilolite is absent in the upper part of this unit (Core 1 to 3) and found in great abundance in Cores 4 to 6; especially in the 2-20μm fraction. Palygorskite occurs in abundance in the fraction <2μm throughout the unit. Sepiolite is also found in the lower part of this unit associated with palygorskite (Table 3).

The third unit consist of nanno-marl and silty clay of late Cenomanian to early Turonian in age. It is a transitional zone between zeolitic brown clay and underlying nanno-marls. Calcite and quartz are the two major minerals. Pyrite is found in 2-20μm and <2μm fractions throughout the unit.

The nanno-marl of late Albian to late Cenomanian age was recovered from Cores 9 to 16. Calcite is the dominant mineral except in quartz rich silty layers.

Site 138

Site 138 was drilled 130 km east of Site 137 and 850 km west of Cap Blanc at the foot of the continental rise off West Africa. Four lithological units were recognized.

The upper unit consists of green silty clay with layers of sand of Oligocene-Miocene age (Cores 1 and 2). Quartz, plagioclase, K-feldspar, mica, kaolinite, and montmorillonite are present throughout the unit (Figures 10, 11, and 12). Palygorskite is only found in the <2μm fraction.

The second unit consists of unfossiliferous gray and brown clay, probably of post-Cretaceous age (Core 3). Only one sample was submitted for X-ray analysis. It consists almost entirely of palygorskite (Table 4).

Greenish and black indurated mudstone with chert layers and greenish brown clay were recovered from Cores 4 and 5. Only one sample for Core 5 (Campanian age) was analysed. Cristobalite, montmorillonite, and palygorskite are the dominant minerals. Clinoptilolite is only present in the 2-20μm fraction.

Dolomitic silt and clay, pyritiferous carbonaceous, black mud with a basalt layer of Cenomanian age were recovered in Core 6. Quartz and dolomite are the major minerals in the bulk fraction. Montmorillonite, mica, palygorskite, and pyrite are also present. In the decalcified 2-20μm fraction, quartz, is the dominant mineral (<50%). Pyrite, mica, K-feldspar are also present. Quartz, montmorillonite and palygorskite are the major minerals in the decalcified <2μm fraction, with mica, pyrite, and K-feldspar also being present. The abundant silt-size quartz is probably derived from the African continent. The absence of kalonite and plagioclase in this unit when compared with the overlying younger units, suggests a change of the source area in post-Albian times.

Site 139

This site is located on the smooth continental rise about 250 km northwest of Cap Blanc, Africa. Three lithologic units were recognized.

Calcareous ooze of middle Miocene to Pleistocene age was recovered from Cores 1 and 2. Calcite is the dominant mineral. Quartz, kaolinite, mica, chlorite, and dolomite are also present. Palygorskite occurred in the <2μm fraction throughout the unit. Pyrite was detected in a few scattered samples (Figures 13, 14, and 16).

The second unit consists of silty nanno-marl ooze of early to middle Miocene age (Core 3). The mineral assemblages are similar to the overlying unit (Table 5).

Intercalated diatom ooze and quartz sand of early Miocene age (and older?) were recovered from Cores 5 to 7. The high content of X-ray amorphous materials in the 571 meters interval of this unit is due to the presence of diatoms, and the low X-ray amorphous materials in the 60 meter interval is due to the high quartz content. Calcite and quartz are the major minerals with plagioclase, K-feldspar, kaolinite, mica, montmorillonite, and pyrite also present. Pyrite is most abundant in the 2-20μm fraction.

Site 140

Site 140 was located southwest of Site 139, about 450 km west of Cap Blanc, Africa, on the lower continental rise. Four lithological units were recognized.

Recent to early Pliocene chalk and marl ooze recovered in Core 1 is mainly calcite, with accessory quartz, mica, K-feldspar, plagioclase, kaolinite, chlorite, palygorskite, and pyrite (Figure 16, 17, and 18).

The second unit consists of brown and greenish gray clays and darker grayish olive mud and siliceous ooze (Cores 1A and 2) of middle to early Miocene age. The brown and greenish gray clays consist mostly of quartz, mica, kaolinite, palygorskite, montmorillonite, K-feldspar, and plagioclase. The mineralogy of the darker grayish olive mud is different from the overlying brown clays. The brown clays consist of quartz, pyrite and dolomite. Feldspars and palygorskite are absent in the brown clays (Table 6).

The lithology and mineralogy of the upper portion of the third unit (Cores 2A, 3, 4, and 5) are similar to the brown greenish gray clays. Its age ranges from middle Eocene to Paleocene or late Cretaceous. The lower portion of this unit consists of olive gray silty dolomitic clay with dark chert beds (Cores 6 and 7). Cristobalite and palygorskite are the major minerals. Montmorillonite, quartz, dolomite, K-feldspar, and mica are also present.

The Late Cretaceous silty zeolitic clay with subarkosic sand beds (Core 8) consists mostly of quartz, plagioclase, K-feldspar, and montmorillonite. Clinoptilolite, mica, palygorskite, cristobolite, pyrite, and calcite are also present.

Kaolinite is very abundant in the first, second and upper portion of the third, lithological units; but is absent in the lower portion of the third unit and in the fourth unit. The presence of kaolinite in the younger lithological units probably indicates that the source area—the African continent—became more intensely weathered during the Tertiary as compared to the Cretaceous period.

Site 141

Site 141, which is located southwest of Site 140, is about 200 km north of the Cape Verde Islands in an area of gentle rolling topography on the lower continental rise. Three lithological units were recognized.

The pelagic calcareous ooze of early Pliocene to late Pleistocene age (Cores 1 to 7) consists mostly of calcite. Quartz, mica, kaolinite, and palygorskite are also present (Figures 19, 20, and 21). There is a layer of nannofossiliferous, silty clay (Section 3 of Core 7) within this unit. The mineralogy of the silty clay layer is similar to other samples from this unit except that there is a higher quartz content in the layer plus the presence of palygorskite, kaolinite, and anatase (Table 7). The anatase from this layer is probably derived from intensely weathered tropical African continental rocks.

The second unit consists of varicolored silty zeolitic clay of undetermined age (Cores 7, 8, and 9). No zeolite was detected in the samples submitted for X-ray analysis. The sample consists of quartz, palygorskite, mica, kaolinite, montmorillonite, K-feldsapr, and plagioclase. The $<2\mu m$ fraction of the sample, from the bed at 191 meters, consists entirely of montmorillonite.

The third unit was defined on the basis of a single Sidewall core, 15 cm long, taken 8 meters above basalt and is composed of subarkosic fine sand. This sample consists of quartz, plagicloase, K-feldspar, mica, palygorskite, montmorillonite, chlorite, and amphibole. It appears to be derived from a granitic source.

Site 142

Site 142 is located northeast of the South American continent, 650 km northeast of the Amazon River. This site lies on the Ceara Abyssal Plain about 10 km south of the steep southern flank of the Ceara Rise. Three lithological units were recognized.

The upper unit (Cores 1, 2, and 3) consists of thick Pleistocene dark gray and olive gray terrigenous sediments interbedded with calcareous ooze. The bulk samples consist mainly of quartz, mica, and plagioclase. They also have minor quantities of K-feldspar, chlorite and siderite (Figure 22). The decalcified 2-20μm fraction consists mainly of quartz, mica, and plagioclase, with lesser amounts of K-feldsapr, kaolinite, and chlorite. Amphibole is present in one sample (Figure 23). Mica, kaolinite, montmorillonite, and quartz are dominant minerals in the decalcified $<2\mu m$ fraction. Chlorite, plagioclase, and K-feldspar are also present in some samples (Figure 24). The calcareous ooze in this unit, in addition to calcite, contains a typical pelagic assemblage of quartz and mica as well as some siderite and is similar to the ooze at Site 27 of Leg 2 (DSDP).

The second unit consists of well consolidated, varicolored marl to chalk oozes of late Miocene to Pliocene age (Cores 4 to 8) which in turn is composed mainly of calcite. In noncalcareous muds, quartz and mica are the major minerals. Plagioclase, kaolinite, and chlorite are also present. The mineralogy of the decalcified 2-20μm and $<2\mu m$ fractions are similar to the overlying unit (Table 8).

The third unit consists of middle-early Miocene, indurated marl ooze. The mineral assemblages of this unit are similar to the overlying units for the presence of palygorskite and clinoptilolite.

The turbidite deposits in Cretaceous sediments (third lithological unit) are characterized by highly calcareous material. The younger turbidite deposits (first and second lithological units) have less calcareous material and consist mostly of subarkose. The Amazon basin is the probable source area of these turbidite deposits.

Site 144

Site 144 is located about 400 km north of Surinam on the northern flank of the Demerara Rise. Five lithological units were recognized.

The first unit consists of a chalk ooze of Oligocene-Paleocene age (Cores 1B, 2B, 1A, 3B, 2A, 1, and 2). Calcite is the major mineral in the bulk sample. Quartz, kaolinite, montmorillonite, and clinoptilolite are also present (Figure 25). In the decalcified 2-20 μm fraction, quartz and clinoptilolite are the major minerals, with minor amounts of mica, kaolinite, plagioclase, montmorillonite (Figure 26, Table 9) also present.

A zeolitic marl of Paleocene to Maestrichtian age was recovered from Cores 3A, 3, and 4A. The bulk sample contains less calcite and more clinoptilolite when compared with the overlying unit. Also, there is less quartz and more clinoptilolite in the decalcified 2-20μm fraction when compared with the overlying unit.

The third unit consists of zeolitic black and olive marl of Senonian-Cenomanian age (Cores 5A, 6A, and 4). In the bulk samples, several samples contain only calcite. In other layers, besides calcite there is also quartz, clinoptilolite, palygorskite, and mica. In the decalcified 2-20μm fraction, quartz, clinoptilolite, mica, plagioclase and pyrite are present. Palygorskite, montmorillonite, cristobalite, and mica are the major minerals in the decalcified $<2\mu m$ fraction. Quartz, and pyrite are also present throughout the unit (Figure 27).

Olive gray marl of Albian age was recovered in Core 5. In the bulk sample, calcite and quartz are the major minerals. Kaolinite, palygorskite, mica, montmorillonite, and pyrite are also present. Quartz is the major mineral in the decalcified 2-20μm fraction. Kaolinite, pyrite, mica, and plagioclase are also present. In the decalcified $<2\mu m$ fraction, montmorillonite, quartz, plagioclase, mica, and kaolinite are present.

The last unit consists of quartzose marlstone of Aptian-Barremian age (Cores 6, 7, and 8). Calcite and quartz are the major minerals in the bulk samples, with minor amount of plagioclase, mica, kaolinite, montmorillonite, and palygorskite also present. The decalcified 2-20μm and $<2\mu m$ fractions are similar to the overlying unit.

The factor for mica was recalculated using a sample of illite from Beaver's Bend and reduced from 10 to 5.5. The illite standard used previously contained a significant amount of fine-grained quartz. Since it is difficult to purify the material, the Beaver's Bend illite was diluted with a known amount of quartz and both the illite/quartz factor, and the amount of quartz in the original sample were calculated. The new factor of mica (illite) corresponds reasonably well with chemical analysis and computer derived factors.

TABLE 1
Results of X-Ray Diffraction Analyses from Site 135

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Cris.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Sepi.	Clin.	Pyrite	Unk.
1	0-4	0.80-3.51	69.8	52.9	70.7	–	10.4	–	–	–	2.2	14.9	1.8	–	–	–	–	–	–
2	80-89	81.00-85.51	63.1	42.3	85.5	–	4.4	–	–	–	1.1	9.0	–	–	–	–	–	–	–
		87.00-88.51	62.5	41.4	87.5	–	4.7	–	–	–	–	6.5	–	1.4	–	–	–	–	–
3	173-182	173.99-175.51	62.4	41.2	89.6	–	4.2	–	–	–	–	6.1	–	–	–	–	–	–	–
4	259-268	260.37-261.50	64.7	44.8	79.1	1.6	5.4	–	–	–	–	8.2	–	–	5.7	–	–	–	–
5	335-341	335.84-335.84	78.5	66.4	–	3.7	12.7	–	–	1.3	–	16.7	1.6	–	45.2	18.8	–	–	–
7	431-435	431.10-432.25	69.3	52.0	8.3	6.4	50.0	–	2.4	13.1	–	17.0	2.5	–	–	–	–	–	–
		433.45-433.45	74.8	60.6	–	16.6	36.9	–	4.2	7.5	–	20.8	2.6	3.4	8.2	–	–	–	–
		434.40-434.75	75.0	60.9	10.4	8.8	33.6	–	5.4	11.0	–	27.2	3.6	–	–	–	–	–	–
8	564-569	564.59-564.59	89.7	83.9	–	–	7.3	84.3	–	–	–	1.2	–	–	6.2	–	–	1.1	–
		564.81-564.81	87.1	79.9	–	–	15.9	46.8	3.2	1.5	–	6.4	–	8.7	11.8	–	3.3	2.4	–
		564.90-565.05	87.1	79.8	–	–	16.8	30.1	–	–	–	6.7	–	11.8	23.6	–	8.1	3.0	–
		565.33-565.33	60.5	38.2	82.7	–	5.0	–	3.4	–	–	2.7	–	2.2	3.3	–	–	–	–
		565.46-565.46	89.5	83.7	2.5	–	12.2	50.8	3.4	2.2	–	4.4	–	3.9	12.5	–	4.2	3.8	–
9	685-687	685.20-686.51	76.2	62.9	21.9	3.1	18.7	–	2.6	2.5	–	31.5	1.6	4.0	12.6	–	–	1.4	–

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Paly.	Clin.	Pyrite
1	0-4	0.80-3.51	66.3	47.4	46.2	–	6.2	8.7	2.7	33.0	3.1	–	–	–
2	80-89	81.00-85.51	64.5	44.5	43.8	–	5.9	6.1	2.4	37.5	4.2	–	–	–
		87.00-88.51	65.2	45.7	45.0	–	6.1	7.3	3.1	34.9	3.6	–	–	–
3	173-182	173.99-175.51	61.2	39.4	46.4	–	5.8	8.1	2.4	33.5	3.8	–	–	–
4	259-268	260-37-261.50	62.0	40.7	48.5	–	6.5	8.4	1.4	32.0	3.3	–	–	–
5	335-341	335.84-335.84	63.2	42.5	41.6	–	3.8	6.2	–	43.9	4.5	–	–	–
7	431-435	431.10-432.25	63.4	42.7	46.8	–	5.3	10.1	–	33.1	4.8	–	–	–
		433.45-433.45	65.7	46.5	41.9	–	6.8	8.6	–	37.1	5.6	–	–	–
		434.40-434.75	63.3	42.6	44.0	–	5.0	10.6	–	34.8	5.6	–	–	–
8	564-569	564.90-565.05	79.2	67.4	25.1	32.4	6.1	4.0	–	6.5	–	6.0	15.0	5.0
9	685-687	685.20-686.51	60.4	38.1	44.9	–	7.0	7.1	–	33.6	3.7	–	–	3.7

TABLE 1 – *Continued*

<2 μm Fractions (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Sepi.	Clin.	Pyrite	Hali.
1	0-4	0.80-3.51	83.6	74.3	19.1	–	–	–	10.9	49.7	6.2	14.1	–	–	–	–	–
2	80-89	81.00-85.51	76.6	63.4	16.5	–	–	–	11.5	52.6	3.8	15.5	–	–	–	–	–
		87.00-88.51	80.9	70.1	17.7	–	–	–	15.0	47.8	3.8	15.7	–	–	–	–	–
3	173-182	173.99-175.51	79.2	67.5	16.1	–	–	2.7	15.3	42.6	4.9	18.4	–	–	–	–	–
4	259-268	260.37-261.50	82.0	71.8	13.1	–	–	–	16.3	44.5	2.0	11.8	12.3	–	–	–	–
5	335-341	335.84-335.84	88.3	81.7	3.9	–	–	–	–	9.5	1.1	2.2	64.7	13.9	–	–	4.7
7	431-435	431.10-432.25	76.9	63.9	10.3	–	2.5	1.3	3.8	37.9	5.8	38.4	–	–	–	–	–
		433.45-433.45	88.7	82.4	3.7	–	–	–	–	–	2.8	48.8	38.1	–	–	–	6.7
		434.40-434.75	82.7	73.0	9.1	–	–	–	–	46.9	7.5	22.4	14.0	–	–	–	–
8	564-569	564.59-564.59	81.4	70.9	3.8	84.5	–	–	–	–	–	–	11.7	–	–	–	–
		564.81-564.81	84.9	76.4	4.4	–	–	–	–	8.4	1.8	51.2	34.2	–	–	–	–
		564.90-565.05	86.1	78.3	5.2	20.6	–	–	–	4.4	–	31.4	36.2	–	–	2.3	–
		565.46-565.46	88.4	81.8	5.2	–	–	–	–	12.7	–	33.7	40.7	–	1.5	6.1	–
9	685-687	685.70-686.51	81.6	71.3	9.0	–	–	–	10.5	31.8	–	20.7	26.8	–	–	1.2	–

TABLE 2
Results of X-Ray Diffraction Analyses from Site 136

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Phil.	Pyrite	Hema.	Apat.	Anat.	Magn.
1	130-139	130.99-138.51	55.3	30.1	99.5	–	0.5	–	–	–	–	–	–	–	–	–	–	–	–	–
2	216-225	216.99-224.51	63.2	42.5	80.4	2.1	4.5	1.0	–	1.0	6.0	–	–	4.9	–	–	–	–	–	–
3	234-244	237.49-240.52	71.6	55.6	67.4	4.5	6.1	1.2	–	2.1	10.1	–	1.9	6.7	–	–	–	–	–	–
4	244-253	244.99-248.02	83.1	73.6	–	–	20.7	5.6	1.8	3.6	19.0	2.2	6.9	40.4	–	–	–	–	–	–
5	253-262	254.26-254.36	83.4	74.0	–	9.3	11.6	7.6	3.6	2.0	11.7	1.0	6.5	46.7	–	–	–	–	–	–
		260.11-260.16	71.4	59.5	53.6	–	6.0	27.5	–	–	2.5	–	4.1	–	–	1.0	3.2	–	–	2.1
		260.33-260.38	89.5	83.7	37.1	–	5.4	23.3	–	–	5.9	–	23.2	–	–	–	–	–	2.4	2.6
		260.48-260.48	88.3	81.7	–	–	6.5	43.8	–	2.0	–	–	33.9	–	–	–	5.1	–	2.7	6.0
6	262-271	263.00-263.00	86.9	79.5	–	11.4	8.7	12.8	–	2.3	13.9	2.4	23.0	24.3	–	–	–	–	1.3	–
		263.40-263.40	87.7	80.8	–	–	3.6	7.9	–	5.4	7.0	–	50.1	22.1	–	–	–	–	1.4	2.4
		263.46-263.46	87.9	81.1	–	–	3.2	26.5	–	2.9	–	–	54.0	–	–	–	7.5	–	2.1	3.6
		263.56-263.56	88.2	81.6	–	–	5.1	40.0	–	1.9	5.5	–	26.4	–	–	–	11.4	–	2.2	7.5
		263.75-263.75	88.8	82.6	–	–	4.6	38.4	–	–	–	–	39.3	–	–	–	6.9	–	2.1	8.6
		264.44-264.44	78.3	66.2	74.6	–	1.4	10.0	–	–	–	–	–	–	10.6	–	2.1	–	–	1.3
		264.82-264.82	78.7	66.8	75.6	–	2.2	10.6	–	–	–	–	9.5	–	–	–	1.1	–	1.0	–
7	271-280	272.40-272.40	88.5	82.1	18.6	–	7.6	40.1	–	2.1	–	–	21.5	–	–	–	4.9	–	1.5	3.7
		272.48-272.48	89.3	83.2	8.4	–	9.0	40.7	–	–	7.5	–	22.6	–	–	–	4.7	–	3.4	3.8
8	280-289	281.28-281.28	88.8	82.4	11.9	–	9.3	36.3	–	–	13.6	–	17.4	–	–	–	4.3	–	2.8	4.3
		281.46-281.46	76.9	64.0	–	–	5.0	–	–	–	–	–	–	90.2	–	–	–	4.3	–	–
		281.88-288.88	74.7	60.5	70.9	–	5.0	1.9	–	–	13.0	–	–	9.1	–	–	–	–	–	–

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Hema.	Pyrite	Bari.	Magn.
1	130-139	130.99-138.51	76.7	63.7	35.1	–	13.2	9.5	8.4	29.1	1.3	–	2.4	–	–	1.1
2	216-225	216.99-224.51	66.0	46.9	48.7	–	8.8	7.2	–	31.8	3.4	–	–	–	–	–
4	244-253	244.99-248.02	69.0	51.6	41.3	–	9.3	5.6	1.6	37.9	2.3	–	–	–	1.9	–
5	253-262	254.26-254.36	70.0	53.1	48.8	–	15.6	10.6	–	22.7	2.2	–	–	–	–	–
		260.11-260.16	70.0	53.2	15.7	–	62.6	–	–	2.4	–	–	9.2	1.6	–	9.5
		260.48-260.48	85.2	76.9	6.6	–	42.4	6.2	5.0	–	–	26.1	3.1	–	–	10.6
6	262-271	263.00-263.00	73.7	58.9	30.1	–	33.1	4.3	1.5	26.4	2.3	–	1.2	–	–	1.0
		263.40-263.40	78.1	65.8	21.1	–	48.4	–	–	14.9	1.7	–	6.5	1.0	–	6.5
		263.46-263.46	81.1	70.5	9.9	5.1	55.6	–	–	–	–	–	15.3	–	–	14.1
		263.75-263.75	82.4	72.5	5.9	–	44.2	–	–	–	–	28.3	8.3	–	–	13.3
		264.82-264.82	80.6	69.6	15.1	–	64.7	–	–	–	–	8.5	1.0	1.5	–	9.3
7	271-280	272.40-272.40	82.1	72.1	12.2	–	63.1	–	–	–	–	7.3	8.1	–	–	9.3
		272.48-272.48	84.3	75.4	8.8	–	50.1	–	–	–	1.9	24.2	6.6	–	–	8.4
8	280-289	281.28-281.28	80.9	70.2	15.1	–	63.0	–	–	–	–	10.8	4.9	–	–	6.3
		288.88-288.88	68.5	50.8	36.6	–	24.2	4.3	–	25.8	1.1	–	–	8.0	–	–

TABLE 2 – *Continued*

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Kaol.	Mica	Chlor.	Mont.	Paly.	Hema.	Pyrite	Gyps.	Hali.	Magn.	Anat.
1	130-139	130.99-138.51	89.1	82.9	12.9	–	11.3	30.6	4.8	17.2	23.2	–	–	–	–	–	–
2	216-225	216.99-224.51	84.7	76.1	14.0	–	4.1	38.3	6.8	8.8	28.0	–	–	–	–	–	–
3	234-244	237.49-240.52	86.1	78.3	11.1	–	6.3	31.7	4.0	27.1	19.8	–	–	–	–	–	–
4	244-253	244.99-248.02	87.0	79.6	8.5	–	11.9	14.5	–	5.2	54.3	–	–	–	5.3	–	–
5	253-262	254.26-254.36	85.9	78.0	14.9	8.3	6.0	10.6	–	8.6	51.5	–	–	–	–	–	–
		260.11-260.16	83.7	74.6	12.6	47.3	1.7	–	–	33.3	–	–	1.6	–	–	3.5	–
		260.33-260.38	72.0	56.3	–	–	2.8	–	–	92.9	–	–	–	–	–	–	4.3
		260.48-260.48	87.8	81.0	1.1	5.8	–	–	–	88.4	–	–	–	–	–	2.0	2.5
6	262-271	263.00-263.00	88.2	81.5	2.9	3.6	6.4	7.9	–	35.8	24.2	–	–	3.2	14.2	–	2.0
		263.40-263.40	81.9	71.7	2.5	4.2	6.2	7.9	–	66.4	9.0	–	–	–	–	1.3	2.4
		263.46-263.46	85.7	77.6	1.3	6.9	2.2	–	–	82.5	–	3.0	–	–	–	1.6	2.4
		263.56-263.56	81.5	71.2	0.9	3.9	1.3	–	–	87.8	–	2.1	–	–	–	–	3.9
		263.75-263.75	86.0	78.1	2.0	7.4	–	–	–	83.9	–	–	–	–	–	4.0	2.8
		264.44-264.44	81.2	70.7	2.7	–	11.0	25.6	–	49.4	–	–	–	–	–	6.4	4.9
		264.82-264.82	83.8	74.7	1.6	5.2	1.4	–	–	89.0	–	–	–	–	–	–	2.8
7	271-280	272.40-272.40	91.1	86.1	3.0	12.1	–	–	–	76.4	–	–	–	–	–	5.3	3.2
		272.48-272.48	83.1	73.5	1.2	7.3	1.9	–	–	84.2	–	1.9	–	–	–	2.0	1.5
8	280-289	281.28-281.28	92.2	87.8	4.8	19.2	–	–	–	68.2	–	–	–	–	–	–	7.8
		281.46-281.46	92.4	88.1	1.8	–	–	–	–	–	98.2	–	–	–	–	–	–
		288.88-288.88	89.8	84.0	12.2	6.9	–	27.3	2.5	17.5	31.9	–	1.6	–	–	–	–

TABLE 3
Results of X-Ray Diffraction Analyses from Site 137

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Hema.	Pyrite	Apat.	Unkn
1	52-61	52.99-57.51	87.7	80.7	–	–	30.9	9.9	–	23.1	24.5	–	11.7	–	–	–	–	–	
		58.99-59.27	85.7	77.7	–	–	25.5	7.6	–	33.0	19.5	–	14.5	–	–	–	–	–	Trace[a]
2	99-101	100.40-100.40	72.6	57.2	–	–	4.5	–	–	–	7.0	–	–	88.5	–	–	–	–	
3	146-144	136.15-136.15	84.8	76.2	–	–	15.3	–	–	5.7	14.8	–	8.7	55.6	–	–	–	–	
		137.50-137.50	85.4	77.1	–	–	25.2	–	3.8	2.7	17.2	2.2	6.5	41.0	–	1.5	–	–	
		138.99-143.50	83.9	74.9	–	–	13.7	–	–	5.5	9.4	–	6.2	65.2	–	–	–	–	
4	165-173	166.40-166.40	84.1	75.1	–	–	11.2	–	–	1.0	17.4	–	24.4	37.9	8.2	–	–	–	
		166.90-166.90	85.2	76.8	–	–	5.0	–	–	1.1	18.7	–	26.8	42.5	5.3	–	–	–	
		167.50-167.50	85.3	77.1	–	–	7.0	–	–	1.5	10.5	–	17.7	50.2	13.0	–	–	–	
6	218-225	218.29-218.29	84.7	76.0	–	–	8.4	–	–	–	10.2	–	8.9	44.9	27.6	–	–	–	
		219.00-219.00	83.6	74.3	–	–	8.3	–	–	2.4	11.8	–	19.0	47.8	10.7	–	–	–	
7	256-265	257.27-257.27	75.5	61.7	29.1	–	39.1	–	–	1.4	15.8	–	6.2	6.9	–	–	1.6	–	
8	265-274	265.15-265.15	63.8	43.4	65.3	–	23.4	–	–	–	8.0	–	3.4	–	–	–	–	–	
		265.45-265.45	56.2	31.5	91.7	–	6.2	–	–	–	–	–	–	–	–	–	2.1	–	
		266.96-266.96	70.4	53.8	48.5	1.7	32.7	–	–	–	12.6	–	3.4	–	–	–	1.2	–	
		267.89-267.89	56.9	32.6	85.3	–	9.8	–	–	–	2.5	–	–	–	–	–	2.4	–	
9	274-283	274.51-274.51	80.7	69.9	1.0	–	48.7	–	–	–	26.7	–	23.5	–	–	–	–	–	
		278.35-278.35	80.8	69.9	6.9	1.7	41.6	–	–	–	16.9	–	15.6	17.2	–	–	–	–	
		278.47-278.50	55.9	31.1	93.1	–	5.1	–	–	–	1.8	–	–	–	–	–	–	–	
		280.44-280.44	65.1	45.4	72.2	–	19.3	–	–	–	5.6	–	3.0	–	–	–	–	–	
		282.01-282.01	63.5	43.0	83.1	–	10.4	–	–	–	1.8	–	4.6	–	–	–	–	–	
		282.59-282.59	79.7	68.4	9.2	–	47.0	–	–	–	24.5	–	8.3	11.1	–	–	–	–	
10	283-292	284.44-284.44	65.0	45.4	80.1	–	11.1	–	–	–	4.6	–	4.2	–	–	–	–	–	
		285.49-287.01	61.2	39.4	80.2	–	11.8	–	–	–	6.6	–	1.5	–	–	–	–	–	
11	292-301	292.99-292.99	61.2	39.3	80.7	–	12.2	–	–	–	5.1	–	1.9	–	–	–	–	–	
		293.21-293.21	60.5	38.3	84.2	–	10.9	–	–	–	3.5	–	1.4	–	–	–	–	–	
		293.99-293.99	61.8	40.3	75.3	–	16.3	–	–	–	1.1	–	3.8	3.5	–	–	–	–	
		294.50-294.50	66.4	47.5	70.6	–	16.5	–	–	–	4.0	–	4.8	4.0	–	–	–	–	
		296.00-296.00	60.1	37.7	84.3	–	9.3	–	–	–	4.7	–	1.7	–	–	–	–	–	
		297.59-300.51	63.5	43.0	85.8	–	7.7	–	–	–	4.5	–	2.1	–	–	–	–	–	
12	301-310	302.20-302.20	63.4	42.8	88.3	–	7.0	–	–	–	2.9	–	1.8	–	–	–	–	–	
		303.20-303.20	69.8	52.9	70.9	–	16.2	–	–	–	4.8	–	2.7	5.5	–	–	–	–	
		303.47-303.47	83.8	74.7	15.2	–	28.9	–	–	–	7.3	–	19.5	29.1	–	–	–	–	
		304.00-304.00	73.0	57.8	69.3	–	16.9	–	–	–	2.2	–	3.5	8.1	–	–	–	–	
		304.55-304.55	46.7	16.7	2.8	–	97.2	–	–	–	–	–	–	–	–	–	–	–	
		305.00-305.51	63.5	43.0	82.5	–	9.9	–	–	–	3.0	–	1.4	3.2	–	–	–	–	
		308.11-308.11	66.5	47.6	73.1	–	15.5	–	–	–	3.3	–	3.8	4.3	–	–	–	–	
		309.50-309.50	67.1	48.6	64.9	–	19.3	–	–	1.0	4.3	–	4.4	6.1	–	–	–	–	
		309.65-309.65	78.2	65.9	23.0	–	38.1	–	–	2.3	6.1	–	18.7	11.8	–	–	–	–	
13	320-329	322.85-322.95	62.7	41.7	81.9	–	9.2	–	–	–	3.6	–	1.1	4.2	–	–	–	–	
		324.00-324.00	63.3	42.7	82.4	–	10.3	–	–	–	6.3	–	1.0	–	–	–	–	–	
		325.50-325.50	63.1	42.3	84.1	–	11.1	–	–	–	1.3	–	–	3.5	–	–	–	–	

TABLE 3 – *Continued*

Bulk Samples (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Hema.	Pyrite	Apat.
14	339-348	341.50-341.50	57.4	33.4	86.9	–	11.0	–	–	–	2.1	–	–	–	–	–	–	–
		343.00-343.00	74.4	59.9	73.8	–	8.8	3.6	1.7	–	3.0	–	2.5	6.5	–	–	–	–
		344.50-344.50	63.6	43.1	73.1	–	22.0	–	–	–	4.9	–	–	–	–	–	–	–
		346.00-346.00	73.4	58.5	62.0	–	27.4	–	–	2.2	8.3	–	–	–	–	–	–	–
		347.50-347.50	58.5	35.2	84.5	–	12.3	–	–	–	1.3	–	–	2.0	–	–	–	–
15	348-357	349.25-349.25	70.4	53.7	83.5	–	7.8	4.0	–	–	–	–	–	4.7	–	–	–	–
		349.34-349.34	82.1	72.0	36.9	–	3.3	11.9	–	18.3	4.5	2.3	–	22.8	–	–	–	–
		350.41-350.41	62.5	41.4	74.0	–	18.6	–	–	2.1	5.3	–	–	–	–	–	–	–
16	375-382	377.00-377.00	73.9	59.2	66.8	–	17.3	–	–	–	8.8	–	2.1	3.9	–	–	1.1	–
		379.00-379.00	65.7	46.3	77.2	–	11.6	–	–	–	3.9	–	1.2	6.0	–	–	–	–
		380.50-380.50	61.8	40.3	80.7	–	11.7	–	–	–	4.2	–	1.7	1.8	–	–	–	–

2-20μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe.	Plag.	Kaol	Mica	Chlor.	Mont.	Paly.	Clin.	Hema.	Pyrite	Bari.	Unkn.
1	52-61	52.99-57.51	68.1	50.2	64.3	8.7	5.4	4.5	17.2	–	–	–	–	–	–	–	–
		58.99-59.27	59.5	36.7	74.3	9.0	3.2	2.7	10.8	–	–	–	–	–	–	–	–
2	99-101	100.40-100.40	60.6	38.4	59.1	7.1	3.7	2.7	27.4	–	–	–	–	–	–	–	–
3	135-144	136.15-136.15	57.6	33.8	59.7	15.0	6.2	–	17.9	1.1	–	–	–	–	–	–	–
		138.99-143.50	62.2	40.9	50.5	12.3	10.3	1.4	23.8	1.8	–	–	–	–	–	–	
4	165-173	166.40-166.40	66.6	47.8	35.5	2.1	4.2	1.4	28.0	–	–	–	28.9	–	–	–	
		166.90-166.90	62.7	41.7	30.3	5.8	2.2	–	12.7	–	–	–	49.0	–	–	–	
		167.50-167.50	68.2	50.2	31.4	8.4	3.2	–	24.5	–	–	–	32.6	–	–	–	
6	218-225	218.29-218.29	62.8	41.9	15.0	4.1	1.6	–	8.7	–	–	–	70.7	–	–	–	
		219.00-219.00	72.5	57.0	38.8	5.4	6.2	2.2	19.8	–	–	–	27.6	–	–	–	
7	256-265	257.27-257.27	56.4	31.8	81.0	3.7	1.6	–	7.1	1.0	–	–	–	–	5.6	–	
8	265-274	265.15-265.15	73.2	58.1	75.5	6.4	2.6	–	12.8	1.7	–	–	–	–	1.0	–	
		266.96-266.96	66.1	47.0	69.3	6.2	1.3	–	15.2	1.4	–	–	–	–	6.6	–	
		267.89-267.89	64.5	44.5	56.6	–	–	–	4.4	–	–	–	–	–	38.9	–	
9	274-283	274.51-274.51	71.7	55.7	65.6	9.7	4.5	–	19.3	–	–	–	–	–	1.0	–	
		278.35-278.35	72.2	56.6	61.8	4.1	–	–	22.2	–	11.9	–	–	–	–	–	
		278.47-278.50	79.3	67.7	75.1	8.9	2.7	–	13.2	–	–	–	–	–	–	–	
		280.44-280.44	70.5	54.0	65.6	5.2	2.1	–	12.3	–	6.7	8.1	–	–	–	–	
		282.01-282.01	67.6	49.4	74.6	9.8	2.4	–	13.3	–	–	–	–	–	–	–	
		282.59-282.59	67.4	49.1	69.6	6.7	2.5	–	12.5	–	–	8.7	–	–	–	–	
10	283-292	284.44-284.44	72.1	56.5	67.5	9.1	5.0	–	18.4	–	–	–	–	–	–	–	
		285.49-287.01	63.9	43.5	70.4	7.8	3.2	–	17.5	1.1	–	–	–	–	–	–	
11	292-301	293.00-293.00	71.7	55.8	66.7	10.2	4.7	–	16.8	1.7	–	–	–	–	–	–	
		293.21-293.21	75.1	61.1	79.9	6.6	3.0	–	10.4	–	–	–	–	–	–	–	
		294.00-294.00	69.5	52.3	69.6	8.7	4.5	–	15.8	1.4	–	–	–	–	–	–	

TABLE 3 – *Continued*

2-20μm Fractions (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Plag.	Kaol	Mica	Chlor.	Mont.	Paly.	Clin.	Hema.	Pyrite	Bari.	Unkn.
11	292-301	294.50-294.50	81.8	71.6	67.3	7.7	4.4	–	12.9	–	–	7.7	–	–	–	–	
		297.59-300.51	68.8	51.2	62.8	15.3	2.9	–	17.8	1.3	–	–	–	–	–	–	
12	301-310	302.20-302.20	68.3	50.5	64.4	9.5	5.3	–	19.1	1.7	–	–	–	–	–	–	Present[b]
		303.20-303.20	70.7	54.3	68.4	10.4	4.8	–	15.3	1.1	–	–	–	–	–	–	Abund.[b]
		303.48-303.48	55.8	30.9	62.4	11.5	16.4	–	9.7	–	–	–	–	–	–	–	Present[b]
		305.00-306.51	66.1	47.1	65.3	7.9	3.6	–	15.6	7.5	–	–	–	–	–	–	
		308.09-308.13	69.8	52.8	68.6	9.8	2.5	1.5	17.5	–	–	–	–	–	–	–	
		309.50-309.50	67.4	49.1	71.6	4.9	1.8	3.9	17.7	–	–	–	–	–	–	–	
		309.65-309.65	72.3	56.8	63.7	11.5	3.8	–	18.9	2.0	–	–	–	–	–	–	
13	320-329	322.85-322.95	92.3	88.0	59.1	7.7	–	–	29.1	4.1	–	–	–	–	–	–	
		324.00-324.00	73.6	58.7	72.4	–	–	–	21.6	1.1	–	–	–	5.0	–	–	
		325.50-325.50	69.6	52.5	71.0	8.6	3.6	–	16.8	–	–	–	–	–	–	–	
14	339-348	341.50-341.50	69.3	52.1	80.9	7.3	–	–	11.9	–	–	–	–	–	–	–	
		343.00-343.00	83.0	73.4	55.7	30.5	–	2.3	11.5	–	–	–	–	–	–	–	
		344.50-344.50	69.4	52.2	72.6	7.2	2.8	1.1	16.3	–	–	–	–	–	–	–	
		346.00-346.00	72.1	56.3	76.5	–	–	1.2	17.2	1.1	–	–	–	–	4.1	–	
		347.50-347.50	70.4	53.7	82.7	–	–	2.4	13.5	–	–	–	–	–	–	1.4	
15	348-357	349.25-349.25	71.4	55.3	27.1	58.9	–	–	8.4	–	–	5.6	–	–	–	–	
		350.41-350.41	70.4	53.8	78.5	–	–	4.2	17.3	–	–	–	–	–	–	–	Trace[b]
16	375-382	377.00-377.00	77.0	64.1	45.5	18.5	–	1.0	16.8	1.7	–	–	–	–	12.6	3.9	
		379.00-379.00	68.9	51.5	70.4	5.3	2.3	–	20.2	1.8	–	–	–	–	–	–	
		380.50-380.50	64.8	44.9	72.9	3.7	1.3	5.8	12.1	2.2	–	–	–	–	–	2.0	

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Sepi.	Clin.	Hema.	Pyrite	Hali.
1	52-61	52.99-57.51	89.9	84.2	16.8	–	3.3	–	27.0	17.3	–	16.7	18.9	–	–	–	–	–
		58.99-59.27	87.3	80.2	14.7	–	–	–	36.9	14.2	–	21.0	13.2	–	–	–	–	–
2	99-101	100.40-100.40	88.4	81.9	2.9	–	–	–	–	–	–	–	97.1	–	–	–	–	–
3	135-144	136.15-136.15	85.1	76.7	10.8	–	–	–	7.0	7.5	1.6	8.5	61.3	–	–	–	–	3.3
		137.50-137.50	85.9	78.0	21.1	–	8.9	–	6.3	7.1	–	10.6	46.0	–	–	–	–	–
		138.99-143.50	88.8	82.5	12.5	–	–	–	6.9	6.7	–	11.3	60.0	–	–	–	–	2.6
4	165-173	166.40-166.40	89.3	83.3	5.5	–	–	–	1.1	3.6	–	20.1	39.6	27.4	–	–	–	2.7
		166.90-166.90	84.6	76.0	7.0	–	–	–	1.1	8.7	–	42.7	28.8	6.3	1.6	–	–	3.8
		167.50-167.50	87.7	80.9	5.8	–	6.5	–	2.1	4.6	–	32.8	32.4	11.0	2.0	–	–	2.8
6	218-225	218.29-218.29	86.2	78.5	5.0	16.8	–	–	–	4.5	–	33.8	38.9	–	–	–	–	1.0
		219.00-219.00	84.3	75.5	5.0	–	–	–	2.2	4.6	–	52.4	35.8	–	–	–	–	–
7	256-265	257.27-257.27	77.8	65.2	53.2	–	–	–	–	16.3	–	28.8	–	–	–	–	1.6	–
8	265-274	265.15-265.15	74.1	59.5	66.9	–	–	–	–	14.3	–	13.1	5.7	–	–	–	–	–
		265.45-265.45	75.2	61.2	63.4	–	–	–	–	10.4	–	10.2	–	–	–	–	16.0	–

TABLE 3 – *Continued*

<2 μm Fractions (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Sepi.	Clin.	Hema.	Pyrite	Hali.
8	265-274	266.96-266.96	73.8	59.0	59.1	–	–	–	–	14.6	–	26.3	–	–	–	–	–	–
		267-89-267.89	70.2	53.4	71.7	–	–	–	–	7.6	–	4.1	–	–	–	–	16.6	–
9	274-283	274.51-274.51	81.0	70.4	41.9	–	–	–	–	16.9	–	33.8	4.0	–	–	–	–	3.3
		278.35-278.35	81.0	70.4	45.8	–	–	–	–	15.4	–	31.1	–	–	–	–	–	7.7
		278.47-278.50	79.3	67.6	62.7	–	–	–	–	20.7	–	16.7	–	–	–	–	–	–
		280.44-280.44	76.8	63.8	61.7	–	–	–	–	8.5	–	29.7	–	–	–	–	–	–
		282.01-282.01	79.8	68.5	49.1	–	–	–	–	8.5	–	42.4	–	–	–	–	–	–
		282.59-282.59	72.5	57.0	55.0	–	–	–	–	11.5	–	28.9	–	–	–	–	–	4.6
10	283-292	284.44-284.44	78.8	66.9	48.9	–	–	–	–	–	–	43.4	7.6	–	–	–	–	–
		285.49-287.01	77.5	64.8	57.3	–	–	–	–	15.0	–	22.0	5.7	–	–	–	–	–
11	292-301	293.00-293.00	78.9	67.0	55.7	–	–	–	–	10.3	–	34.0	–	–	–	–	–	–
		293.21-293.21	78.9	67.0	61.0	–	–	–	–	10.0	–	22.7	–	–	–	–	–	6.3
		294.00-294.00	74.5	60.1	48.8	–	–	–	–	9.1	–	39.8	–	–	–	–	–	2.3
		294.50-294.50	76.7	63.7	31.5	–	–	–	–	17.2	–	51.3	–	–	–	–	–	–
		296.00-296.00	75.4	61.6	28.6	–	–	–	–	21.9	–	49.4	–	–	–	–	–	–
		297.59-300.51	81.6	71.3	45.8	–	–	–	–	17.5	–	36.7	–	–	–	–	–	–
12	301-310	302.20-302.20	81.4	71.0	28.5	–	–	–	–	19.2	2.7	37.2	12.4	–	–	–	–	–
		303.20-303.20	81.4	71.0	46.2	–	–	–	–	15.7	–	28.4	4.6	–	–	5.0	–	–
		303.48-303.48	81.9	71.7	20.1	–	–	–	–	23.1	1.5	43.1	12.1	–	–	–	–	–
		304.00-304.00	83.9	74.8	27.6	–	–	–	–	29.5	–	39.2	–	–	–	3.7	–	–
		305.00-306.51	79.6	68.2	46.3	–	–	–	–	15.5	1.6	31.9	4.7	–	–	–	–	–
		308.09-308.13	78.3	66.0	55.9	–	–	–	–	12.4	–	31.6	–	–	–	–	–	–
		309.50-309.50	82.2	72.1	54.7	–	1.8	–	1.2	15.5	–	22.8	–	–	–	–	–	4.0
		309.65-309.65	80.2	69.0	46.9	–	–	–	1.2	11.9	–	37.4	–	–	–	–	–	2.7
13	320-329	322.85-322.95	80.6	69.6	49.7	–	–	–	–	15.7	–	31.9	–	–	–	2.7	–	–
		324.00-324.00	80.0	68.7	46.1	–	–	–	–	20.1	1.7	32.0	–	–	–	–	–	–
		325.50-325.50	80.9	70.1	49.0	–	–	–	–	23.6	–	23.5	–	–	–	3.9	–	–
14	339-348	341.50-341.50	75.0	60.9	66.3	–	–	–	–	14.2	–	19.5	–	–	–	–	–	–
		343.00-343.00	84.8	76.3	27.7	–	8.2	–	–	19.7	2.5	34.1	6.0	–	–	–	–	1.6
		344.50-344.50	78.2	65.9	68.5	–	–	–	–	20.4	–	11.1	–	–	–	–	–	–
		346.00-346.00	80.9	70.1	60.0	–	–	–	1.4	9.3	1.7	25.9	–	–	–	1.6	–	–
		347.50-347.50	77.9	65.5	67.1	–	–	–	2.2	24.0	–	6.7	–	–	–	–	–	–
15	348-357	349.25-349.25	87.1	79.8	28.8	–	2.4	–	4.8	15.6	–	33.9	8.8	–	–	–	–	5.7
		349-34-349.34	86.9	79.6	4.5	–	–	–	14.7	–	–	80.9	–	–	–	–	–	–
		350.41-350.41	78.9	67.1	65.3	–	–	–	7.3	20.1	–	7.3	–	–	–	–	–	–
16	375-382	377.00-377.00	87.6	80.5	40.8	–	–	–	1.5	33.8	–	16.6	7.3	–	–	–	–	–
		379.00-379.00	84.6	75.9	38.5	–	–	2.2	1.7	44.4	–	7.8	–	–	–	5.4	–	–
		380.50-380.50	80.8	70.0	55.2	–	–	–	2.8	28.0	–	14.1	–	–	–	–	–	–

[a]Unknown: Slender peaks at 6.20 Å and 3.90 Å

[b]Unknown: Relative intensity of peaks is extremely variable. Peaks commonly seen are 3.80 Å (broad), 4.14 and 4.59 Å. This unknown was also reported in priority sample Leg 16, 2-20μ.

TABLE 4
Results of X-Ray Diffraction Analyses from Site 138

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Mont.	Paly.	Clin.	Pyrite	Hali.
1	52-61	52.99-60.51	72.6	57.2	–	63.3	–	10.0	6.4	8.3	9.4	2.7	–	–	–	–
2	110-119	110.79-110.79	62.7	41.7	–	78.8	–	10.7	3.7	1.2	5.6	–	–	–	–	–
		111.00-111.00	75.4	61.6	–	68.3	–	6.3	4.4	4.1	4.4	7.2	5.3	–	–	–
		112.49-115.51	84.3	75.4	–	25.9	–	5.0	3.4	9.5	24.1	32.1	–	–	–	–
		117.00-117.00	86.3	78.7	–	23.3	–	–	–	20.0	14.1	37.2	–	–	5.4	–
		118.50-118.50	86.5	78.9	–	22.7	–	1.9	1.1	8.9	19.0	22.9	23.6	–	–	–
3	183-190	184.24-184.24	80.1	68.9	–	4.4	–	–	–	–	2.3	–	90.2	–	–	3.2
5	332-341	333.40-333.40	85.7	77.6	–	8.5	27.8	–	–	1.1	8.8	26.9	22.2	4.7	–	–
6	425-431	426.41-426.81	71.7	55.8	29.4	36.5	–	–	–	–	12.2	14.0	7.8	–	–	–
		427.15-427.15	76.0	62.4	–	4.9	–	64.6	7.6	–	19.6	3.2	–	–	–	–
		428.51-428.51	84.2	75.4	5.1	46.8	–	–	–	–	5.2	13.9	25.0	–	3.8	–
		429.08-429.08	77.9	65.5	30.0	40.6	–	–	–	–	16.3	11.6	–	–	1.5	–
		429.12-429.12	74.4	60.1	47.6	31.8	–	–	–	–	3.7	8.9	8.0	–	–	–
		429.16-429.16	76.4	63.1	17.1	46.8	–	–	–	–	5.7	17.8	11.5	–	1.2	–

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Pyrite	Bari.	Unkn.
1	52-61	52.99-60.51	63.2	42.5	58.0	–	13.6	8.4	5.5	14.4	–	–	–	–	–	–	
2	110-119	110.79-110.79	73.8	59.0	58.0	–	7.2	4.8	3.3	10.3	–	–	–	2.9	8.6	5.0	Trace[a]
		111.00-111.00	75.3	61.5	58.3	–	12.5	7.0	3.7	14.5	–	–	–	–	4.0	–	Trace[a]
		112.49-115.51	72.8	57.5	78.3	–	2.7	3.1	3.6	12.4	–	–	–	–	–	–	
		117.00-117.00	83.8	74.7	56.3	–	5.4	2.9	5.3	3.5	–	11.4	–	–	15.2	–	
		118.50-118.50	72.5	57.1	56.5	–	8.3	7.6	2.8	23.8	1.0	–	–	–	–	–	
3	183-190	184.24-184.24	59.4	36.6	59.8	–	1.5	5.5	–	15.3	–	–	17.9	–	–	–	
5	332-341	333.40-333.40	77.3	64.5	24.4	32.5	–	2.8	2.5	13.7	–	–	5.9	18.1	–	–	
6	425-431	426.41-426.81	64.2	44.0	64.6	1.7	4.3	1.7	–	8.5	–	–	6.8	–	12.4	–	
		428.52-428.52	95.1	92.4	83.8	–	–	–	–	–	–	–	–	–	16.2	–	
		429.08-429.08	68.5	50.8	64.9	–	6.5	–	–	14.9	–	–	–	–	13.7	–	
		429.12-429.12	74.0	59.3	59.9	–	2.1	–	–	28.3	–	6.8	–	–	2.9	–	
		429.16-429.16	64.5	44.6	64.6	–	7.2	2.7	–	18.1	–	–	–	–	7.4	–	

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Quar.	Cris.	K-Fe	Kaol.	Mica	Mont.	Paly.	Paly.	Hali.	Unkn.
1	52-61	52.99-60.51	87.0	79.7	–	10.0	–	–	40.4	23.1	22.2	–	–	4.4	Trace[b]
2	110-119	110.79-110.79	94.7	91.7	–	7.5	–	–	19.3	35.5	35.8	–	2.0	–	

TABLE 4 – *Continued*

<2 μm Fractions (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Quar.	Cris.	K-Fe	Kaol.	Mica	Mont.	Paly.	Paly.	Hali.	Unkn.
2	110-119	111.00-111.00	83.5	74.3	–	7.8	–	–	18.1	–	54.8	19.2	–	–	
		112.49-115.51	82.5	72.6	–	9.0	–	–	17.9	5.8	56.4	10.8	–	–	
		117.00-117.00	80.3	69.3	–	5.0	–	–	26.6	3.3	57.5	6.1	1.4	–	
		118.50-118.50	82.3	72.3	–	6.9	–	–	12.6	26.9	45.9	7.6	–	–	
3	183-190	184.24-184.24	88.2	81.6	–	1.7	–	–	–	–	2.4	95.9	–	–	
5	332-341	333.40-333.40	84.5	75.8	–	3.6	19.9	–	–	4.5	52.7	19.2	–	–	
6	425-431	426.41-426.81	76.1	62.6	–	46.3	–	1.7	–	21.6	27.9	–	–	2.5	
		428.52-428.52	82.1	72.1	–	43.7	–	–	–	–	31.3	23.9	1.1	–	
		429.08-429.08	76.0	62.4	–	32.6	–	–	–	16.9	35.4	15.1	–	–	
		429.12-429.12	76.7	63.6	–	49.0	–	–	–	–	34.5	16.5	–	–	
		429.16-429.16	77.9	65.5	–	52.3	–	–	–	17.8	26.8	3.1	–	–	

[a]Unknown: See unknown from Hole 137, 2-20μ.
[b]Unknown: Peaks at 3.37Å and 6.76Å.

TABLE 5
Results of X-Ray Diffraction Analyses from Site 139

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	K-Fe	Plag.	Kaol.	Mica	Mont.	Paly.	Pyrite
1	114-124	114.99-116.51	61.6	40.1	98.3	–	1.7	–	–	–	–	–	–	–
2	225-234	227.49-229.01	59.3	36.5	95.1	1.4	2.2	–	–	1.3	–	–	–	–
		230.50-230.50	71.4	55.3	75.5	1.7	6.9	–	1.3	3.4	5.5	–	5.7	–
3	345-354	354.00-354.00	72.2	56.5	64.7	9.9	8.2	–	1.0	4.5	5.7	1.8	4.1	–
4	455-463	463.00-463.00	74.7	60.5	60.6	2.3	14.7	3.3	2.8	3.0	11.2	2.2	–	–
5	570-576	571.43-571.43	94.9	92.0	48.8	6.1	19.1	–	–	14.0	8.6	–	–	3.5
6	607-612	607.18-607.18	48.1	18.9	34.1	–	60.2	2.2	3.5	–	–	–	–	–
7	656-665	656.57-664.60	69.3	52.1	7.9	–	70.2	6.0	3.4	6.9	1.3	2.8	–	1.4

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Pyrite	Unkn.
1	114-123	114.99-116.51	79.2	67.5	–	50.9	6.1	10.6	5.4	18.4	–	8.7	
2	225-234	227.49-229.01	67.1	48.7	4.6	48.4	7.1	9.5	2.3	22.9	2.2	2.9	
		230.50-230.50	71.4	55.4	–	42.6	14.2	11.1	4.0	20.7	1.2	6.2	
3	345-354	354.00-354.00	86.7	79.3	–	65.2	9.6	8.2	2.9	8.0	–	6.1	Trace[a]
4	455-463	463.00-463.00	72.9	57.7	–	57.9	7.6	11.9	3.5	14.6	–	4.5	
5	570-576	571.44-571.44	96.4	94.4	–	74.3	–	–	8.6	–	–	17.1	
7	656-665	656.57-664.60	74.3	59.9	–	66.8	13.6	5.8	2.2	2.7	–	8.9	

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Mont.	Paly.	Pyrite
1	114-123	114.99-116.51	89.5	83.6	11.2	24.1	20.1	25.5	17.2	1.8
2	225-234	227.49-229.01	83.8	74.6	9.1	25.0	28.7	25.2	12.0	–
		230.50-230.50	88.9	82.7	8.1	25.7	22.8	15.7	26.6	1.1
3	345-354	354.00-354.00	83.4	74.1	9.5	33.7	16.0	32.1	9.2	–
4	455-463	463.00-463.00	84.0	75.0	8.6	24.6	27.2	38.6	–	1.1
5	570-576	571.44-571.44	98.1	97.0	14.7	85.3	–	–	–	–
7	656-665	656.57-664.60	86.5	78.9	9.2	53.8	–	32.6	–	4.4

[a]Unknown: See unknown Hole 137, 2-20μ.

TABLE 6
Results of X-Ray Diffraction Analyses from Site 140

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	K-Fe	Plag.	Kaol.	Mica	Mont.	Paly.	Clin.	Pyrite	Hali.	Cris.
1	89-98	89.99-96.00	54.4	28.7	97.4	–	1.4	–	–	–	1.2	–	–	–	–	–	–
1A	150-159	151.25-151.25	84.9	76.4	–	–	29.7	6.7	2.1	17.6	21.1	5.0	17.7	–	–	–	–
2	201-210	201.99-209.51	81.6	71.3	18.4	2.8	54.1	–	–	9.5	3.7	3.3	5.3	–	2.8	–	–
2A	235-244	236.24-237.51	84.0	75.0	–	–	34.3	2.4	–	26.2	5.9	22.0	9.3	–	–	–	–
		239.00-239.00	79.9	68.6	–	–	44.6	16.2	–	13.9	6.1	13.6	5.6	–	–	–	–
		240.50-240.50	82.3	72.3	–	–	36.1	2.1	–	21.6	10.0	14.3	15.7	–	–	–	–
		241.99-243.51	84.6	76.0	–	–	33.0	–	–	15.2	8.8	16.8	26.2	–	–	–	–
3	311-318	311.99-314.51	82.5	72.7	–	–	18.0	–	–	9.4	5.2	17.4	46.3	–	–	3.6	–
4	368-374	368.55-373.22	85.3	77.1	–	–	9.4	–	–	1.7	–	19.3	56.7	8.2	–	–	4.7
5	427-432	432.00-432.00	80.7	69.8	–	–	3.8	–	–	–	2.1	1.7	87.0	–	–	–	5.4
6	510-519	512.32-512.32	92.7	88.7	–	1.7	5.2	–	–	–	–	–	20.5	–	–	–	72.5
		512.67-512.67	83.0	73.5	6.0	3.3	–	–	–	–	–	74.7	–	–	–	16.0	
7	585-587	587.00-587.00	86.9	79.5	–	–	8.6	–	–	–	2.0	10.9	5.3	–	–	–	73.1
8	645-651	645.50-645.53	77.0	64.0	1.1	–	17.6	1.0	3.3	–	7.9	61.1	–	–	–	4.3	3.4
		645.88-645.88	65.2	45.6	–	–	36.0	7.9	40.0	–	2.6	9.5	2.8	–	1.2	–	–
		646.48-646.48	55.5	30.4	–	–	74.0	11.5	8.5	–	–	–	–	3.4	–	–	2.6
		647.52-647.52	80.5	69.6	2.1	–	24.6	5.1	6.7	–	4.8	31.1	11.1	1.0	1.5	–	12.0

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Hema.	Pyrite	Unkn.
1	89-98	89.99-96.00	69.3	52.0	48.9	–	12.1	16.9	3.2	17.6	1.3	–	–	–	–	–	
1A	150-159	151.25-151.25	63.6	43.1	65.1	–	4.8	10.8	4.9	14.4	–	–	–	–	–	–	
2	201-210	201.99-209.51	91.2	86.2	74.7	–	–	–	–	6.7	–	–	–	–	–	18.6	
2A	235-244	236.24-237.51	64.5	44.5	69.7	–	11.8	3.3	2.9	7.7	–	–	4.5	–	–	–	
		239.00-239.00	64.5	44.5	65.8	–	10.4	2.6	4.0	9.1	–	–	8.1	–	–	–	
		240.50-240.50	68.4	50.6	62.6	–	11.4	4.3	3.7	8.4	–	–	9.6	–	–	–	
		241.99-243.51	66.6	47.8	59.0	–	10.9	4.8	2.5	10.9	–	–	11.9	–	–	–	
3	311-318	311.99-314.51	66.3	47.3	61.8	–	7.7	2.2	–	14.7	–	–	10.6	2.0	–	1.0	
4	368-374	368.55-373.22	81.4	71.0	39.9	6.1	–	–	–	4.5	–	6.8	30.8	9.6	–	2.2	
5	427-432	432.00-432.00	66.0	46.9	46.5	10.1	5.5	3.9	–	9.6	–	–	23.2	–	–	1.1	
6	510-519	512.67-512.67	76.8	63.8	31.5	27.4	5.6	2.0	1.6	12.1	–	–	13.5	–	3.5	2.7	
7	585-587	587.00-587.00	87.2	80.0	17.5	78.1	3.0	1.4	–	–	–	–	–	–	–	–	Present[a]
8	645-651	645.50-645.53	66.6	47.9	50.2	–	10.2	19.7	–	13.0	–	–	–	2.5	4.5	–	
		645.88-645.88	63.5	43.0	36.9	–	8.3	45.3	–	5.7	–	–	–	1.7	–	2.1	
		647.52-647.52	72.7	57.3	34.5	13.1	15.8	16.3	–	6.7	–	–	4.8	7.6	–	2.3	

TABLE 6 – *Continued*

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	Kaol.	Mica	Mont.	Paly.	Clin.	Pyrite	Apat.	Hali.
1	89-98	89.99-96.00	88.3	81.7	10.7	–	28.8	35.1	11.5	14.0	–	–	–	–
1A	150-159	151.25-151.25	85.4	77.1	8.4	–	38.9	19.6	17.9	15.2	–	–	–	–
2	201-210	201.99-209.51	90.3	84.9	10.3	–	43.7	8.8	30.1	–	–	4.8	–	2.3
2A	235-244	236.24-237.51	81.5	71.0	9.9	–	34.6	6.8	41.9	6.7	–	–	–	–
		239.00-239.00	83.1	73.6	6.7	–	30.8	6.4	39.6	16.5	–	–	–	–
		240.50-240.50	84.8	76.3	7.7	–	35.4	9.6	33.0	14.4	–	–	–	–
		241.99-243.51	87.2	80.0	8.5	–	29.7	8.1	22.1	31.7	–	–	–	–
3	311-318	311.99-314.51	83.7	74.5	3.8	–	16.2	–	23.8	56.3	–	–	–	–
4	368-374	368.55-373.22	88.5	82.1	3.6	–	3.9	4.1	27.0	61.3	–	–	–	–
5	427-432	432.00-432.00	88.0	81.3	1.3	5.3	–	–	3.7	89.6	–	–	–	–
6	510-519	512.67-512.67	92.7	88.6	0.7	18.9	–	–	–	80.4	–	–	–	–
7	585-587	587.00-587.00	82.2	72.1	7.8	65.3	–	–	19.3	4.2	3.4	–	–	–
8	645-651	645.50-645.53	73.8	59.0	7.8	5.1	–	5.7	81.4	–	–	–	–	–
		647.52-647.52	81.1	70.4	6.1	18.3	–	2.9	55.4	14.6	–	–	2.8	–

[a]Unknown: See unknown Hole 137, 2-20μ.

TABLE 7
Results of X-Ray Diffraction Analyses from Site 141

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	K-Fe	Plag.	Kaol.	Mica	Mont.	Paly.
1	5-14	7.49-13.51	63.9	43.6	88.7	–	4.7	–	1.5	2.2	2.8	–	–
2	14-23	14.99-22.51	59.1	36.1	94.6	–	3.3	–	1.0	1.1	–	–	–
3	23-32	24.00-31.51	59.3	36.4	96.9	–	2.0	1.1	–	–	–	–	–
4	32-41	34.49-41.00	61.4	39.7	92.1	–	2.2	–	1.0	–	1.7	–	3.1
5	41-50	41.99-49.51	61.6	40.1	90.6	–	3.4	–	–	1.0	2.0	–	3.1
6	59-68	59.65-67.41	61.2	39.3	90.4	–	2.9	–	–	1.6	1.9	–	3.2
7	79-88	80.01-80.01	83.3	74.0	36.1	1.1	20.7	1.0	–	8.4	5.0	2.1	25.2
		81.50-81.50	84.1	75.2	41.1	–	18.1	–	–	11.3	6.7	–	22.8
		82.99-84.51	84.8	76.3	13.7	–	32.2	4.4	2.7	12.5	9.7	–	24.8
		86.00-86.00	87.0	79.7	–	–	41.4	8.2	3.5	16.1	12.2	2.7	16.0
		87.11-87.11	86.0	78.1	–	–	34.5	10.4	–	16.8	24.0	–	14.2
8	117-123	117.81-117.81	86.3	78.7	–	–	8.0	–	–	7.5	5.6	–	78.3
		118.00-118.00	80.9	70.1	–	–	10.4	–	–	3.8	–	–	85.8
		119.50-119.50	82.4	72.4	–	–	11.2	–	–	7.9	–	–	80.9
9	191-200	191.63-191.63	81.6	71.3	–	–	4.1	–	1.0	–	5.3	80.6	9.0
		192.00-192.00	81.2	70.6	–	–	17.2	–	–	–	–	2.2	79.8
		193.50-193.50	85.8	77.9	–	–	33.0	6.1	4.2	8.0	10.6	19.7	18.3
		195.00-198.15	85.1	76.1	–	–	34.4	–	–	10.0	8.4	12.3	34.5
SW[a]	287-287	287.00-287.00	70.5	53.9	–	–	34.3	5.1	37.2	1.8	9.8	4.2	7.6

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Paly.	Hema.	Amph.	Magn.
1	5-14	7.49-13.51	65.0	45.2	52.1	13.6	15.4	3.3	15.5	–	–	–	–	–
2	14-23	14.99-22.51	64.4	44.4	55.4	11.4	17.1	3.9	12.2	–	–	–	–	–
3	23-32	24.00-31.51	76.7	63.6	47.4	16.1	16.5	6.0	14.0	–	–	–	–	–
4	32-41	34.49-41.00	73.6	58.8	49.4	14.6	15.5	6.4	14.0	–	–	–	–	–
5	41-50	41.99-49.51	66.5	47.6	56.0	11.3	12.8	3.9	13.9	–	–	2.0	–	–
6	59-68	59.65-67.41	70.3	53.7	39.7	18.0	13.5	7.3	17.6	–	–	3.0	–	1.0
7	79-88	80.01-80.01	69.4	52.2	64.5	8.7	8.2	5.0	13.6	–	–	–	–	–
		82.99-84.51	62.9	42.0	59.8	10.9	8.0	4.3	16.9	–	–	–	–	–
		86.00-86.00	65.7	46.3	59.6	8.8	9.4	5.7	16.5	–	–	–	–	–
		87.11-87.11	61.7	40.1	57.6	13.2	9.8	3.3	16.0	–	–	–	–	–
8	117-123	117.81-117.81	64.7	44.8	62.6	11.9	3.8	–	5.5	–	16.3	–	–	–
		118.00-118.00	55.4	30.4	74.3	2.2	1.1	1.4	11.1	–	9.9	–	–	–
9	191-200	192.00-192.00	64.0	43.8	53.9	2.1	4.6	1.6	16.8	–	21.0	–	–	–
		193.50-193.50	87.8	80.9	41.5	18.2	7.5	4.7	28.1	–	–	–	–	–
SW[a]	287-287	287.00-287.00	59.1	39.1	24.7	6.1	31.7	–	31.1	4.9	–	–	1.5	–

TABLE 7 – *Continued*

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Gyps.	Hali.	Anat.	Illi.
1	5-14	7.49-13.51	87.2	80.0	9.8	–	–	29.0	23.8	–	21.1	16.3	–	–	–	–
2	14-23	14.99-22.51	88.8	82.5	11.0	4.0	–	24.6	21.0	–	16.4	23.0	–	–	–	–
3	23-32	24.00-31.51	89.1	83.0	8.3	–	–	28.4	28.0	–	21.6	13.7	–	–	–	–
4	32-41	34.49-41.00	90.3	84.8	8.6	–	–	24.1	24.9	–	18.4	23.9	–	–	–	–
5	41-50	41.99-49.51	86.4	78.8	9.2	–	–	28.5	20.7	–	17.2	24.4	–	–	–	–
6	59-68	59.65-67.41	89.7	83.9	8.0	–	–	24.9	17.2	–	16.8	21.5	–	–	–	11.5
7	79-88	80.01-80.01	87.0	79.7	9.9	–	–	24.4	12.4	–	24.5	28.8	–	–	–	–
		81.50-81.50	88.4	81.9	37.2	–	–	12.8	11.1	–	4.3	33.0	–	–	1.6	–
		86.00-86.00	88.0	81.2	10.4	–	–	28.8	10.5	–	14.8	35.5	–	–	–	–
		87.11-87.11	90.5	85.1	15.7	–	–	25.6	8.6	–	11.5	38.6	–	–	–	–
8	117-123	117.81-117.81	84.4	75.7	2.9	–	–	10.4	–	–	4.2	78.8	–	3.7	–	–
		118.00-118.00	70.2	53.5	3.6	–	–	6.0	–	–	–	90.4	–	–	–	–
		119.50-119.50	84.4	75.6	10.7	–	–	8.8	–	–	–	80.5	–	–	–	–
9	191-200	191.63-191.63	71.3	55.2	–	–	–	–	–	–	100.0	–	–	–	–	–
		192.00-192.00	81.8	71.5	6.0	–	–	–	5.8	–	9.3	75.2	–	3.7	–	–
		193.50-193.50	80.5	69.6	23.7	16.9	6.3	–	5.8	–	28.6	18.7	–	–	–	–
		195.00-198.15	84.0	75.0	13.0	–	–	13.5	10.9	–	27.9	23.5	1.3	9.9	–	–
SW[a]	287-287	287.00-287.00	80.3	69.2	4.3	–	2.3	–	9.5	1.5	51.1	31.3	–	–	–	–

[a]Sidewall core.

TABLE 8
Results of X-Ray Diffraction Analyses from Site 142

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Side.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.
1	98-106	98.50-98.50	84.5	75.8	–	–	31.7	–	5.0	7.3	42.9	10.5	2.7	–
		98.85-98.85	73.3	58.2	4.1	–	47.3	5.8	10.7	2.9	25.6	3.6	–	–
		99.45-99.45	70.6	54.1	2.9	–	49.9	11.1	12.9	3.7	17.8	1.7	–	–
		99.60-99.60	67.0	48.4	2.5	–	59.1	5.5	14.5	2.4	14.5	1.6	–	–
		99.81-102.75	68.8	51.3	1.9	–	51.0	5.3	12.5	3.8	22.9	2.7	–	–
		104.15-104.15	78.7	66.8	40.0	6.9	18.0	–	2.5	9.2	20.6	2.8	–	–
		105.55-105.55	77.5	64.8	3.8	–	35.5	–	7.6	7.6	41.1	4.3	–	–
2	200-209	202.50-202.50	77.9	65.5	44.2	6.7	16.2	–	2.6	8.0	19.0	1.5	1.8	–
		204.21-204.21	85.9	78.0	12.6	–	25.2	–	3.0	15.6	38.9	4.8	–	–
		205.50-205.50	77.7	65.2	36.5	2.3	19.7	2.8	3.4	11.0	23.1	1.3	–	–
3	293-301	294.00-294.00	80.8	70.0	10.0	–	33.1	–	5.1	9.7	37.0	5.1	–	–
4	367-376	368.04-374.21	66.2	47.2	76.5	–	8.2	–	1.6	1.4	10.8	1.4	–	–
5	423-439	423.70-423.70	78.5	66.5	39.6	–	17.7	–	2.4	5.7	29.8	3.6	1.2	–
6	451-457	452.00-452.00	77.5	64.8	52.6	–	15.7	–	1.3	4.7	22.7	3.0	–	–
		453.70-453.70	83.9	74.9	1.2	–	32.3	–	3.8	13.6	43.4	4.4	1.5	–
7	479-487	479.39-486.44	65.4	46.0	86.5	–	4.7	–	–	2.8	6.0	–	–	–
8	529-538	529.20-530.23	84.7	76.2	32.1	–	14.1	–	–	25.2	16.8	–	–	11.7
		531.50-531.50	86.2	78.5	1.7	–	14.8	–	–	41.6	12.4	–	15.6	13.7
9	575-581	575.99-579.01	74.2	59.8	72.0	–	3.5	–	–	9.8	2.8	–	11.9	–

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Clin.	Amph.
1	98-106	98.50-98.50	69.9	53.0	39.7	6.1	12.1	4.3	34.5	3.3	–	–	–
		98.85-98.85	67.8	49.7	42.3	11.9	18.5	1.8	20.6	3.4	–	–	1.4
		99.45-99.45	65.8	46.5	36.5	6.6	9.9	1.8	39.9	5.3	–	–	–
		99.81-102.75	69.9	53.0	51.8	7.0	10.3	5.8	23.8	1.3	–	–	–
		104.15-104.15	61.1	39.2	37.7	4.5	10.2	3.1	40.2	4.2	–	–	–
		105.55-105.55	85.9	78.0	30.2	4.1	4.2	8.5	42.8	5.4	4.8	–	–
2	200-209	204.21-204.21	66.1	47.0	41.4	6.2	9.9	4.4	34.9	3.2	–	–	–
		205.50-205.50	65.0	45.3	40.4	6.0	8.9	3.1	37.8	3.8	–	–	–
3	293-301	294.00-294.00	67.2	48.8	37.5	7.4	11.5	2.9	37.7	2.9	–	–	–
4	367-376	368.04-374.21	65.8	46.6	37.7	5.6	10.5	3.0	39.7	3.5	–	–	–
5	423-439	423.70-423.70	71.2	55.0	37.9	2.5	5.4	3.8	46.1	4.2	–	–	–
6	451-457	452.00-452.00	71.6	55.6	37.3	2.8	4.6	7.4	45.3	2.6	–	–	–
		453.70-453.70	67.0	48.4	44.0	8.5	7.5	3.5	34.5	1.9	–	–	–
7	479-487	479.39-386.44	62.6	41.6	49.2	3.8	6.8	3.3	34.6	2.2	–	–	–

TABLE 8 – *Continued*

2-20 μm Fractions (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Clin.	Amph.
8	529-538	529.20-530.23	66.1	47.0	47.0	13.8	11.2	5.8	22.3	–	–	–	–
		531.50-531.50	64.6	44.7	79.4	2.9	4.8	5.1	7.8	–	–	–	–
9	575-581	575.99-579.01	78.6	66.6	47.9	5.6	3.5	15.3	15.4	–	11.2	1.1	–

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Hema.	Hali.
1	98-106	98.50-98.50	83.1	73.5	16.2	–	–	30.9	27.6	–	25.2	–	–	–
		98.85-98.85	82.3	72.4	10.9	–	–	25.6	29.8	–	33.6	–	–	–
		99.45-99.45	87.8	80.9	12.0	2.8	1.3	16.6	34.4	3.4	29.4	–	–	–
		99.60-99.60	82.8	73.1	13.2	–	1.7	15.8	38.0	4.7	26.6	–	–	–
		99.81-102.75	82.1	72.1	16.1	–	–	20.9	31.1	4.1	27.8	–	–	–
		104.15-104.15	82.0	71.8	15.1	–	–	30.4	23.6	2.9	28.0	–	–	–
		105.55-105.55	80.8	70.0	16.2	–	–	20.6	36.3	4.9	22.1	–	–	–
2	200-209	202.50-202.50	81.8	71.6	14.4	–	–	29.0	29.7	–	26.9	–	–	–
		204.21-204.21	86.0	78.1	13.7	–	–	27.5	41.5	4.2	13.1	–	–	–
		205.50-205.50	80.5	69.6	16.1	–	–	34.5	31.8	–	17.6	–	–	–
3	293-301	294.00-294.00	82.2	72.3	18.0	–	–	28.1	37.7	3.3	12.9	–	–	–
4	367-376	368.04-374.21	84.7	76.1	17.9	–	–	20.9	33.9	4.2	23.1	–	–	–
5	423-439	423.70-423.70	83.4	74.1	18.7	–	–	16.0	39.2	3.4	22.7	–	–	–
6	451-457	452.00-452.00	87.7	80.8	15.0	–	–	25.9	45.2	4.1	9.8	–	–	–
		453.70-453.70	83.6	74.4	14.7	2.8	–	28.1	32.8	–	21.7	–	–	–
7	479-487	479.39-486.44	85.6	77.5	15.5	–	–	39.1	27.7	–	15.4	–	2.2	–
8	529-538	529.20-530.23	82.9	73.3	10.1	–	–	47.7	11.8	–	14.3	14.6	–	1.6
		531.50-531.50	78.0	65.6	6.8	–	–	48.2	6.7	–	27.1	11.2	–	–
9	575-581	575.99-579.01	78.7	66.7	5.7	–	–	34.8	4.1	–	49.9	5.4	–	–

TABLE 9
Results of X-Ray Diffraction Analyses from Site 144

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Quar.	Cris.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Bari.	Pyrite
1B	0-9	1.49-8.51	67.6	49.4	84.8	4.9	–	–	2.3	3.8	–	3.1	–	1.0	–	–
2B	10-19	10.00-17.50	63.1	42.3	94.5	2.2	–	–	–	–	–	2.1	–	1.2	–	–
1A	20-29	22.06-24.01	64.5	44.5	91.4	2.9	–	–	1.8	–	–	2.5	–	1.5	–	–
		25.49-27.01	64.1	44.0	90.9	2.5	–	–	1.4	–	–	2.2	–	3.0	–	–
3B	27-36	29.49-35.51	65.1	45.5	88.3	3.1	–	–	1.8	–	–	4.0	–	2.8	–	–
2A	38-47	43.50-43.50	70.5	53.9	83.3	5.0	–	–	4.4	2.1	–	5.2	–	–	–	–
		46.00-46.00	66.0	46.9	86.8	4.7	–	–	3.3	–	–	4.0	–	1.3	–	–
1	57-65	57.70-64.52	63.0	42.2	97.6	1.0	–	–	–	–	–	1.4	–	–	–	–
2	104-112	105.50-111.50	71.7	55.7	75.8	5.7	5.0	–	–	3.1	–	5.8	–	4.6	–	–
3A	140-149	141.00-141.00	70.6	54.1	61.8	9.2	–	–	–	4.1	–	8.2	–	16.7	–	–
		142.50-146.42	66.4	47.5	66.8	6.6	–	–	–	2.6	–	8.6	–	15.4	–	–
		148.50-148.50	80.7	69.9	50.4	6.8	36.5	2.6	–	–	–	–	–	3.7	–	–
3	162-166	163.15-164.80	67.4	49.0	80.2	3.4	4.7	1.7	–	–	–	4.6	1.8	–	3.6	–
4A	171-180	173.81-173.81	66.7	48.0	66.0	6.7	–	–	–	4.0	–	8.0	–	15.3	–	–
5A	180-189	181.11-181.11	53.1	26.7	100.0	–	–	–	–	–	–	–	–	–	–	–
6A	189-197	190.10-190.10	71.2	55.0	88.0	2.0	–	–	–	2.3	–	2.3	–	5.4	–	–
4	213-219	214.45-214.45	52.7	26.1	100.0	–	–	–	–	–	–	–	–	–	–	–
		214.75-214.75	81.8	71.6	36.7	8.4	–	–	–	4.3	–	–	15.9	21.8	–	12.8
		215.11-215.11	64.0	43.8	95.7	1.1	–	–	–	–	–	–	–	3.2	–	–
		215.66-215.70	68.7	51.1	88.6	2.3	6.9	–	–	–	–	–	–	2.2	–	–
		217.00-217.00	66.8	48.2	90.3	2.0	–	–	–	1.8	–	–	2.8	3.0	–	–
5	264-270	265.00-265.00	79.6	68.1	58.0	19.2	–	–	5.7	4.2	–	6.1	5.3	–	–	1.5
6	295-298	295.32-295.32	60.4	38.1	56.6	32.9	–	4.6	1.1	2.7	–	–	2.2	–	–	–
		296.29-296.29	65.1	45.5	50.3	35.6	–	4.8	–	4.5	–	1.3	3.4	–	–	–
7	298-300	298.85-298.85	86.2	78.5	6.7	45.7	–	3.6	2.0	22.4	3.8	7.6	6.7	–	–	1.4
OCD	300-325	312.50-312.50	63.8	43.4	94.7	1.9	–	–	1.1	–	–	–	–	2.4	–	–
8	324-327	324.15-324.15	65.8	46.5	34.7	51.4	–	4.7	1.1	3.6	–	1.2	3.3	–	–	–
		326.86-326.86	82.9	73.2	10.3	37.3	–	4.7	–	24.2	2.3	5.8	13.2	–	–	2.3

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Clin.	Pyrite	Bari.	Magn.
1B	0-9	1.49-8.51	67.7	49.5	46.2	–	–	4.8	2.5	29.5	2.4	–	14.7	–	–	–
2B	10-19	10.00-17.50	67.3	48.9	47.1	–	–	6.4	4.4	8.1	–	–	33.9	–	–	–
1A	20-29	22.06-24.01	66.9	48.2	46.0	–	–	–	6.4	7.5	–	11.6	28.6	–	–	–
		25.49-27.01	62.3	41.1	32.4	–	2.6	–	4.1	6.4	–	6.8	47.7	–	–	–

TABLE 9 – *Continued*

2-20 μm Fractions (Continued)

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	K-Fe	Plag.	Kaol.	Mica	Chlor.	Mont.	Clin.	Pyrite	Bari.	Magn.
3B	27-36	29.49-35.51	65.6	46.3	34.9	–	–	–	4.7	4.1	–	6.8	49.6	–	–	–
2A	38-47	43.50-43.50	69.6	52.5	50.0	–	5.2	9.4	11.5	13.8	–	5.2	4.9	–	–	–
		46.00-46.00	73.4	58.4	48.6	–	–	8.5	8.0	9.5	–	7.5	17.5	–	–	–
1	57-65	57.70-64.52	95.5	92.9	62.8	–	–	10.3	2.8	11.7	–	–	12.3	–	–	–
2	104-112	105.50-111.50	80.7	69.9	32.2	24.7	–	–	–	8.8	–	–	31.7	–	–	2.6
3A	140-149	141.00-141.00	52.6	26.0	24.0	–	–	–	–	8.4	–	–	67.6	–	–	–
		142.50-146.42	56.9	32.7	23.7	–	–	–	1.7	7.2	–	–	65.6	1.8	–	–
		148.50-148.50	63.2	42.5	22.7	–	7.6	7.0	–	4.2	–	–	53.8	4.8	–	–
3	162-166	163.15-164.80	62.0	40.6	23.9	–	10.0	6.0	–	10.6	–	–	33.0	–	16.3	–
4A	171-180	173.81-173.81	83.0	73.5	11.4	70.3	3.7	1.3	–	2.4	–	–	10.8	–	–	–
5A	180-189	181.11-181.11	72.9	57.7	22.0	–	–	8.7	–	4.2	–	–	58.9	–	6.2	–
6A	189-197	190.10-190.10	64.0	43.8	11.7	–	–	–	–	9.8	12.6	–	57.5	8.4	–	–
4	213-219	214.75-214.75	66.3	47.3	27.0	–	–	–	–	12.1	–	–	55.3	5.6	–	–
		215.11-215.11	58.8	35.6	20.3	–	–	5.1	–	11.4	–	–	59.9	3.3	–	–
		215.66-215.70	75.5	61.7	13.0	40.3	–	5.1	–	8.3	–	–	29.4	4.0	–	–
		217.00-217.00	70.9	54.6	29.5	–	–	8.9	–	15.3	–	–	40.6	5.7	–	–
5	264-270	265.00-265.00	72.9	57.6	87.0	–	–	3.5	1.2	2.2	–	–	–	6.1	–	–
6	295-298	296.30-296.30	66.9	48.2	54.1	–	7.2	11.8	3.3	17.0	–	–	–	6.7	–	–
7	298-300	298.85-298.85	64.4	44.3	76.2	–	–	8.1	–	11.7	,1.0	–	–	2.9	–	–
8	324-327	326.86-326.86	61.3	39.6	59.5	–	–	12.8	1.2	23.6	1.3	–	–	1.7	–	–

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Pyrite	Bari.	Hali.
1B	0-9	1.49-8.51	83.6	74.3	25.0	–	–	13.8	19.4	–	38.0	–	3.7	–	–	–
2B	10-19	10.00-17.50	90.0	84.4	15.6	–	–	24.1	8.5	–	44.1	–	4.7	–	–	2.9
1A	20-29	22.06-24.01	80.0	68.7	8.9	–	–	15.6	4.8	1.4	67.0	–	2.2	–	–	–
		25.49-27.01	85.3	77.0	12.1	–	–	20.4	12.2	–	51.0	–	4.2	–	–	–
2A	38-47	43.50-43.50	81.0	70.3	14.1	–	2.0	27.2	11.0	–	43.1	–	2.6	–	–	–
		46.00-46.00	80.3	69.2	7.8	–	1.5	29.5	6.5	–	53.4	–	1.3	–	–	–
1	57-65	57.70-64.52	83.2	73.7	6.3	–	–	24.0	4.7	–	63.8	–	1.3	–	–	–
2	104-112	105.50-111.50	87.1	79.8	14.6	13.8	–	3.0	8.4	–	52.2	–	8.0	–	–	–
3A	140-149	141.00-141.00	83.6	74.4	26.0	–	1.8	–	18.6	2.0	29.5	–	22.1	–	–	–
		142.50-146.42	78.6	66.4	14.8	–	1.2	1.7	7.8	–	34.1	–	37.5	–	–	2.9
		148.50-148.50	90.1	84.5	14.3	36.4	5.0	–	11.9	–	32.4	–	–	–	–	–
3	162-166	163.15-164.80	91.1	86.0	5.4	59.6	–	–	–	–	23.4	5.8	3.8	–	2.2	–

TABLE 9 – *Continued*

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Clin.	Pyrite	Bari.	Hali.
4A	171-180	173.81-173.81	93.0	89.0	2.4	91.7	1.6	–	–	–	2.6	–	1.7	–	–	–
5A	180-189	181.11-181.11	94.5	91.5	11.6	–	6.8	–	13.7	–	50.2	–	8.8	8.9	–	–
6A	189-197	190.10-190.10	96.5	94.6	7.9	–	–	–	20.9	–	66.6	–	4.6	–	–	–
4	213-219	214.45-214.45	93.1	89.3	14.5	–	–	5.2	15.2	–	26.9	13.8	17.5	6.9	–	–
		214.75-214.75	89.3	83.2	6.3	10.6	–	–	8.7	–	41.0	22.7	8.9	1.8	–	–
		215.11-215.11	90.1	84.5	10.6	17.5	–	–	11.3	–	17.4	34.8	6.6	1.9	–	–
		215.66-215.70	93.9	90.5	5.2	59.8	–	–	4.6	–	16.0	11.5	1.5	1.3	–	–
		217.00-217.00	90.7	85.5	9.3	32.1	–	–	8.9	–	15.5	25.6	7.3	1.4	–	–
5	264-270	265.00-265.00	94.6	91.6	18.5	–	15.9	12.4	10.5	–	42.6	–	–	–	–	–
6	295-298	296.30-296.30	85.4	77.2	7.6	–	–	4.9	22.3	1.6	43.4	20.2	–	–	–	–
7	298-300	298.85-298.85	87.1	79.8	14.0	–	–	3.3	31.9	4.7	46.0	–	–	–	–	–
OCD[a]	300-324	300.00-325.00	78.3	66.1	8.2	–	–	17.6	3.8	2.8	62.6	–	3.1	–	–	2.0
8	324-327	324.15-324.15	84.0	75.0	9.5	–	–	5.7	19.9	2.2	47.5	15.2	–	–	–	–
		326.86-326.86	85.4	77.2	8.9	–	–	3.9	20.7	1.7	44.9	20.0	–	–	–	–

[a]Open core drilling.

TABLE 10
Sediment Samples Submitted for X-Ray Diffraction Analyses

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
135	1	1	80-82	0.80-3.51
		2	50	0.80-3.51
		3	99-101	0.80-3.51
	2	1	100	81.00-85.51
		2	99-101	81.00-85.51
		3	99-101	81.00-85.51
		4	99-101	81.00-85.51
		5	100	87.00-88.51
		6	99-101	87.00-88.51
	3	1	99-101	173.99-175.51
		2	99-101	173.99-175.51
	4	1	137	260.37-261.50
		2	100	260.37-261.50
	5	1	84	335.84
	7	1	143	431.10-432.25
		2	65	431.10-432.25
			107	431.10-432.25
		3	72-74	433.45
		4	17-18	434.40-434.75
			51	434.40-434.75
	8	1	58-60	564.59
		1	80-82	564.81
		1	90-93	564.90-565.05
			102-105	564.90-565.05
		1	132-134	565.32-565.34
		1	145-146	565.45
	9	1	120	685.20-686.51
		2	99-101	685.20-686.51
136	1	1	99-101	130.99-138.51
		2	99-101	130.99-138.51
		3	99-101	130.99-138.51
		4	99-101	130.99-138.51
		5	99-101	130.99-138.51
		6	99-101	130.99-138.51
	2	1	99-101	216.99-224.51
		2	99-101	216.99-224.51
		5	99-101	216.99-224.51
		6	99-101	216.99-224.51
	3	2	99-101	237.49-240.52
		3	14-15	237.49-240.52
		4	99-101	237.49-240.52
	4	1	99-101	244.99-248.02
		2	79-81	244.99-248.02
		3	100-102	244.99-248.02
	5	1	126-136	254.26-254.36
		5	111-116	260.11-260.16
		5	133-138	260.33-260.38
		5	147-149	260.48
	6	1	99-101	263.00
		1	140-141	263.40
		1	146-147	263.46
		2	5-6	263.56
		2	24-26	263.75
		2	94-95	264.44
		2	131-133	244.82
	7	1	139-140	272.40
		1	147-148	272.48
	8	1	127-129	281.28
		1	146-147	281.46
		6	138	288.88
137	1	1	99-101	52.99-57.51
		2	99-101	52.99-57.51
		3	99-101	52.99-57.51
		4	99-101	52.99-57.51
		5	99-101	58.99-59.27
			127-129	58.99-59.27
137	2	1	139-141	100.40
	3	1	114-116	136.15
		2	99-101	137.50
		3	99-101	138.99-143.50
		4	100	138.99-143.50
		5	100	138.99-143.50
		6	100	138.99-143.50
	4	1	139-141	166.40
		2	39-41	166.90
	4	2	99-101	167.50
	6	1	28-30	218.29
		1	99-101	219.00
	7	1	127	257.27
	8	1	14-16	265.15
		1	44-46	265.45
		2	45-47	266.96
		2	138-140	267.89
	9	1	50-52	274.51
		3	134-136	278.35
		3	147-150	278.48
		5	143-145	280.44
		6	50-52	282.01
		6	108-110	282.59
	10	1	143-145	284.44
		2	99-101	285.49-287.01
		3	99-101	285.49-287.01
	11	1	99-101	293.00
		1	120-122	293.21
		2	49-51	294.00
		2	99-101	294.50
		3	99-101	296.00
		4	109-111	297.59-300.51
		5	74-76	297.59-300.51
		6	99-101	297.59-300.51
	12	1	120	302.20
		2	69-71	303.20
		2	97-98	303.47
		2	99-100	303.99
		2	104-106	304.55
		3	100	305.00-306.51
		4	99-101	305.00-306.51
		5	109-113	308.11
		6	99-101	309.50
		6	114-116	309.65
	13	2	135	322.85-322.95
			143-145	322.85-322.95
		3	100	324.00
		4	100	325.50
	14	2	99-101	341.50
		3	99-101	343.00
		4	99-101	344.50
		5	100	346.00
		6	100	347.50
	15	1	124-126	349.25
		1	133-135	349.34
		2	90-92	350.41
	16	2	49-51	377.00
		3	99-101	379.00
		4	99-101	380.50
138	1	1	99-101	52.99-60.51
		2	99-101	52.99-60.51
		3	99-101	52.99-60.51
		4	99-101	52.99-60.51
		6	99-101	52.99-60.51
	2	1	78-80	110.79
		1	99-101	111.00

TABLE 10 – *Continued*

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
138	2	2	99-101	112.49-115.51
		3	99-101	112.49-115.51
		4	99-101	112.49-115.51
		5	100	117.00
		6	100	118.50
	3	1	123-125	184.24
	5	1	140-141	333.40
	6	1	141-142	426.41-426.81
		2	29-31	426.41-426.81
		2	65-66	427.15
		3	51-52	428.51
		3	107-109	429.08
		3	111-113	429.12
		3	116-117	429.16
139	1	1	99-101	114.99-116.51
		2	99-101	114.99-116.51
	2	2	99-101	227.49-229.01
		3	99-101	227.49-229.01
	2	4	99-101	230.50
	3	Core Catcher		354.00
	4	Core Catcher		463.00
	5	1	143-144	571.43
	6	1	17-19	607.18
	7	1	57-59	656.57-664.60
			99-101	656.57-664.60
		2	39-41	656.57-664.60
			129-131	656.57-664.60
		3	99-101	656.57-664.60
		4	117-119	656.57-664.60
		5	112	656.57-664.60
		6	110	656.57-644.60
140	1	1	99-101	89.99-96.00
		2	130-132	89.99-96.00
		4	120-122	89.99-96.00
		5	98-100	89.99-96.00
	2	1	99-101	201.99-209.51
		2	94-96	201.99-209.51
		3	99-101	201.99-209.51
		4	99-101	201.99-209.51
		6	99-101	201.99-209.51
	3	1	99-101	311.99-314.51
		2	80-84	311.99-314.51
		3	49-51	311.99-314.51
	4	1	55-57	368.55-373.22
			64-66	368.55-373.22
		3	120-122	368.55-373.22
	5	Core Catcher		432.00
	6	2	82-83	512.32
		2	116-118	512.67
	7	Core Catcher		587.00
	8	1	50-53	645.50
		1	87-89	645.88
		1	148-149	646.48
		2	101-103	647.52
140A	1	1	124-126	151.25
	2	1	124-126	236.24-237.51
		2	99-101	236.24-237.51
		3	99-101	239.00
		4	99-101	240.50
		5	99-101	241.99-243.51
		6	99-101	241.99-243.51
141	1	2	99-101	7.49-13.51
		3	99-101	7.49-13.51
		5	99-101	7.49-13.51
		6	99-101	7.49-13.51
	2	1	99-101	14.99-22.51

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
141	2	2	99-101	14.99-22.51
		3	100	14.99-22.51
		4	5-7	14.99-22.51
		5	99-101	14.99-22.51
		6	99-101	14.99-22.51
	3	1	100	24.00-31.51
		3	99-101	24.00-31.51
		4	99-101	24.00-31.51
		5	99-101	24.00-31.51
		6	99-101	24.00-31.51
	4	2	99-101	34.49-41.00
		3	99-101	34.49-41.00
		6	150	34.49-41.00
	5	1	99-101	41.99-49.51
		2	99-101	41.99-49.51
		3	99-101	41.99-49.51
		4	100	41.99-49.51
		5	100	41.99-49.51
		6	99-101	41.99-49.51
	6	1	75	59.65-67.41
		3	99-101	59.65-67.41
		4	94-96	59.65-67.41
		5	106-108	59.65-67.41
		6	89-91	59.65-67.41
	7	1	99-101	80.01
		2	99-101	81.50
		3	99-101	82.99-84.51
		4	99-101	82.99-84.51
		5	99-101	86.00
		6	60-62	87.11
	8	1	80-82	117.81
		1	99-101	118.00
		2	100	119.50
	9	1	65	191.63
		1	100	192.00
		2	100	193.50
		3	100	195.00-198.15
		4	100	195.00-198.15
		5	113-115	195.00-198.15
		SW1	–	287.00
142	1	1	99-101	98.50
		1	137-139	98.85
		2	43-45	99.45
		2	65-67	99.60
		2	76-78	99.81-102.75
		3	99-101	99.81-102.75
		4	80-82	99.81-102.75
			102-104	99.81-102.75
		5	99-101	104.15
		6	100	105.55
	2	2	99-101	202.50
		3	120-122	204.21
		4	99-101	205.50
	3	1	99-101	294.00
	4	1	104-106	368.04-374.21
		2	99-101	368.04-374.21
		3	99-101	368.04-374.21
		4	99-101	368.04-374.21
		5	119-121	368.04-374.21
	5	1	70	423.70
	6	1	99-101	452.00
		2	119-121	453.70
	7	1	99-101	479.39-486.44
		2	99-101	479.39-486.44
		3	99-101	479.39-486.44
		4	99-101	479.39-486.44
		5	99-101	479.39-486.44

TABLE 10 – *Continued*

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
142	7	6	99-101	479.39-486.44
	8	1	20-22	529.20-530.23
			121-123	529.20-530.23
		2	99-101	531.50
	9	1	99-101	575.99-579.01
		2	99-101	575.99-579.01
		3	99-101	575.99-579.01
144	1	1	136-138	57.70-64.52
		2	75-77	57.70-64.52
		3	145-147	57.70-64.52
		4	102-104	57.70-64.52
		5	110-112	57.70-64.52
		6	99-101	57.70-64.52
	2	1	150	105.50-111.50
		3	150	105.50-111.50
		5	150	105.50-111.50
	3	1	115-117	163.15-164.80
		2	22-23	163.15-164.80
			129-130	163.15-164.80
	4	1	145	214.45
		2	24-26	214.75
		2	60-62	215.11
		2	116-120	215.66
		3	99-101	217.00
	5	1	99-101	265.00
	6	1	31-33	295.32
		1	129-130	296.29
	7	1	84-86	298.85
	Open core drill.	–	–	?
	8	2	17-19	324.15
		3	135-137	326.86

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
144A	1	2	56-58	22.06-24.01
		3	99-101	22.06-24.01
		4	99-101	25.49-27.01
		5	99-101	25.49-27.01
	2	4	99-101	43.50
		5	99-101	46.00
	3	1	99-101	141.00
		2	100	142.50-146.42
		3	100	142.50-146.42
		4	96-100	142.50-146.42
		5	42-45	142.50-146.42
		6	99-101	148.50
	4	2	130-132	173.81
	5	1	110-112	181.11
	6	1	109-111	190.10
144B	1	1	Bottom	1.49-8.51
		2	Top	1.49-8.51
		3	No depth given	1.49-8.51
		4	99-101	1.49-8.51
		5	Top	1.49-8.51
			Top	1.49-8.51
		6	99-101	1.49-8.51
	2	1	Top	10.00-17.50
			18-20	10.00-17.50
		3	120-121	10.00-17.50
		5	Top	10.00-17.50
			Top	10.00-17.50
		6	Top	10.00-17.50
	3	2	99-101	29.49-35.51
		3	99-101	29.49-35.51
		4	99-101	29.49-35.51
		6	99-101	29.49-35.51

APPENDIX

Minerals currently contained in X-ray diffraction-data reduction program (MINLOG) are listed in Table 11.

A new chlorite window (18.50-19.10) was chosen because no other deep sea mineral has been found to date to interfere with the (003) peak of chlorite. Consequently, a new chlorite factor (4.95) was assigned for the new peak. There is no change in the quantity of chlorite being reported using the present factor from that which was reported in previous reports.

TABLE 11
Calibration Table for Minerals under Investigation (Cu Kα radiation)

	Window (degrees 2θ)		Concentration Factor	Threshold (Per/Cent)
Calcite	29.25	29.70	1.65	1.00
Dolomite	30.72	31.15	1.53	1.00
Aragonite	45.65	46.00	9.30	1.00
Siderite	31.70	32.20	1.15	2.00
Rhodochrosite	31.26	31.50	3.45	1.00
Quartz	26.45	26.95	1.00	0.30
Cristobalite	21.50	22.05	9.00	3.00
K-Feldspar	27.35	27.79	4.30	1.00
Plagioclase	27.80	28.15	2.80	1.00
Kaolinite	12.20	12.70	2.25	1.00
Mica	8.70	9.10	6.00	1.00
Chlorite	18.50	19.10	4.95	1.00
Montmorillonite	4.70	5.40	3.00	1.00
Palygorskite	8.20	8.69	9.20	1.00
Clinoptilolite	9.80	10.10	1.56	1.00
Phillipsite	17.50	17.75	17.00	4.00
Hematite	33.15	33.40	3.33	2.00
Pyrite	56.20	56.45	2.30	1.00
Gypsum	11.30	11.80	0.40	1.00
Apatite	31.70	32.20	3.10	2.50
Barite	28.65	29.00	3.10	1.00
Tremolite	10.30	10.70	2.50	1.00
Halite	45.30	45.65	2.00	1.00
2-Montmorillonite	5.80	6.49	3.00	1.00

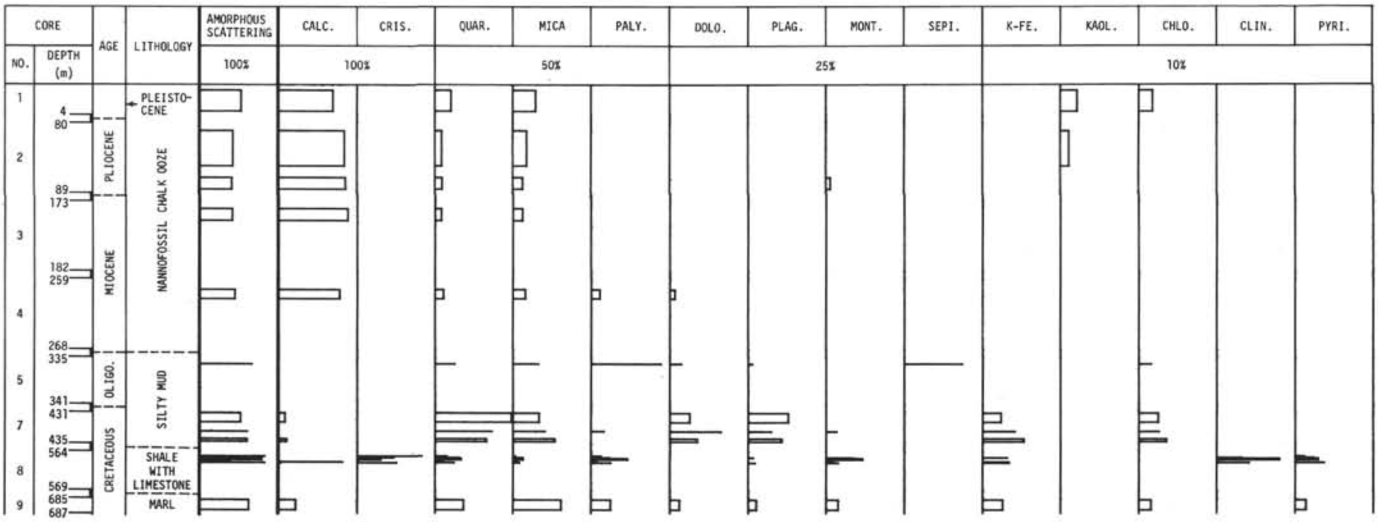


Figure 1. *Site 135, bulk samples.*

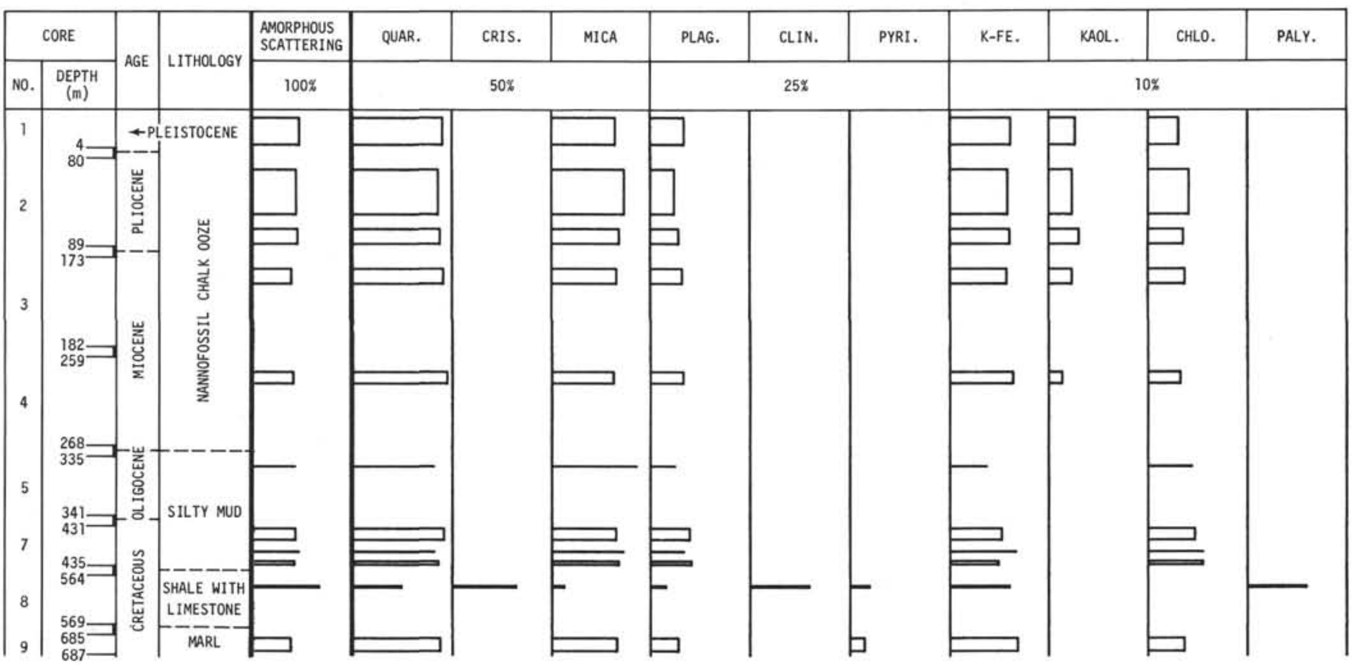


Figure 2. *Site 135, 2-20 μm fractions.*

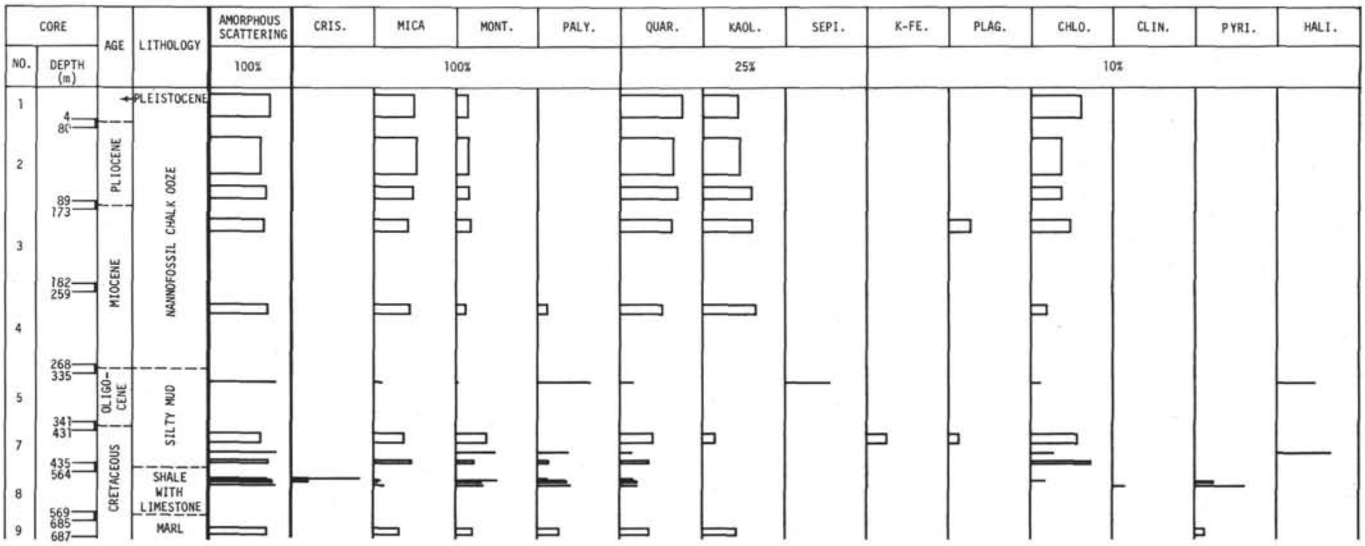


Figure 3. *Site 135, <2 μm fractions.*

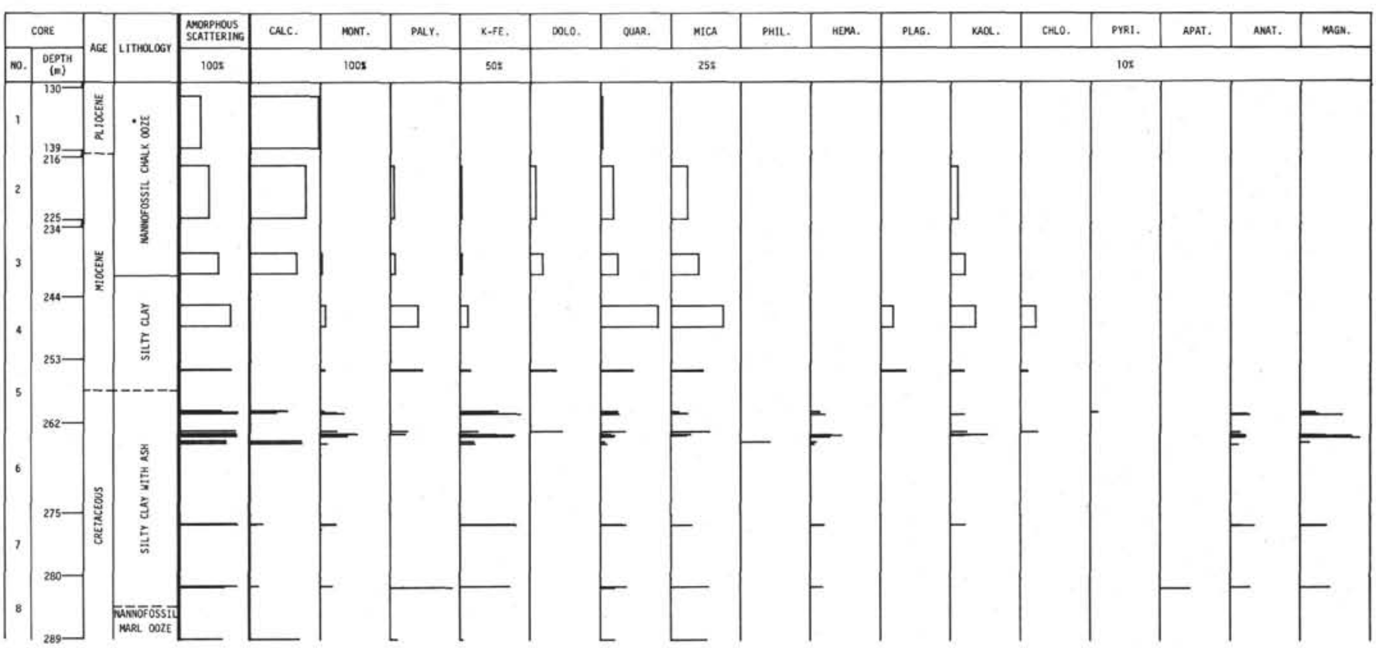


Figure 4. *Site 136, bulk samples.*

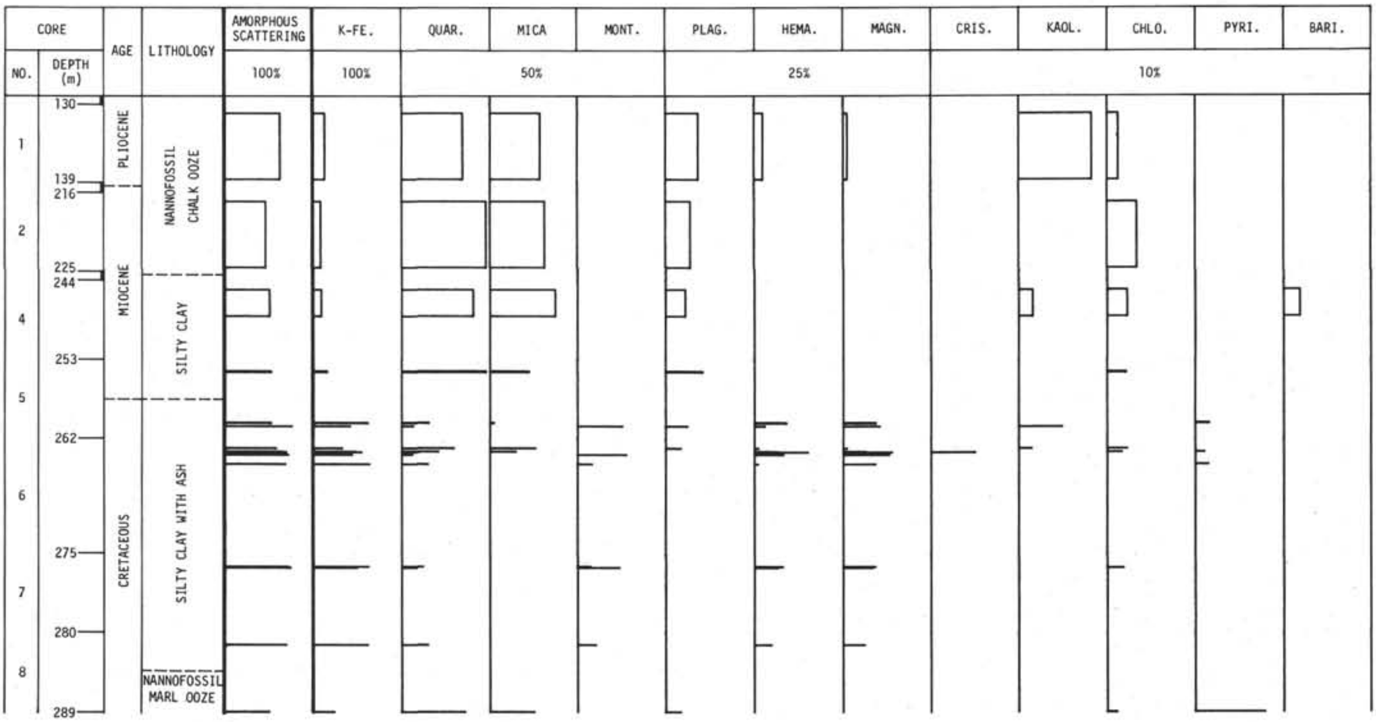


Figure 5. *Site 136, 2-20 μm fractions.*

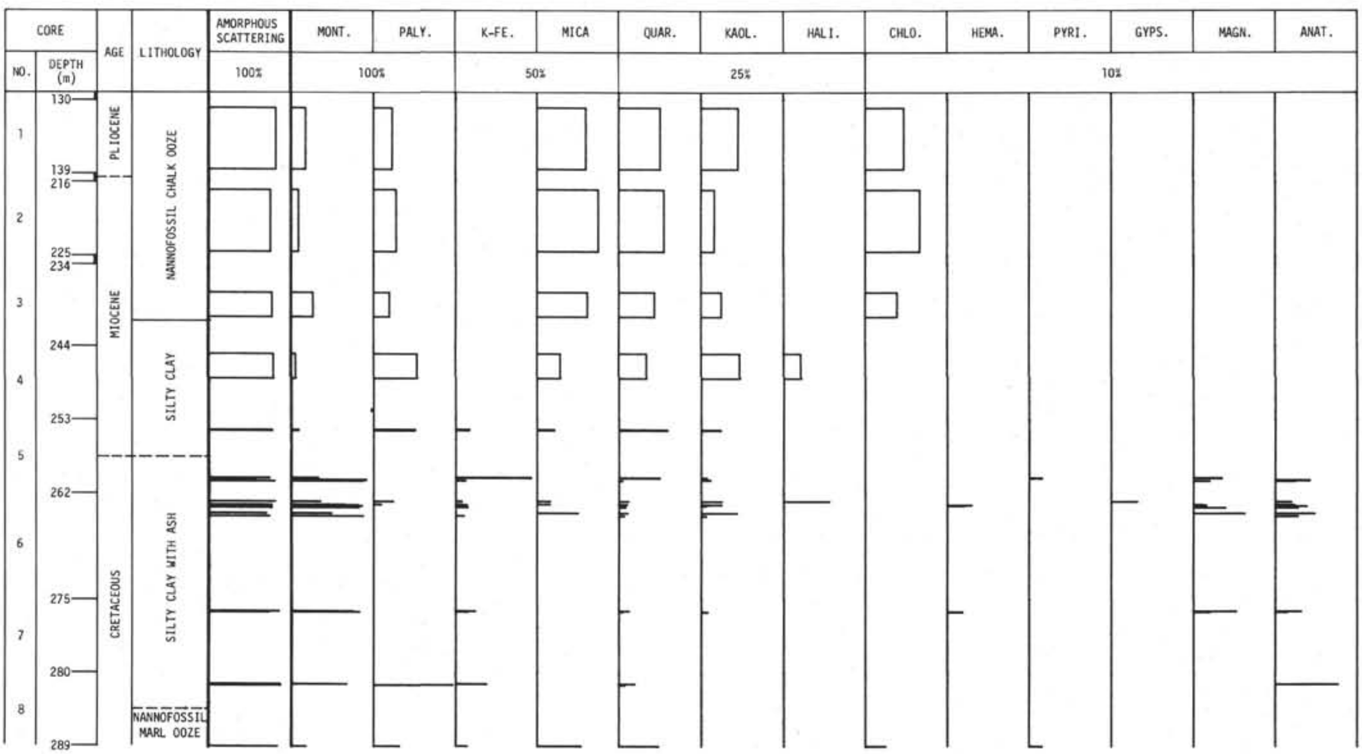


Figure 6. *Site 136, <2 μm fractions.*

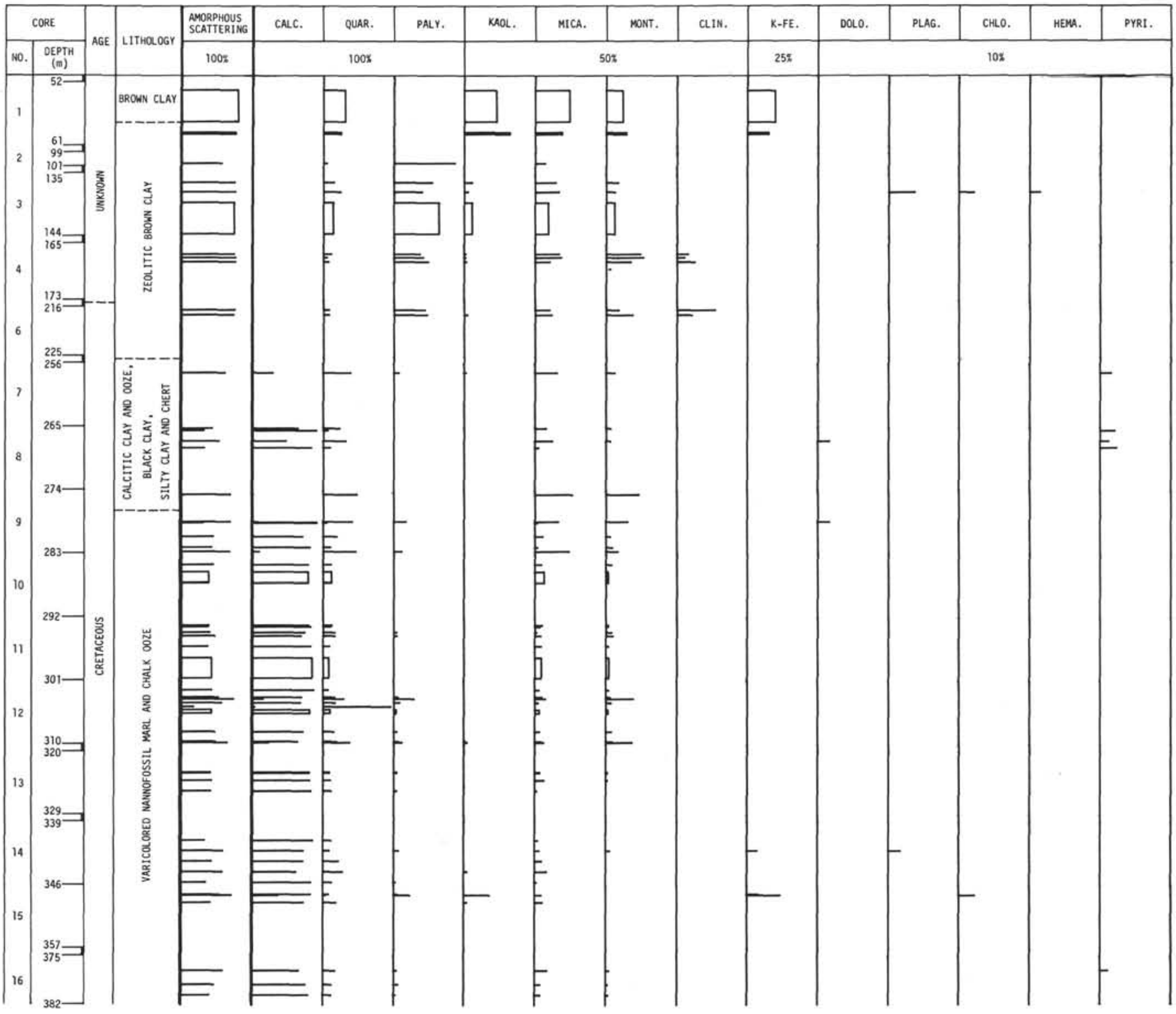


Figure 7. *Site 137, bulk samples.*

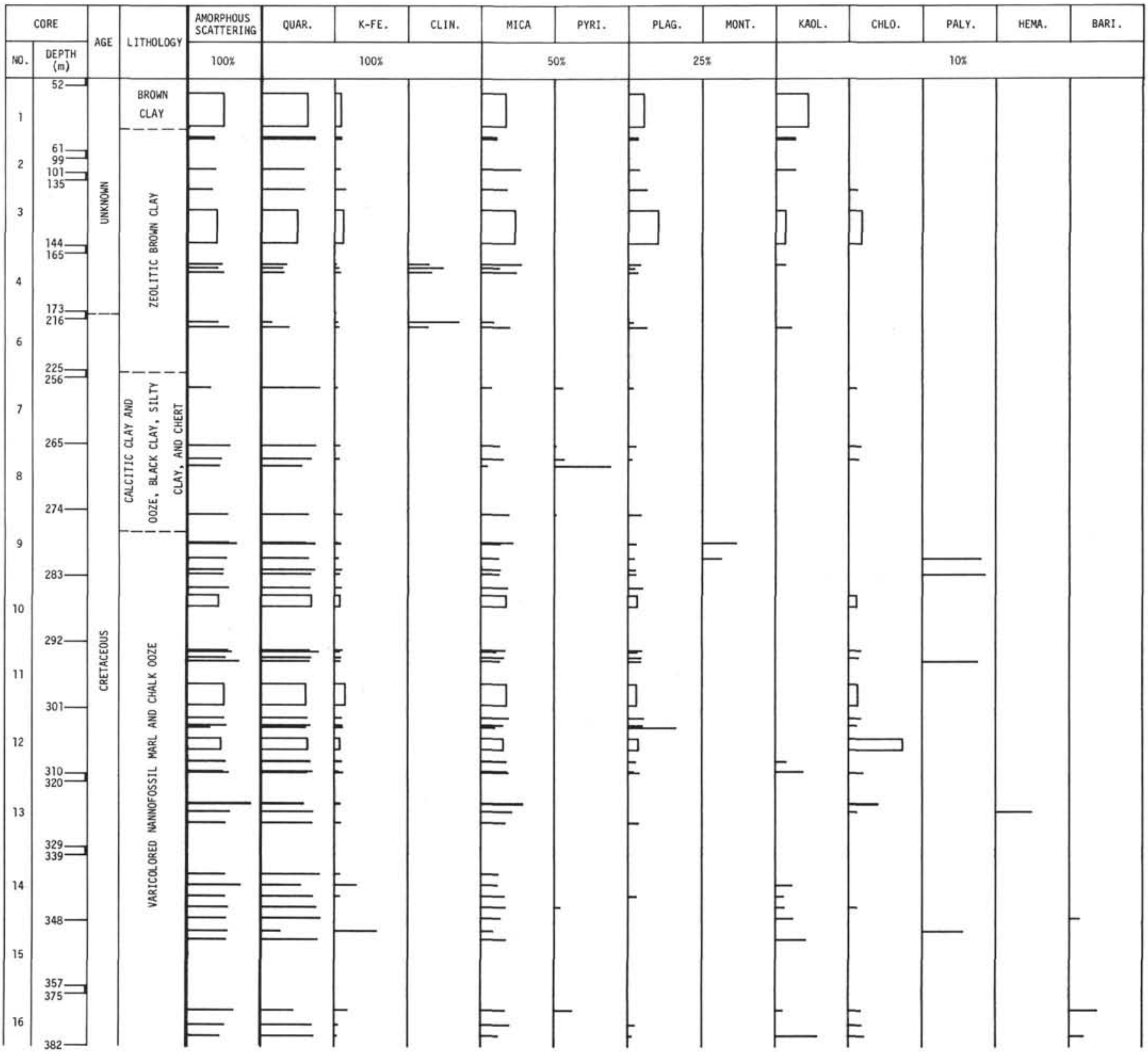


Figure 8. *Site 137, 2-20 μm fractions.*

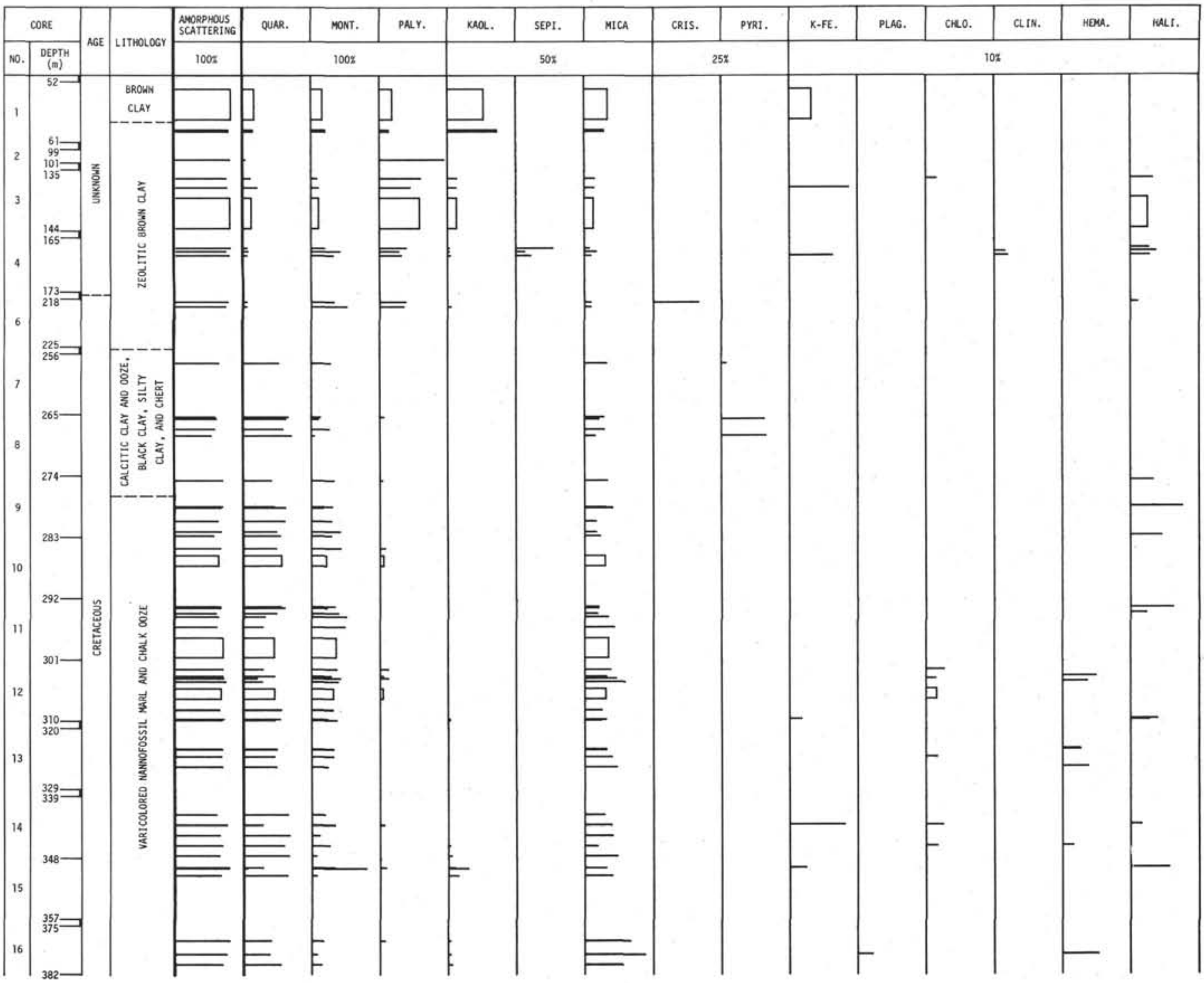


Figure 9. *Site 137, <2 μm fractions.*

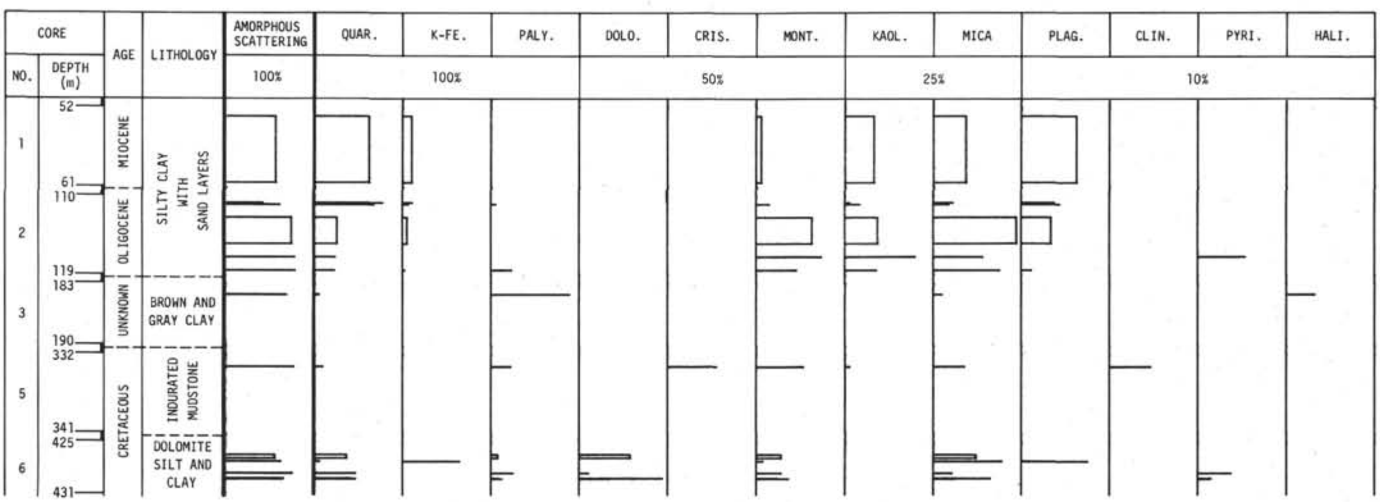


Figure 10. *Site 138, bulk samples.*

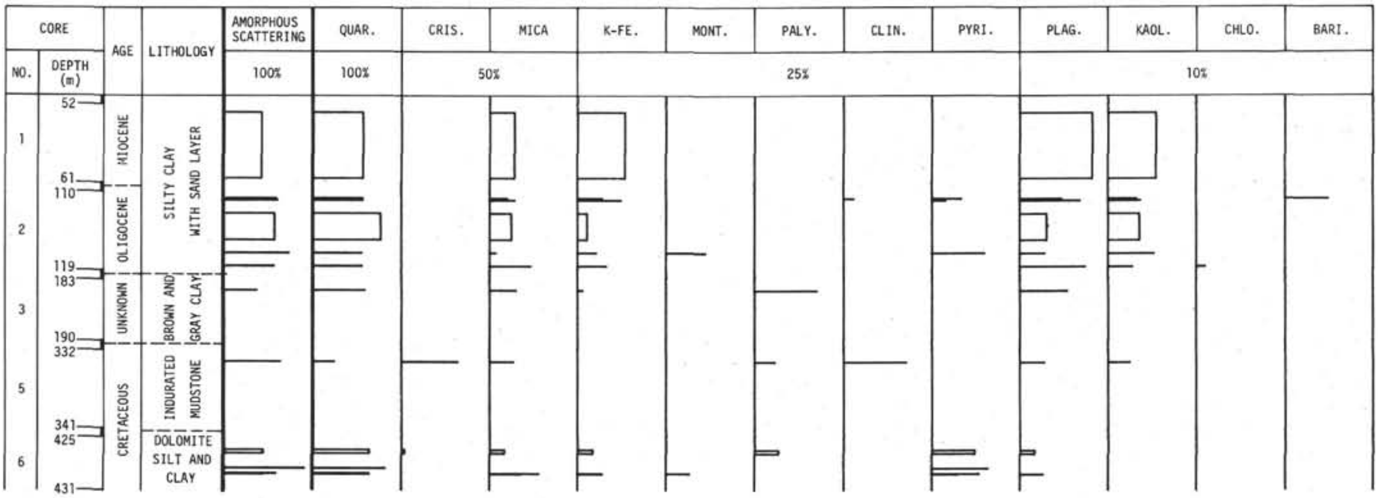


Figure 11. *Site 138, 2-20 μm fractions.*

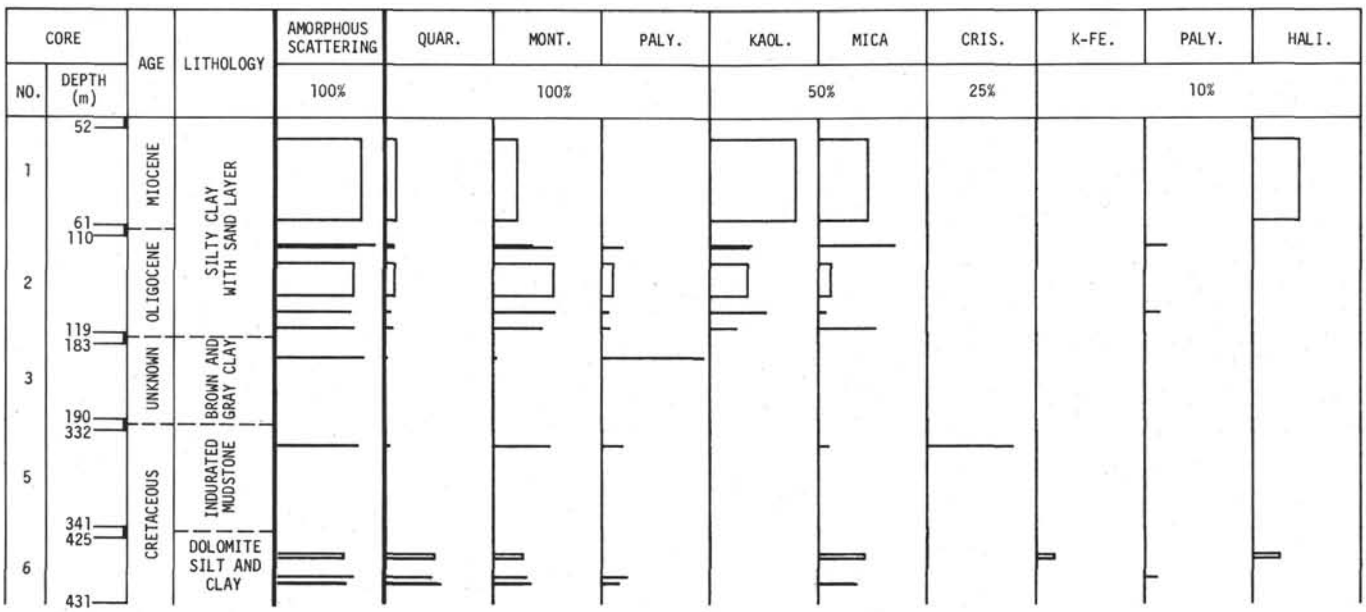


Figure 12. *Site 138, <2 μm fractions.*

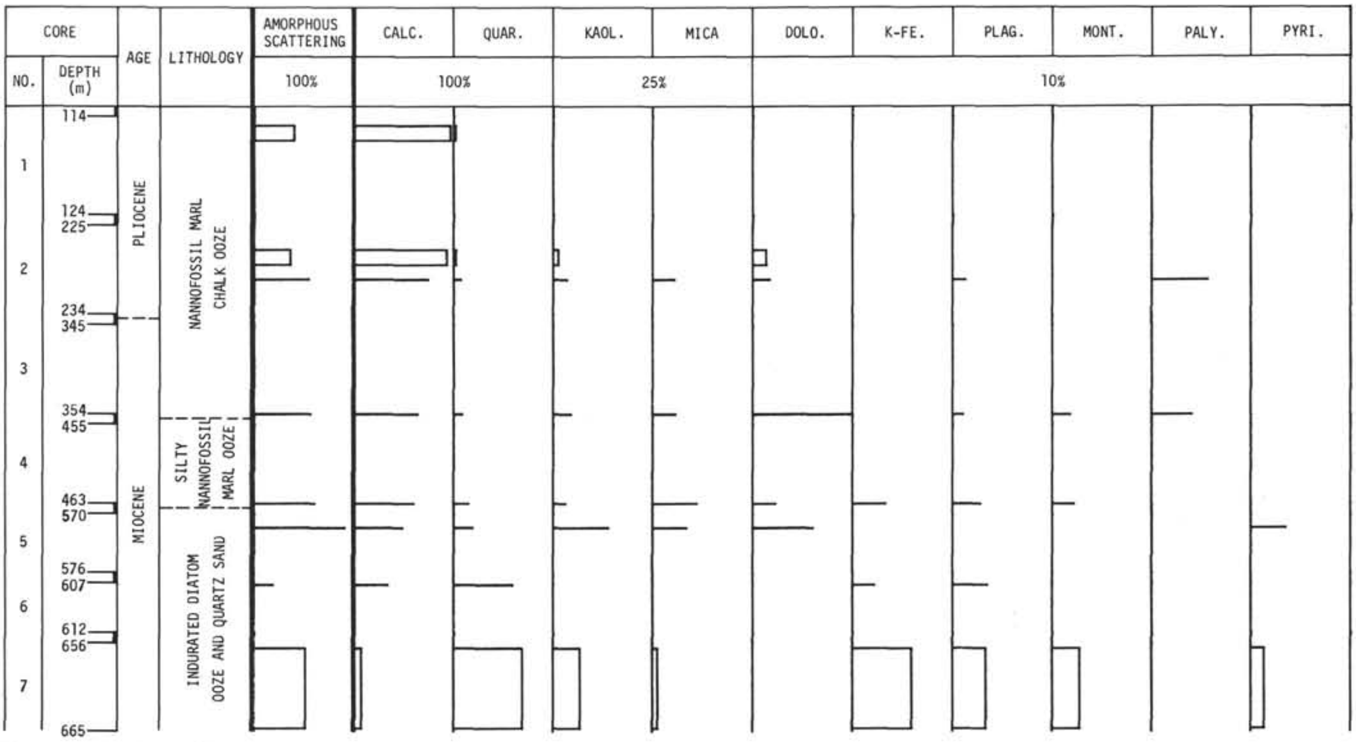


Figure 13. *Site 139, bulk samples.*

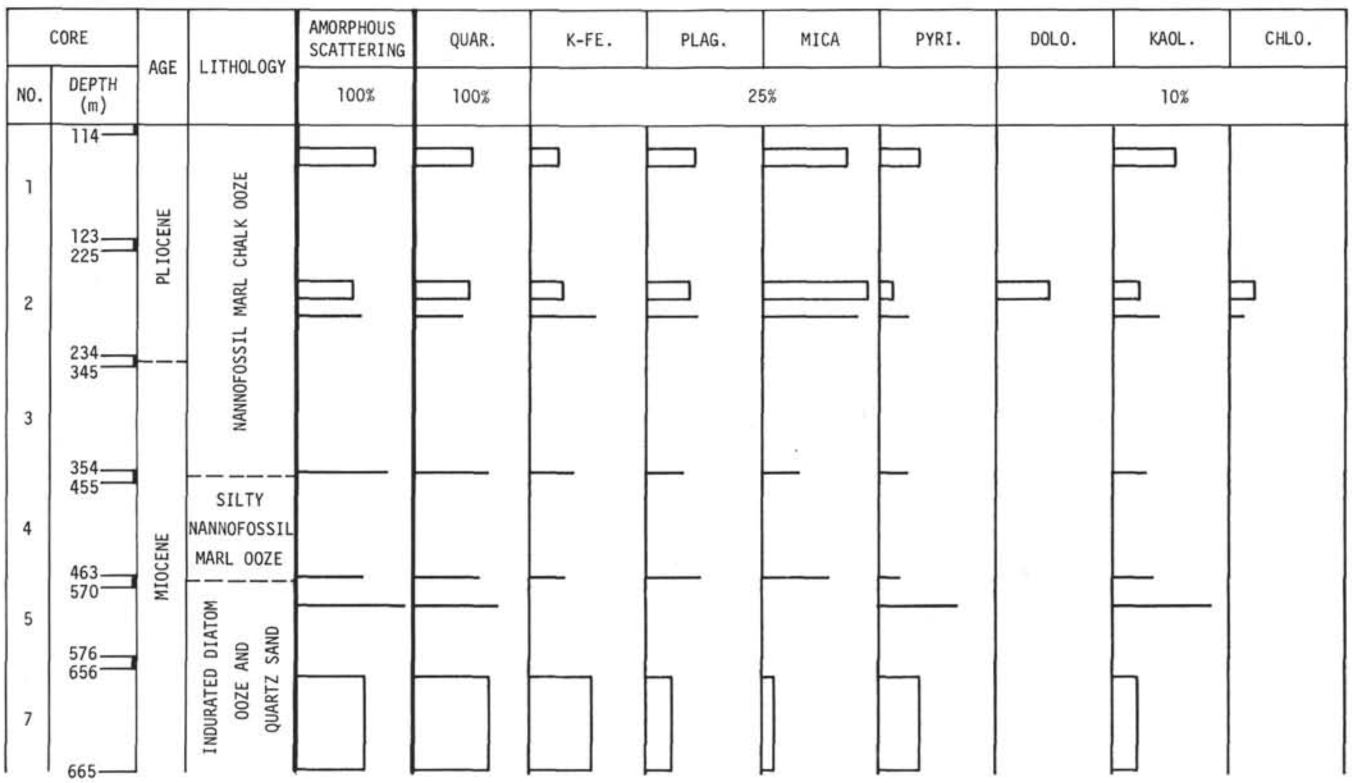


Figure 14. *Site 139, 2-20 µm fractions.*

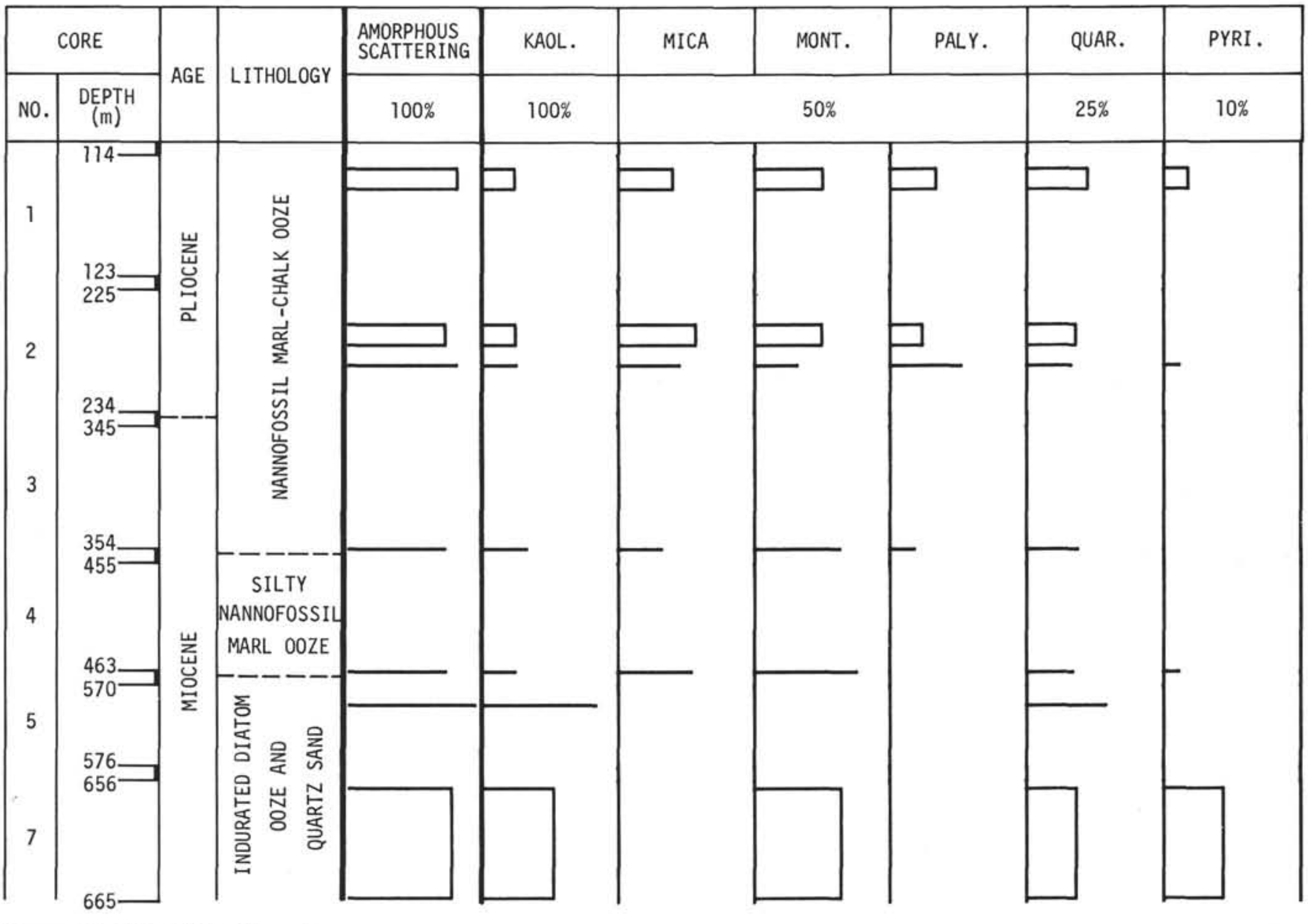


Figure 15. *Site 139, <2 μm fractions.*

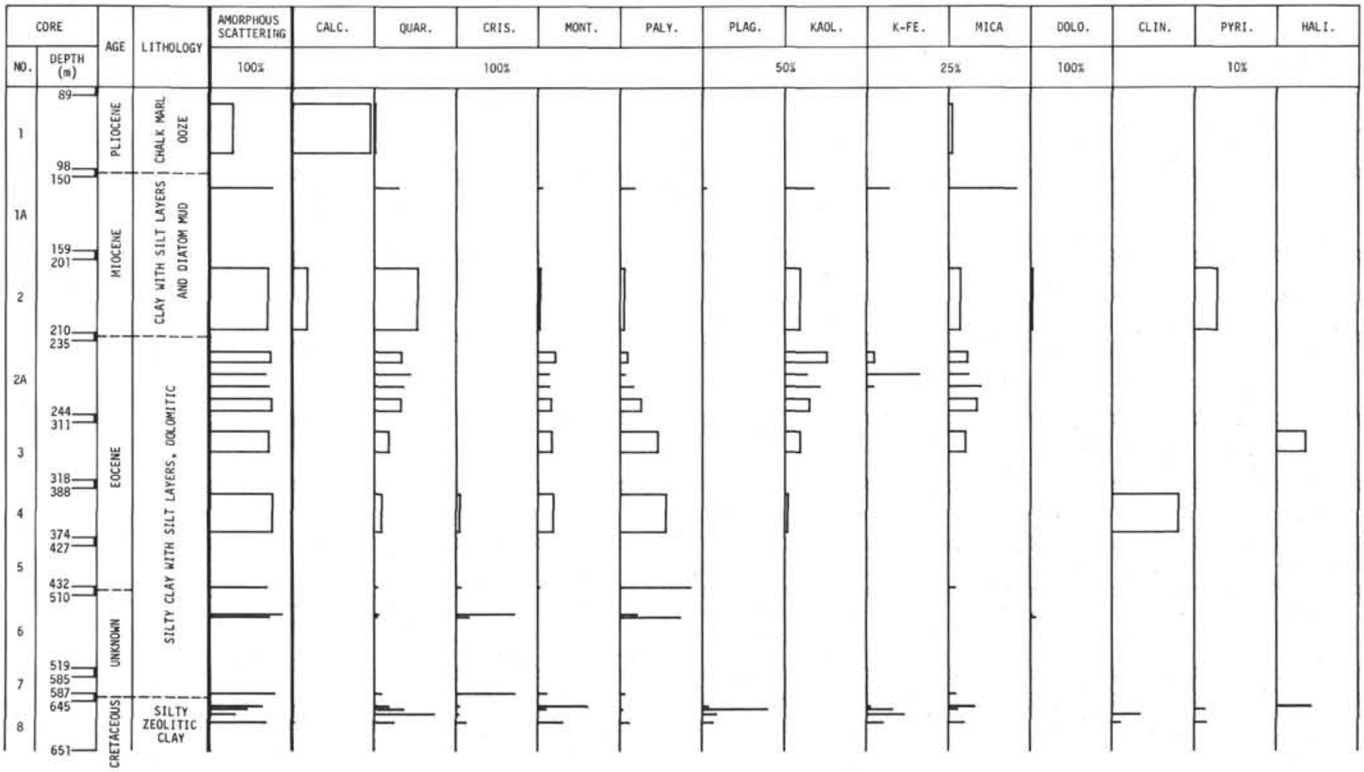


Figure 16. *Site 140, bulk samples.*

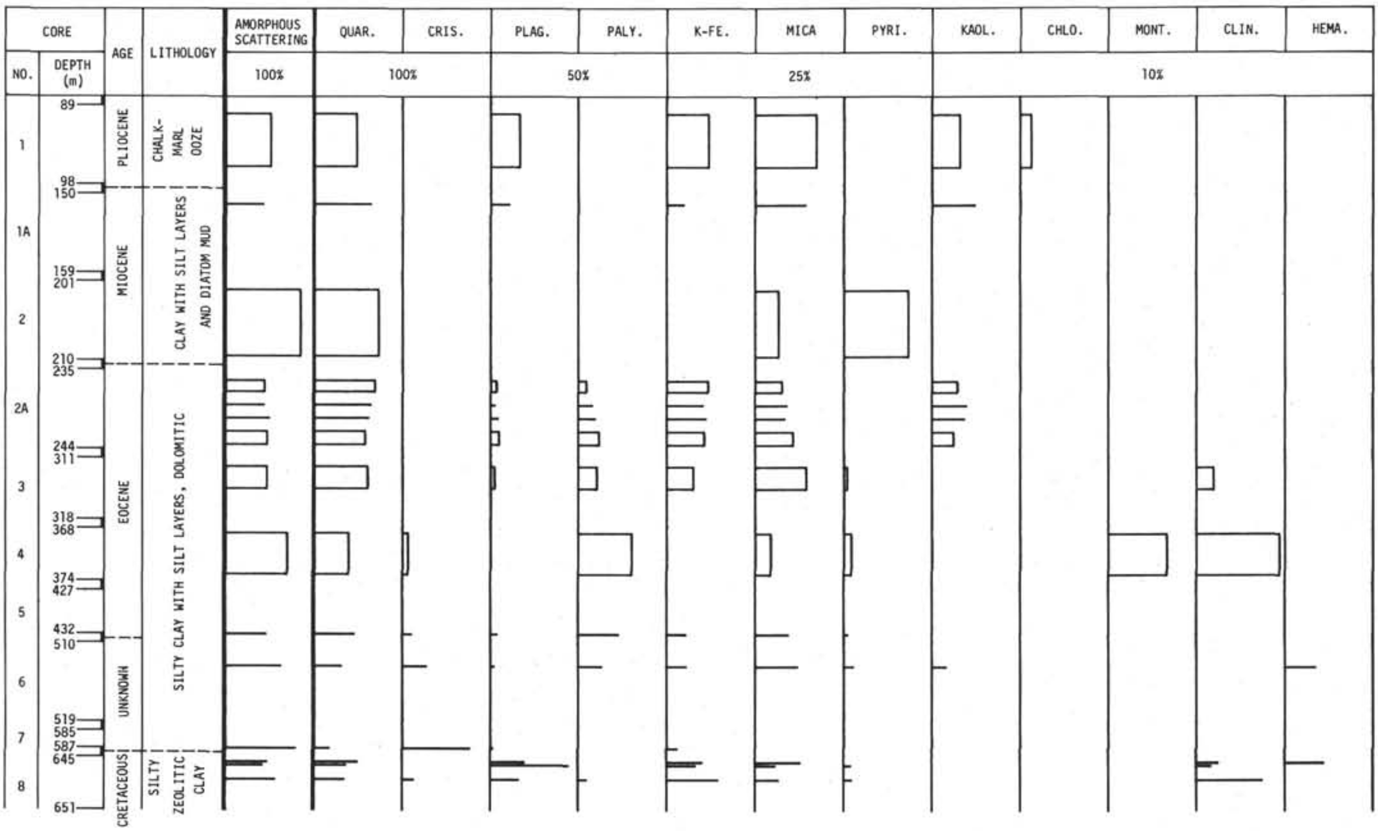


Figure 17. *Site 140, 2-20 μm fractions.*

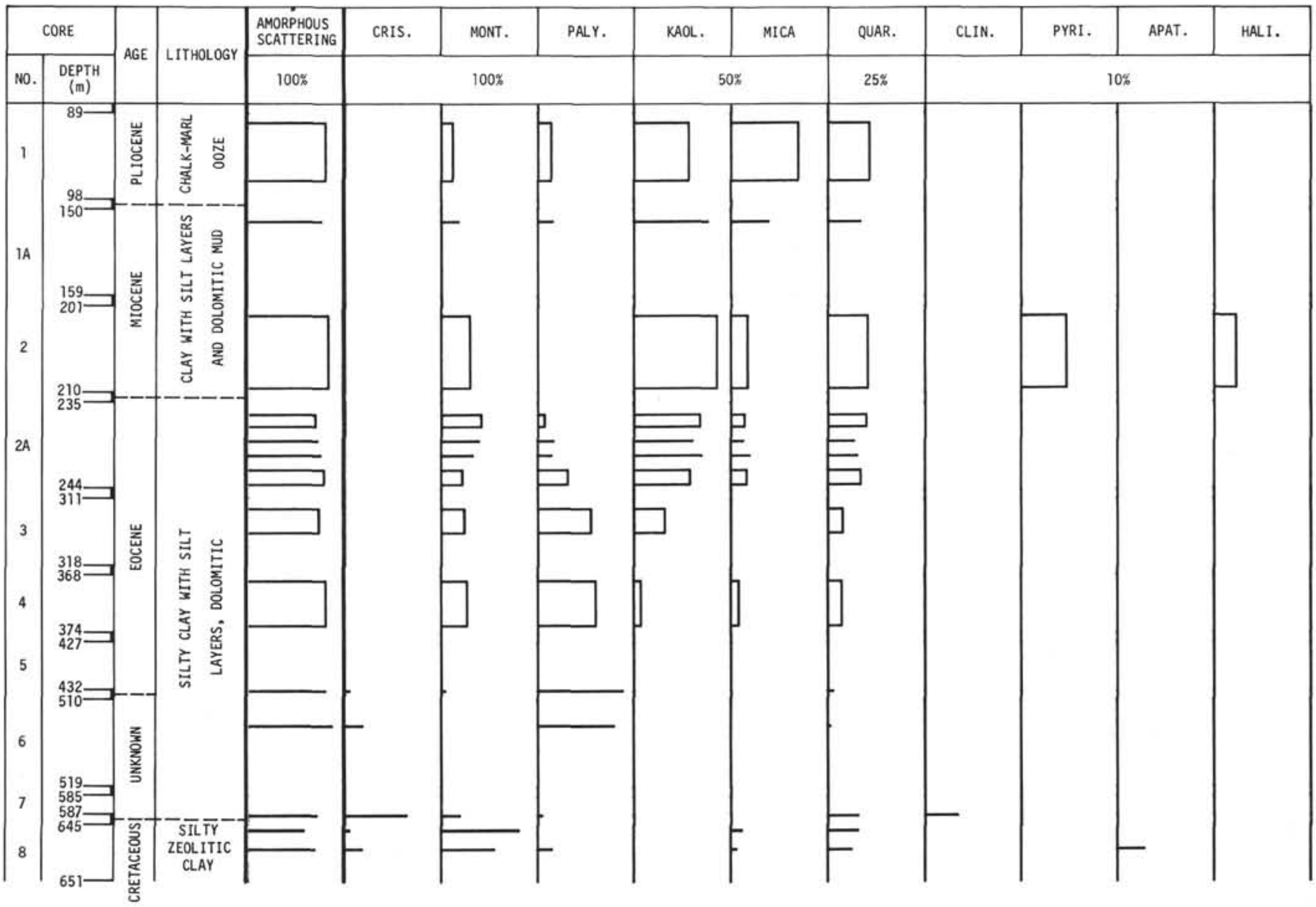


Figure 18. *Site 140, <2 μm fractions.*

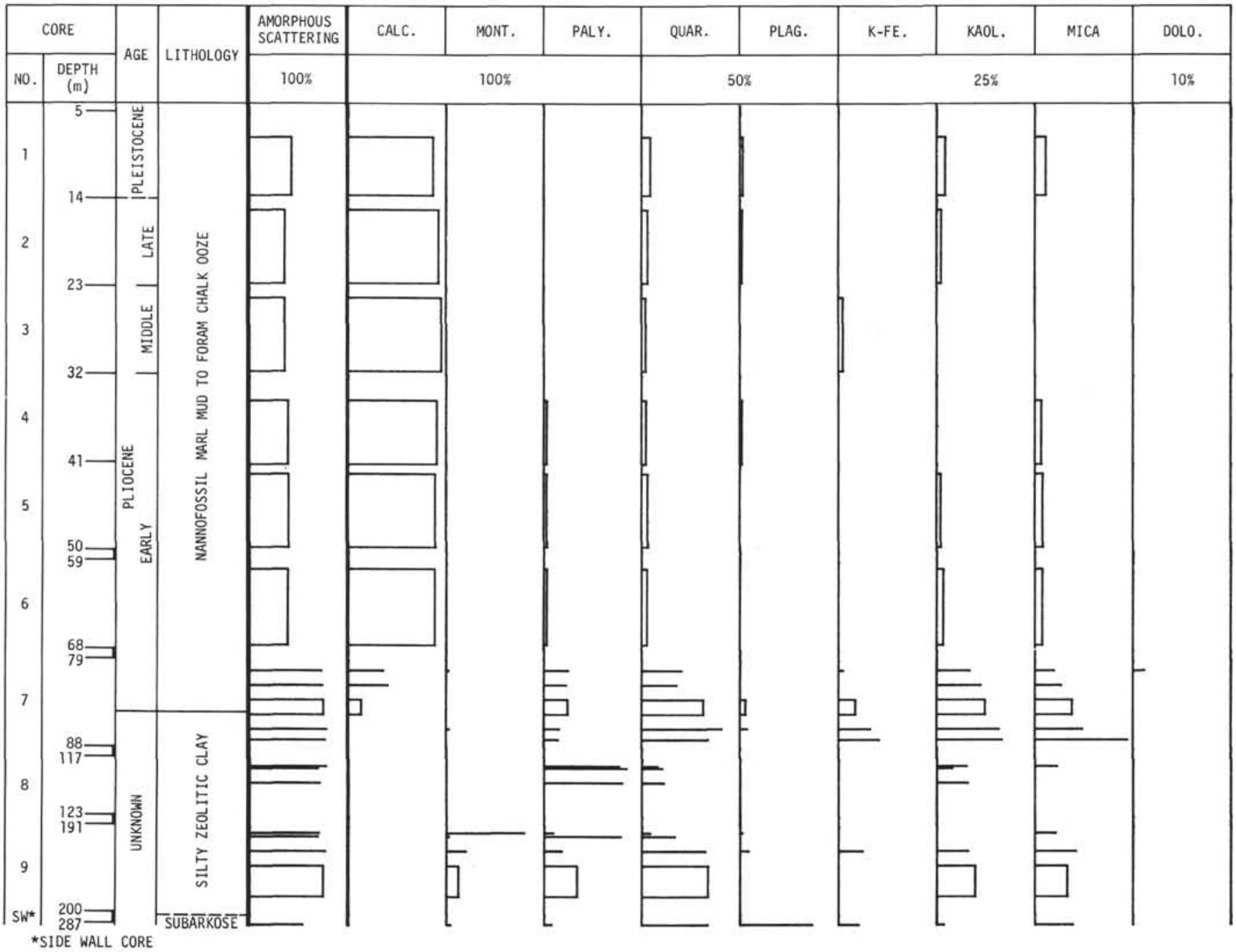


Figure 19. *Site 141, bulk samples.*

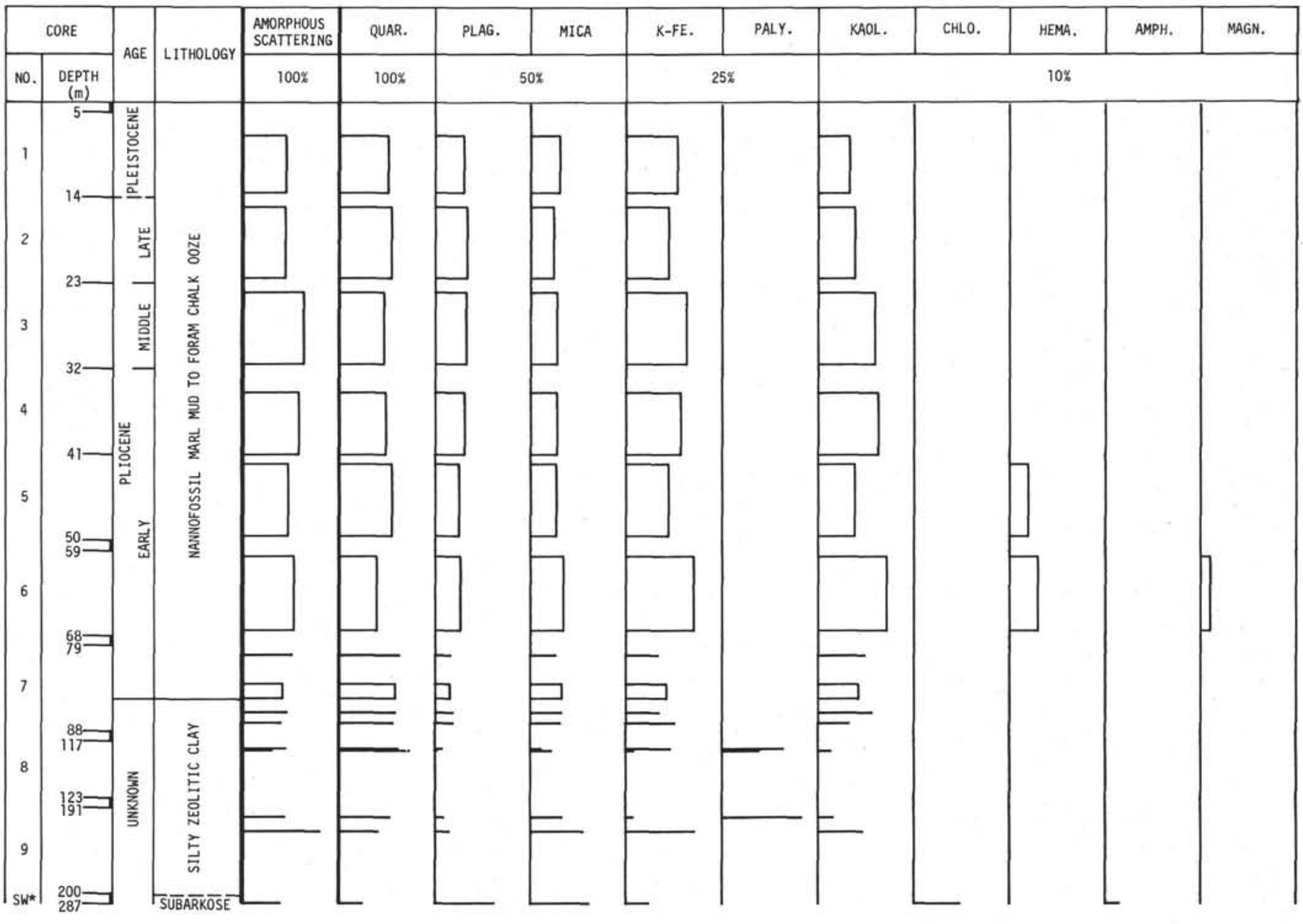


Figure 20. *Site 141, 2-20 µm fractions.*

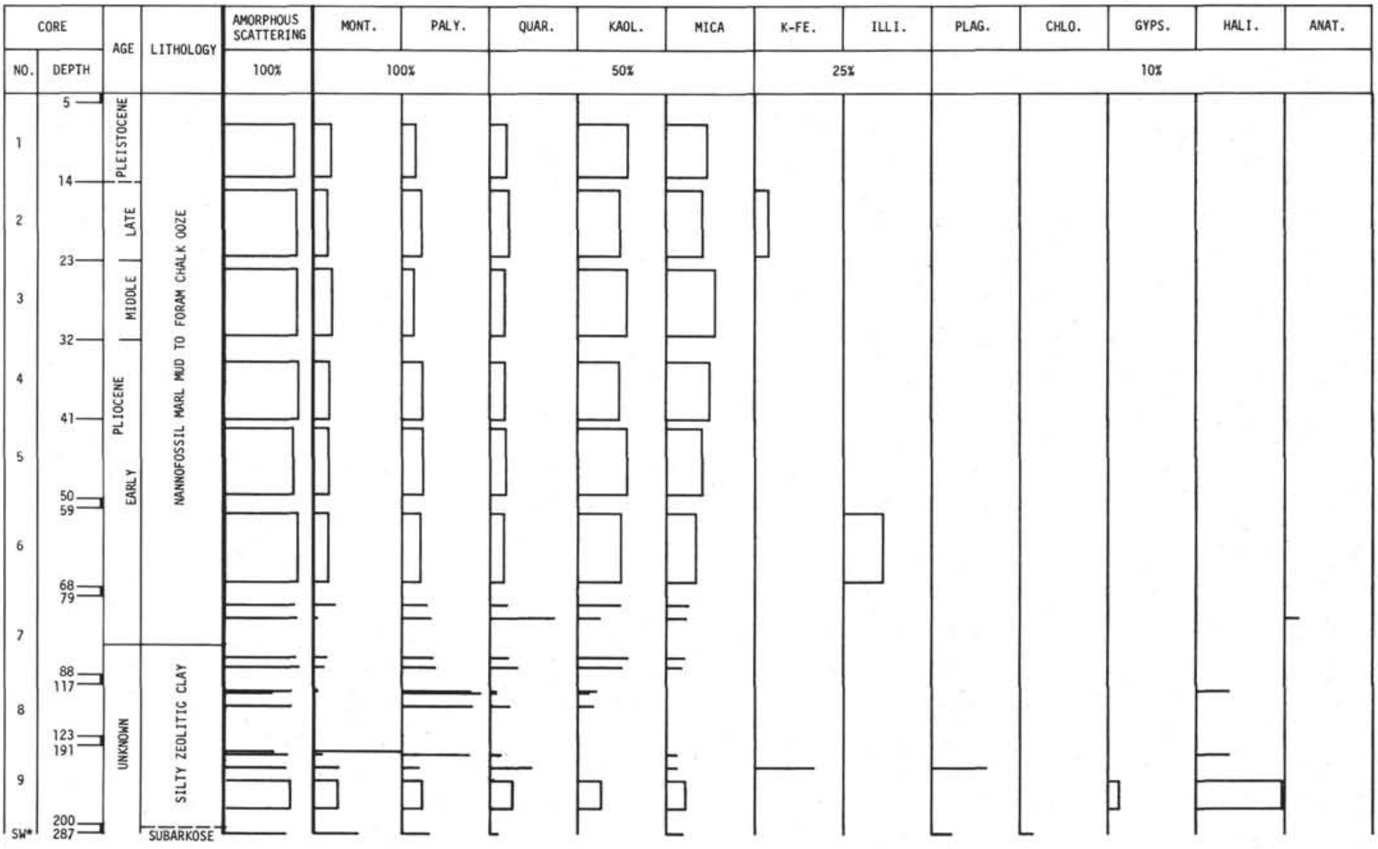


Figure 21. *Site 141, <2 μm fractions.*

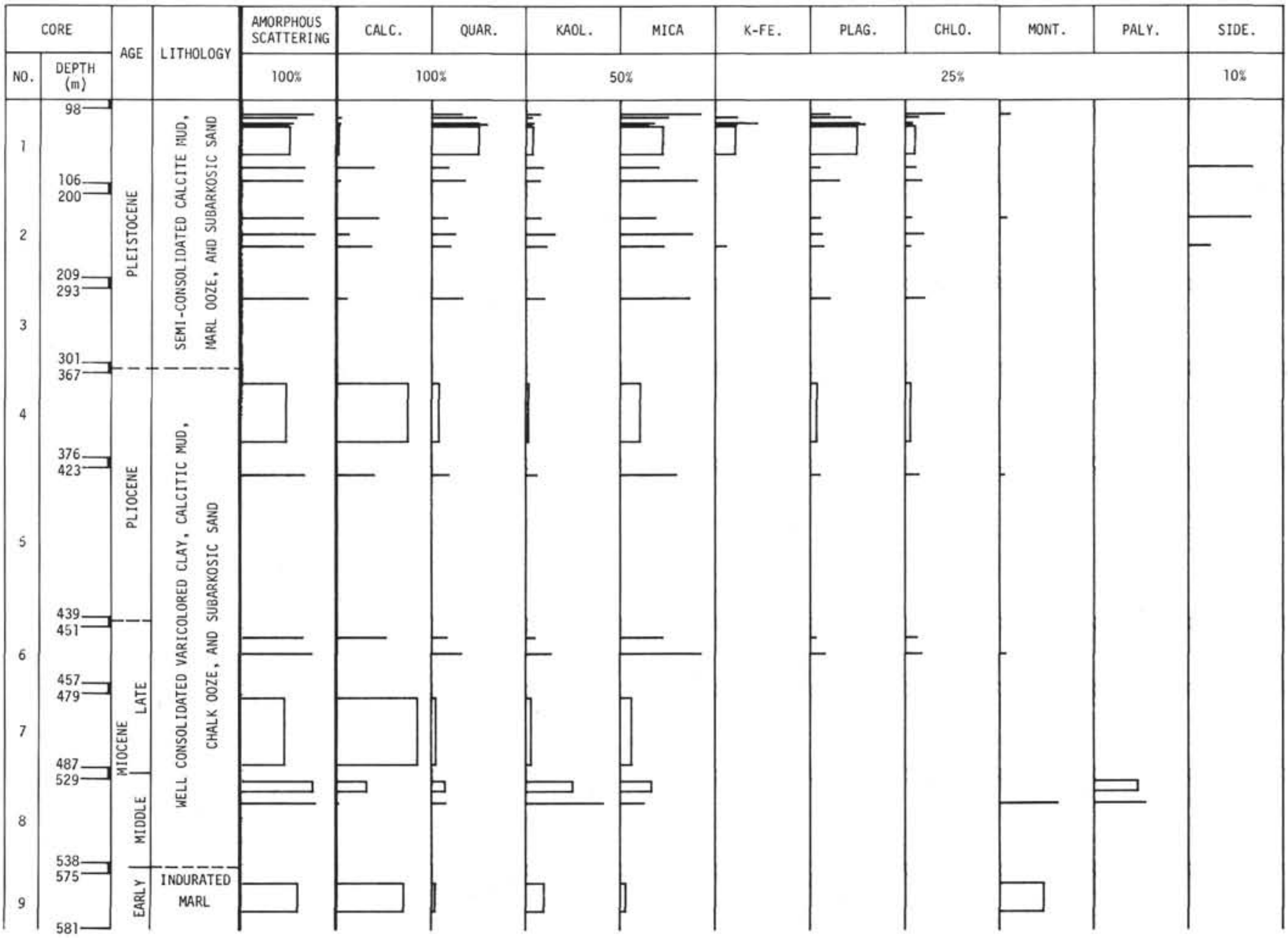


Figure 22. *Site 142, bulk samples.*

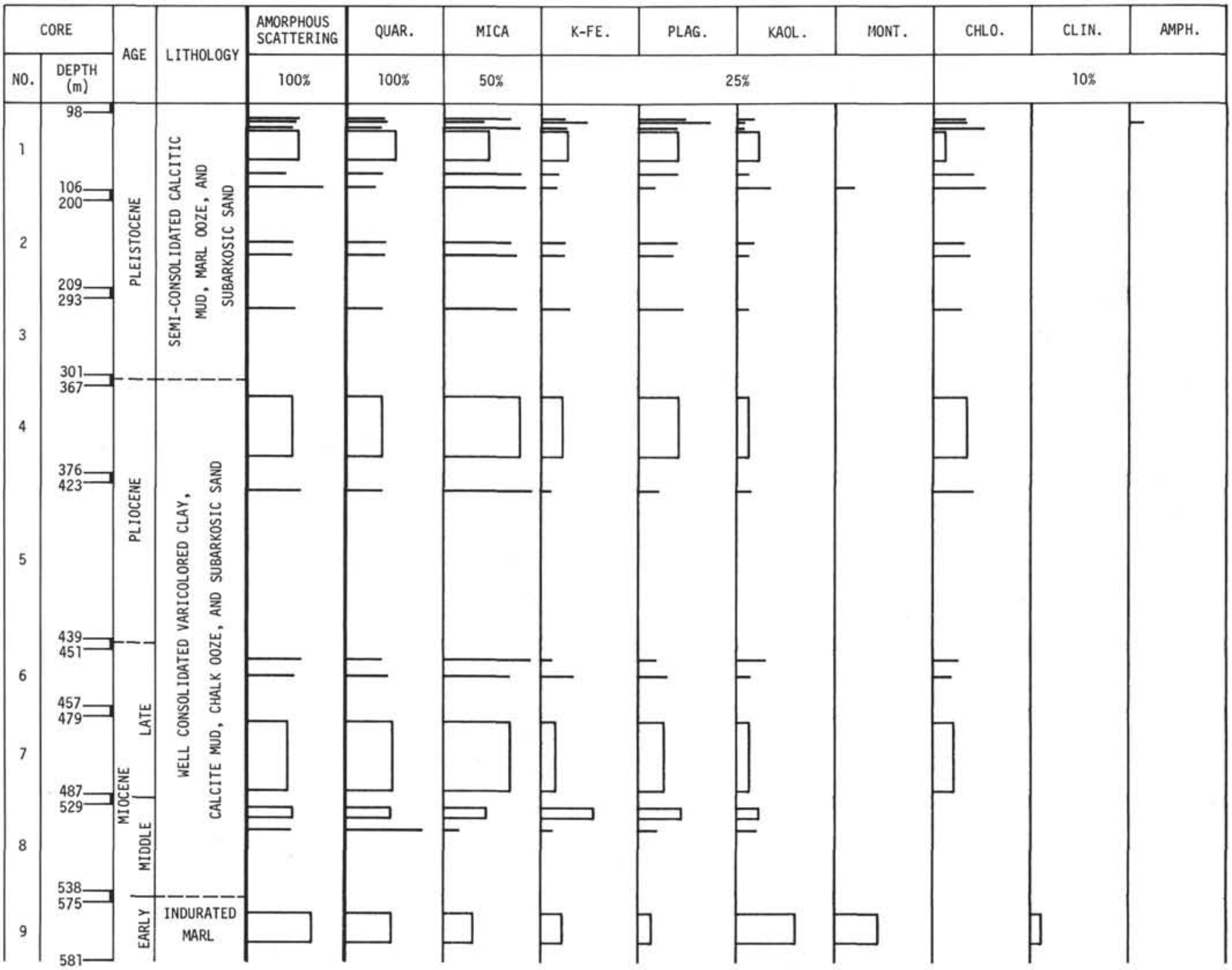


Figure 23. *Site 142, 2-20 μm fractions.*

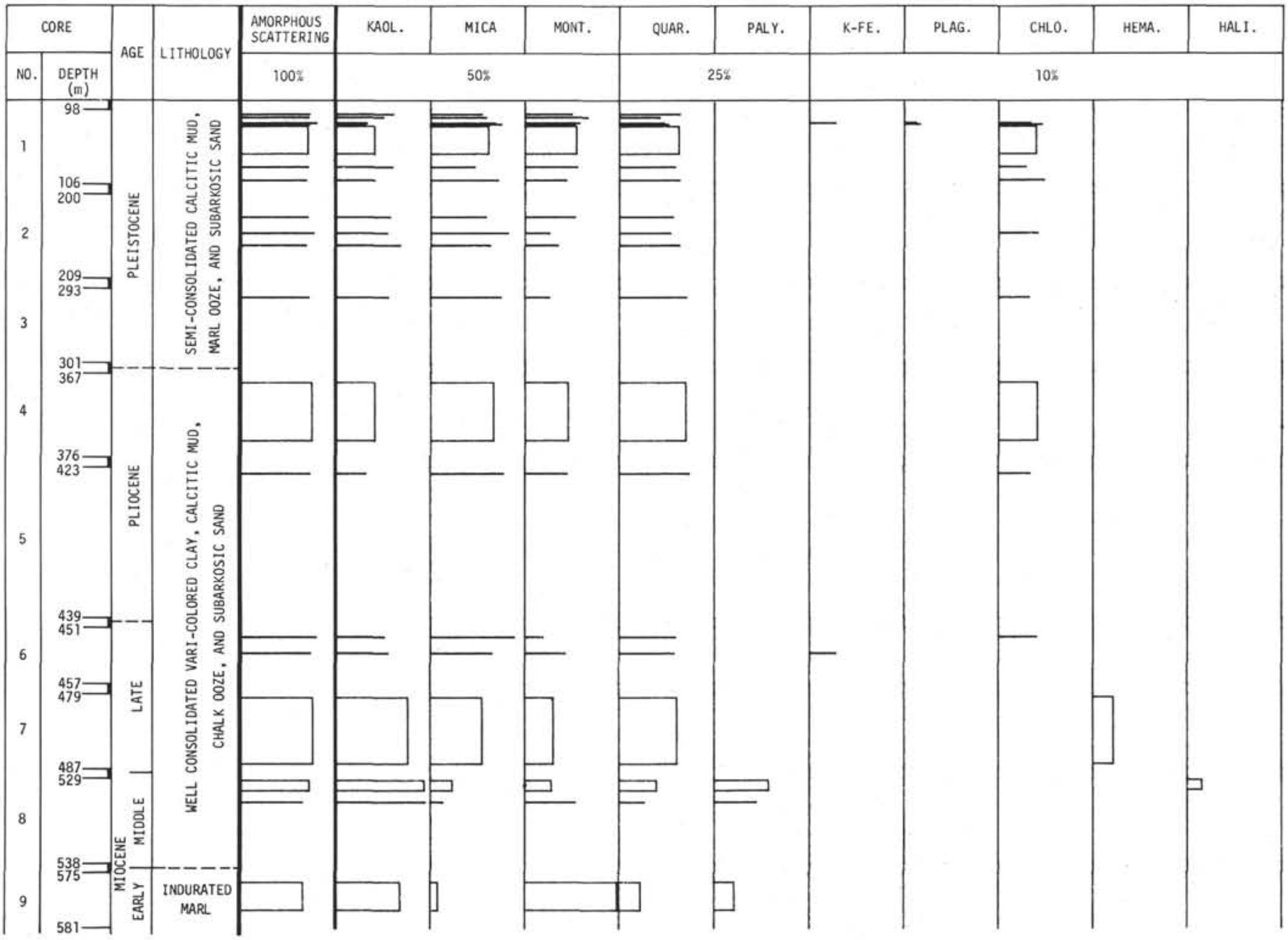


Figure 24. *Site 142, <2 μm fractions.*

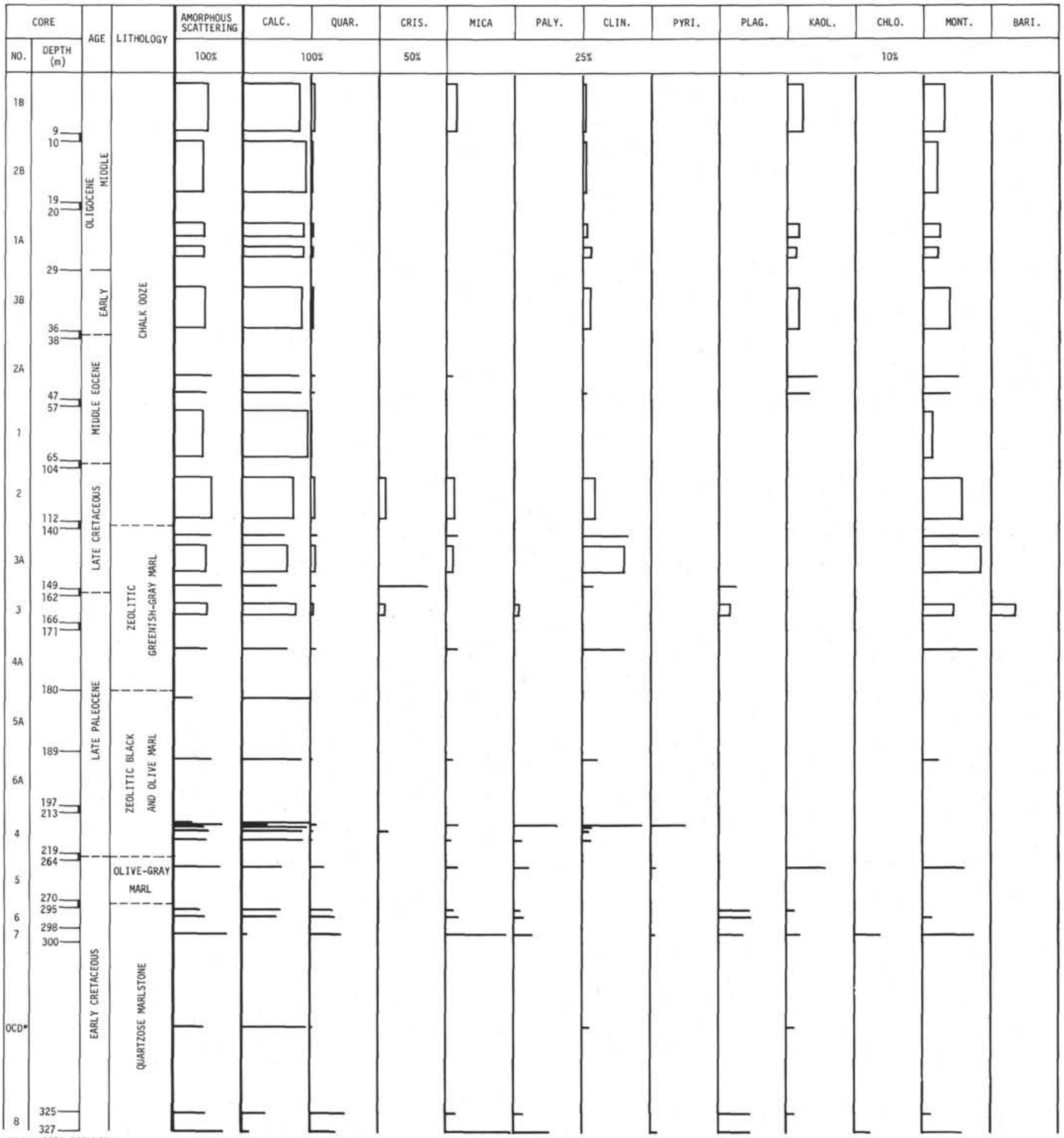


Figure 25. *Site 144, bulk samples.*

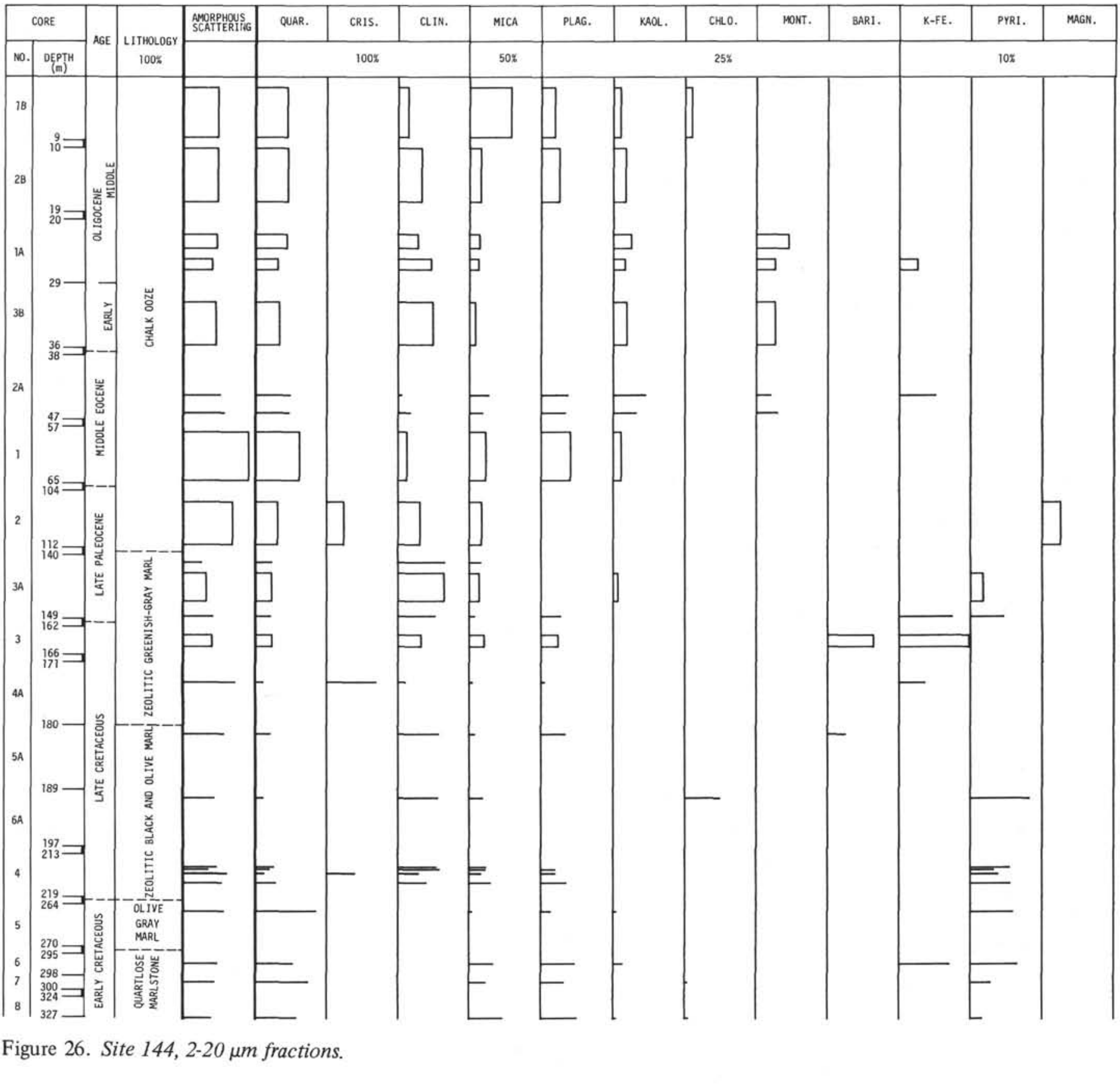
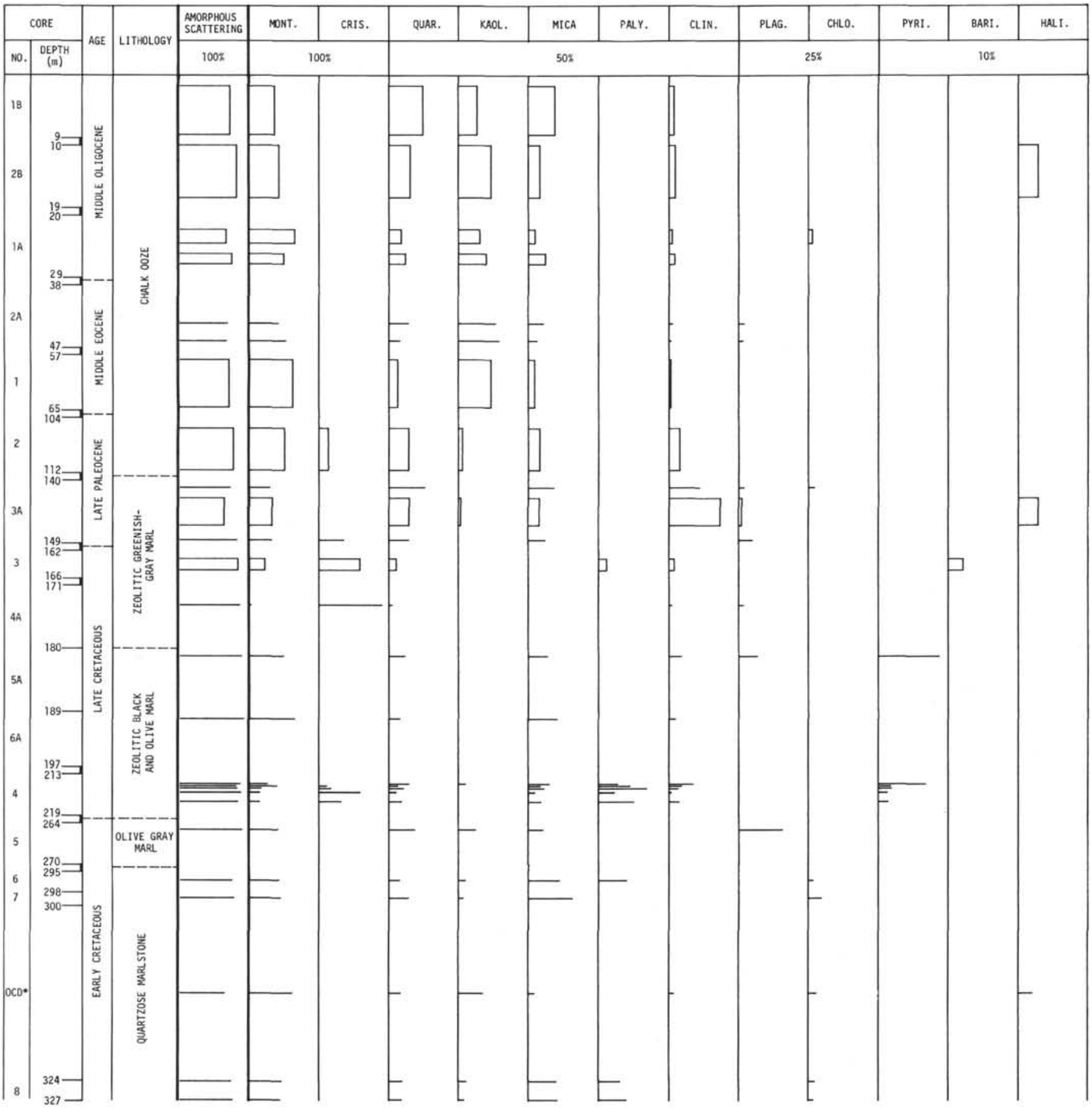


Figure 26. *Site 144, 2-20 μm fractions.*



*OPEN CORE DRILLING

Figure 27. *Site 144, <2 μm fractions.*