20. X-RAY MINERALOGY

20.1. X-RAY MINERALOGY STUDIES OF SELECTED SAMPLES FROM THE SEA FLOOR OF THE NORTHEAST ATLANTIC AND MEDITERRANEAN SEA[1]

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INTRODUCTION

Methods

Semi-quantitative determinations of mineral composition in bulk samples, 2 to 20 μm and $< 2\ \mu$m fractions, from Leg 13 have been performed according to the methods described in the reports of Legs 1 and 2 and in Appendix III of Volume IV. Mineral analyses of the 2 to 20 μm and $< 2\ \mu$m fractions were performed on $CaCO_3$-free residues. The results are presented in Tables 1 to 15 and also in Figures 1 to 45. A summary of the samples submitted for X-ray diffraction analysis appears in Table 16. Ages of the sediments and lithologic units presented in Figures 1 to 45, and used throughout the text of this report, are from the data of the Deep Sea Drilling Project hole summaries of Leg 13. The practice in the hole summaries was to enumerate the lithologic units from top to bottom. The unit numbers do not carry with them any implication of correlation except in the case of Sites 127 and 128.

The nomenclature of sediment types, which was established for use in the Leg 13 hole summaries, was followed throughout the text of this report. Fine-grained unconsolidated sediments were termed **clay** if the concentration of $CaCO_3$ was less than 25 per cent, **marl-ooze** if 25 to 75 per cent, and **nanno-ooze** if greater than 75 per cent. The corresponding terms for consolidated sediments were **shale, marl** and **limestone**, respectively.

At present, no special treatment is given to samples which are suspected of containing gypsum, anhydrite or dolomite. The bulk samples are routinely washed with a small amount of water to elute the sea water salts (about 100 ml water per 5 gm sediment), and minimal solution effect is expected. However, in the 2 to 20 μm and $< 2\ \mu$m fractions, the routine practice of decalcification, wet-sieving, and size-centrifugation necessitates the use of large volumes of liquids and consequently dissolution of large quantities of gypsum, anhydrite, and dolomite can be expected. Even though the original concentrations of gypsum, anhydrite, and dolomite would be considerably reduced in these size-fractions, their presence was nevertheless reported because the samples in which they occur possibly represent large concentrations of these minerals or specialized modes of preservation which may be of interest to researchers.

Palygorskite was frequently reported in Leg 13 samples. The mineral is not unknown in the Mediterranean and surrounding regions. Chamley and Millot (1970) found an occurrence of palygorskite in Ionian Sea sediments to which they ascribe an authigenic origin. Palygorskite of detrital origin was found in calcareous muds in the Persian Gulf by Estoule *et al.* (1970). Millot *et al.* (1969), from a study of some Moroccan soils where palygorskite sometimes constituted 100 per cent of the clay minerals, concluded that palygorskite can be a common constituent of soils in the arid and semi-arid regions which are common in the vicinity of the Mediterranean Sea.

The palygorskite found in this study largely resembles the variety from the Atlantic Ocean described by Bonatti and Joensuu (1968). Upon our analysis of diffractograms, palygorskite is initially identified from its 10.5Å peak and is confirmed by the presence of the 6.42, 5.40, 4.48 and 3.22Å peaks. The presence of palygorskite, first detected by X-ray diffraction, was confirmed in a number of cases by scanning electron microscope examination. The identification and measurement of the peak height of the palygorskite analyte peak is often complicated because the major diffraction peak (10.5Å) coincides closely with the major peak of mica (10.0Å). Mixed-layer micas may also interfere with the 10.5Å peak of palygorskite. Moreover, the 4.48Å peak coincides with many clay mineral peaks, and the 3.22Å peak has interference from feldspars and phillipsite. The possible error in identification is made more likely and the difficulty in accurate peak height measurement is made more severe by the fact that the palygorskite concentration factor is rather large (9.2). A small error in the peak height will result in a rather large error in the reported percentage concentration.

Palygorskite was not reported in this leg unless confirmation could be obtained by secondary palygorskite peaks. The results should be viewed with caution, however, due to the possible confusion with mixed-layer clays. For positive identification, extensive sample pre-treatment and scanning electron microscope examination would be required. This is beyond the means of the X-ray mineralogy task.

The holes where drilling mud and cement were used are presented in Table 17. No contamination of the samples submitted for X-ray mineralogic analysis was detected.

Presentation of Data

The results are discussed in the order in which the sites appear from west to east. The illustrations (Figure 1 to 45) are keyed to the west-to-east order but the data tables (Tables 1 to 15) are arranged in the order of ascending site number.

It has been the practice since Leg 3 to composite samples from highly similar stratigraphic intervals into one

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sample. Compositing is performed by mixing equal weights from each of the samples; lithologic boundaries or core boundaries are never exceeded. Thus, compositing never exceeds more than 9 meters of section. If single samples or small groups of samples differ significantly from adjacent samples, they are run individually.

Depths below the sea floor of single samples and the range of depths of composited samples are given in Column 3 of the mineral data tables. The illustrations (Figures) are made from the data in the mineral tables. Single samples are represented by a line and composited samples are represented by a bar. The horizontal length of the line or bar is a measure of the concentration of the mineral. The vertical dimension of the bar indicates the stratigraphic range of the composited interval. The samples used in the composite are marked with brackets in Table 16. Sample depths below the sea floor are computed by the convention adopted by the DSDP. The top of the first 150 cm section of core to contain sediment is assigned the depth below the sea floor where coring was begun. The depths of the samples in subjacent sections of core are added to that depth.

Qualitative data are presented in the mineral tables in those cases where a mineral is detected and there is no standard mineral available for calibration, or if the identity of the mineral is unknown. Concentrations of the qualitatively determined minerals are not entered into the semi-quantitative calculations; however, they are presented on a ranked scale of trace (T), present (P), abundant (A), and major (M).

At sites where more than one hole was drilled, the results were combined into a single table. The results from each site are reported in the order of sample depth. The cores are identified by hole as well as by their number in the hole; for example, Core 1 of Hole 125 is "1" and Core 1 of Hole 125A is "1A". In the event that core depths overlap, the shallowest core is presented first.

The following three types of expansion behavior were encountered among montmorillonites in Leg 13: (a) Expansion to 18Å with trihexylamine acetate: (this is the normal and most common case); (b) Expansion to 14Å with trihexylamine acetate; and (c) No expansion; the montmorillonite spacing is 12Å. Mixtures of (a) and (b) also occur.

The non-expanding montmorillonites can be made to expand normally with an organic expanding agent after a brief autoclave treatment. It was found that the peak height of either the 12Å or 14Å montmorillonites approximately equalled the peak height of the fully expanded form after autoclaving. Therefore, the semi-quantitative estimate of montmorillonite based on non-expanded forms is considered to be quite accurate.

The type of montmorillonite used in the estimate is designated as follows:

1) A percentage with no other designation means that it was made from a sample of normally-expanding montmorillonite.

2) A superscript (x) is used to indicate that the estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

3) A superscript (y) indicates that the determination was made on the sum of both 14Å and 18Å peaks.

4) A superscript (z) indicates that the montmorillonite estimate was made from a 12Å form.

RESULTS

Site 120

Site 120 is located on Gorringe Bank which is an uplifted block north of the Horseshoe Abyssal Plain in the eastern Atlantic Ocean, nearly due west of the Straits of Gibraltar. The hole was drilled on the scarp face of Gorringe Bank at a depth of 1711 meters.

Five lithologic units were described by the shipboard scientists. No samples were actually recovered from Units 1 and 2. The presence of the top two units was only inferred from traces of sediment found in the core bit. Unit 3 consists of a massive, light greenish gray siliceous nanno-ooze with forams which was recovered in Core 1 and is of lower Miocene age. Unit 4 is a laminated siliceous nanno-ooze. It was recovered in Cores 2 to 7 and is Cretaceous (Albian to Barremian).

A hiatus is presumed to separate Units 3 and 4 (Hole Summary, Leg 13), but mineralogically there is little distinction between the units especially in the decalcified fractions (Table 1, Figures 1 to 3).

Generally the sediments are high in calcite, mica and quartz. A small quantity of clinoptilolite was found in the 2 to 20 μm fraction of Unit 2 (Figure 2). Some hematite was found at the bottom of Unit 3. Mica and montmorillonite are the dominant clay minerals. Chlorite often occurs in larger quantities than kaolinite (Figure 3). No samples from the fifth unit, an ophiolite assemblage, were submitted for X-ray analysis.

The Cretaceous sediments from Gorringe Bank in the eastern Atlantic have the typical high, uniform mica and quartz contents found in most Cenozoic sediments of the Atlantic Ocean. Like the Mesozoic limestones encountered at Sites 98, 100, 101 and 105 in the western Atlantic from Leg 11 (Zemmels *et al.*, 1972), mica and montmorillonite are the dominant clay minerals. Chlorite occurs more frequently and is usually more abundant than kaolinite in the Mesozoic sediments on both sides of the Atlantic. By contrast, the Cretaceous sediments found on the Sierra Leone Rise (Site 13, Leg 3) contain large amounts of montmorillonite, which predominate over the mica. Kaolinite is abundant, but chlorite is absent (Rex, 1970).

Site 121

Hole 121 is located on the slope of a sediment-covered ridge north of the western Alboran Basin. According to Stanley, *et al.* (1970), the Alboran Sea sediments are derived from sources on the continents, brought in by rivers from Spain and Africa, as well as from intra-basinal sources.

The vicinity of Site 121 is traversed by few sediment transport paths and contains only a small number of reflecting layers in the upper portion of the section. Although Stanley *et al.* (1970) found some evidence of turbidity current activity here, most of the sediment was thought to have been transported by slowly-moving, suspension-rich bottom currents.

Four lithologic units were established by shipboard scientists. Unit 1 consists of Quaternary marl oozes (Cores 1 to 4). The oozes are greenish gray and show very little bedding. Sediments of this unit resemble the surface sediments described by Stanley *et al.* (1970) in the Alboran Basin. The sedimentation rate was determined to be 19.9 cm/10^3y. Unit 2 (Cores 5-14) consists of sands and marls which are Quaternary to late Miocene in age. In contrast with Unit 1, shipboard scientists found that a considerable portion of Unit 2 contains sediments which they interpreted to have been deposited from turbidity currents. The rate of sedimentation, 22.9 cm/10^3y, is slightly higher than Unit 1. Only samples of green highly clayey marl were submitted for X-ray analysis. They did not differ in megascopic appearance from the samples of Unit 1. The marl becomes more fissile with depth in Unit 2. Unit 3 (Cores 19 to 24) consists of greenish gray marls of late and middle Miocene age. Because of its low sedimentation rate of 2.8 cm/10^3 y, shipboard scientists interpreted this unit as having been deposited under pelagic conditions. Volcanic materials encountered at the bottom of Hole 121 were assigned to Unit 4 but none were submitted for X-ray analysis.

The mineralogy of all the fractions in Units 1 and 2 is remarkably uniform (Figures 4 to 6, Table 2). The uniformity is particularly striking if the effect of calcite dilution is eliminated. Calcite, mica, and quartz predominate. Dolomite is found in all the bulk samples, but is absent from the decalcified 2 to 20 μm and $<2\,\mu$m fractions. Plagioclase, kaolinite, and chlorite are persistent throughout Units 1 and 2. The kaolinite concentration approximately equals the chlorite concentration in the bulk samples (Figure 4, Table 2). The montmorillonite content, which is low in the $<2\,\mu$m fraction, was below the detection limit in the bulk samples.

Unit 3 differs from the overlying units in several respects. The montmorillonite content is considerably higher and was detected in the bulk samples (Figure 4). Halite, which is probably occluded in an insoluble matrix, was detected in the $<2\,\mu$m fraction (Figure 6). Large quantities of cristobalite occur in a sample from Core 19. A microscopic examination of the sediment revealed no chert or crystals of cristobalite. The sediment contains a large quantity of volcanic shards, however, which may be altering to yield submicroscopic crystals of cristobalite. An occurrence of clinoptilolite was seen in Core 21 (Figure 5). The presence of montmorillonite, clinoptilolite, and cristobalite gives Unit 3 a pelagic complexion which is consistent with the low sedimentation rate.

Pyrite occurs in the 2 to 20 μm fraction in numerous samples in the lower parts of the section (Figure 5).

Site 122

Hole 122 was drilled in a submarine channel in the Valencia Trough, which is a depression located between the Balearic Islands and the Spanish mainland. A succession of Pliocene graded sands and nanno-oozes underlain by lower Pliocene gravel and pre-Pliocene anhydrite was encountered; only samples from the top unit were received for X-ray analysis.

The samples from Unit 1 consist of brown calcareous mud. Except for their brown color, these muds bear a strong resemblance to the green muds of Site 121 in the Alboran Basin. The major minerals present are calcite, mica, and quartz (Figure 7). Dolomite was detected only in the bulk samples. Chlorite is prevalent in all three fractions. Kaolinite is less frequently found and is less abundant than chlorite in the $<2\,\mu$m fraction (Figures 7 to 9). Montmorillonite is quantitatively minor.

Site 123

Hole 123 was drilled on the shoulder of a broad submarine valley in the Valencia Trough, 14 miles northeast of Site 122. Four lithologic units were distinguished. Unit 1 consists of Quaternary graded sands and marl oozes. Unit 2 (Core 2) is gravel consisting of well rounded pebbles in a sand and clay matrix which occurs at the base of the Quaternary section. Unit 3 (Cores 3 to 6) contains alternating beds of clay and sand, and nanno-ooze of Pliocene age. Unit 4 (Cores 6 to 8) consists of volcanic ash, pre-Pliocene in age.

Only samples consisting of sandy marl ooze were submitted for X-ray analysis from Units 1 to 3, which constitutes the matrix of this rather complex sequence of sediments. The mineral assemblage is very uniform throughout these upper units (Figures 10 to 12) and is indistinguishable from the assemblage at Site 122. The major minerals are calcite, mica, and quartz (Figure 10). The mica content is approximately twice the quartz content. Kaolinite and chlorite are present throughout the section (Figures 10 to 12); the chlorite content is consistently higher than the kaolinite content.

A sample from Unit 4, consisting of volcanic ash, has a high amorphous scattering value in the three fractions. Montmorillonite is the predominant crystalline mineral (Figures 10 to 12). Quartz, mica, plagioclase, and kaolinite occur in subordinate amounts. Dolomite and K-feldspar are prominent constituents. Phillipsite was detected in the 2 to 20 μm fraction (Figure 11).

Site 124

Hole 124 was drilled on a buried linear basement ridge on the floor of the Balearic Basin, southeast of the Balearic Islands. Three lithologic units were distinguished. Unit 1 (Cores 1 and 2) consists of brownish nanno-oozes and graded sands to which shipboard scientists ascribed a turbidite origin. The sediments range from Quaternary to middle Pliocene in age. Unit 2 (Cores 3 to 5) consists of middle and early Pliocene nanno-ooze. Unit 3 (Cores 6 to 13) is an evaporite sequence of late Miocene age consisting of marls with gypsum, anhydrite beds, and occasional fresh- to brackish-water diatom beds.

The sedimentation rates given in the Leg 13 hole summaries for this Site is 8.6 cm/10^3y during the Quaternary, 9.2 cm/10^3y during the middle and late Pliocene and 1.9 cm/10^3y during early Pliocene times.

The marine sediments (Units 1 and 2) have a uniform mineral assemblage throughout (Figures 13 to 15 and Table 5). Traces of kaolinite are evident in the lower part of Unit 2 which may be coincidental with the low sedimentation rate in the early Pliocene. Otherwise, the entire section consists predominantly of calcite, mica, and quartz. Mica is about twice as abundant as quartz in bulk samples in the open marine sediments at Site 124. This is also the case in the sediments at Sites 122 and 123 on the other side of the Balearic Islands. Dolomite was detected in many of the bulk samples (Figure 13). Throughout Sites 122, 123 and 124, chlorite predominates over kaolinite in the $< 2\ \mu m$ fraction. Only small quantities of montmorillonite were detected at the bottom of the marine section.

Three samples were submitted from the evaporite sequence (Unit 3). Two were largely composed of dolomite and one was largely calcite (Figure 13). Neither gypsum nor anhydrite were detected which raises some question as to how lithologically representative these three samples are.

The detrital components in the 2 to 20 μm fraction from the evaporite unit (Unit 3) occur in similar proportion as in the overlying units (Figure 14). In the $< 2\ \mu m$ fraction, mica is the predominant clay mineral, but montmorillonite becomes an important component. Kaolinite is absent, but chlorite persists (Figure 15).

Site 132

Site 132 is located east of Sardinia in the Tyrrhenian Basin. A complete section of Quaternary open marine sediments overlying Miocene evaporites was recovered. Similar successions were also recovered at Sites 124, 125, 133 and 134. The sedimentation rate was determined by Leg 13 personnel to be 3.5 $cm/10^3 y$ for the Quaternary and middle and late Pliocene and 2.9 $cm/10^3 y$ for the early Pliocene.

Three units were defined. Unit 1 (Cores 1 to 6) consists of Quaternary marl and nanno-oozes with intercalations of tephra and sand layers. Unit 2 (Cores 6 to 21) consists of a Pliocene, massive, foraminiferal, nanno-ooze which overlies an evaporite unit (Unit 3). Intercalations of terrigenous sands are absent from Unit 2. Unit 3 (Cores 22 to 27) consists largely of massive as well as thinly-laminated anhydrite beds with minor quantities of gypsum which is late Miocene (Messinian) in age. Only three samples from the lower part of Unit 3 were submitted for X-ray analysis.

There is a great deal of similarity between the oozes of Units 1 and 2 (Figures 16 to 18). Generally they are quartz- and mica-rich with both occurring in equivalent proportions. There seems to be a reduction in the amount of dolomite, feldspar, and chlorite with depth, but this is probably the result of dilution with calcite, which increases with depth (Figure 16). Kaolinite occurs in slightly larger concentrations than chlorite in the bulk samples and in the $<2\ \mu m$ fraction (Figures 16 and 18). Montmorillonite was detected only in the $<2\ \mu m$ fraction (Figure 18). The concentration of montmorillonite in the $<2\ \mu m$ fraction at Site 132 is generally higher than at most sites in the western Mediterranean. This may be due to the rather low rates of sedimentation at this site. Palygorskite is commonly found in the $<2\ \mu m$ fraction throughout the section. The occurrence of palygorskite does not correlate with the presence, absence, or abundance of any of the other minerals.

Unit 1 contains some analcime, phillipsite, amphibole and augite (Figures 16 and 17). These minerals may be associated with the pyroclastic sediments which are peculiar to this unit. Goethite was frequently detected in the $<2\ \mu m$ fraction at the base of Unit 2 (Table 13).

The samples which were submitted for X-ray analysis from the evaporite unit (Unit 3) consist largely of gypsum, and only one sample showed a trace of anhydrite (Table 13). Considering that the samples were from a section which was described by Leg 13 as being largely composed of anhydrite, the X-ray samples may not be representative of this stratigraphic interval.

The 2 to 20 μm and $<2\ \mu m$ fractions from Unit 3 contain no evaporite minerals. These fractions contain a mineral assemblage which closely resembles the assemblages in the overlying units with regard to both the types of minerals present and their relative percentages (Figures 17 and 18). One sample at the top of Core 25 (132-25-1-65) contained no gypsum, but the detrital mineral assemblage is virtually indistinguishable from the other samples from Unit 3 and the base of Unit 2. Geothite and hematite were found in the 2 to 20 μm and $<2\ \mu m$ fractions in Unit 3. Celestite was detected in Sample 132-27-2-107.

The Plio-Pleistocene section of open marine sediments displays a remarkable constancy of mineral composition. This is particularly true in the decalcified 2 to 20 μm and $<2\ \mu m$ fractions (Figures 17 and 18) where the diluting effect of calcite is removed. Quakernaat (1968) shows, from clay mineral analyses of the $<1\ \mu m$ fraction of sediments in Italian rivers, that the sediment is primarily composed of mica (illite) with a small amount of chlorite. Montmorillonite and kaolinite are virtually absent in contrast to their presence in the sediments at Site 132. The source of sediments at Site 132 is uncertain, but it would appear that the material reaching the floor of the Tyrrhenian Sea is not derived from western Italy. Whatever the source, it is suggestive that neither the weathering conditions nor the circulation pattern have changed since the early Pliocene.

Site 133

Site 133 is located on the floor of the Balearic Basin (depth 2475 m) west of Sardinia. Two lithologic units were identified. Unit 1 (Core 1) is composed of a brownish foraminiferal nanno-ooze of Quaternary age, and Unit 2 (Cores 2 to 8) consists of a variety of well-rounded sandstone pebbles, a layer of anhydrite and semi-indurated gypsum arenite.

The single sample from Unit 1 consisted largely of calcite and also a notable quantity of palygorskite (Figure 19). Gypsum and bassanite were detected in the 2 to 20 μm fraction (Figure 20). The bassanite, commonly a product of the dehydration of gypsum, may have resulted from the grinding or drying of the sample in our laboratory.

No gypsum was detected by X-ray diffraction techniques in the samples from the evaporite unit (Unit 2). Only a minute quantity of gypsum was seen under the microscope and that was in Sample 133-5-1-55. Typically, the sediments of Unit 2 submitted for X-ray analysis are calcite-free and exceedingly high in mica (Figure 19). Mica occurs, practically to the exclusion of other minerals, in the $<2\ \mu m$ fraction (Figure 21). A trace of gibbsite was detected at the bottom of the unit.

Site 134

Site 134 is located a few miles east of Site 133 in the Balearic Basin. Six holes were drilled. Unit 1, which is

Quaternary and Pliocene, consists of nanno-oozes with occasional influxes of terrigenous debris. The underlying Unit 2 consists of Miocene evaporites. Samples were submitted only from Unit 1. All of the samples are calcareous nanno-fossil oozes except the sample from Core 1D (134D-1-1-125) which is a gypsum arenite. Quartz and mica are major detrital minerals in the ooze and occur in approximately equivalent proportions. Kaolinite usually exceeds chlorite in abundance and frequency at Site 134 (Figures 22 and 24). This differs from the sites in the vicinity of the Balearic Islands west of the Balearic Basin (Sites 122, 123, and 124) where the mica content is greater than the quartz content and the chlorite content exceeds the kaolinite content. At Site 132 in the Tyrrhenian Sea, east of Sardinia, chlorite and kaolinite occur in equivalent proportions. Palygorskite occurs in rather large concentrations in the $<2\ \mu m$ fraction in the lower part of the unit (Figure 24).

The gypsum arenite in Core 1D contains about 60 per cent gypsum and is calcite-free. The $<2\ \mu m$ fraction contains larger quantities of montmorillonite and chlorite (Figure 24) than the underlying sediments and points to a different origin than the other samples recovered in the sampled interval.

Site 125

Hole 125 was drilled in a smooth region on the Mediterranean Ridge in the Ionian Basin in the eastern Mediterranean. Four lithologic units were established by shipboard scientists. Unit 1 (Cores 1 and 2) is a thinly-bedded, plastic nanno-ooze, generally variegated brown, gray, and olive, with sapropel and ash layers. It is Quaternary. Unit 2 (Cores 3 to 8 and 1A to 5A) is a variegated, stiff, well-bedded, heterogeneous foraminiferal nanno-ooze, with occasional, thin sapropel beds. Its age ranges from middle Quaternary to early Pliocene. Unit 3 (Cores 8, 9, 5A and 6A) is a plastic nanno-ooze of early Pliocene age which resembles Unit 1. It contains no sapropel and the sediments are colored in hues of brown. Unit 4 (Cores 7A to 9A) consists of a sequence of dolomite and nanno-ooze with shallow water fauna (Leg 13: hole summaries) which overly a thick sequence of anhydrite.

Mineralogically, the three nanno-ooze units are highly similar. Quartz and mica are the predominant minerals besides calcite and they occur in equivalent proportions (Figure 25). Dolomite and palygorskite occur in detectable amounts in the bulk samples throughout Units 1 to 3. Kaolinite predominates over chlorite. Pyrite was detected in the 2 to 20 μm and $<2\ \mu m$ fraction in Unit 2 which contains some sapropel (Figures 26 and 27). Palygorskite in unprecedented quantities was found in the $<2\ \mu m$ fraction throughout Units 1 to 3. Concentrations of up to 60 per cent occur (Table 6). (Scanning electron microscope examination of the $<2\ \mu m$ fraction of two samples, 125-7-3, 40 cm and 125A-1-2, 136 cm, showed large amounts of acicular crystals characteristic of palygorskite.) Mica assumes a lesser role in the $<2\ \mu m$ fraction by comparison with clays in the western Mediterranean and is only slightly greater than the kaolinite concentration. Montmorillonite and chlorite occur in small quantities, but persist throughout the section (Figure 27).

Only one sample from the evaporite unit (Unit 4) was submitted for X-ray analysis and it came from the core catcher of Core 7A. It contains a large amount of dolomite, in addition to mica and quartz, but no anhydrite (Figure 25). The $<2\ \mu m$ fraction contains larger quantities of mica, montmorillonite, and chlorite than the overlying sediments and only a minor amount of kaolinite.

Site 126

Hole 126 was drilled in a deep, linear valley on the Mediterranean Ridge, a few miles north of Site 125. Two lithologic units were described. Unit 1 (Cores 1 to 3) consists of gray nanno-ooze which is interspersed with graded sands, sand-silt laminae, layers of sapropelitic marl, and occasional horizons with rock fragments. The sediments of Unit 1 are Quaternary and lie unconformably on middle Miocene pyritic marl (Unit 2, Cores 5 and 6).

Samples of the nanno-ooze from Unit 1 are highly calcareous (Figure 28). Dolomite occurs throughout. Quartz and mica are the major detrital minerals and occur in equivalent concentrations. The sediments differ significantly in detail from the Quaternary sediments found at Site 125. Kaolinite occurs in low concentrations, or is undetected in the bulk samples, and chlorite predominates over kaolinite. Palygorskite was not detected in the bulk samples, but does occur in the $<2\ \mu m$ fraction (Figures 28 and 30).

One sample of pyritic marl from Unit 2 was submitted and was found to contain about 20 per cent calcite. Montmorillonite constitutes about 20 per cent of the bulk sample (Figure 28). Kaolinite occurs in greater abundance in the Miocene marl than in the younger oozes. Pyrite was found in the bulk and 2 to 20 μm fractions.

Sites 127 and 128

Sites 127 and 128 were drilled in the Hellenic Trough west of Crete. Site 127 was drilled on the flat floor of a narrow, east-west trending trench a few meters from the steep northern wall of the trench. Site 128 was located 4.7 km southwest of Site 127 on the other side of the trench. The lithologic units at both sites were correlated and assigned the same numbers and names by Leg 13 scientists. The sequence here is: Unit 1 (Cores 1 to 5 and 1A to 5A at Site 127 and Cores 1 to 3 at Site 128) which consists of graded sands and marl oozes with some ash. Unit 2 (Cores 6 to 8 at Site 127 and Cores 3 to 4 at Site 128), called the Upper Sapropel Unit, consists of graded sands and marl oozes, homogeneous marl oozes, and sapropels. Unit 3 (Cores 9 to 12 at Site 127 and Cores 6 and 7 at Site 128) consists of marl oozes and silt laminae. Unit 4 (Cores 13 to 15 at Site 127 and Cores 8 to 11 at Site 128), called the Lower Sapropel Unit, consists of marl oozes, sand laminae, and sapropel. The sediments in Units 1 to 4 are Quaternary in age. Unit 5 was only defined at Site 127 in Cores 16 to 19. It consists of blocks of Cretaceous dolomite and limestone in a matrix of middle Pliocene nanno-ooze.

Only samples of marl ooze were submitted for X-ray analysis from Units 1 to 4; samples of graded sands, sapropels and ash were not submitted. These oozes have a highly uniform mineral assemblage throughout Units 1 to 4 at both Sites 127 and 128. Calcite is the predominant mineral in the bulk samples in Units 1 to 4 (Figures 31 and 34). There is no apparent change in the calcite content in the sapropelitic units (Units 2 and 4). On the average, mica occurs in greater concentrations than quartz and chlorite predominates over kaolinite in the bulk samples (Figures 31 and 34). Dolomite persists throughout the section.

Occurrences of pyrite in the bulk samples in both the 2 to 20 μm and the <2 μm fractions are restricted to the sapropelitic units (Figures 31 to 36).

Mica and montmorillonite are the predominant minerals in the <2 μm fraction. Quartz, chlorite, and mica are prevalent throughout the section (Figures 33 and 36). Palygorskite was rarely detected in the <2 μm fraction.

Samples from Unit 5, Site 127, consist of (from top to bottom) dolomite, limestone, nanno-ooze, and dolomite. The mineralogy of the nanno-ooze differs significantly from the overlying oozes in that it contains about 45 per cent palygorskite in the <2 μm fraction (Figures 31 to 33).

Site 129

Three holes were drilled in the vicinity of Strabo Mountain, a submerged block in the Hellenic Trough southeast of Crete. Holes 129 and 129B were drilled in the axis of a narrow valley following the foot Strabo Mountain. Hole 129A was positioned 200 meters above the valley floor on Strabo Mountain.

A variety of Miocene material was recovered. A dark foraminiferal sand, largely made up of quartz and rock fragments, was analyzed from center bit cuttings in Hole 129B (designated CB1B in Figures 37 to 39 and Table 10) and was found to consist largely of calcite and quartz (Figure 37). Kaolinite and montmorillonite are the predominant clay minerals in the <2 μm fraction (Figure 39) which is an unusual composition in comparison with other northeastern Mediterranean sediments. It resembles more the composition of sediments in the Nile Cone (Sites 130 and 131).

The remaining samples are dolomitic marls with varying amounts of calcite and lithogenous constituents. Quartz, mica, and plagioclase are prevalent in all of the samples (Figures 37 and 38). Palygorskite is common in bulk and in the <2 μm fraction (Figures 37 and 39). As in the samples from the western Hellenic Trough (Sites 127 and 128), chlorite predominates over kaolinite in the bulk samples. Montmorillonite becomes a major constituent of the <2 μm fraction in these Miocene sediments.

Site 130

Site 130 is located on the south side of the Mediterranean Ridge in an area of coarse-textured relief (Emery, *et al*., 1966). Four lithologic units are recognized, but only the top three units were sampled for X-ray analysis. All of the sediments are of Quaternary age and the Leg 13 scientists have ascribed the Nile River as the source of the sediments based on an examination of the heavy mineral assemblage.

Three samples were submitted from Unit 1. This unit (Core 1A) consists of yellowish and gray homogeneous beds of nanno-ooze and dark clayey marl. A sample of light brown homogeneous marl ooze (130A-1-1-20) from the top of Unit 1 contains about 35 per cent aragonite and traces of dolomite in the bulk sample (Figure 40, Table 11). The detrital components consist mostly of quartz and mica in equivalent concentrations. Kaolinite and chlorite are evident in the bulk sample. Montmorillonite is the predominant mineral in the <2 μm fraction (Figure 42). Kaolinite is abundant in the <2 μm fraction, nearly reaching the concentration of mica. Palygorskite was detected.

A sample of dark, green clay (130A-1-1-71) from below the marl-ooze was found to be nearly calcite-free (Figure 40, Table 11). In this sample, the quartz content is greater than the mica content. Kaolinite is the predominant clay mineral in the bulk samples, but montmorillonite predominates in the <2 μm fraction (Figures 40 and 42). Mica occurs in lesser quantities than kaolinite in the bulk and <2 μm fraction.

A sample of indurated, light green marl (130A, Core bit) was also submitted from Unit 1 for X-ray analysis. It resembles the top sample in bulk composition. The sample was insufficient to make <2 μm and 2-20 μm preparations.

Unit 2 (Cores 1 to 6) contains a highly varied assemblage of nanno-oozes, graded sands and clays, and sapropels. The outstanding mineralogic results of each sample will be discussed in the order in which they appear in Tables 11 and 16 and in Figures 40 to 42.

The uppermost sample of Unit 2 in Core 1 (130-1-2-60) is a dark green clay. It is quartz- and kaolinite-rich and closely resembles the composition of green clay in the overlying unit. The lower two samples (130-1-3-34 and 130-1-4-90) of Core 1 are light green and dark green marls. Each sample contains small amounts of dolomite and the lower marl contains aragonite.

The top two samples in Core 2 (130-2-1-130 and 130-2-3-45) are dark green to black silty clays. They contain quartz and an unusually large quantity of plagioclase. Mica exceeds the kaolinite content. They also contain a relatively large amount of montmorillonite. The third sample in Core 2 (130-2-3-74) is a sapropel. Mineralogically it differs markedly from the overlying dark clays. The quartz content of the sapropel is high but plagioclase is minor. It contains an unusually large concentration of palygorskite. A small amount of gypsum was detected in bulk analyses. The bottom sample of Core 2 (130-2-3-90) is a highly calcareous marl which contains a large concentration of dolomite (14%) and has a high concentration of clay minerals in proportion to other clastic materials.

The top two samples of Core 3 (130-3-1-115 and 130-3-2-75) resemble the other dark clays higher in the section. The bottom sample in Core 3 (130-3-2-104) is a brown gray marl which contains 5 per cent dolomite and 20 per cent aragonite.

The only sample from Core 4 (130-4-2-120) is a sandy marl with some dolomite and about 20 per cent siderite and 10 per cent palygorskite.

Both samples in Core 5 (130-5-2-33 and 130-5-3-56) consist of dark brown clay and are composited. The mineralogy differs radically from other dark muds in this section inasmuch as the predominant mineral in the bulk sample is montmorillonite.

A sample from Core 6 (130-6-1-80) consists of green, fissile, high-calcite mud. Montmorillonite is very abundant in the bulk sample.

Three samples from Unit 3 (Core 6), consisting of light brown nanno-ooze, are composited. The bulk sample contains about 15 per cent aragonite and a small quantity of dolomite. The major constituent of the <2 μm fraction is palygorskite.

Thus, in summary these three units are kaolinite-rich by comparison with sediments from the western Mediterranean. The kaolinite content often exceeds the mica content in bulk and <2 μm samples. In contrast to the western Mediterranean montmorillonite is prevalent in all samples and often forms the major crystalline phase in the <2 μm fraction. Palygorskite is a common constituent of the <2 μm fraction. It appears to be most abundant in high-calcite samples which also contain dolomite. Pyrite is found frequently in association with the dark clay samples.

Site 131

Site 131 is located on the Nile Cone about 250 km northwest of the Nile River delta. A thick sequence of Quaternary sands and clays was recovered. The section was divided into an upper facies (Facies A) consisting of massive sand beds and intercalated minor black clayey beds, and a lower facies (Facies B) in which the black clayey beds predominate.

The top two samples from Core 1 (131-1-3-27 and 131-1-6-44) submitted for X-ray analysis consist of clayey sand. The top sample in Core 1A (131A-1-2-5) is cream-colored nanno-ooze. The remaining samples consist of dark sandy clay.

Quartz and feldspars are the predominant minerals in the clayey sands. Mica and montmorillonite are the most abundant clay minerals in the bulk samples (Figure 43). Kaolinite is prevalent and exceeds mica in the <2 μm fraction (Figure 45).

The nanno-ooze sample in Core 1A, consisting largely of calcite, contains an accessory mineral assemblage which is dissimilar from the adjacent sediments. The difference is most noticeable in the <2 μm fraction where the montmorillonite concentration is diminished, mica occurs in a larger concentration than kaolinite, and there is a trace of chlorite present (Figure 45). In addition, dolomite was detected in the bulk sample and a much larger concentration of palygorskite than in adjacent samples was seen in the <2 μm fraction. Shukri (1950) did not report any dolomite in the sediments of the Nile and it is likely that the dolomite found here is authigenic.

The dark clays are calcite-poor and consist largely of quartz and feldspars (Figure 43). Mica, montmorillonite, and kaolinite are the predominant clay minerals in the bulk sample. Montmorillonite and kaolinite predominate in the <2 μm fraction in agreement with the findings of Venkatarathanam and Ryan (1971). Clinoptilolite is found in a few scattered samples.

Amphibole and pyrite are commonly found in the bulk samples and 2 to 20 μm fractions throughout the section.

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TABLE 1
Results of X-Ray Diffraction Analyses from Site 120

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Quar.	Plag.	Mica	Chlor.
1	60-69	69.00-69.00	59.5	36.8	86.1	5.0	–	9.0	–
2	137-143	142.40-142.70	74.7	60.5	52.1	15.1	2.4	26.3	4.0
4	199-204	202.60-202.60	68.4	50.6	49.0	15.4	1.6	30.5	3.5
7	229-232	231.70-231.70	69.4	52.1	52.2	15.6	2.6	24.7	4.9

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.	Clin.	Hema.	Pyrite	Mont.
1	60-69	69.00-69.00	68.3	50.5	40.8	–	6.8	1.5	46.7	2.5	1.7	–	–	–
2	137-143	142.40-142.70	65.4	45.9	25.3	3.0	5.6	1.0	43.2	3.2	–	–	1.4	17.3
4	199-204	202.60-202.60	63.6	43.1	43.6	–	5.6	1.0	45.0	3.9	–	–	–	–
7	229-232	231.70-231.70	66.2	47.1	61.1	–	6.4	–	25.7	2.6	–	4.2	–	–

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Hema.
1	60-69	69.00-69.00	82.6	72.8	10.8	2.3	40.1	2.9	43.9	–
2	137-143	142.40-142.70	86.8	79.4	11.8	10.4	48.1	–	29.7	–
4	199-204	202.60-202.60	88.4	81.9	14.0	1.5	63.7	3.6	16.4	–
7	229-232	231.70-231.70	81.4	71.0	20.2	–	55.7	4.7	16.3	3.1

TABLE 2
Results of X-Ray Diffraction Analyses from Site 121

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Cris.	Plag.	Kaol.	Mica	Chlor.	Mont.
1	60-69	61.75-67.65	71.3	55.2	31.8	3.6	21.2	–	2.8	5.2	32.4	3.0	–
2	69-78	69.20-76.80	73.9	59.2	39.3	2.8	19.6	–	2.5	4.1	29.0	2.7	–
3	154-163	158.12-161.75	69.2	51.9	37.4	4.5	20.6	–	3.5	4.9	26.5	2.7	–
4	247-256	247.20-254.90	68.6	51.0	32.0	4.1	22.9	–	2.6	4.8	30.5	2.9	–
5	296-305	305.00-305.00	69.8	52.8	35.3	3.4	21.5	–	2.4	4.6	29.5	3.3	–
7	389-398	396.95-396.95	68.7	51.1	35.3	5.3	20.4	–	3.4	2.9	29.0	3.8	–
8	436-443	442.70-442.70	68.6	50.9	40.1	4.7	25.1	–	2.8	2.0	22.2	2.9	–
9	483-492	491.62-491.62	72.4	56.9	38.3	3.1	18.2	–	2.1	2.5	31.7	4.1	–
12	595-601	601.00-601.00	71.9	56.1	35.5	2.9	21.1	–	2.6	2.9	30.4	4.5	–
13	624-630	630.00-630.00	71.5	55.4	36.3	2.1	23.5	–	2.3	2.6	28.2	4.9	–
14	652-661	661.00-661.00	71.5	55.5	42.4	2.3	24.4	–	2.5	–	23.6	4.7	–
19	728-737	736.75-736.75	76.3	63.0	–	–	14.1	69.4	3.1	–	9.6	2.0	1.8[x]
20	763-770	770.00-770.00	78.4	66.2	39.0	1.5	16.9	12.2	2.9	2.3	16.7	2.1	6.3[x]
21	785-788	788.00-788.00	75.5	61.7	33.9	5.1	18.6	–	5.7	–	18.4	3.1	15.2[x]
22	819-821	819.90-819.90	73.9	59.3	52.1	2.4	22.5	–	3.3	2.1	14.5	3.3	–
23	859-861	860.60-860.60	77.9	65.4	44.2	1.8	19.9	–	3.2	2.7	18.8	2.3	7.1[x]
24	861-867	865.30-866.70	73.5	58.7	36.6	3.9	24.1	–	1.6	3.3	21.7	4.8	3.9[x]

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	Plag.	Kaol.	Mica	Chlor.	Clin.	Pyrite	Mont.	Unkn.
1	60-69	61.75-67.65	67.8	49.6	51.1	–	6.9	3.3	35.3	3.3	–	–	–	
2	69-78	69.20-76.80	68.4	50.7	50.6	–	7.1	5.7	33.8	2.7	–	–	–	
3	154-163	158.12-161.75	68.4	50.6	52.7	–	7.1	3.6	31.3	3.3	–	–	–	
4	247-256	247.20-254.90	66.5	47.7	53.5	–	7.3	3.1	30.4	3.4	–	2.3	–	
5	296-305	305.00-305.00	65.4	45.9	50.5	–	6.8	4.2	34.0	2.8	–	1.7	–	
7	389-398	396.95-396.95	65.2	45.6	54.4	–	6.8	3.1	29.8	3.6	–	2.3	–	
8	436-443	442.70-442.70	62.3	41.1	56.7	–	9.0	2.4	28.7	3.2	–	–	–	
9	483-492	491.61-491.62	65.6	46.2	39.4	–	5.4	4.4	47.4	3.4	–	–	–	
12	595-601	601.00-601.00	64.9	45.2	55.1	–	6.7	2.7	29.6	3.6	–	2.2	–	
13	624-630	630.00-630.00	63.8	43.4	60.2	–	6.7	3.4	23.8	3.4	–	2.5	–	
14	652-661	661.00-661.00	66.2	47.1	59.9	–	6.1	4.3	23.9	2.8	–	2.9	–	

TABLE 2 – *Continued*

2-20 μm Fractions – *Continued*

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	Plag.	Kaol.	Mica	Chlor.	Clin.	Pyrite	Mont.	Unkn.
19	728-737	736.75-736.75	88.6	82.2	27.6	61.1	7.1	–	–	2.5	–	1.8	–	
20	763-770	770.00-770.00	75.8	62.2	41.2	7.0	5.9	4.4	30.9	3.6	–	–	7.0[x]	
21	785-788	788.00-788.00	75.8	62.2	40.0	–	10.8	4.3	31.0	1.8	1.3	2.7	7.9[x]	
22	819-821	819.90-819.90	71.0	54.6	52.3	–	6.7	5.5	31.6	2.1	–	1.8	–	
23	859-861	860.60-860.60	68.8	51.3	54.8	–	6.9	10.6	25.5	2.2	–	–	–	P[a]
24	861-867	865.30-866.70	67.5	49.2	51.6	–	5.8	8.0	26.1	2.9	–	–	5.5[x]	

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Cris.	Kaol.	Mica	Chlor.	Mont.	Hali.	Pyrite
1	60-69	61.75-67.65	84.8	76.2	20.3	–	11.2	43.6	3.7	20.8[x]	–	–
2	69-78	69.20-76.80	85.5	77.3	24.1	–	10.3	48.5	4.6	9.7[x]	2.4	–
3	154-163	158.12-161 75	89.4	83.5	25.3	–	5.5	52.7	8.1	7.2	–	1.2
4	247-256	247.20-254.90	88.3	81.7	29.1	–	9.0	48.1	6.1	6.5	1.2	–
5	296-305	305.00-305.00	86.5	78.9	22.9	–	11.5	54.2	5.8	3.3	2.3	–
7	389-398	396.95-396.95	89.0	82.8	30.4	–	11.8	44.4	5.9	5.0[x]	2.5	–
8	436-443	442.70-442.70	82.6	72.7	18.0	–	6.7	56.9	10.0	7.4[x]	1.0	–
9	483-492	491.62-491.62	83.2	73.8	20.0	–	11.8	44.6	6.6	17.0[x]	–	–
12	595-601	601.00-601.00	83.2	73.7	20.7	–	6.7	53.1	8.2	11.3[x]	–	–
13	624-630	630.00-630.00	84.9	76.3	28.2	–	12.4	38.1	7.5	12.5[x]	1.3	–
14	652-661	661.00-661.00	85.8	77.7	27.6	–	–	38.4	8.7	25.3[x]	–	–
19	728-737	736.75-736.75	88.8	82.5	12.4	48.2	2.5	12.0	2.1	22.7[x]	–	–
20	763-770	770.00-770.00	87.0	79.8	17.9	4.9	–	29.6	3.9	42.3	1.3	–
21	785-788	788.00-788.00	83.2	73.8	12.8	–	–	21.4	2.6	61.7	1.5	–
22	819-821	819.90-819.90	83.5	74.2	9.8	–	10.0	29.3	2.8	47.3	0.7	–
23	859-861	860.60-860.60	85.9	78.0	20.3	–	11.8	27.1	5.0	32.4	3.4	–
24	861-867	865.30-866.70	86.3	78.6	34.0	–	11.9	24.3	5.1	20.3	4.3	–

[a]Possible peaks in order of descending intensity: 12.1Å, 6.60Å, 5.60Å, 8.34Å

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

TABLE 3
Results of X-Ray Diffraction Analyses from Site 122

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.
1	78-87	87.40-87.40	68.1	50.1	50.3	1.4	14.9	2.5	1.4	26.6	2.9
2	87-97	96.80-96.80	67.6	49.4	38.5	3.2	16.8	–	–	37.6	3.9

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Plag.	Mica	Chlor.
1	78-87	87.40-87.40	64.7	44.9	41.6	9.8	42.2	6.2
2	87-97	96.80-96.80	62.2	41.0	44.5	6.2	44.0	5.3

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Hali.
1	78-87	87.40-87.40	85.0	76.5	18.5	1.3	66.4	7.8	–	3.8
2	87-97	96.80-96.80	84.4	75.6	18.9	1.4	68.9	8.2	2.6[x]	–

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

TABLE 4
Results of X-Ray Diffraction Analyses from Site 123

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	K-Fe	Mont.
1	79-87	83.60-84.40	69.4	52.1	38.4	1.8	16.7	2.9	1.2	34.4	4.6	–	–
2	107-116	115.22-115.22	67.9	49.8	38.9	2.6	19.4	3.0	–	32.3	3.8	–	–
		116.00-116.00	64.5	44.5	34.7	3.9	23.2	3.2	1.5	30.0	3.5	–	–
3	116-125	124.04-124.04	68.5	50.8	38.6	2.3	14.7	3.3	–	36.5	4.6	–	–
4	173-182	179.40-180.75	70.7	54.2	36.6	3.6	14.9	3.0	–	37.1	4.7	–	–
5	210-219	217.40-217.40	70.5	53.9	37.9	2.2	14.9	2.3	–	38.6	4.2	–	–
		218.00-218.00	68.2	50.3	47.3	1.5	14.2	2.5	2.1	29.4	3.0	–	–
6	267-276	271.90-271.90	66.7	48.5	81.2	–	7.8	–	1.8	9.1	–	–	–
		274.00-274.00	92.7	88.6	–	8.1	5.7	5.9	4.0	15.6	–	18.0	42.7[x]

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Plag.	Kaol.	Mica	Chlo.	Mont.	Phil.	Dolo.
1	79-87	83.60-84.40	60.6	38.4	34.8	7.2	1.8	48.1	8.1	–	–	–
2	107-116	115.22-115.22	64.2	44.0	41.3	8.3	1.5	42.8	6.0	–	–	–
		116.00-116.00	66.3	47.3	43.1	6.3	1.0	43.7	5.8	–	–	–
3	116-125	124.04-124.04	62.4	41.2	43.6	9.6	–	40.4	6.5	–	–	–
4	173-182	179.40-180.75	66.6	47.7	35.6	5.4	1.1	48.6	6.4	–	–	–
5	210-219	217.40-217.40	64.7	44.8	42.3	5.1	–	46.4	6.1	–	–	–
		218.00-218.00	67.2	48.7	41.0	7.4	1.1	43.9	6.5	–	–	–
6	267-276	271.90-271.90	70.9	54.5	43.5	–	–	49.9	6.6	–	–	–
		274.00-274.00	91.0	86.0	4.9	–	–	10.8	–	53.8[x]	30.5	–

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Hali.
1	79-87	83.60-84.40	80.9	70.2	18.9	1.4	68.9	8.2	2.6[x]	–
2	107-116	115.22-115.22	81.4	70.9	17.8	2.8	71.5	7.9	–	–
		116.00-116.00	80.7	69.8	14.1	2.3	75.1	8.5	–	–
3	116-125	124.04-124.04	82.3	72.3	15.4	2.2	69.8	7.9	–	4.7
4	173-182	179.40-180.75	86.8	79.3	19.3	4.0	66.5	4.8	4.4[x]	1.0
5	210-219	217-40-217.40	81.3	70.7	14.8	3.8	68.4	5.5	7.4[x]	–
		218.00-218.00	84.3	75.5	19.5	4.3	66.2	5.8	3.1	1.1
6	267-276	271.90-271.90	87.1	79.9	17.3	2.6	69.8	4	4.8	–
		274.00-274.00	84.4	75.6	–	–	–	–	97.2	2.8

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

TABLE 5
Results of X-Ray Diffraction Analyses from Site 124

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Mont.
1	118-127	118.90-127.10	63.5	42.9	48.3	1.9	16.1	2.9	–	27.1	3.7	–
2	193-203	197.80-201.80	64.6	44.6	51.9	2.1	14.7	1.8	–	26.1	3.3	–
3	298-307	305.90-305.90	63.2	42.5	64.3	1.4	12.0	2.3	1.3	16.4	2.3	–
4	334-339	334.84-339.00	64.0	43.8	66.2	–	10.6	1.6	–	19.0	2.7	–
5	339-342	340.23-340.53	63.0	42.2	66.0	1.4	9.4	1.2	1.6	18.6	1.8	–
6	362-365	363.80-363.80	66.7	48.0	16.1	37.0	13.3	2.8	–	27.5	3.4	–
7	382-385	383.40-383.40	66.0	46.9	31.5	9.9	17.1	3.1	–	33.8	4.6	–
10	400-404	403.50-403.50	65.3	45.8	–	60.8	12.9	–	–	22.3	2.4	1.6

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Plag.	Kaol.	Mica	Chlor.
1	118-127	118.90-127.10	68.5	50.7	44.7	9.5	–	38.8	6.9
2	193-203	197.80-201.80	64.9	45.1	42.0	5.4	1.5	45.3	5.8
3	298-307	305.90-305.90	64.2	44.1	48.0	8.0	–	37.4	6.6
4	334-339	334.84-339.00	62.7	41.7	37.6	6.9	1.3	47.3	6.9
5	339-342	340.23-340.53	61.9	40.5	39.7	6.1	1.4	46.5	6.3
6	362-365	363.80-363.80	62.4	41.3	36.9	6.5	–	49.4	7.2
7	382-385	383.40-383.40	62.4	41.3	37.2	6.8	–	47.4	8.5
10	400-404	403.50-403.50	63.8	43.4	38.6	2.4	–	53.0	6.1

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Hali.	Gyps.
1	118-127	118.90-127.10	85.6	77.5	21.4	3.6	66.0	8.0	–	1.0	–
2	193-203	197.80-201.80	87.1	79.8	20.1	6.5	68.4	5.0	–	–	–
3	298-307	305.90-305.90	86.7	79.2	17.6	7.3	69.3	5.8	–	–	–
4	334-339	334.84-339.00	88.3	81.8	20.5	9.6	59.7	3.9	6.3[x]	–	–
5	339-342	340.23-340.53	83.0	73.4	19.2	6.2	61.6	5.7	6.1[x]	–	1.1
6	362-365	363.80-363.80	81.3	70.8	10.9	–	60.7	6.2	22.2	–	–
7	382-385	383.40-383.40	85.1	76.8	12.5	–	66.1	8.4	11.6	1.3	–
10	400-404	403.50-403.50	83.6	74.3	12.9	–	65.2	7.3	14.6	–	–

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

TABLE 6
Results of X-Ray Diffraction Analyses from Site 125

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.	Pyrite
1	0-8	2.30-5.60	69.9	52.9	55.7	2.8	11.3	–	1.5	3.3	14.5	1.2	–	9.7	–
3	17-26	19.44-19.44	66.7	48.0	70.9	1.9	8.0	1.8	–	4.1	5.3	–	–	8.1	–
		24.00-24.00	65.1	45.5	74.5	2.0	7.1	–	–	2.2	5.6	–	–	8.6	–
4	26-35	26.85-26.85	66.0	46.9	71.2	2.6	6.2	–	1.4	3.9	6.6	–	–	8.1	–
		29.20-34.00	64.2	44.1	75.5	2.9	5.3	–	–	2.2	4.9	–	–	9.3	–
1A	30-39	38.80-38.80	64.7	44.8	82.0	2.4	5.0	–	–	1.4	5.3	–	–	3.9	–
		39.06-39.06	62.9	42.1	84.3	2.4	4.4	1.2	–	–	1.8	–	–	5.9	–
5	35-44	40.10-40.10	63.3	42.9	80.6	3.2	5.1	–	–	2.4	2.2	–	–	6.4	–
2A	39-48	46.00-46.00	60.7	38.6	91.3	1.5	1.9	–	–	–	1.6	–	–	3.6	–
		47.17-47.17	68.2	50.3	81.3	–	2.9	–	–	–	2.8	1.1	–	4.7	7.2
6	44-53	51.90-51.90	58.5	35.1	91.0	1.2	1.6	–	–	1.1	1.0	–	–	4.1	–
3A	48-53	52.50-52.50	65.3	45.8	78.9	1.3	4.4	–	–	2.8	6.0	–	–	6.6	–
7	53-62	59.50-61.70	61.5	39.8	82.9	2.4	2.5	–	–	1.8	4.6	–	–	5.8	–
4A	53-62	59.40-61.80	62.8	41.9	83.1	3.8	3.9	–	–	1.8	1.7	–	–	5.6	–
5A	62-71	66.90-66.90	67.0	48.4	69.5	3.1	4.2	–	–	3.6	7.7	–	–	11.9	–
6A	71-80	79.00-79.00	65.0	45.4	70.3	9.0	4.9	1.4	–	2.8	2.2	–	–	9.3	–
7A	80-89	88.70-88.70	75.5	61.8	1.3	22.3	25.5	–	4.1	2.0	27.2	5.8	3.4	8.3	–

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.	Amph.	Pyrite	Dolo.
1	0-8	2.30-5.60	69.8	52.9	46.9	7.9	10.9	5.4	26.5	2.4	–	–	–
3	17-26	19.44-19.44	70.3	53.5	49.6	8.3	10.8	5.2	23.0	1.9	1.2	–	–
		24.00-24.00	69.9	53.0	36.2	10.0	10.7	8.1	26.4	1.1	–	7.5	–
4	26-35	26.85-26.85	70.8	54.4	43.3	10.1	11.5	7.6	25.8	1.7	–	–	–
		29.20-34.00	73.5	58.5	43.4	10.1	12.8	5.4	24.2	2.2	–	1.9	–
1A	30-39	38.80-38.80	75.4	61.5	45.2	10.4	12.3	10.5	21.4	–	–	–	–
5	35-44	40.10-40.10	75.7	62.1	41.7	10.5	11.8	6.9	27.2	1.9	–	–	–
2A	39-48	46.00-46.00	72.2	56.6	35.2	7.4	10.4	10.3	34.4	2.3	–	–	–
		47.17-47.17	80.1	69.0	22.6	–	14.7	2.9	23.3	2.6	–	33.7	–
3A	48-53	52.50-52.50	73.5	58.7	42.3	9.0	9.6	7.4	29.6	2.1	–	–	–
7	53-62	59.50-61.70	76.9	63.9	40.5	9.7	11.2	7.1	30.0	1.5	–	–	–
4A	53-62	59.40-61.80	72.3	56.7	46.6	9.8	10.0	6.9	24.0	1.5	–	–	1.1
5A	62-71	66.90-66.90	72.6	57.2	34.7	10.3	9.7	9.4	34.8	1.2	–	–	–
6A	71-80	79.00-79.00	71.3	55.2	37.0	9.9	6.9	10.4	35.0	–	–	–	–
7A	80-89	88.70-88.70	66.2	47.2	39.9	–	12.2	6.5	32.0	4.9	–	4.5	–

TABLE 6 – *Continued*

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Paly.	Pyrite
1	0-8	2.30-5.60	88.2	81.5	13.4	17.7	31.3	3.0	7.2	27.4	–
3	17-26	19.44-19.44	86.5	79.0	7.4	15.6	31.7	3.2	9.0	33.1	–
		24.00-24.00	90.5	85.2	5.3	16.5	24.8	2.3	2.3	48.8	–
4	26-35	26.85-26.85	86.9	79.6	4.2	21.7	26.7	–	6.5	40.9	–
		29.20-34.00	83.9	74.9	8.9	13.6	26.4	2.7	7.9[x]	40.4	–
1A	30-39	38.80-38.80	89.9	84.3	7.5	19.7	19.2	2.0	8.0	43.6	–
		39.06-39.06	90.3	84.8	7.5	13.8	19.2	2.2	6.5	50.7	–
5	35-44	40.10-40.10	83.9	74.8	5.7	12.9	17.9	2.7	6.0	54.9	–
2A	39-48	46.00-46.00	84.1	75.1	6.0	23.9	22.7	3.2	5.3	38.9	–
		47.17-47.17	84.8	76.2	11.2	2.3	14.3	3.3	3.3	18.0	47.5
6	44-53	51.90-51.90	88.0	81.3	6.3	9.3	16.1	2.2	5.6	60.4	–
3A	48-53	52.50-52.50	85.2	76.9	6.0	18.2	25.6	3.5	9.7	37.0	–
7	53-62	59.50-61.70	90.2	84.7	5.6	13.8	11.6	2.7	2.5	63.8	–
4A	53-62	59.40-61.80	84.8	76.2	6.2	25.7	22.7	–	9.9[x]	36.2	–
5A	62-71	66.90-66.90	84.7	76.1	3.3	19.7	19.1	2.1	6.8	49.1	–
6A	71-80	79.00-79.00	82.4	72.6	4.4	21.2	27.7	–	6.2[x]	40.6	–
7A	80-89	88.70-88.70	85.2	76.9	15.6	4.9	28.4	6.6	30.1	14.3	–

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

TABLE 7
Results of X-Ray Diffraction Analyses from Site 126

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.	Pyrite	Apat.
1	34-43	36.00-42.60	69.6	52.4	61.3	2.5	11.8	–	3.0	–	18.0	3.3	–	–	–
2	71-80	76.24-76.24	65.0	45.3	66.2	7.0	8.5	1.6	2.0	1.5	11.8	1.4	–	–	–
		78.35-79.05	63.5	42.9	80.8	1.7	6.7	–	1.5	–	7.7	1.7	–	–	–
3	99-106	104.90-104.90	71.1	54.8	57.0	2.8	14.7	–	3.0	3.7	16.6	2.2	–	–	–
5	127-128	128.00-128.00	83.2	73.7	21.9	–	13.0	7.2	4.9	13.7	7.4	2.4	21.5[x]	5.1	2.7

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	Mont.
1	34-43	36.00-42.60	69.9	52.9	2.3	44.8	–	10.7	1.5	34.6	4.9	1.3	–
2	71-80	76.24-76.24	70.5	53.9	–	45.5	–	12.3	2.3	36.1	3.9	–	–
		78.35-79.05	70.6	54.1	–	44.5	–	10.9	1.4	38.1	5.1	–	–
3	99-106	104.90-104.90	75.4	61.5	–	40.6	–	10.6	8.1	37.9	2.7	–	–
5	127-128	128.00-128.00	82.0	71.8	–	21.0	10.8	12.0	6.6	22.9	3.6	13.0	10.2

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Paly.
1	34-43	36.00-42.60	86.2	78.4	16.0	9.5	34.0	5.4	19.1[x]	15.6
2	71-80	76.24-76.24	84.7	76.0	9.1	13.5	32.4	3.2	24.0[y]	17.7
		78.35-79.05	82.8	73.1	11.1	10.0	29.0	4.4	31.7[y]	13.7
3	99-106	104.90-104.90	83.4	74.1	9.3	20.2	8.9	3.5	52.3[x]	5.7

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.
[y]Determination was made on the sum of both 14Å and 18Å peaks.

TABLE 8
Results of X-Ray Diffraction Analyses from Site 127

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Pyrite	Arag.
2A	16-25	22.60-22.60	70.6	54.0	24.1	3.8	21.1	6.1	–	40.9	4.0	–	–
1	18-27	21.22-21.28	68.5	50.8	32.5	6.0	25.9	6.8	–	24.8	4.0	–	–
		26.20-26.20	71.5	55.5	28.2	4.0	20.8	6.5	–	36.2	4.2	–	–
2	27-36	30.75-30.75	70.4	53.8	36.8	3.8	17.0	4.1	–	33.4	4.9	–	–
		32.90-32.90	71.4	55.3	28.1	3.6	21.6	6.3	2.4	34.9	3.1	–	–
3A	46-55	48.30-54.20	66.4	47.5	37.7	4.5	21.3	6.7	–	26.6	3.2	–	–
4A	73-79	73.74-78.25	69.1	51.8	41.5	4.4	15.8	3.9	–	31.1	3.3	–	–
4	83-92	83.70-83.70	69.0	51.3	43.2	4.7	17.7	4.6	2.3	24.8	2.7	–	–
5	92-101	96.43-100.55	67.9	49.8	40.2	3.8	21.3	6.3	–	25.4	3.0	–	–
6	101-110	102.80-102.80	65.4	45.9	27.5	2.7	32.7	7.2	–	26.9	3.0	–	–
		104.60-104.60	67.0	48.8	27.3	3.8	26.4	7.0	1.3	29.6	2.7	1.9	–
		105.40-105.40	67.0	48.4	54.9	3.5	14.4	3.9	–	16.3	2.3	–	4.6
		106.40-106.40	65.7	46.4	41.3	8.4	16.6	3.5	–	26.8	3.5	–	–
7	158-167	158.80-163.10	65.8	46.6	44.3	6.3	17.1	4.0	–	24.6	3.7	–	–
		166.00-166.00	69.0	51.6	30.7	2.7	20.5	5.6	–	36.3	4.4	–	–
8	167-176	170.26-170.26	68.5	50.8	38.8	2.5	17.0	5.4	–	32.4	4.0	–	–
		173.75-173.75	70.5	53.9	43.7	4.6	16.5	3.4	–	27.3	4.5	–	–
9	224-233	224.90-224.90	67.2	48.8	38.2	5.2	20.1	4.2	2.4	27.1	2.8	–	–
10	275-284	275.50-276.07	65.0	45.2	31.9	13.2	20.0	3.7	–	26.9	4.4	–	–
		277.50-277.50	70.3	53.7	48.9	4.1	17.1	4.3	–	22.5	3.1	–	–
		281.50-281.50	66.9	48.4	40.1	4.7	14.7	4.3	–	32.0	4.2	–	–
		283.80-283.80	66.4	47.5	34.9	6.9	20.9	4.6	–	28.9	3.9	–	–
11	299-308	299.90-299.90	61.6	40.0	79.1	2.0	6.5	2.4	–	8.3	1.8	–	–
12	327-336	335.10-335.10	69.6	52.5	55.4	4.2	12.7	3.7	–	20.9	3.1	–	–
13	364-373	372.73-372.73	66.1	47.1	30.7	12.7	22.2	3.9	–	27.1	3.4	–	–
14	373-383	375.25-375.25	70.3	53.6	34.2	5.7	23.5	5.8	–	27.7	3.0	–	–
		376.12-376.12	72.9	57.6	47.1	8.7	16.4	4.3	–	17.2	3.6	2.7	–
		376.75-376.75	66.0	46.9	15.6	3.8	31.2	9.8	–	36.0	3.6	–	–
		381.00-381.00	68.5	50.8	32.0	6.7	19.1	4.8	–	33.1	4.3	–	–
15	420-427	421.30-424.00	66.0	46.8	62.5	3.4	11.8	2.6	–	16.6	3.1	–	–
16	427-429	427.65-427.65	50.7	23.0	4.1	95.9	–	–	–	–	–	–	–
17	429-435	433.80-433.80	55.5	30.5	70.9	29.1	–	–	–	–	–	–	–
18	435-436	435.18-435.18	65.7	46.4	75.2	4.5	9.9	2.5	–	7.9	–	–	–
19	436-437	436.90-436.90	49.9	21.7	5.0	95.0	–	–	–	–	–	–	–

TABLE 8 – *Continued*

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Pyrite	Amph.
2A	16-25	22.60-22.60	60.1	37.6	–	31.2	7.8	–	55.0	6.0	–	–
1	18-27	21.22-21.28	65.2	45.6	–	39.9	11.3	–	43.4	5.4	–	–
		26.20-26.20	65.7	46.4	–	38.2	11.8	–	44.5	5.0	–	–
2	27-36	30.75-30.75	70.3	53.6	–	39.9	10.6	–	43.3	6.2	–	–
		32.90-32.90	59.1	36.1	–	39.7	11.8	–	44.0	5.1	–	–
3A	46-55	48.30-54.20	61.7	40.1	2.5	33.3	9.1	–	49.1	6.0	–	–
4A	73-79	73.74-78.25	62.1	40.8	2.0	32.1	7.9	–	51.8	6.3	–	–
4	83-92	83.70-83.70	65.8	46.6	–	40.8	9.2	–	44.3	5.7	–	–
5	92-101	96.43-100.55	66.6	47.8	1.3	38.4	11.2	–	43.9	5.2	–	–
6	101-110	102.80-102.80	64.3	44.2	–	36.0	12.4	–	44.5	5.7	1.4	–
		104.60-104.60	67.5	49.3	–	28.7	9.1	–	54.0	6.6	1.5	–
		105.40-105.40	68.4	50.7	–	44.6	10.5	–	38.5	6.1	–	–
		106.40-106.40	67.1	48.6	–	41.7	10.6	–	42.2	5.5	–	–
7	158-167	158.80-163.10	63.9	43.6	3.5	42.2	8.7	–	40.2	5.4	–	–
		166.00-166.00	61.2	39.4	–	42.3	15.4	–	36.7	4.3	1.3	–
8	167-176	170.26-170.26	70.1	53.2	–	33.8	9.6	–	51.6	5.0	–	–
		173.75-173.75	64.5	44.5	–	32.2	9.5	–	53.4	4.9	–	–
9	224-233	224.90-224.90	64.0	43.8	–	42.4	8.7	–	43.9	4.9	–	–
10	275-284	275.50-276.07	62.2	41.0	2.1	34.8	8.5	–	48.2	6.4	–	–
		277.50-277.50	64.8	45.0	–	40.0	9.9	–	42.9	7.3	–	–
		281.50-281.50	68.5	50.8	–	45.2	10.5	–	39.0	5.3	–	–
		283.80-283.80	65.9	46.7	–	40.2	8.5	–	45.3	6.1	–	–
11	299-308	299.90-299.90	69.8	52.8	–	41.9	10.7	–	41.4	6.0	–	–
12	327-336	335.10-335.10	66.9	48.3	–	30.2	7.4	–	55.7	6.7	–	–
13	364-373	372.73-372.73	65.0	45.4	–	36.6	6.9	–	49.3	7.2	–	–
14	373-383	375.25-375.25	69.0	51.5	–	32.4	8.5	–	52.5	6.6	–	–
		376.12-376.12	71.7	55.8	–	40.1	11.5	1.0	36.3	6.2	4.9	–
		376.75-376.75	63.1	42.4	–	32.0	10.1	1.2	51.8	4.9	–	–
		381.00-381.00	65.1	45.5	–	32.3	9.0	–	51.1	7.6	–	–
15	420-427	421.30-424.00	67.0	48.4	–	41.7	11.3	–	39.2	6.7	–	1.2
18	435-436	435.18-435.18	71.9	56.1	–	46.3	12.9	3.6	34.2	3.0	–	–

TABLE 8 – *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.	Pyrite
2A	16-25	22.60-22.60	87.7	80.8	14.3	–	–	5.4	62.3	6.3	11.8	–	–
1	18-27	21.22-21.28	83.7	74.6	12.6	–	1.6	7.3	44.9	6.1	18.5[x]	8.9	–
		26.20-26.20	85.5	77.4	15.0	–	1.3	11.0	50.3	4.3	18.1[x]	–	–
2	27-36	30.75-30.75	82.8	73.1	13.2	–	–	9.0	56.7	7.6	13.5[x]	–	–
		32.90-32.90	86.1	78.3	13.9	4.3	1.8	8.6	52.9	5.2	13.4	–	–
3A	46-55	48.30-54.20	87.0	79.7	17.1	–	1.4	3.8	63.7	5.6	8.2	–	–
4A	73-79	73.74-78.20	82.5	72.6	15.6	–	2.6	3.2	61.8	8.1	8.6[y]	–	–
4	83-92	83.70-83.70	82.6	72.8	12.1	–	–	10.4	48.5	5.6	23.4[x]	–	–
5	92-101	96.43-100.55	87.7	80.7	16.6	–	1.2	8.2	48.5	4.2	21.3[x]	–	–
6	101-110	102.80-102.80	83.9	74.9	12.4	–	1.1	2.2	61.1	7.7	13.0[x]	–	2.4
		104.60-104.60	85.0	76.5	11.3	–	–	8.4	58.3	4.9	15.5[x]	–	1.5
		105.40-105.40	82.3	72.3	13.5	–	–	8.7	51.8	9.2	16.9[y]	–	–
		106.40-106.40	84.5	75.8	10.0	4.8	1.2	12.2	39.8	4.0	28.0	–	–
7	158-167	158.80-163.10	79.8	68.5	11.8	4.0	2.2	1.7	53.9	9.3	17.1	–	–
		166.00-166.00	85.0	76.6	12.1	–	1.3	3.1	65.4	6.3	11.8[y]	–	–
8	167-176	173.75-173.75	83.7	74.5	14.3	–	1.2	1.0	55.4	11.2	16.8[y]	–	–
9	224-233	224.90-224.90	80.7	69.9	–	–	4.1	4.4	67.7	13.3	10.5	–	–
10	275-284	275.50-276.07	79.4	67.7	10.5	–	2.4	–	59.2	10.9	17.0	–	–
		277.50-277.50	85.5	77.4	12.8	–	–	–	52.6	9.2	25.4	–	–
		281.50-281.50	82.9	73.3	11.5	–	1.1	6.5	59.6	6.2	15.1	–	–
		283.80-283.80	82.7	73.0	10.9	–	1.5	–	57.8	9.2	20.6	–	–
12	327-336	335.10-335.10	85.7	77.7	11.4	–	–	8.3	55.8	6.1	18.4	–	–
13	364-373	372.73-372.73	84.8	76.2	13.1	–	2.2	–	61.7	10.0	11.7	–	1.2
14	373-383	375.25-375.25	84.9	76.4	12.0	–	–	1.3	49.2	7.7	29.8[y]	–	–
		376.12-376.12	83.8	74.7	12.6	–	–	–	44.5	10.7	28.0[y]	–	4.3
		376.75-376.75	79.9	68.5	9.4	–	–	3.2	57.0	4.9	25.6[x]	–	–
		381.00-381.00	77.0	64.0	9.2	–	2.6	–	48.5	8.8	31.0[x]	–	–
15	420-427	421.30-424.00	86.3	78.6	15.3	–	1.6	4.3	51.9	9.4	17.5[y]	–	–
18	435-436	435.18-435.18	88.3	81.8	7.8	–	–	5.1	21.8	4.9	13.6	46.9	–

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

[y]Determination was made on the sum of both 14Å peaks and 18Å peaks.

TABLE 9
Results of X-Ray Diffraction Analyses from Site 128

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.	Pyrite
1	22-31	24.20-24.20	68.9	51.4	36.1	5.3	21.5	–	6.9	2.5	24.7	3.0	–
		25.20-25.20	59.9	37.3	14.5	4.9	25.2	–	8.6	–	42.9	4.0	–
2	51-60	51.50-57.60	66.9	48.3	29.4	4.7	17.9	–	5.5	–	38.6	3.9	–
3	79-88	79.75-79.75	70.7	54.3	40.4	4.1	14.6	–	3.6	–	33.5	3.8	–
		84.80-84.80	67.9	49.9	63.4	2.7	14.2	–	3.3	–	14.9	1.6	–
		85.45-85.45	68.5	50.8	26.8	2.2	29.9	–	9.4	–	27.5	2.8	1.4
		87.30-87.30	72.1	56.4	45.5	4.4	20.3	–	5.5	–	21.6	2.7	–
4	107-116	107.44-107.44	66.3	47.4	53.1	3.5	17.7	–	4.2	1.7	17.8	2.0	–
		111.45-111.45	59.6	36.9	80.7	2.4	10.4	–	1.7	–	4.9	–	–
		115.10-115.10	67.8	49.7	50.4	3.8	14.8	–	4.2	–	21.3	5.4	–
5	144-153	144.50-145.75	62.6	41.6	32.2	7.2	23.3	–	6.4		27.4	3.5	–
		152.01-152.01	65.8	46.6	42.3	6.2	18.0	–	3.7	–	26.2	3.6	–
6	192-201	193.80-199.90	63.5	43.0	32.5	8.9	23.8	–	7.0	–	25.0	2.9	–
7	246-255	246.70-254.10	70.1	53.3	42.8	4.3	11.9	–	3.6	2.3	31.6	3.7	–
8	304-313	307.80-307.80	63.4	42.8	39.7	7.2	30.8	–	8.9	–	11.2	1.7	–
		312.60-312.60	71.7	55.8	36.3	5.3	20.7	–	5.8	–	28.7	3.2	–
9	360-369	368.87-368.87	69.2	51.9	60.9	3.2	10.8	–	3.1	2.5	17.3	2.2	–
10	415-424	420.17-420.17	68.4	50.6	42.8	17.3	19.4	–	4.0	4.0	12.7	–	–
		421.50-421.50	80.9	71.1	75.7	4.5	10.5	–	2.2	–	5.6	1.4	–
		423.50-423-50	71.5	55.4	53.1	8.7	14.0	1.6	3.1	5.5	13.9	–	–
11	474-478	474.80-476.94	68.6	51.0	47.4	14.1	12.2	–	2.6	–	21.1	2.5	–
		478.44-478.44	94.4	91.2	69.0	7.9	15.7	–	–	–	–	–	7.4

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Pyrite	Amph.	K-Fe
1	22-31	24.20-24.20	64.9	45.2	–	38.7	9.5	–	44.9	6.8	–	–	–
		25.20-25.20	60.5	38.2	–	34.9	10.8	–	47.5	6.6	–	–	–
2	51-60	51.50-57.60	63.8	43.5	–	30.0	7.5	–	56.0	6.5	–	–	–
3	79-88	79.75-79.75	63.0	42.2	–	31.6	7.1	–	54.9	6.4	–	–	–
		84.80-84.80	68.6	50.9	–	47.1	15.8	–	28.4	6.2	2.5	–	–
		85.45-85.45	65.1	45.5	–	34.0	10.7	–	49.6	3.7	2.0	–	–
		87.30-87.30	72.1	56.4	–	33.2	9.4	–	49.8	6.4	1.0	–	–
4	107-116	107.44-107.44	63.7	43.3	–	48.2	12.3	–	34.1	5.5	–	–	–
		111.45-111.45	67.5	49.2	1.9	46.2	12.3	–	30.9	4.9	3.9	–	–
		115.10-115.10	64.2	44.1	–	36.3	11.6	–	39.8	10.9	–	1.4	–

TABLE 9 – *Continued*

2-20 μm Fractions – *Continued*

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Pyrite	Amph.	K-Fe
5	144-153	144.50-145.75	59.1	36.1	7.0	49.2	8.9	–	31.1	3.8	–	–	–
		152.01-152.01	61.2	39.4	–	37.9	9.7	–	46.0	6.4	–	–	–
6	192-201	193.80-199.90	56.7	32.3	2.6	42.8	10.9	–	37.5	5.9	–	–	–
7	246-255	246.70-254.10	63.2	42.5	–	42.2	11.2	–	41.8	4.7	–	–	–
8	304-313	307.80-307.80	67.9	49.8	–	52.0	14.0	–	28.4	5.6	–	–	–
		312.60-312.60	61.9	40.4	–	36.5	11.6	–	45.1	6.8	–	–	–
9	360-369	368.87-368.87	63.1	42.4	–	41.7	12.0	–	38.3	8.0	–	–	–
10	415-424	420.17-420.17	66.7	47.9	2.0	43.2	10.8	1.4	28.7	3.6	10.1	–	–
		421.50-421.50	91.2	86.3	–	47.3	10.9	2.2	33.0	3.9	2.6	–	–
		423.50-423.50	68.2	50.3	–	49.0	12.5	3.3	24.5	2.8	1.9	–	6.1
11	474-478	474.80-476.94	65.2	45.6	1.3	40.8	9.3	–	33.7	3.3	11.8	–	–
		478.44-478.44	83.3	73.9	–	16.0	11.2	–	51.4	5.7	15.8	–	–

< 2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Plag.	Kaol.	Mica	Chlor.	Mont.	Pyrite	Paly.
1	22-31	24.20-24.20	85.5	77.4	14.7	–	10.5	55.1	8.2	11.5	–	–
		25.20-25.20	83.4	74.1	11.1	–	5.9	70.6	6.7	5.6[y]	–	–
2	51-60	51.50-57.60	86.4	78.7	15.1	–	5.3	62.8	6.5	10.3[y]	–	–
3	79-88	79.75-79.75	86.0	78.1	11.6	1.3	13.0	56.2	3.8	14.2	–	–
		84.80-84.80	89.5	83.6	19.2	1.5	3.9	50.0	6.2	14.8[y]	5.3	–
		85.45-85.45	89.6	83.7	16.3	2.2	5.2	64.3	4.6	4.0[x]	3.4	–
		87.30-87.30	89.9	84.3	17.0	1.5	6.0	50.9	6.0	16.0[y]	2.6	–
4	107-116	107.44-107.44	88.9	82.7	17.3	3.3	7.9	53.7	5.3	12.4	–	–
		111.45-111.45	85.8	77.8	13.5	–	–	63.2	10.3	11.4	1.6	–
		115.10-115.10	82.0	71.9	11.8	1.3	–	51.3	14.2	21.2	–	–
5	144-153	144.50-145.75	73.8	59.0	14.4	3.1	–	70.9	8.0	3.6[x]	–	–
		152.01-152.01	83.8	74.7	12.5	–	2.5	61.9	7.7	15.3	–	–
6	192-201	193.80-199.90	71.4	55.3	17.6	5.4	–	64.4	9.2	3.4[x]	–	–
7	246-255	246.70-254.10	80.8	70.1	23.4	5.3	5.0	55.4	5.2	5.5	–	–
8	304-313	307.80-307.80	84.1	75.1	14.0	–	2.4	60.0	8.0	15.5	–	–
		312.60-312.60	87.3	80.2	13.9	–	9.6	44.5	2.8	29.1[x]	–	–
9	360-369	368.87-368.87	87.2	79.2	13.1	–	5.4	48.1	6.7	17.1	–	9.6
10	415-424	420.17-420.17	88.4	81.9	13.5	–	7.7	48.2	8.8	11.9	–	10.0
		423.50-423.50	86.2	78.4	6.7	–	10.6	24.3	3.8	22.7	–	31.9
11	474-478	474.80-476.94	85.5	77.3	24.6	4.4	5.5	52.1	5.7	4.1[x]	3.7	–

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.
[y]Determination was made on the sum of both 14Å and 18Å peaks.

TABLE 10
Results of X-Ray Diffraction Analyses from Site 129 (Holes 129, 129A, and 129B)

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.
CB	27-34	34.00-34.00	73.0	57.8	56.0	4.3	23.6	5.3	3.0	5.4	2.5	–	–
1	38-39	38.80-38.80	68.5	50.8	3.3	49.6	12.8	4.2	–	7.9	3.6	2.3	16.3
2	39-46	39.76-39.76	68.6	50.9	37.8	42.8	3.6	–	2.4	–	–	–	13.4
		40.10-40.10	67.8	49.6	–	36.8	21.8	8.3	–	16.7	5.2	11.2	–
3A	78-81	79.60-79.60	70.4	53.7	21.4	20.0	12.9	3.1	–	20.5	3.1	2.2	16.7
3	94-99	94.40-94.40	71.6	55.6	27.5	11.3	27.9	11.6	–	14.6	7.1	–	–

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Quar.	Plag.	Kaol.	Mica	Chlor.	Pyrite
B1	27-34	34.00-34.00	74.2	59.6	8.1	49.9	12.7	9.7	14.1	2.8	2.2
1	38-39	38.80-38.80	65.0	45.3	–	43.1	17.4	1.1	27.4	6.2	4.6
3A	78-81	79.60-79.60	67.9	49.9	–	43.9	18.4	–	27.6	7.4	2.7
3	94-99	94.40-94.40	52.8	26.2	–	39.4	19.9	–	32.3	8.3	–
		95.40-95.40	63.8	43.4	–	47.9	18.8	–	25.6	7.8	–

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Paly.
B1	27-34	34.00-34.00	82.2	72.3	11.0	34.5	8.2	–	46.3[x]	–
1	38-39	38.80-38.80	83.1	73.6	6.3	1.3	16.1	4.3	31.0	41.0
2	39-46	39.76-39.76	85.4	77.1	3.0	9.8	11.4	2.0	9.1	64.7
		40.10-40.10	81.1	70.5	8.9	4.5	35.7	5.4	37.3	8.2
3A	78-81	79.60-79.60	83.0	73.4	6.8	–	34.1	7.9	11.5	39.7
3	94-99	94.40-94.40	81.5	71.1	12.4	–	43.5	10.7	28.3	5.1
		95.42-95.42	85.6	77.5	8.5	–	28.1	5.0	25.1	33.3

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

TABLE 11
Results of X-Ray Diffraction Analyses from Site 130 (Holes 130 and 130A)

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Arag.	Side.	Quar.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Pyrite	Gyps.
1A	0-11	0.20-0.20	71.5	55.5	38.9	0.4	36.1	–	9.9	1.8	2.2	1.6	8.2	0.9	–	–	–	–
		0.71-0.71	86.8	79.3	3.8	–	–	–	25.6	–	20.7	22.8	15.8	11.2	–	–	–	–
		11.00-11.00	66.5	47.6	52.5	30.9	–	–	6.3	4.1	–	1.4	2.7	–	–	–	2.1	–
1	13-23	15.10-15.10	87.2	80.0	10.2	1.2	–	–	22.3	–	15.3	21.9	20.4	–	–	–	8.6	–
		16.34-16.34	73.2	58.1	49.5	7.5	–	–	16.6	1.7	2.5	5.6	11.2	–	–	5.4	–	–
		18.40-18.40	80.4	69.3	48.8	2.2	12.5	–	9.2	1.7	4.2	9.3	9.3	–	–	–	3.0	–
2	49-58	50.30-50.30	85.2	76.8	–	–	–	–	23.8	–	29.2	13.0	18.6	–	5.2[y]	–	10.2	–
		52.45-52.45	85.4	77.2	3.6	1.2	–	–	21.3	–	26.9	10.0	16.2	3.9	9.5[y]	–	7.4	–
		52.74-52.74	91.0	85.9	–	1.7	–	–	29.6	3.5	–	11.1	19.0	–	–	25.6	7.5	1.9
		52.90-52.90	67.9	49.8	66.6	14.1	–	–	6.5	–	1.7	3.2	7.9	–	–	–	–	–
3	77-86	78.15-78.15	85.8	77.8	–	–	–	–	24.5	–	15.9	21.7	12.5	–	18.0[y]	–	7.4	–
		79.25-79.25	85.0	76.6	–	–	–	–	20.1	–	14.6	29.5	13.7	–	15.5[y]	–	6.6	–
		79.54-79.54	72.7	57.4	63.1	5.2	20.4	–	5.4	–	1.6	4.3	–	–	–	–	–	–
4	148-150	149.70-149.70	72.7	57.4	47.0	2.7	–	18.0	9.8	–	1.1	3.8	7.5	–	–	10.1	–	–
5	254-263	260.88-262.06	83.5	74.2	4.2	–	–	–	16.2	8.3	18.4	17.6	–	–	32.2[x]	–	2.0	1.0
6	411-418	411.30-411.30	82.6	72.8	33.1	–	–	–	11.7	7.3	7.7	12.3	6.7	–	21.3[x]	–	–	–
		412.50-416.70	68.6	50.9	70.1	4.0	13.3	–	5.8	–	–	3.2	3.7	–	–	–	–	–

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Dolo.	Side.	Quar.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Mont.	Paly.	Pyrite	Amph.
1A	0-11	0.20-0.20	71.5	55.5	28.2	4.9	40.7	9.5	12.0	–	–	1.2	–	–	3.4	–
		0.71-0.71	86.8	79.3	–	–	46.4	9.6	11.8	2.7	26.6	2.9	–	–	–	–
1	13-23	15.10-15.10	77.7	65.2	–	–	32.1	–	20.9	3.1	26.1	3.9	–	–	13.9	–
		16.34-16.34	73.2	58.1	–	–	45.2	9.4	11.1	4.4	20.1	1.9	–	–	8.0	–
		18.40-18.40	76.2	62.9	–	–	29.3	–	18.7	4.1	29.5	3.1	–	–	14.9	–
2	49-58	50.30-50.30	76.0	62.6	–	–	29.8	–	34.5	2.6	15.0	1.7	–	–	16.3	–
		52.45-52.45	79.4	67.8	–	–	24.1	–	24.1	2.9	17.2	2.6	7.0	7.5	13.4	1.2
		52.74-52.74	89.4	83.5	–	–	43.2	–	13.9	3.3	19.8	2.4	–	11.8	5.6	–
		52.90-52.90	72.5	57.1	–	–	36.1	–	12.8	3.7	38.1	3.5	–	–	3.8	–
3	77-86	78.15-78.15	77.0	64.1	–	–	30.8	–	27.3	3.8	21.8	2.9	–	–	13.4	–
		79.25-79.25	78.2	66.0	–	–	31.8	–	26.4	3.6	16.6	2.6	–	–	18.9	–
4	148-150	149.70-149.70	73.1	58.0	–	–	47.9	–	15.9	3.8	29.4	3.1	–	–	–	–
6	411-418	411.30-411.30	77.1	64.2	–	–	24.0	17.3	29.1	3.1	18.1	2.9	–	–	4.5	1.0
		412.50-416.70	78.6	66.5	–	–	30.8	13.4	25.8	4.1	21.1	2.2	–	–	2.7	–

TABLE 11 – *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.	Pyrite	Hali.
1A	0-11	0.02-0.02	86.1	78.3	11.8	–	–	18.0	21.1	2.4	30.4[x]	16.0	–	–
		0.71-0.71	83.2	73.8	5.1	–	–	21.1	7.4	2.6	62.9[x]	–	1.0	–
1	13-23	15.10-15.10	90.5	85.2	8.6	2.6	1.9	22.6	12.1	–	36.6[y]	12.2	–	3.4
		16.34-16.34	88.2	81.5	8.8	–	–	17.8	25.4	2.8	15.8[y]	29.4	–	–
		18.40-18.40	88.9	82.6	8.4	2.7	–	28.5	–	–	40.0[x]	15.7	1.3	3.4
2	49-58	50.30-50.30	86.2	78.4	6.1	–	2.2	20.2	7.0	–	54.7[x]	8.9	–	–
		52.45-52.45	83.7	74.6	5.9	–	–	22.6	5.6	–	63.1[x]	–	–	2.8
		52.74-52.74	92.5	88.2	15.2	–	–	6.5	11.9	2.8	19.9[x]	35.9	8.0	–
		52.90-52.90	87.7	80.8	9.9	–	–	13.7	30.1	3.8	21.7[x]	20.4	–	–
3	77-86	78.15-78.15	83.6	74.3	5.4	–	1.3	20.4	7.1	1.2	49.9[x]	8.2	1.2	4.5
		79.25-79.25	85.9	77.9	6.3	–	1.3	22.0	9.2	–	52.8[x]	6.4	–	2.0
		79.54-79.54	87.4	80.3	6.5	–	–	23.2	17.3	2.0	30.6[y]	20.3	–	–
4	148-150	149.70-149.70	94.3	91.2	17.6	–	–	9.1	27.7	5.2	7.6[x]	32.9	–	–
6	411-418	411.30-411.30	89.1	83.0	8.8	–	–	21.4	5.5	–	53.1[x]	11.2	–	–
		412.50-416.70	93.3	89.5	4.1	–	–	5.9	5.4	–	6.7[x]	77.9	–	–

[x]Estimate was made from a 14Å montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

[y]Determination was made on the sum of both 14Å and 18Å peaks.

TABLE 12
Results of X-Ray Diffraction Analyses from Site (Holes 131 and 131A)

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Dolo.	Amph.	Quar.	K-Fe.	Plag.	Kaol.	Mica	Chlor.	Mont.	Clin.	Pyrite
1	30-39	33.27-33.27	83.6	74.4	3.6	–	–	24.7	13.7	21.3	7.9	6.9	2.3	19.6^{x}	–	–
		37.94-37.94	72.4	56.9	2.1	–	–	77.5	2.2	10.3	–	3.2	1.4	3.3	–	–
1A	47-56	48.55-48.55	75.7	62.0	38.7	6.8	–	21.7	3.5	5.0	6.5	16.0	–	–	–	1.8
		49.38-49.38	78.2	66.0	2.5	–	2.2	40.0	10.2	26.5	4.6	7.6	–	6.5^{x}	–	–
3A	140-149	141.42-141.42	73.6	58.8	1.6	–	1.6	47.1	24.6	15.9	2.7	4.6	–	–	1.7	–
4A	206-215	207.30-207.30	84.6	76.0	2.6	–	2.2	39.5	10.0	26.1	4.6	7.5	–	6.4^{x}	1.0	–
		208.10-208.10	84.0	74.9	5.5	–	–	19.3	10.6	21.4	8.0	12.9	–	20.3^{x}	–	2.0
		210.25-210.25	70.0	53.2	–	–	1.9	59.0	9.7	21.2	1.6	5.7	–	–	1.0	–
5A	263-272	264.20-264.25	79.1	67.3	4.6	–	–	31.3	8.1	21.1	5.5	10.7	–	18.7^{x}	–	–

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.	Pyrite	Amph.
1	30-39	33.27-33.27	75.8	62.1	29.1	12.4	22.7	4.7	17.8	1.6	–	–	11.6	–
		37.94-37.94	79.2	67.5	25.5	18.6	26.7	4.7	12.8	1.3	7.0^{y}	–	1.7	1.6
1A	47-56	48.55-48.55	73.6	58.8	43.9	18.1	25.2	1.0	9.3	–	–	–	1.3	1.2
		49.38-49.38	72.7	57.3	46.7	10.1	11.8	2.2	22.2	2.2	–	–	4.8	–
3A	140-149	141.42-141.42	74.4	59.9	22.7	17.3	36.4	2.1	13.8	1.4	–	1.6	1.2	3.6
4A	206-215	207.30-207.30	77.3	64.5	30.9	17.7	30.8	–	12.6	1.8	–	1.2	2.3	2.5
		108.10-108.10	76.9	64.0	28.0	17.3	28.8	3.3	14.0	2.1	–	–	4.3	2.1
		210.25-210.25	83.1	73.6	23.6	15.4	27.6	3.0	15.7	1.3	8.7^{y}	1.3	1.9	1.4
5A	263-272	264.20-264.25	79.0	62.7	24.6	19.2	33.6	–	14.8	2.0	–	1.8	1.1	2.9

<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.	Pyrite	Hali.
1	30-39	33.27-33.27	87.1	79.8	4.8	–	2.3	19.0	7.6	–	57.4^{x}	7.9	–	1.1
		37.94-37.94	86.3	78.5	7.4	4.3	5.6	18.6	7.9	–	51.3^{x}	–	1.1	3.7
1A	47-56	48.55-48.55	85.3	77.0	10.7	–	–	15.7	21.4	4.1	22.3	26.4	–	–
		49.38-49.38	89.3	83.3	7.3	–	3.2	19.8	8.0	–	49.2^{x}	10.0	–	2.4
3A	140-149	141.42-141.42	84.8	76.3	4.8	–	2.5	19.0	5.7	–	66.5^{x}	–	–	1.5
4A	206-215	207.30-207.30	87.8	80.9	8.1	–	3.4	19.4	7.7	–	61.4	–	–	–
		208.10-208.10	88.9	82.6	6.7	–	–	9.3	9.1	3.1	55.8	12.6	1.9	1.6
		210.25-210.25	87.5	80.4	4.0	–	3.3	6.1	6.7	2.2	71.5^{x}	6.3	–	–
5A	263-272	264.20-264.25	89.1	83.0	6.8	–	2.2	12.2	8.6	–	54.3	15.9	–	–

^{x}Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

^{y}Determination was made on the sum of both 14Å and 18Å peaks.

TABLE 13
Results of X-Ray Diffraction Analyses from Site 132

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.	Gyps.	Anhy.	Anal.	Goet.
1	0-9	0.15-0.15	85.2	76.9	27.7	2.5	17.8	12.4	6.2	7.7	25.7	–	–	–	–	–	–	
		2.05-2.05	71.3	55.2	56.5	1.1	12.8	3.6	4.2	3.0	16.6	2.3	–	–	–	–	–	
		3.36-3.36	72.4	56.9	14.4	–	9.2	42.9	–	–	9.9	13.5	–	–	–	–	–	
		3.90-3.90	71.4	55.3	40.1	2.4	16.3	–	5.9	6.4	27.1	1.7	–	–	–	–	–	
		7.10-7.10	71.2	55.0	47.5	1.9	14.1	1.8	6.3	3.1	22.4	2.9	–	–	–	–	–	
2	9-18	10.14-11.60	70.1	53.4	46.3	1.4	13.7	–	8.5	2.2	25.3	2.6	–	–	–	–	–	
		14.53-14.53	65.5	46.1	62.0	–	7.2	5.5	7.5	5.9	11.9	–	–	–	–	–	–	
3	18-27	19.40-19.40	71.8	56.0	43.5	2.3	16.9	–	6.7	2.8	22.4	2.9	2.6[x]	–	–	–	–	
4	27-36	28.84-28.84	71.0	54.7	50.4	1.4	14.5	2.3	5.0	4.8	19.4	2.1	–	–	–	–	–	
		32.65-32.65	63.8	43.4	78.8	–	7.8	–	–	1.7	10.3	1.4	–	–	–	–	–	
		35.10-35.10	71.9	56.1	26.4	1.7	17.0	4.3	11.2	3.1	33.3	3.0	–	–	–	–	–	
5	36-45	38.58-38.58	75.0	60.9	49.6	1.3	11.5	2.4	5.8	5.2	21.3	2.8	–	–	–	–	–	
6	45-54	48.96-48.96	68.6	51.0	52.7	2.1	13.3	–	5.7	2.2	21.2	2.7	–	–	–	–	–	
		50.50-50.50	66.9	48.2	63.9	1.2	11.2	–	2.5	2.9	16.5	1.8	–	–	–	–	–	
7	54-63	54.49-54.49	72.1	56.5	60.9	–	11.6	1.2	3.0	2.4	17.7	3.2	–	–	–	–	–	
		59.80-62.00	68.4	50.7	50.0	1.2	13.1	2.8	4.6	3.1	22.0	3.2	–	–	–	–	–	
8	63-72	68.10-71.00	68.8	51.3	61.3	–	10.3	1.4	3.0	2.0	18.8	3.1	–	–	–	–	–	
9	72-81	74.30-80.22	65.1	45.5	73.7	–	7.9	–	1.9	5.1	11.4	–	–	–	–	–	–	
10	81-90	82.00-86.00	64.3	44.3	55.0	1.4	12.6	4.5	5.0	2.3	17.4	1.8	–	–	–	–	–	
11	90-99	96.40-96.40	65.7	46.4	75.5	–	7.4	–	2.3	2.1	11.0	1.6	–	–	–	–	–	
12	99-108	100.30-106.60	62.9	42.0	79.2	–	7.4	–	–	2.8	10.7	–	–	–	–	–	–	
13	108-117	110.00-110.00	66.6	47.9	77.2	–	7.2	–	1.3	1.6	11.1	1.6	–	–	–	–	–	
14	117-126	118.40-120.66	62.0	40.6	81.3	–	5.8	–	–	2.1	9.5	1.4	–	–	–	–	–	
15	126-135	126.90-134.90	62.9	42.1	75.6	–	8.4	–	1.4	3.5	11.2	–	–	–	–	–	–	
16	135-144	138.70-139.25	60:3	37.9	86.8	–	4:5	–	–	–	7.2	1.6	–	–	–	–	–	
17	144-153	145.10-148.62	60.6	38.4	86.6	–	4.7	–	–	1.5	7.2	–	–	–	–	–	–	
18	153-162	155.50-161.60	63.5	43.0	84.3	–	4.9	–	–	3.9	7.0	–	–	–	–	–	–	
19	162-171	164.50-164.50	65.0	45.3	81.8	–	6.1	–	–	2.5	8.5	1.2	–	–	–	–	–	
		166.35-166.35	66.6	47.8	71.3	–	5.9	4.6	–	1.7	7.7	1.1	–	7.7	–	–	–	P
20	171-180	173.60-174.30	67.9	49.9	83.4	–	5.3	–	1.0	3.5	6.7	–	–	–	–	–	–	P
		175.66-175.66	67.9	49.8	80.3	–	4.9	–	–	3.9	10.9	–	–	–	–	–	–	P
		176.00-176.00	66.3	47.3	88.3	–	4.5	–	–	–	7.2	–	–	–	–	–	–	P
21	180-189	180.60-180.60	71.1	54.9	78.2	–	7.0	–	–	2.2	11.4	1.2	–	–	–	–	–	P
		181.53-181.53	69.7	52.7	75.5	–	6.4	–	1.5	–	14.8	1.7	–	–	–	–	–	P
		182.80-182.80	75.4	61.6	32.5	2.5	19.3	–	5.4	2.5	29.0	5.1	3.7	–	–	–	–	
25	207-217	207.65-207.65	78.1	65.8	–	10.9	25.5	–	4.8	8.7	39.5	8.7	–	–	1.9	–	–	P
		209.40-209.40	49.9	21.7	–	2.6	10.6	–	2.7	2.3	20.1	4.2	–	–	57.5	–	–	P
26	214-220	215.16-215.16	41.1	7.9	–	–	7.0	–	2.4	1.2	8.4	1.9	–	–	79.2	–	–	P
27	220-223	221.48-221.48	28.1	12.4	–	–	–	–	–	–	–	–	–	–	98.9	1.1	–	P
		222.57-222.57	34.6	2.1	–	–	0.6	–	–	–	–	–	–	–	99.4	–	–	

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.	Paly.	Phil.	Anal.	Augi.	Amph.	Hema.	Goet.
1	0-9	0.15-0.15	81.0	70.3	–	24.7	–	1.1	7.9	45.9	4.5	16.0	–	–	–	–	–	
		2.05-2.05	91.0	85.9	–	34.4	–	9.8	3.5	36.1	3.3	6.2	–	3.1	3.5	–	–	
		3.36-3.36	81.0	70.3	–	14.0	24.4	–	3.1	8.0	–	–	–	50.0	–	–	–	
		3.90-3.90	71.6	55.7	–	39.3	–	13.5	4.6	37.8	4.7	–	–	–	–	–	–	
		7.10-7.10	74.8	60.7	–	44.3	–	15.9	2.8	31.7	4.3	–	–	1.1	–	–	–	
2	9-18	10.14-11.60	74.6	60.4	–	40.2	–	15.0	2.8	35.6	5.2	–	–	1.2	–	–	–	
		14.53-14.53	76.4	63.1	–	43.3	–	16.1	4.3	30.8	3.7	–	–	1.8	–	–	–	
3	18-27	19.40-19.40	78.9	67.0	–	20.9	–	2.6	–	18.4	1.8	9.7	46.6	–	–	–	–	
4	27-36	28.84-28.84	74.2	59.7	–	44.1	–	17.5	2.7	26.4	4.2	–	–	3.8	–	1.4	–	
		32.65-32.65	73.1	58.0	–	38.3	–	14.1	6.7	37.2	3.6	–	–	–	–	–	–	
		35.10-35.10	71.8	55.9	–	47.8	–	12.0	5.1	31.5	3.6	–	–	–	–	–	–	
5	36-45	38.58-38.58	67.1	48.7	–	35.7	8.2	19.5	2.1	31.3	3.0	–	–	–	–		–	
6	45-54	48.96-48.96	74.3	59.9	–	35.5	3.4	12.1	5.8	29.0	3.2	–	10.0	1.0	–	–	–	
		50.50-50.50	68.9	51.4	–	48.4	–	13.7	3.0	30.7	4.3	–	–	–	–	–	–	
7	54-63	54.49-54.49	69.1	51.7	–	42.3	5.8	14.4	4.2	29.3	3.5	–	–	–	–	–	–	
		59.80-62.00	70.9	54.5	–	43.6	–	12.7	5.2	33.5	4.9	–	–	–	–	–	–	
8	63-72	68.10-71.00	67.6	49.4	–	48.3	3.8	17.2	1.4	24.1	5.2	–	–	–	–	–	–	
9	72-81	74.30-80.22	69.3	52.0	–	43.1	–	14.7	3.1	33.9	5.1	–	–	–	–	–	–	
10	81-90	82.00-86.00	69.6	52.5	–	45.1	5.8	14.1	3.8	27.7	2.8	–	–	–	–	–	–	
11	90-99	96.40-96.40	66.7	47.9	–	40.5	10.0	15.4	3.1	28.0	2.9	–	–	–	–	–	–	
12	99-108	100.30-106.60	70.9	53.2	–	40.6	–	14.8	4.1	36.4	4.0	–	–	–	–	–	–	
13	108-117	110.00-110.00	70.0	53.2	–	37.8	4.9	11.6	5.5	35.5	4.7	–	–	–	–	–	–	
14	117-126	118.40-120.66	67.6	49.3	–	42.5	–	10.5	7.0	36.0	4.0	–	–	–	–	–	–	
15	126-135	126.90-134.90	71.8	56.0	–	46.7	6.5	11.2	2.6	29.8	3.3	–	–	–	–	–	–	
16	135-144	138.70-139.25	68.6	51.0	–	48.2	3.6	11.5	5.6	27.3	3.9	–	–	–	–	–	–	
17	144-153	145.10-148.62	69.9	53.0	–	45.0	–	12.1	4.6	32.3	6.0	–	–	–	–	–	–	
18	153-162	155.50-161.60	70.9	54.6	–	39.7	4.6	12.3	5.6	33.7	4.2	–	–	–	–	–	–	
19	162-171	164.50-164.50	71.1	54.8	1.0	43.8	–	10.9	5.4	33.5	5.3	–	–	–	–	–	–	
		166.35-166.35	69.8	52.8	–	48.8	–	9.9	5.6	31.2	4.4	–	–	–	–	–	–	
20	171-180	173.60-174.30	71.5	55.5	–	46.5	4.3	8.4	6.7	30.8	3.3	–	–	–	–	–	–	
		175.66-175.66	73.2	58.1	1.4	47.1	–	8.3	4.7	33.6	5.0	–	–	–	–	–	–	
		176.00-176.00	71.8	55.9	–	37.3	–	10.5	3.2	43.4	5.5	–	–	–	–	–	–	
21	180-189	180.60-180.60	73.6	58.8	–	36.5	–	9.5	3.1	45.9	5.0	–	–	–	–	–	–	T
		181.53-181.53	80.4	69.4	–	38.4	–	9.5	8.0	39.7	4.5	–	–	–	–	–	–	P
		182.80-182.80	75.1	61.1	–	36.1	–	9.2	3.1	42.6	4.4	–	–	–	–	–	4.6	P
25	207-217	207.65-207.65	62.8	41.9	–	37.9	4.4	10.4	5.6	36.1	5.7	–	–	–	–	–	–	
		209.40-209.40	64.8	45.1	–	43.8	–	10.3	3.8	33.0	9.0	–	–	–	–	–	–	
27	220-223	222.57-222.57	70.0	53.1	–	42.8	–	8.2	5.4	30.5	7.2	–	–	–	–	–	5.9	P

TABLE 13 – *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.	Anal.	Hali.	Goet.	Cele.
1	0-9	0.15-0.15	93.3	89.5	24.7	–	1.1	7.9	45.9	4.5	–	16.0	–	–	–	–
		2.05-2.05	84.8	76.3	15.8	–	1.0	18.3	40.6	4.2	14.3	5.9	–	–	–	–
		3.36-3.36	91.8	87.1	16.9	23.1	–	14.1	32.2	–	–	–	13.8	–	–	–
		3.90-3.90	87.5	80.4	20.0	–	–	13.0	51.2	7.2	8.5	–	–	–	–	–
		7.10-7.10	86.2	78.4	15.7	–	–	11.3	48.2	8.0	16.8	–	–	–	–	–
2	9-18	10.14-11.60	88.5	82.1	24.5	–	3.6	10.6	42.9	5.7	12.8[x]	–	–	–	–	–
		14.53-14.53	88.8	82.5	11.5	–	–	19.6	39.0	–	9.1[x]	20.8	–	–	–	–
3	18-27	19.40-19.40	84.0	74.9	16.2	–	1.2	12.2	36.4	5.6	19.5[x]	8.9	–	–	–	–
4	27-36	28.84-28.84	84.6	76.0	12.4	–	–	13.4	40.6	3.7	17.6[x]	12.3	–	–	–	–
		32.65-32.65	80.2	69.0	12.3	–	–	17.0	37.1	3.6	19.8[x]	10.1	–	–	–	–
		35.10-35.10	85.3	77.0	15.5	–	–	12.6	52.6	4.4	15.0[x]	–	–	–	T	–
5	36-45	38.58-38.58	84.3	75.5	14.4	–	6.2	19.6	34.2	2.6	23.0[x]	–	–	–	–	–
6	45-54	48.96-48.96	82.6	72.9	15.3	3.0	1.9	17.6	40.3	2.2	19.8[x]	–	–	–	–	–
		50.50-50.50	84.6	75.9	16.5	–	–	13.2	32.3	2.8	17.9[x]	16.6	–	–	–	–
7	54-63	54.49-54.49	86.0	78.1	20.3	–	–	14.6	38.6	4.8	21.7[x]	–	–	–	P	–
		59.80-62.00	84.7	76.1	17.2	–	–	19.2	50.2	3.9	9.5	–	–	–	–	–
8	63-72	68.10-71.00	89.7	83.9	19.3	–	1.9	11.8	53.5	5.4	8.1	–	–	–	T	–
9	72-81	74.30-80.22	85.7	77.7	20.2	–	–	16.7	43.5	4.2	7.5[x]	7.9	–	–	–	–
10	81-90	82.00-86.00	85.0	76.6	17.3	–	–	18.0	36.7	2.4	16.9[x]	8.5	–	–	–	–
11	90-99	96.40-96.40	85.4	77.2	18.9	–	1.9	13.4	36.2	5.6	14.3	9.7	–	–	P	–
12	99-108	100.30-106.60	83.4	74.0	18.1	–	–	13.6	39.8	5.1	12.3	11.2	–	–	T	–
13	108-117	110.00-110.00	84.7	76.1	12.8	–	–	14.8	42.7	4.6	7.0	18.1	–	–	T	–
14	117-126	118.40-120.66	86.3	78.7	13.6	–	–	16.7	38.0	3.3	6.7	21.8	–	–	–	–
15	126-135	126.90-134.90	88.8	82.5	17.2	–	–	11.6	39.1	4.0	9.2	18.9	–	–	–	–
16	135-144	138.70-139.25	88.6	79.4	20.3	–	–	16.1	46.1	6.5	11.0[y]	–	–	–	–	–
17	144-153	145-10-148.62	86.7	79.1	17.7	–	–	4.9	52.3	9.5	15.6	–	–	–	–	–
18	153-162	155.50-161.60	90.3	84.8	21.5	–	–	11.9	41.5	4.8	4.7	15.6	–	–	P	–
19	162-171	164.50-164.50	86.9	79.6	14.9	–	–	15.5	37.8	4.4	11.1	16.3	–	–	P	–
		166.35-166.35	84.7	76.1	9.1	–	–	12.9	26.3	2.6	22.9[x]	26.2	–	–	P	–
20	171-180	173.60-174.30	89.5	83.6	14.6	–	–	5.0	28.5	3.9	15.5[x]	32.6	–	–	A	–
		175.66-175.66	88.0	81.2	12.7	–	–	8.8	32.9	4.1	19.1[x]	22.4	–	–	A	–
		176.00-176.00	90.1	84.5	15.4	–	–	11.1	33.4	–	10.1	30.0	–	–	M	–
21	180-189	180.60-180.60	91.1	86.1	10.9	–	–	7.6	40.2	4.1	18.1	19.0	–	–	P	–
		181.53-181.53	85.9	78.0	14.9	–	–	–	28.3	6.5	14.8	35.1	–	–	A	–
		182.80-182.80	83.7	74.6	12.3	–	–	10.3	16.2	3.2	40.7	13.9	–	3.4	–	–
25	207-217	207.65-207.65	86.4	78.8	19.4	–	–	14.4	43.1	7.3	6.8	9.0	–	–	P	–
		209.40-209.40	78.6	66.6	14.3	–	–	13.6	43.3	7.4	15.3	6.1	–	–	A	–
26	214-220	215.16-215.16	78.8	66.8	17.8	–	–	12.0	37.8	8.8	17.1	6.5	–	–	M	–
27	220-223	222.57-222.57	81.4	71.0	19.2	–	–	3.8	40.9	7.1	–	29.0	–	–	A	P

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

[y]Determination was made on the sum of both 14Å and 18Å peaks.

TABLE 14
Results of X-Ray Diffraction Analyses from Site 133

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.
1	49-54	50.90-50.90	64.5	44.6	68.4	–	10.6	–	1.3	1.7	11.8	1.3	–	4.9
3	63-68	64.20-64.20	52.5	25.8	–	–	42.1	–	25.5	–	27.4	5.0	–	–
4	68-81	73.15-73.15	54.6	29.1	7.1	–	41.6	–	22.1	2.4	23.2	3.5	–	–
5	91-100	91.55-91.55	78.2	65.9	–	–	21.8	–	15.5	–	60.1	2.6	–	–
		92.40-92.40	70.7	54.2	–		7.4	10.3	7.6	–	54.2[a]	–	20.5[x]	–
6	109-118	110.20-110.20	72.0	56.2	–	2.9	23.7	14.5	13.8	–	43.5	1.6	–	–
7	138-147	138.45-138.45	70.2	53.4	–	–	20.7	–	5.5	3.1	70.7	–	–	–
		139.04-139.04	58.4	35.0	–	4.8	22.7	3.8	21.5	1.6	45.5	–	–	–

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.	Gyps.	Bass.	Dolo.
1	49-54	50.90-50.90	66.7	48.0	6.0	–	–	–	–	3.8	10.7	79.5	–
3	63-68	64.20-64.20	72.4	56.9	47.1	6.2	9.8	3.8	30.4	2.7	–	–	–
4	68-81	73.15-73.15	63.0	42.2	42.7	–	20.1	1.3	30.5	5.4	–	–	–
5	91-100	91.55-91.55	76.3	62.9	24.9	6.1	15.2	–	51.4	2.4	–	–	–
		92.40-92.40	76.5	63.3	16.2	32.8	2.9	–	46.1	2.0	–	–	–
6	109-118	110.20-110.20	77.6	65.1	24.7	15.0	12.0	–	44.0	1.7	–	–	2.5
7	138-147	138.45-138.45	70.4	53.7	20.6	5.8	5.1	–	68.5	–	–	–	–
		139.04-139.04	71.9	56.1	25.8	6.5	9.7	–	57.9	–	–	–	–

<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.	Gibb.	Goet.
1	49-54	50.90-50.90	84.6	76.0	21.1	–	–	18.9	42.4	4.6	13.1[x]	–	T
3	63-68	64.20-64.20	68.2	50.4	13.9	–	12.4	–	61.3	12.3	–	–	–
5	91-100	91.55-91.55	88.6	82.2	4.0	–	–	–	74.7	2.1	19.2	–	–
		92.40-92.40	74.9	60.7	1.0	–	–	–	91.4	–	7.5[z]	–	–
6	109-118	110.20-110.20	82.6	72.9	1.7	–	–	–	96.4	1.9	–	–	–
7	138-147	138.45-138.45	85.6	77.4	4.8	–	–	–	93.0	2.2	–	–	T
		139.04-139.04	87.6	80.6	2.7	9.1	–	4.6	80.8	–	–	2.9	–

[a]Peaks do not match the DSDP standard Mica, but do very closely match in intensity and d-spacing the peaks of A.S.T.M. card 14-565, Ferroan Lepidolite. The Mica percentages of the 91.55 m and 110.20 m samples also contain traces of this A.S.T.M. 14-565-like Mica.

[x]Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

[z]Estimate was made from a 12Å form of montmorillonite.

TABLE 15
Results of X-Ray Diffraction Analyses from Site 134

Bulk Samples

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Calc.	Quar.	Plag.	Kaol.	Mica	Chlor.	Gyps.	Goet.
1A	30-39	31.40-31.40	77.6	65.0	29.1	23.7	5.5	8.8	29.7	3.1	–	
1D	175-183	176.25-176.25	48.7	19.9	–	10.8	5.2	–	17.7	4.0	62.4	
3	248-251	249.25-249.60	71.2	55.0	66.6	9.8	3.1	3.0	16.2	1.4	–	
5	260-269	262.70-262.70	74.7	60.5	54.6	17.6	1.6	5.4	18.6	2.2	–	T
6	288-296	288.52-288.52	71.9	56.2	72.7	9.5	–	4.9	12.9	–	–	
		289.32-289.32	69.1	51.8	76.3	8.1	–	4.4	11.3	–	–	
		291.80-295.10	68.0	49.9	79.2	6.5	1.3	3.6	9.4	–	–	
7	317-326	318.44-320.94	68.0	49.9	77.9	6.7	–	3.7	11.7	–	–	
		323.56-323.56	66.6	47.8	82.4	7.1	–	2.7	2.7	–	–	

2-20 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Plag.	Kaol.	Mica.	Chlor.	K-Fe
1A	30-39	31.40-31.40	69.3	52.1	58.0	6.8	7.1	23.8	4.3	–
1D	175-183	176.25-176.25	75.2	61.3	27.3	11.4	1.9	51.0	8.4	–
3	248-251	249.25-249.60	67.5	49.2	49.3	12.4	3.5	32.1	2.1	–
5	260-269	262.70-262.70	67.7	49.5	59.2	8.4	6.1	24.6	1.6	–
7	317-326	318.44-320.74	70.0	53.2	64.3	17.7	12.1	3.6	–	2.4
		323.56-323.56	71.3	55.1	44.1	11.7	3.8	29.2	3.3	7.7

<2 μm Fractions

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amorp.	Quar.	Kaol.	Mica	Chlor.	Mont.	Plag.	Paly.	Goet.
1A	30-39	31.40-31.40	85.4	77.2	36.5	11.3	43.5	8.7	–	–	–	
1D	175-183	176.25-176.25	80.9	70.2	4.2	2.0	46.4	9.9	37.5	–	–	
3	248-251	249.25-249.60	84.4	75.6	19.5	13.0	35.9	2.5	14.5^{x}	–	14.6	
5	260-269	262.70-262.70	85.3	77.0	23.5	17.8	34.7	2.3	21.6^{z}	–	–	P
6	288-296	288.52-288.52	88.0	81.2	18.5	17.9	47.4	4.3	–	–	11.9	
		289.32-289.32	87.5	80.5	17.4	19.4	54.6	5.2	3.4	–	–	
		291.80-295.10	86.4	78.8	17.9	25.0	51.4	2.6	3.0	–	–	
7	317-326	318.44-320.74	84.7	76.1	19.9	19.8	39.2	2.1	8.9	1.2	8.9	

^{x}Estimate was made from a 14Å form of montmorillonite. A correction for the 14Å chlorite peak was applied wherever necessary.

^{z}Estimate was made from a 12Å form of montmorillonite.

TABLE 16
Sediment Samples Submitted for X-Ray Diffraction Analysis

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
120	1	CC		69.00
	2	1	90	142.40-142.70
		1	115-116	
	4	1	10	202.60
	7	1	120	231.70
121	1	1	25	61.75-67.65
		2	10	
		3	20	
		4	20	
		5	15	
	2	1	20	69.20-76.80
		2	25	
		3	10	
		4	40	
		5	196(?)	
		6	30	
	3	1	112	158.12-161.75
		2	50	
		3	37	
		4	25	
	4	1	20	247.20-254.90
		2	30	
		3	58	
		4	35	
		5	30	
		6	40	
	5	CC		305.00
	7	1	95	396.95
	8	1	120	442.70
	9	1	112	491.62
	12	CC		601.00
	13	CC		630.00
	14	CC		661.00
	19	No depth given		~736.75
		CC		
	20	CC		770.00
	21	CC		788.00
	22	1	90	819.90
	23	2	110	860.60
	24	1	112	865.30-866.70
		2	110	
122	1	2	133	87.40
	2	2	30	96.80
123	1	1	110	83.60-84.40
		2	40	
	2	1	77	115.22
		CC		116.00
	3	1	104	124.04
	4	2	41	179.40-180.75
		3	25	
	5	1	138	217.40
		2	50	218.00
	6	1	86	271.90
		2	54	274.00
124	1	1	30	118.90-127.10
		2	80	
		5	20	
		6	20	
	2	1	80	197.80-201.80
		4	80	
	3	2	70	305.90
	4	1	84	334.84-339.00
		2	12	
		4	65	
	5	1	123	340.23-340.58
		2	8	
	6	1	64	363.80
	7	1	8	383.40
	10	2	104	403.50

TABLE 16 – *Continued*

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
125	1	2	30	2.30-5.60
		4	60	
	3	2	94	19.44
		5	100	24.00
	4	1	85	26.85
		3	70	29.20-34.00
		4	66	
		6	55	
	5	1	60	40.10
	6	3	40	51.90
	7	4	50	59.50-61.70
		5	120	
125A	1	2	110	38.80
		2	136	39.06
	2	1	100	46.00
		2	67	47.17
	3	1	100	52.50
	4	1	40	59.40-61.80
		2	130	
	5	2	44	66.90
	6	1	60	79.00
	7	CC		88.70
126	1	2	50	36.00-42.60
		3	115	
		4	73	
		5	105	
		6	90	
	2	3	74	76.24
		4	135	78.35-79.05
		5	55	
	3	2	40	104.90
	5	CC		128.00
127	1	2	22	21.22-21.28
			28	
		5	70	26.20
	2	3	75	30.75
		4	140	32.90
	4	1	70	83.70
	5	3	143	96.43-100.55
		4	110	
		6	105	
	6	2	30	102.80
		3	60	104.60
			140	105.40
		4	90	106.40
	7	1	80	158.80-163.10
		4	60	
		6	50	166.00
	8	3	26	170.26
		5	75	173.75
	9	1	90	224.90
	10	1	50	275.50-276.07
			107	
		2	100	277.50
		5	50	281.50
		6	130	283.80
	11	1	90	299.90
	12	4	60	335.10
	13	1	123	372.73
	14	2	75	375.25
		3	12	376.12
		3	75	376.75
		6	50	381.00
	15	1	130	421.30-424.00
		3	100	
	16	1	15	427.65
	17	1	30	433.80
	18	1	68	435.18
	19	1	60	436.90

TABLE 16 – *Continued*

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
127A	2	2	60	22.60
	3	2	80	
		4	90	48.30-54.20
		6	70	
	4	1	64	
		2	70	73.74-78.20
		4	65	
128	1	2	70	24.20
		3	20	25.20
	2	1	50	51.50-57.62
		5	60	
	3	1	75	79.75
		4	130	84.80
		5	45	85.45
		6	80	87.30
	4	1	44	107.44
		1	145	111.45
		4	60	115.10
	5	1	50	144.50-145.75
		2	25	
		6	51	152.01
	6	2	30	193.80-199.90
		6	40	
	7	1	70	246.70-254.10
		6	60	
	8	1	80	307.80
		4	110	312.60
	9	1	137	368.87
	10	2	67	420.17
		3	50	421.50
		4	100	423.50
	11	1	80	474.80-476.94
		2	144	
		3	144	478.44
129	1	1	80	38.80
	2	1	76	39.76
		1	110	40.10
	3	1	40	94.40
		1	142	95.42
129A	3	1	10	79.60
129B	CB1	Intermediate Depth		~34.00
130	1	2	60	15.10
		3	34	16.34
		4	90	18.40
	2	1	130	50.30
		3	45	52.45
		3	74	52.74
		3	90	52.90
	3	1	115	78.15
		2	75	79.25
		2	104	79.54
	4	2	120	149.70
	5	2	88	260.88-262.06
		3	56	
	6	1	80	411.30
		2	100	
		3	45	412.50-416.70
		5	20	
130A	1	1	20	0.20
		1	71	0.71
		Core Bit		Depth unknown
131	1	3	27	33.27
		6	44	37.94
131A	1	2	5	48.55
		2	88	49.38
	3	1	142	141.42
	4	1	130	207.30
		2	60	208.10

TABLE 16 – *Continued*

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
131A		3	125	210.25
	5	1	120	264.20-264.63
		2	13	
132	1	1	15	0.15
		2	55	2.05
		3	36	3.36
		3	90	3.90
		5	110	7.10
	2	1	114	10.14-11.60
		2	110	
		4	103	14.53
	3	1	140	19.40
	4	2	34	28.84
		4	115	32.65
		6	60	35.10
	5	2	108	38.58
	6	3	96	48.96
		4	100	
		5	130	50.50
		6	120	
	7	1	49	54.49
		4	130	59.86-62.00
		6	50	
	8	4	60	
		5	100	68.10-71.00
		6	50	
	9	2	80	
		3	85	75.30-80.22
		6	72	
	10	1	100	
		3	80	82.00-86.00
		5	100	
	11	5	40	96.40
	12	1	130	
		2	134	
		3	100	100.30-106.00
		4	120	
		6	10	
	13	2	50	110.00
	14	1	140	
		2	70	118.40-120.66
		3	66	
	15	1	90	
		3	46	126.90-134.90
		4	90	
		6	140	
	16	3	70	138.70-139.25
		5	25	
	17	1	110	145.10-148.62
		4	12	
	18	2	100	155.50-161.16
		6	66	
	19	2	100	164.50
		3	135	166.35
	20	2	110	173.60-174.30
		3	30	
		4	16	175.66
		4	50	176.00
	21	1	60	180.60
		2	3	181.53
		2	130	182.80
	25	1	65	207.65
		2	90	209.40
	26	1	116	215.16
	27	1	148	221.48
		2	107	222.57
133	1	2	40	50.90
	3	1	120	64.20

TABLE 16 – *Continued*

Hole	Core	Section	Depth in Section (cm)	Depth Below Sea Floor (m)
133	4	1	115	73.15
	5	1	55	91.55
		1	140	92.40
	6	1	120	110.20
	7	1	44	138.44-138.45
			45	
		1	104	139.04
134	3	1	125	249.25-249.60
		2	10	
	5	2	120	262.70
	6	1	52	288.52
		1	132	289.32
		3	80	291.80-295.10
		5	110	
	7	1	144	318.44-320.74
		3	72-74	
	7	5	56	323.56
134A	1	1	140	31.40
134D	1	1	125	176.25

TABLE 17
Drilling Mud and Cement Utilization, Leg 13

Hole Number	Montmorillonite Drilling Mud	Mud with Barite	Cement
121			X
123	X	X	
124		X	
127A		X	
128		X	X
130		X	X
131A	X		X
132			X
133	X		
134			X
134B	X		

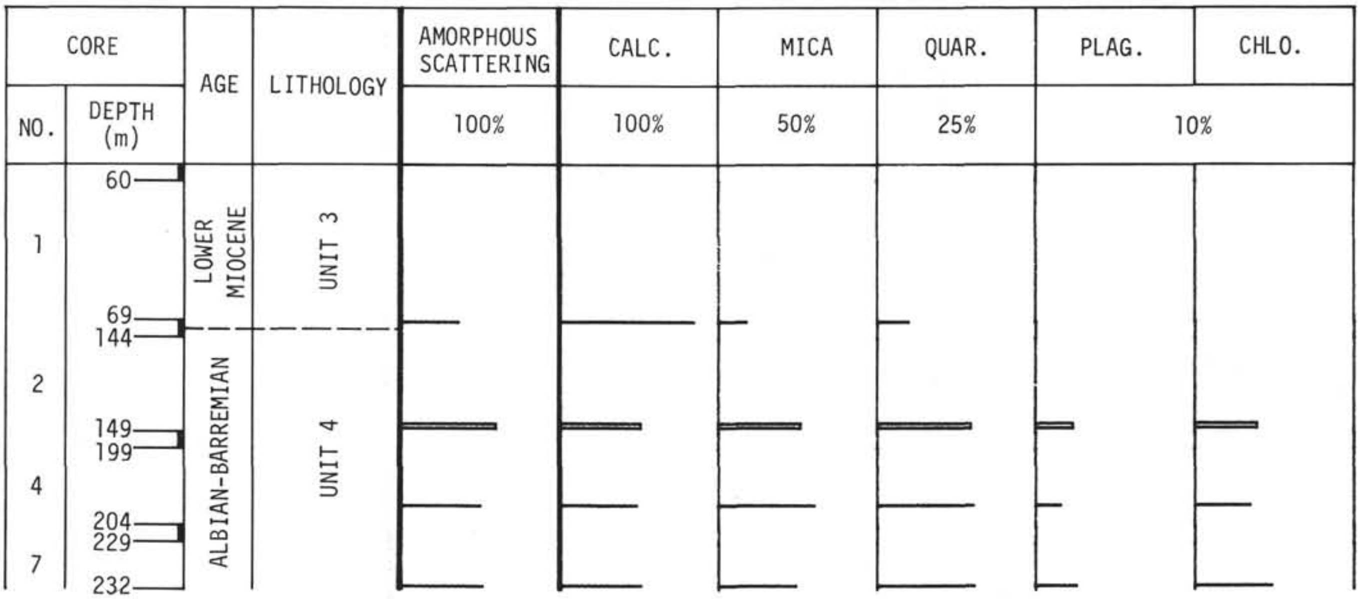

Figure 1. *Site 120, bulk samples.*

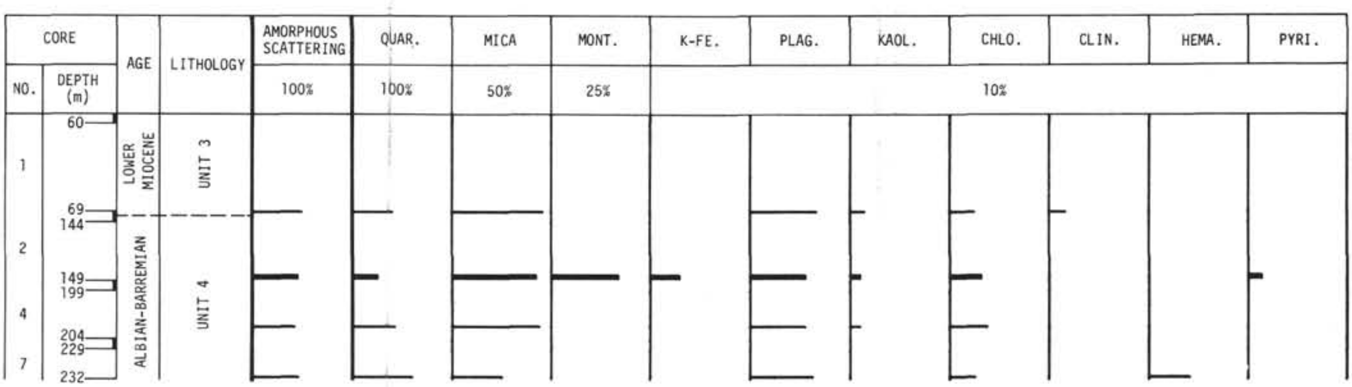

Figure 2. *Site 120, 2-20 μm fractions.*

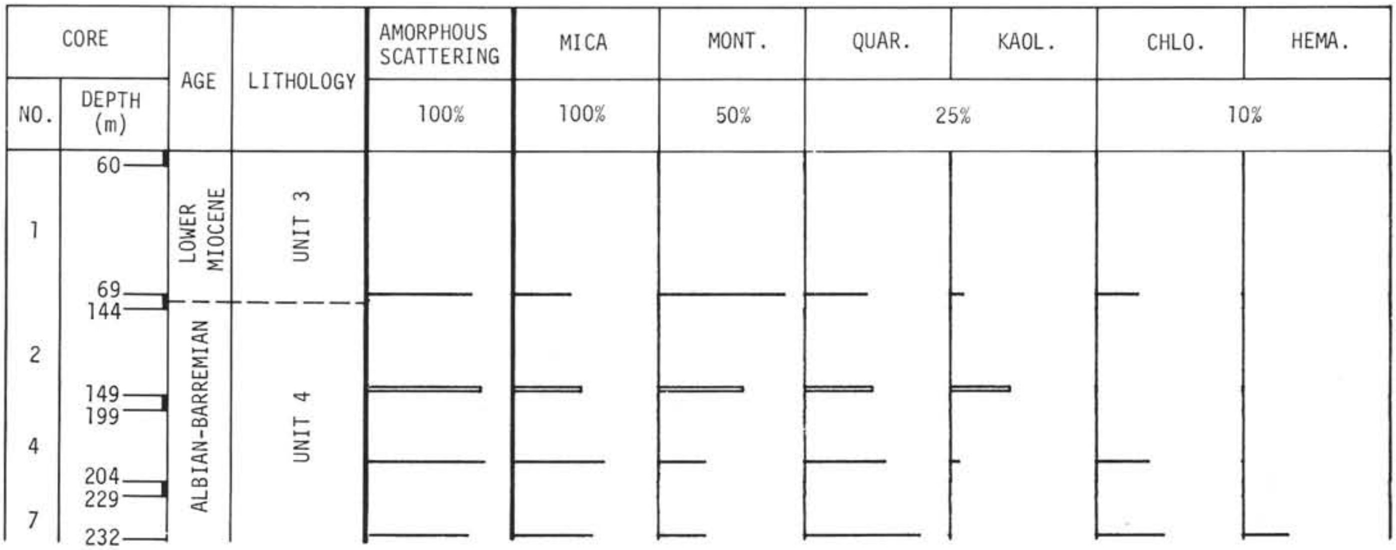

Figure 3. *Site 120, <2 μm fractions.*

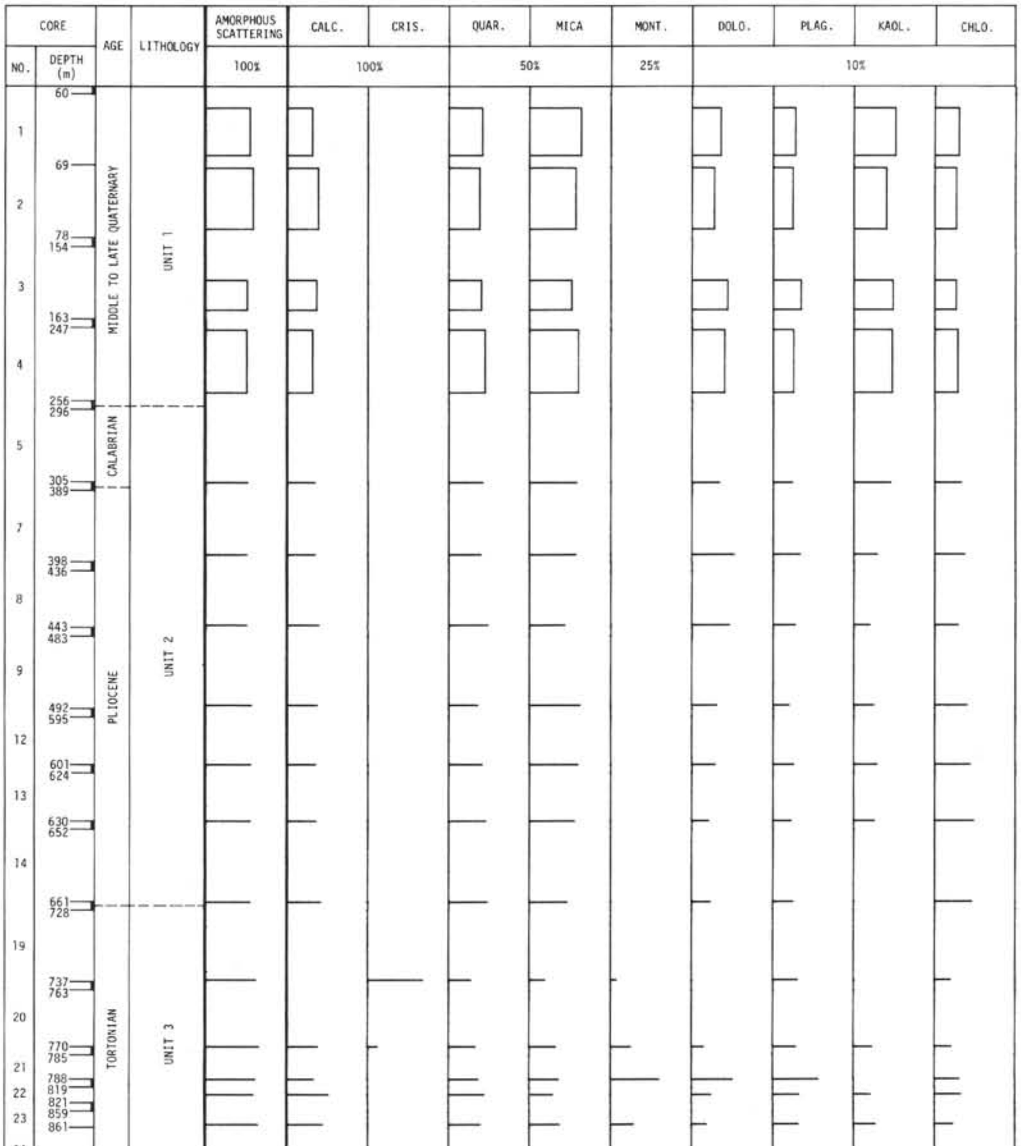

Figure 4. *Site 121, bulk samples.*

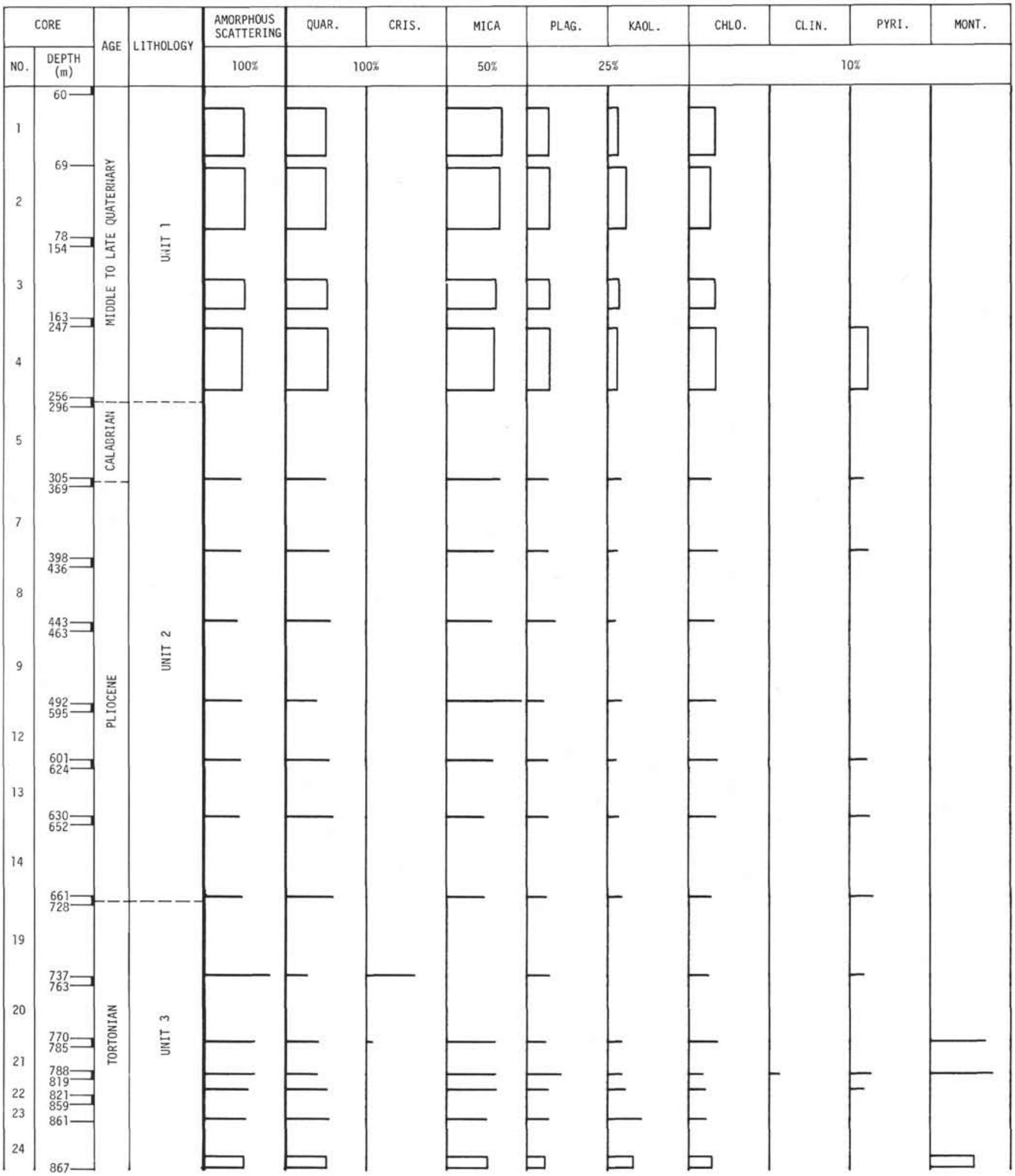

Figure 5. *Site 121, 2-20 µm fractions.*

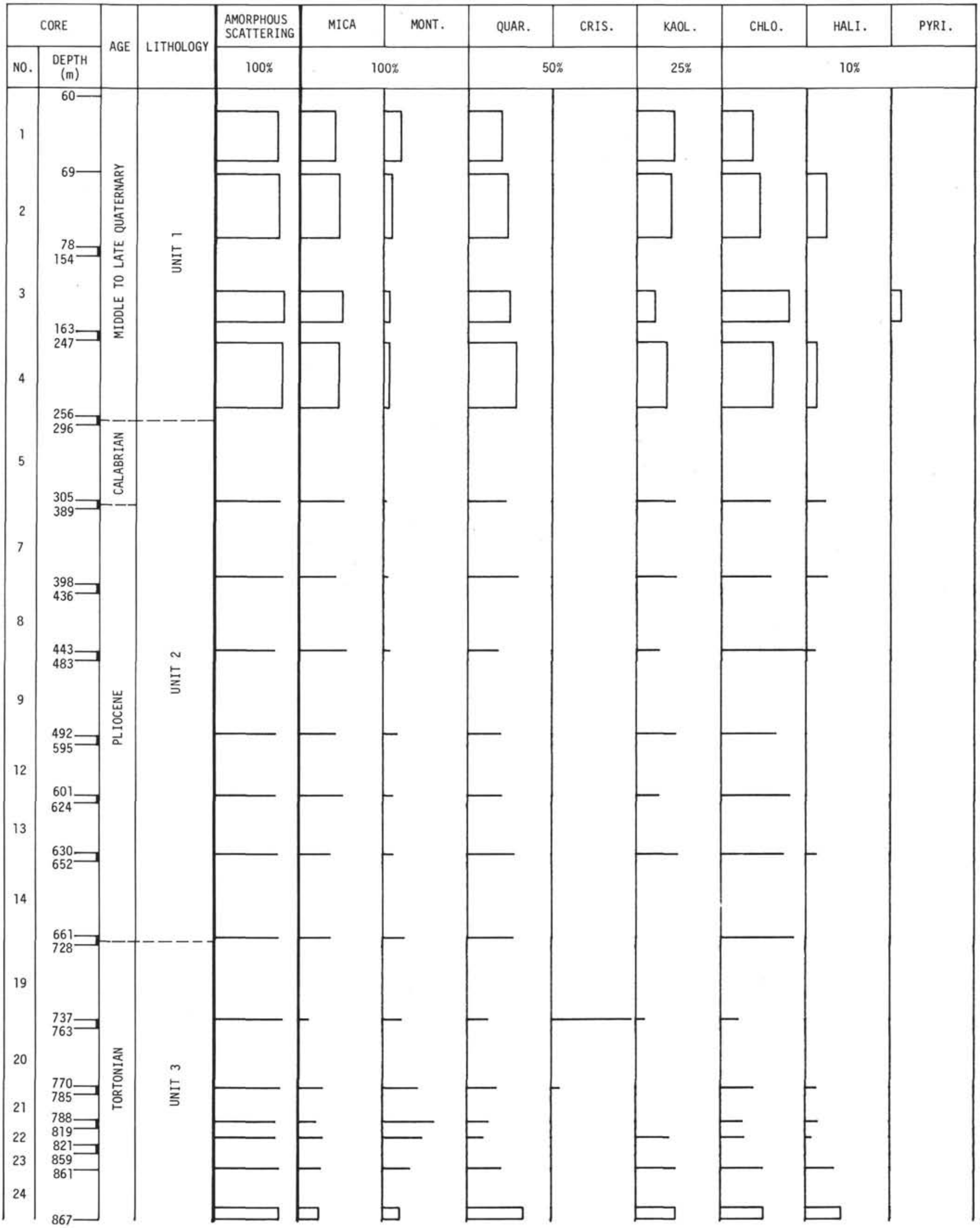

Figure 6. *Site 121, <2 μm fractions.*

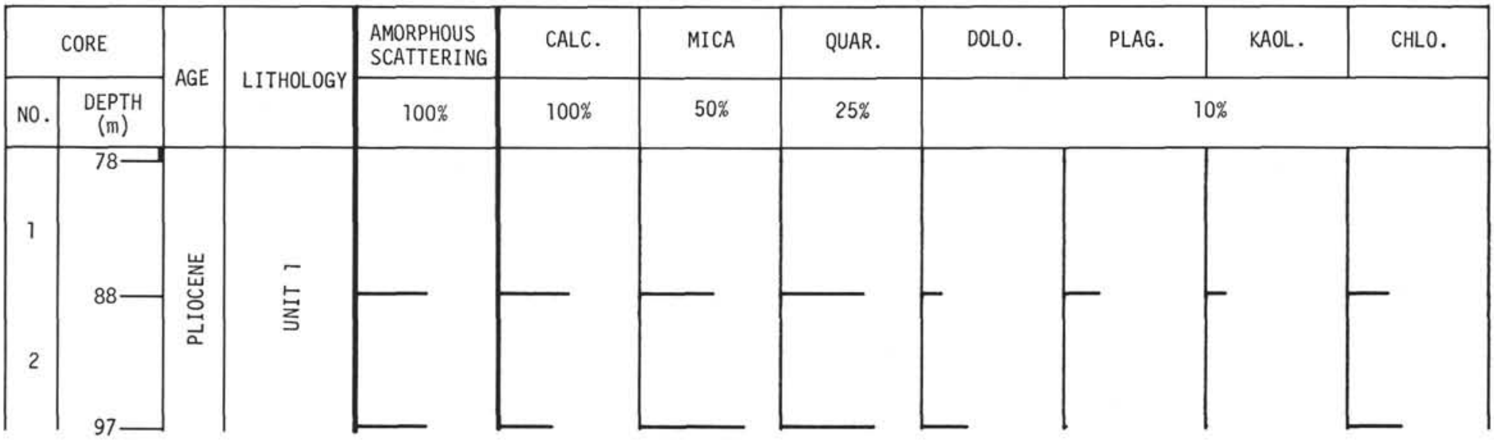

Figure 7. *Site 122, bulk samples.*

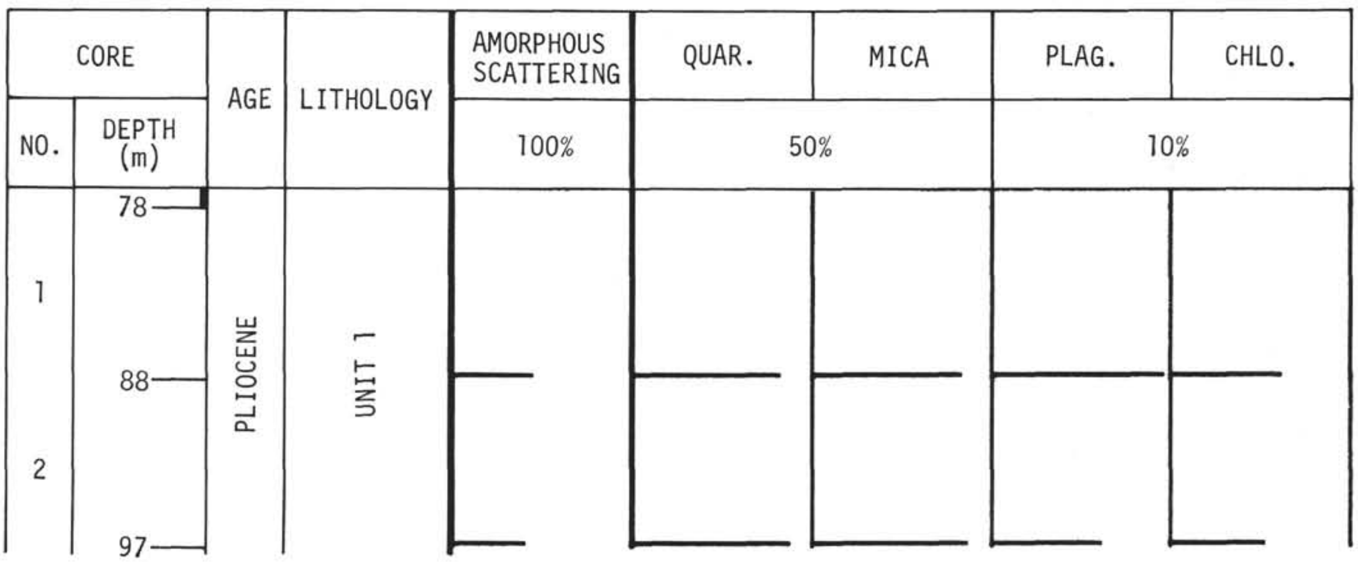

Figure 8. *Site 122, 2-20 µm fractions.*

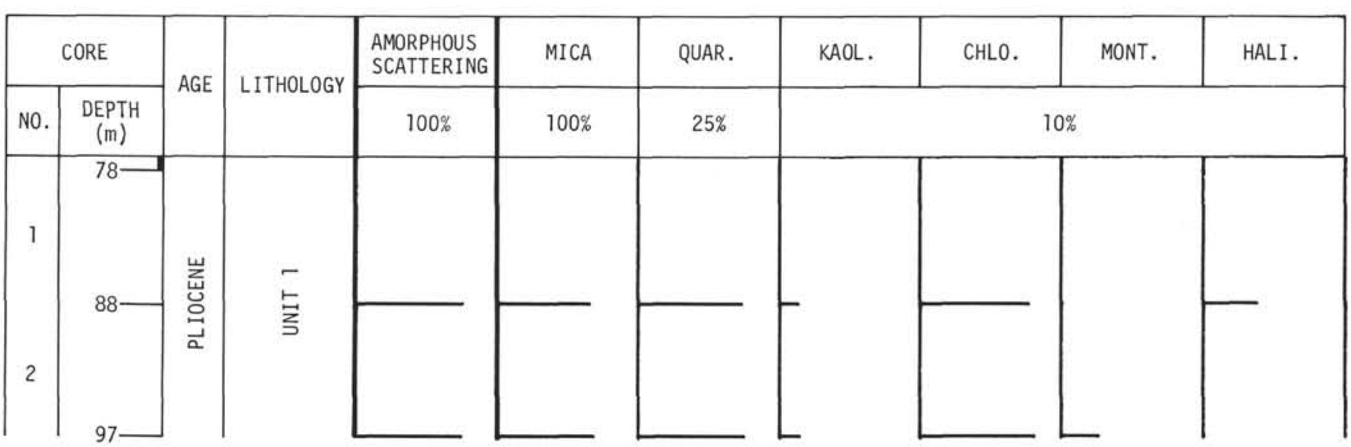

Figure 9. *Site 122, <2 µm fractions.*

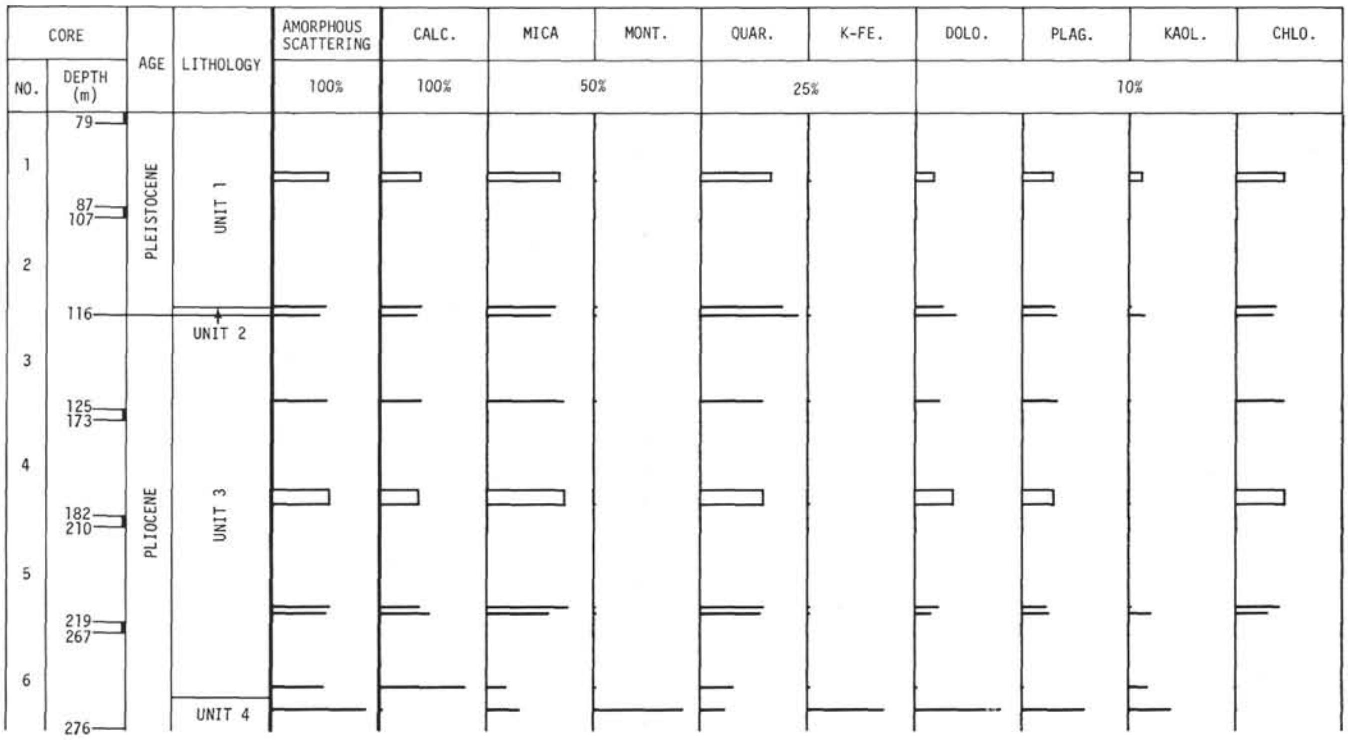

Figure 10. *Site 123, bulk samples.*

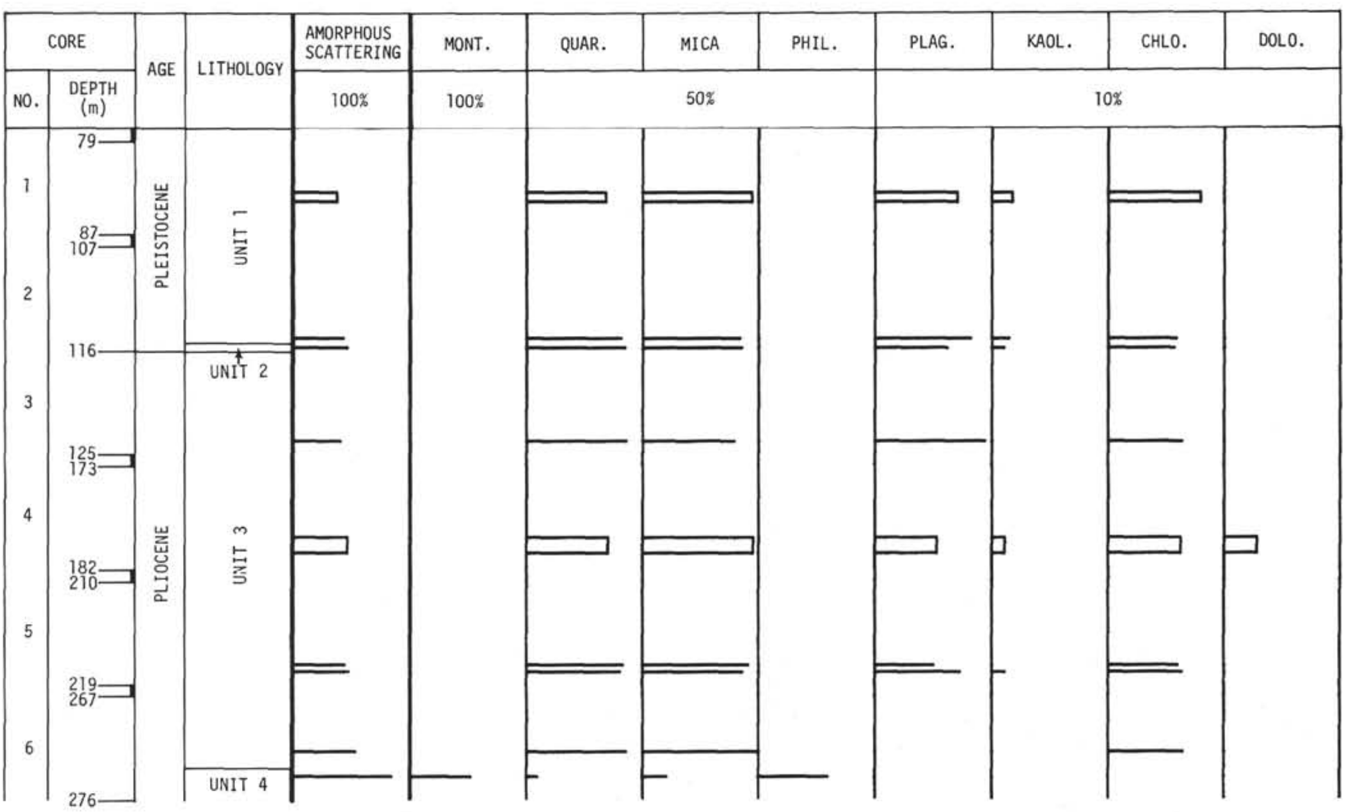

Figure 11. *Site 123, 2-20 μm fractions.*

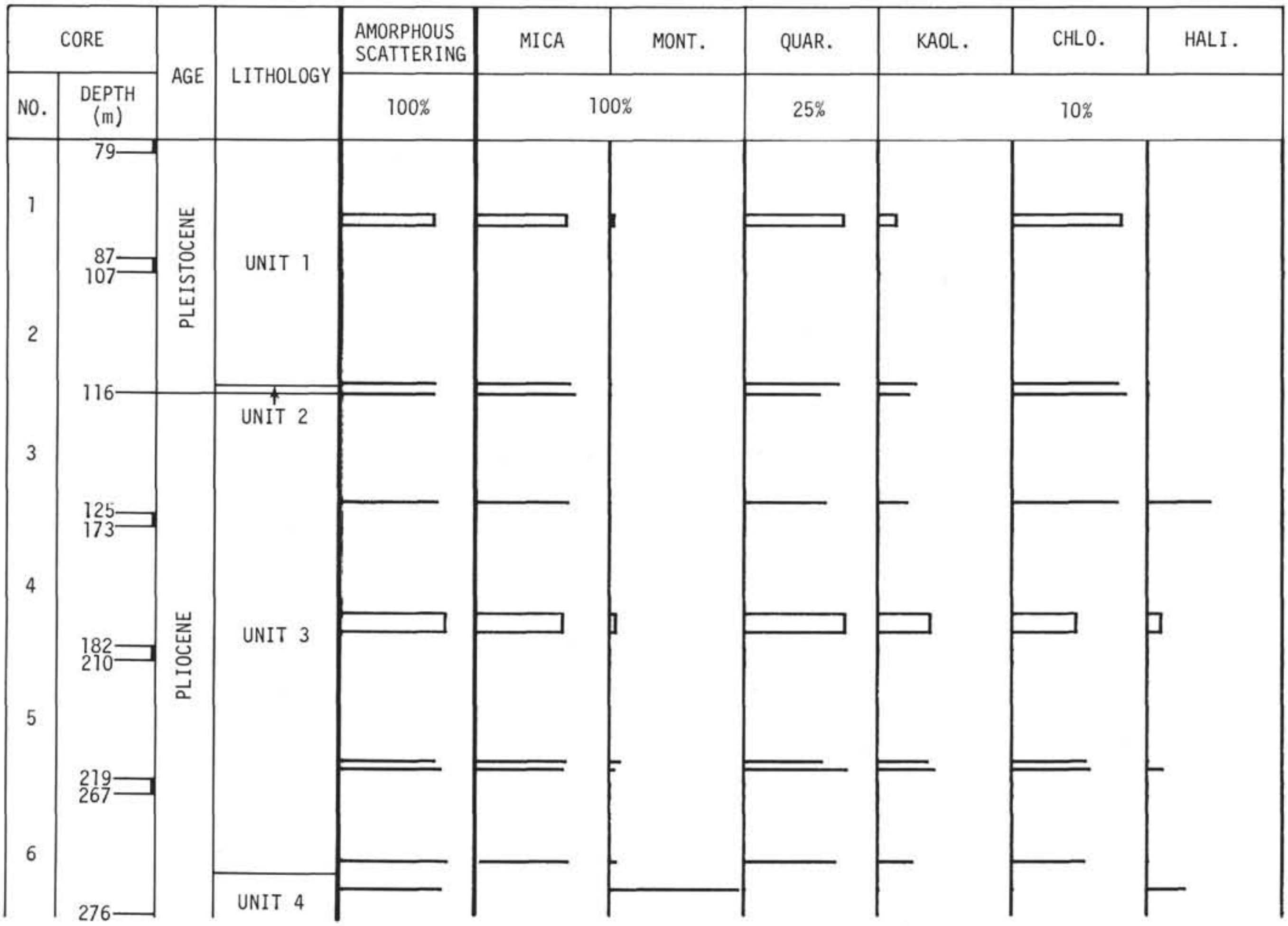

Figure 12. *Site 123, <2 μm fractions.*

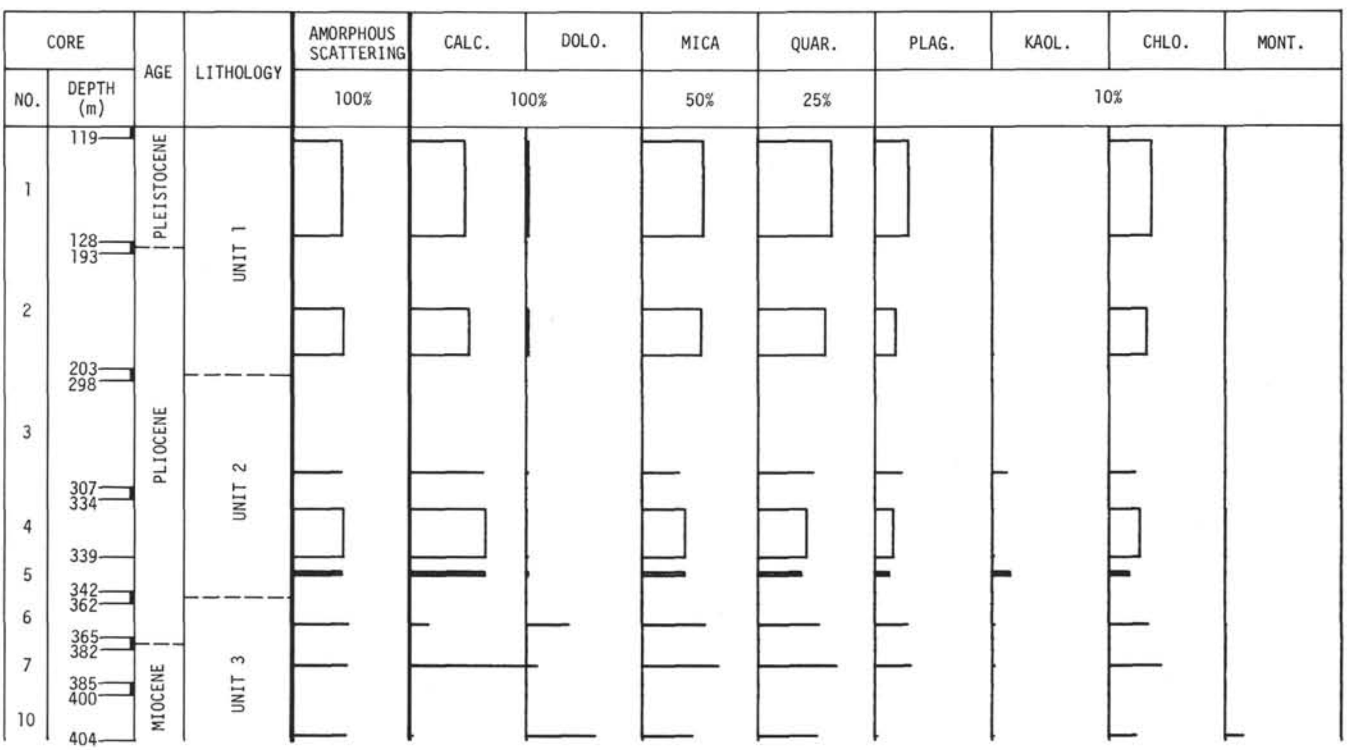

Figure 13. *Site 124, bulk samples.*

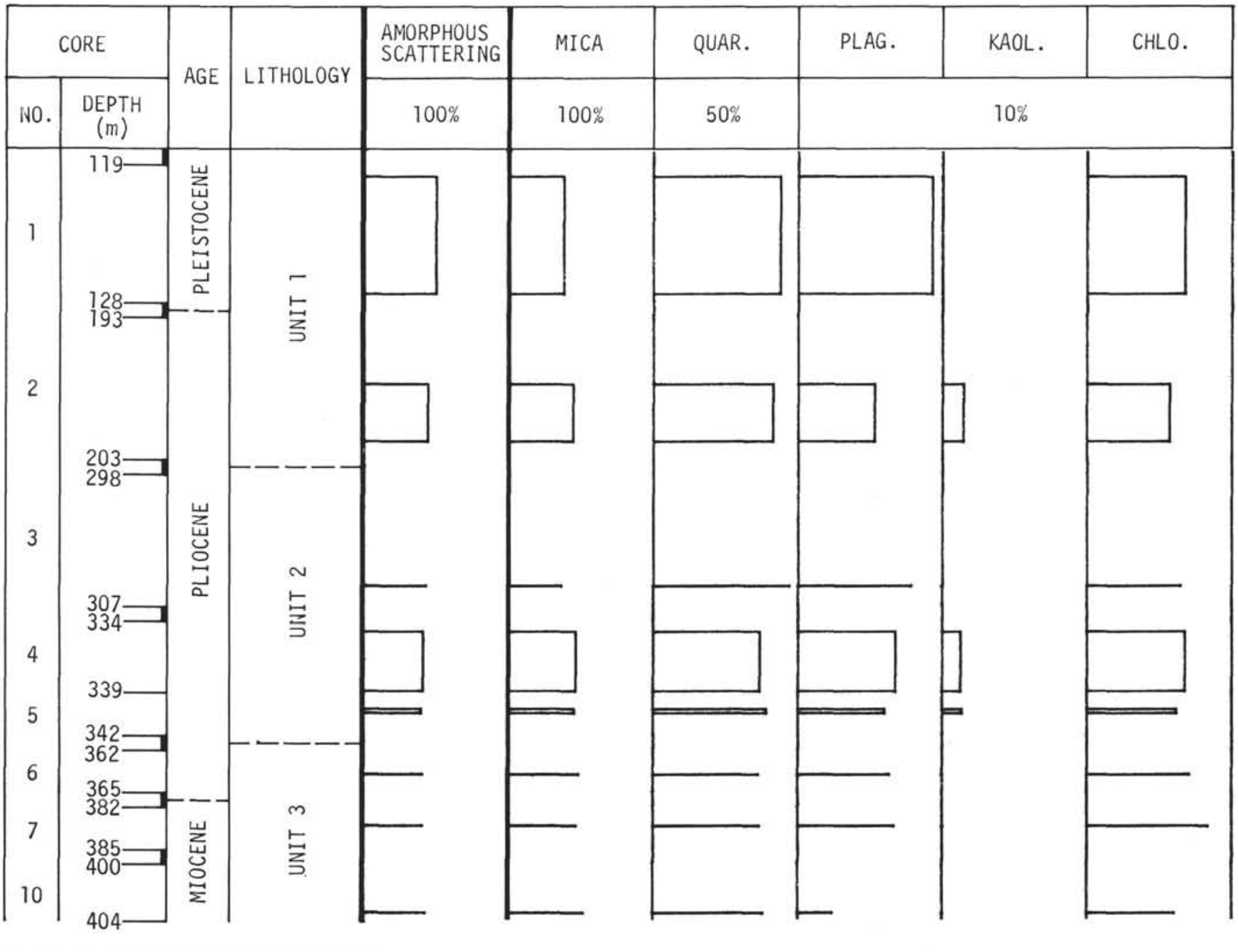

Figure 14. *Site 124, 2-20 μm fractions.*

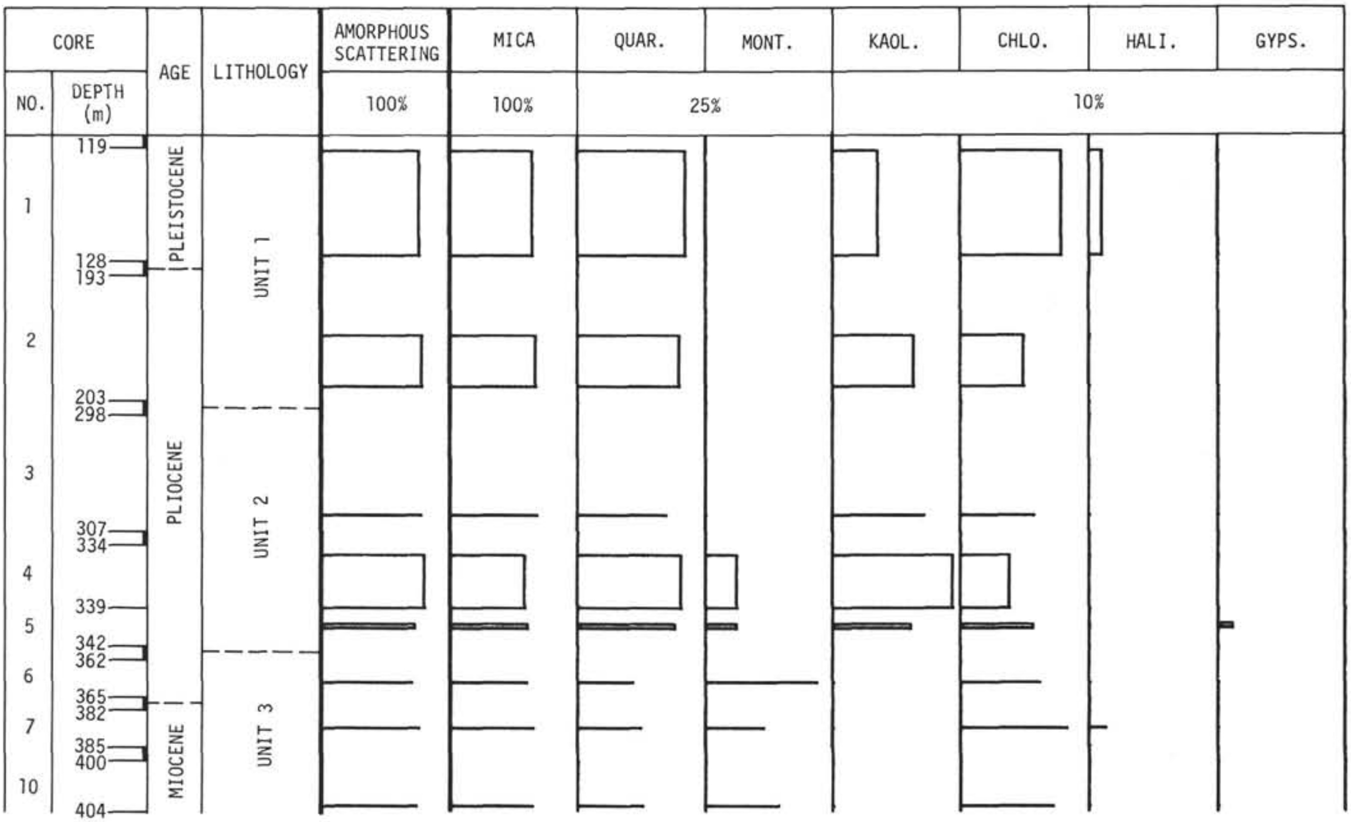

Figure 15. *Site 124, <2 μm fractions.*

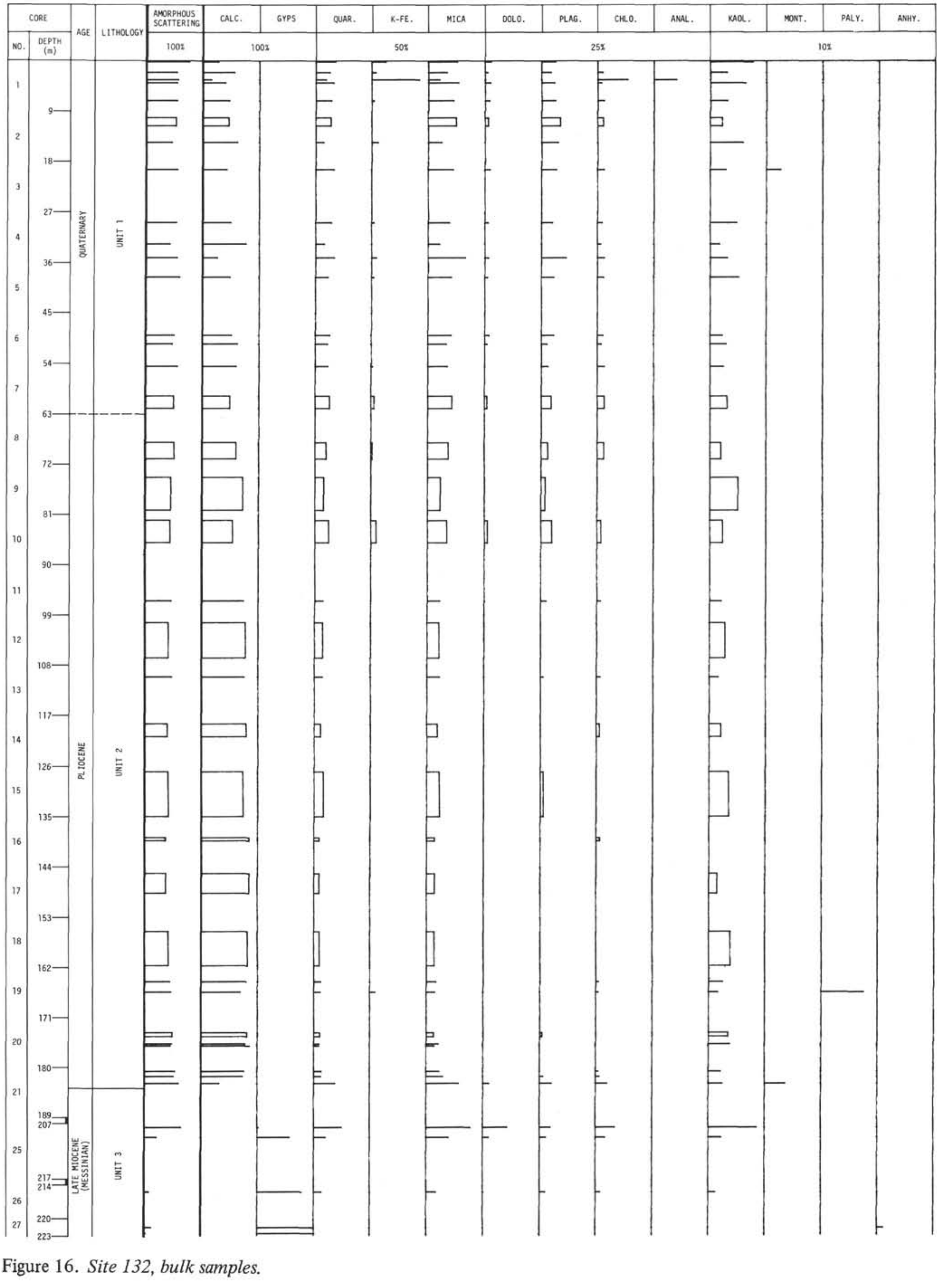

Figure 16. *Site 132, bulk samples.*

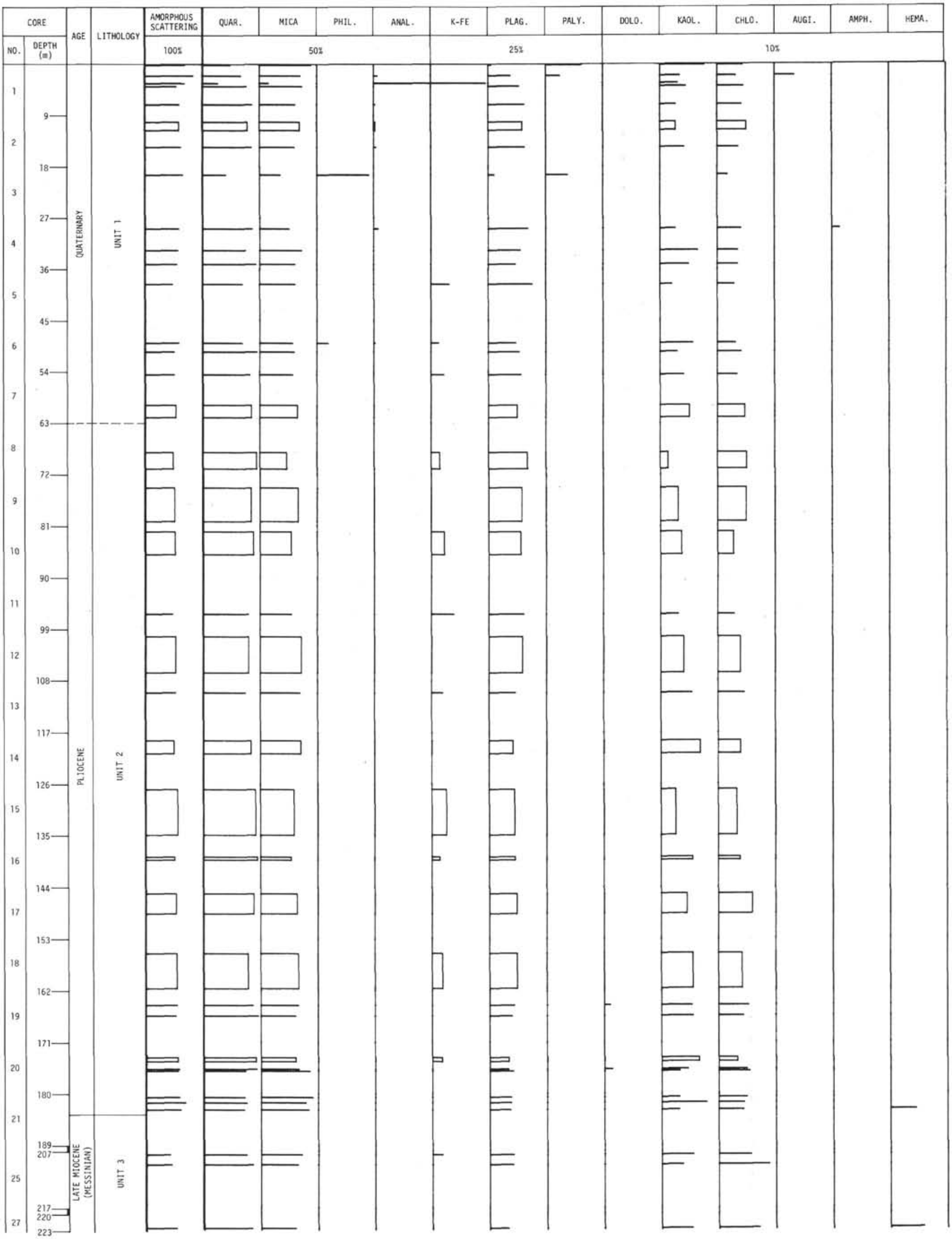

Figure 17. *Site 132, 2-20 μm fractions.*

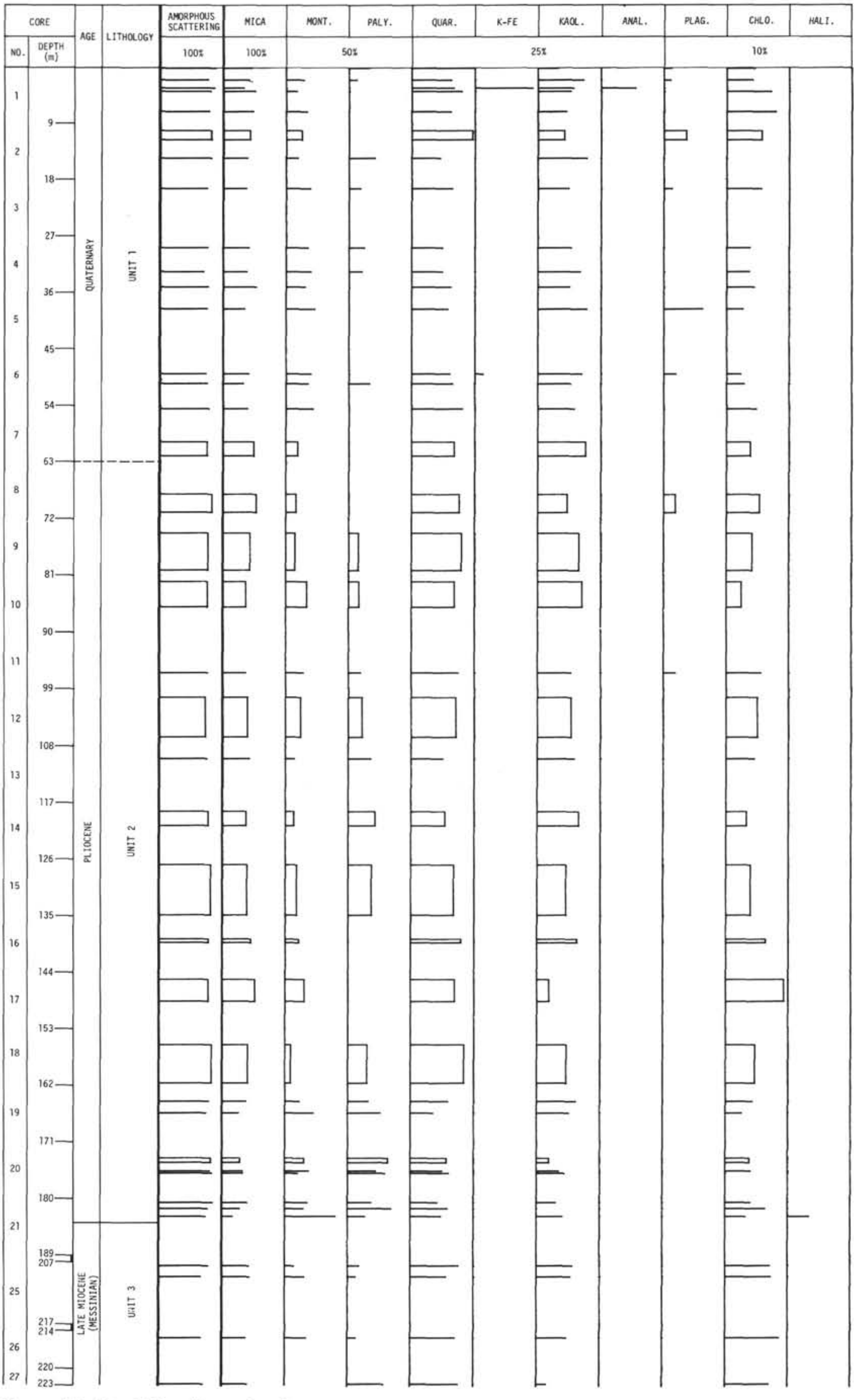

Figure 18. *Site 132, <2 μm fractions.*

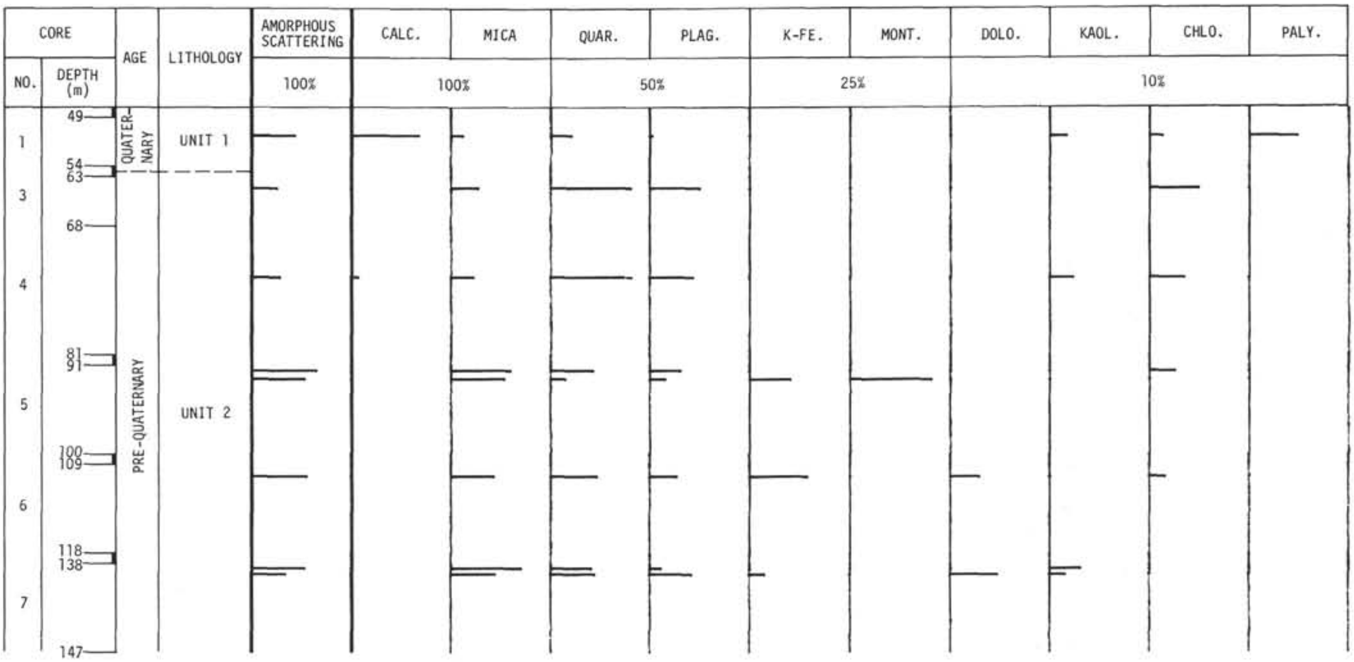

Figure 19. *Site 133, bulk samples.*

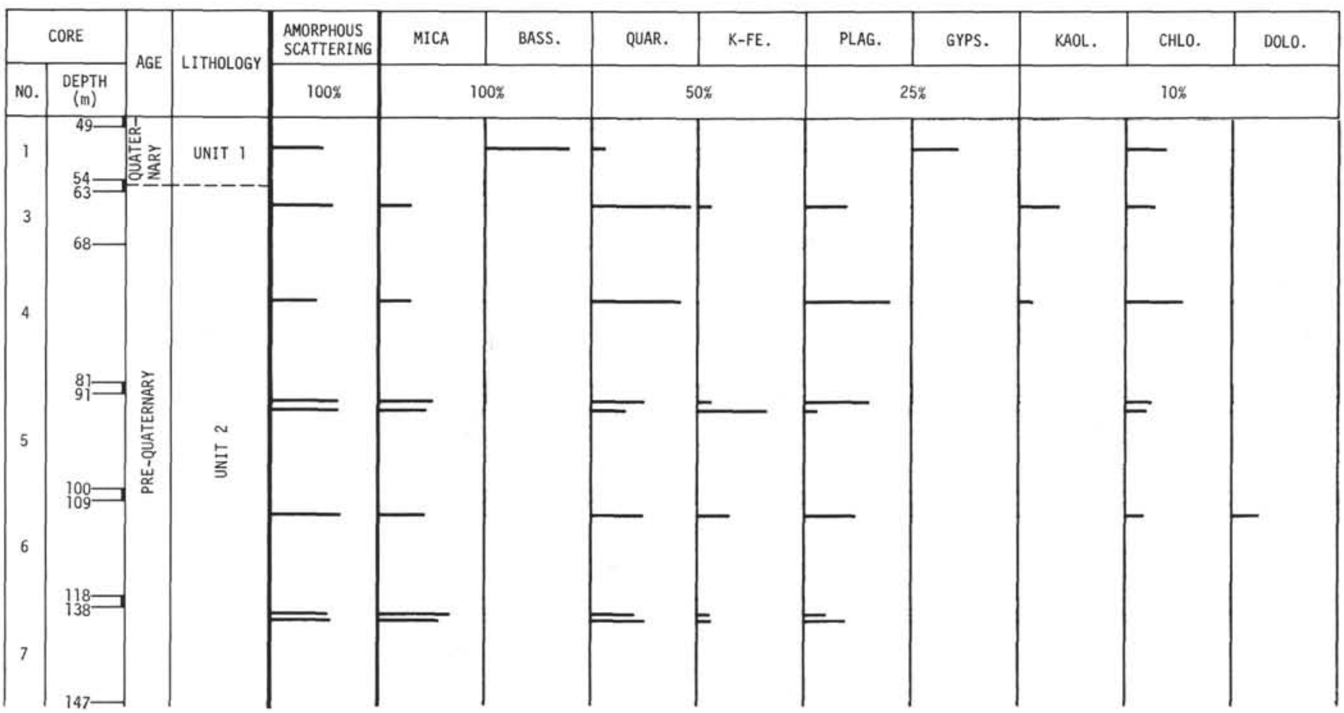

Figure 20. *Site 133, 2-20 μm fractions.*

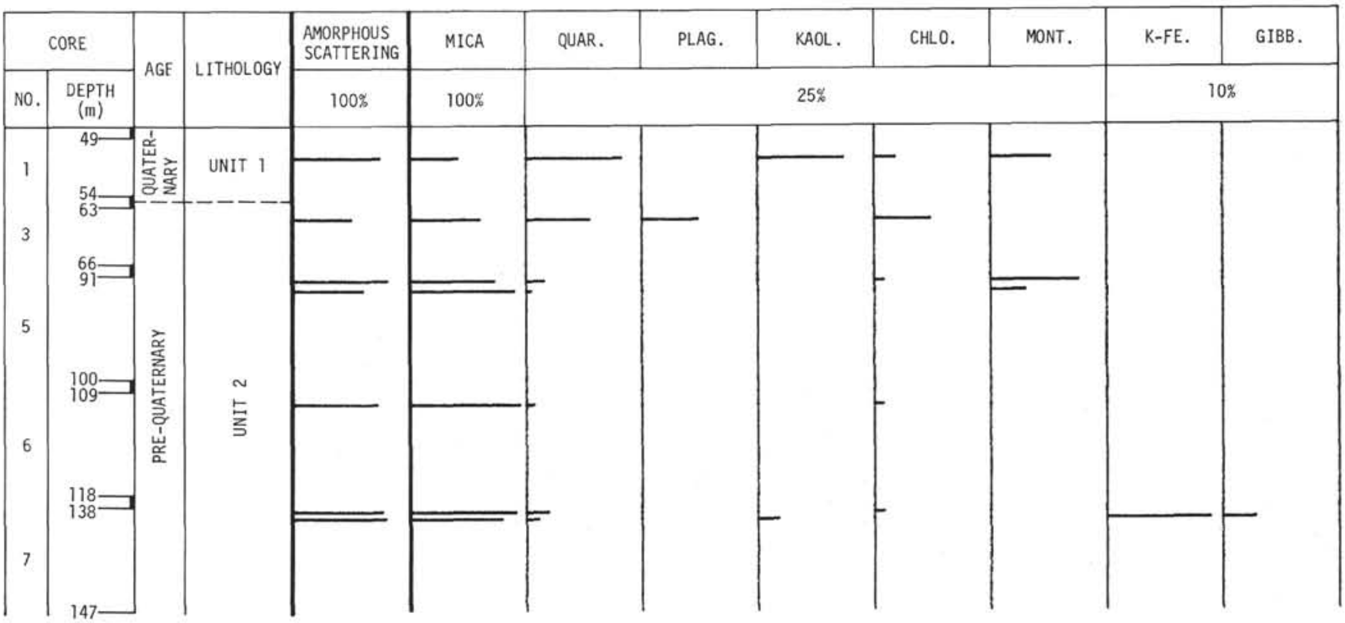

Figure 21. *Site 133, <2 μm fractions.*

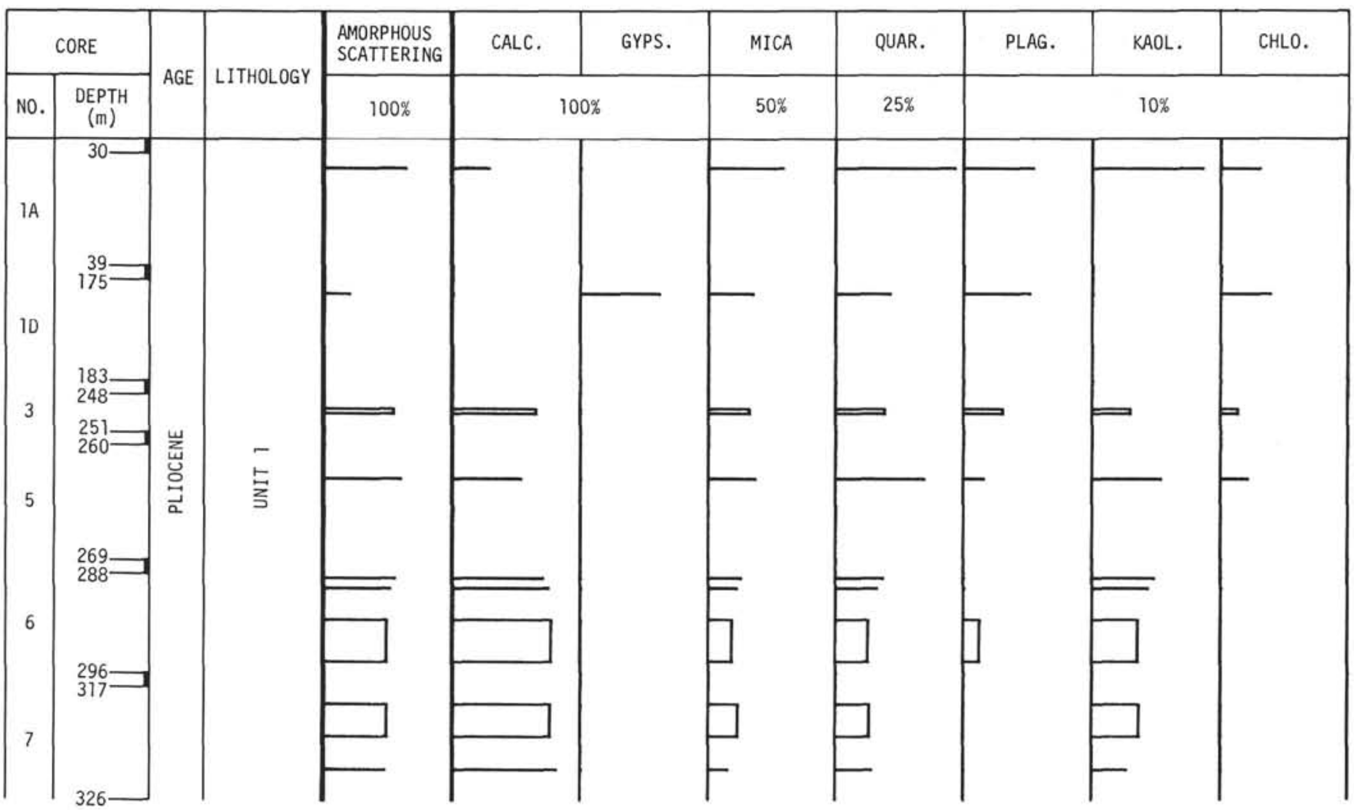

Figure 22. *Site 134, bulk samples.*

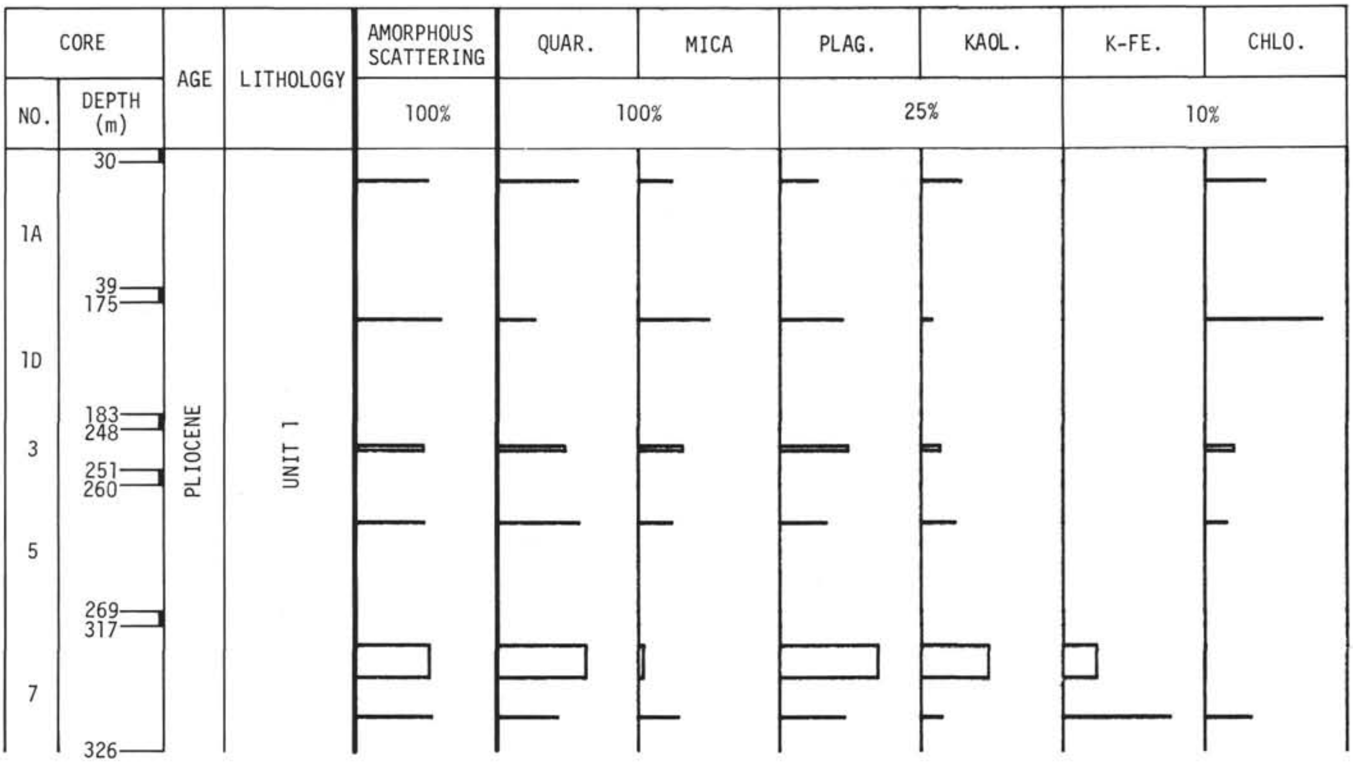

Figure 23. *Site 134, 2-20 µm fractions.*

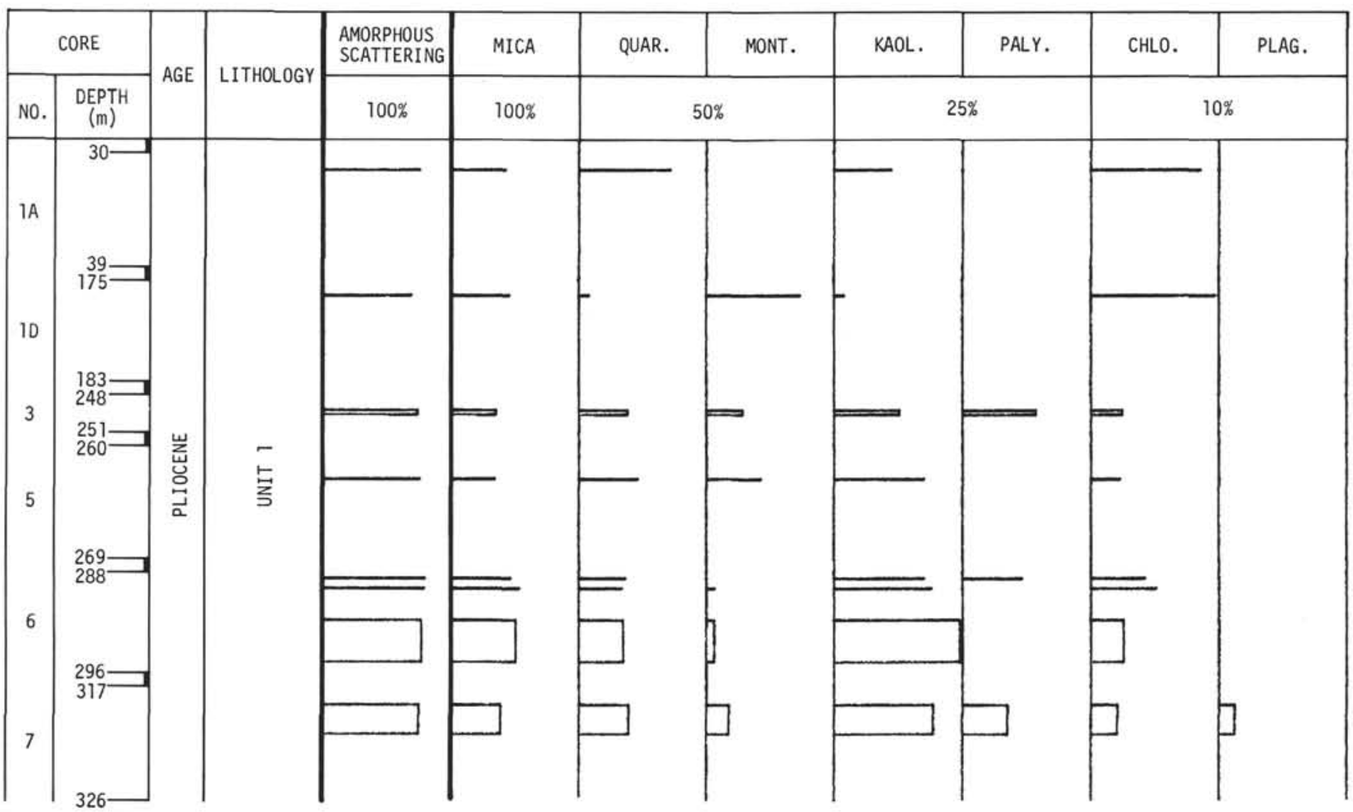

Figure 24. *Site 134, <2 µm fractions.*

Figure 25. *Site 125, bulk samples.*

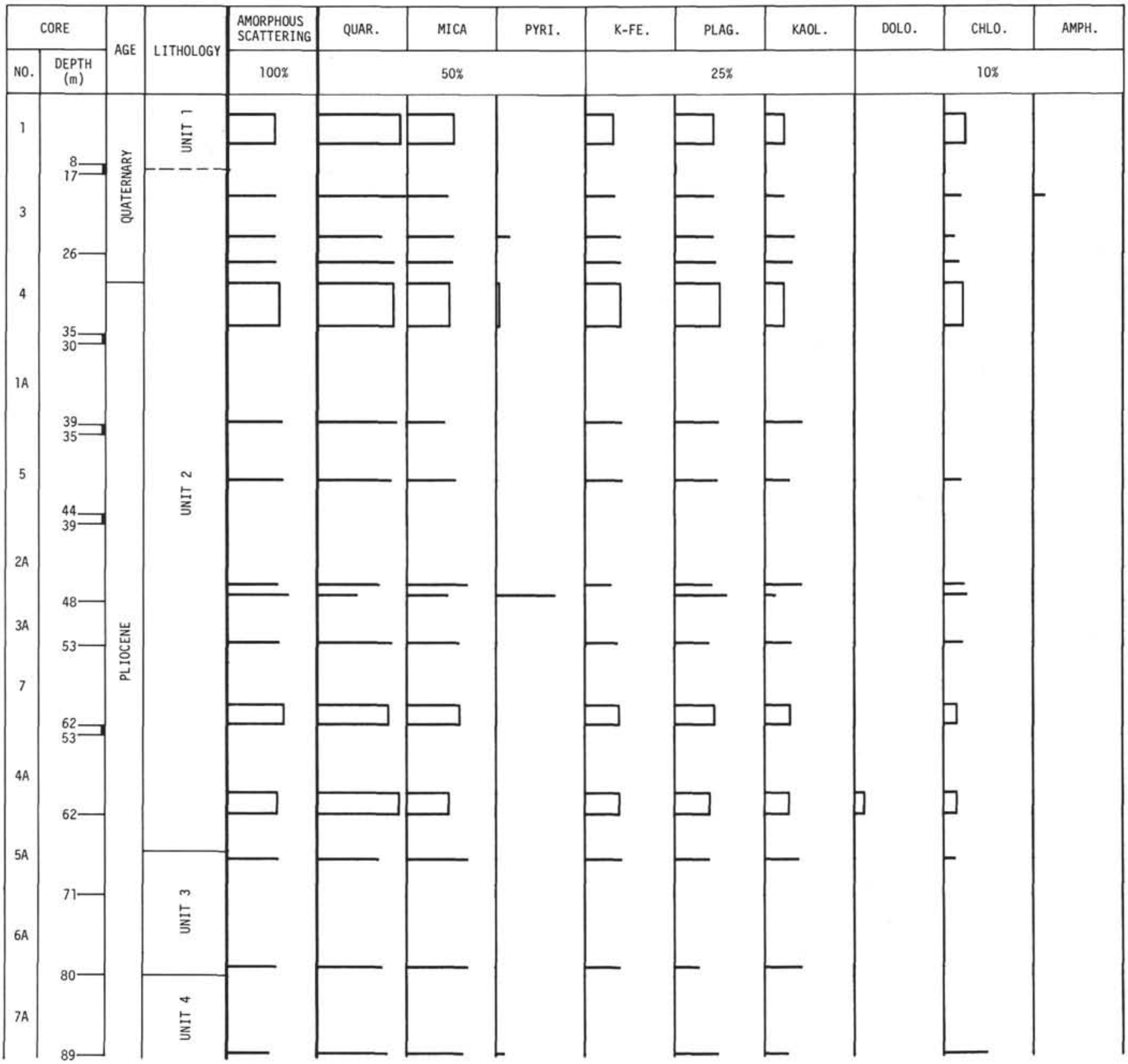

Figure 26. *Site 125, 2-20 μm fractions.*

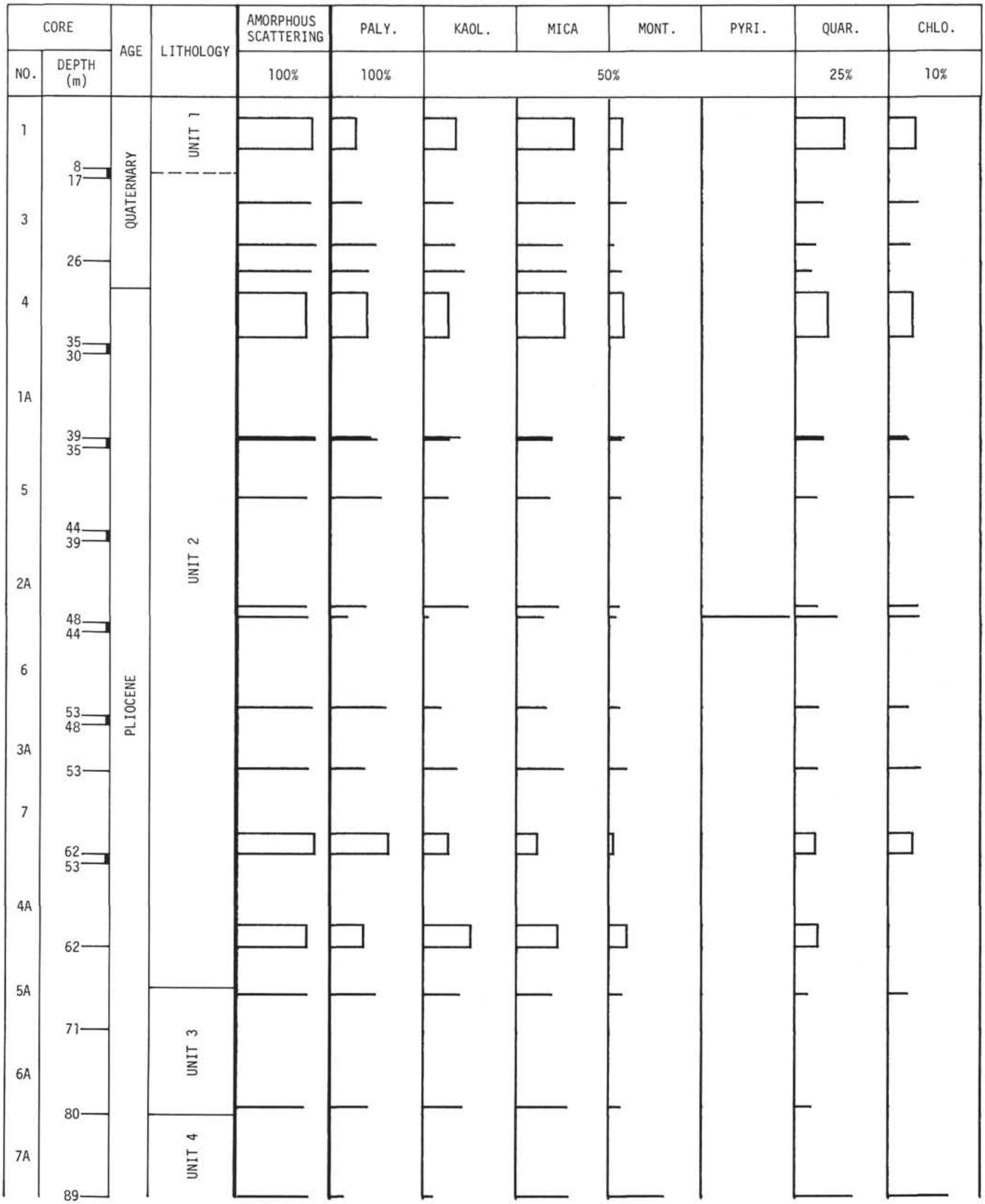

Figure 27. *Site 125, <2 μm fractions.*

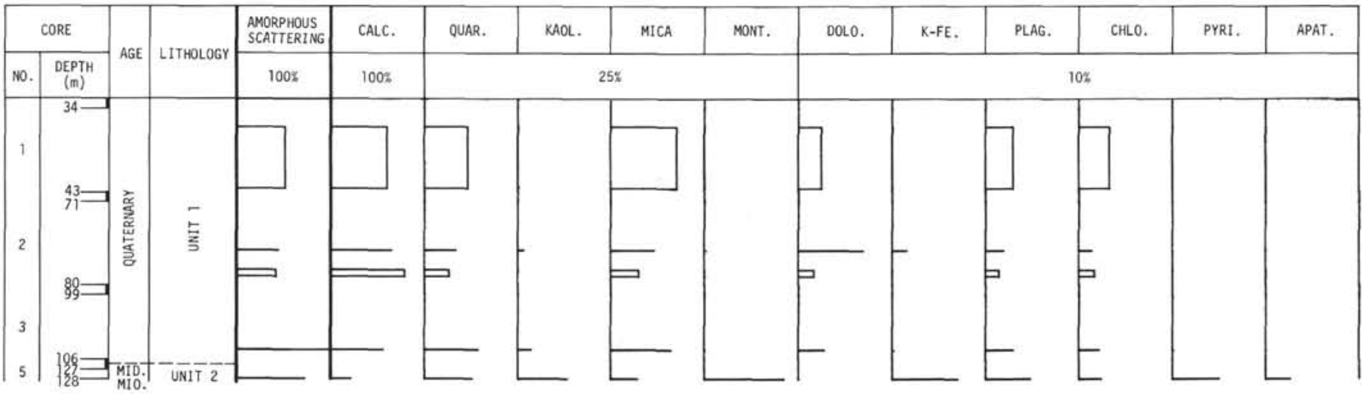

Figure 28. *Site 126, bulk samples.*

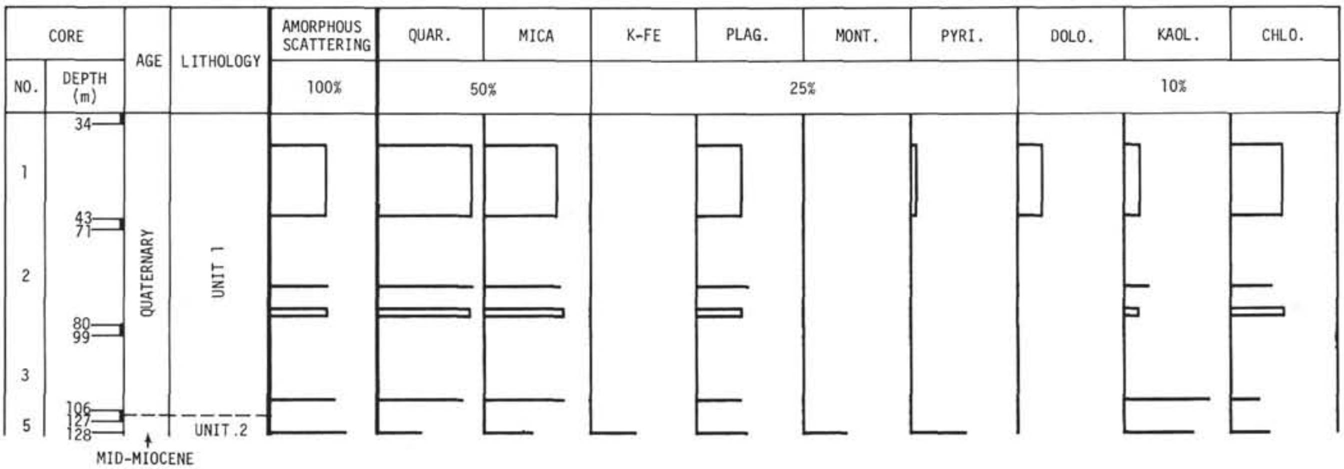

Figure 29. *Site 126, 2-20 μm fractions.*

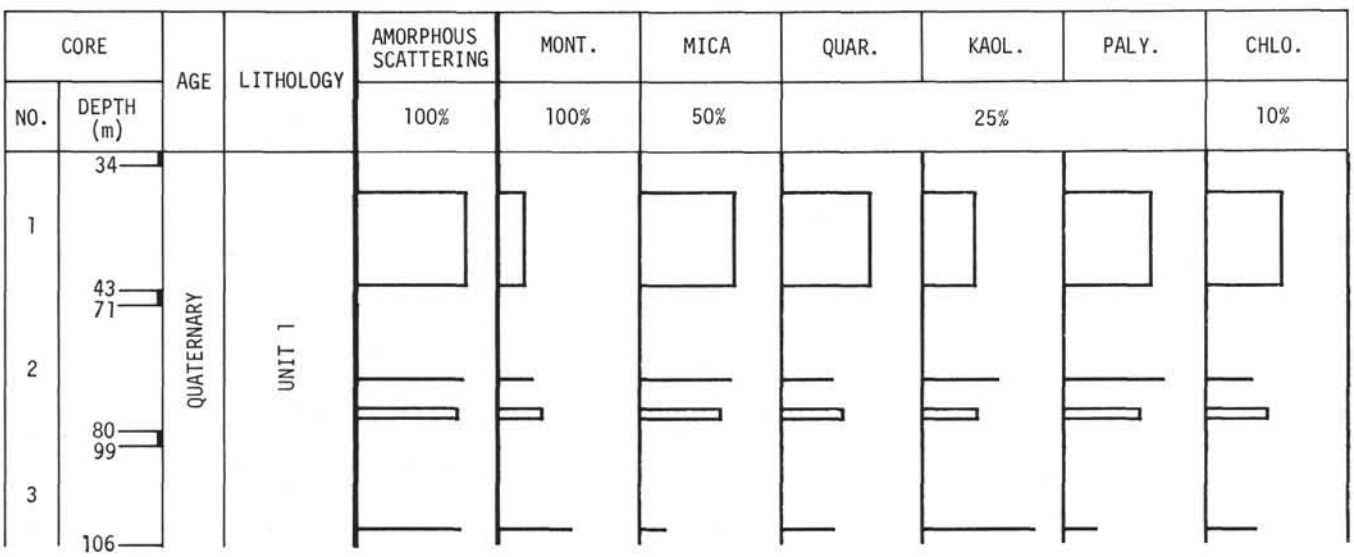

Figure 30. *Site 126, <2 μm fractions.*

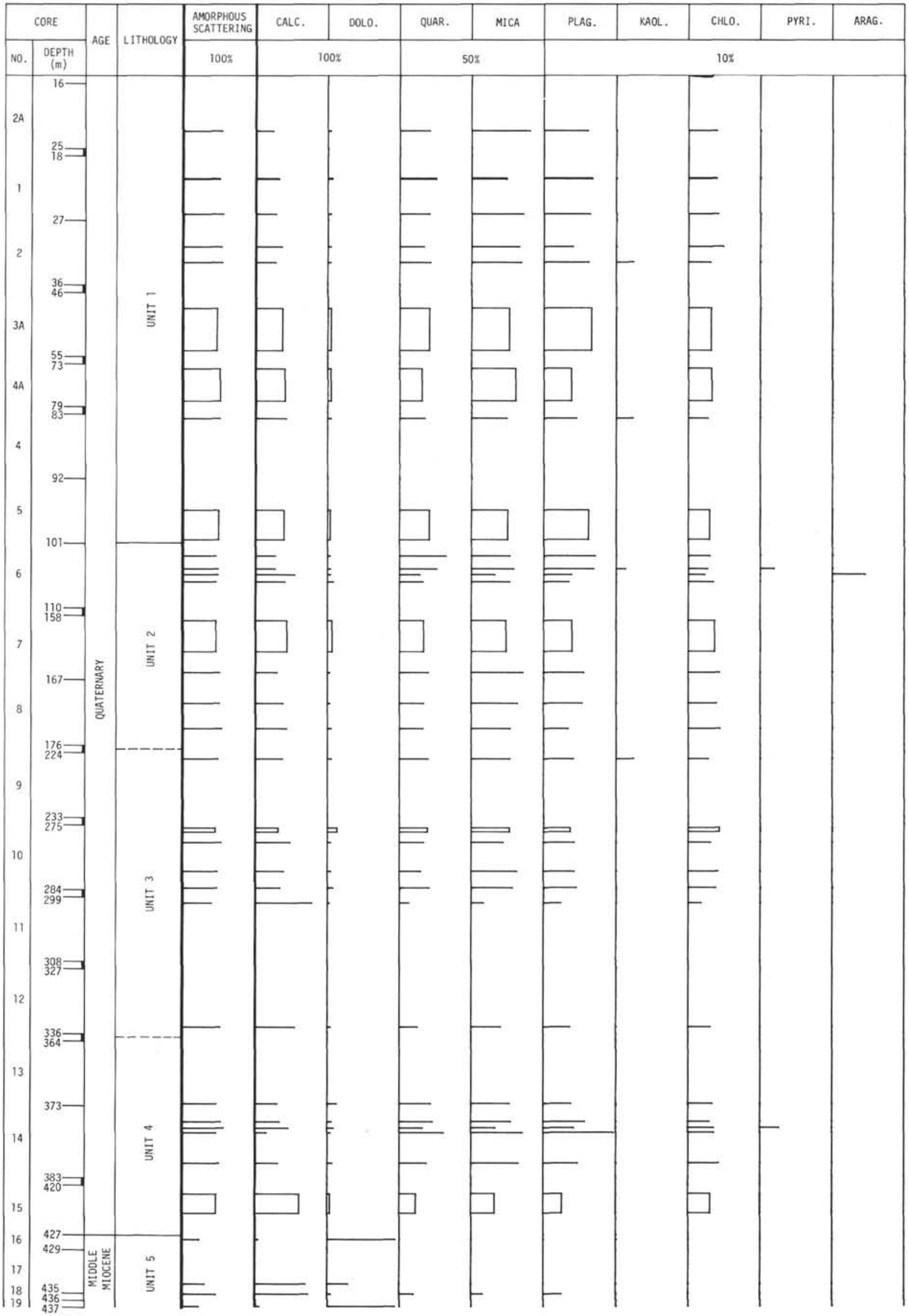

Figure 31. *Site 127. bulk samples.*

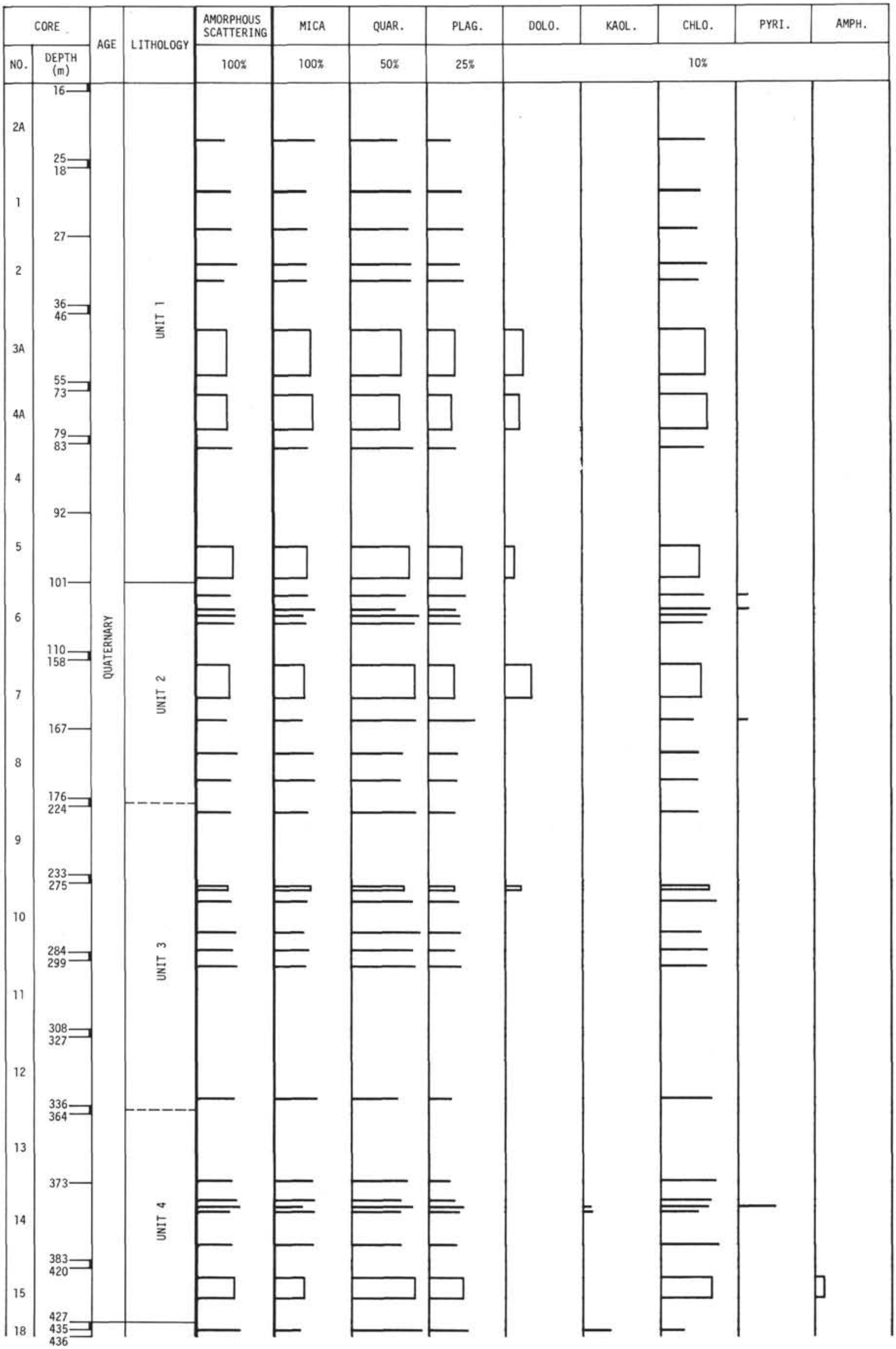

Figure 32. *Site 127, 2-20 µm fractions.*

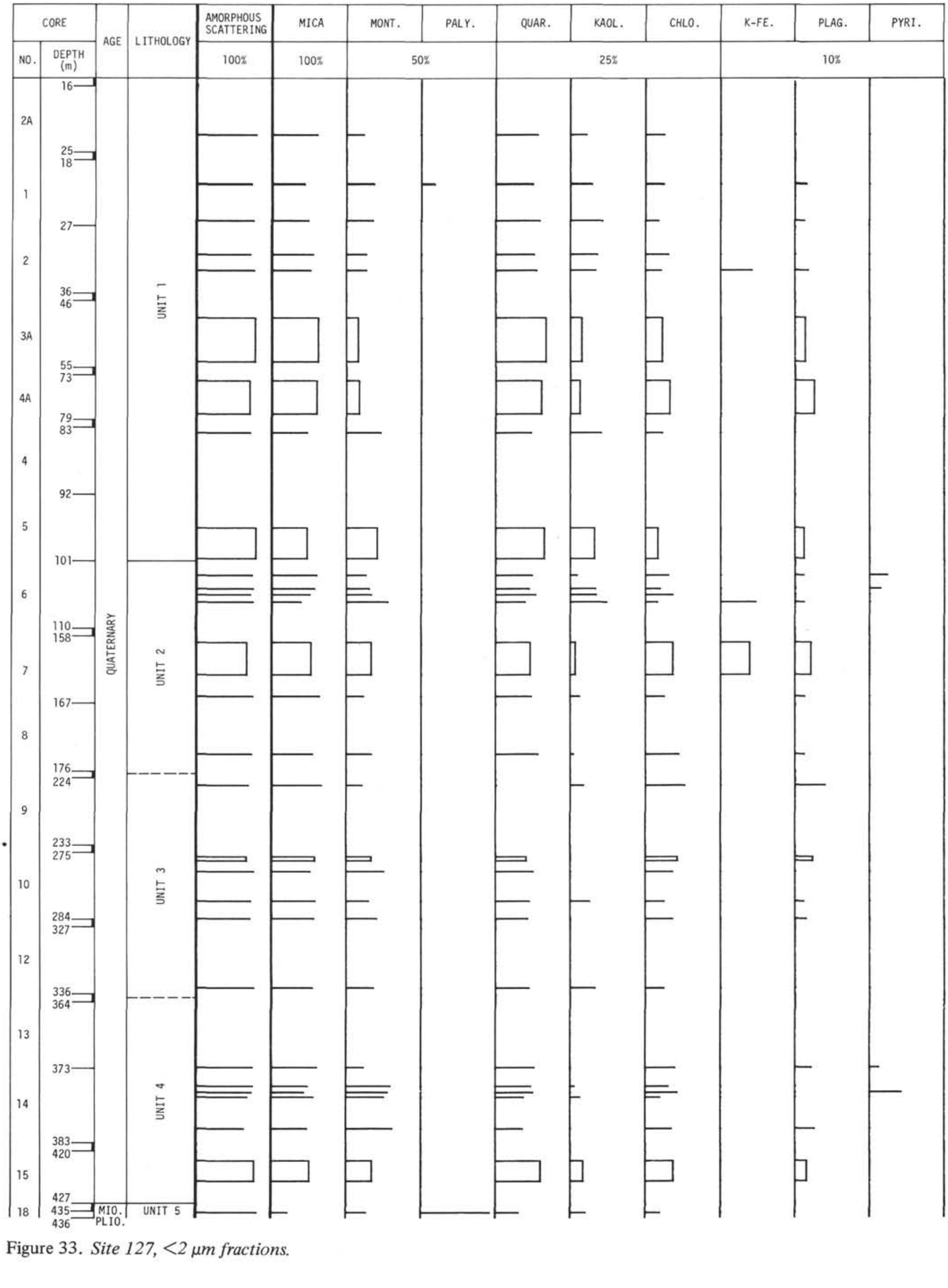

Figure 33. *Site 127, <2 μm fractions.*

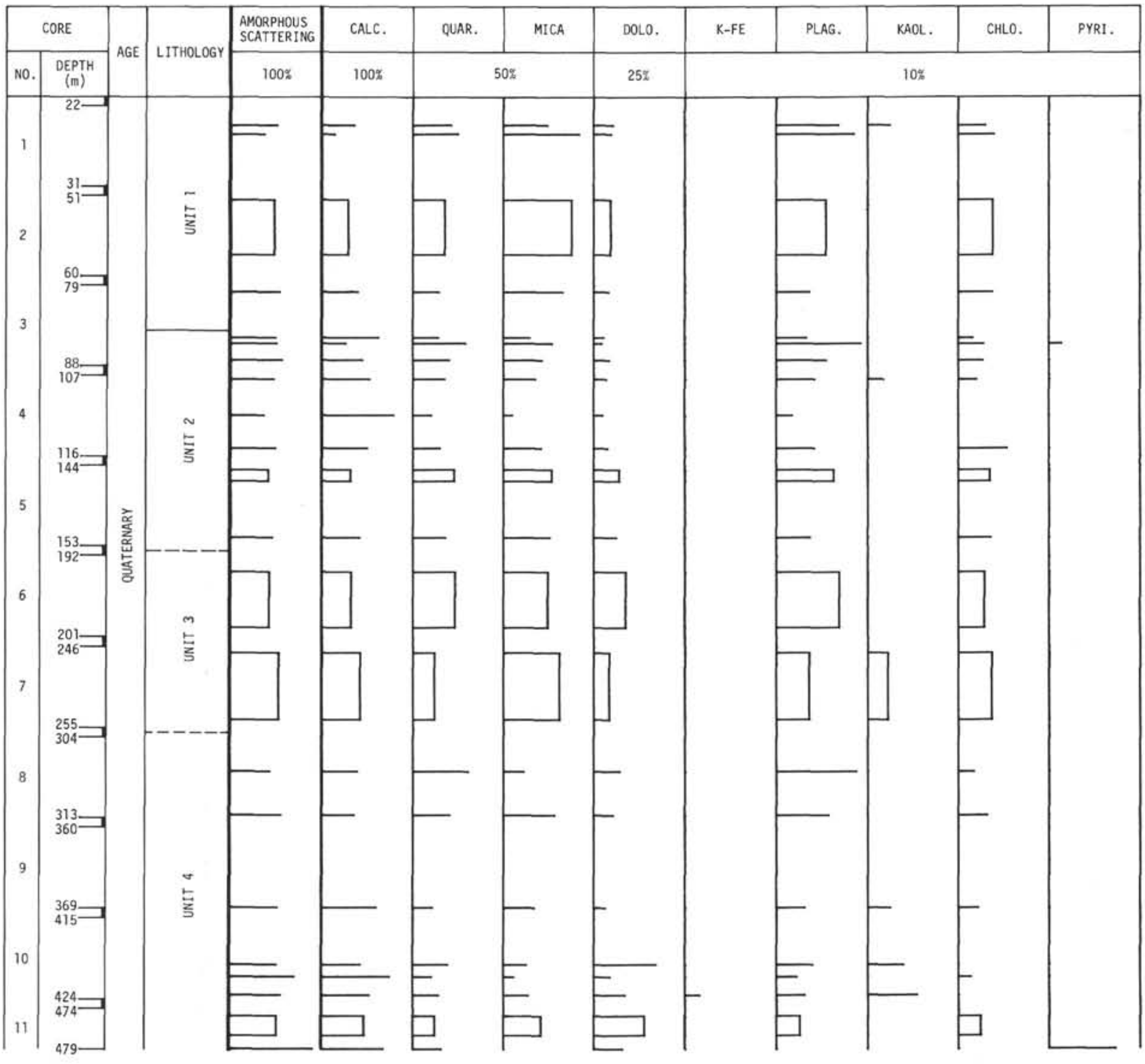

Figure 34. *Site 128, bulk samples.*

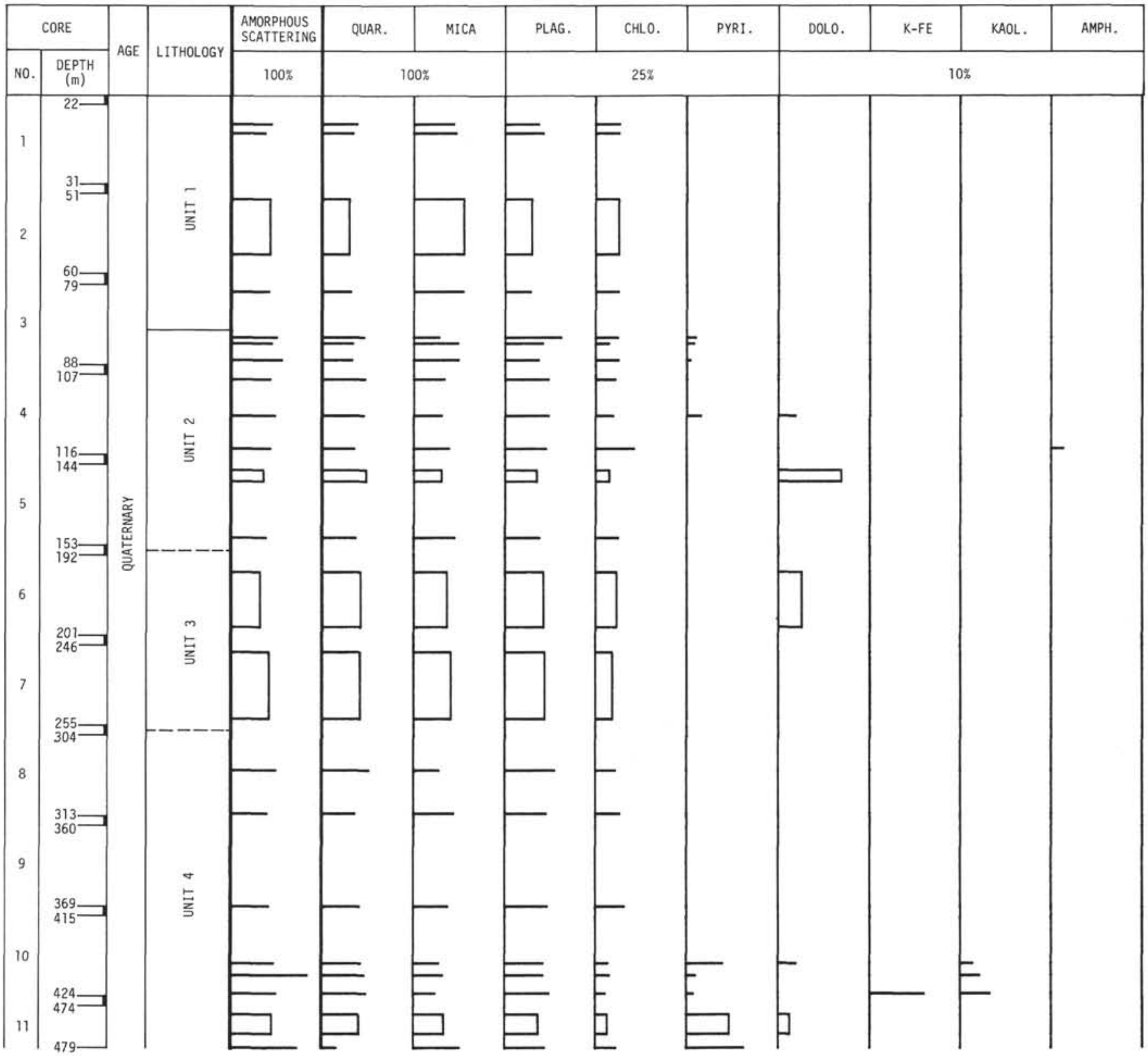

Figure 35. *Site 128, 2-20 μm fractions.*

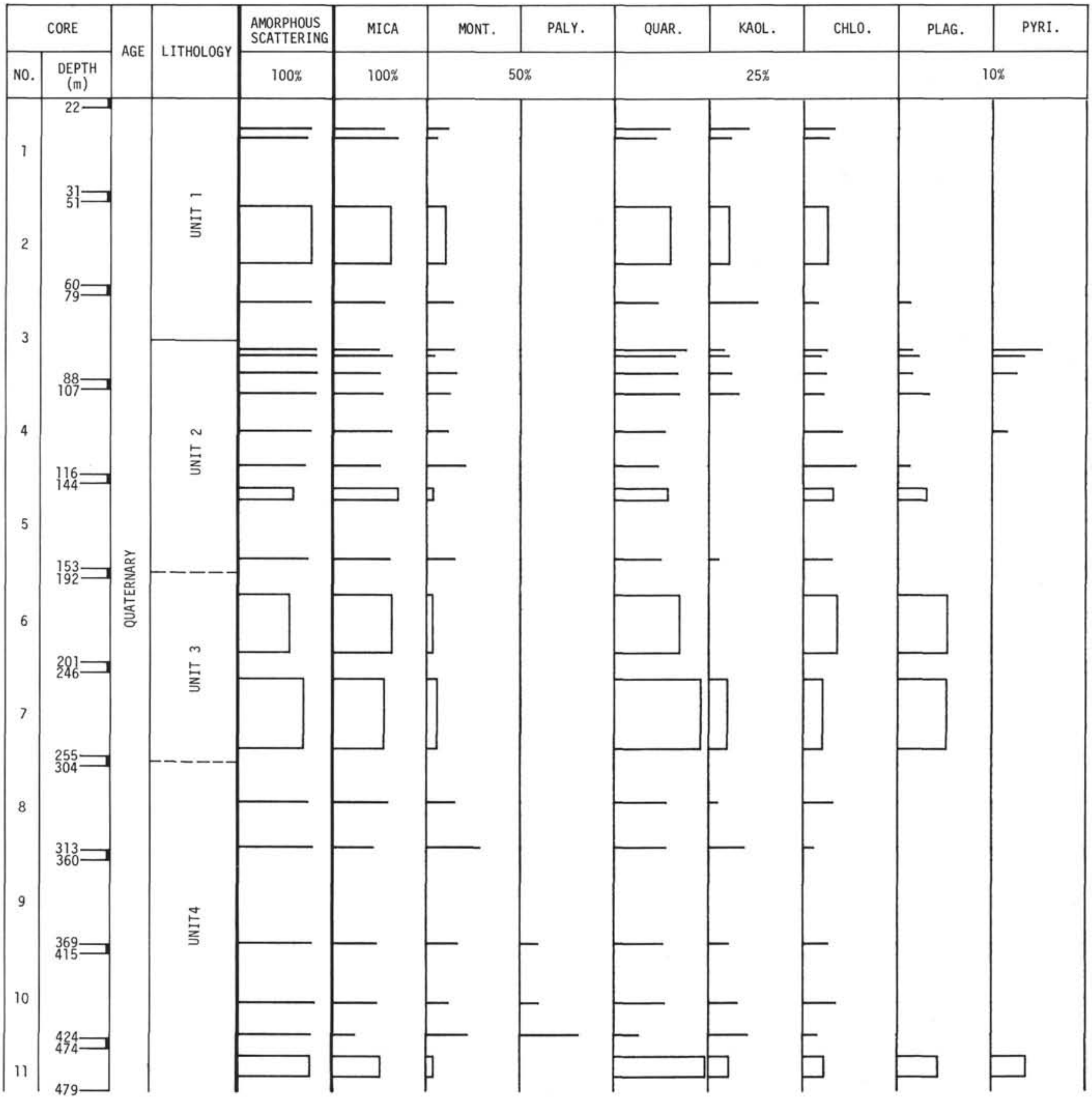

Figure 36. *Site 128, <2 µm fractions.*

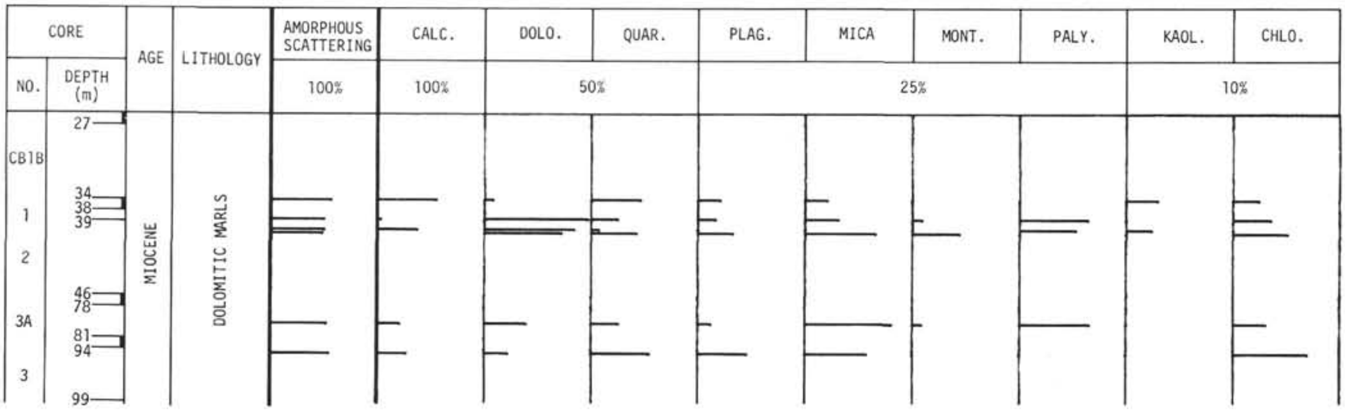

Figure 37. *Site 129, bulk samples.*

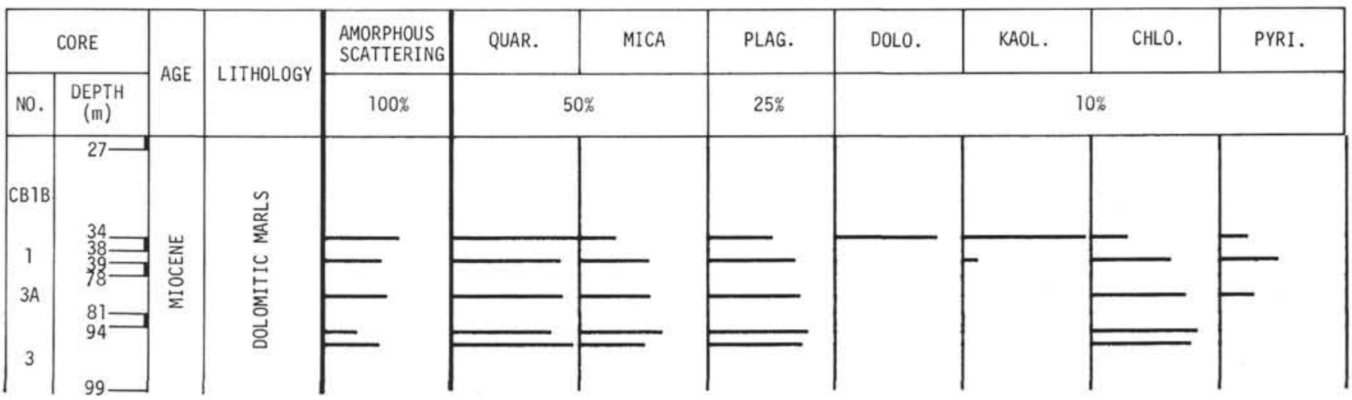

Figure 38. *Site 129, 2-20 μm fractions.*

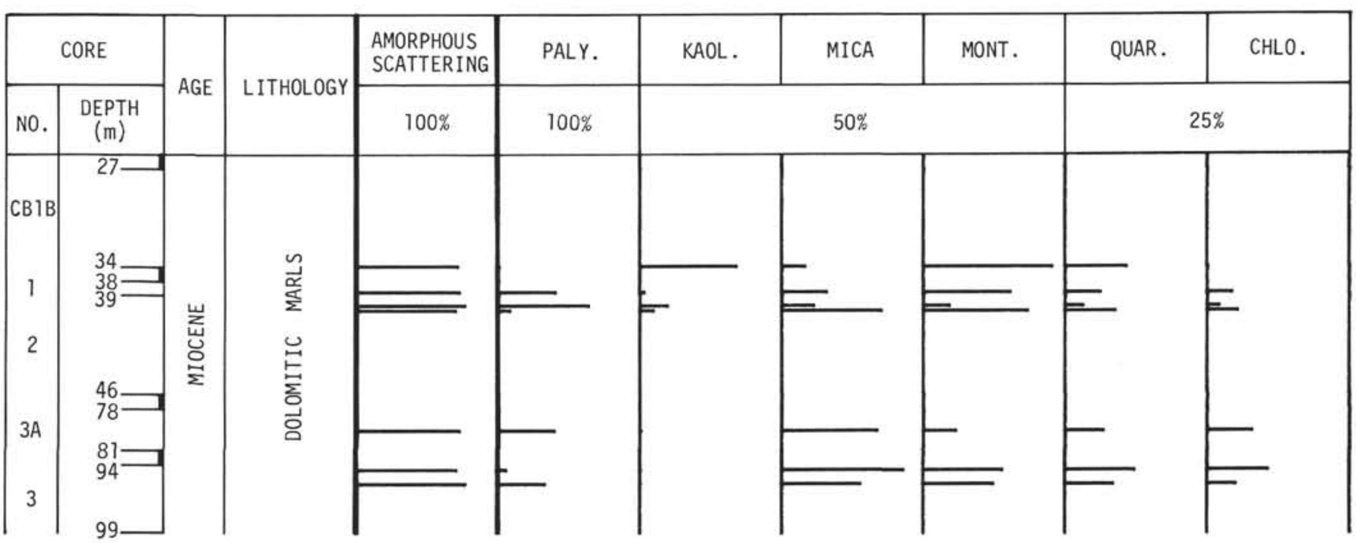

Figure 39. *Site 129, <2 μm fractions.*

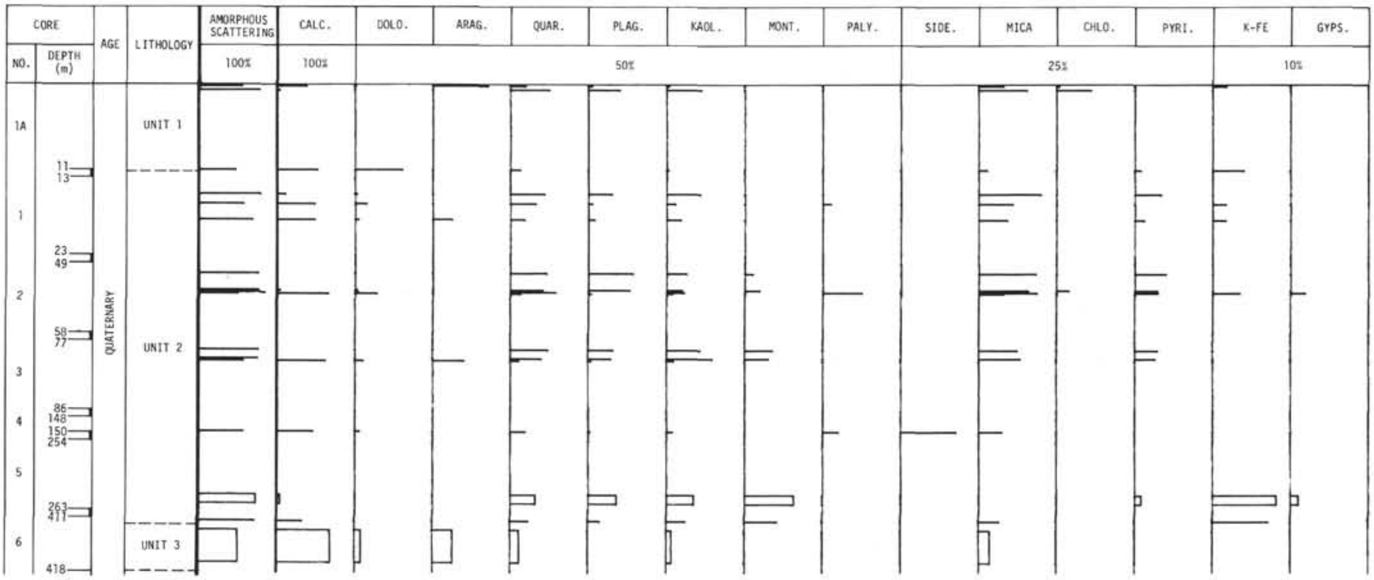

Figure 40. *Site 130, bulk samples.*

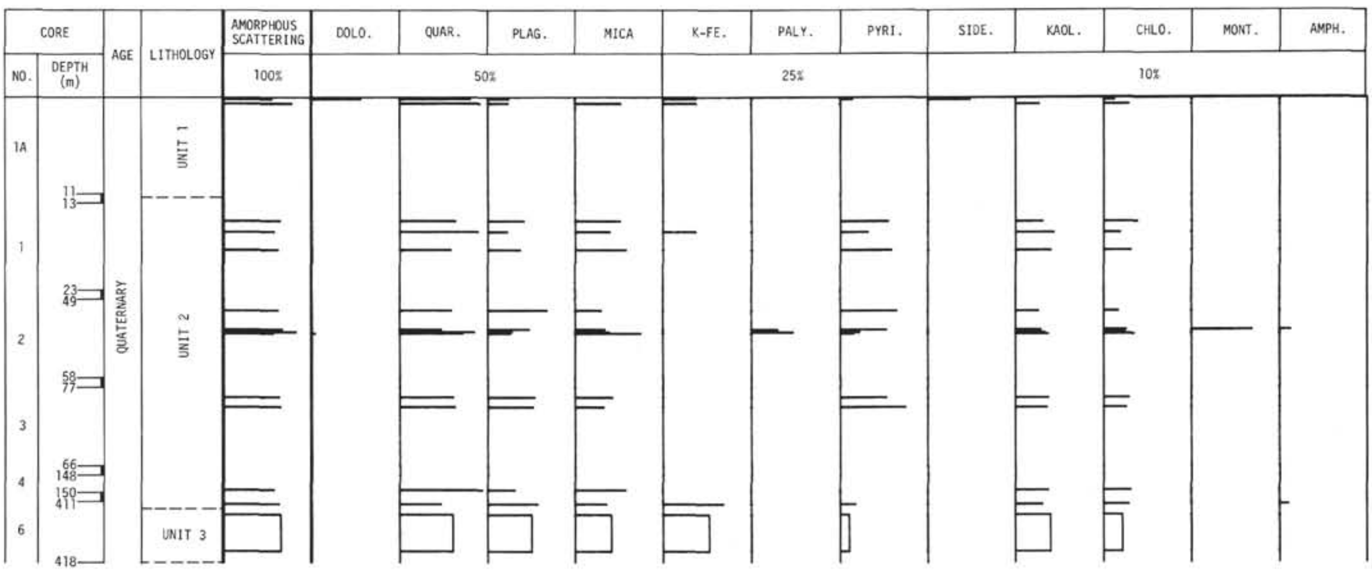

Figure 41. *Site 130, 2-20 μm fractions.*

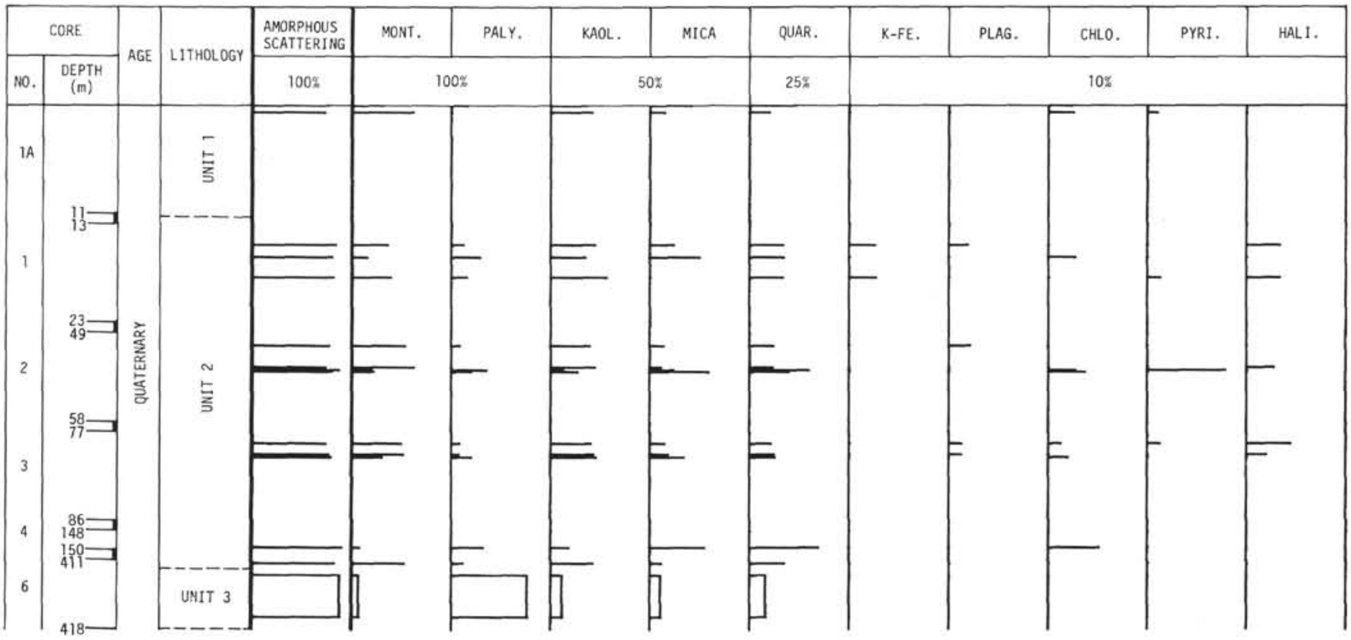

Figure 42. *Site 130, <2 μm fractions.*

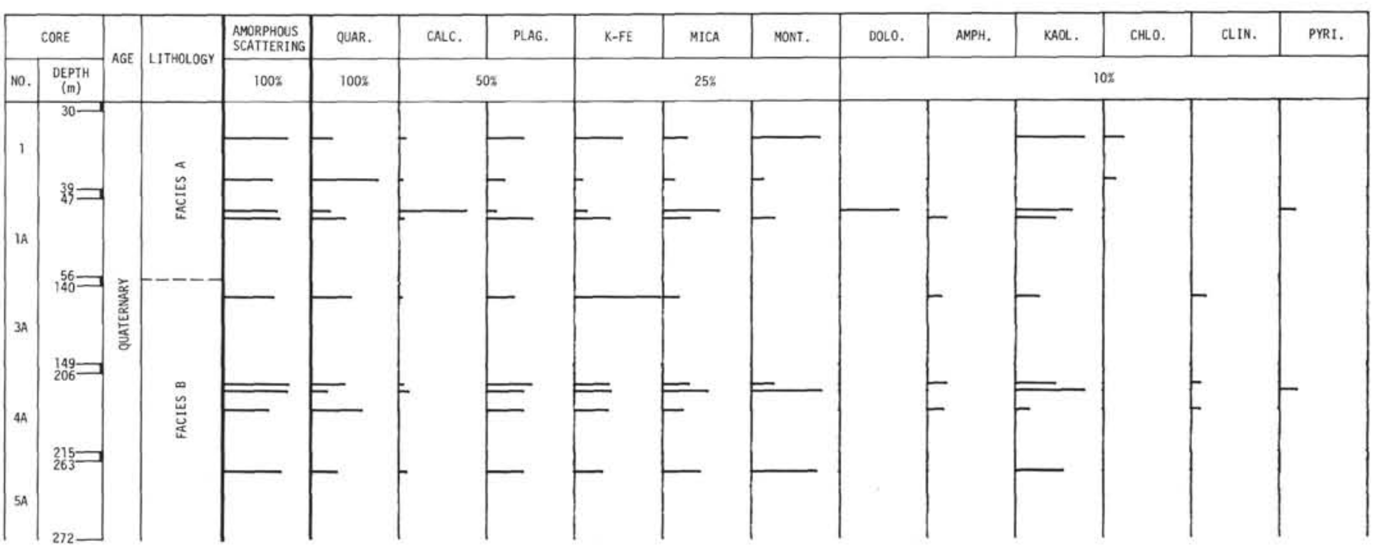

Figure 43. *Site 131, bulk samples.*

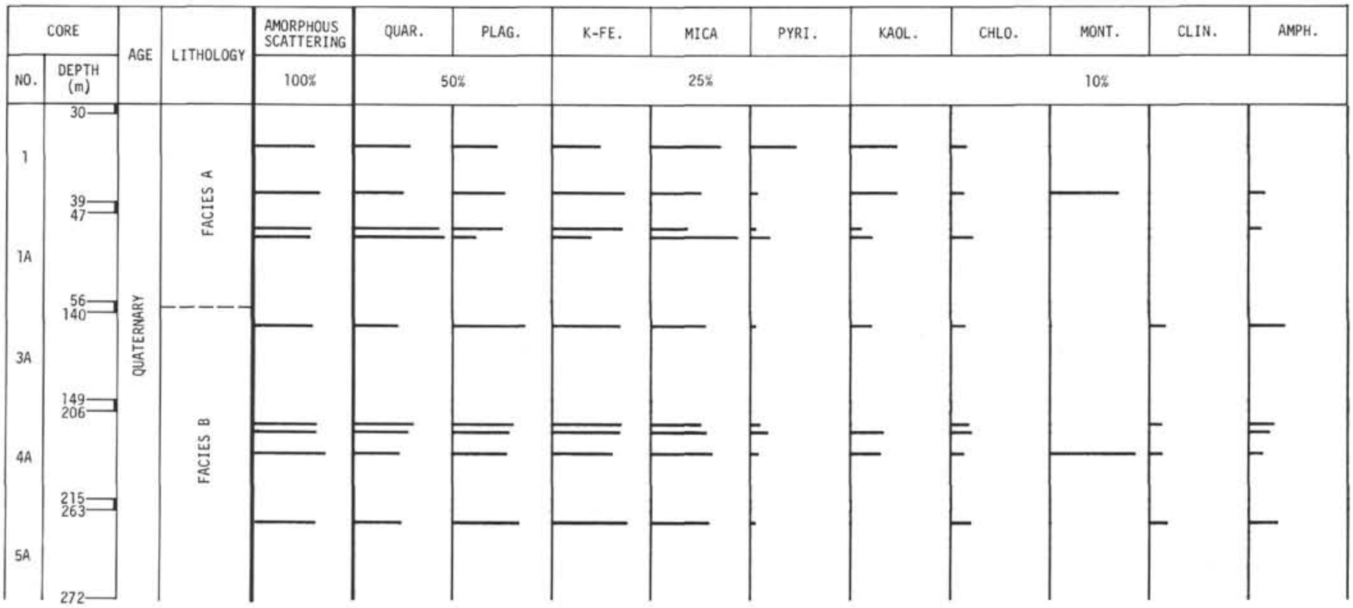

Figure 44. *Site 131, 2-20 μm fractions.*

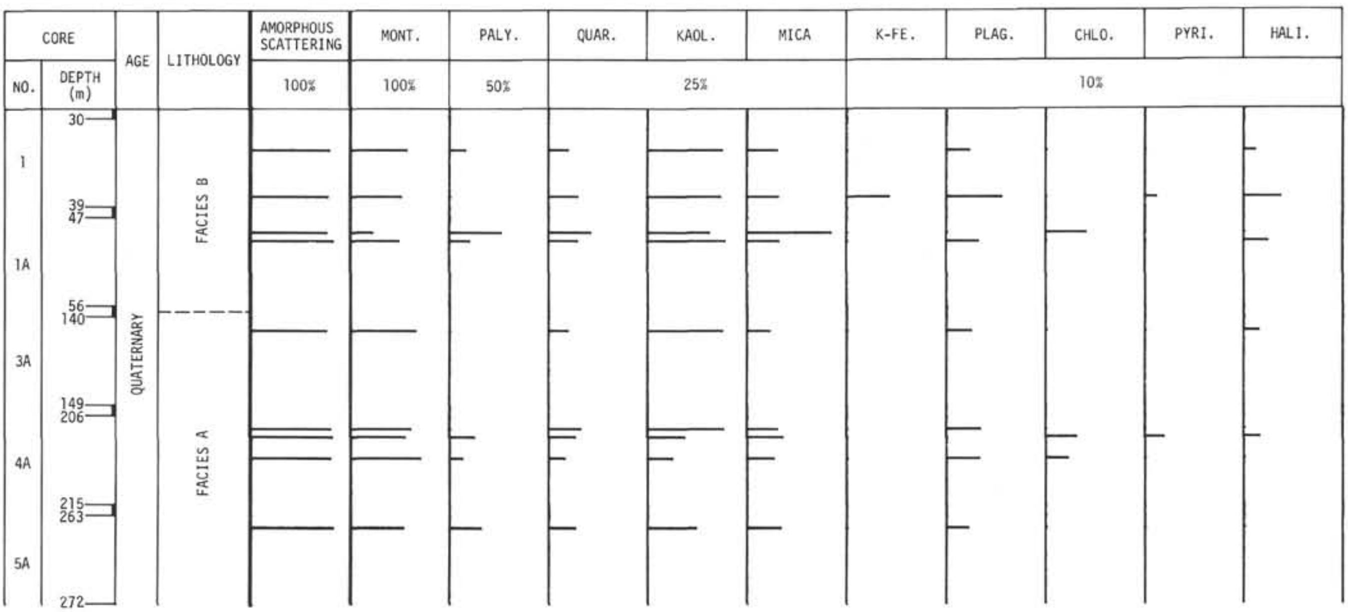

Figure 45. *Site 131, <2 μm fractions.*