6. SITE 206

The Shipboard Scientific Party[1]
With Additional Contributions From
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Location: New Caledonia Basin

Position: 32°00.75'S, 165°27.15'E

Water Depth: 3196 meters

Total Penetration: 734 meters

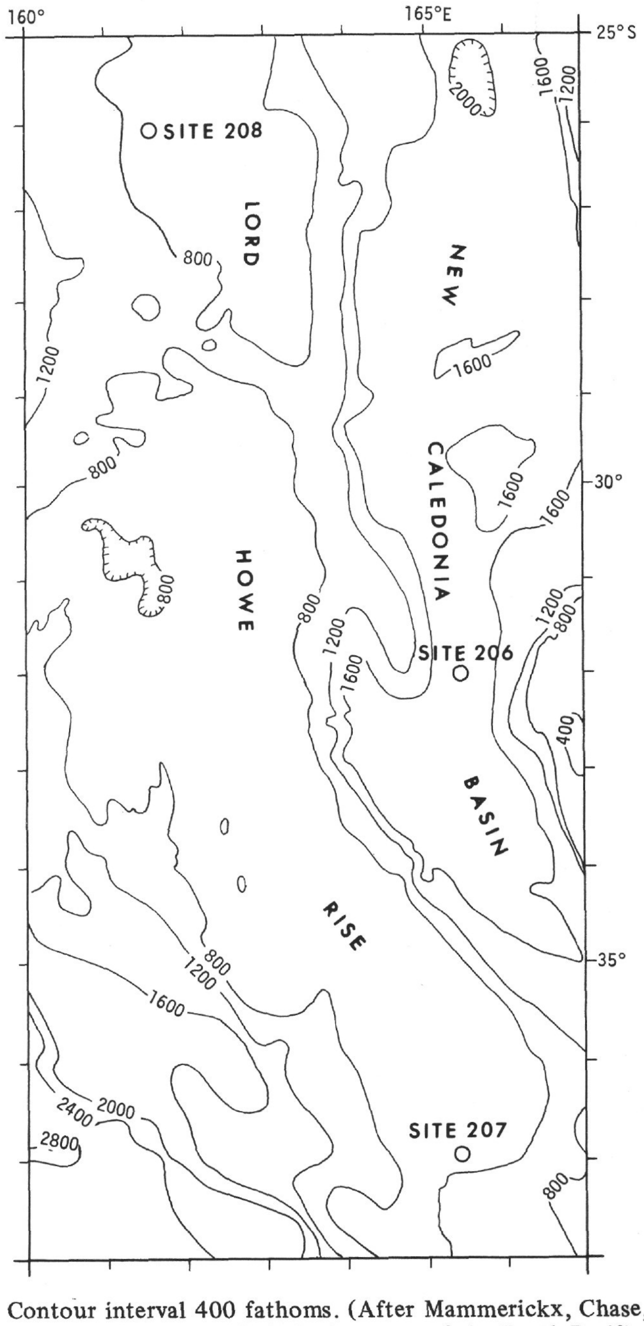
Summary: A thick and apparently complete Neogene sequence is composed of nannofossil ooze with variable amounts of foraminifera and volcanic ash. The major Eocene/Oligocene regional unconformity was initially identified at this site. Below the unconformity, calcareous fossil oozes show increasing lithification downward to the oldest dated material (middle Paleocene). Disturbances and slump structures appear with increasing frequency downward below the regional unconformity.

BACKGROUND AND OBJECTIVES

General

Together with the Lord Howe Rise, the New Caledonia Basin occupies a major regional position in the Tasman Sea. One of the principal objectives of Leg 21 was to investigate several representative marginal basins in this region of the southwest Pacific. Although drilling on all of the principal tectonic elements in the region was not possible, a priority was given to an attempt to determine the age relationships of the New Caledonia Basin and the Lord Howe Rise.

Site 206 was proposed with the objectives being the determination of the age and biostratigraphic history of the basin, including the age of basement rock. Previous work (Shor et al., 1971) indicated that there is continuity of sediment in the basin with both Lord Howe Rise and Norfolk Ridge and that the sedimentary layer is not



Contour interval 400 fathoms. (After Mammerickx, Chase, Smith, and Taylor, 1971. Bathymetry of the South Pacific, Charts 11 and 12: Scripps Institution of Oceanography, California.)

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significantly thicker than over the ridges. An initial site proposal was based on data available from *Conrad, Argo,* and other sources.

Review by the JOIDES Panel on Pollution Prevention and Safety indicated that the site and drilling program were satisfactory with continuous coring, moderate drilling precautions, and standard abandonment procedures.

Site Survey

The setting of Site 206 was surveyed by R/V *Kana Keoki* in September 1971. Located in the southern portion of the New Caledonia Basin, the site is in the deepest portion of the basin at that latitude. Bathymetry (Figure 1) shows a narrow hill with relief of about 350 meters, elongated in a northwest to southeast direction, paralleling the trend of the Lord Howe Rise to the west and the Norfolk Ridge to the east. The site itself is east of this hill in the deepest (3225 m) portion of the basin. Farther east a series of gently rising steps leads up to the Norfolk Ridge.

Seismic reflection profiles (Figure 2) show the basin sediments as a sequence of acoustically well-stratified horizons overlying a transparent layer. The transparent layer appears to be continuous over the hill, while the stratified sequence is confined to the basin. Figure 3 is a sediment isopach map (actually isochron of round-trip travel time) which shows the pattern of distribution. The hill is the expression of the acoustic basement structure and stands out clearly on the basement structure map (Figure 4). On the basis of the site survey, the hill structure was interpreted as a compressional feature formed about midway in the sedimentary history of the basin as determined by the relationship of the transparent (interpreted as disturbed) section to the stratified section.

OPERATIONS

Site Approach

Site 206 was selected just east of the hill to permit sampling the entire section without drilling in the thickest part of the deposit. Due to the failure of the power subshaft halfway through drilling operations on this location, the *Challenger* occupied the site twice. The first approach was from Site 205 to the east/northeast and included two crossings of the hill. This track is illustrated in Figure 5 for comparison to the site survey profile.

The second approach was from the south after leaving Wellington and was a straight run to the beacon which was still operational. The structure of the hill was well documented by these approach tracks and the crossings obtained when departing the site.

Sonobuoy

The on-site sonobuoy profile at Site 20 (Figure 6) does not clearly show the pattern of an upper "stratified" lower "transparent" section as seen on the underway profiles. The reflectors picked are listed in Table 1.[2] Reflector 2 (0.42 sec) is at the level of the top of the transparent horizon on underway records. Reflector 7 represents underway acoustic basement across the basin.

Drilling Program

The beacon was dropped at 1630 on 30 November and setup was begun. The initial beacon failed, and a new one was dropped while the string was being set out prior to the beginning of coring. This latter beacon was utilized for all operations at this site (Holes 206, 206A, 206B, 206C).

Hole 206 (Table 2) consisted of 45 cores which were continuous in accordance with the recommendations of the JOIDES Safety and Pollution Prevention Panel. Four wash adjustments of 4 meters each were made during the coring, and five in-hole temperature measurements were made as part of the heat-flow investigation.

A total penetration of 416 meters had been reached by 0800 on 3 December when a failure in the Bowen power-sub caused further drilling and/or coring to be discontinued. Pullout was accomplished and the ship set course for the Lord Howe Rise and Site 207 at 1500 on 3 December. When information about the repair of the power-sub was received, the ship set course for Wellington.

Hole 206A (Table 3) was established at 0330 on 17 December by coming back to position over the beacon that had been used earlier when Hole 206 was abandoned. Since the upper portion of this site had already been cored and determined to be free from hydrocarbons, the initial 100 meters were washed and an in-hole temperature measurement was attempted using the 20-foot extension ("stinger" probe). Two attempts were made before the device was recovered, and only the instrument package returned—the stinger was separated down-hole. To avoid damage by the stinger the string was raised above the mud line, and Hole 206B was spudded at 2230 on 17 December.

At Hole 206B (Table 4) the upper 200 meters were washed, and an in-hole temperature measurement was then run using the retractable probe in the core barrel. When recovery was attempted, the core barrel was jammed and was recovered only after three attempts. The core barrel had new scars indicating possible junk in the bit, and the center bit was dropped to see if it would clear. This also jammed and gave indication of problems at the bit so the string was tripped. Upon recovery, the flapper valve was found to be broken loose, and part of it jammed in the bit. This was replaced and Hole 206C was spudded at 2000 on 18 December.

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[2]Final correlations of sonobuoy profiles using laboratory-measured velocities, other physical properties, and lithologic boundaries are presented in Part II of this Initial Report.

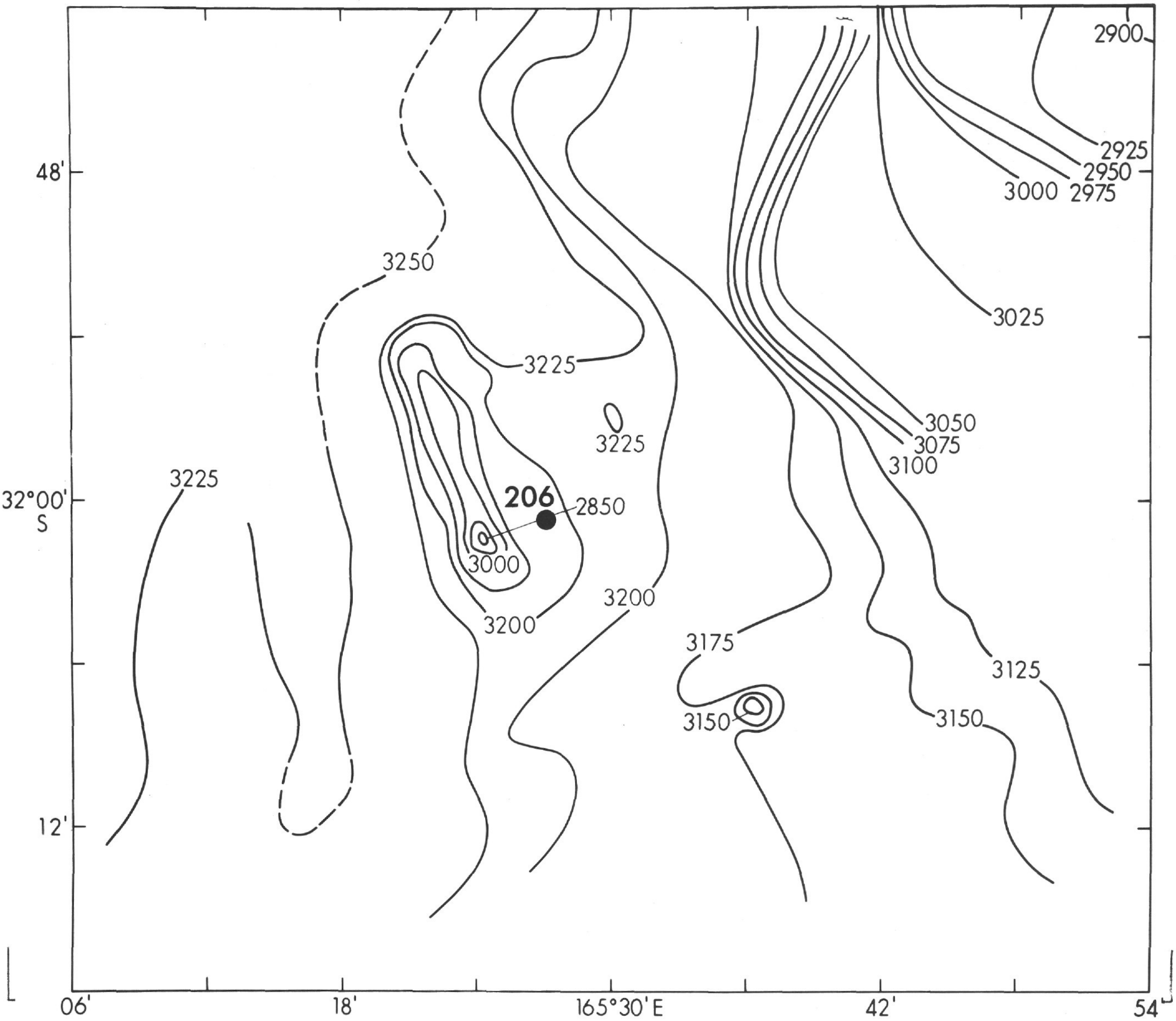

Figure 1. *Bathymetry at Site 206 (uncorrected meters). R/V* Kana Keoki *site survey September 1971.*

Coring at 206C (Table 5) began at a depth of 404 meters, providing a short overlap with the earlier coring at Hole 206. Following Core 5C (449 m) a program of alternate washing ahead and coring was begun since the lithology was quite consistent, showed no evidence of hydrocarbons, and no major lithologic changes were anticipated. If any lithologic changes were observed or any hydrocarbons were detected, the fully continuous coring program was to be reinstated. As there was neither (other than a general increased stiffness and lithification), the modified coring-washing program was continued to a total depth of 734 meters when, approximately 140 meters below the deepest acoustic reflector observed at the site, the hole was abandoned without reaching any clearly defined basement.

LITHOLOGY

General

In Hole 206, 416 meters of sediment were penetrated and 45 cores obtained. In Hole 206C, 21 cores were taken between 404 and 734 meters below the sea floor. Summaries of each of the cores are given in Appendix F.

Combining the results of Holes 206 and 206C, the stratigraphic succession in outline is:

1) Unit 1 (0 to 389 m)—early Miocene to late? Pleistocene. Nannofossil ooze containing variable quantities of foraminifera and minor volcanic ash.

2) Unit 2 (389 to 614 m)—middle Oligocene to early Miocene. A semilithified sequence of clay nannofossil ooze

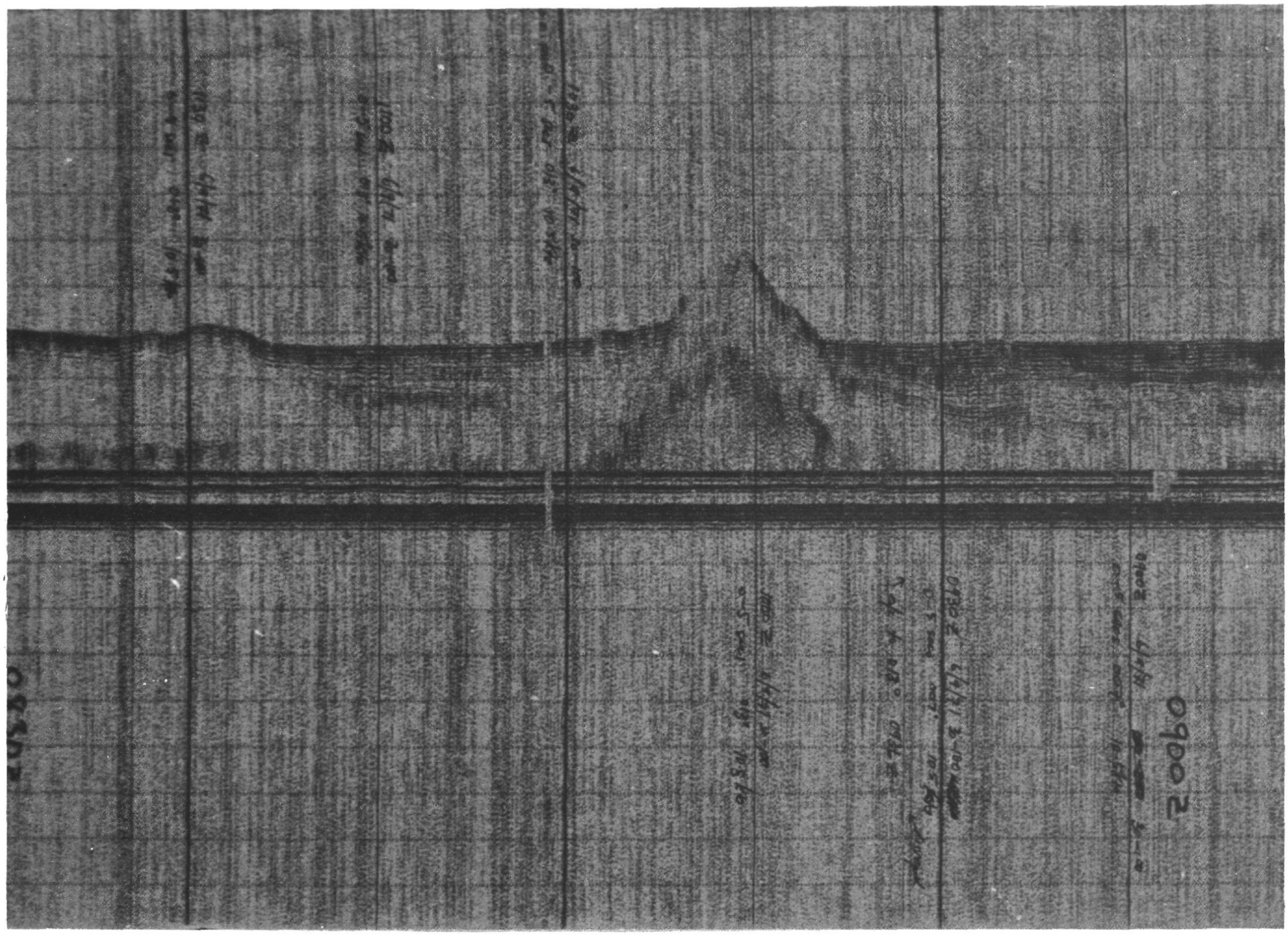

Figure 2. *Seismic profile across structure near Site 206. R/V* Kana Keoki *site survey September 1971.*

passing down into clay-rich and rarely clay-bearing nannofossil ooze.

3) Unit 3 (614 to 677 m)—mid middle Eocene to earliest late Eocene. Semilithified, radiolarian-rich nannofossil calcic ooze.

4) Unit 4 (677 to 734 m)—early Paleocene to middle Eocene. Semilithified nannofossil calcic ooze and clay with minor chert.

A problem which has been encountered in the study of the sediments at this site is the determination of the clay content of the sediments. Values have been inferred from insoluble residue determinations made onboard ship and calcium carbonate analyses from the shore lab. The ship determinations were made by weighing the insoluble residue derived from leaching a constant volume of sediment from each of the core catchers and correcting it for other insoluble constituents as determined in the smear slides. Clay minerals have been reported in only two of the five shore lab results available to date. These are from Cores 20C and 21C. In Cores 1, 14, and 40 only minor quartz (about 1%) is reported in addition to calcite. These figures leave some 3% to 8% of the rock unidentified after taking into account the traces of siliceous organisms and volcanic glass.

Unit 1 (Nannofossil Ooze)

Early Miocene to late Pleistocene: There is a slight color change at the top of the unit from light gray to white (Subunits 1A, 1B and 1C) to predominantly bluish white (Subunit 1D). X-ray analyses reveal trace quantities of quartz, plagioclase, mica, chlorite, and montmorillonite. Based on the identifications of lithologies in smear slides, Unit 1 can be further subdivided as follows:

Subunit 1A: 0 to 91 meters, early Pleistocene to late Pleistocene. The dominant lithologies are foraminifera-bearing and foraminiferal-rich nannofossil ooze with glass shards present, frequently in excess of 2%. The glass is predominantly light in color, has a refractive index of 1.53, and appears to be intermediate in composition. In addition to this glass, the coarse fraction of a sample from Sample 206-4-6, 50 cm yielded silt-sized, angular quartz grains, a little mica, alkali feldspar, and amphibole.

Reworked lithified fragments of Miocene nannofossil-bearing foraminiferal ooze, up to 3 cm in diameter, were found in 206-4, CC and 206-5-1.

Subunit 1B: 91 to 159 meters, latest early Pliocene to early Pleistocene. Although volcanic detritus is still present and persists to the bottom of the hole, it is found only in trace quantities (<2%). The main lithologies are

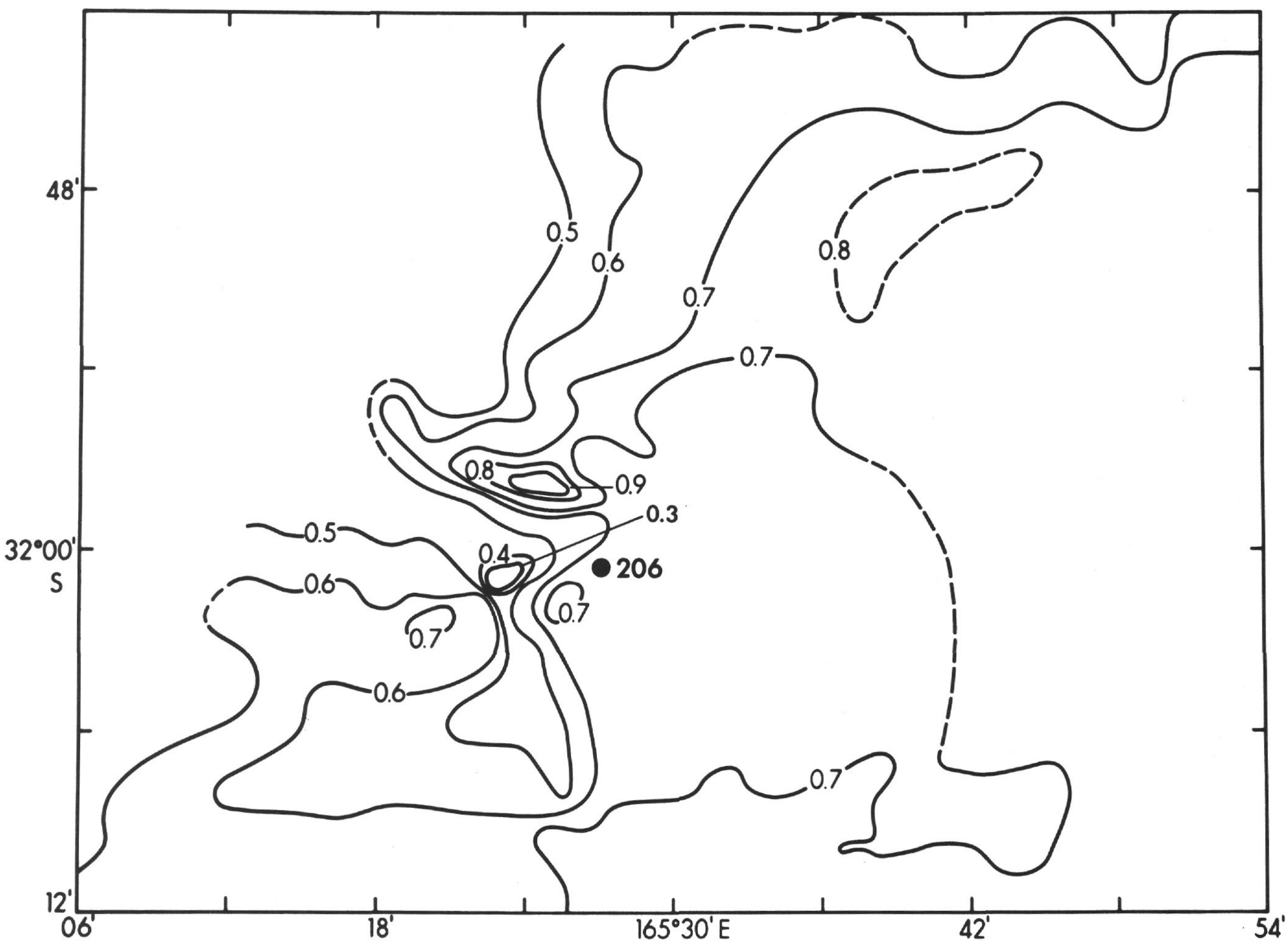

Figure 3. *Isochron chart to acoustic basement at Site 206 in seconds of reflection time. R/V* Kana Keoki *site survey.*

foraminiferal-rich and foraminifera-bearing nannofossil ooze.

Subunit 1C: 159 to 295 meters, earliest middle Miocene to latest early Pliocene. Foraminifera are less abundant in this subunit; foraminifera-bearing nannofossil ooze is the most common lithology followed by nannofossil ooze. Some beds are diatom and radiolarian bearing. The decline of core recoveries from Core 25 downward appears to be the result of the oozes being a little stiffer; no compositional change was detected.

Subunit 1D: 295 to 389 meters, early Miocene to earliest middle Miocene. The beds of this subunit contain 5% to 10% clay and lithologically are clay-bearing nannofossil oozes and clay and foraminifera bearing nannofossil ooze.

Unit 2 (Clay Nannofossil Ooze)

Middle Oligocene to early Miocene: The unit is composed of semilithified clay nannofossil oozes and foraminiferal-bearing clay nannofossil oozes containing an estimated 25%-45% of terrigenous clay. The degree of lithification is greater than that of the overlying Subunit 1D, but the color is generally similar. Burrows are well preserved in Unit 2, the majority of them are approximately parallel to what remains of the bedding. Some inclined and vertical burrows are also present, including one occurrence of *Zoophycus*. Some very minor submarine erosion is indicated by the truncation of burrows in Section 45-3.

The unit continues down into Hole 206C which commences at 404 meters. At the top it consists of clay nannofossil ooze but passes into clay-rich nannofossil ooze which is the most common lithology. The clay content drops into the range of clay bearing at about 550 meters. Foraminifera are present throughout, usually comprising less than 10% of the sediment. Radiolaria, diatoms, and sponge spicules are present at some horizons in excess of 2%.

Bulk X-ray analyses show that the crystalline phases are composed of quartz, plagioclase, mica, montmorillonite, and chlorite (in decreasing order of abundance). These minerals decrease in quantity downwards from 20% in total at the top of the unit to 3% to 4% near the base. Clinoptilolite appears in very minor quantities at 530 meters and increases to about 1% at the base. Kaolinite is present in most samples, potash feldspar is in the basalt part of the unit, and pyrite and amphibole are each recorded in one sample.

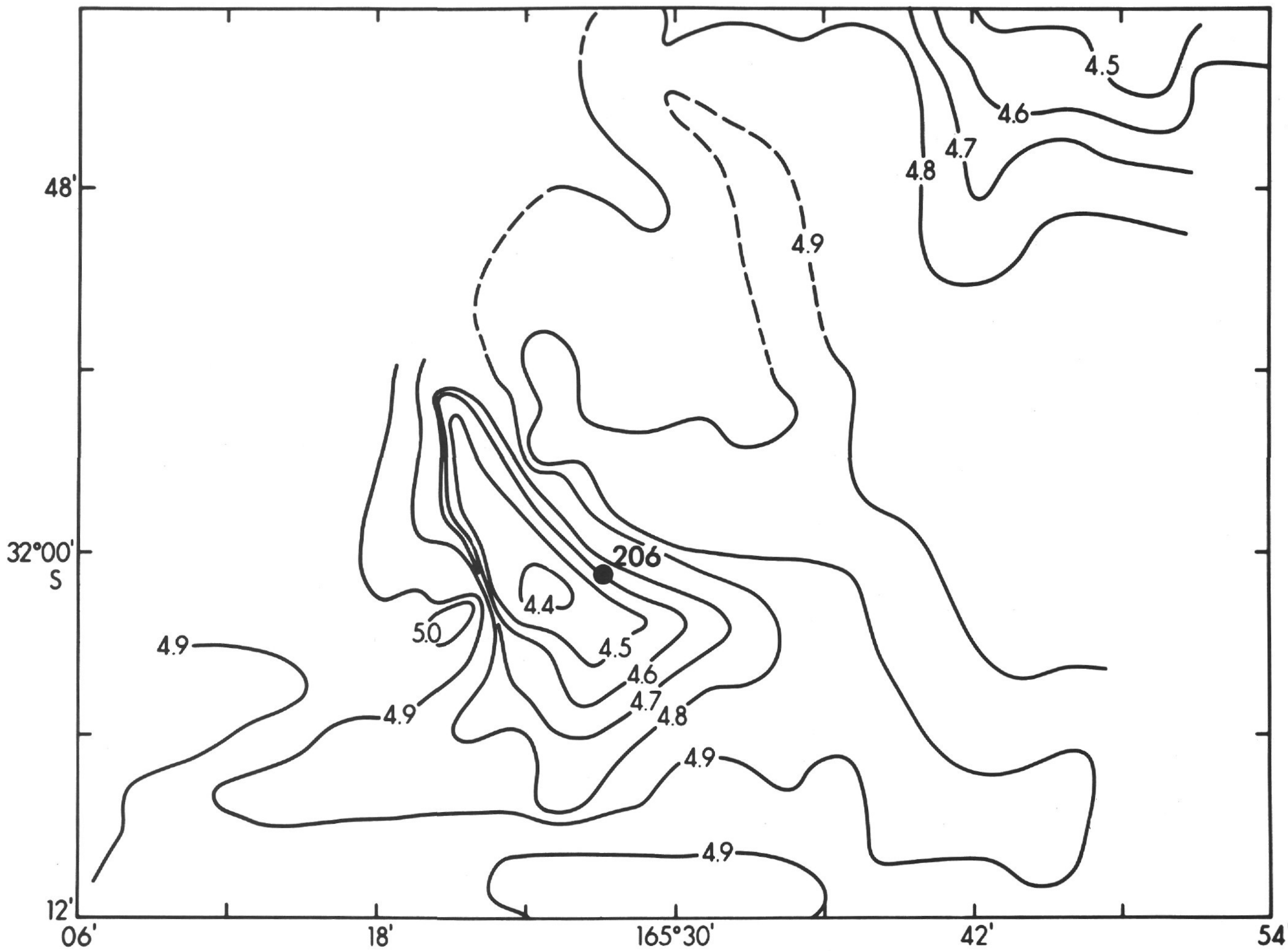

Figure 4. *Basement structure chart (acoustic basement) at Site 206 in seconds of reflection time from R/V* Kana Keoki *site survey.*

Lithification of the sediment increases downwards in the unit. Down to 490 meters the blocks of core are set in a slurry produced by drilling. Below 490 meters, lithification is such that the cores consist of clean pieces of soft rock. From 531 meters onwards (Core 10C) the bedding is commonly disrupted by small normal faults that have slickensided fault planes. Scanning electron microscope examination of the sediments shows that at about the level of Core 10C authigenic carbonate becomes a significant component of the rocks.

Unit 3 (Lithified Radiolarian-rich Nannofossil Calcic Ooze)

Mid middle Eocene to earliest late Eocene: The change in lithology from the overlying unit to Unit 3 is between two pieces of Sample 206C-15-2, 17 cm. The sediments of this unit are all radiolarian-rich and extend down to 206C-18, CC. Diatoms and sponge spicules are also present in quantity in Cores 17C and 18C. Clay, if present, is a minor constituent. The bulk of the rock is calcium carbonate. Usually less than half of the fine silt-to-clay fraction is identifiable in the smear slides as nannofossil remains. The remainder consists of angular carbonate. Scanning electron microscope examination reveals that much of this carbonate is authigenic. Trace quantities of volcanic glass were noted in the smear slides: both basic (green) and acid or intermediate (clear) glasses are present.

Bulk X-ray analyses indicate that montmorillonite and quartz are present in minor quantities. Other minerals present in most samples in the carbonate-free fractions are plagioclase, mica, chlorite, clinoptilolite, potash feldspar, and barite. Kaolinite was recorded in one sample.

Macroscopically, the sediments of Unit 3 resemble those of the lower part of Unit 2 in color, burrowing, faulting, fracturing, and lithification. The dips of stratification are usually a little steeper, being about 30°.

Unit 4 (Semilithified Calcic Ooze and Clay with Minor Chert)

Early Paleocene to mid middle Eocene: The highest part of this unit preserved in the cores is at the top of Core 19C. The most conspicuous difference between Units 3 and 4 is a sudden drop in the abundance of siliceous organic remains and the reappearance of clay in quantity. Chert is also present, probably in thin beds. The carbonate present is similar to that in the overlying unit consisting of both nannofossil remains and authigenic calcite grains. Scanning

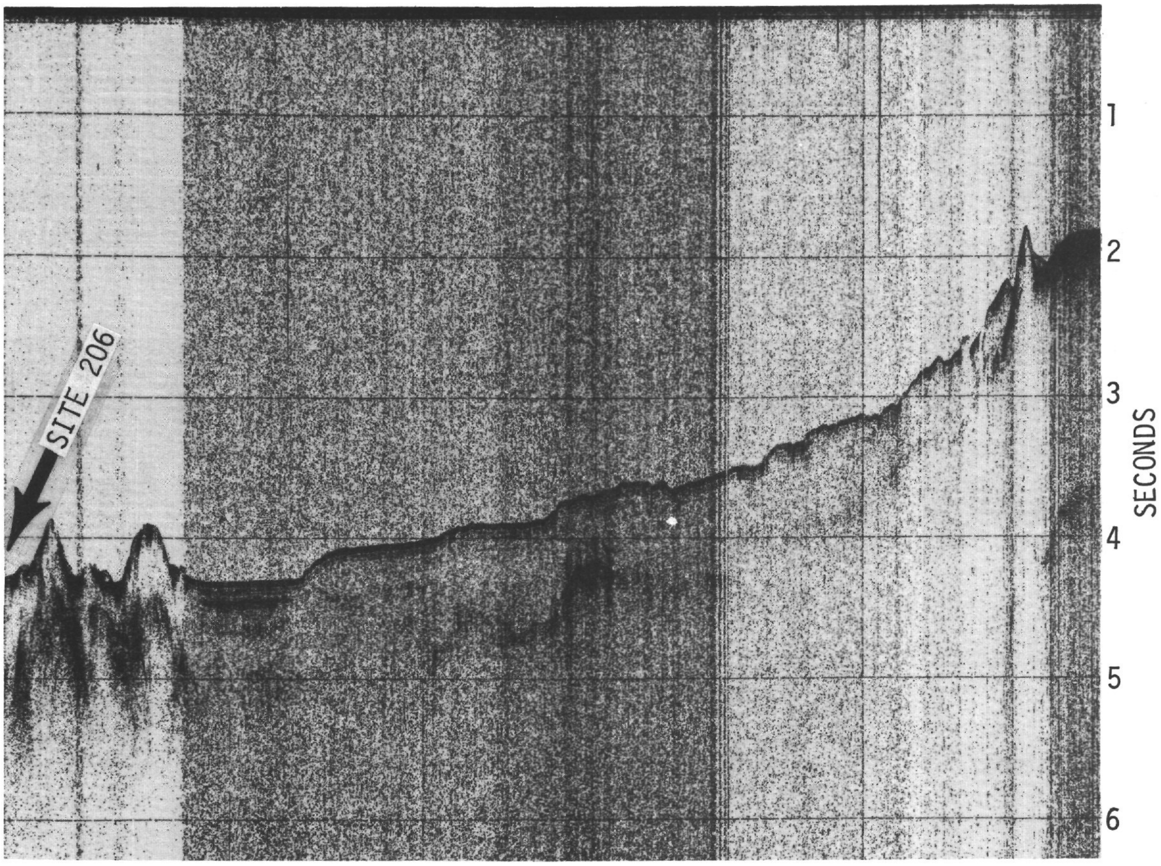

Figure 5. *Seismic profile from first site approach and beacon drop at Site 206.* Glomar Challenger *November 1971.*

electron microscope examination shows a patchy development of this authigenic carbonate in cavities, and sheet-like masses to a lesser extent between the fossil fragments. Apart from the chert, there are two distinct lithologies developed, nannofossil-rich calcic claystone and nannofossil-calcic ooze.

Core 19C, apart from the core catcher, appears to be low in clay content and is essentially semilithified clay-bearing nannofossil calcic ooze. There is no lithological break in Section 19C-1, corresponding to the middle Eocene-early Eocene disconformity suggested by the nannofossil content (see biostratigraphic summary). The sediment shows many signs of deformation, some layers display slumping, others are cut by small faults and cracks in many cases infilled with slightly darker sediment. Where bedding is undisturbed by deformation, it dips at about 20°. Chert occurs only as isolated pieces occupying the whole width of the core, so these may represent thin beds.

Lithologically, the location of the early Eocene-early Paleocene break is likely to occur between 206C-19-3, 135 cm and 206C-19-CC. The sediment in the latter has a much higher clay content.

Core 20C (706-715 m) is composed mainly of nannofossil-rich calcic clay with a few thin layers of semilithified calcic nannofossil ooze. The clay content is higher than in Core 19C. Deformation is also more obvious. In the upper 20 cm of the core, a thin bed of calcic nannofossil ooze is ptygmatically folded, and just beneath it considerable brecciation occurs.

Core 21C lithologies are similar to those in Core 20C. Fragments of lithified calcic nannofossil ooze several centimeters thick occur isolated in a more clayey matrix as a result of slumping. Chert fragments are again present in this core. Bulk X-ray analyses of a sample of the chert from 725.7 meters gave 22% calcite, 4% quartz, 52% cristobalite, 8% tridymite, 1% plagioclase, 1% potash feldspar, 3% mica, 8% montmorillonite, and barite in the crystalline phases. The core consists of pieces of rock up to 15 cm long so that little can be seen of the continuity of lithologies from one fragment to the next. The fossil content includes middle Paleocene, early Paleocene, Late Cretaceous, and early Eocene nannoplankton. The last mentioned are assumed in the biostratigraphic summary to be the result of drilling contamination. The age of at least Section 21C-2 is thought to be middle Paleocene. Slumping involving the strata sampled in Cores 20C and 21C (at least) could account for its present position below early Paleocene sediments.

Sequence of Geologic Events Interpreted from Lithology

All of the sediments sampled at Site 206 were deposited in deep water, but above the carbonate compensation depth. The presence of some submarine relief in the region until late Oligocene or early Miocene is indicated by the slump structures and disturbance of bedding as high as Core

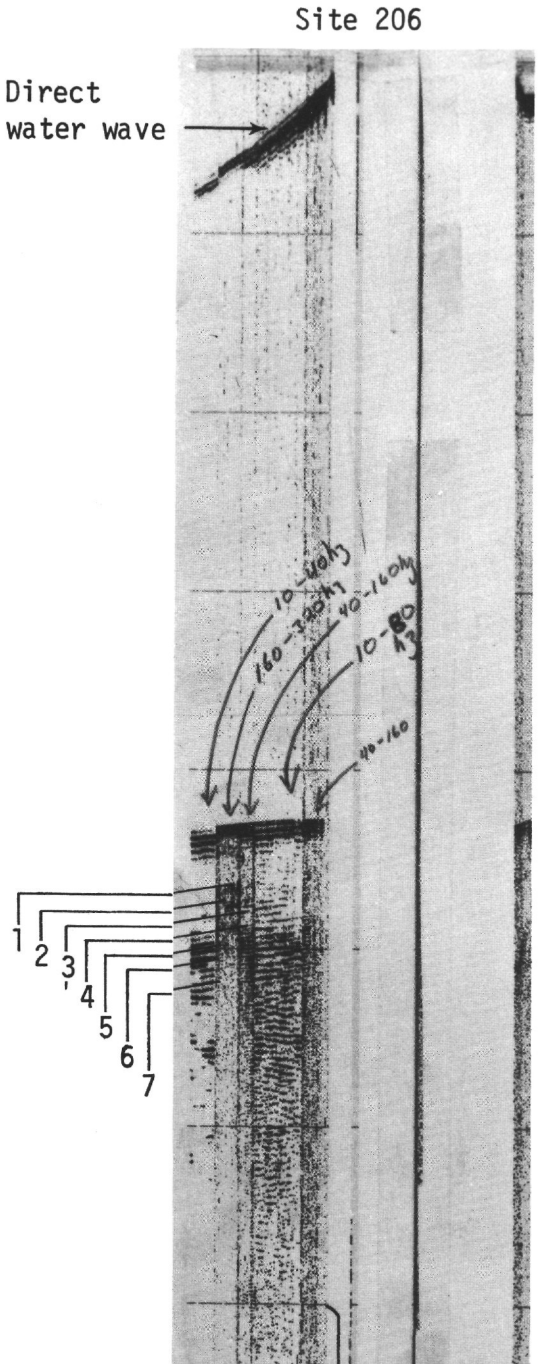

Figure 6. *On-site sonobuoy profile at Site 206.*

2C (410 m). In the lowest core the original layering has been very considerably disturbed. In view of the frequency of these slumps, especially in the lowest part of the cored interval (725-734 m), uncertainty exists as to the original site of deposition of the sediments. Sliding of the beds of Units 3 and 4 and perhaps even part of Unit 2 off the Norfolk Ridge or Lord Howe Rise is not precluded by their lithological features.

The supply of clay to the depositional area, more strongly evident in the early to middle Eocene (Unit 4 time) and the middle Oligocene to early Miocene (Unit 2 time), could be related to regional tectonic events, probably on the Norfolk Ridge or its extension into New Zealand and New Caledonia.

The break in the preserved record of deposition above the late middle Eocene was also noted at Site 207 on the Lord Howe Rise. But there, deposition was not resumed until the late Miocene, whereas at this site deposition resumed in the middle Oligocene.

The source of the Pleistocene ash at the top of the sequence is, perhaps the Taupo Region of the North Island of New Zealand, the debris differs in quantity and composition from that found at Site 203.

BIOSTRATIGRAPHY

General

The 734-meter-thick continuously to semicontinuously cored early Paleocene to sub-Recent sequence drilled at Holes 206 and 206C is of exceptionally high paleontological interest for the following reasons:

1) It includes an unusually thick and apparently complete mid Oligocene to sub-Recent bathyal (above calcium carbonate compensation depth) sequence of essentially uniform lithology (nannofossil ooze) containing sediment-forming numbers of calcareous nannofossils plus abundant planktonic foraminifera and rare but persistent Radiolaria throughout. Except for one apparent case of slumping in the late Pleistocene (Core 4), no paleontological evidence for tectonic disturbance occurs in this sequence.

2) The microfossil assemblages present are basically those characteristic of midlatitude areas such as northern New Zealand but also include, especially in the upper part of the sequence, a number of low latitude species. Consequently it is possible to correlate parts of this deep-sea sequence both with the long-established, but until now geographically isolated, Cenozoic stage classification of nearby temperate New Zealand (Hornibrook, 1968) and with the well-known, tropically based zonations normally used by the DSDP.

3) The variable frequencies of certain still-living species present in the upper part of this sequence imply distinct climatic fluctuations with time at this site (see below).

In addition, an older sequence, ranging in age from the early Paleocene to the earliest late Eocene, was obtained. This part of the sequence can be divided into three distinct units separated by unconformities. These are:

1. Middle Eocene to earliest late Eocene. This interval is mainly characterized by an abundance of siliceous microfossils such as radiolarians, diatoms, silicoflagellates,

TABLE 1
Site 206 Sonobuoy Data

Reflector	Depth (sec)	Nature	Estimated Velocity Structure (m/sec)	Estimated Depth (m)
1	0.34	Moderate	1500	255
2	0.42	Top transparent section-moderate	1600	319
3	0.54	Weak	1800	415
4	0.60	Moderate	1800	469
5	0.66	Strongest reflector, (occasional acoustic basement)	1850	526
6	0.77	Strong	2200	650

and ebridians. The associated planktonic foraminifera and calcareous nannofossils are common but poorly to moderately well preserved. Thus this interval is similar to the Eocene of Site 207, but represents only the uppermost part of that sequence. The siliceous-rich Eocene deposits are of great interest for correlation between the sequences cored at Sites 206, 207, and 208, and probably for a wider regional correlation. For example, such Eocene siliceous deposits with or without cherts are known in New Caledonia and New Guinea.

2. Early Eocene. This very thin interval (about 4 meters thick) lacks siliceous microfossils, but contains instead, abundant planktonic foraminifera and calcareous nannofossils.

3. Early Paleocene and middle Paleocene. This interval, often rich in clay-grade detritus, contains variable frequencies of planktonic and benthonic foraminifera and calcareous nannofossils. The nannofloras obtained from the lowest part of this interval are very poorly preserved, but appear to indicate a stratigraphic inversion in which middle Paleocene underlies early Paleocene.

Using the biostratigraphic and other information obtained, we conclude that:

1) The middle Pleistocene-late Pleistocene boundary, based on the extinction of *Pseudoemiliania lacunosa*, is about 206-2-4, 50 cm.

2) The Pliocene-Pleistocene boundary, based on the *Globorotalia tosaensis-G. truncatulinoides* transition, is between 206-11, CC and 206-12-3 30 cm.

The discoasters, although rare, become significantly reduced in frequency at 206-11-1, 50 cm.

3) The Miocene-Pliocene boundary, based on the first appearance of *Globorotalia punticulata*, is at 206-21-6, 100 cm. However, this position may represent a minor disconformity for it coincides with assemblage changes in all three groups. No obvious lithologic boundary was noted.

4) The middle Miocene-late Miocene boundary, based on the extinction of *Globorotalia mayeri*, is between 206-25-1 and 206-25, CC.

5) The early Miocene-mid Miocene boundary, based on the first appearance of *Praeorbulina glomerosa*, is between 206-32, CC and 206-33-1, 90 cm.

6) The Oligocene-Miocene boundary, based on the extinction of *Reticulofenestra bisecta* (which closely approximates the first appearance of *Globigerinoides primordius* at Sites 208 and 209), is between 206C-6, CC and 206C-7-1.

7) The earliest late Eocene-middle Oligocene boundary, an unconformity marked by major faunal and floral changes, is at 206C-15-2, 20 cm.

8) The middle Eocene-late Eocene boundary, based on the first appearance of *Reticulofenestra bisecta* (in association with *Pseudogloboquadrina primitiva*), is between 206C-15, CC and 206C-16-1, 25 cm.

9) The early Eocene-middle Eocene boundary, an unconformity marked by substantial faunal and floral change, is within 206C-19-1, 59-116 cm.

10) The early Paleocene-early Eocene boundary, also a major unconformity, is between 206C-19-3, 129 cm and 206C-19, CC.

11) An age reversal, involving middle Paleocene underlying early Paleocene, occurs between 206C-21-2, 19-108 cm according to the nannofossils.

By applying Berggren's (1969) radiometric time scale to known points in the Neogene sequence, the following sedimentation/compaction and calculated[3] sedimentation rates in meters per million years are indicated:

Age	Sedimentation Including Compaction		Calculated Sedimentation Rate	
Pleistocene	55		55	
Late Pliocene	33		37	
Early Pliocene	19		21	
Late Miocene	8	13	8	14
Mid Miocene	19		21	
Early Miocene	22		–	

A general upward increase in the sedimentation rate, becoming particularly pronounced during the late Pliocene and Pleistocene, is evident from these figures. Because the sequence is almost exclusively of biogenic origin, we interpret this pattern as resulting from increased productivity caused by higher oceanic turnover during the Pleistocene (Arrhenius, 1952). As the site is located northwest of the 1200-km-long west coast of New Zealand and near the boundary between the western and eastern parts of the Tasman Sea, the area may well represent a zone of unusually high water-mass mixing.

Deposition has been of the oceanic, pelagic type throughout although benthonic foraminiferal faunas indicate changes in depth of deposition as follows: the early Paleocene represents the shallowest depths (mid bathyal?) of deposition in the sequence. Depths of deposition apparently increased from the early Paleocene to the Eocene and in turn further increased to the Oligocene. Throughout, the Neogene depths have been similar to those of the present day, i.e., lower bathyal.

Foraminifera

Site 206 includes one of the most continuous Neogene planktonic foraminiferal sequences in the Southern Hemisphere, one of the few available biostratigraphic

[3] By T. A. Davies, based on adjustment of bulk density of each core to that of Core 1.

TABLE 2
Coring Summary – Hole 206

Core	Date	Time	Depth from Drill Floor (m)	Depth Below Sea Floor (m)	Cored (m)	Recovered (m)	Recovery (%)
1	12/1	0020	3206-3210	0-4	4	3.3	82
2	12/1	0140	3210-3219	4-13	9	6.2	69
3	12/1	0240	3219-3228	13-22	9	4.0	44
4	12/1	0415	3228-3237	22-31	9	9.0	100
5	12/1	0520	3237-3246	31-40	9	7.0	78
6	12/1	0625	3246-3255	40-49	9	8.8	98
7	12/1	0720	3255-3264	49-58	9	6.7	74
8	12/1	0855	3264-3273	58-67	9	9.0	100
9	12/1	1005	3277-3286	71-80	9	9.2	100
10	12/1	1115	3286-3295	80-89	9	5.7	63
11	12/1	1220	3295-3304	89-98	9	9.0	100
12	12/1	1330	3304-3313	98-107	9	9.0	100
13	12/1	1445	3313-3322	107-116	9	3.4	38
14	12/1	1540	3322-3331	116-125	9	9.4	100
15	12/1	1645	3331-3340	125-134	9	9.0	100
16	12/1	1745	3340-3349	134-143	9	9.0	100
17	12/1	1905	3349-3358	143-152	9	8.5	94
18	12/1	2010	3358-3367	152-161	9	9.4	100
19	12/1	2110	3371-3380	165-174	9	7.4	82
20	12/1	2230	3380-3389	174-183	9	8.6	96
21	12/1	2330	3389-3398	183-192	9	9.0	100
22	12/2	0055	3398-3407	192-201	9	9.3	100
23	12/2	0210	3407-3416	201-210	9	1.9	21
24	12/2	0350	3416-3425	210-219	9	8.6	96
25	12/2	0510	3425-3434	219-228	9	1.5	17
26	12/2	0615	3434-3443	228-237	9	3.7	41
27	12/2	0735	3443-3452	237-246	9	2.6	29
28	12/2	0900	3456-3465	250-259	9	4.6	51
29	12/2	1020	3465-3474	259-268	9	3.2	36
30	12/2	1130	3474-3483	268-277	9	5.3	59
31	12/2	1245	3483-3492	277-286	9	9.0	100
32	12/2	1350	3492-3501	286-295	9	3.8	42
33	12/2	1555	3501-3510	295-304	9	1.2	13
34	12/2	1750	3510-3519	304-313	9	1.9	21
35	12/2	1845	3519-3528	313-322	9	2.0	22
36	12/2	1950	3528-3537	322-331	9	3.0	33
37	12/2	2050	3541-3550	335-344	9	2.2	24
38	12/2	2210	3550-3559	344-353	9	2.3	26
39	12/2	2315	3559-3568	353-362	9	3.0	33
40	12/3	0050	3568-3577	362-371	9	2.8	31
41	12/3	0215	3577-3586	371-380	9	2.8	31
42	12/3	0325	3586-3595	380-389	9	1.4	16
43	12/3	0440	3595-3604	389-398	9	1.5	17
44	12/3	0600	3604-3613	398-407	9	1.8	20
45	12/3	0725	3613-3622	407-416	9	3.6	40
Total					400	243.6	61

Note: Echo sounding depth (to drill floor) = 3201 meters;
drill pipe length to bottom = 3206 meters.

TABLE 3
Coring Summary – Hole 206A

Core	Date	Time	Depth from Drill Floor (m)	Depth Below Sea Floor (m)	Cored (m)	Recovered (m)	Recovery (%)
			No Cores Taken				

TABLE 4
Coring Summary – Hole 206B

Core	Date	Time	Depth from Drill Floor (m)	Depth Below Sea Floor (m)	Cored (m)	Recovered (m)	Recovery (%)
1	12/18	0350	3408-3417	202-211	9	0.7	8
Total					9	0.7	8

TABLE 5
Coring Summary – Hole 206C

Core	Date	Time	Depth from Drill Floor (m)	Depth Below Sea Floor (m)	Cored (m)	Recovered (m)	Recovery (%)
1	12/19	0120	3610-3619	404-413	9	0.0	0
2	12/19	0210	3619-3628	413-422	9	1.5	17
3	12/19	0410	3628-3637	422-431	9	2.7	30
4	12/19	0530	3637-3646	431-440	9	1.9	21
5	12/19	0645	3646-3655	440-449	9	1.6	18
6	12/19	0909	3668-3677	462-471	9	3.7	41
7	12/19	1130	3686-3695	480-489	9	0.8	9
8	12/19	1320	3705-3714	499-508	9	9.5	100
9	12/19	1545	3724-3733	518-527	9	0.0	0
10	12/19	1800	3737-3746	531-540	9	8.5	94
11	12/19	1955	3753-3762	547-556	9	9.4	100
12	12/19	2200	3771-3780	565-574	9	4.3	48
13	12/20	0030	3790-3799	584-593	9	4.4	49
14	12/20	0315	3809-3818	603-612	9	9.5	100
15	12/20	0445	3818-3827	612-621	9	1.8	20
16	12/20	0630	3836-3845	630-639	9	7.5	83
17	12/20	0825	3855-3864	649-658	9	9.4	100
18	12/20	1040	3874-3883	668-677	9	3.8	42
19	12/20	1340	3893-3902	687-696	9	4.5	50
20	12/20	1545	3912-3921	706-715	9	1.5	17
21	12/20	1845	3931-3940	725-734	9	2.4	27
Total					189	88.7	47

sections in transitional waters in the Southern Hemisphere, and one of the finest Neogene deep-sea biostratigraphic sequences in the world. An apparently continuous planktonic foraminiferal sequence ranges in age from the latest Pleistocene to the Oligocene. In terms of the New Zealand stage classification, this is from the latest Pleistocene to the Whaingaroan stages. Planktonic foraminifera are abundant and well to moderately preserved throughout. In addition, an incomplete foraminiferal sequence occurring in Hole 206C ranges in age from the early Paleocene to the earliest late Eocene.

Faunas occurring in the Pliocene-Pleistocene contain an association, in several intervals examined, of both tropical and temperate elements. On the other hand, the Miocene faunas are dominated by temperate elements important in the New Zealand area. Thus, one of the surprising aspects of the biostratigraphic succession at Site 206 is that the planktonic foraminiferal faunas in the Plio-Pleistocene have close affinities with tropical faunas compared with older faunas, which, in general, have increasingly strong affinities with the faunas of temperate regions with increased age.

Pleistocene

The Pleistocene sequence is represented by relatively high sedimentation rates (approximately 55m/million years), and hence potentially high biostratigraphic resolution exists within this sequence. If mixing due to coring operations is minimal, this sequence will rank among the most important for studies of Pleistocene paleoclimatic-paleooceanographic change. Clear alternations exist between warm-water faunas, including the *Globorotalia menardii* group, and cool-water faunas represented by high frequencies of *Globorotalia inflata* and relatively high frequencies of *Globigerina bulloides*. The Pliocene-Pleistocene boundary is clearly marked at 100 meters by the *Globorotalia tosaensis*-*G. truncatulinoides* transition.

Pliocene

The late Pliocene (N21; Blow, 1969) is marked by an association of *G. tosaensis, G. inflata, Globoquadrina humerosa, Globorotalia* cf. *multicamerata, Globoquadrina altispira,* and *Globigerinoides obliquus.* The middle Pliocene (N20) is represented by a similar fauna except that *G. tosaensis* is absent and *Globorotalia puncticulata* is present. The early Pliocene (N19) fauna contains *G. puncticulata,* but its descendant *G. inflata* is absent. In addition, *Globigerina nepenthes, Sphaeroidinella subdehiscens,* and *Globorotalia margaritae* are new representatives.

The Miocene-Pliocene boundary is clearly marked by the first appearance of *G. puncticulata* and *G. margaritae.*

Miocene

The late Miocene is represented by a fauna that includes abundant *G. nepenthes,* in addition to *Globorotalia conoidea* and *Globigerina woodi decoraperta.* The middle Miocene is marked by abundant *Globorotalia mayeri* in the upper part and *Globorotalia barisanensis* in the lower part. The earlier part of the lower Miocene is also well marked by the *Orbulina* bioseries.

The early Miocene is represented by a thick sequence that contains abundant *G. woodi woodi* in the upper part and *G. woodi connecta* and *Globorotalia kugleri* in the lower part. Also well represented throughout the early Miocene is the *Globorotalia nana* group.

Correlation between the lower part of Hole 206 and the upper part of Hole 206C is made possible by the first appearance, within the lower Miocene, of *Globorotalia kugleri.* In Hole 206 this occurs in 206-44, CC, while in Hole 206C it occurs in 206-1, CC. The upward appearance of *Globorotalia kugleri* was shown by Hornibrook and Edwards (1971) to approximate the Miocene-Oligocene boundary in New Zealand between the Otaian (Miocene) and Waitakian stages (Oligocene). In this report the Oligocene-Miocene boundary is taken at the extinction of the calcareous nannofossil *Reticulofenestra bisecta* which correlates with a position low in the Waitakian Stage of New Zealand. In Hole 206C this level occurs at the top of Core 7C substantially lower than the first appearance of *G. kugleri.*

Four sedimentary phases are recorded in the Paleogene sequence, these being separated by distinct disconformities. The broad sequence in Hole 206C is as follows:

middle to late Oligocene, 206C-7-1 to 206C-15-2, 20 cm

(Disconformity)

late to middle Eocene, 206C-15-2, 20 cm to 206C-19-1, 55 cm

(Disconformity)

early Eocene, 206C-19-1, 116 cm to 206C-19-3, 129 cm

(Disconformity)

early Paleocene, 206C-20-1, 42 cm to 206C-21-2, 65 cm.

Oligocene

Late Oligocene sediments contain *Globoquadrina dehiscens praedehiscens,* while more typical quadrate forms of *Globoquadrina dehiscens* mark lower Miocene and younger intervals. The most persistent and dominant element throughout the Oligocene is *Catapsydrax dissimilis.*

Middle Oligocene (Duntroonian to Late Whaingaroan stages) sediments occur from 206C-10, CC to 206C-15-2, 20 cm based on the absence of *G. dehiscens* and *Globigerina angiporoides* in addition to the presence of typical Oligocene forms. Foraminifera are common to abundant and are moderately well preserved.

The latest middle Oligocene Duntroonian Stage is represented in 206C-10, CC as judged by the absence of *Rotaliatina.* The presence of this form in 206-C-11, CC in addition to the absence of *G. angiporoides* indicates a Whaingaroan age for these and underlying Oligocene sediments.

Eocene

Late middle Eocene (Bortonian Stage) sediments occur from 206C-15-2, 20 cm to 206C-19-1, 55 cm based on an association of *Pseudogloboquadrina primitiva, Globigerapsis index, Globigerina linaperta,* and *G. angiporoides.* Foraminifera are rare to common and are poor to moderately well preserved.

Foraminifera indicate the presence of a disconformity between 206C-19-1, 55 cm and 206C-19-1, 116 cm separating middle Eocene and early Eocene sediments. Taxa present in the early Eocene include *Globorotalia (Morozovella) crater crater* Finlay, *Globigerina* (Subbotina) *triloculinoides* Plummer, *G. (Morozovella) dolabrata* Jenkins, *G. (P.) laevigata* Bolli, and *G. (Acarinina) mckannai* (White). This fauna is correlated with the *G. crater crater* Zone of Jenkins (1966), while the presence of *G. (S.) triloculinoides* suggests a position low in this zone. In terms of New Zealand stage nomenclature, this fauna would be assigned to the Mangaorapan.

Yet another disconformity separates early Eocene from early Paleocene sediments between 206C-19-3, 129 cm and 206C-20-1, 42 cm. Foraminifera present in the early Paleocene include *Gaudryina whangaia* Finlay, *Neoflabellina semireticulata* (Cushman and Jarvis), *Frondicularia teuria* Finlay, *Bolivinoides delicatulus delicatulus* Cushman, *B. delicatulus curta* (Reiss), *Tappanina selmensis* (Cushman), *Zeauvigerina teuria* Finlay, *Globorotalia (Turborotalia) compressa* (Plummer), *Globoconcusa daubjergensis* (Bronnimann), *Globigerina* (Subbotina) *triloculinoides* Plummer, and *Globorotalia (Planorotalites) pseudomenardii* Bolli. This assemblage can be dated as lower Teurian Stage and is a correlative of the *G. pauciloculata* Zone.

Paleodepths

Benthonic foraminifera are uncommon to rare throughout except the early Eocene and Paleocene where they are more common. A lower bathyal fauna including *Pleurostomella, Stilostomella, Gyroidina, Pyrgo, Globocassidulina, Ordorsalis,* and several other forms occurs throughout the Oligocene to Recent interval indicating little depth change from that of present-day lower bathyal depths. In the Eocene and Paleocene the presence of persistent *Bolivina* in association with deep-water forms such as *Pleurostomella* suggests shallower depths within the bathyal environment (middle bathyal?).

Calcareous Nannofossils

Hole 206

This magnificent and very important deep-sea Neogene sequence, which contains extremely abundant nannofloras throughout, can, in terms of its overall calcareous nannofossil affinities, be subdivided into two distinct parts. The lower part, approximating the Miocene, contains relatively poorly preserved nannofloras which, like the age-equivalent nannofloras of both southern and northern New Zealand they so closely resemble, have remarkably little diversity. In contrast, the overlying Plio-Pleistocene strata contain better-preserved and more diverse nannofloras having affinities intermediate between those of the tropics and northern New Zealand. Little or no correlation exists between this upper part of the succession and age-equivalent cool subtropical assemblages obtained from central New Zealand.

Pleistocene (206-1-1, 78 cm to 206-11-1, 25 cm; nannofossil ooze)

The Pleistocene sediments contain abundant, well-preserved nannofossils. Species commonly present are: *Emiliani huxleyi, Gephyrocapsa oceanica*, other *Gephyrocapsa* spp., *Pseudoemiliania lacunosa, Coccolithus pelagicus, Helicopontosphaera kamptneri, Cyclococcolithus leptoporus, Umbilicosphaera mirabilis, Syracosphaera pulchra, Rhabdosphaera claviger*, and *Cyclococcolithina macintyrei.* Other species found in small numbers or as isolated specimens are: *Oolithotus antillarum, Scapholithus ganerotus, Pontosphaera alboranensis, Pontosphaera pacificus, Ceratolithus cristatus, Pontosphaera japonica, Cyclolithella annula, Thoracosphaera heimi, Discosphaera tubifer*, and a holococcolith species.

Environmental conditions have remained relatively stable during the Pleistocene of Site 206. The lower Pleistocene environment was mid-subtropical, corresponding to the present-day latitudinal position of Site 206. This changed for a period to slightly cooler subtropical conditions (Sections 5-2 to 2-3) but returned to a mid-subtropical environment during deposition of the uppermost sediments (Sections 2-3 to 1-1). The latter conditions are found in the most recent sediments of this latitude (Burns, in press).

The Pleistocene sediment can be fitted to the zonal scheme of Martini (1971) as follows: 206-1-1, 78 cm to 206-1, CC, NN21; 206-2-2, 25 cm to 206-2-4, 25 cm, NN20; and 206-2-4, 75 cm to 206-11-1, 25 cm, NN19.

Late Pliocene (206-11-1, 75 cm to 206-18-1, 25 cm; nannofossil ooze)

The late Pliocene section contains abundant, moderately preserved nannofossils. Species commonly present are: *Cyclococcolithina macintyrei, Discoaster brouweri, Discoaster pentaradiatus, Discoaster surculus, Coccolithus pelagicus, Cyclococcolithus leptoporus*, and a *Gephyrocapsa* sp. Other species found in small quantities and as isolated specimens are: *Rhabdosphaera claviger, Helicopontosphaera kamptneri, Syracosphaera pulchra, Pseudoemiliania lacunosa, Umbilicosphaera mirabilis, Scyphosphaera campanula*, and *Pontosphaera* spp. These sediments are characterized by a low content of discoasters.

The environment of deposition in the lower sediments was mid-subtropical, corresponding to the present-day latitudinal position of Site 206. This was followed by a slightly warmer period (Sections 17-5 to 15-6) with a subsequent return to the mid-subtropical conditions corresponding to the present-day latitudinal position.

The late Pliocene sediments can be fitted to the zonal scheme of Martini (1971) as follows: 206-11-1, 75 cm to 206-12-2, 25 cm, NN18; and 206-12-2, 75 cm to 206-18-1, 25 cm, NN16.

Early Pliocene (206-18-1, 75 cm to 206-21-6, 75 cm; nannofossil ooze)

These cores can be readily placed into the Martini (1971) zonation and, like the overlying sequence, are probably correlatable with age equivalent strata in northern New Zealand. However, correlation of all but the basal part of this interval with age-equivalent nannofloras from the distinctly more temperate central New Zealand will be very much more difficult.

Miocene (206-21-6, 125 cm to 206-45, CC; nannofossil ooze and chalk)

These cores contain low diversity nannofloras which can be given more or less exact age assignments. However, only Cores 23 (NN11, late Miocene) and 25 can be readily placed in the zonal scheme of Martini (1971). This is a closely similar situation to that encountered in age-equivalent strata on nearby New Zealand, where almost identical nannofloras are associated with gradually upward decreasing numbers of warm-water macrofossils and larger foraminifera. It is suspected that this situation resulted from the gradual contraction and consequent boundary accentuation of the mid-latitude water masses.

Minor but persistent reworking was noted in Core 37 and many of the underlying cores. This reworking may well reflect the commencement of regression following the widespread late Cretaceous to Oligocene marine transgression of the New Zealand area.

Hole 206A

No cores were taken from this drill hole.

Hole 206B

The only core recovered from this hole contains a late Miocene nannoflora similar to that obtained in Core 22. The slight depth difference between those two cores (201 to 211 meters compared with 192 to 201 meters) probably is not biostratigraphically significant.

Hole 206C

This drill hole, semicontinuously cored between 404 and 734 meters, represents a continuation of the remarkably thick and complete Neogene nannofossil ooze sequence obtained from Hole 206; 206C-1 to 206C-6, CC having almost identical nannofloras to those of Cores 44 and 45. The nannofloras obtained from Hole 206C are interpreted as indicating the following age groupings (in downhole order).

Early Miocene (206C-1, CC to 206C-6, CC; nannofossil ooze)

These floras, which are very abundant, but have a low diversity and poor preservation, are interpreted as being of early Miocene age essentially because they lack, apart from very rare battered reworked specimens, the characteristically late Eocene and Oligocene species *Reticulofenestra bisecta*. The extinction of this very useful ubiquitous species occurs immediately after the first appearance of the early Miocene foraminifer *Globigerinoides primordius* at Site 209 (q.v.) and at a very slightly lower level at Site 208. It is highly probable that the top of *R. bisecta* provides a more reliable regional datum level than the base of *G. primordius.*

Late Oligocene to Mid Oligocene (206C-7-1 to 206C-15-2, 7 cm; nannofossil ooze)

This interval, which contains essentially nannofloras similar to the overlying interval, can be characterized biostratigraphically as the interval between the top *Reticulofenestra placomorpha* and top *R. bisecta* datum levels. The unconformity between this interval and that immediately underlying involves all of the early Oligocene and almost all of the late Eocene. In all probability the lower part of the mid Oligocene is also involved but there is, at present anyway, no means of confirming this using calcareous nannofossils since warm-water taxa are sparse.

Late Eocene? (206C-15-2, 38 cm to 206C-15, CC; radiolarian-nannofossil ooze)

This interval essentially differs from the underlying interval (q.v.) only in containing rare *Reticulofenestra bisecta* which is abundant in the disconformably overlying Oligocene sediments. Thus, its presence may well have resulted from contamination. If so, this interval, like that at the top of the underlying interval, is an approximate correlative of the mid Eocene 7/7 (early Kaiatan to late Bortonian) *Discoaster tani nodifer* of Edwards (1971). On the other hand, the sequential position (including rate of deposition) and content of this interval is fully consistent with its presence. Accordingly, conformity with the late Eocene 1/5 (early Kaiatan) *Reticulofenestra bisecta* Zone of Edwards (1971) is accepted for the purposes of this report. Regardless of which of the above alternatives is correct, this interval is a correlative of the *Discoaster saipanesis* (NP17) Zone of Martini (1971) for the same reasons as given below.

Mid Eocene (206C-16-1, 25 cm to 206C-19-1, 16 cm; radiolarian-rich nannofossil ooze)

Taxa present in this interval, which contains poorly preserved common to abundant nannofloras, include *Coccolithus ovalis* s.l.; *Cyclococcolithina formosa; Reticulofenestra dictyoda; R. hampdenesis* (base at 206-17, CC); and *R. placomorpha* (few in 206C-19-1, 16 cm) plus rarer *Chiasmolithus grandis; C. solitus* (top at 206C-16-5, 25 cm); *Chiphragmalithus cristatus* (apparent top at 206C-18, CC); *Coccolithus eopelagicus* (mainly 206C-17-1 to 206C-19-1 interval); *Cyclicargolithus reticulatus* (base at 206C-16-1, 25 cm); *Discoaster barbadiensis* (top at 206C-17, CC); *D. distinctus* group (overgrown); *D. saipanensis* (base at 206C-17-1, 25 cm); *Sphenolithus moriformis; Zygolithus dubius* (very sporadic); *Zygrhablithus bijugatus*; and the parallel-sided stems of a rhabdolith. The following biostratigraphic correlations are made, in downhole order, with the zonal scheme of Edwards (1971):

1) 206C-16-1, 25 cm: Mid Eocene 7/7 (early Kaitan to late Bortonian) *Discoaster tani nodifer* Zone. Note: The base *C. reticulatus* datum level which, although probably present, is not recognizable due to overgrowth of the *D. distinctus* group.

2) 206C-16-3, 25 cm to 206C-17, CC: Mid Eocene 6/7 (early to mid Bortonian) combined *Discoaster distinctus* and *Reticulofenestra hampdenensis* zones. Notes: The top of *C. cristatus* datum level which separates these two zones does not appear to be reliable in this sequence or that of Site 207 (q.v.). The grill of *R. hampdenensis* appears to be susceptible to solution which in this case is probably postdepositional.

3) 206C-18-2, 24 cm to 206C-19-1, 16 cm: Mid Eocene 5/7 (early Bortonian to late Porangan) part of the *Chiphragmalithus cristatus* Zone.

Judging from the above this semicontinuously cored interval contains a complete open-water mid Eocene 5/7 to 7/7 (late Porangan to early Kaiatan) sequence. In terms of the Martini (1971) zonal scheme, the 206C-16-1, 25 cm to 206-16-3, 25 cm interval is correlative with the *Discoaster saipanensis* (NP17) Zone; the underlying 206C-16-5, 25 cm to 206C-19-1, 16 cm interval correlates with the combined *Discoaster tani nodifer* (NP16) and *Chiphragmalithus alatus* (NP15) zones. A color change at 206C-19-1, 57 cm probably represents a disconformity between this interval and the underlying early Eocene 4/5 sediments.

Early Eocene (206C-19-2, 12 cm to 206C-19-3, 8 cm; nannofossil ooze)

Taxa present in this interval, represented by two richly nannofossiliferous samples, include *Chiasmolithus grandis, Coccolithus cavus, Discoaster lodoensis, Discoasteroides kuepperi,* and *Zygrhablithus bijugatus* (common to abundant) plus rarer *Chiasmolithus solitus, Discoaster barbadiensis, Discoaster diastypus* (lower sample only), *Marthasterites tribrachiatus, Spenolithus radians* (lower sample only), and *Thoracosphaera.* These poorly preserved, open-water assemblages conform to the early Eocene 4/5 (early Mangaorapan) *Discoaster lodoensis* Zone of Edwards (1971) and to the *Marthasterites tribrachiatus* (NP12) Zone of Martini (1971). As in the much more complete Eocene sequence of Site 207 (q.v.), *Zygrhablithus bijugatus* shows a marked upward decrease in abundance through the early to mid Eocene interval. Except for a single specimen of the essentially Maastrichtian index species *Arkhangelskiella cymbiformis* in the lower sample, no taxa characteristic of older sediments occur in this interval. A disconformity is postulated to separate these early Eocene 4/5 assemblages from the underlying early Paleocene 4/4 assemblages. Evidence given below suggests that at least part of the event(s) causing this disconformity occurred within or subsequent to the mid Paleocene. Consequently part of the disconformity may well have occurred near the Paleocene-Eocene boundary (cf. Site 207).

Early Paleocene (206C-19, CC to 206C-21-2, 19 cm; nannofossil clay)

Three distinctly different, poorly preserved assemblage types occur, in sequential order, in this variably nannofossiliferous interval. The exact position of the lower boundary of this interval could not be determined as Section 21C-2 has been subjected to substantial slumping and intermixing (q.v. lithologic summary). The Austral realm element *Hornibrookina teuriensis* shows a distinct downward increase in abundance within this interval.

The upper assemblage type, represented by two samples (206C-19, CC and 206C-21-1, 25 cm), consists of highly fragmented and probably low diversity floras which include (none abundant) *Chiasmolithus bidens* s.l., *Coccolithus cavus, Cruciplacolithus tenuis, Fasciculithus tympaniformis* (upper sample only), *Hornibrookina teuriensis*, and *Prinsius martinii.* The upper sample conforms to the early Paleocene 5/5 (early Teurian) part of the *Fasciculithus tympaniformis* Zone of both Edwards (1971) and Martini (1971; NP5). The lower sample appears to conform to the early Paleocene 4/5 (early Teurian) *Prinsius martinii* Zone of Edwards (1971) and to be a correlative of the combined *Chiasmolithus danicus* (NP3) and *Ellipsolithus macellus* (NP4) zones of Martini (1971). Both samples contain clay-grade isotropic material similar to that of underlying horizons (see below).

The middle assemblage type, represented by two samples (206C-20, CC and 206C-21-1, 61 cm), consists of poorly preserved (battered), low-abundance floras having two distinctly different components. The first component includes *Chiasmolithus danicus, Conococcolithus panis, Coccolithus cavus, Hornibrookina teuriensis, Markalius astroporus,* and *Zygolithus concinnus.* This component indicates a correlation with the early Paleocene 3/5 (Danian; early Teurian) *Chiasmolithus danicus* Zone of Edwards (1971) and the combined *C. danicus* (NP3) and *Ellipsolithus macellus* (NP4) zones of Martini (1971). The second component, just as abundant as the first, includes *Arkhangelskiella cymbiformis, Deflandrius cretaceus, Kamptnerius magnificus, Lucianorhabdulus cayeuxi,* and *Micula staurophora.* This component, composed only of large or robust Late Cretaceous taxa, clearly has been reworked into this deposit. In an undisturbed "death" assemblage this association would imply an early or mid Maastrichtian age. Since both samples mainly consist of clay-grade rounded isotropic material, it seems reasonable to consider the whole sediment involved as having been redeposited. This apparently detrital component may well have come, directly or indirectly, from the New Zealand Plateau which, today at least, includes the southernmost parts of the Norfolk Ridge and Lord Howe Rise.

The lower assemblage type, represented by two samples (206C-21-1, 125 cm and 206C-21-2, 19 cm), consists of poorly preserved, abundant floras having three different components. The first, and most abundant component, includes *Chiasmolithus danicus, Coccolithus cavus, Conococcolithus panis, Cruciplacolithus tenuis, Hornibrookina teuriensis* (abundant), *Markalius astroporus*, and *Zygodiscus sigmoides.* The second component, conspicuous but minor, includes *Arkhangelskiella cymbiformis, Lucianorhabdulus cayeuxi*, and *Micula staurophora.* The presence of these two components plus abundant clay-grade isotropic material indicates similar implications to those given above for the middle assemblage type (q.v.). An exception is that the evidence for reworking, although definite, is not as strong. The third component, present only in 206C-21-2, 19 cm, consists of rare *Ericsonia subpertuse*, a single specimen of *Fasciculithus tympaniformis*, and rare *Thoracosphaera operculata.* With the exception of *E. tympaniformis* these taxa could be part of component 1. However, with the same exception, the only other records of these taxa in this sequence are from the underlying interval. Accordingly they are considered as contamination or infiltration (see below) from the underlying sediments.

Mid Paleocene (206C-21-2, 108 cm to 206C-21, CC; claystone and calcite limestone)

This interval, which is out of sequential order (see above) relative to the remainder of the sequence encountered, is represented by five samples. In downhole order, with lithologic comments in parentheses, these are: (a) 206C-21-2, 108 cm (thin green stringer); (b) 206C-21-2, 131 cm (gray stringer oblique to core); (c) 206C-21-2, 132 cm (white matrix stringer); (d) 206C-21, CC (white hard matrix); and (e) 206C-21, CC (green soft angular inclusion). Samples a to d, especially c and d, contain a moderately well preserved, abundant assemblage. Microscopically three different floras and two different lithologies are present.

Samples a and b include *Chiasmolithus bidens* s.l., *Conococcolithus panis, Coccolithus cavus, Ericsonia subpertusa, Fasciculithus tympaniformis, Markalius astroporus, Prinsium martinii, Thoracosphaera operculata,* and *Zygolithus sigmoides.* These assemblages conform to the mid Paleocene 1/3 (mid Teurian) part of the *Fasciculithus tympaniformis* Zones of both Edwards (1971) and Martini (1971; NP5). In other words their normal biostratigraphic position would be within the lowest part of Core 19C. As in the biostratigraphically slightly lower Sample 206C-19, CC, the matrix of both samples is largely composed of rounded isotropic material.

Samples c and d include *Chiasmolithus bidens*?, *Chiasmolithus grandis* (see below), *Coccolithus cavus, Discoaster* spp. (see below), *Ericsonia subpertusa, Fasciculithus* sp. cf. *tympaniformis, Markalius astroporus, Prinsius martinii, Sphenolithus radians* (see below), *Toweius* spp., *Zygolithus concinnus*, and *Zygrhablithus bijugatus* (see below). Since these assemblages contained a very unusual association of Paleocene and Eocene species, sample d, which was taken with great care to avoid contamination, was examined in detail for nannoliths. Additional taxa found were *Discoaster lodoensis, Discoaster* spp. indeterminate (some as small rosettes, others with free arms), and *Discoasteroides keupperi* (side and plan views observed). It is concluded that these two samples have similar mid Paleocene (definitely Paleocene) biostratigraphic implications to those of samples a and b, but have been infiltrated by drilling mud of early Eocene age. Much apparently authogenic calcite is present in both samples and the calcareous nannofossil preservation, especially of the lower sample, is very poor.

Sample e, an angular inclusion alongside sample d, contains *Chiasmolithus danicus* (abundant), *Conococ-*

colithus panis, Cruciplacolithus tenius, Fasciculithus tympaniformis, Hornibrookina teuriensis, Markalius astroporus, Prinsius martinii, Thoracosphaera operculata, Toweius spp., *Zygodiscus sigmoides*, and *Zygolithus concinnus.* This reworked sample unambiguously conforms to the early Paleocene 5/5 (early Teurian) part of the *Fasciculithus tympaniformis* Zone of Edwards (1971) and Martini (1971). The preservation, abundance, and diversity of this flora are higher than that of 206C-19, CC, its approximate biostratigraphic equivalent is the normal sequential order part of the drill hole. The additional presence of single specimens of the Late Cretaceous taxa *Arkhangelskiella cymbiformis* and *Tetralithus obscurus* indicates that a minor part of this sample has been reworked twice. Clay-grade rounded isotropic material is abundant.

Siliceous Microfossils

Except for a few barren or almost barren cores, all the other cores recovered at this site contain rare to abundant siliceous microfossils. The paleontologic units distinguished within the sequence can also be recognized on changes within the siliceous microfossil assemblages.

From the Quaternary to the middle Oligocene, radiolarians, silicoflagellates, siliceous dinoflagellates, ebridians, and diatoms, although rare to few and only occasionally common, are persistent throughout. Their preservation is generally moderately good, the opaline silica of many skeletons in the sediments of middle Miocene or younger age, being changed into a more or less opaque silica. Slight dissolution was observed in the early Miocene and Oligocene radiolarians. In spite of this mode of preservation and relative scarcity, the siliceous microfossils recovered at this site are of a particular interest because they represent an apparently complete sequence from the middle Oligocene to the Recent. Furthermore, they cooccur with rich calcareous nannofossil and foraminiferal assemblages with which they can be correlated.

As in Northern Hemisphere latitudes higher than about 30°, the Quaternary, Pliocene, Eocene, and partly the Miocene at this southern site lack most of the short-ranging radiolarian species common in equatorial sediments. In addition, the radiolarian zonation proposed by Hays (in Kling, 1971) for the north Pacific is not applicable to Site 206, and correlation with the post-Miocene tropical radiolarian zonation is quite difficult at this time. The silicoflagellates are much better for this purpose.

Core 1 appears to be of latest Pleistocene age based on the absence of *Druppatractus acquilonius*, which is present in Core 2.

In 206-4, CC Pleistocene radiolarians are masked by a rich reworked middle Miocene fauna.

Cores 5 through 8 are of middle and partly early Pleistocene age, based on the occurrence of *Dictyocha lingi* and *Mesocena elliptica.* The upper limits of these two species cannot be established at this site because of the scarcity of silicoflagellates in younger cores. *Pterocanium prismatium* is lacking. One specimen of *Spongaster pentas* 206-20, CC would suggest the *S. pentas* Zone at this level. It is, however, difficult to recognize this zone with any certainty. The same applies for the *Ommatartus penultimus* and *Stichocorys peregrina* zones, although these two species are frequent in core-catcher samples. The *Ommatartus antepenultimus, Cannartus ? pettersoni, C. laticonus*, and *Dorcadospyris alata* were recognized at several levels (Figure 7). The *Calocycletta costata* and *C. virginis* Zones were not distinguished because of the absence of the former species and the difficulty to recognize the latter one among the forms determined as *Calocycletta* sp. The boundary between the *Lychnocanoma elongata* and the *Dorcadospyris ateuchus* Zones is placed somewhere between 206C-6-3, 92-94 cm and 206C-6, CC. The upper boundary of *L. elongata* could not be established, nor could the lower boundary of the *D. ateuchus.*

The silicoflagellates are generally common to few in Cores 5 to 32 and rare or absent at levels above and below this interval. Below 206-32, CC the siliceous benthos (sponge spicules) become common or abundant in the small fractions.

Except for these two important ecological changes, a remarkable event is recorded between 206-20, CC and 206-21, CC with the extinction of several species and the appearance of new forms. It is not clear whether these changes result from an unconformity at this level.

In Cores 12C to 206C-14, CC the radiolarians are practically missing. The few specimens found in 206C-14, CC belong to long-ranging species so that the age of these cores cannot be determined by radiolarians.

In contrast, abundant, well-preserved radiolarian faunas of middle Eocene age were encountered in Cores 15C through 206C-18, CC. They contain frequent *Lychnocanium bellum, Lophocyrtis biaurita*, and other species. The abundance of the radiolarians and of other siliceous microfossils such as diatoms, silicoflagellates, and ebridians at this level might be connected with the intense basic volcanism known in the Eocene of New Caledonia.

Sample 206C-19, CC was barren.

Sample 206C-20, CC contains rare and poorly preserved Upper Cretaceous (Maastrichtian?) radiolarians represented by *Dictyomitra* sp., *Amphipyndax* aff. *stocki, Stichomitra compsa*, and *Cornutella californica.* The radiolarians are probably reworked because in 206C-21, CC the radiolarians, although few and poorly preserved, indicate an early Eocene or late Paleocene age. *Amphicraspedum prolixum* and *Amphicraspedum* sp. are among the most frequent species in this last core.

PHYSICAL PROPERTIES

Bulk Density

The GRAPE density values are plotted against subbottom depth in the hole summary at the end of this chapter.

The sequence cored in Hole 206 can be divided, on the basis of density, into four parts:

1) In the top 50 meters of the sequence the density is low, about 1.6 gm/cc. This represents the most unconsolidated part of the section.

2) Below 50 meters compaction increases, and consequently the density rises abruptly into the range 1.69 to 1.78 gm/cc. It continues in this range down to 190 meters (Core 21).

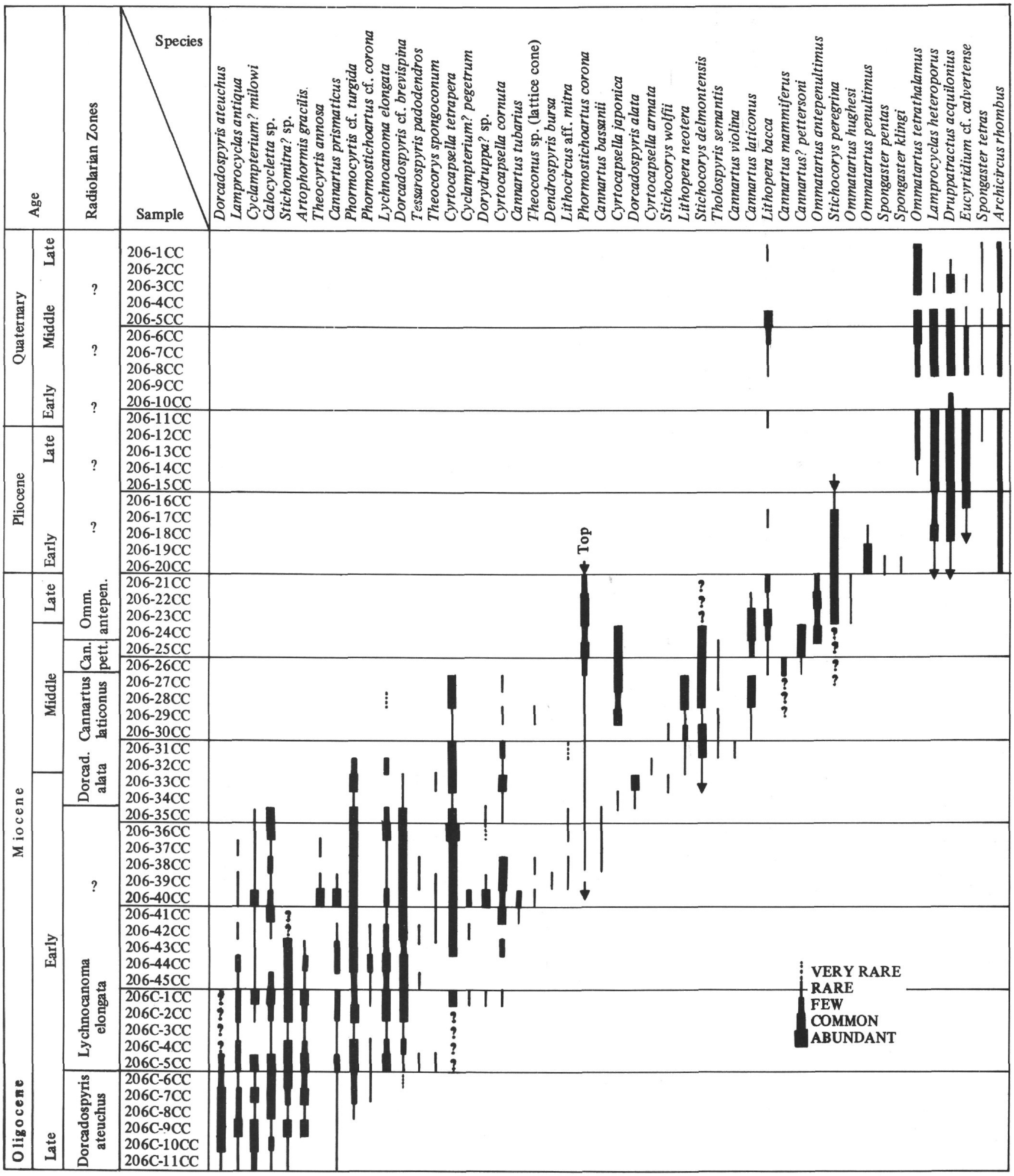

Figure 7. *Distribution of Radiolaria in Late Oligocene – Neogene at Site 206.*

3) With the cutting of Core 22 more consolidated sediment was encountered, and it was necessary to circulate a little water while cutting cores from here on down. Probably as a result of this, the density drops abruptly to less than 1.7 gm/cc below 190 meters and continues variably, but steadily, increasing downward to values as high as 1.81 gm/cc. It is suspected that most of the density values from 190 to 395 meters are low as a result of water injected into the cores while drilling.

4) Core 44 was cut into hard, semilithified sediment. This shows as a density increase to 1.86 gm/cc. Below Core 44, Core 45 was cut in lithified clay nannofossil ooze, and the GRAPE gave a spuriously low reading of 1.68 gm/cc because the core was composed of individual rock fragments with air between them.

In the continuation of drilling at Site 206, Hole 206C, measurements of bulk density were made both with the GRAPE device and by weighing individual rock samples of known volume. Only the latter determinations have been considered in this shipboard report since they are thought to be more reliable. GRAPE density values from Hole 206C have been plotted against subbottom depth in the Hole Summary illustration.

From 400 to 520 meters (Cores 1C to 8C) the density remains at about 1.9 gm/cc. This part of the sequence is the downward continuation of the lithified sequence penetrated by Cores 44 and 45. Core 44 has a density of 1.86 gm/cc, determined by the GRAPE device which compares favorably with the value of 1.9 gm/cc obtained by direct measurement.

Below 520 meters (Cores 10C to 21C) densities rise abruptly into the general range of 2.1 to 2.3 gm/cc. There is no obvious lithologic change associated with the density change, but it should be noted that Cores 10C to 21C show evidence of considerable compression in the form of many small faults with slickensides. It might be expected that an increase in density due to expulsion of pore water and repacking of the sediment would be a consequence of compression. The high density value (2.37 gm/cc) in Core 19C can be accounted for by the fact that the sediment in this core consists almost entirely of calcite granules. However, there is no correspondingly obvious explanation for the peculiarly low values of density for Cores 17C and 18C.

Sonic Velocity

Sonic velocity measurements were made on one or two samples from each core. These values are also plotted in the hole summary illustration. The uniform lithology is reflected by the fact that below 30 meters the sonic velocity remains virtually constant at about 1.5 km/sec all the way down to 300 meters, below which depth it gradually increases to a value of 1.86 km/sec in the lithified clay ooze of Core 45. One low velocity value in Core 11C is probably suspect.

Velocity values generally increase from about 1.7 km/sec to 2.0 km/sec through the upper part of the lithified sequence (Cores 1C to 8C). Accompanying the density jump at 520 meters between Cores 8C and 10C is a corresponding jump in velocity to 2.13 km/sec. The average value of velocity throughout the rest of the cored sequence is 2.2 km/sec.

It might be pointed out that corresponding to the low density values in Cores 17C and 18C, there is a drop in velocity to about 1.87 km/sec. This confirms that there is a real change in bulk physical properties of the rocks in these cores.

Thermal Conductivity and Heat Flow

Thermal Conductivity Measurements

Thermal conductivity values measured on Cores 1 through 39 at this site by the needle probe method range from 2.5 to 3.6 m cal/°C cm sec (TCU), uncorrected for ambient temperature and pressure conditions at the sea floor (see Appendix D). The values increase generally but irregularly between 0 and 190 meters beneath the sea floor (Cores 1 through 21) from about 2.5 to 3.3 TCU; between 190 and 290 meters (Cores 22 through 32) values vary between 2.7 and 3.1 TCU, but there appears to be little systematic change with depth. The existing variability may result largely from the introduction of water by the coring process. Values vary irregularly between 2.6 and 3.6 TCU below 300 meters (Cores 34 through 39); it seems even more probable here that the lower values were measured in sediment cores disturbed by the drilling, with an admixture of additional water, because most of the undisturbed cores within this interval are relatively indurated and are probably represented by the higher values. Cores below Core 39 were too lithified for the shipboard needle probe technique.

Values are genearlly higher than those measured on cores recovered at Sites 203 through 205. The higher values are consistent with a higher calcium carbonate content (Langseth and Von Herzen, 1970) and relatively uniform lithology at this site compared with the others.

Downhole Temperature Measurements

Downhole temperature data were obtained on several attempts during the coring, as summarized in Table 6. The sea-floor temperature was the minimum recorded during descent through the drill pipe on measurement 5; it was reproduced during most other lowerings within 0.1°C. The data obtained beneath the bottom during the various attempts were of a different character, some description of which is useful for understanding the results. The instrument records temperature each 8 sec for about 30 min during a lowering, usually beginning sometime during descent through the drill pipe. The thermistor probe sensor has a thermal time constant of less than 10 sec (stirred water bath), so that the recording frequency compares favorably with the time response of the sensor; temperature changes at the probe of 0.5 min or greater period should be reproduced. Measurement precision is about ±0.01°C.

During measurements 5 and 6, it seems unlikely that the bottom of the hole was sufficiently competent to support the ~10K lb of drill collars below the lowest bumper subs. On both measurements, the temperature increased slowly over several minutes after lowering to bottom, then decreased. The temperatures at measurements 5 and 6 are the maxima recorded at the end of the period of slow increase. Probably the instrument was pushed up into the core barrel by sediment during the bottom penetration. Either slow settling of the probe into soft sediment or

TABLE 6
Downhole Temperature Measurement Summary at Site 206

Measurement	Depth Beneath Sea Floor (m)	Temperature (°C)
5	0	1.94
5	23	2.32
6	59	3.24
7	107	no data
8	143	9.14
9	174	9.45
10	210	no data
11	304	(10.7-minimum)

heating of slumped sediments not in situ, or both, can explain the period of heating. In either case, the measured temperature should be less than the in situ temperature, as indicated by other measurements at this site.

On the other hand, the indications on both measurements 8 and 9 were that the bottom of the hole supported the weight of the collars below the first bumper sub over about a 10-min interval. During this interval, the temperature increased rapidly to relatively steady values 3 to 4 min after penetration, thereafter slowly decreasing. It seems likely that the period of rapid increase represents penetration of the probe into the bottom and its approach to thermal equilibrium. The subsequent slow decay of temperature is too extended in time over both measurements to represent an undisturbed approach of the probe to thermal equilibrium with the sediments. Probably this period represents the thermal influence of the core barrel or drill collars, which have much longer thermal time constants.

On measurement 11, at 304 meters depth, there was no indication that the probe penetrated bottom at the moment when the drill string was placed on bottom. Either the probe was pushed up into the core barrel without penetration by lowering of the drill string onto the indurated sediments at the bottom of the hole, or perhaps more likely, the probe had already been pushed into the core barrel (by the flapper valve?) before reaching bottom. The latter interpretation is supported by the increase in temperature near the end of the measurement period to the 10.7°C presented in Table 6, during a period after coring had commenced.

The temperature gradient from the sea floor down to measurement 8 is about 0.050°C/m (Table 6). The gradient is lower between measurements 8 and 9, although both appear to be comparably valid in situ measurements. It is possible, of course, that measurement 9 penetrated slumped or disturbed sediment, which would cause the measured temperature to be lower than in situ. Most disturbances to downhole measurements would be in the direction of lowering the in situ values, so that all temperatures in Table 6 should be considered minimal.

Measurements 5, 6, and 11 fall below temperatures determined by the gradient between bottom water temperature and either measurement 8 or 9. Since there was no clear indication of bottom penetration on 5, 6, and 11, it seems likely that temperatures measured on these attempts are less than the in situ value. The gradient between the sea floor and measurement 8, combined with the average thermal conductivity to this depth, about 2.8 TCU, gives a heat flow of 1.4μ cal/cm^2 sec, approximately a normal value.

SUMMARY AND CONCLUSIONS

Site 206 is located just east of a small elongated hill on the floor of the New Caledonia Basin. Seismic profiles suggest that the hill may have developed prior to the midpoint of the sedimentary history of the basin (by middle Oligocene).

Lithologically, the sediments are relatively uniform calcareous oozes. All were deposited in an oceanic environment above the calcium carbonate compensation depth. This section contains the most complete biostratigraphic record of planktonic foraminifera and calcarnous nannofossils known for the middle Oligocene to the Recent in transitional Southern Hemisphere latitudes. The four lithologic units described are distinguished on the basis of changes in clay and siliceous fossil content. This is the first site at which the regional unconformity was noted. The interval of late Eocene and early Oligocene is missing. The fact that the site is located in a basin is of particular note since this is the direction one might look for material removed from the Lord Howe Rise (Sites 207 and 208). A Paleocene-Eocene unconformity also occurs here encompassing middle Paleocene, late Paleocene, and most of the early Eocene. The oldest sediments cored at the site are early Paleocene with some reworked Latest Cretaceous material. An age inversion of middle Paleocene underlying early Paleocene at the base of the hole is the result of slumping following deposition.

It is interesting that this uniform sequence presents a very diverse seismic picture giving rise to an interpretation of abyssal plain sediments overlying a pelagic interval above basement. The reflections recorded do not correlate well with lithologic breaks, although the "transparent" section may be related to disturbances noted in the lower units. The presence of clay in Unit 4 (early to middle Eocene) and Unit 2 (middle Oligocene to early Miocene) may be related to local tectonic events. The regional unconformity is not marked by a reflector at this site.

Aside from the presumed development of the hill near the site during early basin history, conditions, as reflected by the sediments, have been quite uniform. The area has undergone a small amount of subsidence, but has always been in the bathyal zone above the calcium carbonate compensation depth.

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NOTE CONCERNING THE APPENDICES

The appendices consist of tables of shore laboratory determinations of grain size, carbon content, and mineralogical composition, summary visual descriptions of the cores recovered from the site, photographs of the cores and, finally, an overall summary of the results of drilling at the site. The symbols used to represent lithology in the core summary forms are explained in Chapter 2 of this volume. The lithologic description of each core contains typical results of shipboard examination of smear slides of each lithology. In order to make the lithologic descriptions more complete we have also included many of the shore laboratory results. These are identified by being placed in square brackets.

APPENDIX A
Grain Size Determinations, Holes 206 and 206C

Core, Section, Top of Interval (cm)	Depth (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
Hole 206					
1-2,63.0	2.1	11.1	26.0	62.9	Silty clay
5-4,100.0	36.5	3.8	18.7	77.5	Clay
9-3,100.0	75.0	6.7	25.8	67.5	Silty clay
10-2,90.0	82.4	1.0	22.5	76.5	Clay
11-4,90.0	94.4	1.0	20.5	78.5	Clay
14-2,100.0	118.5	2.0	27.6	70.4	Silty clay
15-3,120.0	129.2	1.9	24.6	73.5	Silty clay
18-4,120.0	157.7	2.2	27.0	70.9	Silty clay
20-2,66.0	176.2	2.1	31.1	66.8	Silty clay
26-3,64.0	231.6	0.7	44.7	54.6	Silty clay
31-3,64.0	280.6	2.6	42.9	54.5	Silty clay
34-2,40.0	305.9	1.6	42.3	56.2	Silty clay
40-2,66.0	364.2	1.1	41.6	57.2	Silty clay
Hole 206C					
2-2,39.0	414.9	0.3	36.4	63.3	Silty clay
3-2,70.0	424.2	1.1	35.4	63.5	Silty clay
4-2,73.0	433.2	0.5	31.5	68.0	Silty clay

APPENDIX B
Carbon-Carbonate Determinations, Holes 206 and 206C

Core, Section, Top of Interval (cm)	Depth in Hole (m)	Carbon Total (%)	Organic Carbon (%)	$CaCO_3$ (%)
Hole 206				
1-2,140.0	2.9	10.8	0.1	90
5-5,60.0	37.6	10.8	0.1	89
12-3,90.0	101.9	11.2	0.1	93
22-3,120.0	196.2	11.2	0.0	93
26-3,40.0	231.4	11.2	0.0	93
34-2,106.0	306.6	10.6	0.0	88
40-2,56.0	364.1	10.4	0.0	86
44-1,127.0	399.3	8.7	0.1	72
Hole 206C				
2-2,56.0	415.1	6.9	0.1	57
3-2,80.0	424.3	7.6	0.1	62
4-2,103.0	433.5	7.7	0.0	64
5-2,83.0	442.3	8.3	0.1	68
6-3,102.0	466.0	8.7	0.1	71
7-1,115.0	481.1	9.3	0.0	78
8-1,60.0	499.6	8.6	0.1	71
10-2,128.0	533.8	9.7	0.1	80
11-5,105.0	554.0	9.4	0.1	78
12-2,117.0	567.7	9.6	0.1	80
13-3,96.0	588.0	10.3	0.0	85
14-2,95.0	605.5	10.1	0.0	84
15-2,60.0	614.1	6.8	0.0	56
16-1,142.0	631.4	9.0	0.1	74
16-4,60.0	635.1	10.1	0.0	83
17-3,68.0	652.7	7.7	0.0	64
17-6,104.0	657.5	7.0	0.1	58
18-2,119.0	670.7	7.1	0.1	59
19-1,128.0	688.3	11.0	0.0	91
20-1,90.0	706.9	8.2	0.0	68
21-1,72.0	725.7	2.3	0.0	19
21-2,78.0	727.3	7.5	0.0	62

APPENDIX C
X-ray Mineralogy Determinations, Site 206

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amor.	Calc.	Quar.	Plag	Mica.	Mont.	Kaol.	Chlo.	Amph.
Hole 206 Bulk Sample												
1	0-4	2.1	53.3	27.0	98.5	1.5	–	–	–	–	–	–
10	80-89	82.3	53.8	27.8	91.1	3.2	1.7	4.1	–	–	–	–
14	116-125	118.6	49.8	21.6	98.7	1.3	–	–	–	–	–	–
15	125-134	129.1	47.5	18.0	99.3	0.7	–	–	–	–	–	–
18	152-161	157.6	46.5	16.4	99.7	0.3	–	–	–	–	–	–
20	174-183	176.1	45.1	16.4	100.0	–	–	–	–	–	–	–
22	192-201	196.0	47.2	17.5	99.7	0.3	–	–	–	–	–	–
26	228-237	231.6	48.7	19.8	99.7	0.3	–	–	–	–	–	–
31	277-286	280.6	47.6	18.2	100.0	–	–	–	–	–	–	–
34	304-313	305.8	52.2	25.3	98.3	1.1	0.6	–	–	–	–	–
40	362-371	364.1	53.5	27.4	99.1	0.9	–	–	–	–	–	–
44	398-407	399.3	56.7	32.3	86.9	8.1	1.8	1.9	1.2	–	–	–
Hole 206 2-20μ Fraction												
10	80-89	82.3	67.2	48.7	–	38.9	26.1	30.6	–	–	4.5	–
18	152-161	157.6	92.6	88.4	–	54.2	14.6	19.4	–	8.6	3.2	–
34	304-313	305.8	89.4	83.4	–	56.2	33.6	7.6	–	–	2.6	–
40	362-371	364.1	89.9	84.2	–	53.0	37.9	5.2	–	–	2.3	1.7
44	398-407	399.3	70.4	53.8	–	62.7	16.6	10.0	7.6	–	3.1	–
Hole 206 <2μ Fraction												
1	0-4	2.1	87.7	80.8	–	31.0	8.7	34.6	–	25.7	–	–
10	80-89	82.3	91.8	87.2	–	22.3	10.7	36.9	16.5	9.8	3.8	–
14	116-125	118.6	86.1	78.3	–	20.7	7.0	14.2	39.2	17.3	1.6	–
15	125-134	129.1	86.0	78.1	–	21.2	7.4	21.3	29.1	19.2	1.9	–
18	152-161	157.6	90.1	84.6	–	19.6	5.5	20.3	36.6	16.7	1.4	–
20	174-183	176.1	90.7	85.4	–	30.2	12.3	34.9	–	22.6	–	–
22	192-201	196.0	89.4	83.4	–	12.8	5.5	14.9	56.1	10.6	–	–
26	228-237	231.6	83.3	74.0	–	13.5	3.4	11.2	56.0	14.2	1.7	–
31	277-286	280.6	87.1	79.8	–	20.2	7.0	11.4	43.3	16.5	1.7	–
34	304-313	305.8	81.8	71.5	–	27.2	5.6	7.2	51.9	5.6	2.5	–
40	362-371	364.1	88.9	82.6	–	27.4	10.8	3.4	50.7	7.7	–	–
44	398-407	399.3	76.6	63.5	–	59.4	6.9	3.5	26.2	2.4	1.6	–

APPENDIX C – *Continued*

Core	Cored Interval Below Sea Floor (m)	Sample Depth Below Sea Floor (m)	Diff.	Amor.	Calc.	Quar.	Cris.	K-Fe.	Plag.	Mica	Chlo.	Mont.	Trid.	Clin.	Bari.	Kaol.	Pyri.	Amph.
Hole 206C Bulk Sample																		
2	413-422	415.0	61.3	39.5	76.1	11.7	–	–	3.7	5.0	1.3	2.1	–	–	–	–	–	–
3	422-431	424.1	60.6	38.4	76.3	11.1	–	–	4.3	4.1	1.4	2.8	–	–	–	–	–	–
4	431-440	433.2	59.5	36.8	81.8	7.7	–	–	2.7	4.3	1.2	2.4	–	–	–	–	–	–
5	440-449	442.3	56.2	31.5	85.9	7.7	–	–	2.2	2.3	0.7	1.3	–	–	–	–	–	–
6	462-471	466.0	57.1	33.0	85.9	6.5	–	–	2.7	2.9	0.8	1.2	–	–	–	–	–	–
7	480-489	481.1	57.2	33.1	92.3	3.9	–	–	1.5	1.1	–	1.2	–	–	–	–	–	–
8	499-508	499.6	57.9	34.3	85.1	6.1	–	–	3.2	2.5	0.7	2.5	–	–	–	–	–	–
10	531-540	533.8	56.0	31.2	93.2	2.4	–	–	1.2	1.4	–	1.9	–	–	–	–	–	–
11	547-556	554.0	57.7	33.9	88.2	3.2	–	–	–	1.4	–	7.2	–	–	–	–	–	–
12	565-574	567.7	56.0	31.2	92.0	2.8	–	–	–	–	–	5.1	–	–	–	–	–	–
13	584-593	586.4	54.5	28.9	95.5	1.9	–	–	–	–	–	2.6	–	–	–	–	–	–
		587.9	54.5	28.9	97.5	1.4	–	–	–	–	–	1.1	–	–	–	–	–	–
14	603-612	605.4	55.0	29.7	94.3	1.9	–	–	–	–	–	2.7	–	1.1	–	–	–	–
15	612-621	614.1	63.3	42.6	90.9	1.9	–	–	–	–	–	7.2	–	–	–	–	–	–
16	630-639	631.4	56.9	32.6	94.3	1.0	–	–	–	–	–	4.7	–	–	–	–	–	–
		635.1	52.1	25.2	98.0	0.5	–	–	–	–	–	1.5	–	–	–	–	–	–
17	649-658	652.7	69.1	51.7	93.0	1.1	–	–	–	–	–	5.9	–	–	–	–	–	–
		657.7	66.5	47.7	97.9	0.7	–	–	–	–	–	1.3	–	–	–	–	–	–
18	668-677	670.7	68.7	51.0	95.4	1.1	–	–	–	–	–	3.5	–	–	–	–	–	–
19	687-696	688.3	51.1	23.6	98.3	–	–	–	–	–	–	1.7	–	–	–	–	–	–
20	706-715	706.9	62.7	41.6	86.9	2.4	–	–	–	2.0	–	2.3	–	6.3	–	–	–	–
21	725-734	725.7	83.6	74.4	22.0	3.7	52.4	0.6	1.3	2.9	–	8.2	7.6	–	1.4	–	–	–
		727.3	59.9	37.3	84.3	1.0	9.9	–	–	–	–	1.1	2.5	1.3	–	–	–	–
Hole 206C 2μ Fraction																		
2	413-422	415.0	71.6	55.6	–	49.5	–	–	24.6	16.8	8.1	–	–	–	–	–	–	1.1
3	422-431	424.1	67.5	49.3	–	53.0	–	–	21.6	14.1	4.7	6.7	–	–	–	–	–	–
4	431-440	433.2	69.3	52.0	–	48.1	–	–	29.9	16.9	5.1	–	–	–	–	–	–	–
5	440-449	442.3	73.3	58.3	–	46.7	–	–	20.7	15.5	4.4	12.7	–	–	–	–	–	–
6	462-471	466.0	73.8	59.1	–	39.1	–	–	24.0	16.1	6.6	14.2	–	–	–	–	–	–
7	480-489	481.1	77.3	64.5	–	43.6	–	–	19.1	10.1	3.7	22.6	–	–	–	0.9	–	–
8	499-508	499.6	74.2	59.7	–	45.4	–	–	28.2	12.4	5.2	8.7	–	–	–	–	–	–
10	531-540	533.8	77.9	65.5	–	43.2	–	5.1	16.7	6.5	1.3	26.3	–	1.0	–	–	–	–
11	547-556	554.0	78.2	65.9	–	42.9	–	3.1	14.4	5.3	1.8	30.0	–	–	–	–	2.5	–
12	565-574	567.7	88.2	81.6	–	67.0	–	–	24.5	4.6	0.8	–	–	3.1	–	–	–	–
13	584-593	586.4	74.8	60.6	–	50.0	–	3.4	14.3	6.3	7.8	–	–	18.1	–	–	–	–
		587.9	72.4	56.8	–	47.6	–	5.1	14.2	8.7	2.4	–	–	20.6	–	1.3	–	–
14	603-612	605.4	71.9	56.1	–	46.8	–	3.9	13.9	4.8	1.1	–	–	29.4	–	–	–	–
15	612-621	614.1	90.7	85.4	–	20.5	–	2.8	21.4	3.9	0.8	42.0	–	2.3	6.3	–	–	–
16	630-639	631.4	89.6	83.8	–	23.3	–	5.4	16.7	3.5	1.1	48.8	–	1.1	–	–	–	–
		635.1	89.4	83.4	–	18.4	–	3.8	11.2	5.9	0.9	54.0	–	1.2	4.6	–	–	–
17	649-658	652.7	93.7	90.2	–	16.8	–	3.6	9.1	2.2	1.4	59.9	–	–	7.0	–	–	–
		657.7	95.4	92.8	–	22.8	–	–	12.2	–	1.7	57.6	–	–	5.7	–	–	–
18	668-677	670.7	95.7	93.2	–	25.3	–	–	15.7	3.2	–	49.1	–	1.1	5.5	–	–	–
19	687-696	688.3	89.4	83.4	–	5.6	–	–	–	–	–	–	–	44.0	50.4	–	–	–
21	725-734	725.7	83.9	74.8	–	9.5	65.1	4.1	4.3	4.5	–	–	9.7	–	2.8	–	–	–
		727.3	78.2	66.0	–	6.4	57.1	1.1	2.0	2.6	–	–	10.2	17.5	3.1	–	–	–

APPENDIX D
Thermal Conductivity Measurements, Hole 206

Core, Section, Interval Below Top (cm)	Thermal Conductivity (mcal/°C cm sec)	Standard Deviation	Ambient Core Tempera-ture (°C)	Remarks
1-2,70	0.002459	0.005496	19.26	
1-3,75	0.002558	0.006751	20.06	
2-3,100	0.002863	0.009924	18.84	
3-3,100	0.002808	0.007650	18.88	
4-3,65	0.002593	0.008258	18.31	
5-4,60	0.002751	0.013641	19.24	
6-4,60	0.002545	0.008112	19.38	
7-4,60	0.002783	0.004629	18.92	
9-2,52	0.002905	0.007757	19.62	
9-5,54	0.002693	0.017423	20.25	
10-2,72	0.003004	0.005468	20.31	
10-3,69	0.002472	0.007949	20.63	
11-2,70	0.003126	0.005470	22.07	
12-4,64	0.002926	0.006261	21.94	
14-4,62	0.002669	0.007684	19.63	
15-4,48	0.002939	0.005692	21.18	
16-4,55	0.003032	0.004065	21.38	
16-4,68	0.003023	0.006364	21.26	
17-2,70	0.002962	0.007757	21.57	
17-2,80	0.002911	0.008327	20.48	
17-5,70	0.002860	0.008724	21.44	
18-2,70	0.003026	0.007323	21.58	
18-5,80	0.003058	0.011511	22.57	
19-1,80	0.003160	0.008260	22.87	
19-4,75	0.003150	0.007473	21.27	
20-2,75	0.003113	0.010054	21.87	
20-5,62	0.003017	0.006204	23.43	
21-2,0	0.003177	0.008834	21.50	
21-5,0	0.003434	0.009035	21.81	
22-2,0	0.002772	0.009307	20.78	
22-4,0	0.002877	0.006846	21.50	
23-2,0	0.002899	0.004853	21.81	
24-2,70	0.002436	0.006122	21,27	
24-5,0	0.002955	0.014200	23.56	
25-1,0	0.003016	0.005261	23.29	
26-2,0	0.002762	0.010256	22.97	
27-1,70	0.002948	0.006408	20.46	
28-3,73	0.003011	0.006946	20.94	
29-3,72	0.002969	0.004469	20.62	
30-3,70	0.002973	0.005814	21.07	
31-2,65	0.003136	0.007000	22.52	
31-5,65	0.002868	0.005188	20.96	
32-1,125	0.002954	0.010039	20.98	
32-2,67	0.003059	0.003781	22.36	
34-2,73	0.003655	0.006025	20.29	
35-2,75	0.003132	0.006068	20.92	
36-2,72	0.002697	0.014020	20.19	
38-2,70	0.003247	0.005376	20.96	
39-2,71	0.003457	0.003968	20.71	

Site 206 Hole Core 1 Cored Interval: 0-4 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
LATEST PLEISTOCENE	N23	N F	A A	G G	1	0.5 1.0	EMPTY A	2	
		N	A	G	2			2	XM GZ
	NN21	N	A	G	3			2 to 3	CC
LATEST PLEISTOCENE	N23 NN21	F N R	A A R	G G M	Core Catcher		F		

LITHOLOGIC DESCRIPTION

10YR7/2 ↓ 10YR6/4

GLASS BEARING FORAM RICH NANNO OOZE
light gray to pale brown, creamy
75% nannos
15% forams
5% glass
2% diatoms
2% rads
1% sponge spicules

N7/0
5Y7/1

FORAM RICH NANNO OOZE
light gray, creamy, with faint streaks of gray (N5/0)
75% nannos
20% forams
2% glass
1% sponge spicules
1% feldspar
1% pyroxene

5Y7/1

FORAM NANNO OOZE
light gray, creamy, dark gray streaks in lower part.
45% forams
50% nannos
2% rads
3% feldspar & zeolite

5Y7/1 to 5Y5/1

[11% sand, 26% silt, 63% clay]
X-ray - 27% amorphous, 73% crystalline: 98% calc., 2% qtz.

N8/0 to N7/0

FORAM RICH NANNO OOZE [90% $CaCO_3$]
white to light gray, creamy, with discontinuous and continuous bands of 5Y7/1 light gray

FORAM BEARING GLASS RICH NANNO OOZE
73% nannos
15% glass
10% forams
2% zeolites

Site 206 Hole Core 2 Cored Interval: 4-13 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
PLEISTOCENE	N22 / NN20				1	0.5 1.0	EMPTY		
		N	A	G	2		F	2 to 3	
		N	A	M			F	4	
		F N	A A	G M	3		EMPTY F	3 to 4	
		N N	A A	M M	4		EMPTY F	2 to 3	
	NN19	N	A	M	5		F	3 to 4	
PLEISTOCENE	N22 NN19	F N R	A A R	G M M	Core Catcher		F		

LITHOLOGIC DESCRIPTION

N8/0 and 5Y6/1

FORAM BEARING NANNO OOZE
white and light gray, creamy
86% nannos
10% forams
2% rads
1% sponge spicules
1% feldspar

5Y5/1

GLASS SHARD ASH
gray, gritty
94% light glass
2% feldspar
2% pyroxene
2% zeolites

N8/0

5Y7/1

FORAM BEARING NANNO OOZE
white to light gray, mostly creamy, occasionally soupy
94% nannos
5% forams
1% rads

N8/0

5Y7/1

N7/0

5GY6/1

GLASS SHARD, SPONGE SPICULE AND FORAM BEARING NANNO OOZE
1 cm band
71% nannos
10% forams
5% sponge spicules
6% glass
2% feldspar
2% pyroxene

N7/0

FORAM BEARING NANNO OOZE
light gray, creamy, with light gray bands
80% nannos
10% forams
2% feldspar
2% light glass
1% zeolites
1% rads
1% sponge spicules

FORAM BEARING NANNO OOZE
91% nannos
4% forams
2% rads
3% glass

Site 206 Hole Core 3 Cored Interval: 13-22 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
PLEISTOCENE	N22	N	A	M	1	0.5, 1.0	EMPTY	3 to 4		5Y7/1 to 5Y8/1 FORAM BEARING NANNO OOZE light gray to white, creamy to soupy, indistinct banding 1 to 5 cms thick	94% nannos 5% forams 1% iron oxide
		N	A	M	2			4		EMPTY N7/0 FORAM RICH NANNO OOZE light gray, creamy, indistinct banding in top 10 cms	75% nannos 20% forams 2% rads 2% feldspar 1% zeolites
		N F	A A	M G	3		EMPTY EMPTY	4		EMPTY N8/0 GLASS SHARD BEARING FORAM RICH NANNO OOZE white creamy to soupy homogeneous	80% nannos 13% forams 4% glass 1% feldspar 1% rads 1% sponge spicules
										5Y7/1 & N8/0 FORAM RICH NANNO OOZE light gray and white	
	N22 NN19	F N R	A A R	G M M	Core Catcher					FORAM BEARING NANNO OOZE	90% nannos 8% forams 2% glass

Site 206 Hole Core 4 Cored Interval: 22-31 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
PLEISTOCENE	N22 NN19	N	A	M	1	0.5, 1.0	EMPTY	4		N7/0 GLASS SHARD AND FORAM BEARING NANNO OOZE light gray, soupy texture, no bedding preserved	89% nannos 4% forams 4% glass 1% feldspar 1% rads 1% sponge spicules
		N	A	M	2			4		N7/0 FORAM BEARING NANNO OOZE light gray, soupy texture no bedding preserved	82% nannos 10% forams 2% diatoms 2% rads 2% sponge spicules 1% feldspar 1% glass
		N F	A A	M G	3			4			5% forams 90% nannos 1% diatoms 1% rads 1% sponge spicules 1% feldspar 1% iron oxide
		N	A	M	4			4		N7/0 GLASS SHARD BEARING FORAM RICH NANNO OOZE light gray creamy texture, no bedding preserved	80% nannos 14% forams 5% glass 1% sponge spicules
		N	A	M	5		EMPTY	4		N7/0 FORAM BEARING NANNO OOZE light gray soupy texture, no bedding preserved	90% nannos 5% forams 2% rads 2% feldspar 1% sponge spicules
		N	A	M	6					N7/0 to N8/0	
								3		N7/0 to N8/0 FORAM RICH NANNO OOZE light gray to white, some harder lumps otherwise creamy texture	73% nannos 25% forams 2% rads
PLEISTOCENE	N22	F N R	A A C	G M G	Core Catcher						

Site 206 Hole Core 5 Cored Interval: 31-40 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
PLEISTOCENE	N22 NN19	N	A	M	1	0.5, 1.0	EMPTY	4		
		N	A	M	2			4		
		N F	A A	M G	3		EMPTY	4		
		N	A	M	4				GZ	
		N	A	M	5		EMPTY	3 to 4	CC	
PLEISTOCENE	N22 NN19	F N R	A A F	G M G	Core Catcher					

N7/0 FORAM RICH NANNO OOZE
light gray, soupy, no bedding preserved

N7/0 NANNO BEARING FORAM OOZE
light gray lithified gragments to 3 cms
95% forams
5% nannos

N7/0 FORAM RICH NANNO OOZE
light gray with a few white patches (N8/0) and reddish gray (10R6/1) patches and streaks soupy to creamy texture, some deformed bedding visible in top of Section 3, and most of Section 4
85% nannos
12% forams
2% glass
1% sponge spicules

85% nannos
11% forams
2% glass
1% feldspar
1% sponge spicules

85% nannos
10% forams
2% light glass
1% rads
1% sponge spicules

[4% sand, 19% silt, 78% clay]

N7 and 5Y7/1
5Y7/1
[89% $CaCO_3$]
85% nannos
12% forams
2% glass
1% feldspar

N7 and 5Y7/1

GLASS BEARING FORAM RICH NANNO OOZE
75% nannos
19% forams
4% light glass
1% feldspar
1% sponge spicules

Site 206 Hole Core 6 Cored Interval: 40-49 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
PLEISTOCENE	N22 NN19	N	A	M	1	0.5, 1.0	EMPTY			
		N	A	M	2		EMPTY	4		
		N F	A A	M G	3			4		
		N	A	M	4		A	4		
		N	A	M	5			4		
		N	A	M	6			4		
PLEISTOCENE	N22 NN19	F N R	A A R	G M G	Core Catcher		F, A			

N8/0 FORAM BEARING NANNO OOZE
white, homogeneous, soupy texture
90% nannos
7% forams
2% light glass
1% sponge spicules

N7/0 FORAM RICH NANNO OOZE
light gray, homogeneous, soupy texture, to creamy less disturbed Section 3, 65 to 100 cms
85% nannos
11% forams
2% rads
1% sponge spicules
1% feldspar

80% nannos
17% forams
2% light glass
1% sponge spicules

N7/0 GLASS SHARD BEARING FORAM RICH NANNO OOZE
light gray streaked with slightly darker gray creamy in upper 85 cms of Section 4, soupy below
70% nannos
21% forams
6% glass
1% ?Chlor.
1% diatoms
1% rads

76% nannos
20% forams
2% rads
1% glass
1% zeolites

N7/0 FORAM BEARING NANNO OOZE
light gray, homogeneous, soupy texture
90% nannos
8% forams
2% glass

GLASS SHARD AND FORAM BEARING NANNO OOZE
85% nannos
9% forams
5% light glass
1% zeolites

Site 206 Hole Core 7 Cored Interval: 49-58 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
PLEISTOCENE	N22 NN19					0.5	EMPTY				
		N	A	M	1	1.0		4		N7/0 GLASS SHARD AND FORAM BEARING NANNO OOZE light gray, streaked with gray (5Y6/1) and reddish gray (10R6/1). Soupy texture, no layering preserved in Section 1 but deformed layering in Section 2, 100 to 150 cms	90% nannos 5% forams 3% glass 1% rads 1% sponge spicules
		N	A	M	2			4			
		N F	A A	M G	3			4		N7/0 GLASS SHARD BEARING FORAM RICH NANNO OOZE light gray homogenized, Section 3, 100 to 120 cms streaked with reddish gray (10R6/1) soupy to creamy texture	70% nannos 24% forams 4% light glass 1% rads 1% sponge spicules
		N	A	M	4			4			70% nannos 20% forams 7% light glass 2% sponge spicules 1% diatoms
		N	A	M	5		EMPTY	4		N7/0 FORAM RICH NANNO OOZE light gray homogenized, soupy texture	80% nannos 17% forams 2% light glass 1% sponge spicules
PLEISTOCENE	N22 NN19	F N R	A A R	G M M	Core Catcher						80% nannos 16% forams 1% diatoms 1% rads 1% sponge spicules 1% glass 1% silicoflag.

Site 206 Hole Core 8 Cored Interval: 58-67 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
PLEISTOCENE	N22 NN19					0.5	EMPTY				
		N	A	M	1	1.0	EMPTY	4		N7/0 FORAM BEARING NANNO OOZE light gray streaked with various darker shades of gray, creamy	
		N	A	M	2			4			92% nannos 4% forams 2% light glass 1% feldspar 1% sponge spicules
		N F	A A	M G	3			3 to 4		dark gray band N7/0 light gray streaked with various shades of darker gray and yellowish gray	86% nannos 10% forams 3% light glass 1% sponge spicules
		N	A	M	4			4		N7/0 & N8/0 light gray to very light gray streaked with various shades of darker gray	94% nannos 3% forams 2% diatoms 1% light glass
		N	A	M	5			3 to 4		N8 & N7/0 INTERBEDDED GLASS BEARING FORAM RICH NANNO OOZE (very light gray - most of section) AND GLASS AND FORAM BEARING NANNO OOZE (light gray - four bands 5 to 15 cms thick) both lithologies streaked with darker gray, creamy texture, deformed layering preserved	80% nannos 15% forams 3% light glass 1% diatoms 1% sponge spicules 92% nannos 5% forams 3% light glass 1% sponge spicules
		N	A	M	6			3 to 4		N7/0 & N8/0 Interbedded lithologies as above but light gray dominant.	
MIDDLE PLEISTOCENE	N22 NN19	F N R	A A R	G M M	Core Catcher					GLASS SHARD BEARING FORAM RICH NANNO OOZE	80% nannos 1% rads 12% forams 1% sponge spicules 5% light glass 1% silicoflag.

Explanatory notes in Chapter 1

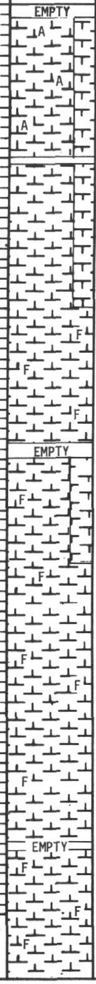
Site 206 Hole Core 9 Cored Interval: 71-80 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
PLEISTOCENE	N22 NN19	N	A	M	1	0.5 1.0	F	4		N7/0	FORAM BEARING NANNO OOZE light gray soupy to Section 2, 40 cms mainly creamy below with darker gray streaks — 87% nannos, 10% forams, 1% rads, 1% sponge spicules, 1% light glass
		N	A	M	2		F	4			92% nannos, 4% forams, 1% light glass, 1% zeolites, 1% rads, 1% sponge spicules
		N F	A A	M G	3		EMPTY, F	4	GZ	5B7/1 N8/0	87% nannos, 10% forams, 1% rads, 1% sponge spicules, 1% light glass [7% sand, 26% silt, 68% clay]
		N	A	M	4		F	4		5Y6/1 5Y7/1	FORAM RICH NANNO OOZE light olive gray, creamy with darker streaks, color difference probably due to material enclosed in forams — 77% nannos, 20% forams, 1% rads, 1% sponge spicules, 1% light glass FORAM BEARING NANNO OOZE light gray with darker gray streaks, creamy texture, some traces of highly deformed bedding — 82% nannos, 10% forams, 2% light glass, 1% sponge spicules
		N	A	M	5		F	4		5B9/1 to 5B7/1	88% nannos, 10% forams, 1% rads, 1% iron oxide
		N	A	M	6		F, A	4		N8/0 5B7/1	dark band - 90% nannos, 5% forams, 3% glass, 1% zeolites, 1% ?quartz
PLEISTOCENE	N22 NN19	F N R	A A R	G M M	Core Catcher		A				GLASS SHARD BEARING FORAM RICH NANNO OOZE — 80% nannos, 5% light glass, 1% pyroxene, 12% forams, 1% zeolites, 1% feldspar

Site 206 Hole Core 10 Cored Interval: 80-89 m

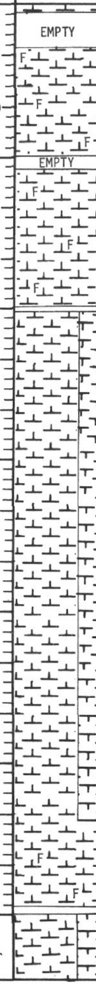
AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
PLEISTOCENE	N22 NN19	N	A	M	1	0.5 1.0	EMPTY, F	4		5B7/1 to 5B9/1	FORAM BEARING NANNO OOZE light bluish gray to bluish white, with some dark gray streaks, traces of highly deformed layering, creamy texture — 87% nannos, 10% forams, 1% rads, 1% sponge spicules, 1% pyroxene
		N	A	M	2		EMPTY, A, F	4	XM GZ	5B7/1 to 5B9/1	GLASS AND FORAM BEARING NANNO OOZE bluish white to light bluish gray with streaks of dark gray and brownish gray (5Y4/1), creamy texture, traces of highly deformed bedding — 85% nannos, 9% forams, 4% glass, 1% sponge spicules X-ray - 28% amorphous, 72% crystalline: 91% calc., 3% qtz., 2% plag., 4% mica [1% sand, 23% silt, 77% clay]
		N F	A A	M G	3		EMPTY, F, A	4		5B7/1	FORAM BEARING NANNO OOZE light bluish gray with medium gray (N5/0) and dark gray (N3/0) streaks, creamy texture in upper part, soupy below — 91% nannos, 5% forams, 1% rads, 1% sponge spicules, 1% feldspar
		N	A	M	4		A, F	4			90% nannos, 7% forams, 2% glass, 1% sponge spicules
PLEISTOCENE	N22 NN19	F N R	A A R	G M M	Core Catcher		F, A				GLASS AND FORAM BEARING NANNO OOZE — 90% nannos, 4% glass, 3% forams, 1% feldspar, 1% zeolites, 1% sponge spicules

Site 206 Hole Core 11 Cored Interval: 89-98 m



AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE PLIOCENE - EARLY PLEISTOCENE	NN19	N N N	A A A	M M M	1	0.5 1.0 EMPTY	3 to 4		N8/0 to N7/0 GLASS BEARING FORAM RICH NANNO OOZE white to light gray (N6/0) and reddish gray (10R6/1) creamy texture, traces of highly deformed layering — 83% nannos, 9% forams, 4% light glass, 1% rads, 1% sponge spicules ← EMPTY
	N22 NN18	N	A	M	2		4		N8/0 FORAM RICH NANNO OOZE very light gray with rare streaks of dark gray, creamy texture — 80% nannos, 15% forams, 2% rads, 1% sponge spicules, 1% glass
		N F	A A	M G	3	EMPTY	4		N8/0 FORAM BEARING NANNO OOZE very light gray with streaks of dark gray creamy texture — 90% nannos, 5% forams, 2% rads, 1% sponge spicules, 1% zeolites, 1% iron oxide
		N	A	M	4		4	GZ	N8/0 FORAM RICH NANNO OOZE very light gray with rare streaks of darker gray, creamy texture — 79% nannos, 15% forams, 2% diatoms, 2% rads, 1% feldspar, 1% pyroxene [1% sand, 21% silt, 78% clay] 5YR6/1 to N8/0 FORAM BEARING NANNO OOZE light brownish gray to very light gray streaked with yellowish gray (5Y8/1) and dark gray (N3/0), creamy textures, traces of highly deformed layering — 90% nannos, 5% forams, 2% diatoms, 2% rads, 1% sponge spicules
		N	A	M	5		4		
		N	A	M	6	EMPTY	4		85% nannos, 10% forams, 2% rads, 1% sponge spicules, 1% zeolites 90% nannos, 5% forams, 2% glass, 1% diatoms, 1% rads, 1% sponge spicules
	N22 NN18	F N R	A A F	G M M	Core Catcher				

Site 206 Hole Core 12 Cored Interval: 98-107 m



AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE PLIOCENE	NN18	N N	A A	M M	1	EMPTY 0.5 1.0	4		5Y8/1 FORAM BEARING NANNO OOZE light greenish gray to very light gray with rare streaks of dark gray, light brownish gray (5YR6/1) and yellowish gray (5Y8/1) creamy texture with traces of highly deformed layering — 91% nannos, 5% forams, 2% rads, 1% diatoms, 1% sponge spicules N8/0 5Y8/1 N8/0 — 92% nannos, 4% forams, 1% diatoms, 1% rads, 1% sponge spicules, 1% feldspar
		N N N	A A A	M M M	2	EMPTY	4		N8/0
	N22 NN16	N F	A A	M G	3		4	CC	← EMPTY 5YR6/1 and N8/0 FORAM RICH NANNO OOZE very light gray to light brownish gray with streaks of yellowish gray (5Y8/1), light greenish gray (5G8/1) and gray, creamy texture, traces of deformed to very highly deformed bedding [93% $CaCO_3$] — 85% nannos, 12% forams, 1% rads, 1% sponge spicules, 1% dark glass N8/0 — 75% nannos, 20% forams, 2% rads, 1% diatoms, 1% sponge spicules, 1% light glass
		N	A	M	4		4		
		N	A	M	5		4		N8/0 — 85% nannos, 13% forams, 1% sponge spicules, 1% light glass N8/0
		N	A	M	6		4		5Y6/1 light olive gray — 89% nannos, 10% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% light glass N8/0 FORAM BEARING NANNO OOZE very light gray with dark gray streaks, creamy texture, traces of deformed bedding ← EMPTY
	N22	F N R	A A F	G M M	Core Catcher				FORAM RICH NANNO OOZE. 84% nannos, 11% forams, 2% rads, 2% light glass, 1% ?quartz

Site 206 Hole Core 13 Cored Interval: 107-116 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE PLIOCENE	N21 NN16	N N N	A A A	M M M	1	0.5 1.0		4		N8/0 FORAM BEARING NANNO OOZE very light gray with yellowish gray (5Y8/1) and darker gray streaks, mainly creamy texture in Section 1, mainly soupy in Sections 2 and 3. 85% nannos, 10% forams, 2% diatoms, 2% rads, 1% sponge spicules
		N	A	M	2		EMPTY	4		85% nannos, 10% forams, 2% diatoms, 2% rads, 1% sponge spicules
		N F N N	A A A A	M G M M	3			4		N8/0 FORAM RICH NANNO OOZE very light gray with vertical streaks of dark gray and yellowish gray (5Y8/1). 75% nannos, 20% forams, 2% diatoms, 2% rads, 1% sponge spicules
LATE PLIOCENE	N21 NN16	F N R	A A F	G M M	Core Catcher					75% nannos, 21% forams, 2% rads, 1% sponge spicules, 1% light glass

Site 206 Hole Core 14 Cored Interval: 116-125 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE PLIOCENE	N21 NN16	N	A	M	1	0.5 1.0		4		N8/0 FORAM RICH NANNO OOZE very light gray with streaks of darker gray (N3/0) and yellowish gray (5Y/1), texture mainly creamy, traces of layering very highly deformed
		N	A	M	2			4	GZ XM	79% nannos, 15% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% iron oxide [2% sand, 28% silt, 70% clay] X-ray - 22% amorphous, 78% crystalline: 98% calcite, 2% quartz ← EMPTY
		N F	A A	M G	3			4		80% nannos, 15% forams, 2% diatoms, 2% rads, 1% sponge spicules ← EMPTY
		N	A	M	4			4		N8/0 FORAM BEARING NANNO OOZE very light gray with streaks of yellowish gray (5Y6/1) and dark gray, creamy texture, traces of highly deformed to very high deformed layering. 92% nannos, 5% forams, 1% diatoms, 1% rads, 1% sponge spicules
		N	A	M	5			4		90% nannos, 5% forams, 2% rads, 1% sponge spicules, 1% diatoms, 1% light glass, 1% feldspar, 1% zeolites ← EMPTY
		N	A	M	6			3 to 4		N8/0 FORAM RICH NANNO OOZE very light gray with shots and streaks of dark gray and yellow gray, creamy texture, layering moderately to highly deformed. 80% nannos, 15% forams, 2% rads, 1% diatoms, 1% sponge spicules, 1% glass
LATE PLIOCENE	N21 NN16	F N R	A A F	G M M	Core Catcher					75% nannos, 21% forams, 2% light glass, 1% rads, 1% sponge spicules

Site 206 Hole Core 15 Cored Interval: 125-134 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
LATE PLIOCENE	N20 NN16	N	A	M	1	0.5, 1.0		3 to 4	
		N	A	M	2			3 to 4	
		N / F	A / A	M / G	3			4	XM GZ
		N	A	M	4			4	
		N	A	M	5			4	
		N	A	M	6		EMPTY	4 to 3	
	N20 NN16	F / N / R	A / A / R	G / M / M	Core Catcher				

LITHOLOGIC DESCRIPTION

N8/0

FORAM RICH NANNO OOZE
very light gray with streaks and shots of dark gray (N3/0) and yellowish gray (5Y8/1), creamy texture, traces of moderately deformed to very highly deformed layering

← EMPTY

75% nannos
20% forams
1% diatoms
1% rads
1% sponge spicules
1% pyroxene
1% light glass

X-ray - 18% amorphous, 82% crystalline: 99% calcite, 1% quartz

80% nannos
15% forams
1% rads
1% sponge spicules
1% fish debris
1% light glass
1% amphib.

[2% sand, 25% silt, 73% clay]

75% nannos
20% forams
1% diatoms
1% rads
1% sponge spicules
1% fish debris
1% light glass

← EMPTY

75% nannos
20% forams
2% rads
1% sponge spicules
1% fish debris
1% light glass

FORAM BEARING NANNO OOZE 90% nannos, 7% forams, 1% sponge spicules, 1% light glass, 1% rads

Site 206 Hole Core 16 Cored Interval: 134-143 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
MID-LATE PLIOCENE	N20 NN16	N	A	M	1	0.5, 1.0		4	
		N	A	M	2			4	
		N	A	M	3				
		N	A	M	4			4	
		N	A	M	5			4	
		N	A	M	6				
MID PLIOCENE	N20 NN16	F / N / R	A / A / R	G / M / M	Core Catcher				

LITHOLOGIC DESCRIPTION

N8/0

FORAM BEARING NANNO OOZE
very light gray (N8/0) and bluish white (5B9/1) to greenish gray (5G8/1) with streaks of yellow gray (5Y8/1) and dark gray (N3/0). Mostly soupy to Section 2, 60 cms, creamy thereafter. Traces of very highly deformed layering in Sections 2 to 4, less deformed in Section 5 to 6.

86% nannos
7% forams
2% rads
1% sponge spicules
1% fish debris
1% glass
1% zeolites

← EMPTY

5B9/1 to 5G8/1

83% nannos
10% forams
2% rads
1% sponge spicules
1% feldspar
1% pyroxene
1% amphib.
1% light glass

← EMPTY

N8/0

90% nannos
6% forams
1% rads
1% feldspar
1% sponge spicules
1% zeolites

← EMPTY

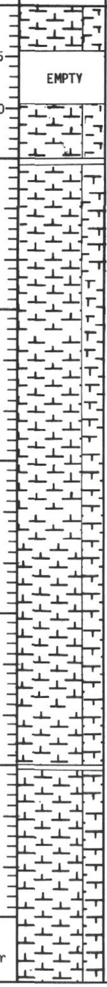
← EMPTY

85% nannos
10% forams
2% diatoms
2% rads
1% sponge spicules

FORAM RICH NANNO OOZE 85% nannos, 11% forams, 2% rads, 1% sponge spicules, 1% light glass

Site 206 Hole Core 17 Cored Interval: 143-153 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID PLIOCENE	N20 NN16	N	A	M	1	0.5, 1.0		4		N8/0
		N	A	M				4		← EMPTY
		N	A	M	2			4		
		N	A	M	3			4		
		F	A	G						
		N	A	M	4			4		
		N	A	M	5			4		← EMPTY
		N	A	M	6					5B9/1
MID PLIOCENE	N20 NN16	F / N / R	A / A / R	G / M / M	Core Catcher					



FORAM RICH NANNO OOZE
very light gray to bluish white (5B9/1) with vertical streaks of yellow gray (5Y8/1) and dark gray (N3/0), creamy texture in Sections 1 to 3, creamy and soupy in Sections 4 to 6.

74% nannos
20% forams
2% diatoms
2% light glass
1% rads
1% sponge spicules

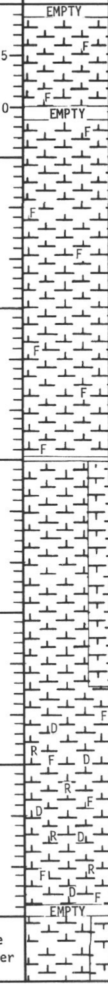
86% nannos
10% forams
1% diatoms
1% rads
1% pyroxene
1% light glass

79% nannos
15% forams
2% diatoms
2% rads
1% sponge spicules
1% feldspar

85% nannos
12% forams
2% light-glass
1% sponge spicules

Site 206 Hole Core 18 Cored Interval: 152-161 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY-MID PLIOCENE	N19-N20 NN13-NN15	N	A	P	1	0.5, 1.0				N8/0
					2			4		
		F	A	G	3			4		← EMPTY
		N	A	P	4			4	XM GZ	N8/0
					5			4		N8/0
					6					
EARLY PLIOCENE	N19	F / N / R	A / A / F	G / P / M	Core Catcher					



FORAM BEARING NANNO OOZE
white, creamy with dark gray streaks (N3/0)

82% nannos
8% forams
2% diatoms
2% rads
1% sponge spicules
1% fish debris
1% feldspar
1% dark glass
1% light glass

FORAM RICH NANNO OOZE
white, creamy texture, with dark gray (N3/0) and yellowish gray (5Y8/1) streaks

80% nannos
15% forams
2% rads
1% sponge spicules
1% diatoms
1% light glass

X-ray - 16% amorphous, 84% crystalline: 99% calcite, 1% quartz

[2% sand, 27% silt, 71% clay]

DIATOM, RAD AND FORAM BEARING NANNO OOZE
white, creamy texture with dark gray (N3/0) and yellowish gray (5Y8/1) streaks

80% nannos
10% forams
5% rads
3% diatoms
2% light glass
1% sponge spicules

FORAM RICH NANNO OOZE
80% nannos
16% forams
1% rads
1% sponge spicules
1% dark glass
1% light glass

Site 206 Hole Core 19 Cored Interval: 165-174 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY PLIOCENE	N19 NN13-NN15	N	A	P	1	0.5, 1.0	EMPTY	4	N8/0	DIATOM AND FORAM BEARING NANNO OOZE white, creamy texture, with dark gray (N3/0) streaks — 81% nannos, 10% forams, 3% diatoms, 2% rads, 1% sponge spicules, 1% fish debris, 1% light glass, 1% pyroxene
					2		EMPTY	4	← EMPTY	
		F / N	A / A	G / P	3		EMPTY	4	N8/0	FELDSPAR, RAD AND FORAM BEARING NANNO OOZE white, creamy texture, with a few dark gray streaks (N3/0) — 85% nannos, 5% forams, 3% rads, 3% feldspar, 2% diatoms, 1% sponge spicules, 1% light glass
					4			4	N8/0	DIATOM AND FORAM BEARING NANNO OOZE white, creamy texture with faint dark gray streaks (N3/0) — 89% nannos, 5% forams, 3% diatoms, 2% rads, 1% sponge spicules
EARLY PLIOCENE	N19	F / N / R	A / A / F	G / P / M	5			4	← EMPTY N8/0	?PYRITE AND FORAM BEARING NANNO OOZE white, creamy texture, with dark gray streaks — 85% nannos, 4% forams, 4% ?pyrite, 2% diatoms, 2% rads, 1% light glass, 1% feldspar
					Core Catcher					FORAM BEARING NANNO OOZE — 93% nannos, 3% forams, 1% light glass, 1% rads, 1% sponge spicules, 1% silicoflag.

Site 206 Hole Core 20 Cored Interval: 174-183 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY PLIOCENE	N19 NN13-NN15				1	0.5, 1.0	EMPTY	4	N8/0 EMPTY; EMPTY	FORAM BEARING NANNO OOZE very light gray with occasional vertical streaks of dark gray (N3/0) and yellowish gray (5Y8/1), creamy texture
		N	A	M	2			4	XM GZ	[X-ray - 16% amorphous, 84% crystalline: 100% calcite] [2% sand, 31% silt, 67% clay] — 89% nannos, 5% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% light glass
		F	A	G	3		EMPTY		EMPTY	
		N	A	M	4				EMPTY N8/0	DIATOM AND FORAM BEARING NANNO OOZE very light gray with occasional streaks of dark gray (N3/0) and yellowish gray (5Y8/1) creamy texture, darker bands appear as vertical streaks — 85% nannos, 5% forams, 3% diatoms, 2% rads, 2% light glass, 1% dark glass, 1% feldspar, 1% sponge spicules
		N	A	M	5			4	EMPTY; EMPTY	
	NN12 (upper)				6			4	N8/0	FORAM BEARING NANNO OOZE very light gray with darker gray streaks, creamy mainly, a little soupy, darker streaks vertical — 95% nannos, 4% forams, 2% diatoms, 1% rads, 1% sponge spicules, 1% feldspar
EARLY PLIOCENE	N19	F / N / R	A / A / F	G / M / M	Core Catcher					92% nannos, 5% forams, 1% rads, 1% sponge spicules, 1% light glass

Site 206 Hole Core 21 Cored Interval: 183-192 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY PLIOCENE	N19 / NN12 (upper)	N	A	P	1	0.5, 1.0	4	N8/0	FORAM BEARING NANNO OOZE very light gray with streaks of dark gray and yellowish gray, soupy texture in most of Sections 1 and 2, creamy thereafter, very high disturbed in Sections 1 to 4, slightly less disturbed in Sections 5 and 6. EMPTY
		N	A	P	2				87% nannos, 7% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% fish debris
		F	A	G	3		4		
		N	A	M	4		4		89% nannos, 5% forams, 1% diatoms, 1% rads, 1% sponge spicules, 1% feldspar, 1% dark glass, 1% light glass
		N	A	M	5		4		
		N	A	M	6		4		90% nannos, 3% forams, 2% diatoms, 2% light glass, 1% rads, 1% sponge spicules
		N	A	M					
LATE MIOCENE	N18	F / N / R	A / A / F	G / M / M	Core Catcher				NANNO OOZE 95% nannos, 2% rads, 2% forams, 1% zeolites

Site 206 Hole Core 22 Cored Interval: 192-201 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE MIOCENE	N18				1	0.5, 1.0		EMPTY; N8/0; EMPTY	FORAM BEARING NANNO OOZE very light gray, faint darker gray streaks in Section 3
					2			EMPTY	90% nannos, 4% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% fish debris
		F	A	G	3			XM CC	[X-ray - 18% amorphous, 82% crystalline: 100% calcite] [93% $CaCO_3$]
					4		4	N8/0	NANNO OOZE very light gray and bluish gray, creamy homogeneous. 91% nannos, 2% diatoms, 2% rads, 2% ?pyrite, 2% forams, 1% sponge spicules
					5			5B9/1	
					6			N8/0	FORAM BEARING NANNO OOZE very light gray, creamy texture. 88% nannos, 5% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% pyroxene, 1% ?pyrite
LATE MIOCENE	N18	F / N / R	A / A / C	G / M / M	Core Catcher				93% nannos, 1% rads, 1% light glass, 3% forams, 1% sponge spicules, 1% dark glass

Site 206 Hole Core 23 Cored Interval: 201-210 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE MIOCENE					1	0.5, 1.0	EMPTY; F R		N8/0; EMPTY; EMPTY; EMPTY	RAD AND FORAM BEARING NANNO OOZE very light gray to white, creamy texture
LATE MIOCENE		F	A	G	2		F R; R; F; F		N9/0	86% nannos, 8% forams, 3% rads, 1% sponge spicules, 2% diatoms
LATE MIOCENE	NN11	F N R	A A C	G M M	Core Catcher					NANNO OOZE: 94% nannos, 2% forams, 2% rads, 1% sponge spicules, 1% light glass

Site 206 Hole Core 24 Cored Interval: 210-219 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE MIOCENE					1	0.5, 1.0	EMPTY			N9/0 FORAM BEARING NANNO OOZE white, homogeneous, mostly soupy in upper sections, mostly creamy in lower sections
LATE MIOCENE					2			4		85% nannos, 10% forams, 2% rads, 1% sponge spicules, 1% light glass
LATE MIOCENE		F	A	G	3			4		
LATE MIOCENE					4			4		86% nannos, 8% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% light glass
LATE MIOCENE					5			3 to 4		
LATE MIOCENE					6		EMPTY			95% nannos, 3% forams, 1% diatoms, 1% rads
LATE MIOCENE		F N R	A A F	G P M	Core Catcher					NANNO OOZE: 95% nannos, 1% rads, 1% pyroxene, 2% forams, 1% sponge spicules

Site 206 Hole Core 25 Cored Interval: 219-228 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID-LATE MIOCENE		F	A	G	1	0.5, 1.0	EMPTY	3 to 4		N9/0 FORAM BEARING NANNO OOZE white, homogeneous and creamy. 86% nannos, 10% forams, 2% rads, 1% diatoms, 1% light glass
MID MIOCENE	NN11	F / N / R	A / A / F	G / P / M	Core Catcher					NANNO OOZE 96% nannos, 1% forams, 1% diatoms, 1% rads, 1% sponge spicules

Site 206 Hole Core 26 Cored Interval: 228-237 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE					1	0.5, 1.0	EMPTY	3 to 4		N9/0 FORAM BEARING NANNO OOZE white to very light gray, creamy to stiff
					2					91% nannos, 5% forams, 2% rads, 1% sponge spicules, 1% diatoms; N8/0
					3			4	CC XM GZ	N9/0 [93% $CaCO_3$] [X-ray - 20% amorphous, 80% crystalline: 100% calcite] [1% sand, 45% silt, 55% clay]
MID MIOCENE	*	F / N / R	A / A / F	M / M / M	Core Catcher					NANNO OOZE 95% nannos, 1% rads, 1% light glass, 1% forams, 1% sponge spicules, 1% dark glass

*Cannartus pettersoni

Site 206 Hole 27 Core Cored Interval: 237-266 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE					1	0.5, 1.0	EMPTY	2 to 3		→ EMPTY N9/0 FORAM BEARING NANNO OOZE white, homogeneous, stiff to creamy and occasionally soupy. 90% nannos, 6% forams, 2% rads, 1% diatoms, 1% light glass
		F	A	G	2		EMPTY	3		→ EMPTY
MID MIOCENE	*	F / N / R	A / A / F	G / M / M	Core Catcher					NANNO OOZE 94% nannos, 2% rads, 1% feldspar, 2% forams, 1% sponge spicules

*Cannartus laticonus

Site 206 Hole Core 28 Cored Interval: 250-259 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE					1	0.5, 1.0	EMPTY			FORAM BEARING NANNO OOZE white, creamy and homogeneous
					2		EMPTY, EMPTY			N9/0 92% nannos, 4% forams, 2% rads, 1% diatoms, 1% sponge spicules
		F	A	G	3			2		→ EMPTY
					4			2		91% nannos, 4% forams, 2% rads, 1% sponge spicules, 1% zeolites
MID MIOCENE	*	F / N / R	A / A / F	G / M / M	Core Catcher					94% nannos, 3% forams, 1% rads, 1% sponge spicules, 1% light glass

*Cannartus laticonus

Site 206 Hole Core 29 Cored Interval: 259-268 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE					1	0.5, 1.0	EMPTY; F			N9/0 FORAM BEARING NANNO OOZE white, creamy homogeneous
					2		EMPTY; F; EMPTY; F			90% nannos, 4% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% light glass
		F	A	G	3		F; F			
MID MIOCENE	*	F N R	A A C	M P M	Core Catcher		F; F			90% nannos, 5% forams, 2% rads, 1% sponge spicules, 1% light glass, 1% dark glass

*Cannartus laticonus

Site 206 Hole Core 30 Cored Interval: 268-277 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE					1	0.5, 1.0	EMPTY; F; F	? 3		N9/0 FORAM BEARING NANNO OOZE white, creamy to stiff with a few semilithified parts
					2		EMPTY; F; F	2		90% nannos, 4% forams, 2% diatoms, 2% rads, 1% sponge spicules, 1% zeolites
		F	A	G	3		F; F	1 to 2		
					4		F; R; R; F			N9/0 RAD AND FORAM BEARING NANNO OOZE white, homogeneous, creamy to stiff: 89% nannos, 5% forams, 3% rads, 2% diatoms, 1% sponge spicules
MID MIOCENE	*	F N R	A A F	G M M	Core Catcher					NANNO OOZE 94% nannos, 1% rads, 1% light glass, 2% forams, 1% sponge spicules, 1% zeolites

* Cannartus laticonus

Site 206 Hole Core 31 Cored Interval: 277-286 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE		F	A	G	1	0.5, 1.0				N9/0 RAD AND FORAM BEARING NANNO OOZE white, creamy, occasionally stiff, a few faint light gray streaks
					2			1 to 2	XM	[X-ray - 18% amorphous, 82% crystalline: 100% calcite] 82% nannos, 5% rads, 10% forams, 2% diatoms, 1% sponge spicules
					3				GZ	[3% sand, 43% silt, 54% clay]
					4			3		84% nannos, 8% forams, 3% rads, 2% diatoms, 2% sponge spicules, 1% light glass
					5			3		N9/0 FORAM BEARING NANNO OOZE white, creamy to stiff, a few dark gray streaks
					6			3		88% nannos, 8% forams, 2% rads, 1% sponge spicules, 1% diatoms
MID MIOCENE		F / N / R	A / A / F	G / M / M	Core Catcher					85% nannos, 2% rads, 1% sponge spicules, 10% forams, 1% diatoms, 1% dark glass

Site 206 Hole Core 32 Cored Interval: 286-295 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
MID MIOCENE		F	A	G	1	0.5, 1.0	EMPTY			N9/0 RAD AND FORAM BEARING NANNO OOZE white, creamy, homogeneous
					2					84% nannos, 7% forams, 3% rads, 2% sponge spicules, 1% fish debris, 1% light glass
					3			3		
MID MIOCENE	N9	F / N / R	A / A / F	M / P / M	Core Catcher					FORAM BEARING NANNO OOZE 89% nannos, 5% forams, 2% rads, 1% diatoms, 1% fish debris, 1% glass, 1% sponge spicules

Site 206 Hole Core 33 Cored Interval: 295-304 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE		F	A	G	1	0.5, 1.0	EMPTY	2		5B9/1 CLAY BEARING NANNO OOZE bluish white creamy to very stiff with yellowish gray (5Y8/1) stains; 89% nannos, 5% clay, 2% forams, 1% rads, 1% diatoms, 1% sponge spicules, 1% light glass
EARLY MIOCENE	*	F / N / R	C / A / R	M / P / P	Core Catcher					CLAY AND FORAM BEARING NANNO OOZE 82% nannos, 10% forams, 5% clay, 2% rads, 1% sponge spicules

Cl = Clay * Dorcadospyris alata

Site 206 Hole Core 34 Cored Interval: 304-313 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	EMPTY; Cl, F; EMPTY; Cl, F	2; 2		
					2		Cl, F		XM GZ CC	
EARLY MIOCENE	*	F N R	C A R	M P M	Core Catcher		Cl, F			

5B7/1 FORAM AND CLAY BEARING NANNO OOZE

5GY8/1 light bluish gray, light greenish gray and light gray with light greenish gray patches, stiff

N7/0 [2% sand, 42% silt, 56% clay]

90% nannos
5% clay
2% forams
1% rads
1% sponge spicules
1% feldspar

[88% $CaCO_3$]

[X-ray - 25% amorphous, 75% crystalline: 98% calc., 1% qtz., 1% plag.]

Core Catcher:
86% nannos
7% clay
5% forams
1% rads
1% sponge spicules

Cl = Clay * Dorcadospyris alata

Site 206 Hole Core 35 Cored Interval: 313-322 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	EMPTY; F, Cl	2		
					2		F, Cl	2		
EARLY MIOCENE		F N R	C A R	M P M	Core Catcher		Cl, F			

5B7/1 to 5GY8/1 FORAM AND CLAY BEARING NANNO OOZE light bluish gray to light greenish gray with dark gray to light gray streaks, semi-lithified

88% nannos
6% clay
3% forams
2% sponge spicules

Core Catcher:
88% nannos
6% clay
3% forams
1% rads
1% sponge spicules
1% dark glass

Cl = Clay

Site 206 Hole Core 36 Cored Interval: 322-331 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	F, Cl	2		
					2		F, Cl	2		
EARLY MIOCENE		F N R	A A R	G M M	Core Catcher		F, Cl			

5B9/1 to N8/0 CLAY BEARING NANNO OOZE very light gray to bluish white with darker gray streaks semilithified to stiff

87% nannos
7% clay
2% forams
1% diatoms
1% rads
1% sponge spicules

Core Catcher:
87% nannos
8% clay
2% forams
1% rads
1% sponge spicules
1% ?zeolites

Cl = Clay

Site 206 Hole Core 37 Cored Interval: 335-344 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	EMPTY; Cl	2		
					2		Cl	2		
EARLY MIOCENE		F N R	C A R	M M M	Core Catcher		Cl			

5B9/1 CLAY BEARING NANNO OOZE bluish white, semilithified to stiff, some dark gray streaks (N3/0)

87% nannos
7% clay
2% forams
1% sponge spicules
1% feldspar
1% dark glass
1% light glass

Core Catcher: CLAY BEARING FORAM RICH NANNO OOZE
68% nannos
22% forams
7% clay
1% feldspar
1% rads
1% sponge spicules

Cl = Clay

Site 206 Hole Core 38 Cored Interval: 344-353 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
EARLY MIOCENE					1	0.5, 1.0	EMPTY; F, Cl	2		5B9/1 FORAM AND CLAY BEARING NANNO OOZE bluish white, some dark gray streaks, semilithified to stiff clay	88% nannos 7% clay 4% forams 1% sponge spicules
					2		Cl, F	2			
EARLY MIOCENE		F N R	A A R	M P M	Core Catcher		F, Cl			CLAY BEARING NANNO OOZE	89% nannos 6% clay 2% forams 1% rads 1% sponge spicules 1% light glass

Cl = Clay

Site 206 Hole Core 40 Cored Interval: 362-371 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
EARLY MIOCENE					1	0.5, 1.0	Cl	2		5B9/1 CLAY BEARING NANNO OOZE bluish white stiff clay to creamy	90% nannos 8% clay 1% forams 1% sponge spicules
										[X-ray - 27% amorphous, 73% crystalline: 99% calc., 1% qtz.]	
					2		Cl; EMPTY	2	XM CC GZ	[86% $CaCO_3$] [1% sand, 42% silt, 57% clay]	86% nannos 8% clay 2% forams 1% light glass 1% diatoms 1% rads 1% sponge spicules
EARLY MIOCENE		F N R	A A F	G P G	Core Catcher		F, Cl			FORAM AND CLAY BEARING NANNO OOZE	86% nannos 8% clay 3% forams 1% rads 1% sponge spicules 1% fish debris

Cl = Clay

Site 206 Hole Core 39 Cored Interval: 353-362 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
EARLY MIOCENE					1	0.5, 1.0	Cl	2		5B9/1 CLAY BEARING NANNO OOZE bluish white, creamy to semi-lithified, with occasional dark gray (N3/0) laminations	88% nannos 8% clay 1% light glass 1% forams 1% rads 1% sponge spicules
					2		Cl	2			
EARLY MIOCENE		F N R	A A R	G M M	Core Catcher		Cl				88% nannos 8% clay 2% forams 1% rads 1% sponge spicules

Cl = Clay

Site 206 Hole Core 41 Cored Interval: 371-380 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
EARLY MIOCENE					1	0.5, 1.0	Cl	1		5B9/1 CLAY BEARING NANNO OOZE bluish white to light greenish gray, upper section lithified, lower section stiff to semi-lithified, upper section mottled, with burrows up to 8 mm in diameter, often outlined with dark gray sediment, moderately mottled	89% nannos 8% clay 2% forams 1% sponge spicules
					2		Cl; EMPTY	2		5B9/1 to 5GY8/1	90% nannos 8% clay 1% forams 1% sponge spicules
EARLY MIOCENE		F N R	A A F	G P M	Core Catcher		F, Cl			FORAM AND CLAY BEARING NANNO OOZE	82% nannos 9% clay 7% forams 1% rads 1% sponge spicules

Cl = Clay

Site 206 Hole Core 42 Cored Interval: 380-389 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
EARLY MIOCENE					1	0.5, 1.0	Cl	2	
					2		Cl	2	
EARLY MIOCENE		F / N / R	A / A / R	G / M / G	Core Catcher		Cl		

LITHOLOGIC DESCRIPTION

5B9/1 to 5B7/1

CLAY BEARING NANNO OOZE bluish white to light bluish gray with bands of greenish gray and dark gray spots, stiff to semilithified, some horizontal fissility, dark gray shots possibly burrows

91% nannos
7% clay
1% forams
1% sponge spicules

FORAM AND CLAY BEARING NANNO OOZE

84% nannos
7% clay
5% forams
1% light glass
1% diatoms
1% rads
1% sponge spicules

Cl = Clay

Site 206 Hole Core 43 Cored Interval: 389-398 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
EARLY MIOCENE					1	0.5, 1.0			
EARLY MIOCENE	NP25 (upper)	F / N / R	A / A / R	G / M / G	Core Catcher				

LITHOLOGIC DESCRIPTION

Soupy section ? caving from above.

5GY6/1 to 5B7/1

FORAM BEARING CLAY NANNO OOZE greenish gray to light bluish gray with some dark gray streaks, stiff to lithified, bedding planes marked by darker bands, moderately mottled

64% nannos
26% clay
4% forams
2% rads
2% sponge spicules
1% light glass
1% dark glass

DIATOM BEARING CLAY NANNO OOZE

60% nannos
26% clay
9% diatoms
2% forams
1% sponge spicules
1% rads
1% light glass

Site 206 Hole Core 44 Cored Interval: 398-407 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
EARLY MIOCENE					1	0.5, 1.0			
					2		F		
EARLY MIOCENE	* ≡NP25 (upper)	F / N / R	A / A / R	G / P / M	Core Catcher				

LITHOLOGIC DESCRIPTION

[X-ray - 32% amorphous, 68% crystalline: 87% calc., 8% qtz., 2% plag., 2% mica, 1% mont.]
[72% $CaCO_3$]

5B9/1 to 5B7/1

FORAM BEARING CLAY NANNO OOZE Bluish white to light bluish gray, dark gray streaks. Stiff to lithified. Bedding present, modified by intense burrowing variety of burrow types, (parallel to, perpendicular to and inclined to bedding) including *Zoophycos* in basal 15 cm of Section 1. Several cycles of burrowing. Burrows often outlined by black ?sulfide mineral.

58% nannos
35% clay
4% forams
2% rads
1% sponge spicules

CLAY NANNO OOZE

52% nannos
43% clay
1% forams
1% diatoms
1% rads
1% feldspar
1% dark glass
1% sponge spicules

*Lychnocanoma elongata

Site 206 Hole Core 45 Cored Interval: 407-416 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
EARLY MIOCENE					1	0.5, 1.0			
					2				
					3				
	* ≡NP25 (upper)	F / N / R	C / A / R	M / P / M	Core Catcher				

LITHOLOGIC DESCRIPTION

5B7/1 to 5B9/1

CLAY NANNO OOZE Light bluish gray to bluish white with dark gray streaks. Lithified. Moderately mottled, burrows mainly parallel to bedding but some inclined and vertical. Burrows may be outlined by black ?sulfide mineral. Relicts of bedding preserved in places. Rare erosional breaks truncate burrows.

64% nannos
30% clay
2% sponge spicules
1% light glass
1% dark glass
1% quartz
1% forams

69% nannos
26% clay
2% forams
1% rads
1% sponge spicules
1% dark glass

*Lychnocanoma elongata

Site 206 B Hole Core 1 Cored Interval: 202-211 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE MIOCENE					1	0.5, 1.0	F	4		N8/0 FORAM BEARING NANNO OOZE white, soupy to creamy, no structures preserved. 95% nannos, 2% forams, 1% sponge spicules, 1% light glass
	NN11 (lower)	N F R	A A F	M G M	Core Catcher					91% nannos, 5% forams, 2% sponge spicules, 1% rads, 1% diatoms

Site 206 C Hole Core 1 Cored Interval: 404-413 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE	* ≡NP25 (upper)	N F R	A A F	M G G	Core Catcher		F			5GY8/1 FORAM BEARING CLAY RICH NANNO OOZE light greenish gray, semi-lithified, with grayish green (10GY5/2) band 1/2 mm thick inclined at 5° to horizontal. 68% nannos, 24% clay, 5% forams, 2% sponge spicules, 1% rads

*Lychnocanoma elongata

Site 206 C Hole Core 2 Cored Interval: 413-422 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0				5Y7/1 NANNO CLAY semilithified light gray moderately mottled with spots of very dark gray or black. 60% clay, 35% nannos, 2% forams, 1% feldspar, 1% rads, 1% sponge spicules
					2		F			N7/0 FORAM BEARING CLAY NANNO OOZE Light gray, moderately mottled with brown gray (2.5Y6/2), very dark gray (2.5Y3/0) and greenish gray (5G6/1). Semilithified in a pasty matrix. ?Bedding inclined at about 10° with small faults at 90 cm in Section 2. ?Soft sediment deformation. 60% nannos, 35% clay, 5% forams, 1% sponge spicules. [1% sand, 36% silt, 63% clay] [57% $CaCO_3$] [X-ray - 40% amorphous, 60% crystalline: 76% calc., 11% qtz., 4% plag., 5% mica, 1% chlor., 2% mont.]
	* ≡NP25 (upper)	N F R	A C F	P M G	Core Catcher		F			56% nannos, 38% clay, 3% forams, 2% sponge spicules, 1% rads

*Lychnocanoma elongata

Site 206 C Hole Core 3 Cored Interval: 422-431 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	EMPTY	1		N7/0 CLAY RICH NANNO OOZE Light gray, moderately mottled with brown gray (2.5Y6/2), very dark gray (5G6/1) semilithified in a pasty matrix. *Zoophycos* burrow at 40 cm Section 1. ?Soft rock deformation at 125 to 140. ?Bedding dipping at 10°. Less deformation in Section 2. Large brown gray patch (2.5Y6/2). Patches Section 2, 35 to 48 cm, -Foram and sponge spicule bearing clay rich nanno ooze (70% nannos, 20% clay, 3% forams, 3% sponge spicules, 1% each rads, diatoms, pyroxene and dark glass). 74% nannos, 20% clay, 2% forams, 2% sponge spicules, 1% rads, 1% dark glass. [X-ray - 38% amorphous, 62% crystalline: 76% calc., 11% qtz., 4% plag., 4% mica, 1% chlor., 3% mont.] [1% sand, 35% silt, 63% clay] [62% $CaCO_3$]
					2				XM GZ CC	
	* ≡NP25 (upper)	N F R	A C F	P M G	Core Catcher		F			FORAM BEARING CLAY RICH NANNO OOZE 68% nannos, 23% clay, 3% forams, 2% sponge spicules, 2% rads, 1% diatoms

*Lychnocanoma elongata

Site 206 C Hole Core 4 Cored Interval: 431-440 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	EMPTY	1		N7/0 CLAY RICH NANNO OOZE AND FORAM BEARING CLAY RICH NANNO OOZE Similar to Core 3. 77% nannos, 15% clay, 3% forams, 2% rads, 2% sponge spicules, 1% diatoms. 73% nannos, 20% clay, 2% sponge spicules, 2% rads, 1% forams, 1% dark glass, 1% diatoms. [1% sand, 32% silt, 68% clay] [X-ray - 37% amorphous, 63% crystalline: 82% calc., 8% qtz., 3% plag., 4% mica, 1% chlor., 2% mont.] [64% $CaCO_3$]
					2		F		GZ CC XM	
	* ≡NP25 (upper)	N F R	A C F	P M G	Core Catcher		F D R			N7/0 FORAM RAD AND DIATOM BEARING CLAY RICH NANNO OOZE 72% nannos, 16% clay, 3% forams, 3% diatoms, 3% rads, 2% sponge spicules, 1% light glass

*Lychnocanoma elongata

Site 206 C Hole Core 5 Cored Interval: 440-449 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0	EMPTY			
					2				XM CC	
	*≈NP25 (upper)	N F R	A C F	P M G	Core Catcher					

N8/0

FORAM BEARING CLAY RICH NANNO OOZE
Similar to Core 4, very light gray, semilithified pieces set in a pasty matrix. Moderately burrowed.

76% nannos
15% clay
5% forams
2% sponge spicules
1% rads
1% light glass

76% nannos
15% clay
5% forams
2% rads
1% diatoms
1% light glass

[X-ray - 32% amorphous - 68% crystalline: 86% calc., 8% qtz., 2% plag., 2% mica, 1% chlor., 1% mont.]

[68% $CaCO_3$]

RAD AND FORAM BEARING CLAY RICH NANNO OOZE

70% nannos
17% clay
5% forams
5% rads
2% sponge spicules
1% diatoms

*Lychnocanoma elongata

Site 206 C Hole Core 6 Cored Interval: 462-471 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
EARLY MIOCENE					1	0.5, 1.0				
					2			1		
					3				CC XM	
	*≈NP25 (upper)	N F R	A C F	P M G	Core Catcher					

N8/0 to 5Y8/1

RAD AND FORAM BEARING CLAY RICH NANNO OOZE
very light gray to yellowish gray, semilithified pieces in a pasty matrix moderately to intensely mottled, *Zoophycos* burrows throughout Section 1 in lower part of Section 2

73% nannos
15% clay
5% forams
3% rads
2% sponge spicules
1% feldspar
1% diatoms

68% nannos
20% clay
5% forams
3% rads
2% sponge spicules
2% diatoms

70% nannos
15% clay
5% forams
5% rads
2% sponge spicules
2% diatoms
1% light glass

[71% $CaCO_3$]

[X-ray - 33% amorphous, 67% crystalline: 86% calc., 7% qtz., 3% plag., 3% mica, 1% chlor., 1% mont.]

FORAM AND RAD BEARING CLAY NANNO OOZE

58% nannos
31% clay
4% rads
3% forams
1% light glass
1% diatoms
1% sponge spicules
1% fish debris

*Lychnocanoma elongata

Site 206 C Hole Core 7 Cored Interval. 480-489 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE OLIGOCENE					1	0.5, 1.0	EMPTY	1	CC XM	
	*≈NP24-NP25	N F R	A C F	M M G	Core Catcher					

N8/0 to 5B7/1

FORAM BEARING CLAY RICH NANNO OOZE
Very light gray to light bluish gray, semilithified pie-es in pasty matrix, slight mottling.

[78% $CaCO_3$]

77% nannos
11% clay
2% rads
2% sponge spicules
1% diatoms
4% forams
1% light glass
1% dark glass
1% feldspar

[X-ray - 33% amorphous, 67% crystalline: 92% calc., 4% qtz., 2% plag., 1% mica, 1% mont.]

76% nannos
16% clay
5% forams
2% sponge spicules
1% light glass
1% rads

*Lychnocanoma elongata

Site 206 C Hole Core 8 Cored Interval: 499-508 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE OLIGOCENE					1	0.5, 1.0	Sp, F	1	CC XM	N7/0 SPONGE SPICULE AND FORAM BEARING CLAY RICH NANNO OOZE — 73% nannos, 15% clay, 5% forams, 3% sponge spicules, 2% rads, 1% diatoms, 1% dark glass. Light gray with tint of green, semilithified, slight suspicion of bedding, slightly mottled *Zoophycos* burrows and bedding dip at about 10°. [71% $CaCO_3$]
					2		F	1		FORAM BEARING CLAY RICH NANNO OOZE — 73% nannos, 15% clay, 5% forams, 2% rads, 2% sponge spicules, 1% light glass, 1% iron oxide, 1% diatoms. Lithology essentially as above. [X-ray - 34% amorphous, 66% crystalline: 85% calc., 6% qtz., 3% plag., 3% mica, 1% chlor., 3% mont.]
					3		F	1		Lithology as above. *Zoophycos* 100 to 110 cm Section 3. Small syndepositional faults 120 to 140 cm, offset 1/2 cm. Black specks in core are pyrite.
					4		F	1		Bedding apparently horizontal, cut off burrows and thin green laminae appear in several places. *Zoophycos* at 63 and 112 cm. — 79% nannos, 15% clay, 3% forams, 1% rads, 1% sponge spicules, 1% light glass
					5		F	1		Slight mottling, no *Zoophycos*. Bedding probably horizontal, burrows filled with soft pyrite granules at 33 and 97 cm. — 79% nannos, 15% clay, 2% forams, 2% sponge spicules, 1% rads, 1% feldspar
					6		F, Sp	1		N7/0 FORAM AND SPONGE SPICULE BEARING CLAY RICH NANNO OOZE — 77% nannos, 15% clay, 4% sponge spicules, 3% forams, 1% rads. Lithology as 8/1. Prominent green lamina at 119 to 120 cm and 125 cm dipping at about 10°, strong laminae mark outer boundaries of beds, 1 cm thick band dip about 10° at 129 to 130 cm, blue black (?pyritic) parallel to green laminae at 129 to 130 cm.
	*≈NP24-NP25 (lower)	N / F / R	A / F / F	P / M / G	Core Catcher		F			FORAM BEARING CLAY RICH NANNO OOZE — 72% nannos, 1% diatoms, 1% sponge spicules, 6% forams, 19% clay, 1% rads

*Lychnocanoma elongata Sp = Sponge Spicules

Site 206 C Hole Core 9 Cored Interval: 518-527 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
LATE OLIGOCENE	*≈NP24-NP25 (lower)	N / F / R	A / F / F	P / M / G	Core Catcher		F			FORAM BEARING CLAY RICH NANNO OOZE — 80% nannos, 13% clay, 3% forams, 2% sponge spicules, 1% rads, 1% dark glass

*Lychnocanoma elongata

Site 206 C Hole Core 10 Cored Interval: 531-540 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
MIDDLE OLIGOCENE	Dorcadospyris ateuchus NP24-NP25 (lower)	N	A	P	1	0.5 – 1.0	EMPTY	1		N7/0 to 5B7/1	FORAM BEARING CLAY RICH NANNO OOZE: 80% nannos, 15% clay, 3% forams, 2% sponge spicules. Light gray to light bluish gray. Slightly to moderately mottled, undeformed, ?*Zoophycos* Section 1, 105 and 120 cm.
					2			1	CC XM		SPONGE SPICULE BEARING CLAY RICH NANNO OOZE: 79% nannos, 15% clay, 3% sponge spicules, 2% forams, 1% dark glass. Section 2 intensely mottled from 90 to 120 cm. ?Bedding dips at about 10°. [80% $CaCO_3$]
										5G7/1	[X-ray - 31% amorphous, 69% cyrstalline: 93% calc., 2% qtz., 1% plag., 1% mica, 2% mont.]
					3						FORAM BEARING CLAY RICH NANNO OOZE: 79% nannos, 15% clay, 3% forams, 2% sponge spicules, 1% dark glass. Light greenish gray (5G7/1), semilithified, moderately mottled, ?bedding near horizontal. Small faults offset about 5 cm throughout (?compaction).
					4					5G7/1	As above, moderately mottled, soft rock deformation throughout, bedding close to horizontal. Prominent blue black and green laminae at 52 to 54 cm. Slickensides dipping at 65° on ends of pieces of core at 58 and 76 cm. 77% nannos, 15% clay, 3% forams, 2% rads, 2% sponge spicules, 1% dark glass.
					5						CLAY RICH NANNO OOZE: 82% nannos, 11% clay, 2% forams, 2% rads, 1% sponge spicules, 2% feldspar. Light greenish gray, semilithified, slight to moderate mottling, burrows throughout, *Zoophycos* at 60, 63, 147 and 148 cm. Bedding dips at about 5°, green lamination 43.5 to 44 cm, blue black lamination 47 to 48 cm.
					6						FORAM BEARING CLAY RICH NANNO OOZE: 77% nannos, 15% clay, 3% forams, 2% rads, 2% sponge spicules, 1% diatoms. Semilithified, mottled throughout, prominent diffuse blue black zone (?pyrite) at 50 and 160 cm. Subhorizontal, diffuse green zone at 82 cm, subhorizontal.
		N F R	A A R	P M M	Core Catcher						Foram sponge spicule and clay bearing nanno ooze. 84% nannos, 3% forams, 2% rads, 1% diatoms, 5% clay, 3% sponge spicules, 1% feldspar, 1% light glass

Sp = Sponge Spicules Cl = Clay NOTE: "Nannos" includes some fine authigenic carbonate.

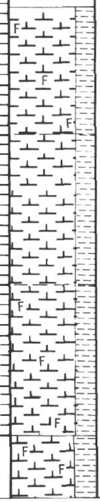
Site 206 C Hole Core 11 Cored Interval: 547-556 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION	
MIDDLE OLIGOCENE	Dorcadospyris ateuchus =NP23	N	A	P	1	0.5 – 1.0		1		5G7/1	CLAY BEARING NANNO OOZE: 83% nannos, 10% clay, 2% forams, 2% rads, 2% sponge spicules, 1% diatoms. Light greenish gray, semilithified, slight to moderate mottling, bedding and lamination dipping at 5 to 10°. *Zoophycos* 40 to 70 cm, prominent lamination and many burrows below 130 cm.
					2			1			Prominent blue black laminations 99.5 to 100 cm. Faint subhorizontal lamination and mottling throughout. Burrows very obvious about 130 cm. 82% nannos, 10% clay, 2% sponge spicules, 2% rads, 2% forams, 1% light glass
					3			1			Moderately mottled, laminations subhorizontal, blue black laminations commonly appear immediately above strongly burrowed horizon. 83% nannos, 10% clay, 2% forams, 2% rads, 2% sponge spicules, 1% diatoms
					4			1		5G7/1	FORAM BEARING CLAY RICH NANNO OOZE: 81% nannos, 10% clay, 3% forams, 2% rads, 2% sponge spicules, 1% diatoms, 1% light glass. Similar to above, semilithified, prominent green laminations at 99 to 100 cm (5G4/1) and black laminae at 45 cm. Laminations below 40 cm dip at 5 to 10°. Those above are subhorizontal. Burrows filled with fine pyrite.
					5			1	XM CC	5G7/1	SPONGE SPICULE AND CLAY BEARING NANNO OOZE: 85% nannos, 10% clay, 3% sponge spicules, 1% rads, 1% dark glass. Laminae gently dipping. [X-ray - 34% amorphous, 66% crystalline: 88% calc., 3% qtz., 1% mica, 7% mont.] [78% $CaCO_3$]
					6			1		5G7/1	SPONGE SPICULE AND CLAY BEARING NANNO OOZE
		N F R	A A R	P M M	Core Catcher						CLAY BEARING NANNO OOZE: 83% nannos, 9% clay, 1% rads, 4% sponge spicules, 2% forams, 1% dark glass

Sp = Sponge Spicules Cl = Clay NOTE: "Nannos" includes some authigenic carbonate.

Site 206 C Hole Core 12 Cored Interval: 565-574 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
MIDDLE OLIGOCENE	=NP23						EMPTY		
					1	0.5, 1.0		1	
					2			1	CC XM
					3			1	
		N F R	A A -	P M -	Core Catcher				



LITHOLOGIC DESCRIPTION

N7/0 to 5G7/1

FORAM BEARING CLAY RICH NANNO OOZE
Light gray to light greenish gray, semilithified moderately mottled and burrowed throughout. Prominent chevron pattern burrows 114 to 116 cm.

76% nannos
15% clay
2% rads
3% forams
2% sponge spicules
1% diatoms
1% feldspar

N7/0 to 5G7/1

CLAY RICH NANNO OOZE
Similar to above with many cracks and faults inclined at about 45° between 7 and 30 cm. Faults slickensides with displacement to 3 mm - ? compaction features. Slickensides also 42 to 44 and 78 to 82 cm.
[80% $CaCO_3$]

79% nannos
15% clay
2% forams
2% rads
2% sponge spicules

X-ray - 31% amorphous, 69% crystalline: 92% calc., 3% qtz., 5% mont.

N7/0 to 5G7/1

FORAM BEARING CLAY RICH NANNO OOZE
Similar to above cracks with slickensides at 24, 44, 74, 80 and 100 to 106 cm.

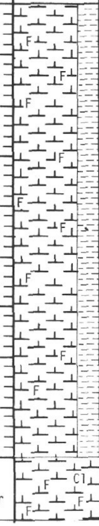
78% nannos
15% clay
3% forams
2% rads
2% sponge spicules

79% nannos
14% clay
3% forams
1% dark glass
1% light glass
1% sponge spicules
1% feldspar

NOTE: "Nannos" includes some authigenic carbonate.

Site 206 C Hole Core 13 Cored Interval: 584-593 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
MIDDLE OLIGOCENE	=NP23				1	0.5, 1.0			
					2				
					3				CC XM
		N F R	A A -	P M -	Core Catcher				



LITHOLOGIC DESCRIPTION

N7/0 to 5G7/1

FORAM BEARING CLAY RICH NANNO OOZE
Light gray to light greenish gray, semilithified, moderately mottled. Blue black patch disturbed by burrows 58 to 63 cm, brecciation by compaction or bioturbation 58 to 120 cm near vertical slickenside cracks below 58 cm.

77% nannos
15% clay
5% forams
1% rads
1% light glass
1% dark glass

Moderately mottled and burrowed, slickensides near vent in crack 0 to 106 cm, bright purple mineral (5R2/6) on slickensides, in streaks from 85 to 106 cm.

78% nannos
15% clay
5% forams
1% rads
1% sponge spicules

Intensely burrowed, slickensides 80 to 110 cm.

80% nannos
15% clay
5% forams

[85% $CaCO_3$]

X-ray - 29% amorphous, 71% cyrstalline: 98% calc., 1% qtz., 1% mont.

FORAM AND CLAY BEARING NANNO OOZE

83% nannos
9% clay
4% forams
2% rads
1% sponge spicules
1% feldspar

Cl = Clay NOTE: "Nannos" includes some authigenic carbonate.

Site 206 C Hole Core 14 Cored Interval: 603-612 m

AGE: MIDDLE OLIGOCENE
ZONE: NP23

Section	Meters	Color	Lithologic Description	Composition
1	0.5, 1.0	5GY8/1, 5P4/2, 5GY8/1, 5P4/2, 5GY8/1, 5P4/2	CLAY RICH NANNO OOZE Semilithified light greenish gray with grayish purple laminae and patches especially below 100 cm. Purple laminae cut across textural boundaries. Whole core has a slumped appearance.	82% nannos, 15% clay, 2% forams, 1% sponge spicules
2		5GY8/1	Slightly to moderately mottled, above 91 cm. Close faulting. Below 91 cm, no structures of this kind, moderately mottled and burrowed. Irregular patches of grayish purple. [84% $CaCO_3$]	
3			Moderately to intensely mottled and burrowed. Intensely mottled with grayish purple (5P4/2) 75 to 110 cm. Core becomes darer greenish gray (5GY6/1) towards bottom.	80% nannos, 15% clay, 2% forams, 1% sponge spicules, 1% feldspar, 1% dark glass
			X-ray - 30% amorphous, 70% crystalline: 94% calc., 3% mont., 2% qtz., 1% clin.	
4		5GY8/1	FORAM AND CLAY RICH NANNO OOZE Lithology as above, moderately to intensely mottled. Grayish purple (5P4/2) mottles in upper 35 cm.	69% nannos, 15% forams, 15% clay, 1% light glass
5		5GY8/1	FORAM BEARING CLAY RICH NANNO OOZE Lithology as above. Moderately to intensely mottled and burrowed. Burrows especially conspicuous in top 30 cm and bottom 30 cm.	80% nannos, 15% clay, 4% forams, 1% sponge spicules
6		5GY8/1	CLAY RICH NANNO OOZE Section 6 similar to above in lithology.	81% nannos, 15% clay, 2% forams, 1% feldspar, 1% light glass
Core Catcher			CLAY AND FORAM RICH NANNO OOZE	62% nannos, 25% forams, 1% feldspar, 11% clay, 1% rads

Litho. sample: CC (Section 2), XM (Section 3)

Fossil character (Core Catcher): N / A / P; F / A / M; R / R / G

NOTE: "Nannos" includes some authigenic carbonate.

Site 206 C Hole Core 15 Cored Interval: 612-621 m

AGE: MIDDLE OLIGOCENE (Section 1 to upper Section 2); LATE EOCENE (below)
ZONE: NP23; Reticulofenestra bisecta (NP17)

Fossil character: N A P; N A P (Section 2); N C P / F R M / R C G (Core Catcher)

Deformation: 1 (Section 1), 1 (Section 2)
Litho. sample: CC, XM (Section 2)

	Lithologic Description	
N7/0 to N8/0	FORAM AND CLAY RICH NANNO OOZE Light gray to very light gray, with tint of green, greenish gray laminations (5G6/1). Laminations dip about 30°, semilithified. Slightly mottled in shades of gray.	72% nannos, 11% clay, 15% forams, 1% feldspar, 1% light glass
5G8/1	SPONGE SPICULE, DIATOM AND FORAM BEARING CALCIC RICH NANNO RAD OOZE Light greenish gray, mottled (moderately) greenish gray (5G8/1) and white (N9/0), with some olive gray beds (5Y6/1) pale green (10G6/2) veins and laminations. Rock shows signs of slumping before lithification. Semilithified. [56% $CaCO_3$]	35% rads, 30% nannos, 15% carbonate, 10% forams, 7% diatoms, 3% sponge spicules
	X-ray - 43% amorphous, 57% crystalline: 91% calc., 2% qtz., 7% mont.	
	FORAM AND SPONGE SPICULE BEARING CALCIC AND RAD RICH NANNO OOZE	40% nannos, 24% carbonate, 25% rads, 5% sponge spicules, 3% forams, 2% diatoms

Sp = Sponge Spicules

NOTE: "Nannos" in Section 1 includes some authigenic carbonate.

Site 206 C Hole Core 16 Cored Interval: 630-639 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE		LITHOLOGIC DESCRIPTION
MIDDLE EOCENE	Discoaster tani nodifer	N	A	P	1	0.5, 1.0	C, C, C, F, C, C	1	XM CC	5GY8/1	DIATOM AND FORAM BEARING RAD RICH CALCIC NANNO OOZE: 32% nannos, 32% carbonate, 25% rads, 5% forams, 3% diatoms, 2% sponge spicules. Light greenish gray semi-lithified moderately mottled and burrowed, *Zoophycos* burrows 70 to 100 cm. Dipping pale green horizons (dip about 20°) at 45 and 100 cm. Faults steeply and very gently dipping offsetting burrows a few mm. X-ray - 33% amorphous, 67% crystalline: 94% calc., 5% mont., 1% qtz.
	Discoaster distinctus + Reticulofenestra hampdenensis				2		C, Sp, C, C, F, C, C	1		5GY8/1	[56% $CaCO_3$] FORAM AND SPONGE SPICULE BEARING RAD RICH NANNO CALCIC OOZE: 45% carbonate, 30% nannos, 15% rads, 5% sponge spicules, 3% forams, 1% dark glass, 1% diatoms. Similar to above with pale green horizons (10G6/2) at 15 to 19, 37 to 39, 44 to 47, 68 to 71, 100 to 101 cm, small faults. Fault with 1 cm displacement at 99.
		N	A	P	3		C, C, C, C, C, C	1		5GY8/1	FORAM BEARING RAD RICH NANNO CALCIC OOZE: 38% carbonate, 37% nannos, 15% rads, 5% forams, 2% sponge spicules, 2% diatoms, 1% feldspar. Prominent dipping green horizons a few mm thick at 14 to 18, 50 to 53, 90 to 94, 101 to 105. Moderately to intensely mottled in shades of white. Small cracks and faults throughout.
					4		C, C, C, Sp, C, C, C	1	CC	5GY8/1	[83% $CaCO_3$] FORAM AND SPONGE SPICULE BEARING RAD RICH NANNO CALCIC OOZE: 40% carbonate, 35% nannos, 15% rads, 5% sponge spicules, 3% forams, 1% diatoms, 1% light glass. Laminations dip about 30°, long near vertical slickensided joints. Color more blue black 110 to 120.
		N	A	P	5		C, C, Sp, C, C, C	1			SPONGE SPICULE AND DIATOM BEARING FORAM AND NANNO RICH RAD CALCIC OOZE: 30% carbonate, 30% rads, 19% nannos, 15% forams, 3% sponge spicules, 3% diatoms. Similar to above semilithified by slightly softer, burrowing conspicuous to 75 cm green lamination dipping at about 30° at 144 cm.
					6		EMPTY				SPONGE SPICULE BEARING, RAD RICH NANNO CALCIC OOZE: 50% carbonate, 35% nannos, 18% rads, 9% sponge spicules, 1% diatoms, 1% dark glass
		N F R	C C C	P M G	Core Catcher		C, Sp, C				

C = calcite ooze Sp = Sponge Spicules

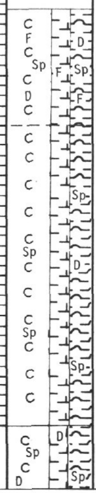
Site 206 C Hole Core 17 Cored Interval: 649-658 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE		LITHOLOGIC DESCRIPTION
MIDDLE EOCENE	Discoaster distinctus + Retic ulofenestra hampdenensis	N	A	P	1	0.5, 1.0	C, C, Sp, C, C, Sp	1		5GY8/1	FORAM, SPONGE SPICULE AND DIATOM BEARING, RAD RICH NANNO CALCIC OOZE: 30% carbonate, 26% nannos, 20% rads, 10% diatoms, 10% sponge spicules, 3% forams, 1% dark glass. Light greenish gray, semilithified, moderately mottled throughout, intensely mottled and more blue black 30 to 70 cm mottles white and olive gray (5Y6/1) dip about 5°. Faulting and deformation 85 to 95 cm.
					2		C, C, D, C, F, C	1			FORAM AND DIATOM BEARING, RAD RICH NANNO CALCIC OOZE: 35% carbonate, 30% nannos, 25% rads, 5% forams, 3% diatoms, 1% sponge spicules, 1% light glass. Similar to above, dipping green laminations at 10, 45, 60, 99, 132, 140 cm, dip 15° (about), fault at 100 cm.
					3		C, C, D, C, Sp, C	1	CC XM	5G8/1	DIATOM, FORAM AND SPONGE SPICULE BEARING, RAD RICH, NANNO CALCIC OOZE: 40% carbonate, 29% nannos, 20% rads, 5% sponge spicules, 3% forams, 3% diatoms. Similar to above, light greenish gray, zones of pale green (10G6/2) laminations at 30, 34, 70, 78, 90 and 143 to 150 cm. Laminations dipping at about 30°. Core is burrowed and mottled throughout, but laminations undisturbed. [64% $CaCO_3$] X-ray - 52% amorphous, 48% crystalline: 93% calc., 6% mont., 1% qtz.
					4		C, S, C, D, C, C, S	1			DIATOM AND SPONGE SPICULE BEARING RAD RICH, NANNO CALCIC OOZE: 35% carbonate, 26% nannos, 20% rads, 10% sponge spicules, 5% diatoms, 2% forams. Same as above, zones of green laminations at 37 to 42, 46 to 47, 111 to 115, 147 cm dipping at about 30°.
					5		C, C, C, Sp, C	1			FORAM, SPONGE SPICULE AND DIATOM BEARING, RAD RICH NANNO CALCIC OOZE: 37% carbonate, 25% nannos, 20% rads, 5% sponge spicules, 10% diatoms, 3% forams. As above, burrowed throughout, burrows filled with light olive gray (5Y6/1) sediment. Zones of green laminations at 3 to 4, 7 to 8, 31 to 32, 78 to 80, 98, 116 to 118, 129, 144 cm, dip about 30°.
					6		C, D, C, C	1	CC		Similar to above but harder, chevron like burrows at 45 and 47. Green laminations at 71 and 72 cm. [58% $CaCO_3$]: 37% carbonate, 25% nannos, 20% rads, 5% sponge spicules, 10% diatoms, 3% forams
		N F R	F C C	P M G	Core Catcher		C, Sp, C				SPONGE SPICULE BEARING RAD RICH NANNO CALCIC OOZE: 45% carbonate, 12% rads, 2% diatoms, 1% forams, 34% nannos, 5% sponge spicules, 1% dark glass

Sp = Sponge Spicules C = calcite ooze

Site 206 C Hole Core 18 Cored Interval: 668-677 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
MIDDLE EOCENE	Chiphragmalithus cristatus				1	0.5, 1.0	C F C Sp C D C (F, D, Sp)	1	
		N	A	P	2		C C C C C Sp C (Sp, D)	1	CC XM
					3		C C Sp C C C (Sp)	1	
		N / F / R	C / C / C	P / M / G	Core Catcher		C Sp C D (D, Sp)		



LITHOLOGIC DESCRIPTION

5GY8/1

FORAM DIATOM AND SPONGE SPICULE BEARING, RAD AND NANNO RICH CALCIC OOZE
37% carbonate
25% nannos
25% rads
5% diatoms
5% sponge spicules
3% forams

Pale light greenish gray semi-lithified, mottled with greenish white (5G9/1) moderately mottled, core has near vertical curving cracks filled with light olive gray (5Y6/1) sediment before lithification.

[59% $CaCO_3$]

SPONGE SPICULE AND DIATOM BEARING RAD AND NANNO RICH CALCIC OOZE
Similar to 18/1 mottled with greenish white throughout. A few cracks filled with olive gray sediment in the interval 120 to 140. Diffuse green bands at 7 to 8, 144, 146 and 147 dipping at 30°.

X-ray - 51% amorphous, 49% crystalline: 95% calc., 1% qtz., 4% mont.

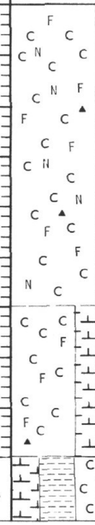
Mottled with greenish white throughout, diffuse green (10G6/2) zones at 2 to 3, 30 to 31, 95 to 96, 112 to 114, 134 to 137. Sediment around 120 appears to be slumped.
38% carbonate
25% nannos
20% rads
10% diatoms
5% sponge spicules
2% forams

DIATOM, AND SPONGE SPICULE BEARING, RAD AND NANNO RICH CALCIC OOZE
45% carbonate
22% nannos
15% rads
10% sponge spicules
5% diatoms
2% forams
1% dark glass

C = calcite ooze SP = Sponge Spicules

Site 206 C Hole Core 19 Cored Interval: 687-696 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
MIDDLE EOCENE / EARLY EOCENE	Chiphragmalithus cristatus	N	A	P	1	0.5, 1.0	F C C C N C C N F C F C ▲ C F C N	1	CC XM
EARLY EOCENE		N	A	P	2		C C N C ▲ F C F C C N C	1	
	Discoaster lodoensis	N	A	P	3		C C C F C F C C F C ▲	1	
EARLY PALEOCENE	*	N / F / R	F / R / -	P / P / -	Core Catcher		C C C		



LITHOLOGIC DESCRIPTION

5GY8/1

FORAM AND NANNO BEARING CALCIC OOZE
83% carbonate
10% nannos
5% forams
2% clay

Light greenish gray, lithified, faintly mottled with greenish white. 0 to 57 cm speckled with fragments of greenish black (5G2/1) sediment; 57 to 122 paler greenish gray, cut by cracks filled with gray and green sediment. Sediment becomes greener downwards. 122 to 125 fragment of yellowish brown chert (10YR5/4), 125 to 150 like 67 to 122 cm.

[91% $CaCO_3$]

X-ray - 29% amorphous, 71% crystalline: 98% calc., 2% mont.

5GY8.5/1

Some light greenish gray carbonate sediment as lower part of Section 1. Large lump of greenish gray chert 61 to 65 cm. Lower part of section slumped and disturbed.

CLAY AND FORAM BEARING NANNO RICH CALCIC OOZE
65% carbonate
25% nannos
5% forams
5% clay

5G8/1

Similar to Section 2, very light gray (5GY8.5/1) down to 84 cm then light greenish gray (5G8/1). Few chert fragment (broken core) at 128 cm. Core is crossed by many cracks filled with greenish gray (5G6/1) sediment and is faintly mottled with greenish white.

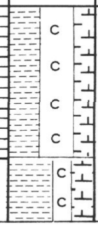
CALCIC RICH NANNO CLAY
40% clay
36% nannos
20% carbonate
2% forams
1% feldspar
1% dark glass

*Fasciculithus tympaniformis (lower)

Site 206 C Hole Core 20 Cored Interval: 706-715 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	DEFORMATION	LITHO. SAMPLE
EARLY PALEOCENE	*Prinsius martinii*	N	A	P	1	0.5, 1.0	1	XM, CC
	*	N / F / R	C / R / R	M / M / P	Core Catcher			

LITHOLOGY:



LITHOLOGIC DESCRIPTION

5GY8/1

NANNO CLAY AND CALCIC CLAY mainly NANNO RICH CALCONOUS CLAY
Lithified, light greenish gray, brecciated in upper part, cracks filled with greenish gray sediment. Ptygmatic folds in white carbonate sediment at 4 cm. Other veins and infillings are deformed considerably. Some inclusions of white sediment.

[X-ray - 42% amorphous, 58% crystalline:
87% calc., 2% qtz., 2% mica,
2% mont., 6% clin.]

[68% $CaCO_3$]

Infilling sediment - 35% clay, 40% carbonate, 15% nannos, 10% forams

White carbonate bed - 55% nannos, 45% carbonate

Main lithology - 40% clay, 40% nannos, 20% calc.
to - 50% clay, 40% carbonate, 5% forams, 5% nannos

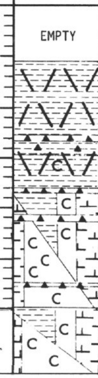
FORAM BEARING, CALCIC AND NANNO RICH CLAY
50% clay
20% carbonate
23% nannos
5% forams
1% diatoms
1% feldspar

C = calcite ooze *Chiasmolithus danicus

Site 206 C Hole Core 21 Cored Interval: 725-734 m

AGE	ZONE	FOSSIL	ABUND.	PRES.	SECTION	METERS	DEFORMATION	LITHO. SAMPLE
EARLY PALEOCENE	*Chiasmolithus danicus*	N	C	P	1	0.5	1	CC XM
		N	A	M		1.0		
		N	A	P	2			
MIDDLE PALEOCENE	*Fasciculithus tympaniformis*	N	C	P			1	CC XM
		N	C	P				
		N / F / R	C / R / R	P / P / P	Core Catcher			

LITHOLOGY:



LITHOLOGIC DESCRIPTION.

5G5/2 — CALCIC BEARING CLAYSTONE
Grayish green, cherty, fissile, soapy feeling hard lithified.
[19% $CaCO_3$]
85% clay
1% nannos
12% calcite
2% forams

10G5/2 & 5G8/1 — [X-ray - 74% amorphous, 26% crystalline:
22% calc., 4% qtz., 52% cristoballite,
1% K-feldspar, 1% plag., 3% mica,
8% mont., 8% tridymite, 2% barite]

CHERT
Green to greenish gray,
passing down into

5G7/1 and 5G9/1 — CALCIC BEARING CLAYSTONE

SLUMPED AND INTERMIXED NANNO RICH CALCIC LIMESTONE AND FORAM BEARING NANNO AND CALCIC RICH CLAYSTONE with CHERT (?bands).

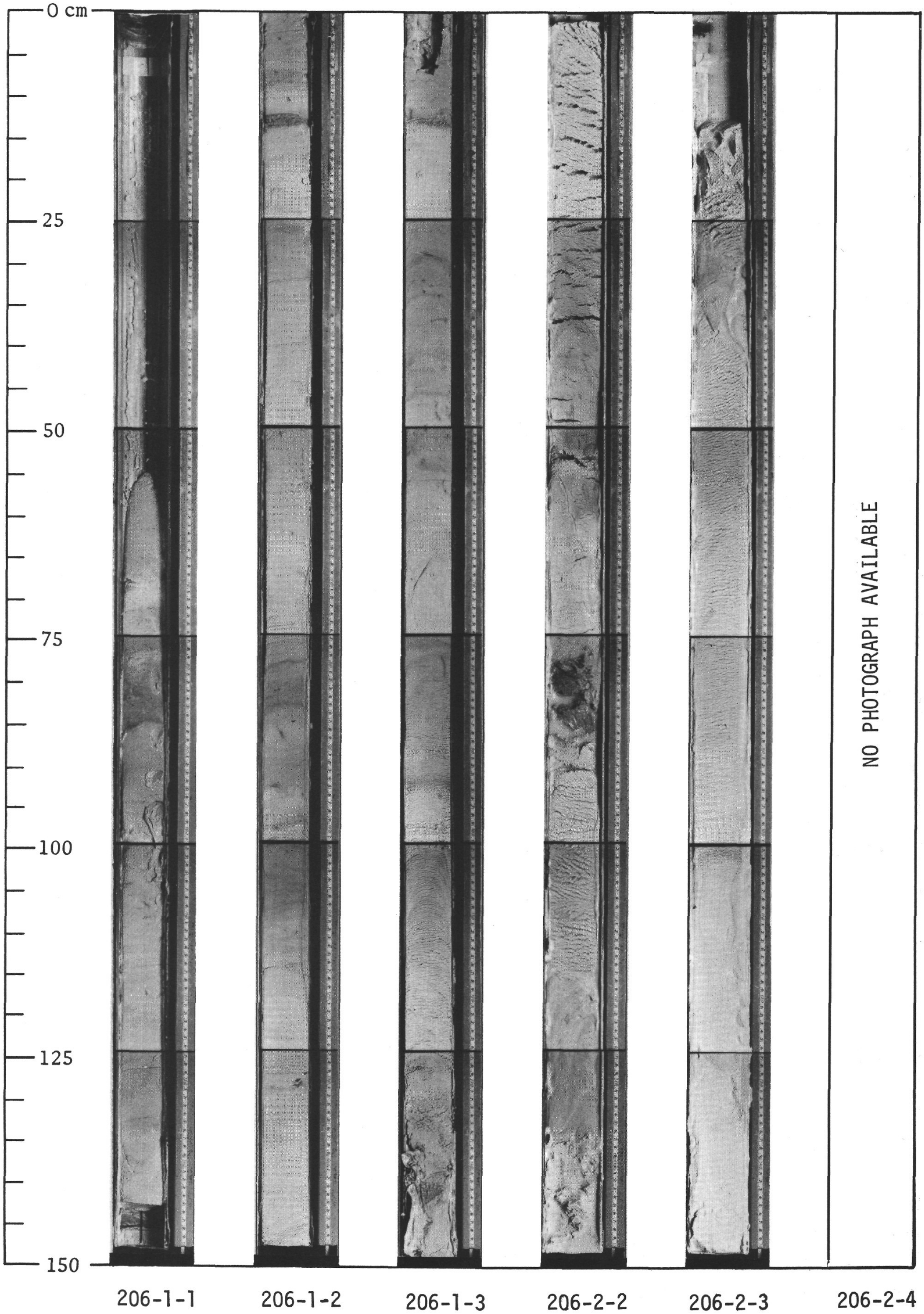
N7 — [62% $CaCO_3$]

Nanno rich calcic limestone - (5G9/1), 85% calcite, 13% nannos, 2% forams

Foram bearing nanno and calcic rich claystone - (5G7/1), 50% clay, 25% clacite, 21% nannos, 3% forams.

Slumped and intermixed NANNO RICH CALCIC LIMESTONE and FORAM BEARING NANNO AND CALCIC RICH CLAYSTONE.

C = calcite ooze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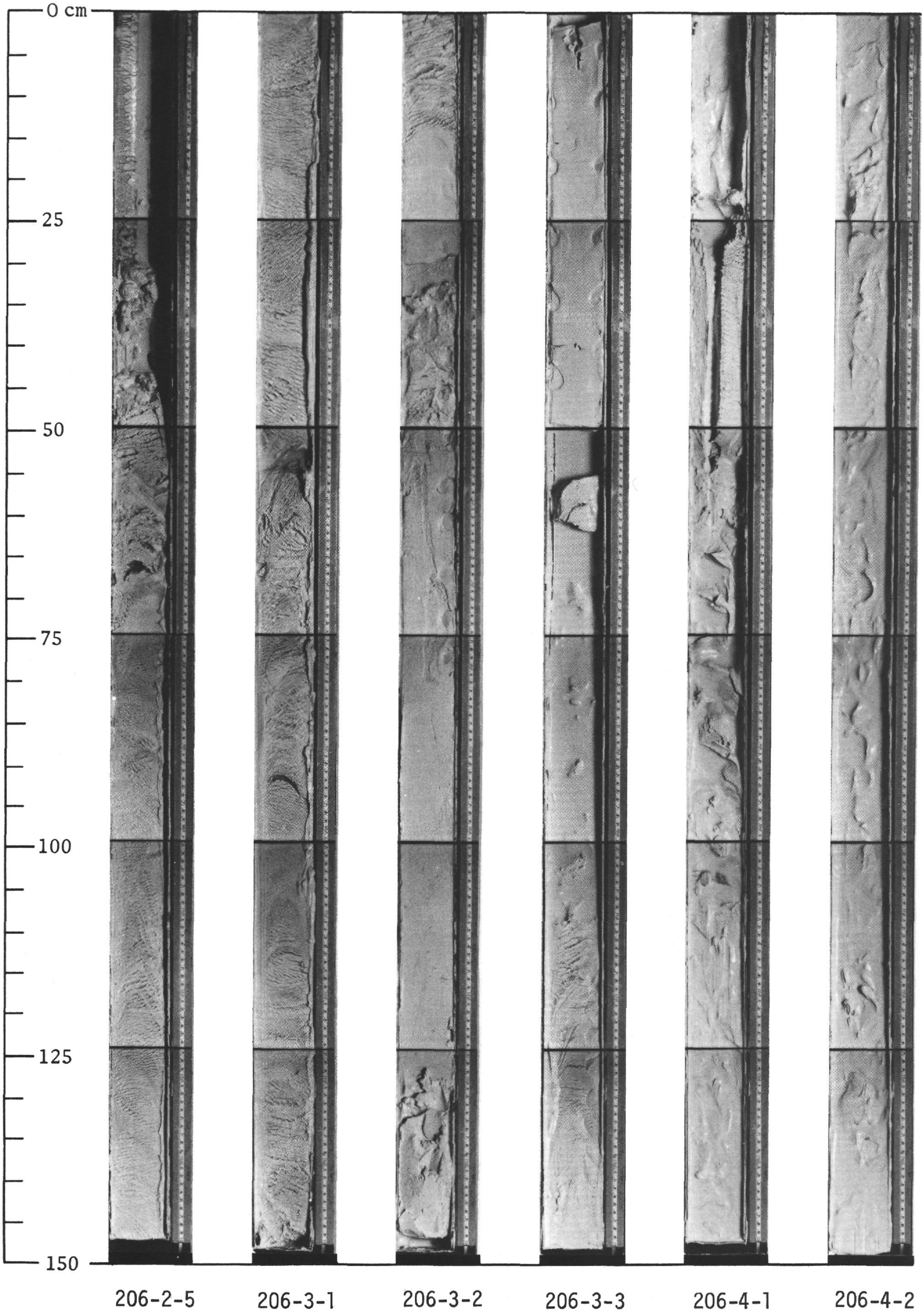
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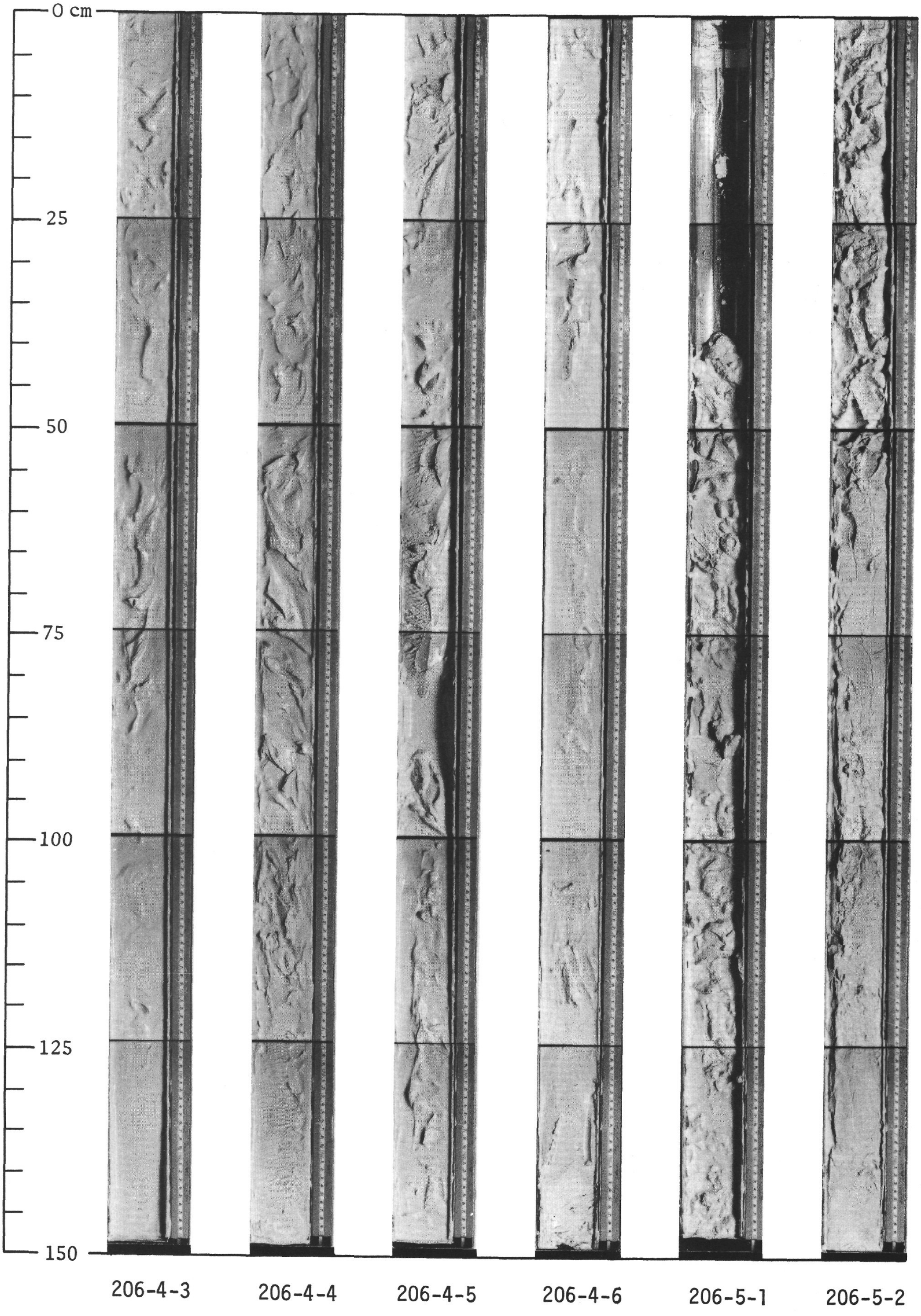
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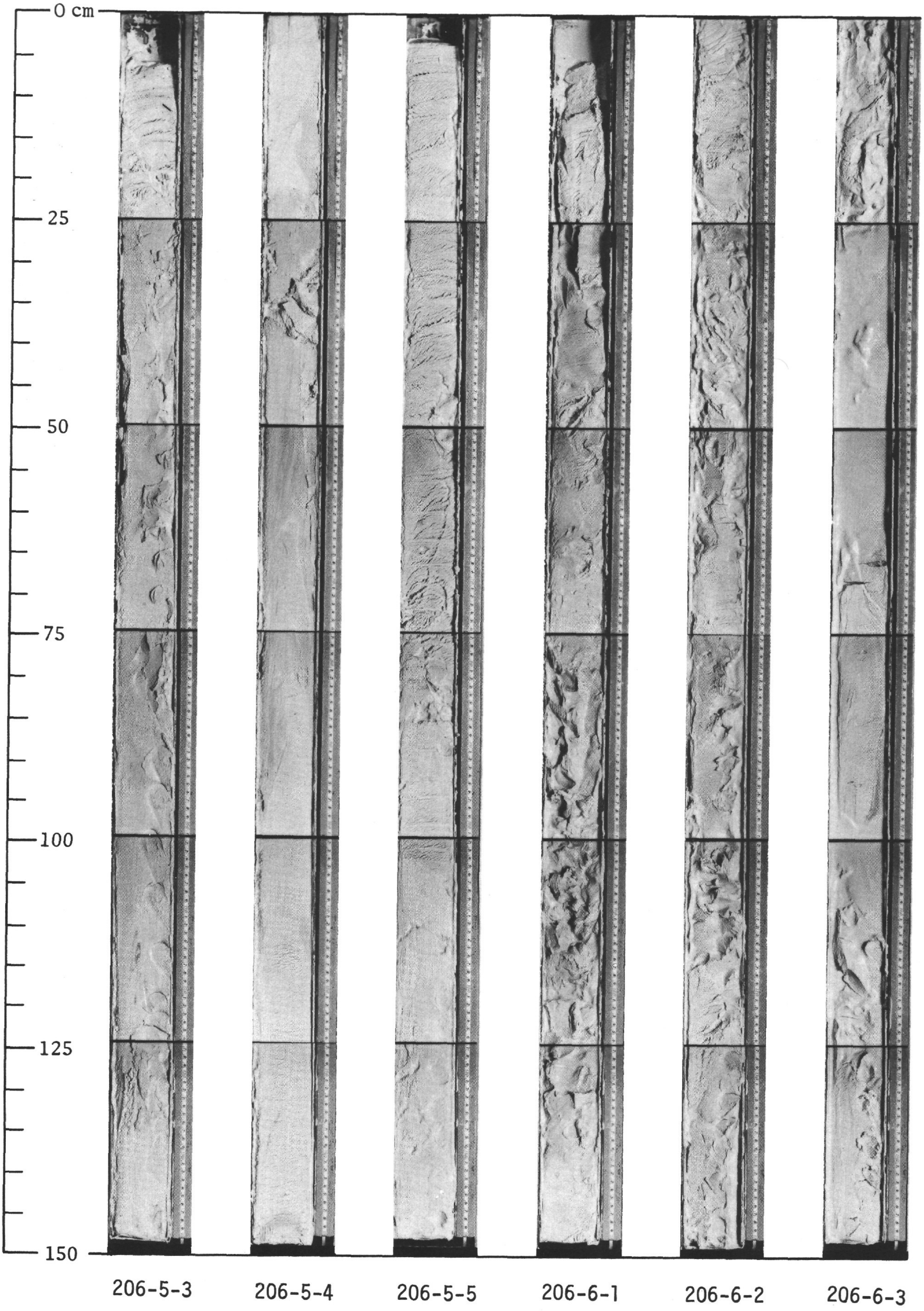
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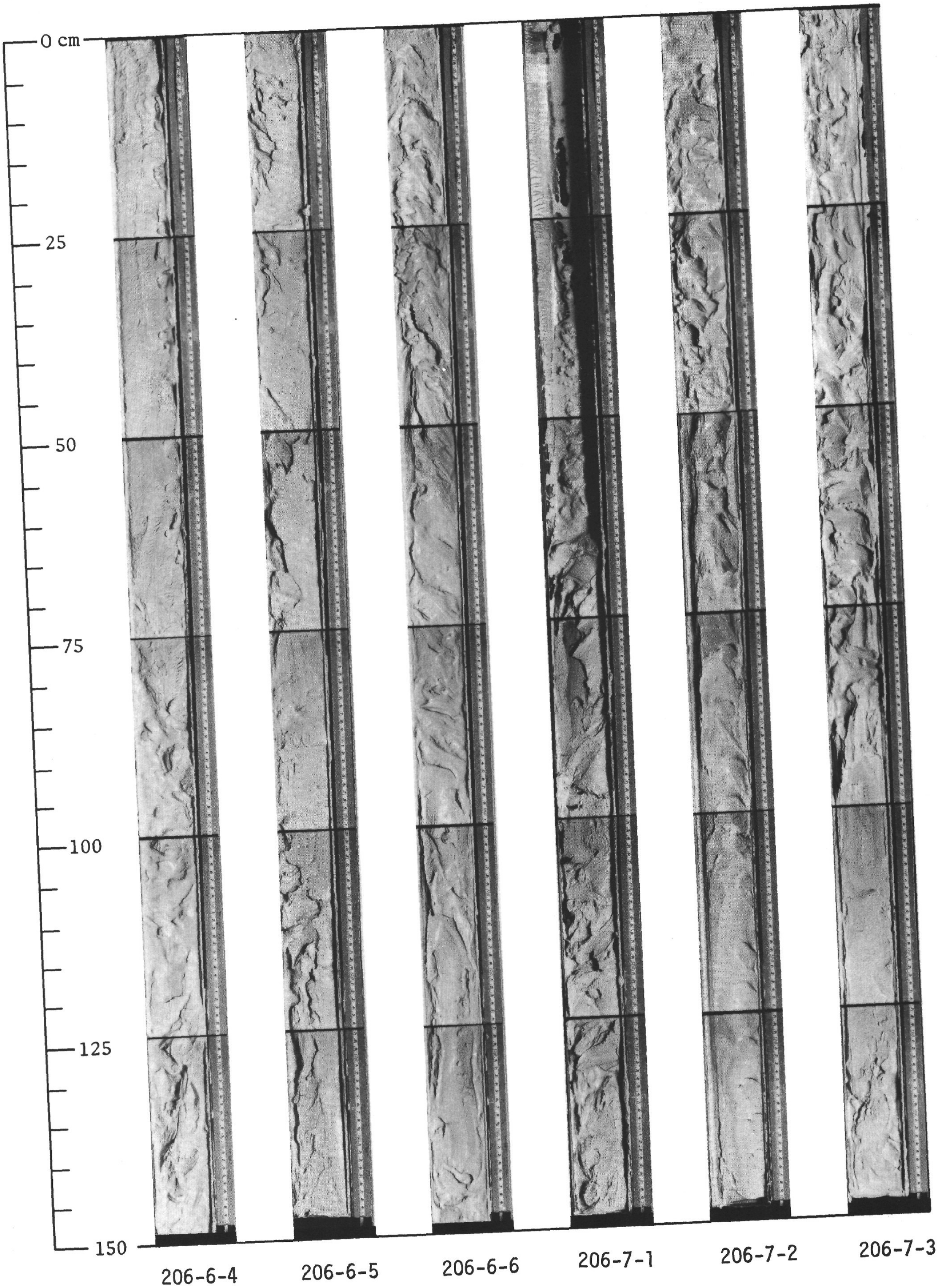
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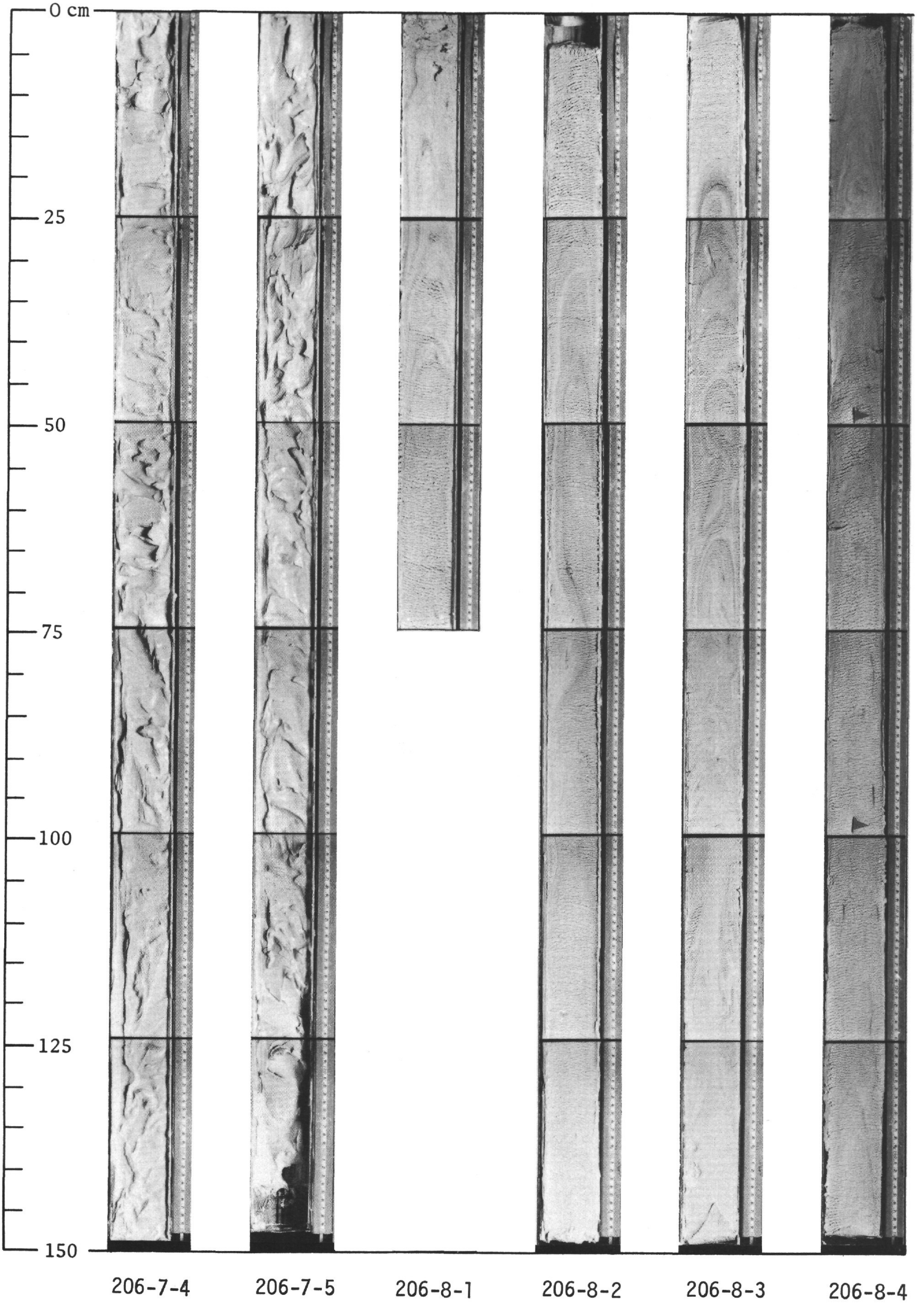
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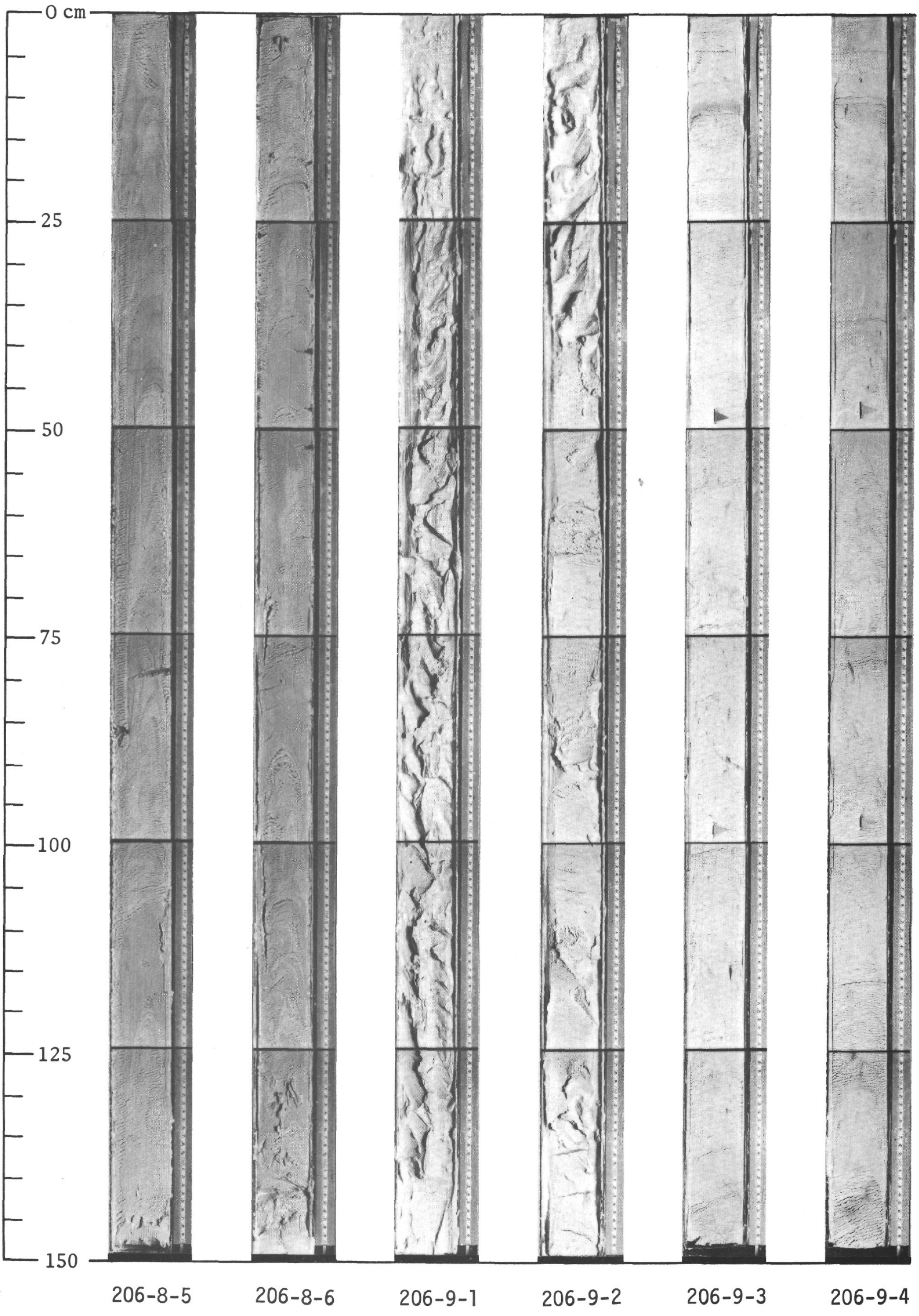
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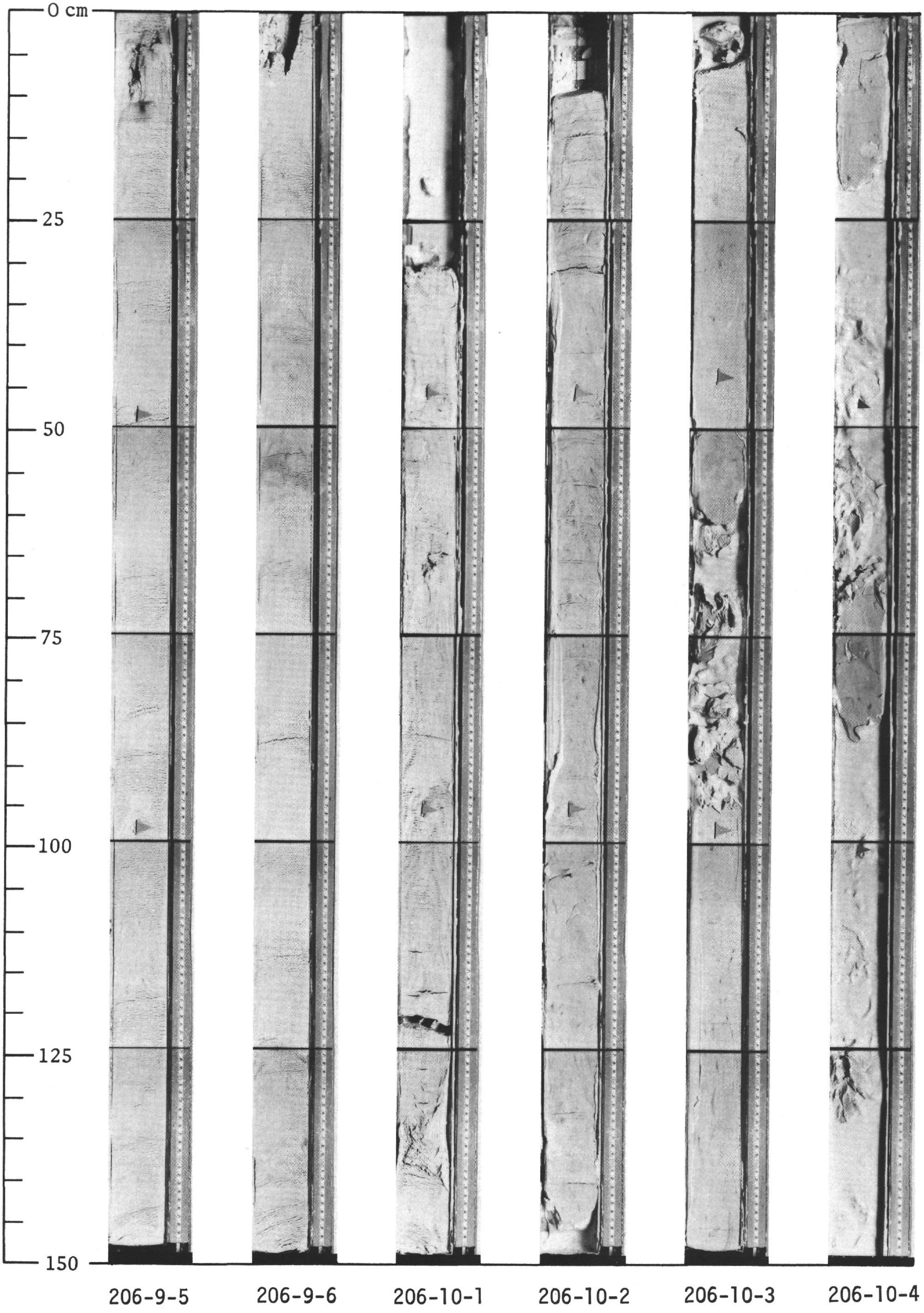
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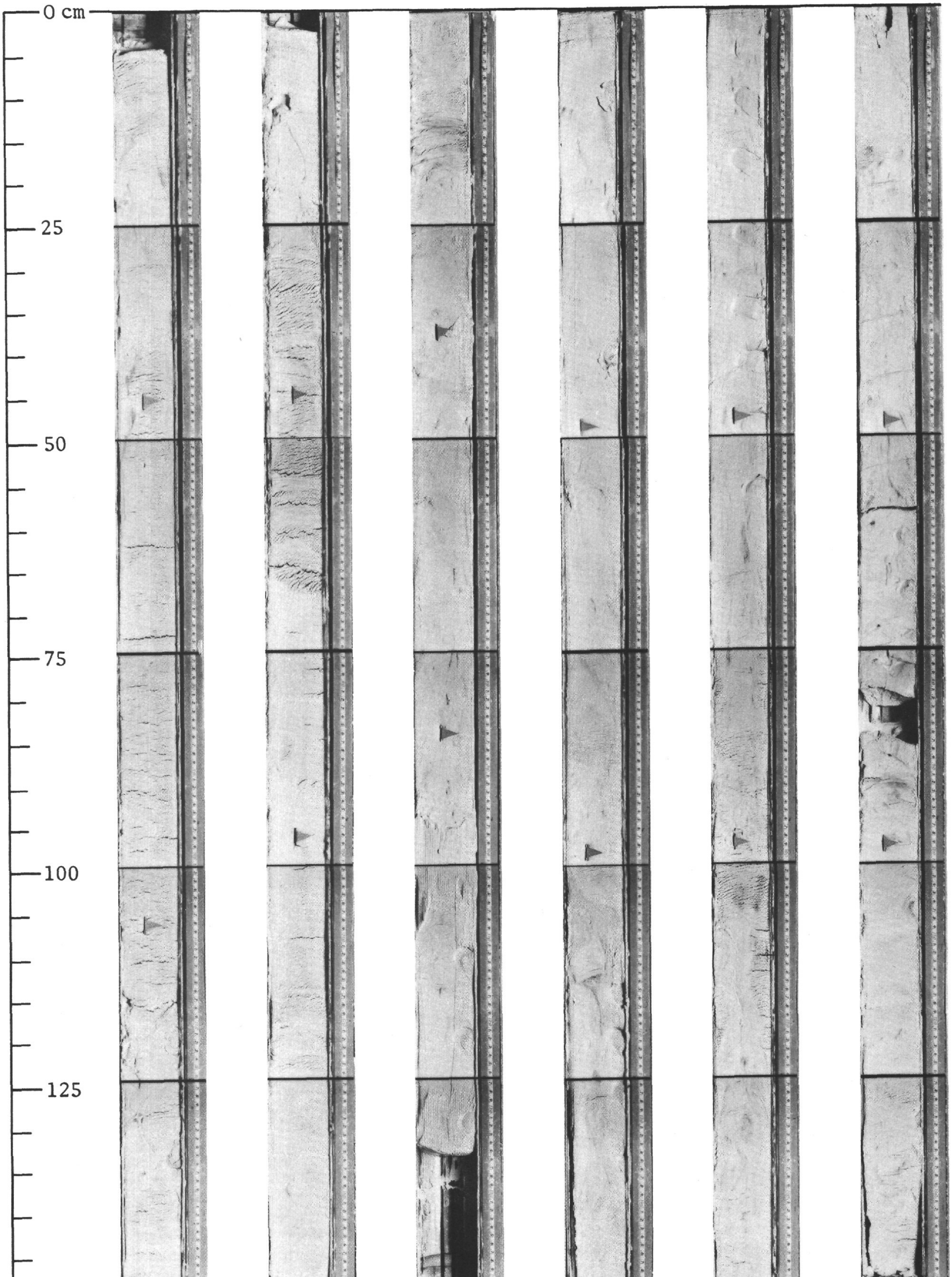
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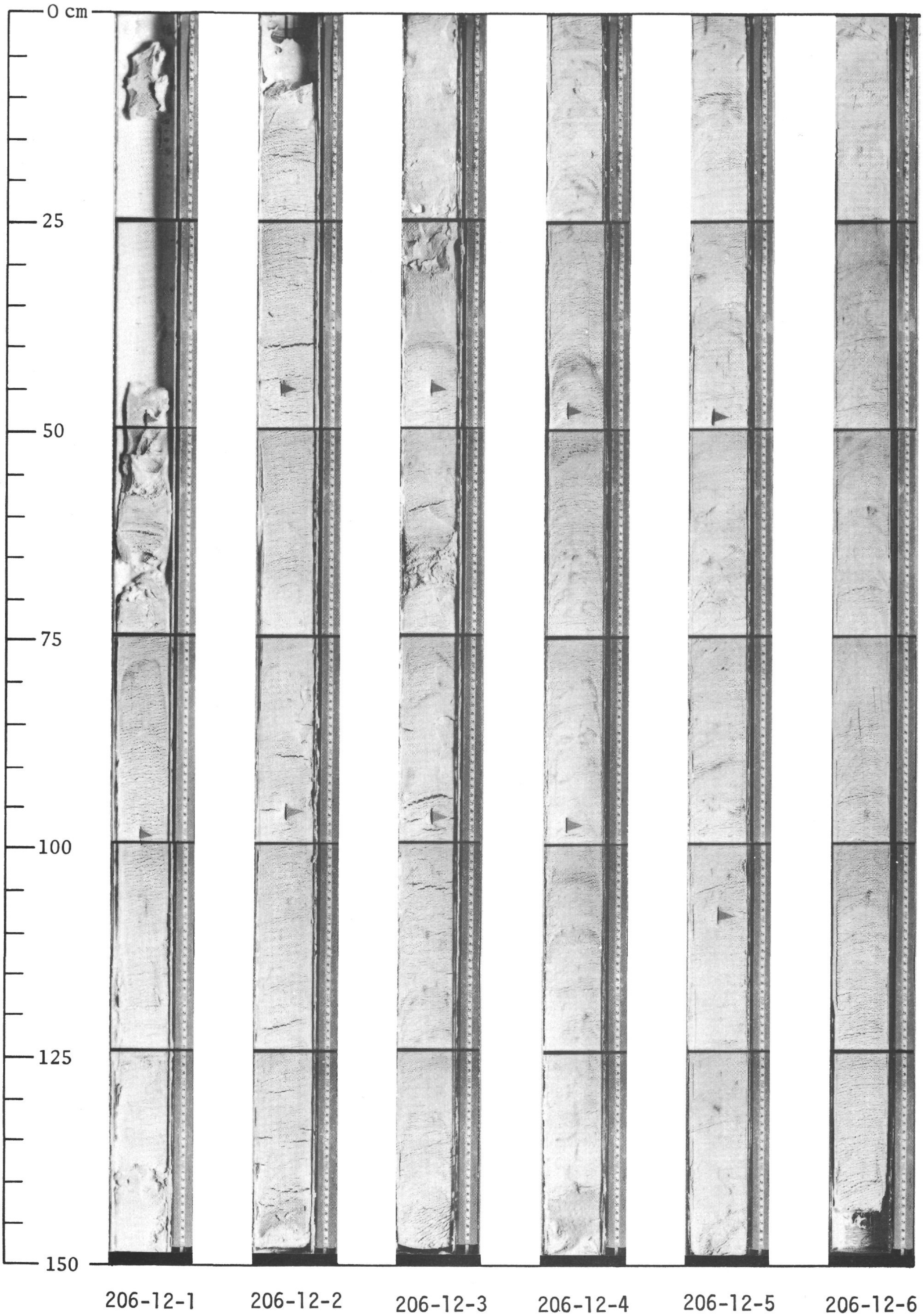
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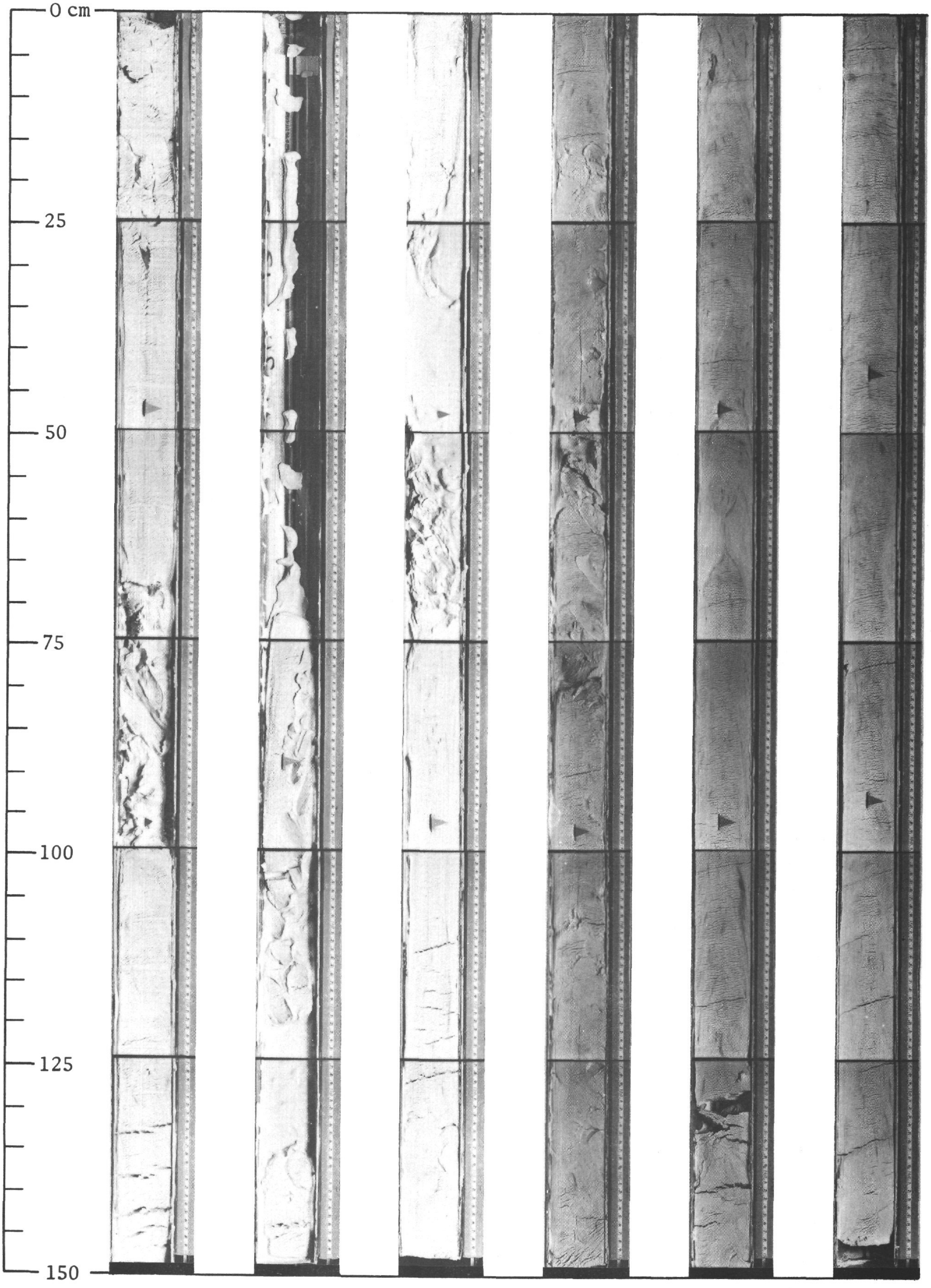

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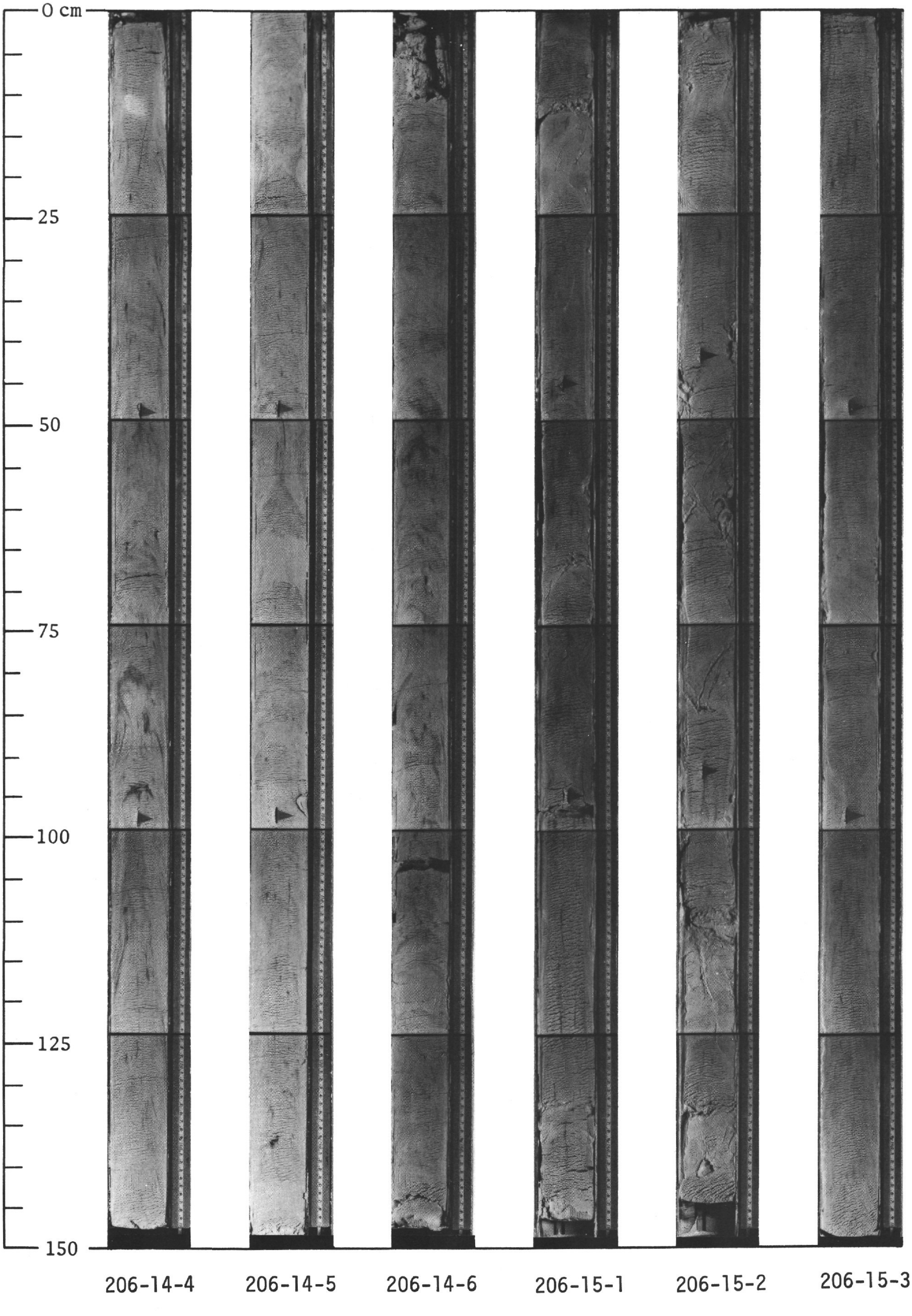
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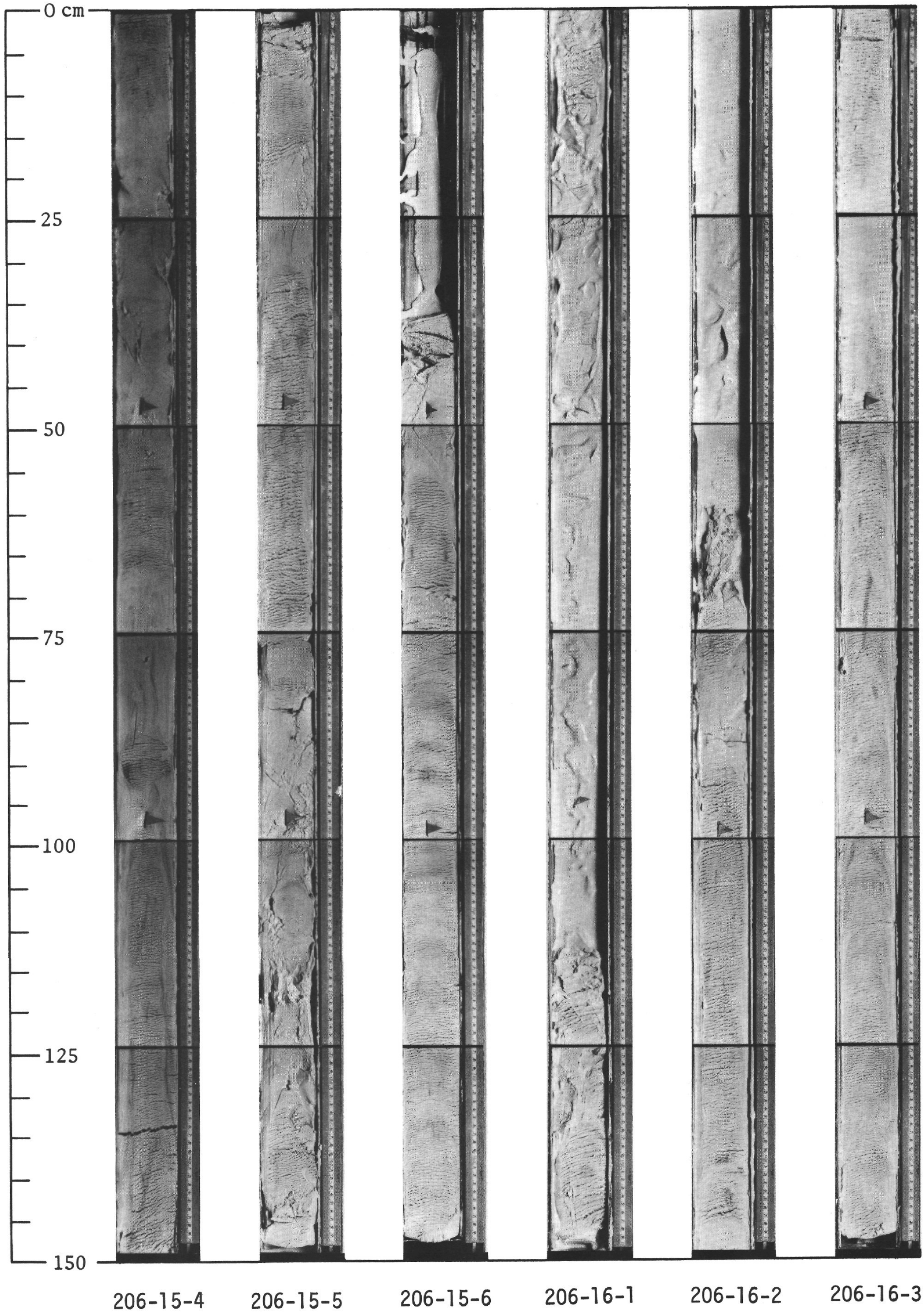
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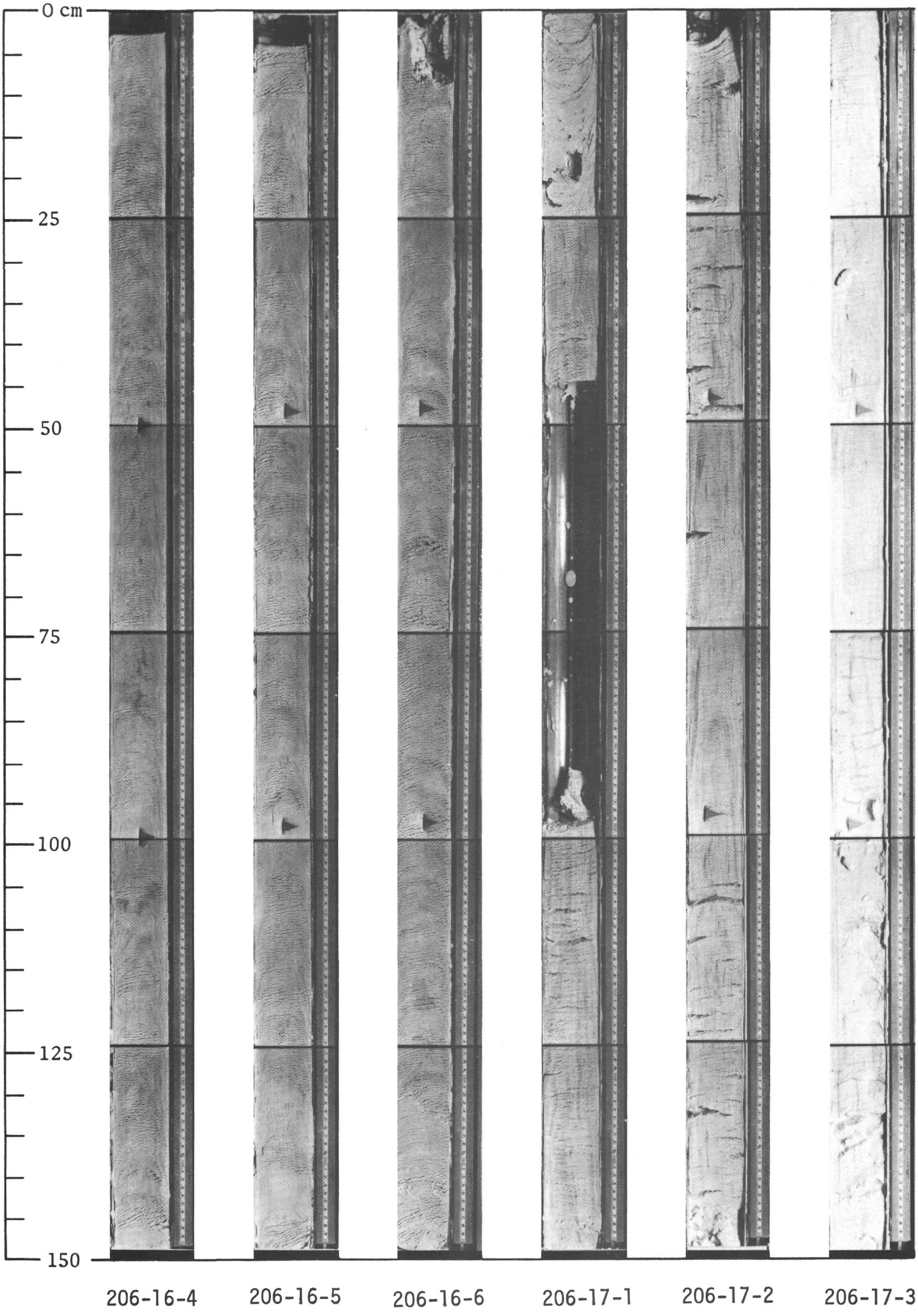
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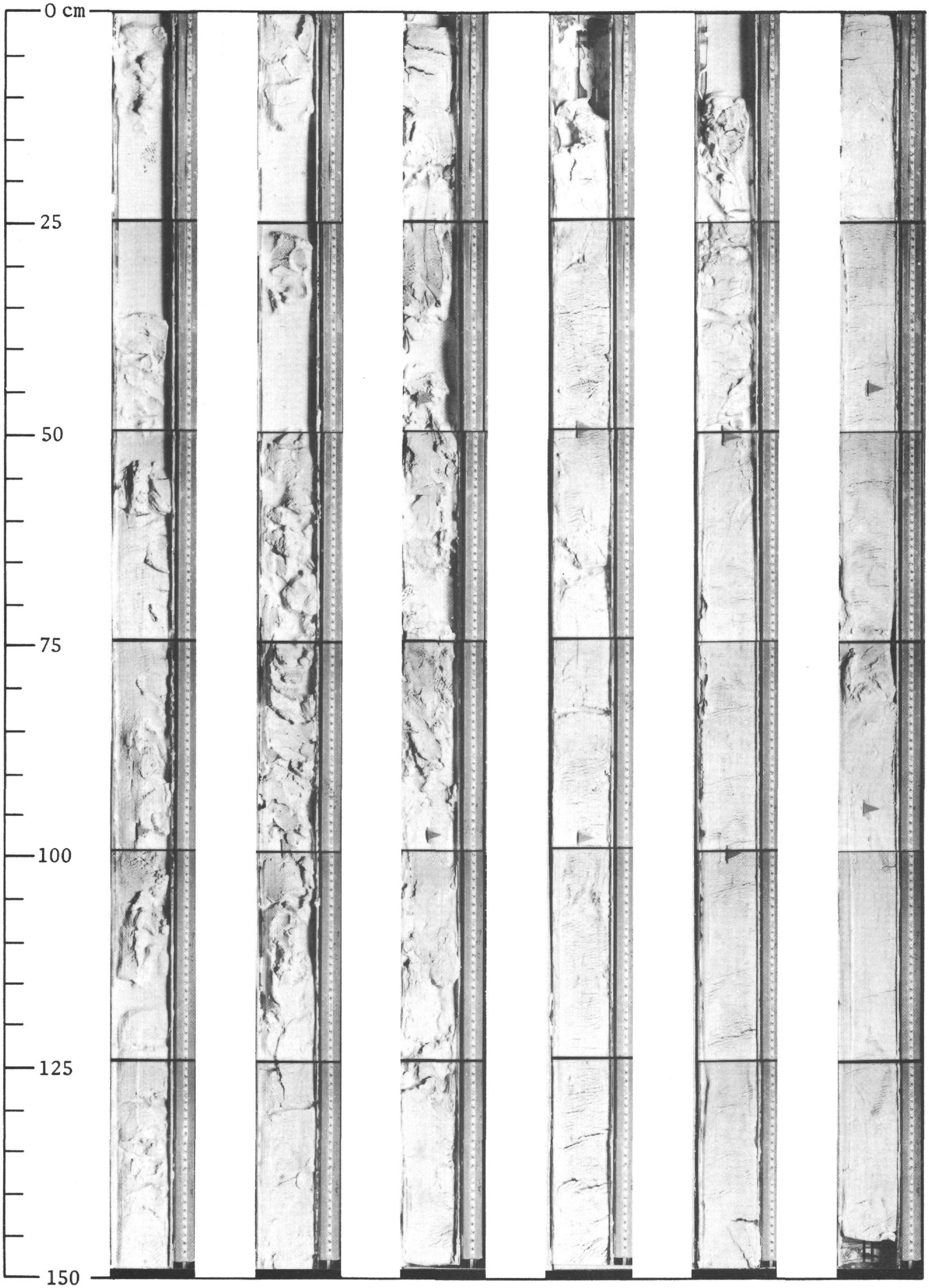
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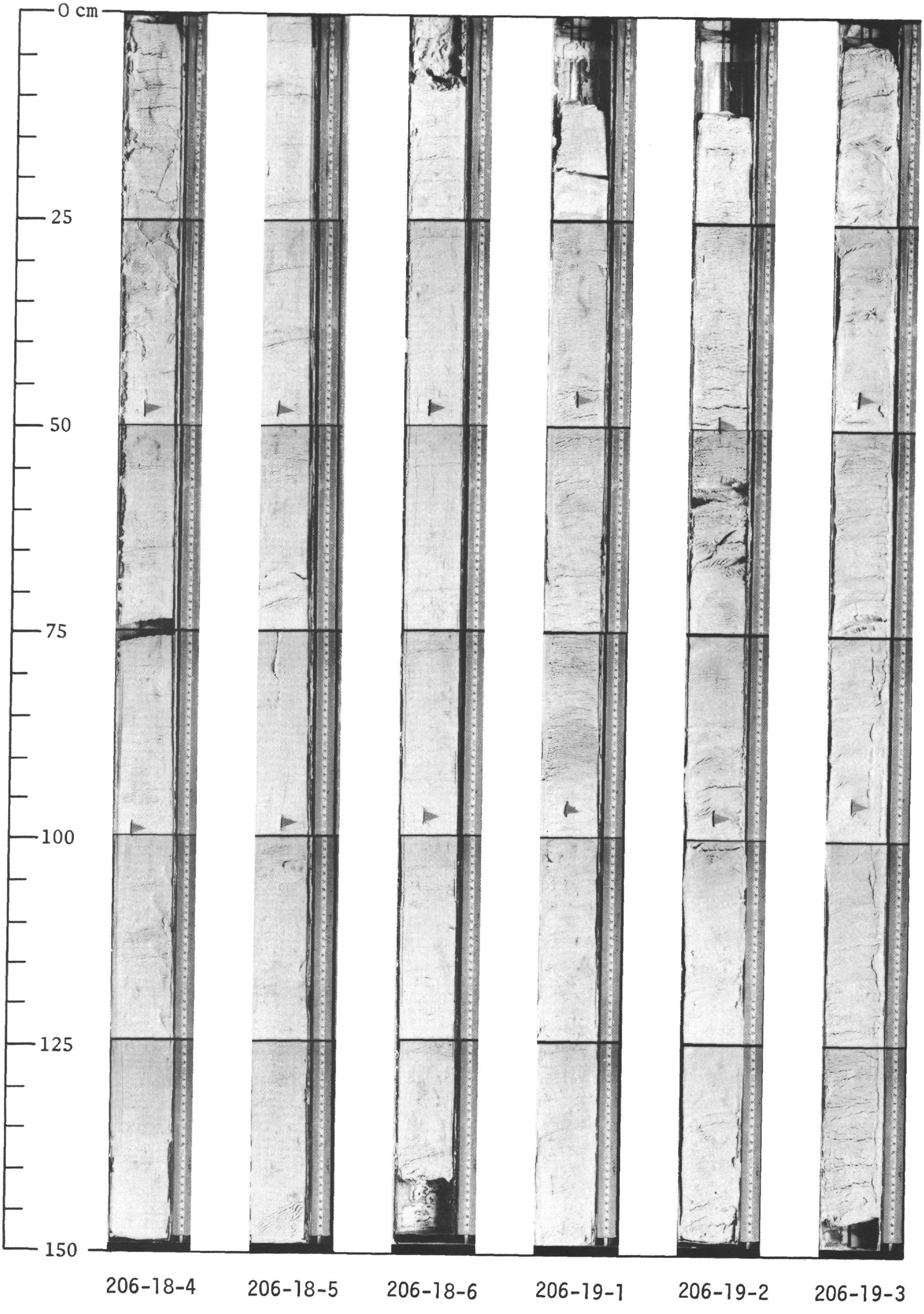
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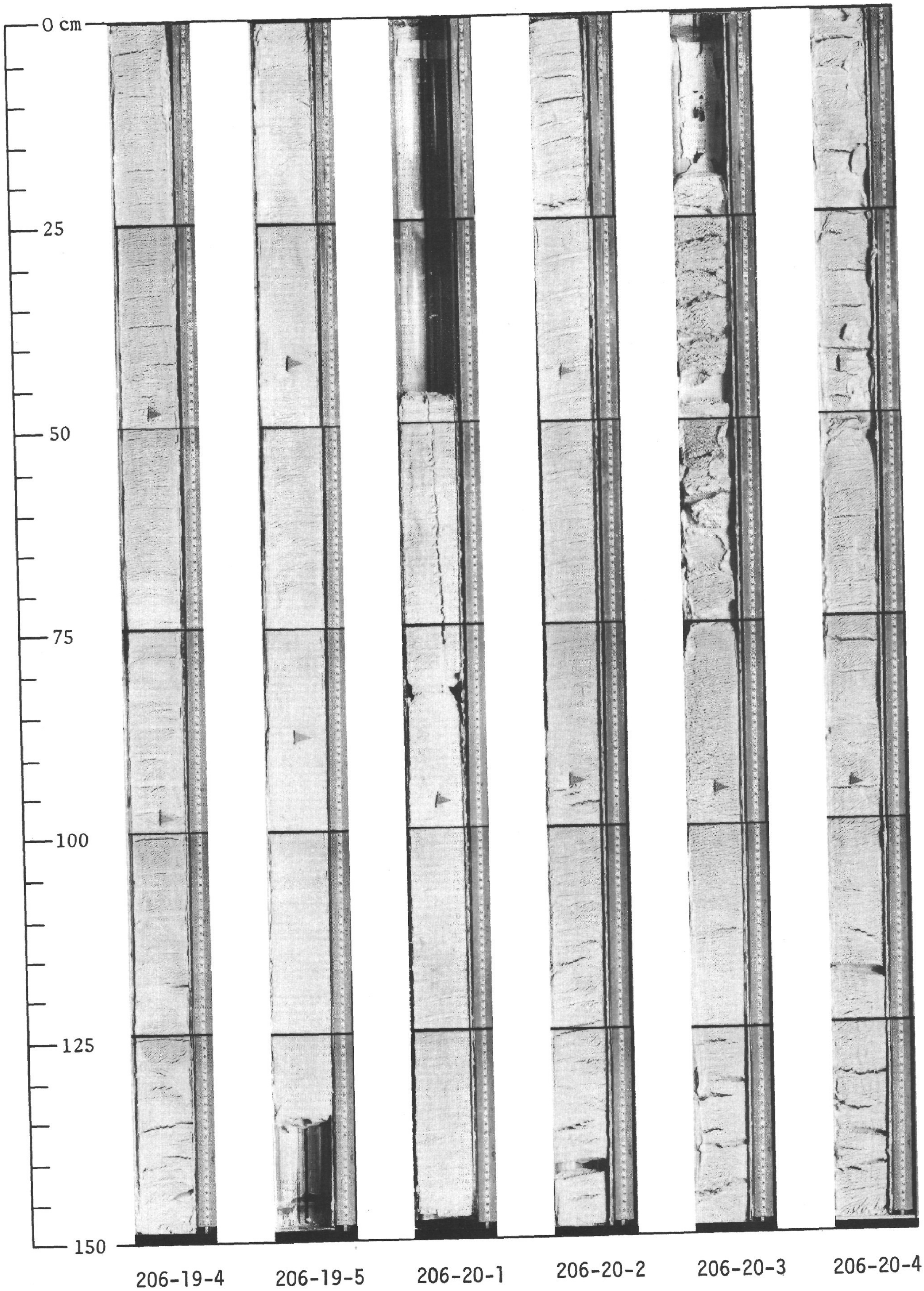
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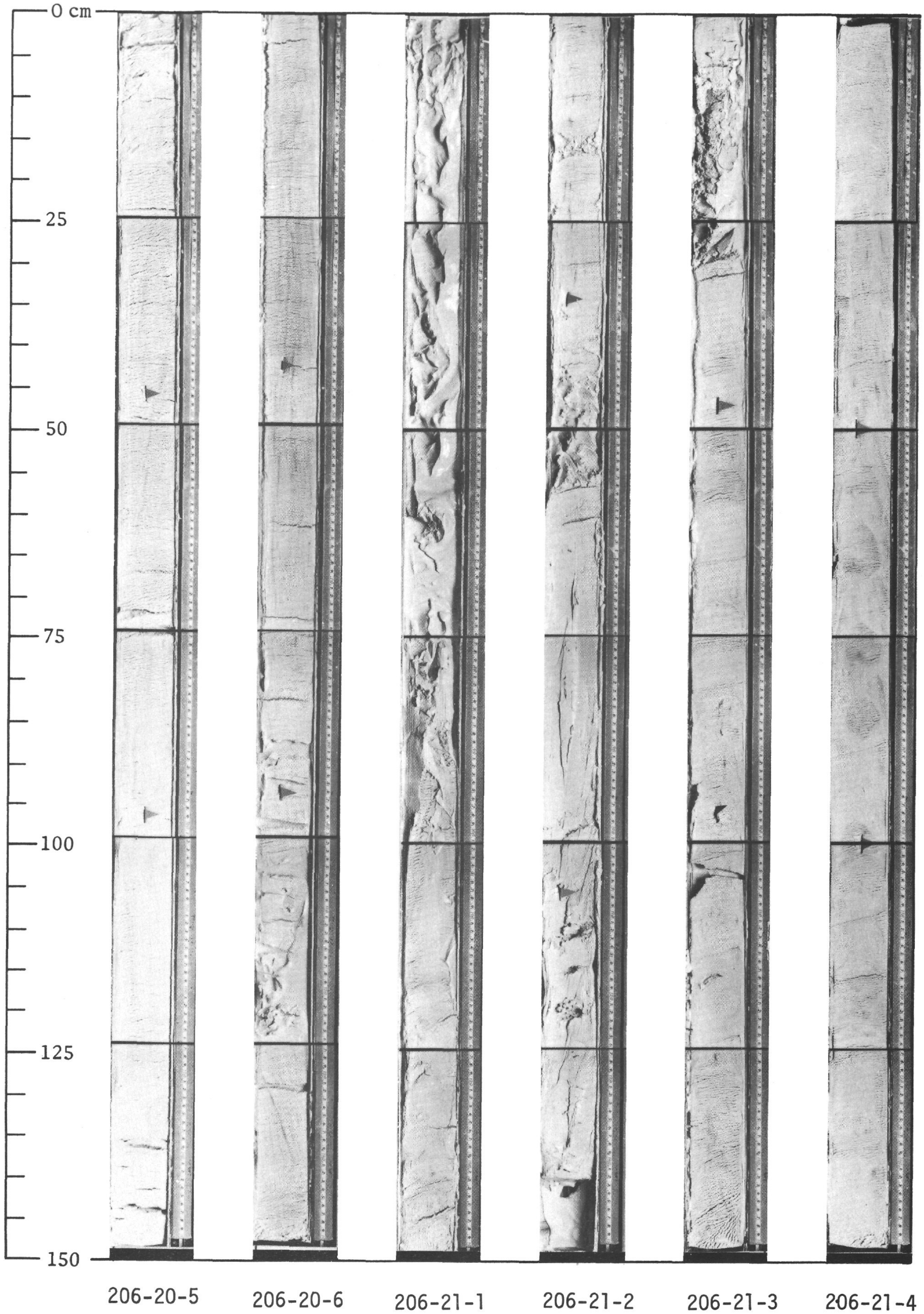
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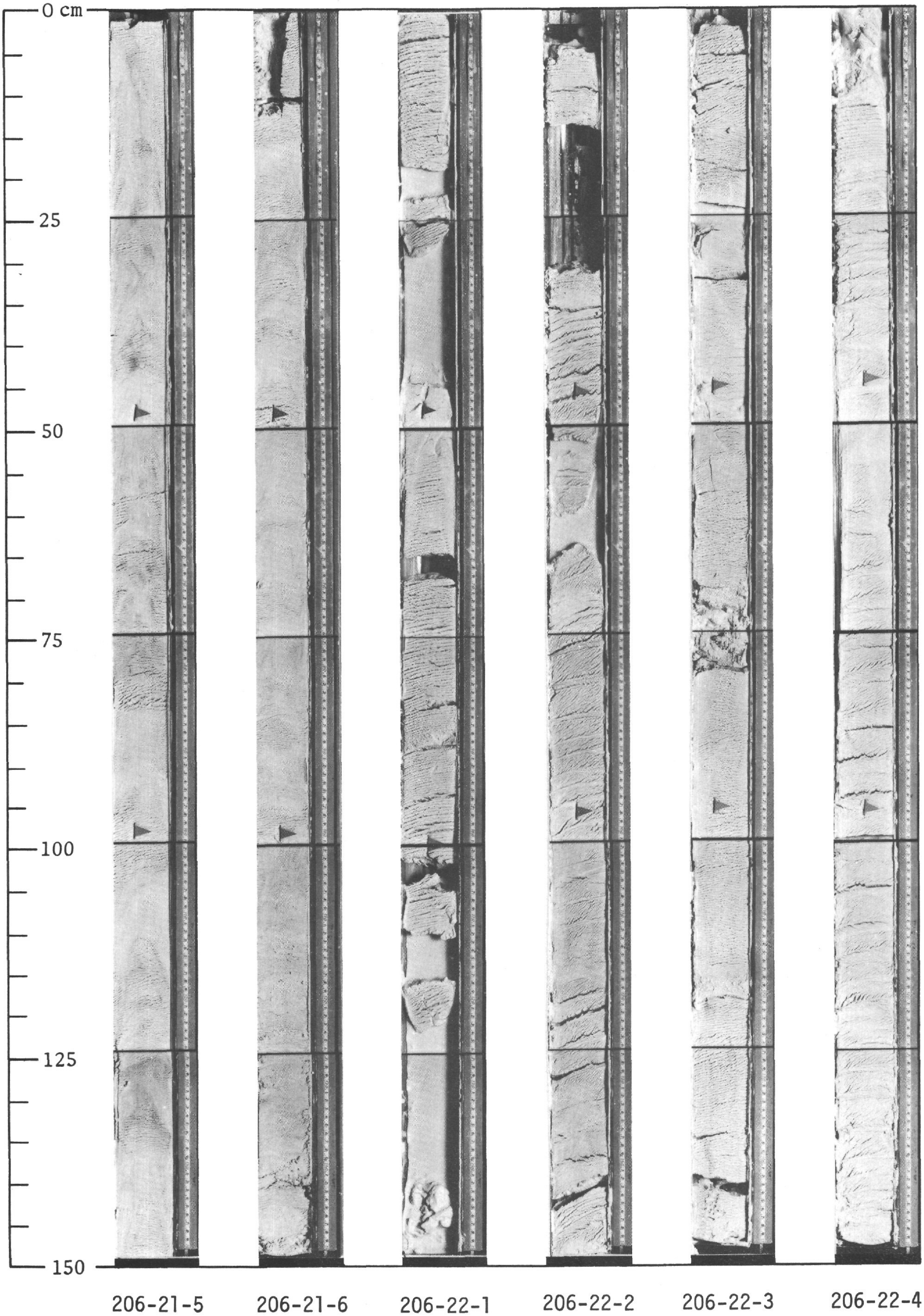
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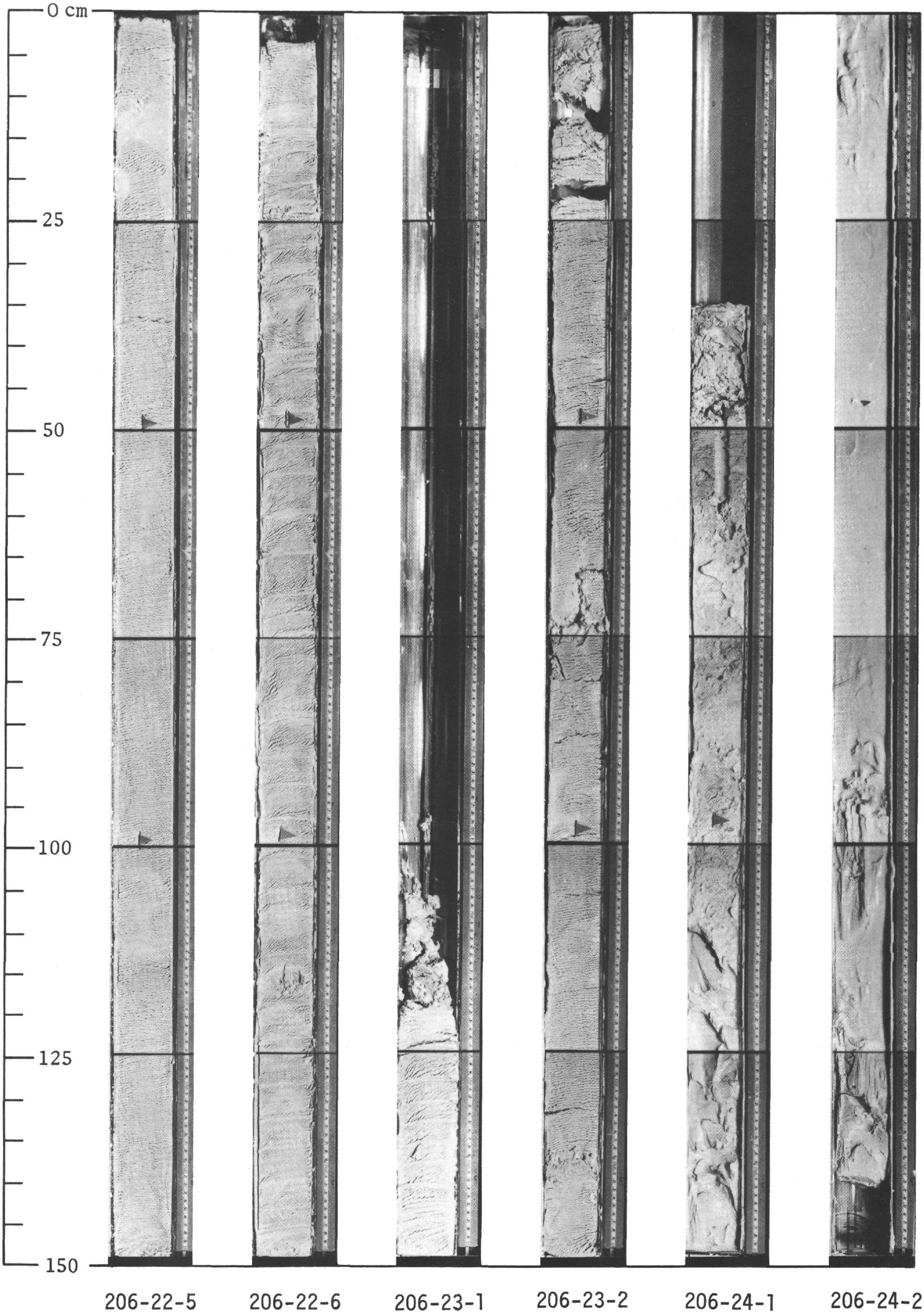
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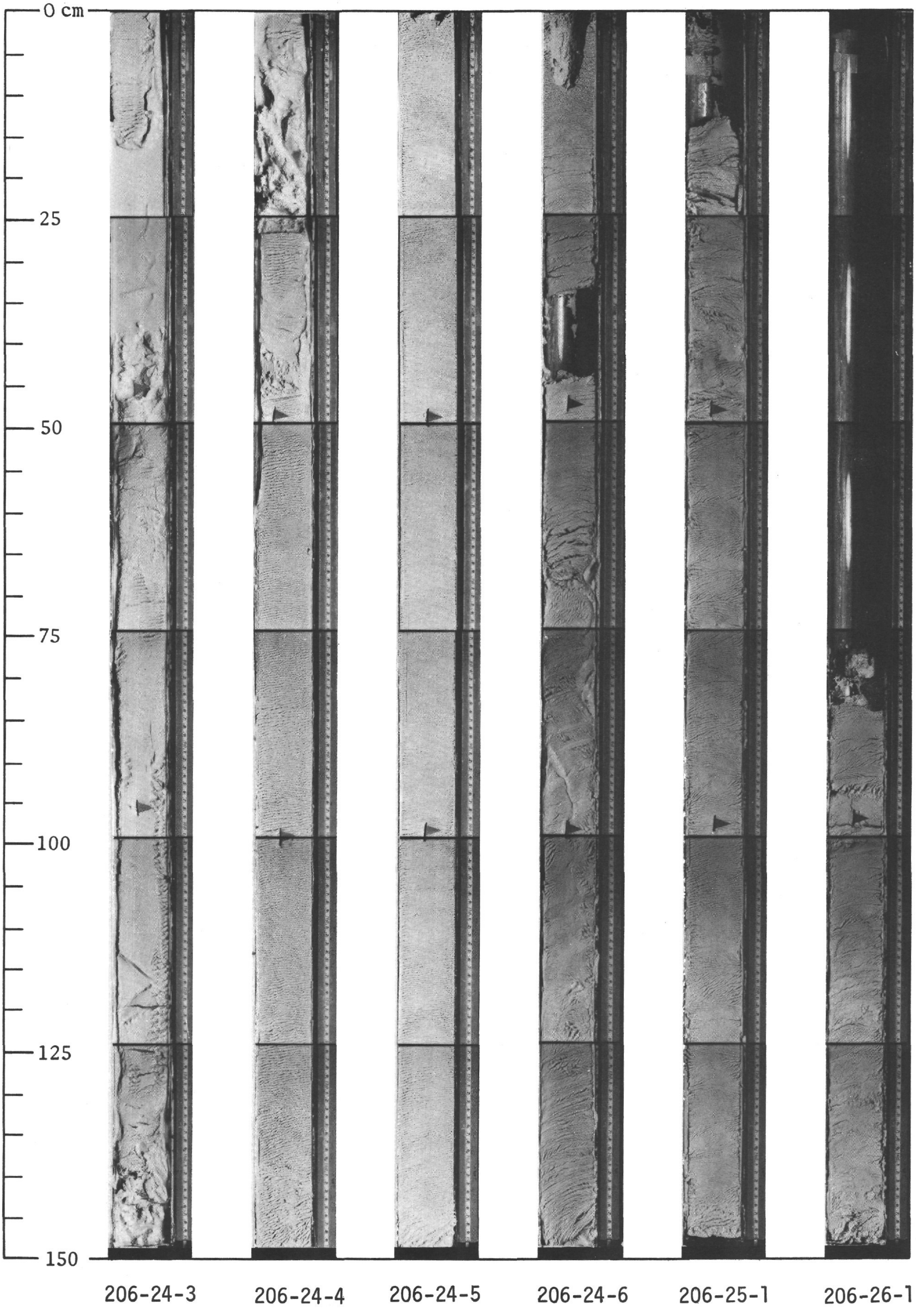
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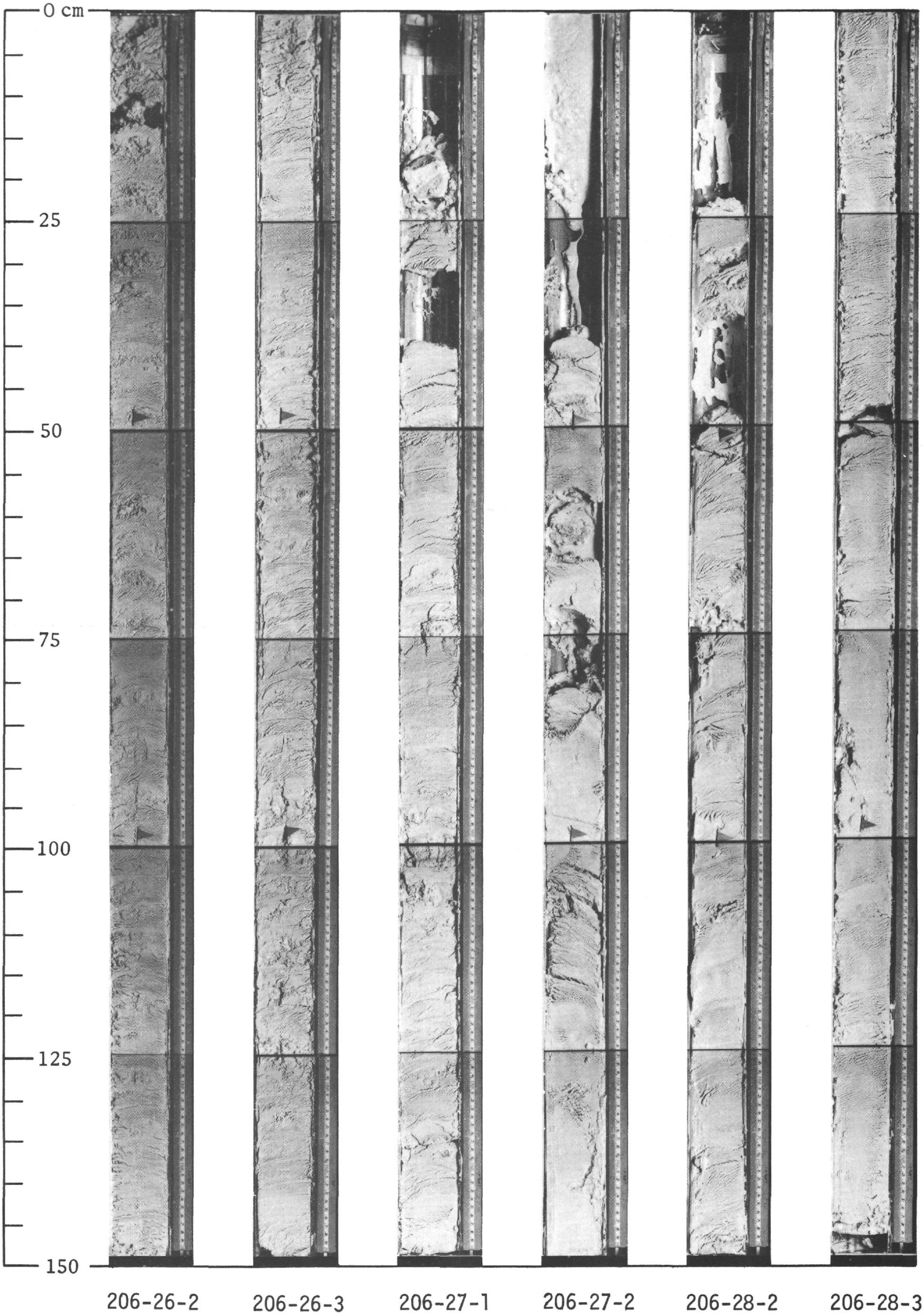
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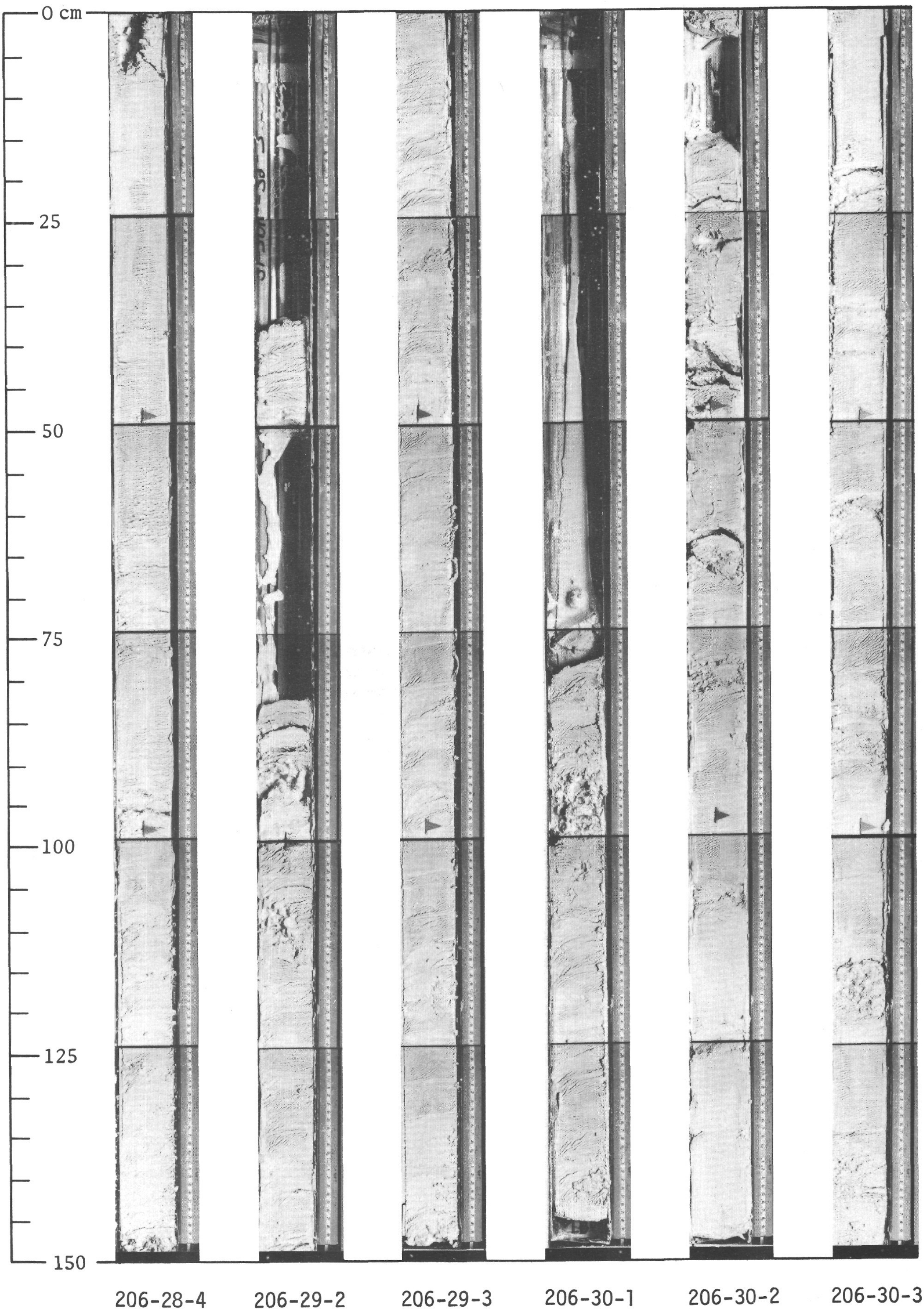
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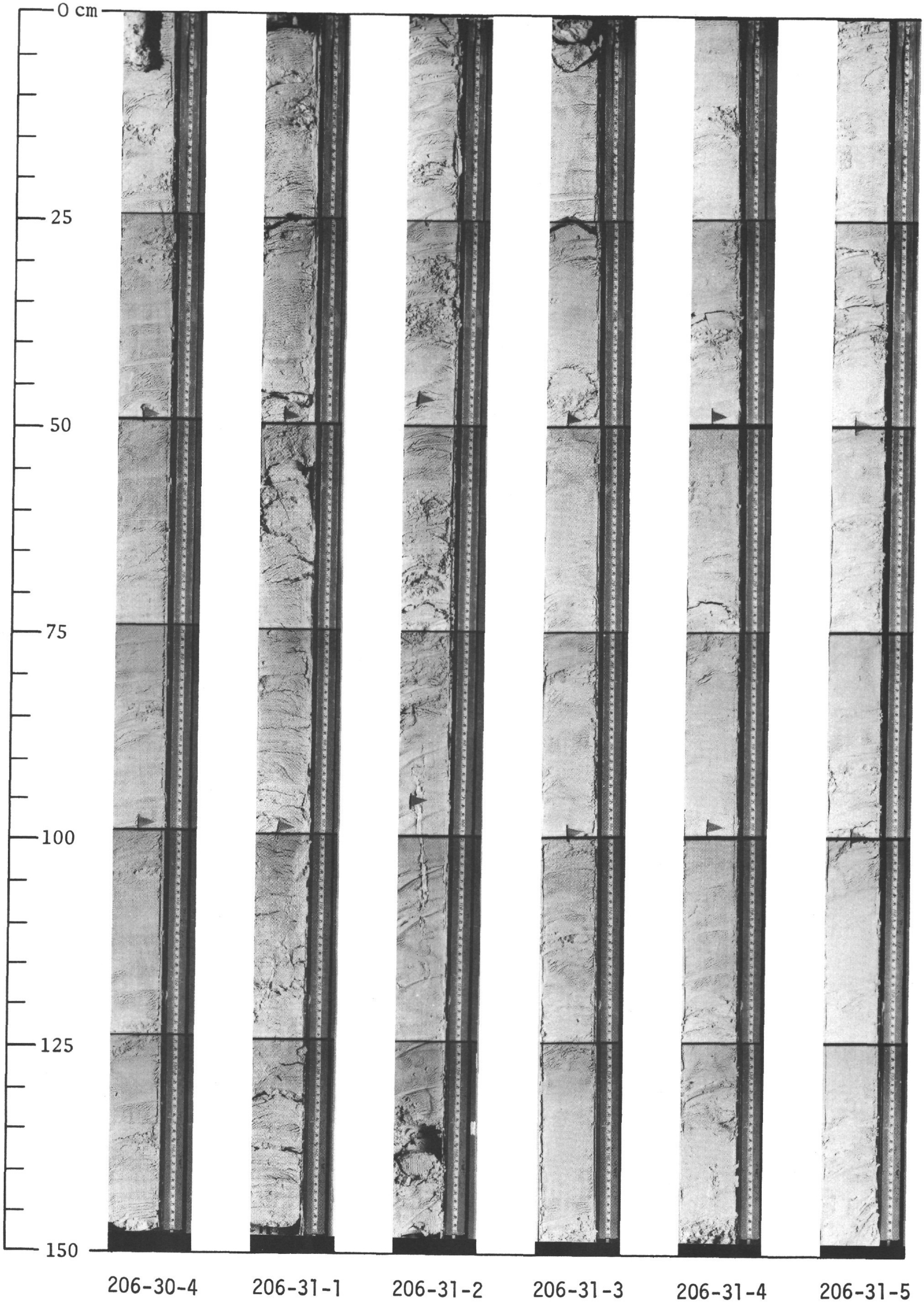
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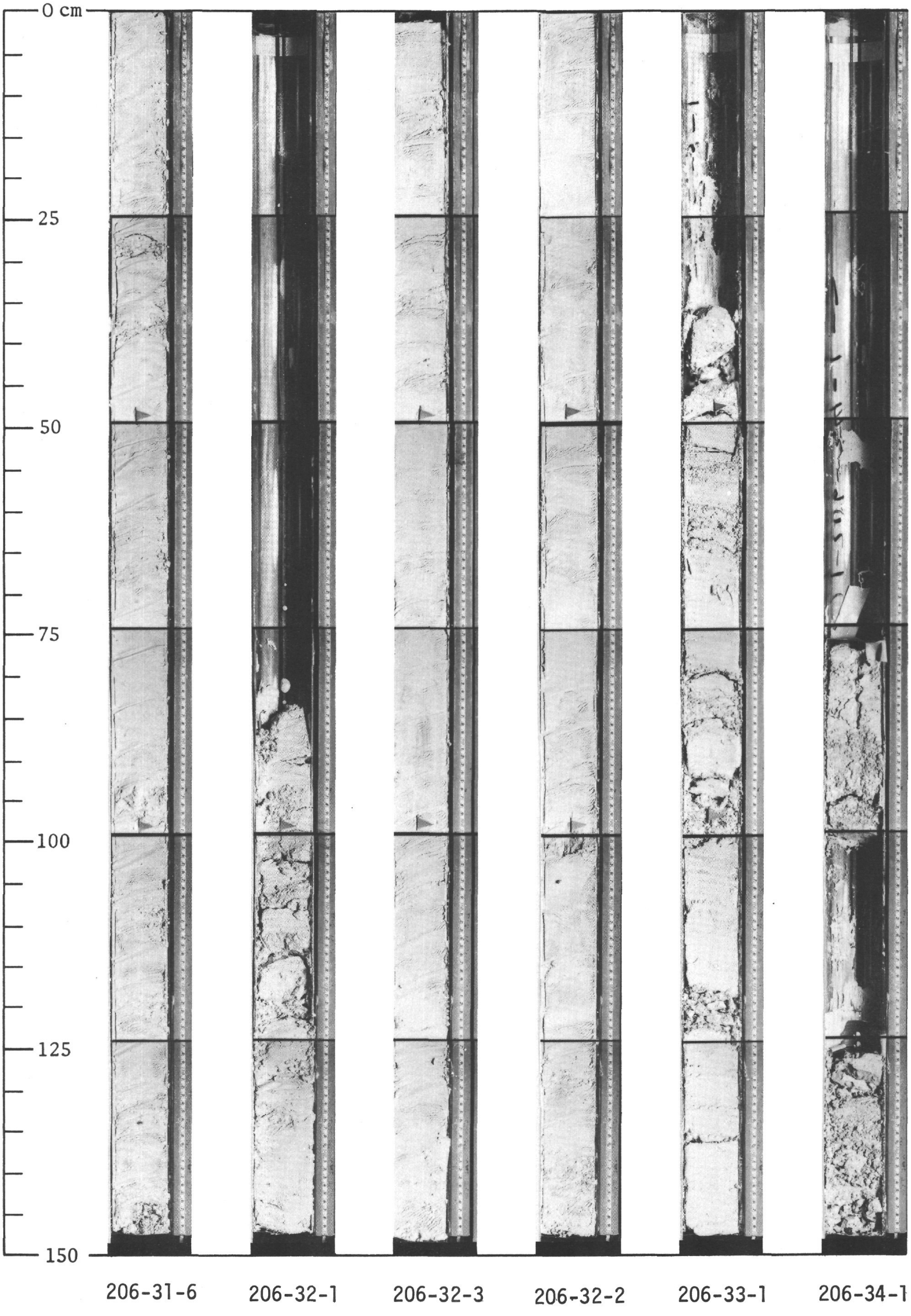
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125
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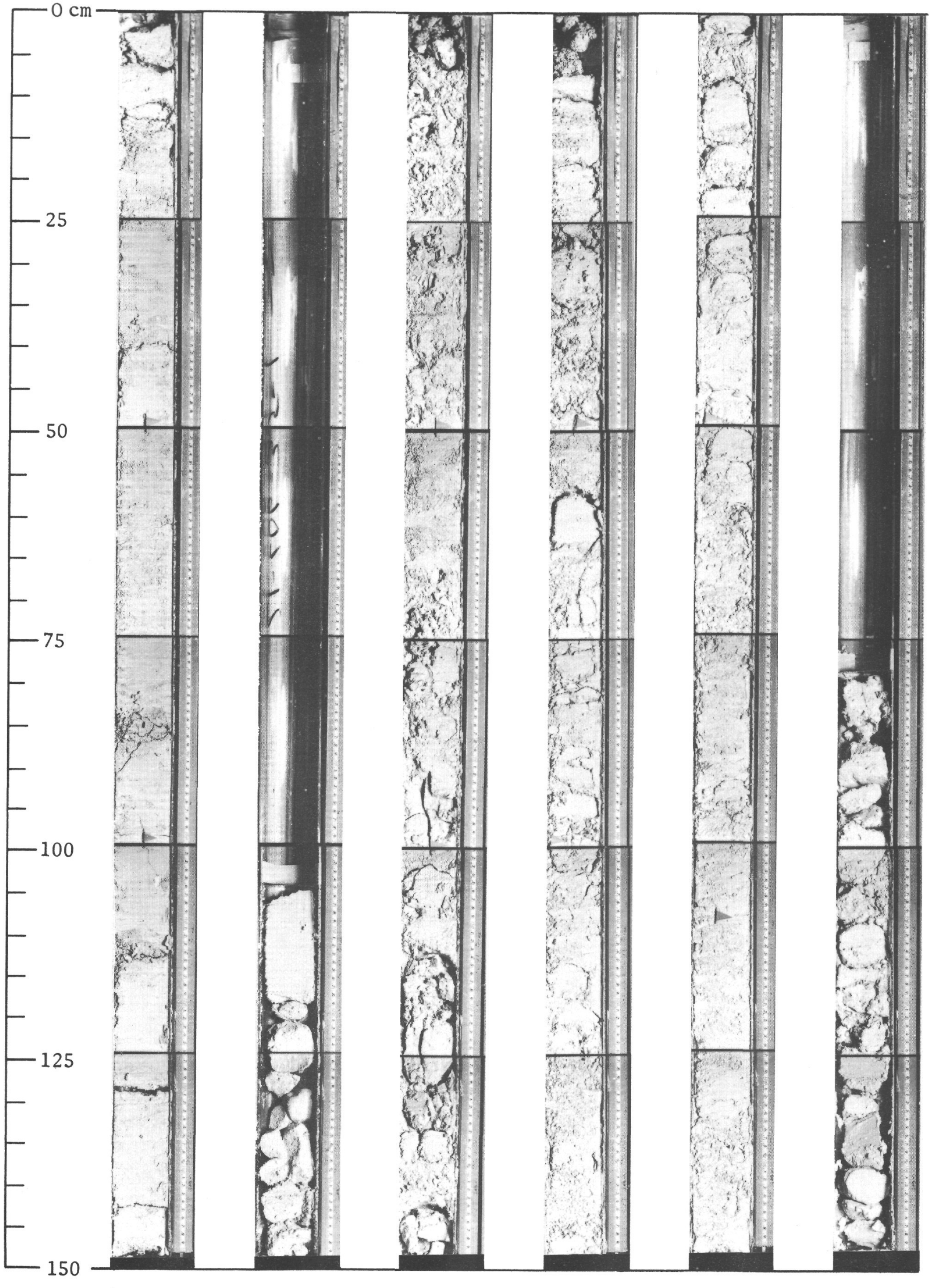
206-32-1
206-32-3
206-32-2
206-33-1
206-34-1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125
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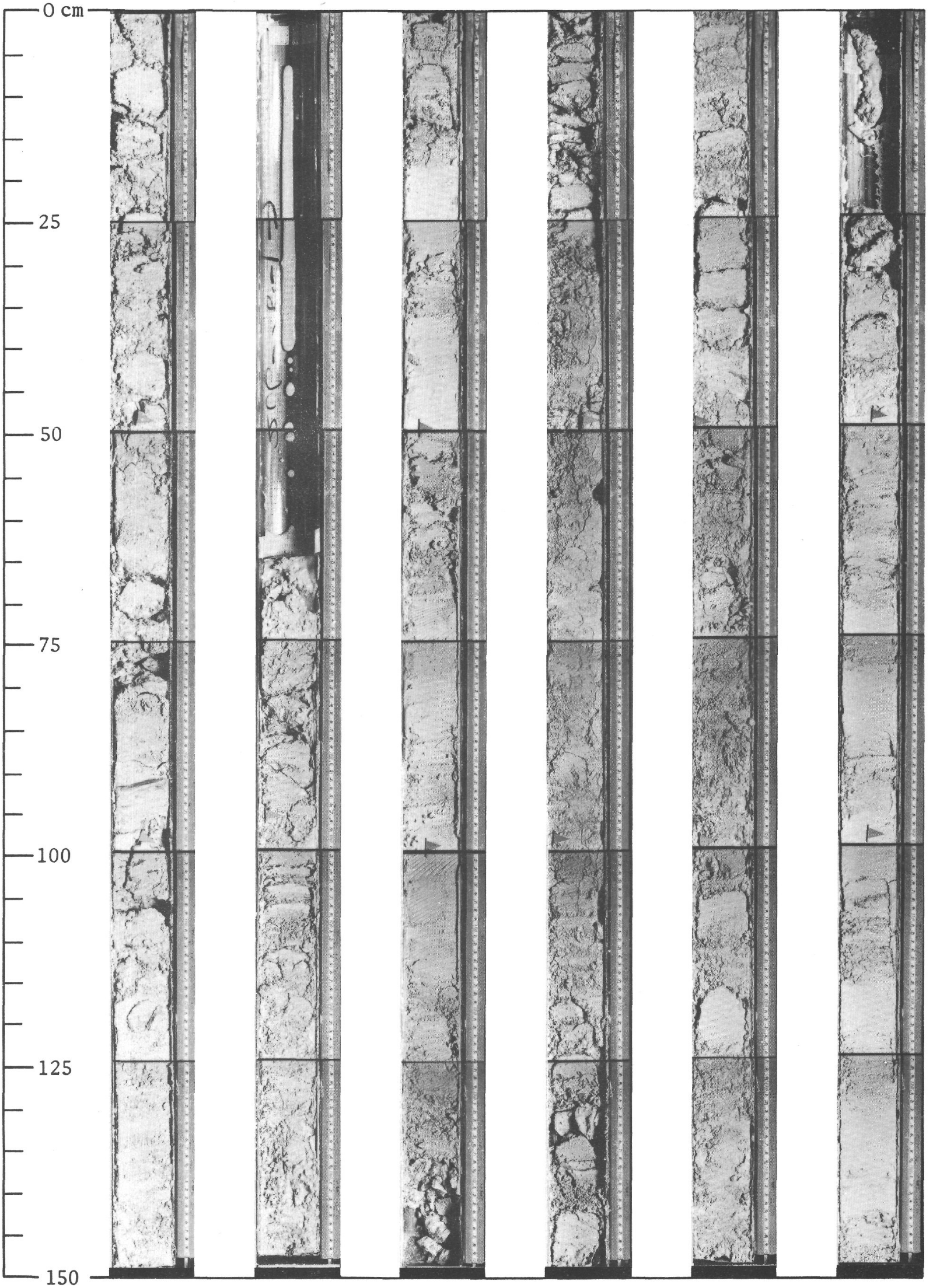
206-35-1
206-35-2
206-36-1
206-36-2
206-37-1



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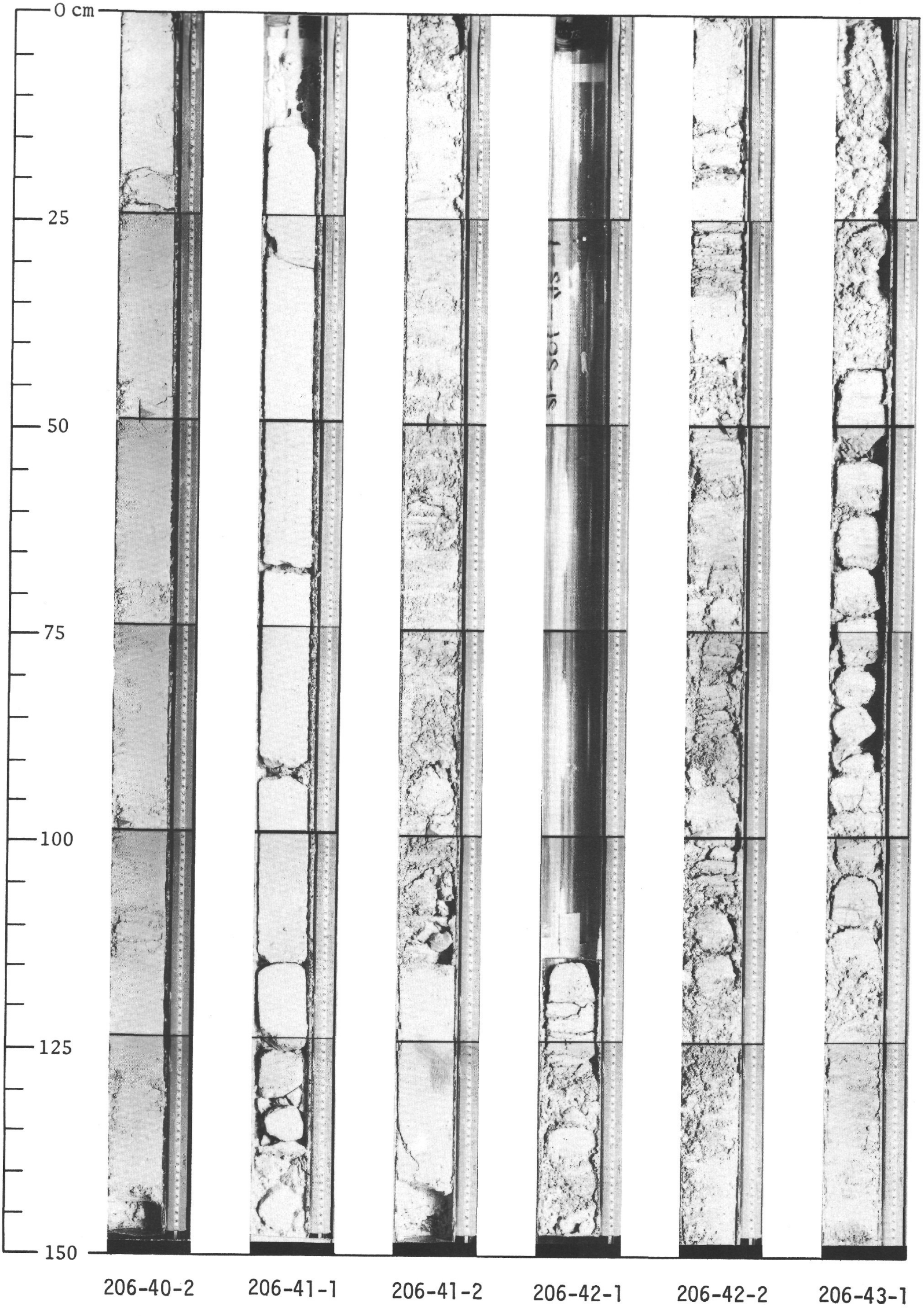
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125
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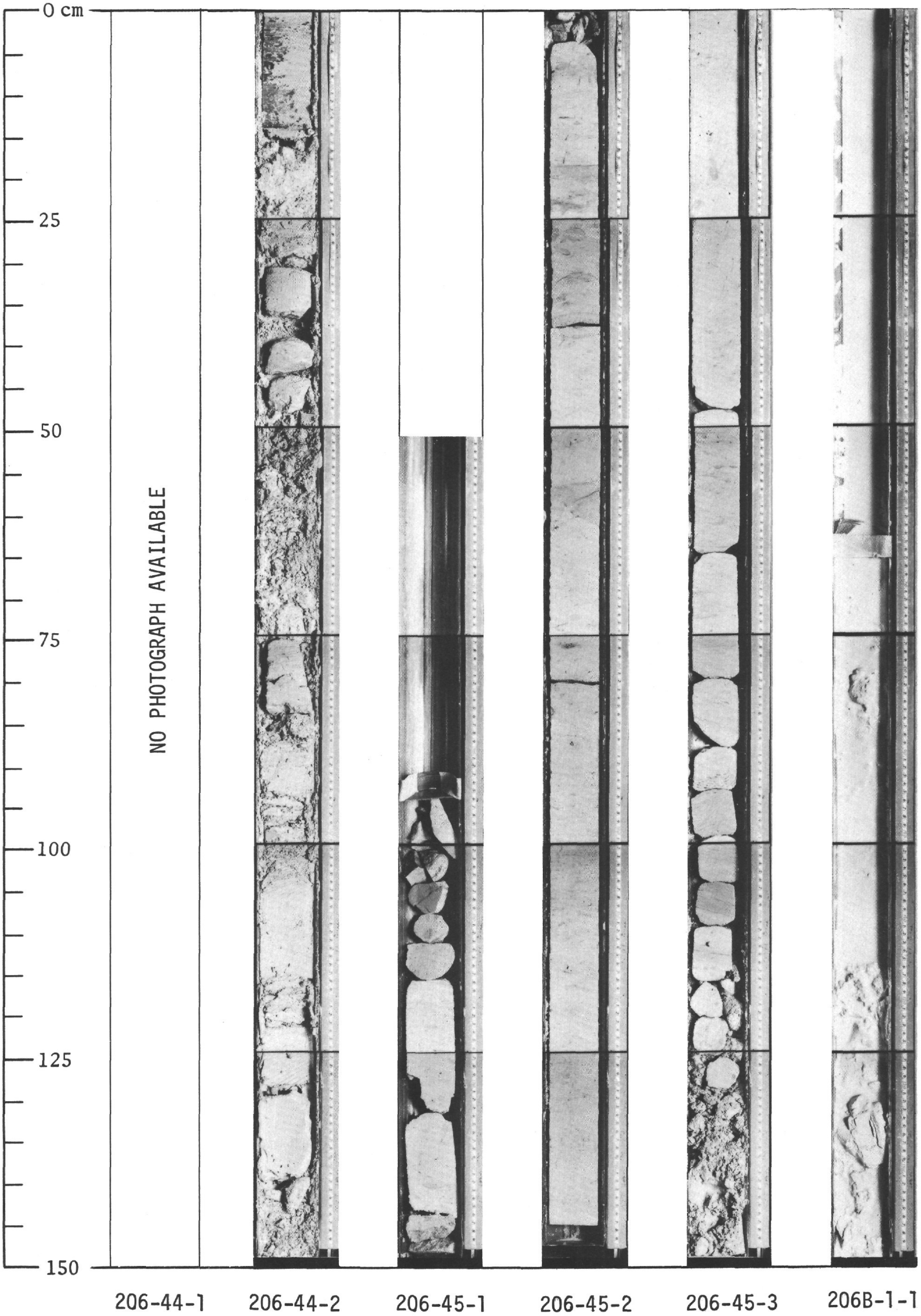
206-41-2
206-42-1
206-42-2
206-43-1


0 cm
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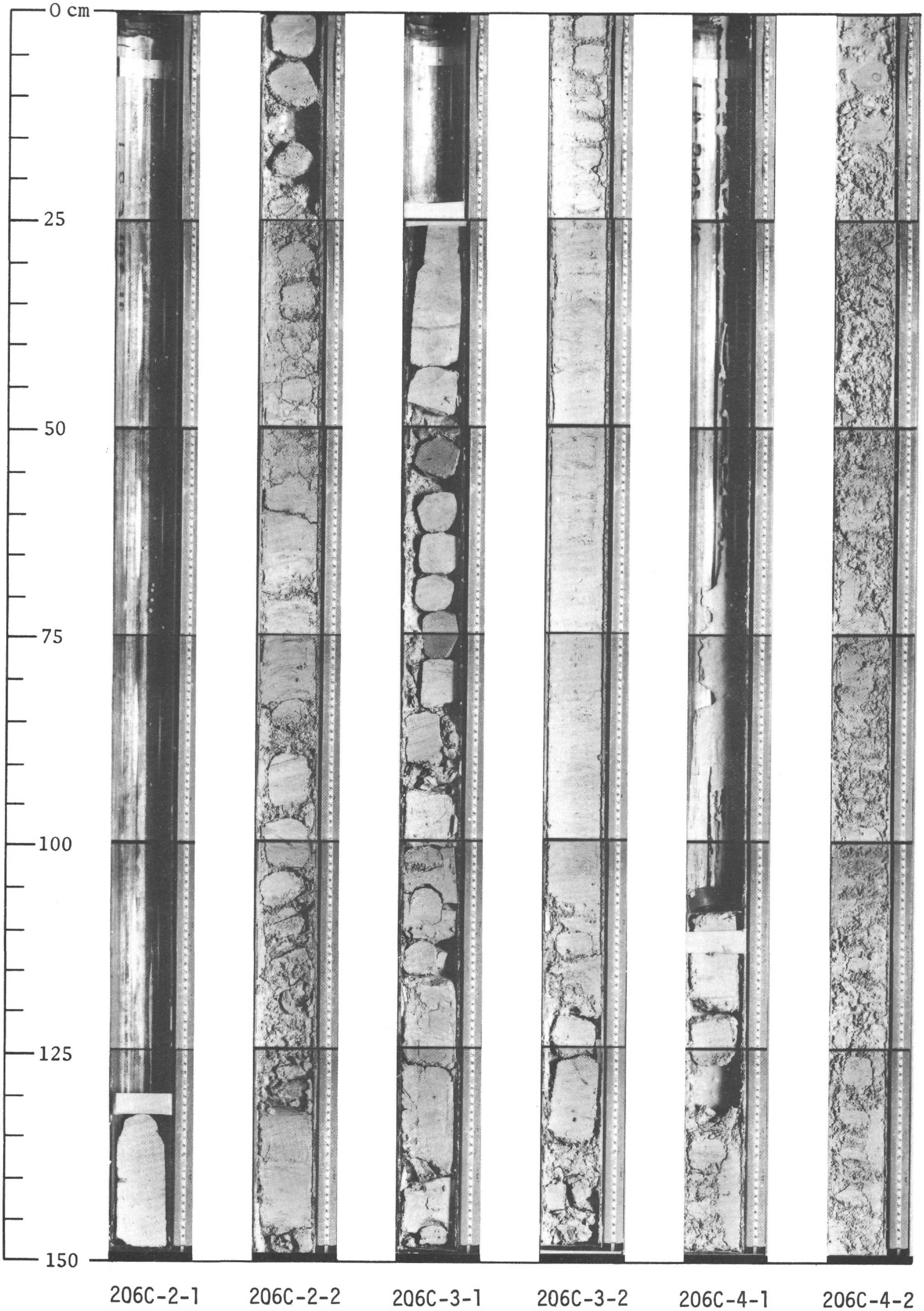
50
75
100
125
150
NO PHOTOGRAPH AVAILABLE
206-44-1
206-44-2
206-45-1
206-45-2
206-45-3
206B-1-1


0 cm
25
50
75
100
125
150
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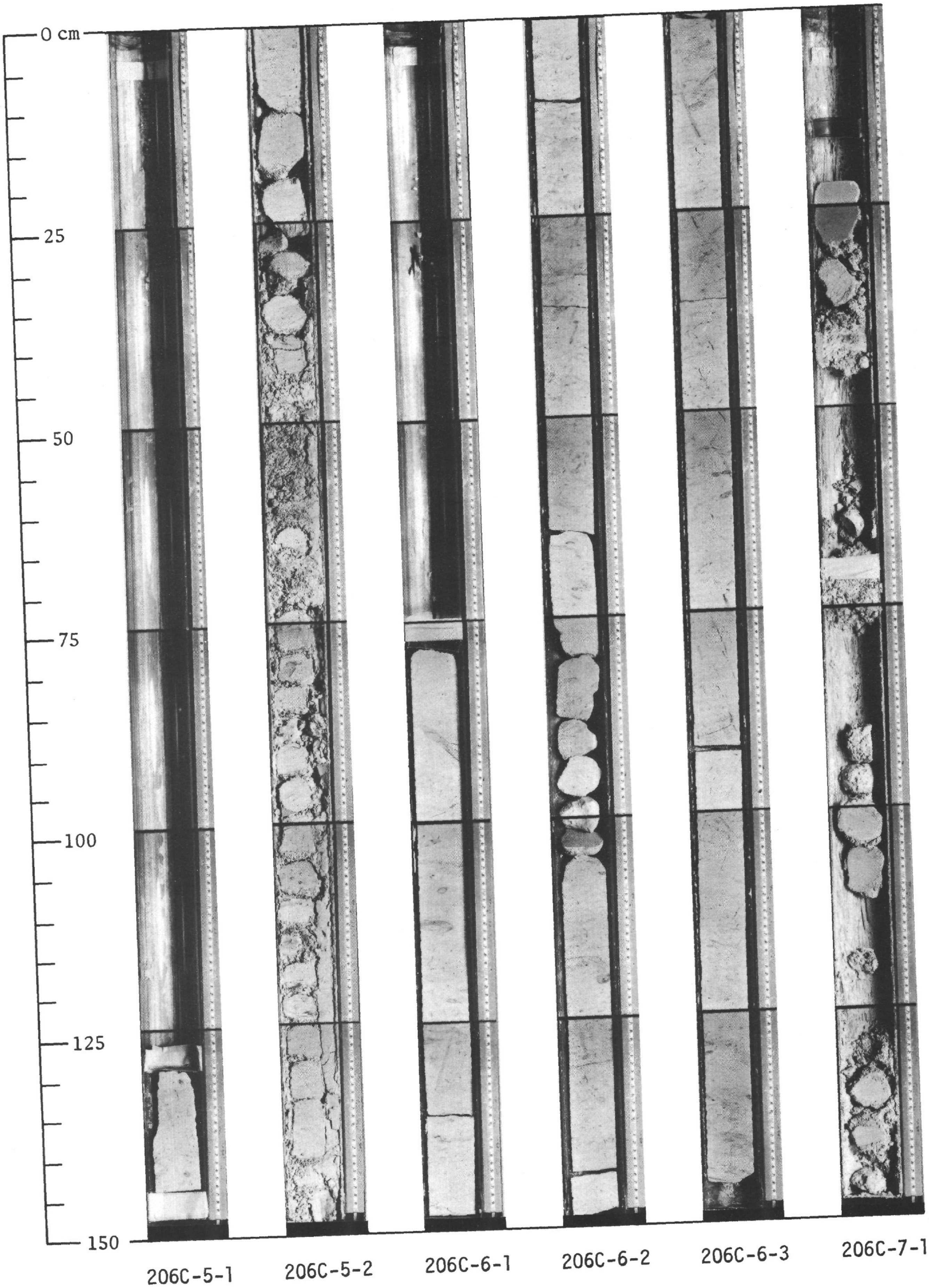
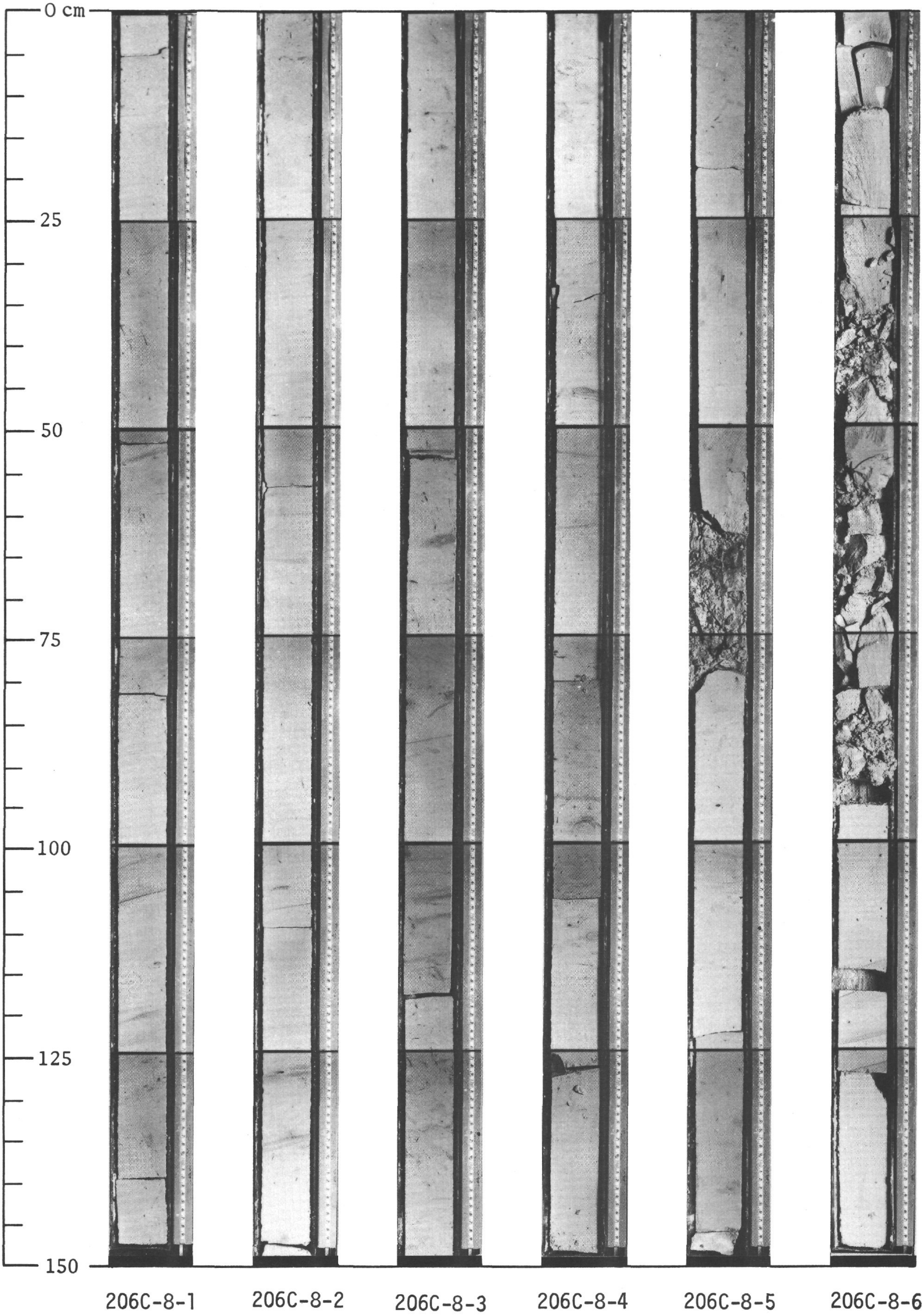
206C-2-2
206C-3-1
206C-3-2
206C-4-1
206C-4-2


0 cm
25
50
75
100
125
150
206C-5-1
206C-5-2
206C-6-1
206C-6-2
206C-6-3
206C-7-1


0 cm
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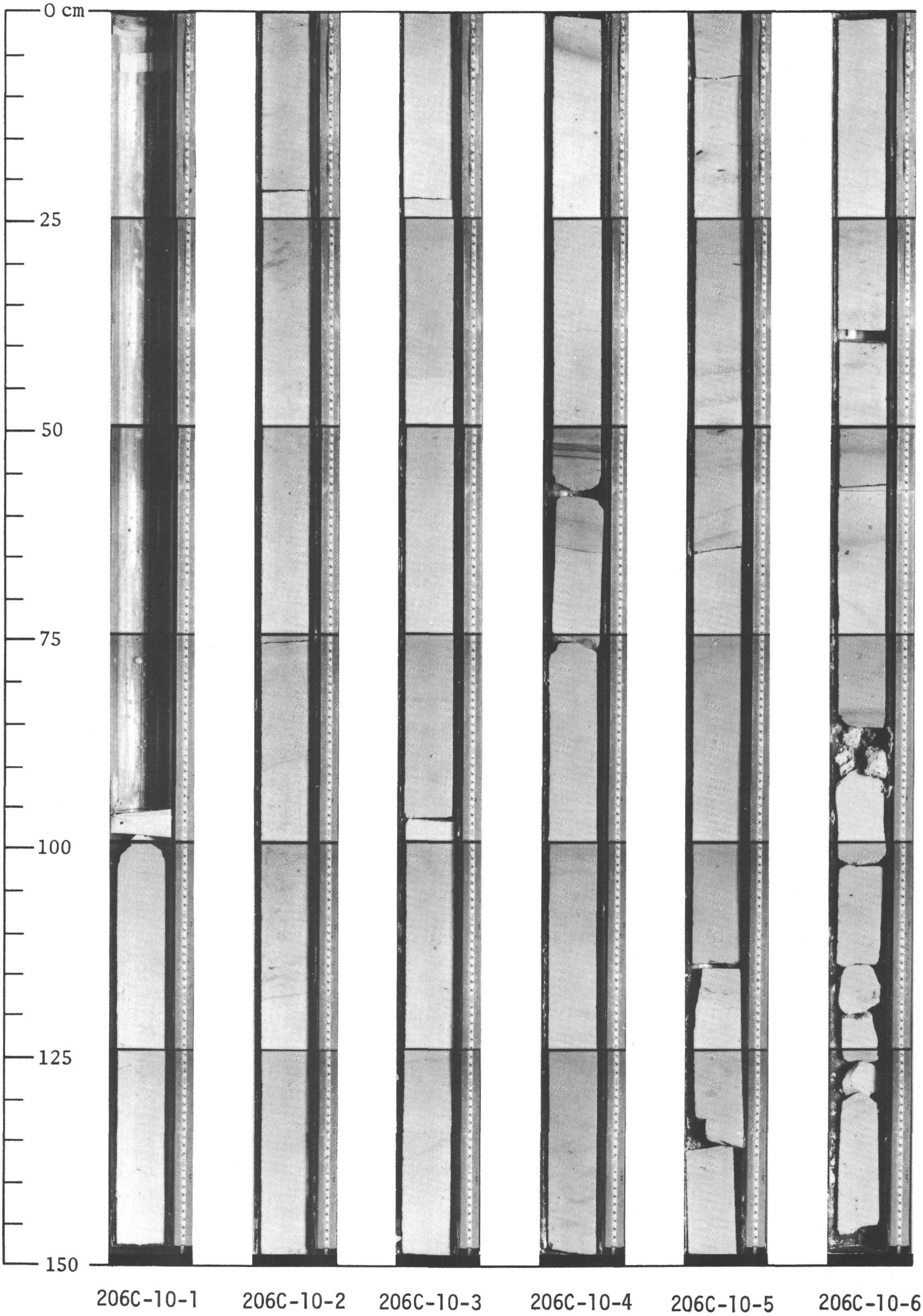
50
75
100
125
150
206C-8-1
206C-8-2
206C-8-3
206C-8-4
206C-8-5
206C-8-6


0 cm
25
50
75
100
125
150
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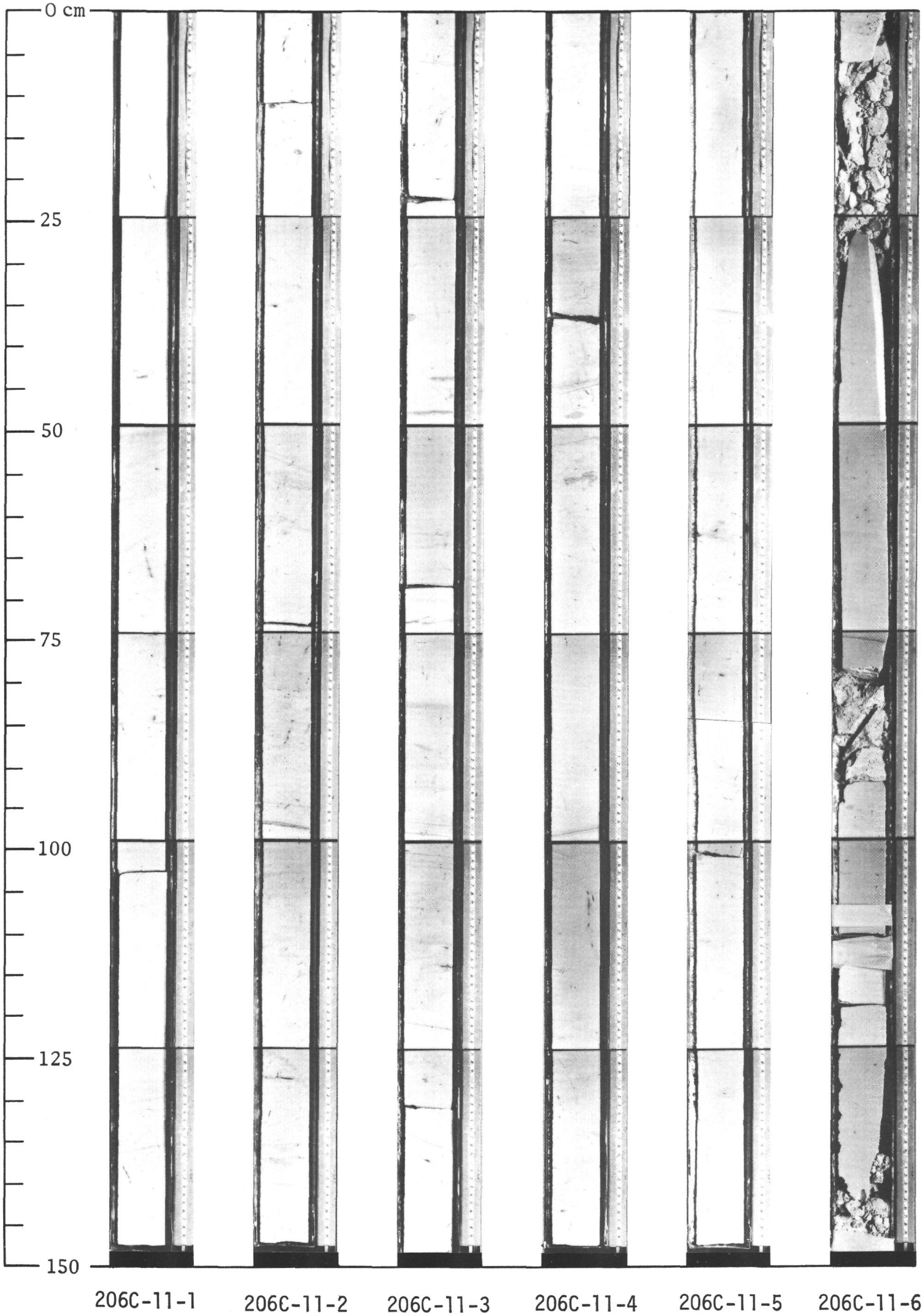
206C-10-2
206C-10-3
206C-10-4
206C-10-5
206C-10-6


0 cm
25
50
75
100
125
150
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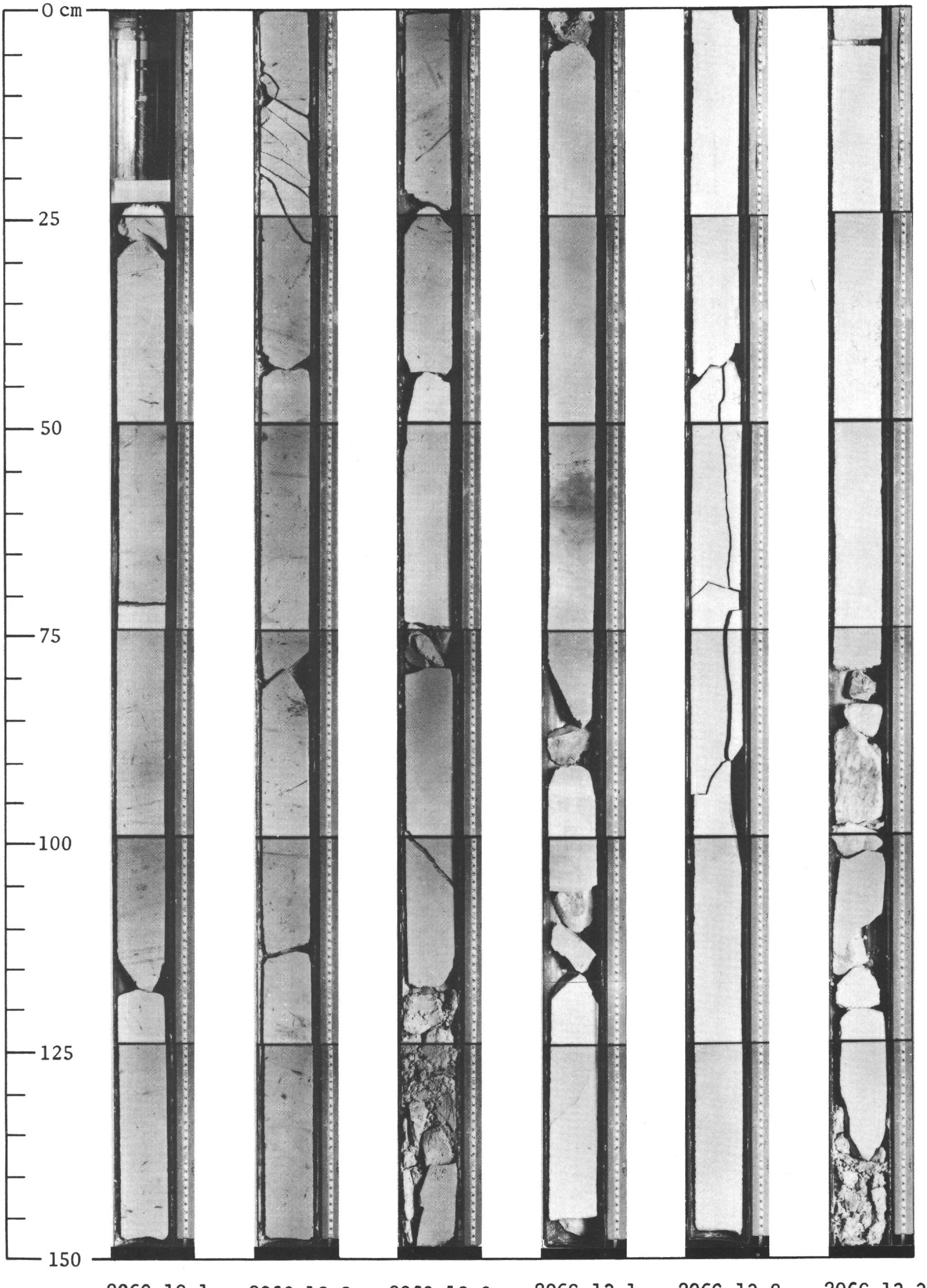
206C-11-2
206C-11-3
206C-11-4
206C-11-5
206C-11-6


0 cm
25
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75
100
125
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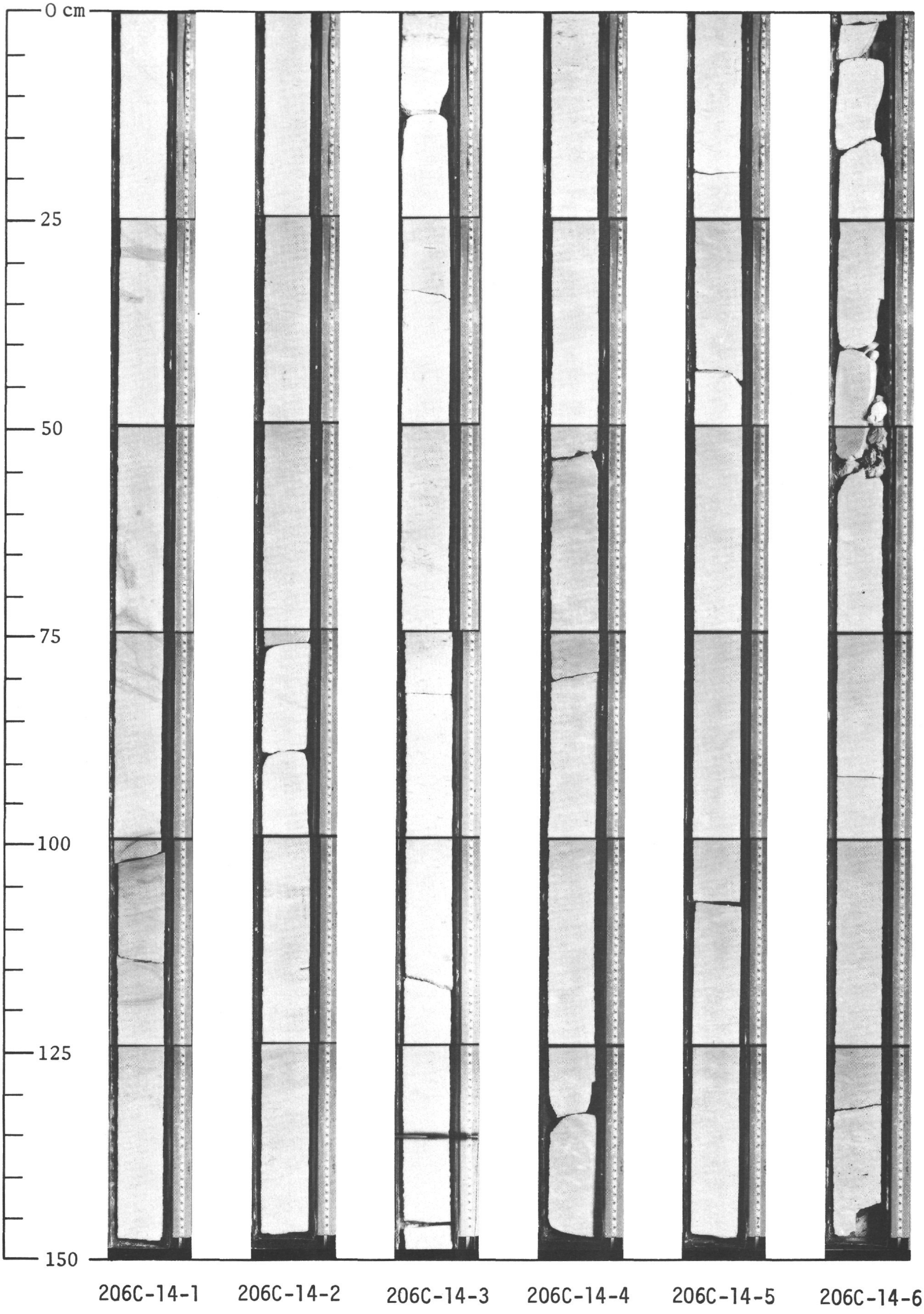
206C-12-1
206C-12-2
206C-12-3
206C-13-1
206C-13-2
206C-13-3


0 cm
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75
100
125
150
206C-14-1
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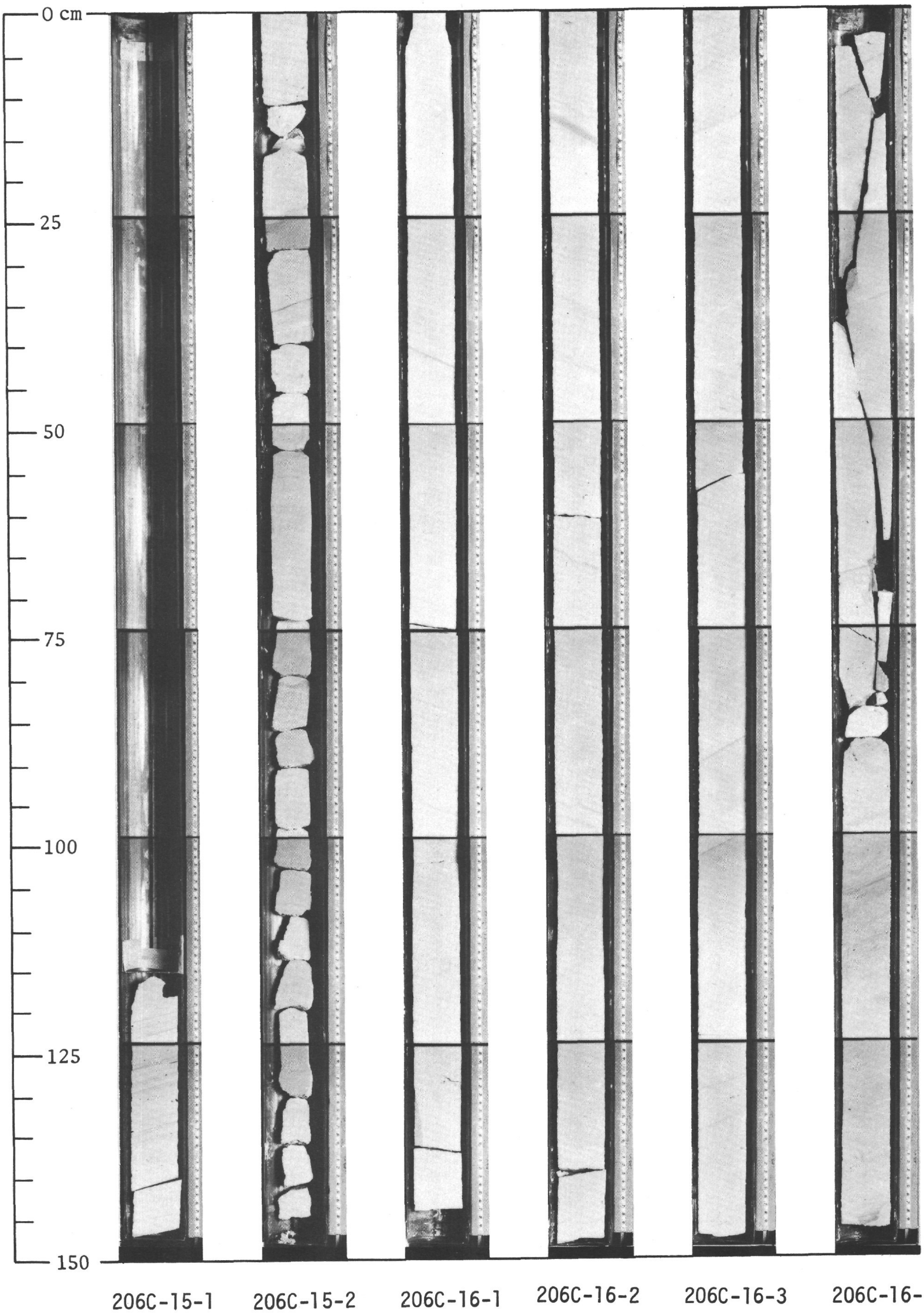
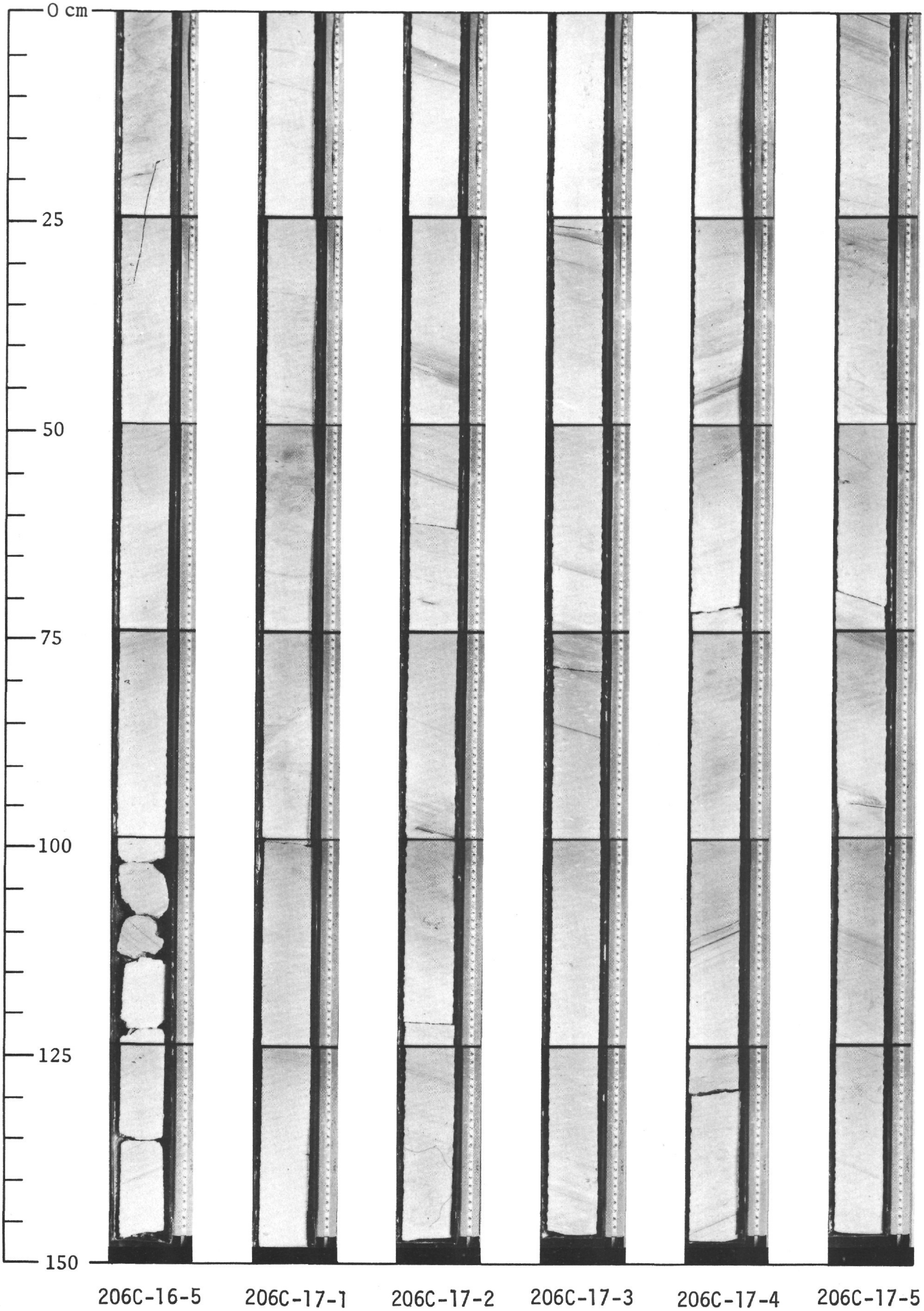
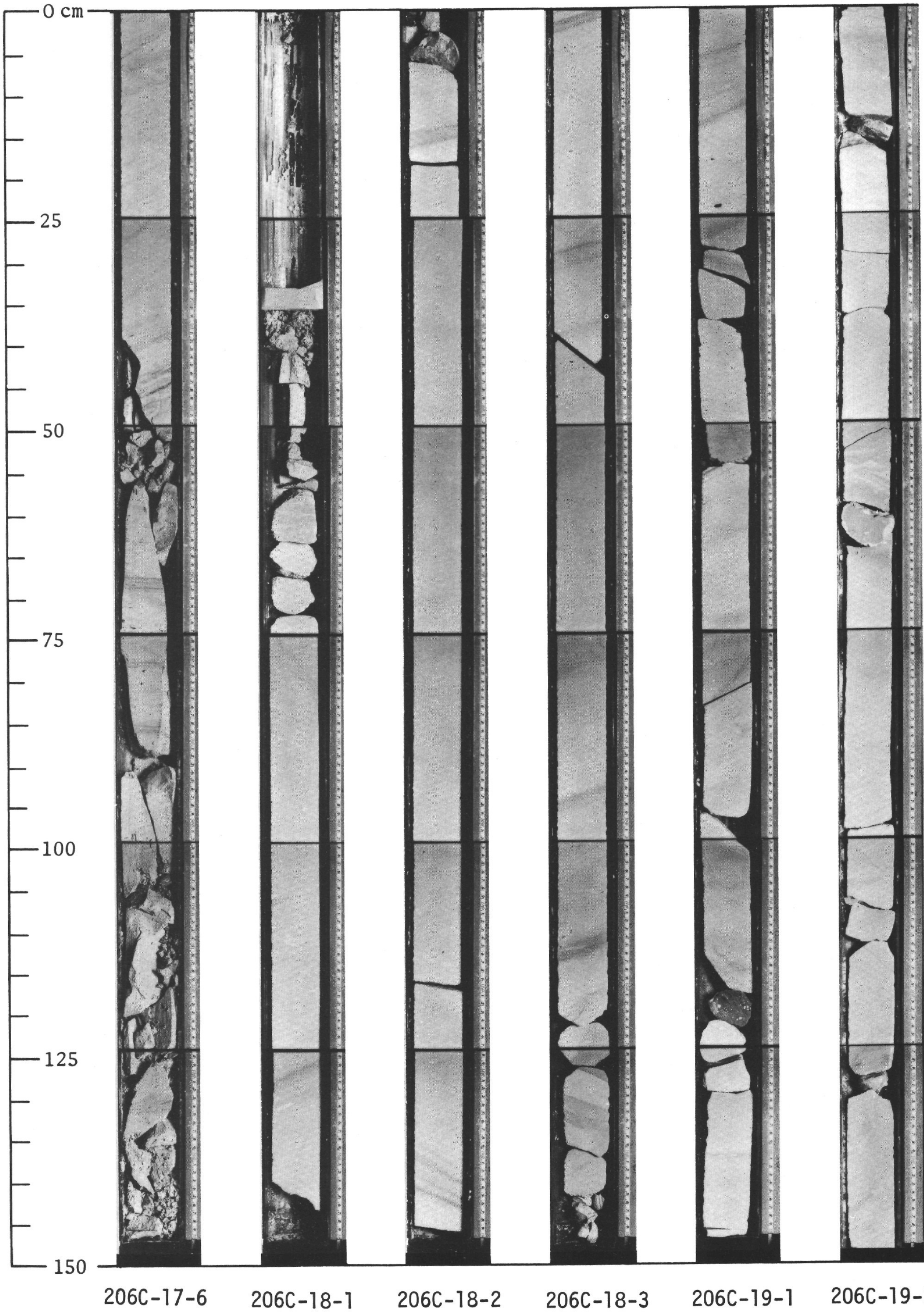
206C-14-4
206C-14-5
206C-14-6


0 cm
25
50
75
100
125
150
206C-15-1
206C-15-2
206C-16-1
206C-16-2
206C-16-3
206C-16-4


0 cm
25
50
75
100
125
150
206C-16-5
206C-17-1
206C-17-2
206C-17-3
206C-17-4
206C-17-5


0 cm
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100
125
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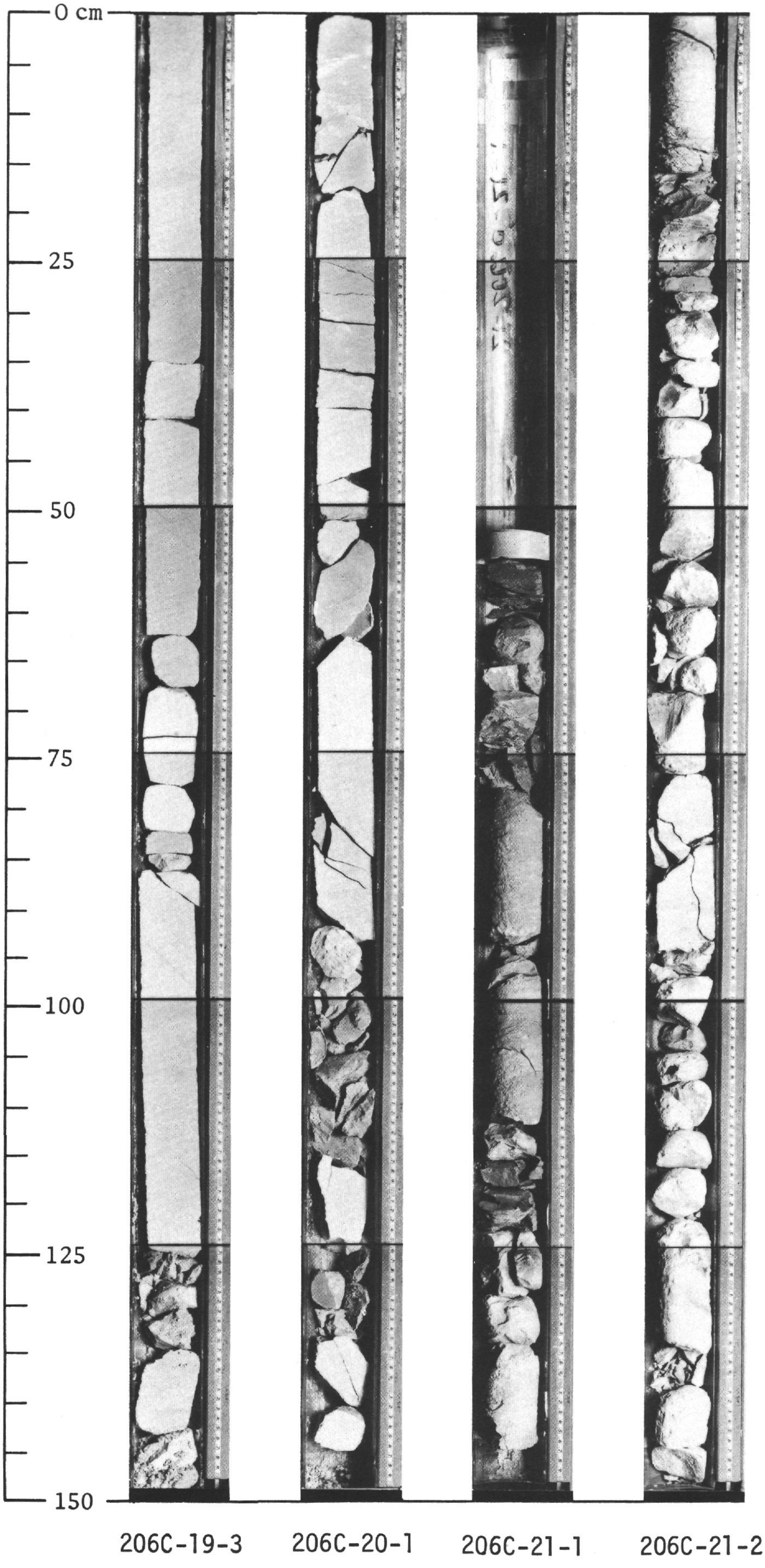
206C-17-6
206C-18-1
206C-18-2
206C-18-3
206C-19-1
206C-19-2


0 cm
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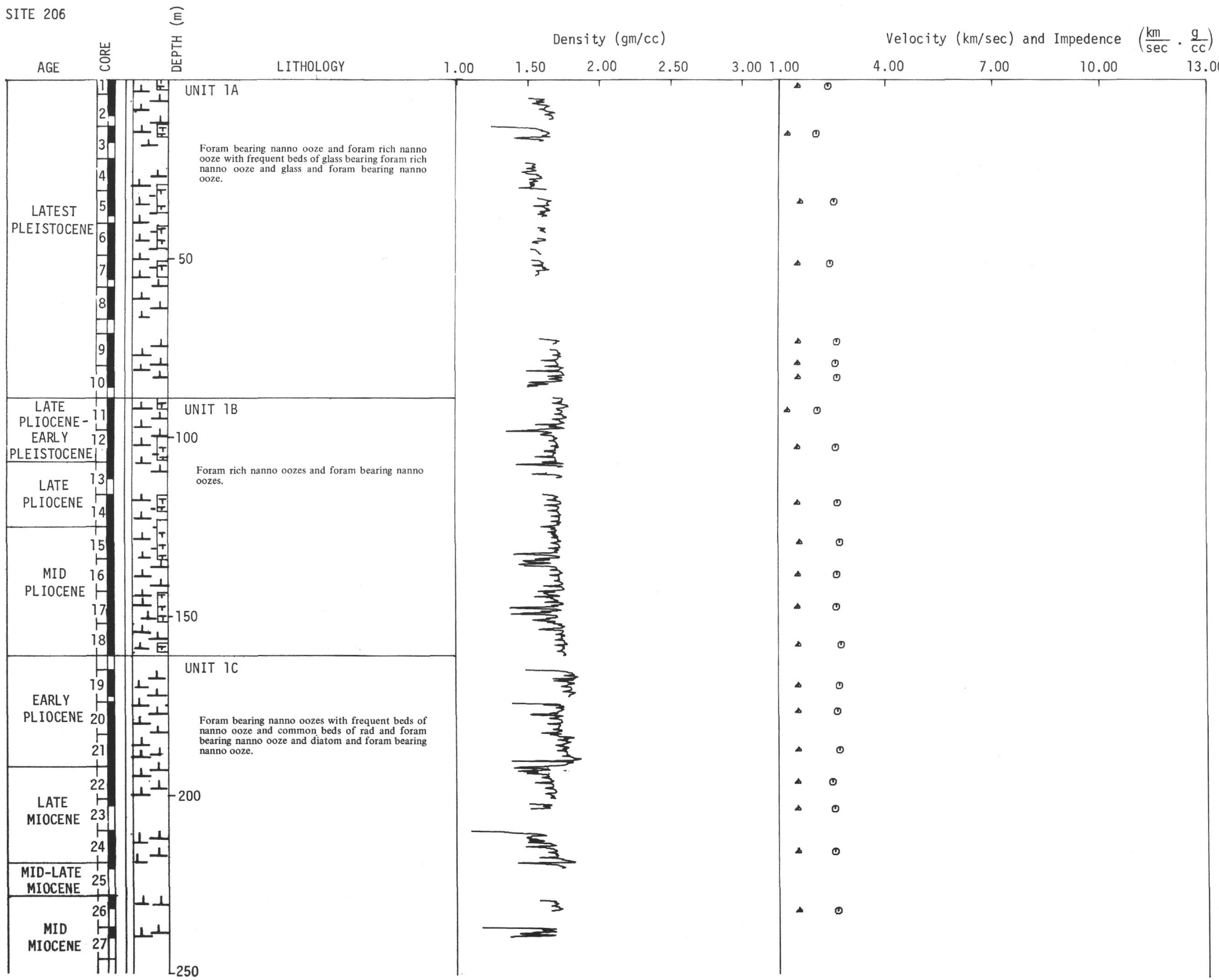
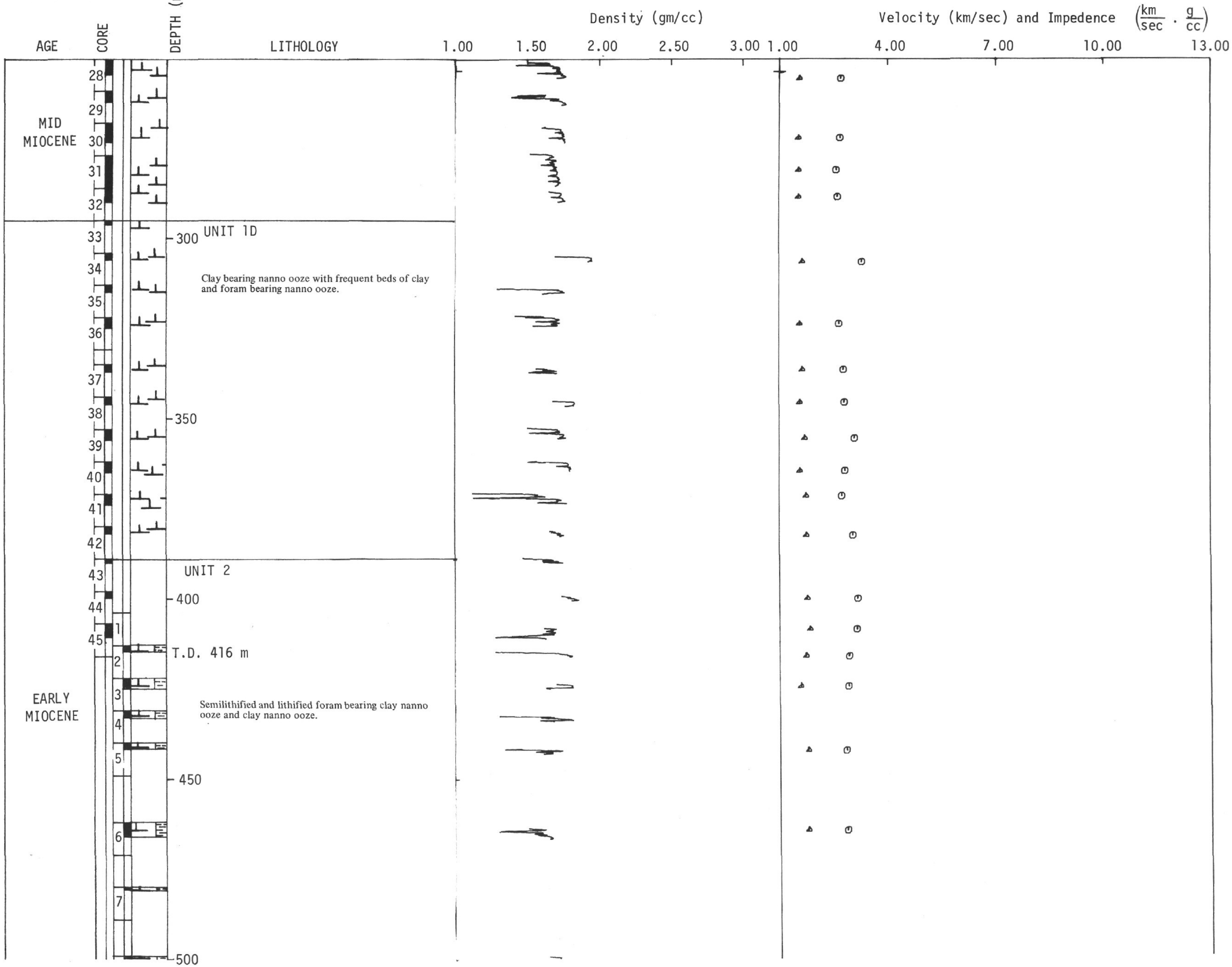
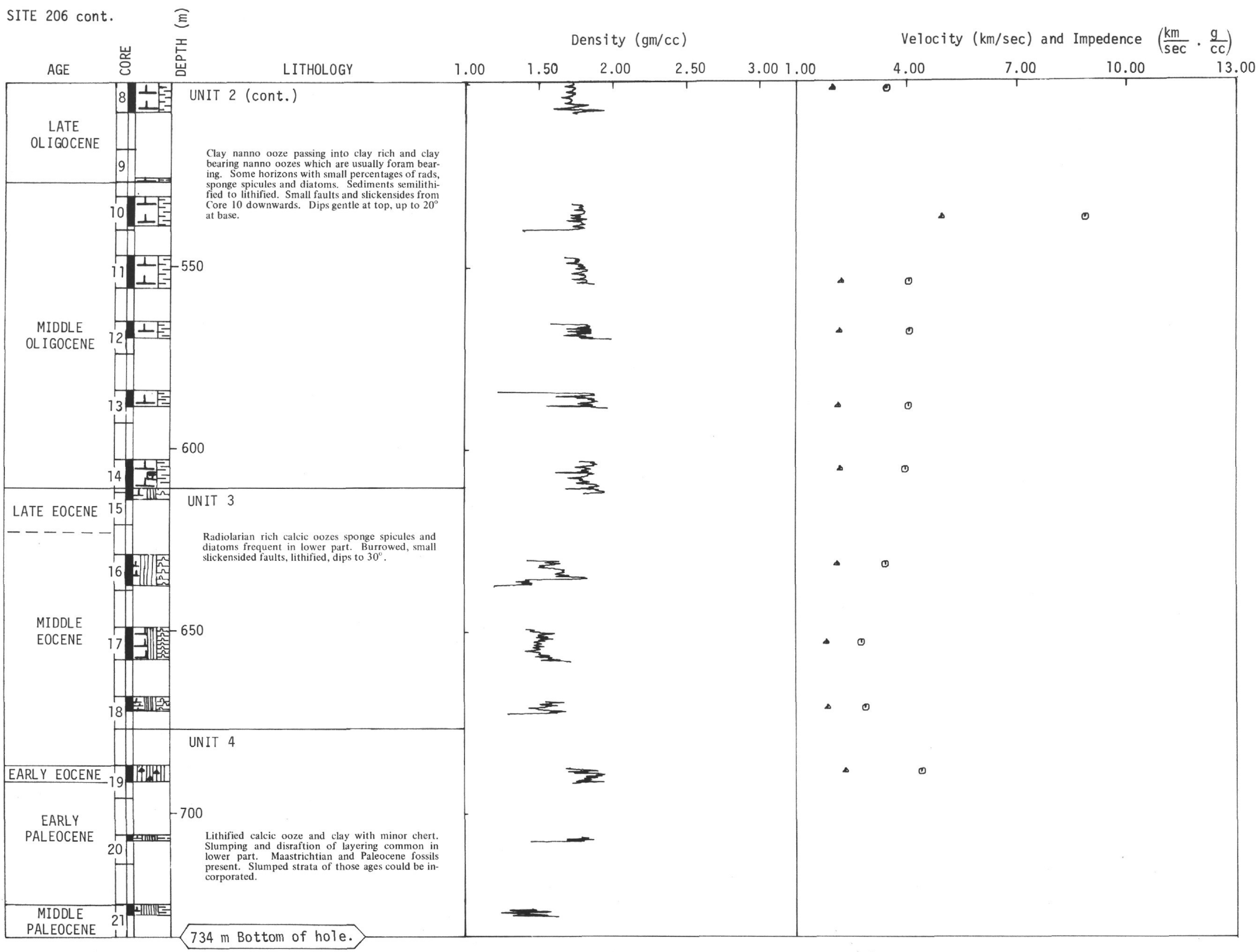
75
100
125
150
206C-19-3
206C-20-1
206C-21-1
206C-21-2


SITE 206
AGE
CORE
DEPTH (m)
LITHOLOGY
Density (gm/cc)
1.00
1.50
2.00
2.50
3.00
Velocity (km/sec) and Impedence (km/sec · g/cc)
1.00
4.00
7.00
10.00
13.00
LATEST PLEISTOCENE
LATE PLIOCENE-EARLY PLEISTOCENE
LATE PLIOCENE
MID PLIOCENE
EARLY PLIOCENE
LATE MIOCENE
MID-LATE MIOCENE
MID MIOCENE
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
50
100
150
200
250
UNIT 1A
Foram bearing nanno ooze and foram rich nanno ooze with frequent beds of glass bearing foram rich nanno ooze and glass and foram bearing nanno ooze.
UNIT 1B
Foram rich nanno oozes and foram bearing nanno oozes.
UNIT 1C
Foram bearing nanno oozes with frequent beds of nanno ooze and common beds of rad and foram bearing nanno ooze and diatom and foram bearing nanno ooze.

SITE 206 cont.





SITE 206 cont.
AGE
CORE
DEPTH (m)
LITHOLOGY
Density (gm/cc)
1.00 1.50 2.00 2.50 3.00
Velocity (km/sec) and Impedence (km/sec · g/cc)
1.00 4.00 7.00 10.00 13.00
LATE OLIGOCENE
MIDDLE OLIGOCENE
LATE EOCENE
MIDDLE EOCENE
EARLY EOCENE
EARLY PALEOCENE
MIDDLE PALEOCENE
8
9
10
11
12
13
14
15
16
17
18
19
20
21
550
600
650
700
UNIT 2 (cont.)
Clay nanno ooze passing into clay rich and clay bearing nanno oozes which are usually foram bearing. Some horizons with small percentages of rads, sponge spicules and diatoms. Sediments semilithified to lithified. Small faults and slickensides from Core 10 downwards. Dips gentle at top, up to 20° at base.
UNIT 3
Radiolarian rich calcic oozes sponge spicules and diatoms frequent in lower part. Burrowed, small slickensided faults, lithified, dips to 30°.
UNIT 4
Lithified calcic ooze and clay with minor chert. Slumping and disraftion of layering common in lower part. Maastrichtian and Paleocene fossils present. Slumped strata of those ages could be incorporated.
734 m Bottom of hole.