3. SITE 572[1]

Shipboard Scientific Party[2]

HOLES 572, 572A, 572B, 572C, 572D

Dates occupied: 572—22 March 1982
572A—22, 23 March 1982
572B, 572C—24 March 1982
572D—26 March 1982

Date departed Hole 572D: 28 March 1982

Time on site: 6.3 days

Position: 01°26.09′N, 113°50.52′W

Water depth (sea level; corrected m, echo-sounding): 3893

Water depth (rig floor; corrected m, echo-sounding): 3903

Bottom felt (m, drill pipe): 3903

Penetration (m): 572—19.9
572A—154.0
572B—18.10
572C—169.5
572D—320.0

Number of cores: 572—1
572A—17
572B—4
572C—20
572D—34

Total length of cored section (m): 572—19.0
572A—153.97
572B—18.10
572C—164.50
572D—320

Total core recovered (m): 572—9.25
572A—154.35
572B—19.95
572C—161.56
572D—258.87

Core recovery (%): 572—49
572A—100
572B—100
572C—95
572D—81

Oldest sediment cored (Hole 572D):
Depth sub-bottom (m): 464.5
Nature: Siliceous nannofossil chalk
Age: Basal middle Miocene
Measured velocity (km/s): 1.75

Basement (Hole 572D):
Depth sub-bottom (m): 479.5
Nature: Basalt

Principal results: Site 572 (1°26.1′N, 113°50.5′W), in 3900 m of water on the eastern edge of the equatorial high productivity zone, is located just a few miles south and west of DSDP Site 81. The site was selected to permit high resolution stratigraphies to be established and to further our understanding of Neogene paleoceanographic and climatic variations through the study of the site's thick Neogene section. The result of drilling five holes was the recovery of two continuous piston-cored sequences from the upper 170 m of the section and one nearly continuous rotary-drilled sequence from the bottom 310 m of the section. The oldest sediment recovered (from 464.5 m sub-bottom) was lower middle Miocene (about 15 Ma). A sediment/basalt contact was encountered at 479.5 m, and 43 cm of fine-grained basalt with glassy rind were recovered. The sediment section can be divided into two units (the first of which is subdivided into four subunits) as follows.

Unit I is cyclic siliceous calcareous ooze chalk. *Subunit IA* is (Quaternary) gray brown ooze and occurs from 0 to 2.35 m. More specifically, the sediment consists of brown and gray foraminiferal siliceous nannofossil oozes. *Subunit IB* is Quaternary to upper Pliocene varicolored ooze and occurs from 2.35 to 37.45 m. The sediment consists of purple, light gray, and yellow siliceous nannofossil oozes. *Subunit IC* is upper Pliocene to middle Miocene green varicolored ooze chalk and occurs from 37.45 to 458.75 m. The sediment consists of purple, light gray, yellow, and green siliceous nannofossil oozes that grade into siliceous nannofossil chalks. In the lower part of this subunit there are several diatom-rich layers and laminated chert horizons 3 to 4 cm thick. *Subunit ID* is lowermost middle Miocene yellow chalk and occurs from 458.75 to 464.5 m. The sediment consists of pale yellow to yellow green siliceous foraminiferal nannofossil chalk.

Unit II is middle Miocene metalliferous chalk. It consists of siliceous foraminiferal nannofossil chalk with common pyrite and iron oxides.

These units can be correlated with the Clipperton (our Subunits IA and IB), San Blas (our Subunit IC), and Line Islands (our Subunits ID and II) oceanic formations described on Leg 9.

Sedimentation rates are variable and, in some intervals, remarkably high:

Age of interval (Ma)	Average sedimentation rate (m/m.y.)
15.3–14.3	65
14.3–13.7	54
13.7–13.0	35
13.0–12.0	73
12.0–7.0	13
7.0–4.5	50
4.5–3.0	15
3.0–2.0	21
2.0–0.5	13

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[1] Mayer, L., Theyer, F., et al., *Init. Repts. DSDP*, 85: Washington (U.S. Govt. Printing Office).

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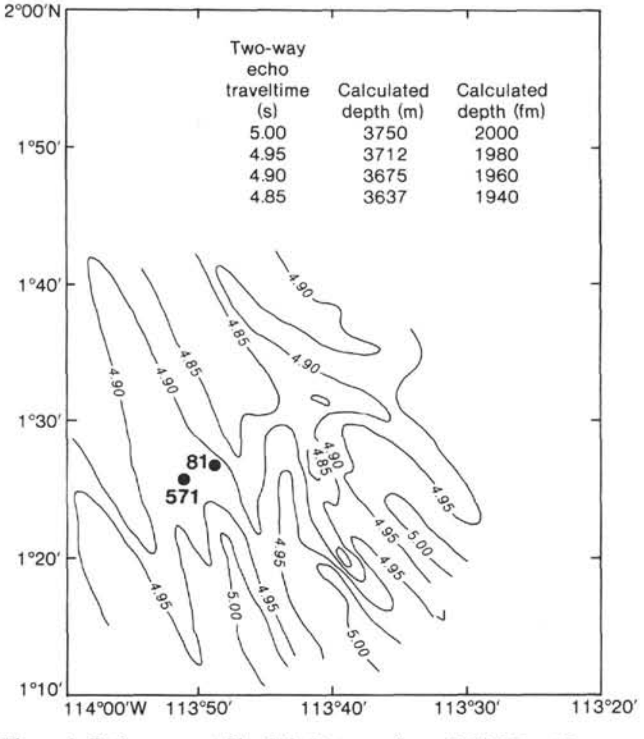
Associated with the zones of high sedimentation rate are diatom assemblages that are indicative of upwelling, the enhanced dissolution of carbonate, decreased carbonate content, and increased porosity. The hydraulic piston corer (HPC) provided beautifully preserved cores, in many of which millimeter-scale laminations were visible. The usefulness of the HPC was limited by the ability of the tool to withstand pullout force—not the corer's ability to penetrate the sediment. Two HPC cores were lost when the quick disconnect parted upon pullout (pullout forces of greater than 2.5 tons were necessary). These problems were minor, however; recovery was excellent and sedimentation rates were high. The cores recovered at Site 572 are invaluable for the study of Neogene oceanography.

BACKGROUND AND OBJECTIVES

For Site 572, the JOIDES Ocean Paleoenvironmental Panel proposed drilling again at the location of Site 81 (Fig. 1), which was first drilled during DSDP Leg 9 (Hays et al., 1972). Site 81 was drilled mainly to determine the age of the lithosphere, and coring was incomplete. The hole was 409 m deep and terminated in basalt; fine-grained basalt, a baked interface, and thermally altered sediments were recovered in the bottom core. The estimated age of the basal sediments (15 Ma) was assumed to be representative of basement age at this spot, even though the basalt recovered was recognized as an intrusive flow.

Site 572 is located at 1°26.1′N, 113°50.5′W, in water 3903 m deep. The sediment is about 0.6 s thick and acoustically well stratified (Fig. 2). The site is on the northwestern border of a northwest-trending basement trough just south and west of Site 81.

The tectonic framework of the region of Sites 572 and 81 is poorly understood. In large measure the uncertainty is due to the difficulty of interpreting magnetic lineations at low latitudes (Herron, 1972). Further uncertainty stems from the possibility that a fossil ridge system thought to have become extinct about 11 m.y. ago (van Andel et al., 1975) once lay west of, and parallel to, the East Pacific Rise. The specific tectonic relationship between this hypothetical fossil ridge and the area of Site 572 is a matter of conjecture; however, if the ridge existed, the seafloor at Site 572 would presumably have participated in the motion of two separate plates. One motion—ceasing about 11 m.y. ago—of easterly direction would have been generated by the fossil ridge. The other, primarily of westerly direction but with a minor northerly rotation, is still active and is associated with the East Pacific Rise. Proceeding despite these uncertainties, van Andel et al. (1975) backtracked and rotated Site 81 to find its position 15 m.y. ago; they predict a paleoposition for the site of about 2°S and 103°W, with an initial water depth of about 3200 m. If those estimates are correct, the present position of the site (just north of the equator at a water depth of about 3900 m) suggests that the site's absolute motion is, in paleoceanographic terms, less important (it has remained in close proximity to the equator since its origin) than its bathymetric descent of about 700 m. The latter involves a gradual sinking into the reaches of the lysocline, which in the central equatorial Pacific lies between about 3700 and 4000 m (Berger, 1970). This descent should find its expression in noticeable changes in the preservation of calcareous microfossils that are independent of the deposition of biogenic silica.



Two-way echo traveltime (s)	Calculated depth (m)	Calculated depth (fm)
5.00	3750	2000
4.95	3712	1980
4.90	3675	1960
4.85	3637	1940

Figure 1. Bathymetry at Site 572. Data are from SCAN Leg 10 survey (Jan. 1970). In the calculation of depth, sound was assumed to travel at 1500 m/s or 800 fm/s.

The primary objective of the drilling at Site 572 was the recovery of a complete, undisturbed sedimentary section comprising approximately 15 m.y. of oceanographic and tectonic history at a location in the so-called equatorial "bulge." The latter is the depositional expression of a narrow belt of high planktonic productivity associated with the equatorial divergence. This narrow equatorial band has been a reliable marker of the equator during much of the Cenozoic, climatic and tectonic changes notwithstanding (van Andel et al., 1975).

OPERATIONS

The *Glomar Challenger* arrived in the vicinity of Site 572 at 0300Z on 22 March, 17 hr. after departing Site 571. During transit (we averaged 9 knots on a course of 172°), we collected continuous seismic profiles (air gun and 3.5 kHz) and bathymetric and magnetic data. Our plan was to find the position of DSDP Site 81, make a short survey of the area, and then drill where the sedimentary section appeared to be thickest. Unfortunately, the low latitude of the region (which meant that satellite fixes were infrequent) and overcast skies (which meant that star fixes were impossible) prevented an accurate determination of our position. When the first satellite fix came in (at 0230Z), we were about 12 n. mi. due west of Site 81, a position consistent with the presence of the strong (2-knot) westerly current that was with us throughout our stay at the site. We decided to aim for a position several miles south of Site 81 and to survey to the north. We attempted to find our location with respect to bathymetric data collected during a post-drilling site survey at Site 81 (SIO Expedition SCAN 10), but the data proved

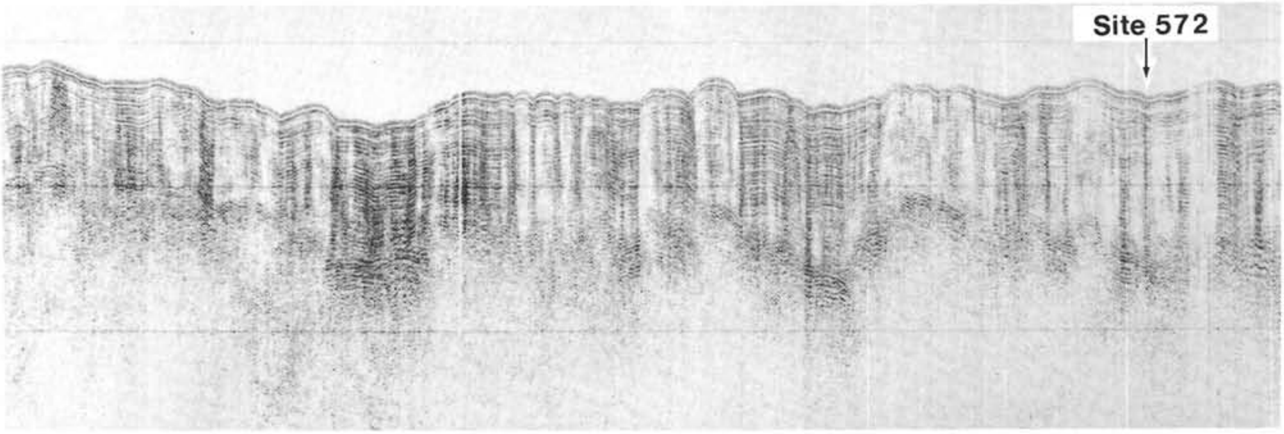


Figure 2. *Glomar Challenger* air gun seismic profile in the vicinity of Site 572 (5-s two-way traveltime).

to be too inaccurate to be useful. Of much greater help were depth-to-basement and isopach maps (also based on SCAN 10 data) that revealed a northwest-trending basement trough that was filled with more than 0.5 s of sediment. We followed this trough north until its closest approach to Site 81 and then dropped the beacon (at 0536Z on 22 March). We continued to acquire profiles for 2 n. mi. beyond the beacon drop; we then pulled the geophysical gear and returned to the site, now officially Site 572. The final location of Site 572 is 01°26.09′N, 113°50.52′W, approximately 0.4 n. mi. south and 1.5 n. mi. west of Site 81 (Fig. 1).

Drill pipe run-in began at 0745Z, with the first hydraulic piston core barrel on its way down at 1800Z. This first core barrel returned empty, and the drill string was lowered another 7 m. The next core overpenetrated, making the depth of the mudline impossible to determine. When our next core came back empty (because of a collapsed liner), we decided to pull up to the mudline and start Hole 572A. The mudline was established at 3903 m, in exact agreement with the depth estimated from the precision depth recorder (PDR).

We drilled Hole 572A to a sub-bottom depth of 154.1 m (17 cores; see Table 1). We used the 9.5-m variable-length HPC (VLHPC), and after each core was recovered we washed down the length of the previously recovered core. This maximized the chances of continuous recovery. We were disappointed to discover that 40% of the first 10 cores recovered were significantly disturbed. Most of the disturbance fell into the categories described in the Introduction (this vol.). To attempt to reduce disturbance the coring procedure was changed: pressure in the stand pipe was not bled off immediately after the corer shot off; instead, the pressure was allowed to bleed off through the HPC. Core quality improved, although the improvement was probably also due partly to the calmer seas and firmer sediments.

The coring at Hole 572A proceeded smoothly, with HPC stroking out completely and almost full recovery until Core 18, at 154.1 m sub-bottom, was reached. To retrieve Core 18 we had to generate 60,000 to 65,000 lb. of pullout force. When the end of the sandline arrived at the rig floor, we found that the ears on the quick disconnect had become deformed and that the quick disconnect had parted, leaving the core barrel behind in the hole. The problem was unexpected, because there had been no advance warning in the form of high pullout forces or poor recovery.

Because it would be difficult to fish for the lost core barrel, we decided to abandon the hole, wash down to 154 m in Hole 572B, and then continue to core with the 5-m HPC. We were able to collect four cores in this hole before limited penetration and more than 30,000 lb. of pullout force forced us to stop at 172.1 m sub-bottom.

We were supposed to double core this site, so we pulled back to the mudline, and at 1100Z on 24 March we once again began to collect 9.5-m hydraulic piston cores. As we drilled this hole (572C) we washed down 9.6 m after each core irrespective of core recovery. This policy resulted in the loss of some of the section (when the HPC returned with less than 9.6 m of sediment), but it enabled us to offset intercore gaps between the A and the C holes. At 96.5 m sub-bottom in Hole 572C, 30,000 lb. of pullout force became necessary, and we decided to switch to the 5-m core barrel. After three 5-m cores were retrieved with very low pullout force we returned to the 9.5-m core barrel, and we were able to take another six 9.5-m cores before pullout force once again became excessive.

At 160 m sub-bottom we again switched to the 5-m barrel, and we were able to penetrate another 8.5 m. After 168.5 m of nearly continuous coring, we pulled out of Hole 572C, tripped the drill string, and changed to a rotary drilling setup.

We began Hole 572D by washing down to 151 m sub-bottom and then rotary drilling with continuous coring. The average recovery from this hole was 81%. Drilling disturbance was fairly serious in the upper few cores, but it rapidly decreased as the sediment grew firmer. The sediments acquired at 360 m sub-bottom (Core 23, Section 6) could no longer be split with a wire and had to be cut with a rock saw instead. At 464.5 m sub-bottom we had not yet contacted basement, and we decided to wash to basement to establish the thickness of the section. We washed 15 m (through a part of the section previously cored at Site 81) and encountered basement at 479.5 m sub-bottom. After 1 hr. of drilling in basement, a 28-cm sample of basalt was returned to the deck. The drill string

Table 1. Coring summary, Site 572.

Core	Date (Mar. 1982)	Local time (hr.)	Depth from drill floor (m)	Depth below seafloor (m)	Length cored (m)	Length recovered (m)	Recovery (%)
Hole 572							
1	22	1250	3906.2–3915.5	0–9.5	9.5	9.25	100
2	22	1406	3915.5–3925.0	9.5–??	9.5	0	0
					19.0	9.25	49
Hole 572A							
1	22	1600	3903.0–3912.5	0.0–9.5	9.5	9.64	100+
2	22	1715	3912.5–3922.0	9.5–19.0	9.5	9.18	97
3	22	1840	3922.0–3931.6	19.0–28.6	9.6	9.66	100+
4	22	2010	3931.6–3939.3	28.6–36.3	7.7	7.7	100
5	22	2120	3939.3–3948.9	36.3–45.9	9.6	9.64	100
6	22	2235	3948.9–3958.2	45.9–55.2	9.3	9.31	100
7	23	0015	3958.2–3967.1	55.2–64.1	8.9	8.90	100
8	23	0155	3967.1–3975.3	64.1–72.3	8.2	8.22	100
9	23	0240	3975.3–3984.8	72.3–81.8	9.5	9.54	100+
10	23	0352	3984.8–3994.4	81.8–91.4	9.6	9.67	100+
11	23	0500	3994.4–4003.7	91.4–100.7	9.3	9.33	100+
12	23	0610	4003.7–4012.9	100.7–109.9	9.2	9.21	100+
13	23	0730	4012.9–4022.1	109.9–119.1	9.2	9.28	100+
14	23	0905	4022.1–4031.3	119.1–128.3	9.2	9.26	100+
15	23	1010	4031.3–4040.1	128.3–137.1	8.7	8.77	100+
16	23	1116	4040.1–4048.3	137.1–145.3	8.2	8.18	99
17	23	1240	4048.3–4057.1	145.3–154.1	8.8	8.86	100+
					154.00	154.35	100
Hole 572B							
1	23	1746	4057.0–4062.3	154.0–159.3	5.3	5.31	100
2	23	1920	4062.3–4067.2	159.3–164.2	4.9	4.93	100
3	23	2030	4067.2–4071.8	164.2–168.8	4.6	4.60	100
4	23	2210	4071.8–4075.1	168.8–172.1	3.3	3.38	100
					18.10	19.95	100
Hole 572C							
1	24	0255	3903.0–3913.1	0–10.1	10.1	9.57	95
2	24	0355	3913.1–3922.9	10.1–19.7	9.6	9.69	100+
3	24	0500	3922.9–3932.3	19.7–29.3	9.6	9.72	100+
4	24	0600	3932.3–3941.9	29.3–38.9	9.6	9.54	99
5	24	0700	3941.9–3951.5	38.9–48.5	9.6	9.62	100+
6	24	0805	3951.5–3961.1	48.5–58.1	9.6	9.65	100+
7	24	0911	3961.1–3970.7	58.1–67.7	9.6	9.80	100+
8	24	1014	3970.7–3980.3	67.7–77.3	9.6	9.64	100+
9	24	1120	3980.3–3989.9	77.3–86.9	9.6	9.42	98
10	24	1230	3989.9–3999.5	86.9–96.5	9.6	9.65	100+
11	24	1401	3999.5–4004.5	96.5–101.5	5.0	4.59	100+
12	24	1515	4004.5–4009.5	101.5–106.5	5.0	5.0	100
13	24	1630	4009.5–4014.5	106.5–111.5	5.0	5.06	100+
14	24	1850	4014.5–4024.1	111.5–121.1	9.6	9.48	83
15	24	1950	4024.1–4033.7	121.1–130.7	9.6	9.26	96
16	24	2105	4033.7–4043.3	130.7–140.3	9.6	9.38	98
17	24	2200	4043.3–4052.8	140.3–149.9	9.6	5.80	60
18	24	2305	4052.8–4062.4	149.9–159.5	9.6	9.30	97
19	25	0040	4062.4–4067.4	159.5–164.5	5.0	4.90	98
20	25	0156	4067.4–4071.4	164.5–168.5	5.0	4.0	80
					169.50	161.56	95
Hole 572D							
1	26	0138	4054.0–4063.5	151.0–160.5	9.5	5.30	56
2	26	0313	4063.5–4073.0	160.5–170.0	9.5	9.83	100+
3	26	0454	4073.0–4082.5	170.0–179.5	9.5	9.76	100+
4	26	0610	4082.5–4092.0	179.5–189.0	9.5	9.55	100+
5	26	0756	4092.0–4101.5	189.0–198.5	9.5	9.77	100+
6	26	0929	4101.5–4111.0	198.5–208.0	9.5	9.59	100+
7	26	1058	4111.0–4120.5	208.0–217.5	9.5	9.62	100+
8	26	1230	4120.5–4130.0	217.5–227.0	9.5	9.78	100+
9	26	1345	4130.0–4139.5	227.0–236.5	9.5	5.06	53
10	26	1500	4139.5–4149.0	236.5–246.0	9.5	9.60	100+
11	26	1620	4149.0–4158.5	246.0–255.5	9.5	9.73	100+
12	26	1747	4158.5–4168.0	255.5–265.0	9.5	6.33	67
13	26	1910	4168.0–4177.5	265.0–274.5	9.5	7.50	79
14	26	2045	4177.5–4187.0	274.5–284.0	9.5	7.46	79
15	26	2200	4187.0–4196.5	284.0–293.5	9.5	3.91	41
16	26	2330	4196.5–4206.0	293.5–303.0	9.5	9.50	100+
17	28	0050	4206.0–4215.5	303.0–312.5	9.5	3.43	36
18	28	0215	4215.5–4225.0	312.5–322.0	9.5	8.63	91
19	28	0345	4225.0–4234.5	322.0–331.5	9.5	3.76	40
20	28	0508	4234.5–4244.0	331.5–341.0	9.5	3.46	36
21	28	0642	4244.0–4253.5	341.0–350.5	9.5	7.63	80
22	28	0750	4253.5–4263.0	350.5–360.0	9.5	4.26	45
23	28	0925	4263.0–4272.5	360.0–369.5	9.5	9.46	96
24	28	1045	4272.5–4282.0	369.5–379.0	9.5	9.15	96
25	28	1200	4282.0–4291.5	379.0–388.5	9.5	9.73	100+
26	28	1320	4291.5–4301.0	388.5–398.0	9.5	8.65	90
27	28	1435	4301.0–4310.5	398.0–407.5	9.5	9.68	100+
28	28	1545	4310.5–4320.0	407.5–417.0	9.5	7.21	76
29	28	1715	4320.0–4329.5	417.0–426.5	9.5	7.04	74
30	28	1845	4329.5–4339.0	427.5–436.0	9.5	7.55	79
31	28	2000	4339.0–4348.5	436.0–445.5	9.5	8.50	89
32	28	2120	4348.5–4358.0	445.5–455.0	9.5	8.59	90
33	28	2210	4358.0–4367.5	455.0–464.5	9.5	9.79	100+
Wash to basement			4367.5–4382.5	464.5–479.5			
34	28	0830	4382.5–4392.0	479.5–489.0	9.5	0.28	3
					320.0	258.92	81

was tripped, and at 1630Z on 28 March the *Challenger* turned its bow toward the setting sun and began the long steam to Site 573.

LITHOSTRATIGRAPHY

Lithostratigraphic Subdivision

The lithology cored at Site 572 consists of two sedimentary units that overlie basalt. Unit I, the cyclic siliceous calcareous ooze chalk, consists of laminated, burrow-mottled siliceous calcareous oozes that grade into siliceous calcareous chalks in the lowermost part of the section. Unit II, the metalliferous chalk, was not well represented in the coring at Site 572, because the lowermost 15 m of the sedimentary section were washed away in order to reach basement in the time allotted to the drilling at this site. However, the metalliferous chalk unit was recovered during the drilling at Site 81. The lithostratigraphic subdivision of Site 572 is shown in Table 2.

Unit I: Cyclic Siliceous Calcareous Ooze Chalk (Quaternary to middle Miocene)

Unit I extends from the sediment/water interface to a depth (in Hole 572D) of 464.5 m. It consists of siliceous calcareous oozes to siliceous nannofossil oozes, which grade into siliceous nannofossil chalks. The transition between ooze and chalk takes place in the interval between 293.5 and 367.5 m sub-bottom.

There are cyclic variations in color throughout the section. The dominant color variations have been used to subdivide Unit I into four subunits: the gray brown, varicolored, green varicolored, and the yellow chalk subunits. This subdivision is based solely on color; the sediment's color does not appear to be directly related to texture or microfossil content.

Subunit IA: Gray Brown Ooze (Quaternary)

The gray brown subunit extends from the sediment/water interface to a depth of 2.35 m in Hole 572A. The unit is composed of alternating brown and gray sediment. The brown sediment consists of grayish brown (10YR 5/3), light brown (7.5YR 5/2 to 10YR 7/4), and yellow brown (2.5Y 8/2) foraminiferal diatom nannofossil ooze to foraminiferal siliceous nannofossil ooze. The gray sediment has the same composition but is dark gray (N3 to N6), greenish gray (5G 7/1 to 5Y 7/2), and light gray (2.5Y 7/1 to 5Y 7/1). The siliceous microfossil content of the sediment does not directly influence its color. Contacts between the brown and gray intervals are sharp to gradational. This cyclic alternation extends down to the first purple (5P 2/2 to 5RP 2/2) band in the sediment.

Sediments of the gray brown subunit are of uniform composition, with abundant (30 to 50%) clay-sized particles, abundant (30 to 40%) silt-sized particles, and common (10 to 30%) sand-sized particles. Calcareous nannofossils are abundant (25 to 75%), foraminifers are common (5 to 25%), radiolarians are rare (1 to 5%) to common (5 to 15%), and diatoms are common to abundant. Silicoflagellates, sponge spicules, and volcanic glass particles occur sporadically in rare (1 to 5%) amounts.

Table 2. Lithostratigraphy of Site 572.

Lithologic unit	Unit sub-bottom depth (m)	Unit depth (Hole-Core-Section, level in cm)
I (cyclic siliceous calcareous ooze chalk) A (gray brown ooze)	0–2.35	572-1-1, 1 to 572-1-1, 105 572A-1-1, 1 to 572A-1-2, 85 572C-1-1, 1 to 572C-1-1, 125
B (varicolored ooze)	2.35–37.45	572-1-1, 105 to 572-1,CC 572A-1-2, 85 to 572A-5-1, 98 572C-1-1, 125 to 572C-4-6, 65
C (green varicolored ooze)	37.45–458.75	572A-5-1, 98 to 572A-17,CC 572B-1-1, 1 to 572B-4,CC 572C-4-6, 65 to 572C-20,CC 572D-1-1, 1 to 572D-33-3, 75
D (yellow chalk)	458.75–464.50	572D-33-3, 75 to 572D-33-7, 54
II (metalliferous chalk)	464.50–?	572D-33,CC
III (basalt)	479.50–489.00	572D-34-1, 1 to 572D-34,CC

Subunit IB: Varicolored Ooze (Quaternary to upper Pliocene)

The varicolored subunit extends from 2.35 to 37.45 m. This subunit is defined as extending from the first band of purple ooze (5P 2/2 to 5RP 2/2) down to the appearance of pale green (10G 6/2 to 5G 7/1) ooze. The varicolored subunit is typified by the cyclic alternation of bands (5 to 25 cm in thickness) of purple, light gray, and yellow sediments. The purple bands are composed of pale purple (5P 2/2 to 5RP 2/2), dark gray (N3 to N6), and greenish gray (5G 7/1 to 5Y 7/1) sediments; the light gray bands are composed of bluish white (5B 9/1), white (N9), and light gray (N7 to N8) sediments; and the yellow bands consist of pale yellow (2.5Y 8/4), yellow green (2.5Y 7/2 to 5Y 7/2), and yellow gray (5Y 8/1) sediments. There is no apparent relationship between sediment color and microfossil composition; Subunit IB ranges from diatom nannofossil oozes and siliceous nannofossil oozes to foraminiferal radiolarian diatom nannofossil oozes.

The varicolored subunit sediments are composed of abundant to dominant (30 to 80%) clay-sized particles, common to abundant (5 to 40%) silt-sized particles, and common (10 to 30%) sand-sized particles. Calcareous nannofossils are abundant (40 to 80%), foraminifers are generally rare (1 to 10%), and radiolarians are rare to common (2 to 25%). Diatoms are generally abundant (20 to 40%), although they are less abundant (1 to 5%) in the siliceous nannofossil oozes. Occasional trace (1%) amounts of pyrite, silicoflagellates, and volcanic glass are found in the varicolored subunit.

Subunit IC: Green Varicolored Ooze Chalk (upper Pliocene to middle Miocene)

The green varicolored subunit extends from 37.45 to 458.75 m sub-bottom. It is defined as occurring from the first band of pale green (10G 6/2 to 5G 7/1) ooze down to the burrow-mottled laminated yellow (2.5Y 8/1 to 2.5Y 7/4) chalks. The green varicolored ooze contains alternating bands 5 to 25 cm thick of four different colors: (1) purple to pale purple (5P 2/2 to 5RP 2/2), dark gray (N3 to N6), greenish gray (5G 7/1 to 5Y 7/1), and pale blue (5PB 7/2); (2) bluish white (5B 9/1), white (N9), and light gray (N7 to N8); (3) pale yellow (2.5Y 8/4), yellow green (2.5Y 7/2 to 5Y 7/2), and yellow gray (5Y 8/1); and (4) pale green (5G 6/2 to 5GY 7/1), olive green (5GY 3/2), and blue green (5BG 7/2). At the top of this subunit, these colors are cyclic, the bands of light gray passing down into those of purple, green, and yellow. In some cores only the purple and light gray bands alternate, however.

The transition from ooze to chalk occurs in Subunit IC from 293.5 to 367.5 m sub-bottom (572D-16-1 to 572D-23-6). The transition starts in a core (572-16-1) that contains friable instead of plastic sediments, and it continues through an interval in which chalk alternates with ooze. Chalk becomes continuous in Section 572D-23-6; splitting of all deeper cores required the use of a rotary saw. Toward the base of the unit (572D-28-1 to 572D-33-3), the sediments become more uniformly green in color, and they contain burrow structures that are better preserved. In this interval there are discrete layers of bright green (5G 3/2 to 5BG 3/2) diatomites (e.g., 572D-29-1, 125 cm). Foraminifers are common (10 to 25%) only within this lowermost green chalk interval (572D-28-1 to 572D-33-3).

Middle Miocene chert fragments occur within and below the ooze chalk transition beds of Subunit IC (572D-18-1 to 572D-24-1). Separate 1-cm-diameter fragments of olive green (5Y 5/3) and light green (5GY 7/1) banded chert appear in the uppermost sediments of Sections 572D-18-1 and 572D-19-1, and a few small (0.5-cm-diameter) chert fragments were recovered from the top few centimeters of Section 572D-24-1. In the lower chalks of this subunit (572-30-1, 36–40 cm and 88–91 cm), we observed chert bands 3 to 4 cm thick of alternating dark and light gray.

The grain size of the green varicolored subunit is relatively constant, with abundant (50 to 75%) clay-sized particles, common to abundant (5 to 40%) silt-sized particles, and common to abundant (5 to 45%) sand-sized particles. The upper part of the unit is made up of diatom nannofossil to siliceous nannofossil oozes, with occasional discrete layers of nannofossil diatom ooze. There are occasional traces (1%) of volcanic glass, pyrite, and zeolite. From 293.5 to 367.5 m sub-bottom the subunit consists of siliceous nannofossil and diatom nannofossil oozes, which grade into chalks of the same composition. Below 367.5 m the unit is composed of foraminiferal siliceous chalks and foraminiferal radiolarian diatom chalks.

Subunit ID: Yellow Chalk (middle Miocene)

The yellow chalk subunit extends from 458.75 m to 464.50 m sub-bottom. It is defined as extending from the first burrow-mottled laminated yellow chalk down to the first metalliferous chalk. Subunit ID is composed of pale yellow (2.5Y 8/4 to 2.5Y 7/4), yellow white (2.5Y 8/2 to 2.5Y 8/1), and pale yellowish green (10Y 8/1) siliceous foraminiferal nannofossil chalks. These sediments have abundant (35 to 60%) clay-sized particles, common to abundant (20 to 30%) silt-sized particles, and common to abundant (20 to 35%) sand-sized particles. The subunit contains rare (1 to 8%) radiolarians and diatoms, common (20 to 35%) foraminifers, and abundant (30 to 50%) nannofossils, plus abundant (15 to 40%) unspecified carbonate particles, which may be the result of carbonate recrystallization.

Unit II: Metalliferous Chalk (middle Miocene)

The lowermost sediment sample in Hole 572D (33,CC) contains siliceous foraminiferal nannofossil chalk, with common (5%) pyrite and iron oxides (10%). Although recovery is minimal, we believe that these sediments belong to the metalliferous chalk unit that was cored at Site 81. The metalliferous enrichment of this sediment may be associated with the hydrothermal activity that takes place at or near ridge crests. The drilling results at Site 81 lead us to assume that this unit extends from 572D-33,CC (464.5 m sub-bottom) to the sediment/basalt contact at 479.5 m.

Unit III: Basalt

We recovered 28 cm (9 pieces) of basalt from drilling Hole 572D from 479.50 to 489.00 m sub-bottom.

Bioturbation

Bioturbation is common to abundant throughout the sedimentary section. It occurs primarily as subhorizontal burrows with 1-cm circular to elliptical cross sections (Planolites). Burrow mottling is most obvious just below the subunit boundaries, where sediments of different color have mixed. Burrow fill with high pyrite content (up to 30%) occurs in the varicolored subunit. There are dark-colored pyrite-rich oval burrows in both the varicolored ooze and the green varicolored ooze–chalk subunits, and several elongate (3- to 5-cm-long), flattened pyrite rods were found within them. The best preserved burrows are found in the green varicolored chalk and the yellow chalk. The ichnogenera Planolites (Fig. 3), Zoophycos (Fig. 4), and Chondrites were identified in these subunits.

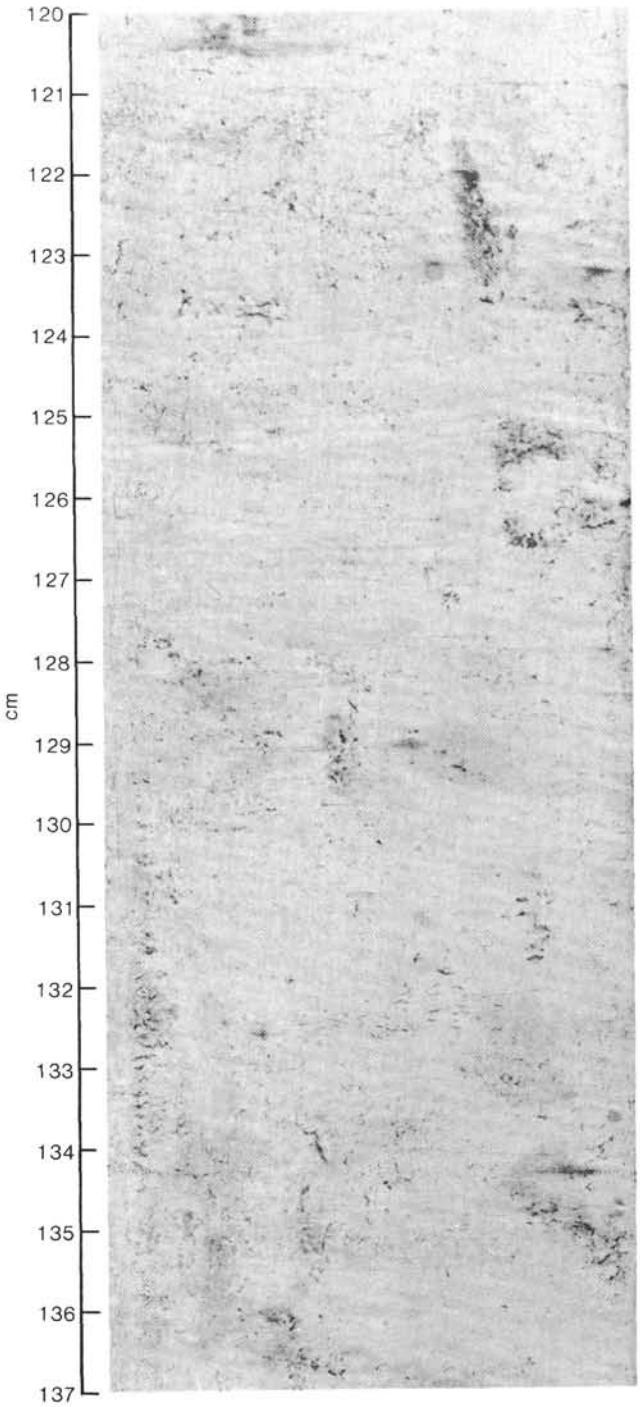


Figure 3. Burrow structures of the ichnogenus Planolites (from 572C-6-2; see 122 cm and 135 cm).

Sedimentary Cycles

The dominant feature of the Site 572 sediments is cyclicity of color. The color changes are not accompanied by changes in grain size or microfossil composition. The horizontal color boundaries may reflect chemical inhomogeneities produced by diagenesis. In some cores the

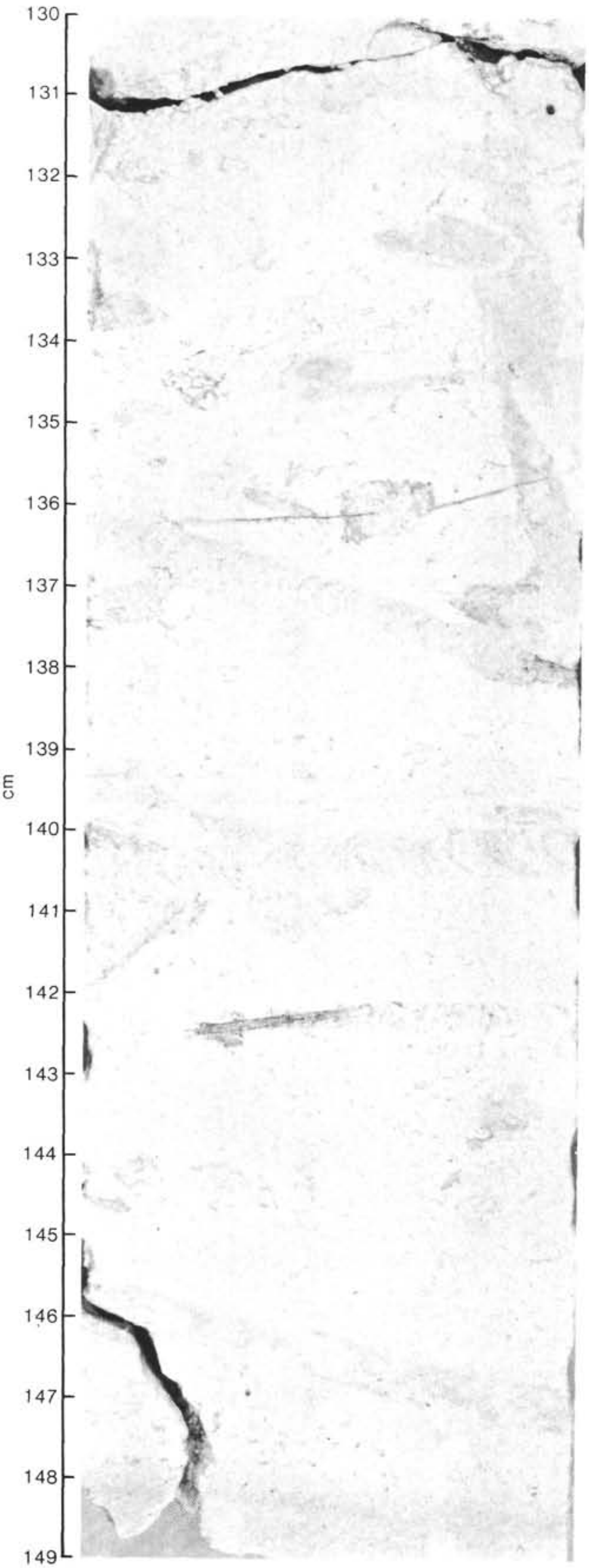


Figure 4. Burrow structures of the ichnogenus Zoophycos (from 572D-31-1; see 137 cm, 140 cm, and 142 cm).

alternation of millimeter-scale dark and light laminae is spectacular (Fig. 5).

Correlation with Site 81

Although the coring at Site 81 was not continuous, our color-based lithologic classification enabled us to correlate our lithostratigraphic units with the oceanic formations defined by Hays et al. (1972). The gray brown ooze (Subunit IA) corresponds to the cyclic unit in the Clipperton Oceanic Formation, and our varicolored subunit (IB) corresponds to the varicolored unit in the Clipperton Oceanic Formation. We found the transition from the varicolored ooze to the green varicolored ooze at 37.45 m instead of the 60 m predicted by Hays et al. (1972) from seismic correlations. Our green varicolored ooze-chalk (IC) corresponds to the predominantly green San Blas Oceanic Formation. Although the individual laminae in the green varicolored ooze chalk may be quite thin (Fig. 5), this sedimentary unit was described as massive bedding at Site 81, probably because the discrete green laminae were smeared into a homogeneous green sediment by rotary drilling. Our yellow chalk (Subunit ID) corresponds to the Line Islands Ocean Formation of Hays et al. (1972). Metal-rich mudstones immediately overlie the basalt/sediment contact at Site 81; our recovery of this sequence was incomplete.

Carbonate Stratigraphy

As shown by Figure 6, the sequence at Site 572 alternates between intervals of high carbonate content (80 to 90%) and low carbonate content (45 to 65%). The alternation is typical of sedimentary sequences from the eastern equatorial Pacific. Extreme carbonate minima (carbonate contents less than 45%) occur near the upper/lower Miocene boundary (265 to 315 m sub-bottom), a zone of extreme foraminiferal dissolution.

There are distinct changes in the sedimentation rate curve at depths of 70, 208, 272, and 360 m sub-bottom, all of which are correlated with pronounced carbonate minima. Further analysis would be necessary to determine whether the correlation is apparent or real, however, because other extreme carbonate minima (e.g., those at 162, 172, 290, 310 m) occur without corresponding changes in sedimentation rate. There are possible hiatuses in sedimentation rate at 382 and 420 m. Both depths are characterized by pronounced carbonate minima, so the hiatuses may be due to either carbonate dissolution or reduced accumulation rate. See Barron et al. (this vol.) for a more detailed discussion.

The data in Figure 6 (shipboard carbonate data taken at 1.5-m intervals) can be correlated with the equatorial Pacific carbonate event stratigraphy developed for the Pleistocene by Hays et al. (1969), for the Pliocene to late Miocene by Dunn and Moore (1981), and for the middle to early Miocene by Dunn (1982).

BIOSTRATIGRAPHY

A complete sequence of sediments from the upper Pleistocene through the lowermost middle Miocene was recovered at Site 572. The siliceous microfossils are consistently common to abundant throughout the sequence,

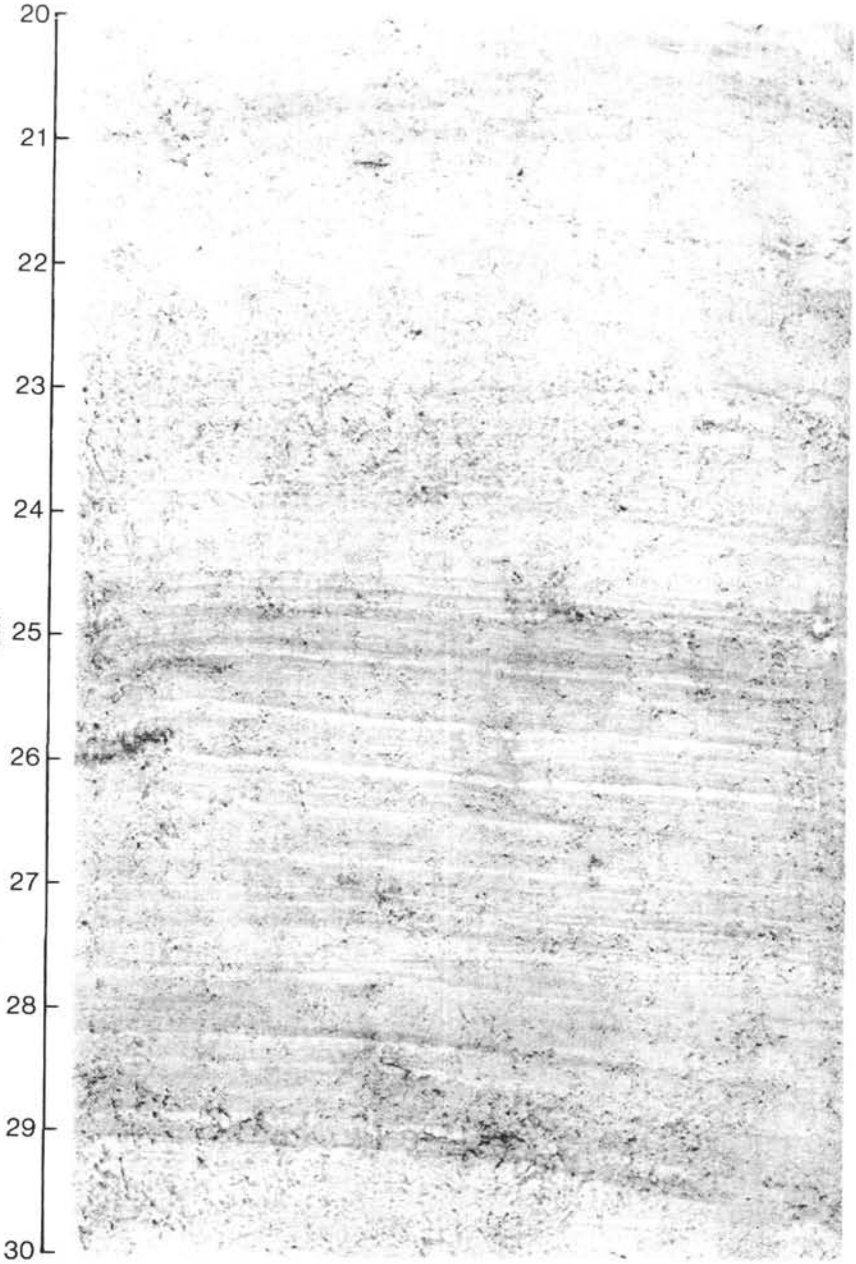


Figure 5. Millimeter-scale alternation of dark and light laminae at Site 572 (572C-6-3, 20–30 cm).

whereas the calcareous microfossils are abundant only in its upper part (Pliocene and Pleistocene). Calcareous fossils are rare in the middle part of the cored sequence (most of the upper Miocene) as the result of severe dissolution.

The succession of diatom and planktonic foraminifer datums in the Pliocene–Pleistocene sequence is identical to the succession of datums in paleomagnetically dated deep-sea sequences from the eastern equatorial Pacific (Burckle, 1972, 1978; Hays et al., 1972; Saito et al., 1975). The previously established dates for these datums provided good control for our time-rock subdivisions. The biostratigraphy at Site 572 is summarized in Figure 7. An updated version of this summary is presented in Barron et al. (this vol.).

The Pliocene/Pleistocene boundary is in Core 3 (28 m sub-bottom) in both Holes 572A and 572C. It is recognized by the extinction of planktonic foraminifer *Globigerinoides obliquus*, nannofossil *Discoaster brouweri*, and radiolarian *Pterocanium prismatium*. The Miocene/Pliocene boundary is in Cores 572A-13 and 572C-14. The first appearance level of *Globorotalia tumida* and the concomitant disappearance of *Globoquadrina dehiscens* mark the boundary, which is nearly coincident with the disappearance of the diatom *Thalassiosira miocenica*. The disappearance of *T. miocenica* marks the B/C Subzone boundary within the *Thalassiosira convexa* Zone.

In the European type area, the middle/upper Miocene boundary lies within the foraminiferal Zone N15

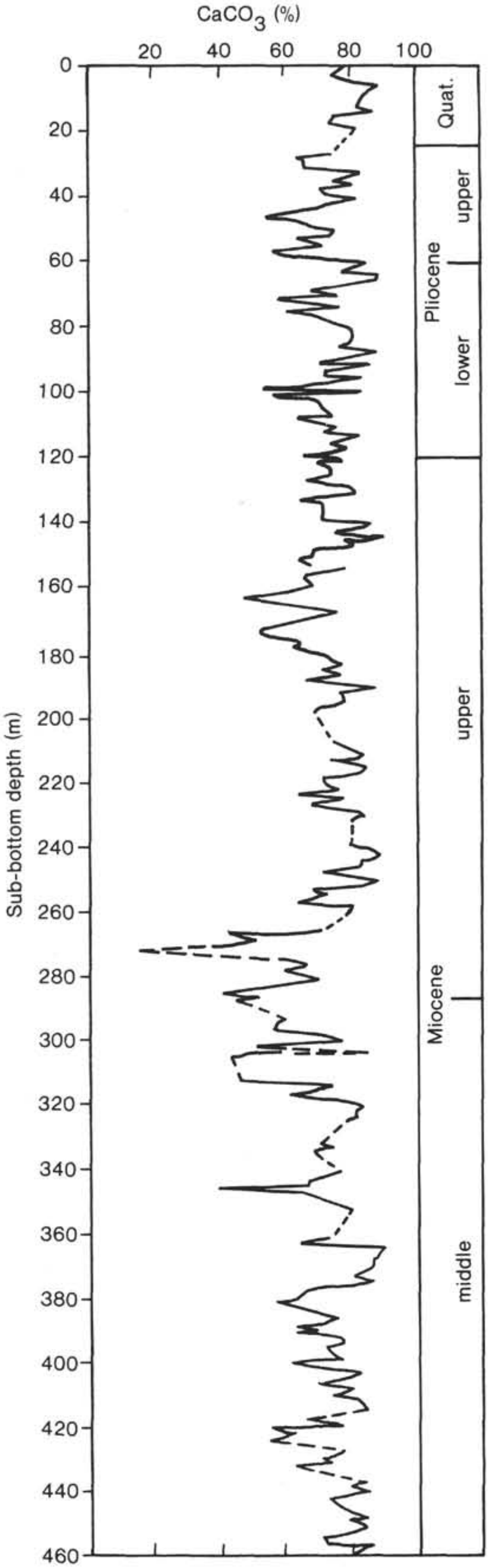


Figure 6. Shipboard carbonate data for Site 572.

and the nannofossil *Discoaster hamatus* Zone (Van Couvering and Berggren, 1977). In our time scale, this boundary has an age of approximately 11.1 Ma. The sediment accumulation rate curve for Site 572 indicates that a boundary of this age should occur in Core 572D-15. The oldest sediment recovered at this site contains nannofossils indicative of the *Sphenolithus heteromorphus* Zone, planktonic foraminifers belonging to Zone N9, radiolarians assignable to the *Dorcadospyris alata* Zone, and diatom floras diagnostic of the *Cestodiscus peplum* A Subzone. Thus, the oldest sediment at Site 572 is from the beginning of the middle Miocene; its age is estimated to be about 15 Ma.

The upwelling diatoms *Thalassionema nitzschioides* and *Thalassiothrix longissima* are a dominant element in the siliceous microfossil assemblages from Sections 572A-8,CC through 572D-7,CC (from 4.0 to 7.8 Ma) and from Sections 572D-11,CC through 572D-18,CC (from 10.0 to 12.2 Ma). These diatom-rich intervals correspond closely to intervals of low carbonate content (from 4.2 to 6.95 Ma) and to intervals where the calcareous microfossils are strongly affected by dissolution (from 6.95 to 13.0 Ma). The correlation between an abundance of upwelling diatoms and an increase in carbonate dissolution suggests that the same mechanism caused both phenomena. High sediment accumulation rates characterize two intervals of the Site 572 sedimentary column the upper middle section (68 to 208 m sub-bottom) and the lower section (272 to 480 m sub-bottom). Since there is no marked increase in calcareous microfossils or radiolarians in these intervals, the high sediment accumulation rates are most likely to be the result of high diatom productivity. See Theyer et al. (this vol.) for an updated discussion.

Planktonic Foraminifers

The analysis of the planktonic foraminifers permits the division of the cored sequence into an upper sequence (from Cores 1 through 17 in the A and C holes), which contains abundant and well preserved faunas, and a lower sequence, which yields moderately well preserved but impoverished assemblages. The impoverished assemblages consist of solution-resistant forms: robust globoquadrinids, globorotaliids, and cortex-covered sphaeroidinellids.

The downhole change from the upper rich to lower monotonous assemblages is sharp. In Hole 572C it occurs between Cores 17 and 18. Almost no planktonic species are present in Section 572C-17,CC. A well preserved and diverse assemblage is encountered toward the basement (Hole 572D, Cores 30 through 33), however.

To graphically illustrate the varying degrees of foraminifer dissolution, the 10-point foraminifer solution code of Berger and von Rad (1972) was calculated for each assemblage (Fig. 8; high solution code numbers correspond to higher solution). The plot shows two intervals of marked dissolution in the middle of the cored sequence (Hole 572D, Cores 2 to 8 and 11 to 18; 160 to 220 m and 250 to 320 m).

The upper carbonate-rich sequence at this site can be correlated with the paleomagnetically dated deep-sea se-

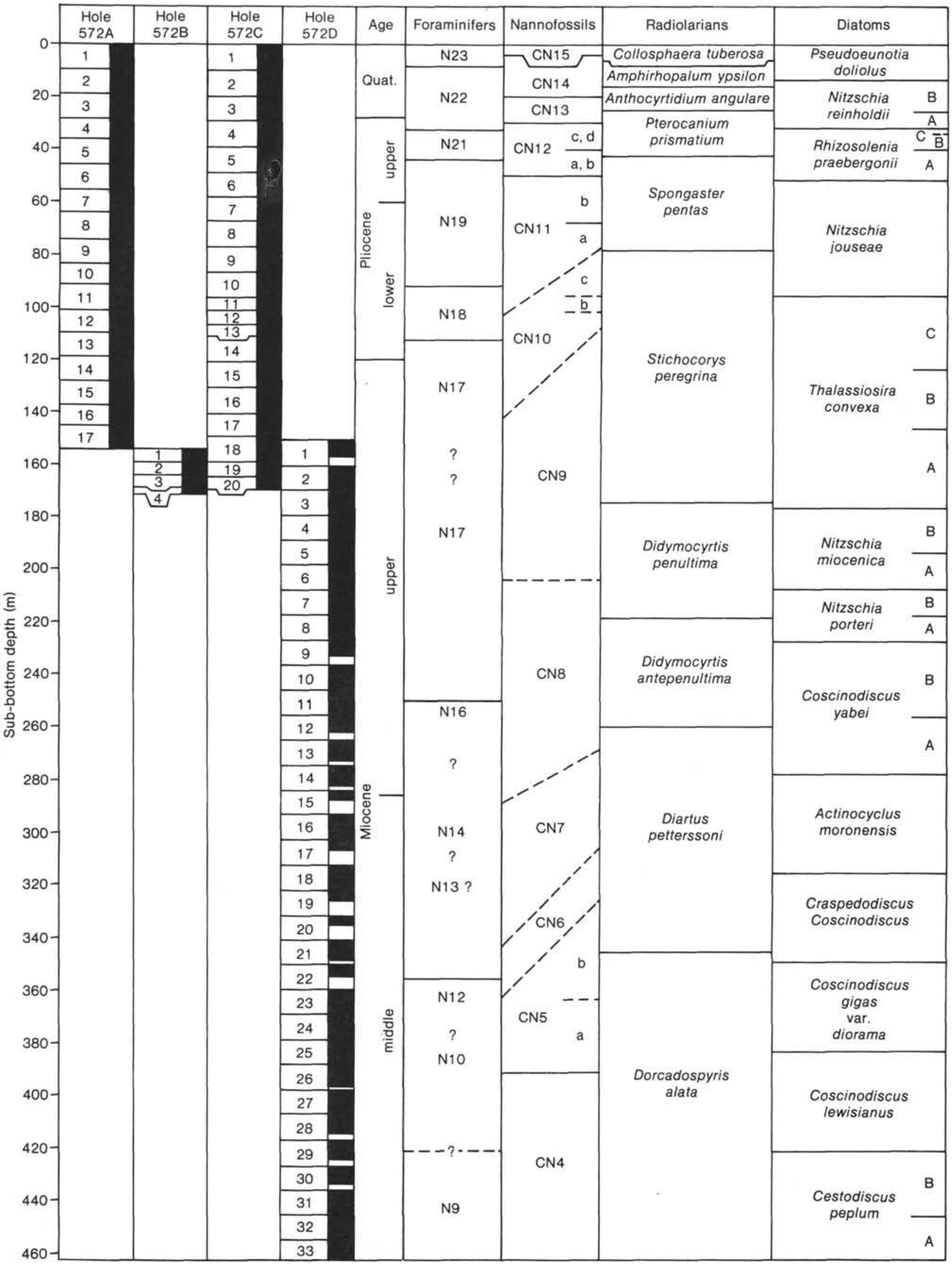


Figure 7. Summary of biostratigraphy at Site 572. Black portions of cores show recovery. Zonal boundaries are dashed when the position is uncertain or varies between the holes.

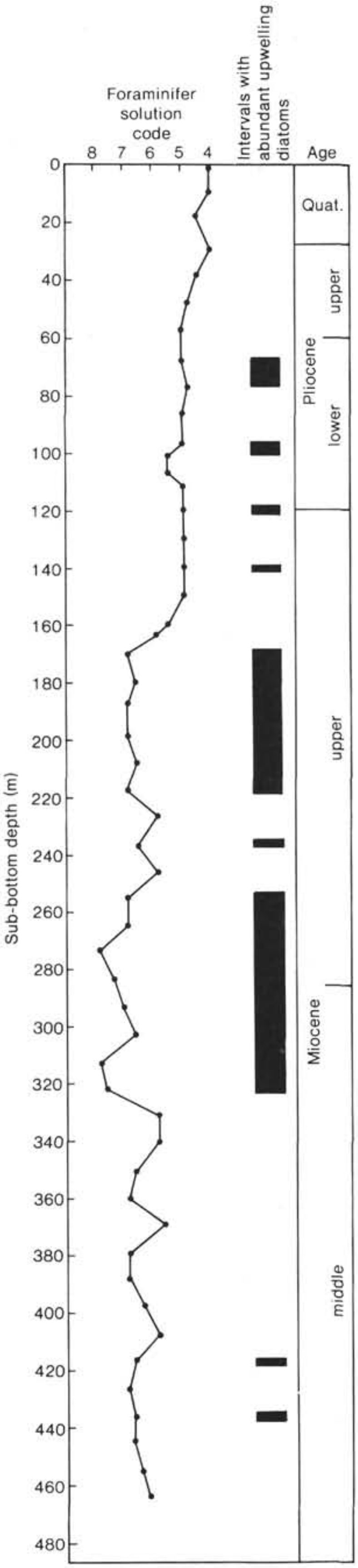


Figure 8. Foraminifer solution curve for Site 572; numbers after Berger and von Rad (1972).

quence from the eastern equatorial Pacific (Hays et al., 1969; Saito et al., 1975). Such a correlation places the base of the Quaternary between Sections 3,CC and 4,CC in both Holes 572A and 572C. The conspicuous presence of *Globoquadrina pseudofoliata* in Sample 572A-1-1, 2-5 cm indicates that no Holocene or uppermost Pleistocene sediments were recovered. The position of the Miocene/Pliocene boundary is based on the evolutionary appearance of *Globorotalia tumida*, which is accompanied by the extinction of *Globoquadrina dehiscens*; in Hole 572A these events occur between Sections 12,CC and 13,CC, and in Hole 572C they occur between Sections 13,CC and 14,CC.

Because of the effects of dissolution, the Miocene is difficult to divide into time-rock units. The successive appearance of all the zonally diagnostic species (Blow, 1969) in the downhole sequence, however, indicates that sedimentation was continuous at this site throughout the upper and middle Miocene.

The base of the sequence corresponds to lowermost middle Miocene, as evidenced by the rare occurrence of *Orbulina universa* in Section 572D-33,CC. In addition to *Orbulina*, this lowermost assemblage includes *Globorotalia peripheroronda* and *Globorotalia praemenardii* and is assigned to Zone N9, the lowest zone in the middle Miocene.

The Leg 9 paleontologists reported lower Miocene *Globigerinoides bisphericus* assemblages at the base of Hole 81 (Hays et al., 1972). Since *G. bisphericus* is an ancestor of *Orbulina universa*, the obvious implication is that the basal sediment at Site 81 is older than the basal sediment in Hole 572D by one foraminiferal zone. However, the zonal assignment of Leg 9 was based not on the presence of the zonal marker species but rather on the occurrence of *Hastigerinella bermudezi* (referred to as *Clavatorella bermudezi* in this report). *C. bermudezi* does occur at Site 572—in Core 32, where it is associated with a Zone N9 assemblage. Blow (1969) reported *H. bermudezi* to range from the uppermost part of Zone N8 through the lower part of Zone N10, so the basal sediment at Site 81 might be of Zone N8 age. Before the discovery of this species in the eastern equatorial Pacific by Leg 9 scientists, however, *C. bermudezi* was known only from the Caribbean region (Blow, 1965; Saito et al., 1976). The same Leg 9 report shows the range of *C. bermudezi* in a more continuously cored sequence at Site 77, about 960 km due west of both Sites 81 and 572 in the same general eastern equatorial Pacific region, to be restricted to the middle Miocene (in zones equivalent to N9 and N10). The basal sediment at Site 81 is interpreted here to be of Zone N9 age, in agreement with the findings at Site 572.

Nannofossils

Coccoliths are common to abundant in all samples from the five holes at this site. In some intervals dissolution is present, as indicated by the presence of slightly slashed shields and (in some species) missing central grids. The effects of dissolution are particularly pronounced in some samples from Holes 572A (Sections 1,CC to 4,CC), 572B (Sections 3,CC to 4,CC), and 572D (Sections 6,CC to 17,CC and 28,CC to 33,CC). The abundance and range of nannofossil species at Site 572 are shown in Figure 9.

In the Miocene–Pliocene interval, discoasters are generally present, although they are seldom abundant because of dissolution (which is particularly severe in 572A-7,CC; 572C-7,CC, -10,CC, -11,CC; 572D-2,CC, -11,CC). They disappear entirely in some sections (572A-8,CC to -13,CC and in -16,CC; 572-6,CC, -9,CC, -11,CC, and -20,CC; 572D-3,CC, to -7,CC, -12 to -21,CC, and in -25,CC). In Sections 572D-29,CC through -33,CC, the discoasters are partially dissolved and recalcified. Identification of *Discoaster* specimens was often difficult. Ceratoliths are rare at this site, with the exception of *Ceratolithus cristatus*.

In establishing the present nannofossil zonation, we made use of the stratigraphic chart of Bukry (1973), which includes some Pacific species. The five holes can easily be correlated with one another. Hole 572 consists of only one Pleistocene core. The well preserved nannofossils in this core are assigned to Zones CN15 and CN13. The dominant taxa present include *Emiliania huxleyi, Gephyrocapsa lumina, G. caribbeanica, Pseudoemiliania lacunosa*, and *Crenalithus doronicoides*. The same assemblages of Pleistocene nannofossils were found at the top of Holes 572A and 572C. The earliest Pleistocene assemblage (CN13a: in Sections 572A-3,CC and 572C-3,CC) is characterized by the presence of *Cyclococcolithina macintyrei*.

Pliocene floras are present in Holes 572A and 572C, with abundant nannofossils in the upper part of the Pliocene section. The discoasters characteristic of this period (*D. surculus, D. pentaradiatus, D. tamalis*, and the dominant *D. brouweri*) are rare. The lower part of the Pliocene sequence is distinguished in Hole 572C by a few *Sphenolithus neoabies* and *D. asymmetricus* (CN11b: in 572C-6,CC and -7,CC) and some very rare *Ceratolithus amplificus* (CN10b: in 572C-11-3, 0–1 cm).

The Miocene/Pliocene boundary occurs in Holes 572A and 572C in sediments that contain few diagnostic species. In both holes, however, this interval is characterized by common *D. quintanus*, which may be considered a marker for this period (Bukry and Bramlette, 1969).

In the lower part of the upper Miocene, the dominant species of *Discoaster* is *D. berggrenii*. In the eastern equatorial Pacific (Bukry, 1973), *D. berggrenii* appears in Zone CN8b, and it becomes most abundant in Zone CN9a. This species is abundant in Sections 572C-14,CC through -18,CC and in Sections 572D-8,CC through -14,CC. The distinction of Zone CN9 from CN8 depends on the criteria used. If the earliest period of maximum abundance of the marker species *D. berggrenii* is used to define the CN8/CN9 zonal boundary, the boundary lies in Hole 572D between Sections 14,CC and 15,CC. However, this boundary position is incompatible with the other taxa present. Therefore, the latest period of peak abundance of *D. berggrenii* is chosen to define the base of Zone CN9a. The earliest period of peak abundance is assigned to Zones CN7 to CN8. We propose the placement of a transition zone ("CN8/9") between the two peak abundance periods.

The upper/middle Miocene boundary cannot be placed with nannofossils, because it occurs (in Hole 572D) in sediments that contain moderately preserved placoliths and few discoasters. The oldest sediment at this site (Sections 572D-27,CC to -33,CC) yields abundant specimens of *Sphenolithus heteromorphus*, a species indicative of Zone CN4. The presence of some specimens of *Cyclicargolithus floridanus* and *Helicopontosphaera ampliaperta* from Core 31 to Section 572D-33,CC suggests that these samples lie near Zone CN3 (upper lower Miocene), although this zone was not reached.

Radiolarians

Radiolarians are common to abundant in the sediment recovered at this site. In some sections they are overwhelmed by an abundant upwelling diatom flora, but they constitute a diverse fauna nevertheless. The radiolarians are well preserved throughout the section, although the samples become more indurated as depth in Hole 572D increases, making prolonged cleaning necessary.

Hole 572 yielded a single core, the core-catcher sample from which can be placed in the *Amphirhopalum ypsilon* Zone. An additional core-catcher sample recovered during the second attempt to core Hole 572 belongs to the *Anthocyrtidium angulare* Zone.

The radiolarian zonation for the rest of the sediments recovered at this site is summarized in Figure 7 (the zonation is after Nigrini, 1971, and Riedel and Sanfilippo, 1978). The following features of the zonation warrant mention:

1. The boundary between the *Spongaster pentas* Zone and the *Stichocorys peregrina* Zone is marked primarily by the first occurrence of *Pterocanium prismatium*. The transition between *Spongaster berminghami* and *S. pentas* cannot be well documented because of the rarity of both species at the boundary level. *S. berminghami* occurs more frequently at lower levels in the cored sequence.
2. The *Stichocorys peregrina* Zone is unusually thick at this site because of the very high sediment accumulation rate in the area. The only known datum for radiolarians within the *S. peregrina* Zone is the latest occurrence of *Acrobotrys tritubus* at 5.0 Ma. However, the species is so rare at this site that its latest occurrence cannot be reliably determined.
3. In the *Didymocyrtis antepenultima* Zone neither the last occurrence of *Dictyocoryne ontongensis* nor the first occurrence of *Acrobotrys tritubus* could be determined because of the rarity of specimens of these species.
4. No species of *Dorcadospyris* were observed at Site 572, so it cannot be determined whether the *Calocycletta costata* Zone was penetrated. However, the last appearance of *Calocycletta virginis* in Section 572D-31,CC suggests that the hole bottomed very close to the *D. alata* (middle Miocene)/*C. costata* (early Miocene) zonal boundary.
5. Observable events within the *Dorcadospyris alata* Zone include: an abrupt transition from *Lithopera renzae* to *L. neotera* between 572D-22,CC and -23,CC; the first occurrence of *L. thornburgi* at 572D-25,CC; and the first occurrence of *Phormostichoartus corbula* at

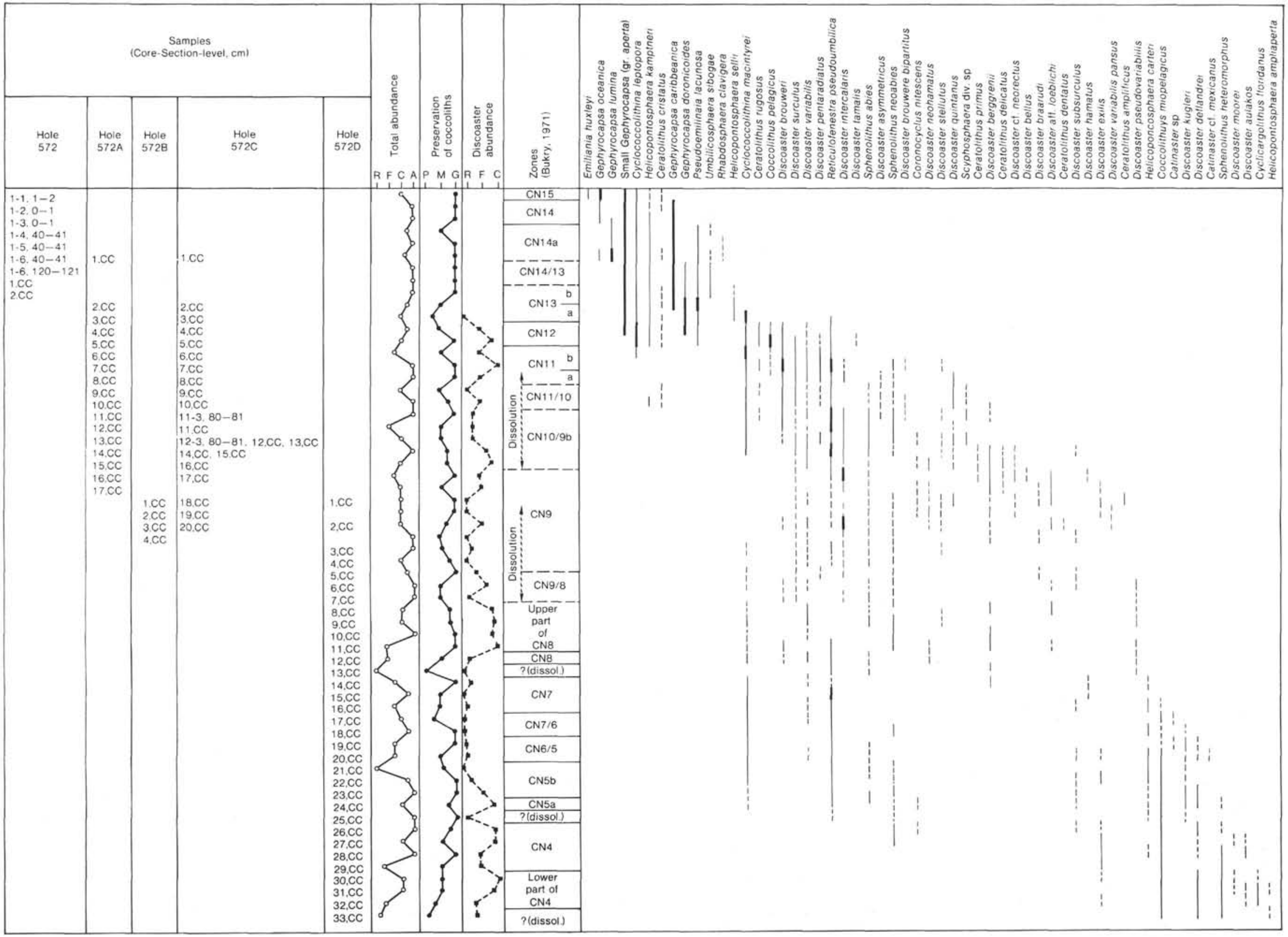


Figure 9. Occurrence of nannofossil species at Site 572; zonal boundaries are dashed when uncertain. R = rare; F = frequent; C = common; A = abundant; P = poor; M = moderate; G = good.

572D-28,CC. *Calocycletta tetrapera* is found throughout the zone, but is not accompanied by *C. cornuta*, which occurs only sporadically.

Diatoms

Diatoms are abundant to rare throughout the five holes drilled at Site 572. In general, preservation is good above 365 m sub-bottom (Section 572D-23,CC) and poor to moderate below that level. The sequence is complete from the late Quaternary *Pseudoeunotia doliolus* Zone through Subzone B of the early middle Miocene *Cestodiscus peplum* Zone. The sequence of diatom datums (Barron, this vol.) is essentially identical to that observed at eastern equatorial Pacific DSDP Hole 77B and Site 158 (Barron, 1981; Keller et al., 1982; Barron, unpubl. data). Most of the datums listed have been tied to paleomagnetic stratigraphy by Burckle (1972; 1978; pers. comm., 1982, to J. Barron), and the ages used have been adjusted to the Berggren (1983) paleomagnetic time scale.

High percentages of the upwelling diatoms *Thalassionema nitzschioides* and *Thalassiothrix longissima* dominate the intervals between 4.0 and 8.0 Ma (Sections 572A-8,CC through 572D-7,CC) and between about 10.0 and 12.2 Ma (Section 572D-11,CC through Section 572D-18,CC). Both of these intervals are characterized by high sediment accumulation rates (50 and 73 m/m.y., respectively) and presumably reflect periods of high siliceous productivity. Site 158 to the east contains coeval intervals dominated by *Thalassionema* and *Thalassiothrix* (Bukry and Foster, 1973) and high sediment accumulation rates (Keller et al., 1982). As at Site 158, calcium carbonate dissolution is severe during these intervals (see the section on planktonic foraminifers). It has been suggested that these intervals correspond to periods of expanded Antarctic glaciation (Keller et al., 1982), which may have increased both gyral circulation and the upwelling in the eastern equatorial Pacific. The enhanced production of Antarctic Bottom Water during these periods may have caused the calcium carbonate dissolution (Keller and Barron, 1983).

Benthic Foraminifers

Benthic foraminifers are present throughout the cores, although they are never abundant. They are well preserved except in the intervals from Sections 572-1,CC to 572A-5,CC and from Sections 572D-2,CC to -5,CC. The benthic foraminifers in the intervals from Sections 572C-6,CC to -8,CC and -10,CC to -12,CC are insufficient for study.

The diversity of the benthic foraminiferal fauna is generally high (about 50 to 60 species per 200 individuals), as is usually the case with deep-sea assemblages (Douglas and Woodruff, 1981). Rotaliid forms are much more numerous than rectilinear forms. Miliolids and agglutinated forms constitute less than 15% of the fauna in all samples, but they are present in most samples. The hyaline genera *Epistominella, Gyroidinoides*, and *Oridorsalis* (all known to be resistant to dissolution) are the most common, together with *Cibicidoides*. Other common constituents are *Globocassidulina subglobosa, Melonis (M. barleeanus* group), and *Pullenia*. Relative abundances fluctuate considerably. High abundances of *Epistominella, Nuttallides*, and (less obviously) *Gyroidinoides* and *Oridorsalis* are correlated with levels of high dissolution of planktonic foraminifers.

The faunas in the lower part of the cored interval (Section 572D-25,CC downward) are the most diverse. Several species are found in this interval only (e.g., *Heronallenia lingulata, Vulvulina spinosa, Favocassidulina subfavus*, and *Bolivina striatula*). The last of these species appears at other sites (573 to 575) in sediments dated between 15.5 and 18.7 Ma.

Sections 572C-15,CC and 572A-14,CC are characterized by a large relative abundance of *Uvigerina. Cibicidoides* is present in larger numbers than average at about the same level, and *Globocassidulina* shows a small peak. Above this level *Cibicidoides* is less common than in the lower part of the cored section. These changes in the benthic fauna occur in the upper part of planktonic foraminiferal Zone N17, just below the Miocene/Pliocene boundary, and they can be dated at about 5.5 Ma.

SEDIMENT ACCUMULATION RATES

The estimated sedimentation rates for Site 572 show considerable variation (Fig. 10, Table 3). The rates from about 12 to 15 Ma (middle Miocene) are relatively high, with an average sedimentation rate of about 60 m/m.y. Before 12 Ma the rate decreases to 13 m/m.y., and it re-

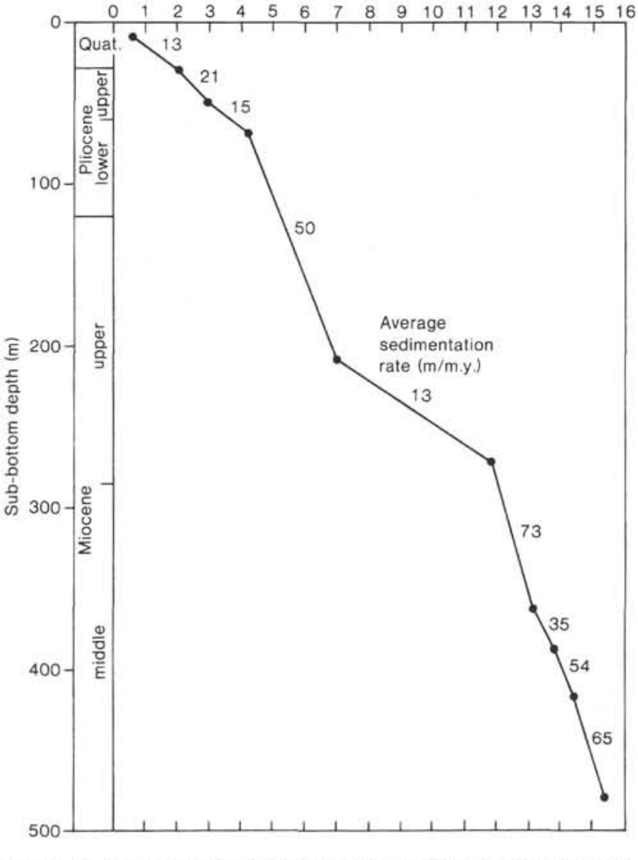


Figure 10. Age versus depth in hole based on biodatums at Site 572.

Table 3. Sedimentation rates and carbonate and noncarbonate mass accumulation rates at Site 572.

Sub-bottom depth (m)	Age (Ma)	Sedimentation rate (m/m.y.)	Mean dry bulk density (g/cm^3)	Mean $CaCO_3$ (%)	Mean mass accumulation rate ([g/cm^2]/1000 yr.)		
					Total	$CaCO_3$	Non $CaCO_3$
9.5	0.55						
		13	0.57	79	0.74	0.58	0.16
29.0	2.0						
		21	0.61	73	1.28	0.93	0.35
49.0	2.95						
		15.2	0.70	75	1.0	0.80	0.2
68.0	4.2						
		50.0	0.72	73	3.6	2.6	1.0
208.0	6.95						
		13	0.84	74	1.1	0.8	0.3
272.0	11.8						
		73	0.60	66	4.4	2.9	1.5
360.0	13.0						
		35	0.89	76	3.2	2.4	0.8
388.0	13.8						
		54	0.89	77	4.6	3.6	1.1
415.0	14.3						
		65	0.92	76	5.9	4.5	1.4
480.0	15.3						

mains low to about 7 Ma, when the sedimentation rate increases to about 50 m/m.y. This high rate persists into the early Pliocene until about 4.2 Ma, when the sedimentation rate decreases to about 15 m/m.y. The sedimentation rate in the early Pliocene may be as high as 70 m/m.y.; early Pliocene diatom zones are found in more than 20 m of section. A lower sedimentation rate of first 15 m/m.y. and then 21 m/m.y. is found in the upper Pliocene; the rate decreases to 13 m/m.y. during the Pleistocene. For further discussion and an update see Barron et al. (this vol.).

The proportion of sediment made up of calcium carbonate varies inversely with sedimentation rate; the relationship suggests that increased noncarbonate deposition dilutes the calcium carbonate (the amount of nonbiogenic material in the sediments recovered at Site 572 is low, so noncarbonate sediment is assumed to be dominated by biogenic silica). However, the mass accumulation rate data show that the accumulation of carbonate and noncarbonate sediments vary together (Table 3; Fig. 11). In the upper 100 m, noncarbonate accumulation rates decrease between times of high accumulation rates and succeeding periods of lower rates by a factor of five, as compared with a threefold decrease in calcium carbonate accumulation. Thus, the inverse relationship between sedimentation rate and calcium carbonate content reflects dilution and does not show the true nature of the changes in calcium carbonate sedimentation.

There are three intervals of relatively high accumulation of noncarbonate (siliceous) sediments at Site 572: 4 to 7, 12 to 13, and 14 to 15 Ma. The youngest interval, 4 to 7 Ma, coincides with the period when Site 572 (and Site 81) crossed the equator (Leinen, 1979); thus, the increase in the accumulation of silica and carbonate may be due to the maximum surface productivity at the equator. The interval from 12 to 13 Ma is about 1 Ma older than the peak in biogenic silica accumulation that Leinen (1979) found took place in the equatorial Pacific during the Neogene. The age difference may reflect a difference between the time scale used in this report and that used by Leinen (1979). The oldest interval of high noncarbonate accumulation rate at Site 572, 14 to 15 Ma, is not visible as a peak in a curve of average equatorial Pacific silica accumulation, but a peak in silica accumulation exists at certain sites in the Pacific. The peak in carbonate accumulation rate at 14 to 15 Ma is consistent with the pattern of carbonate deposition defined by van Andel et al. (1975) for the equatorial Pacific. However, at this particular site the increased accumulation in the lower part of the section may be related to the proximity of the site to a spreading center.

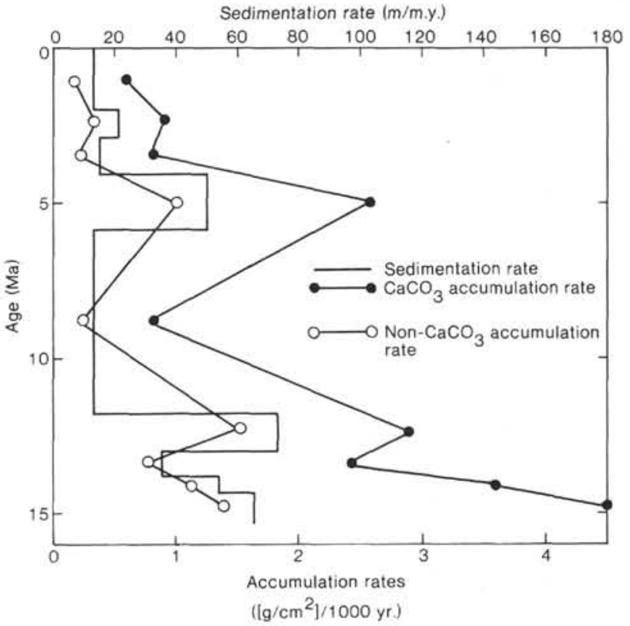


Figure 11. Sedimentation rate and average mass accumulation rates for carbonate and carbonate-free sediments at Site 572.

Except in one interval, the relationship between the mass accumulation rates of carbonate and noncarbonate is nearly linear (Fig. 12). The exceptional interval is the peak in noncarbonate accumulation from 12 to 13 Ma. The increased accumulation of noncarbonate (presumably silica) during this interval may reflect the increased preservation of the silica, however. The general pattern of noncarbonate and carbonate accumulation suggests that the accumulation of both responds similarly to regional oceanographic change. See Theyer et al. (this vol.) for an updated discussion of mass accumulation rates.

PHYSICAL PROPERTIES

The physical properties measured for this site included wet-bulk density (ρ_b), sonic velocity (V_p), formation factor (F), thermal conductivity (K), and shear strength. In the VLHPC-cored section, measurements were made at regular intervals except where the sediment was disturbed. In the rotary-drilled sections, measurements were made only in selected, undisturbed parts of the core instead of at regular intervals. Data collection techniques are given together with pertinent references in the Introduction (this vol.).

The data for Site 572 are plotted versus depth in Figures 13 to 17. There is no profile of shear strength, because only occasional values were calculated. These values are 700, 222, 514, and 152 g/cm^2 for depths of 166.5, 206.80, 207.39, and 281.21 m, respectively.

Long depth intervals were almost totally unsampled at this site because of the effects of drilling disturbance. The absence of sampling accounts for the sparsity of data in some parts of the profiles (Figs. 13 to 17). The data for depths between 165 and 350 m should be interpreted with the knowledge that although this interval appeared to be undisturbed, it may have undergone some disaggregation and have been subject to the addition of water during drilling. However, in similar piston- and rotary-cored sections acquired in holes about 50 km apart in the Panama Basin (Leg 69), the data trends and maximum and minimum values were approximately the same; thus, data similar to those collected at Site 572 appear to be reliable. Below 350 m, in Hole 572D, the sediment was consolidated enough to preserve sections intact.

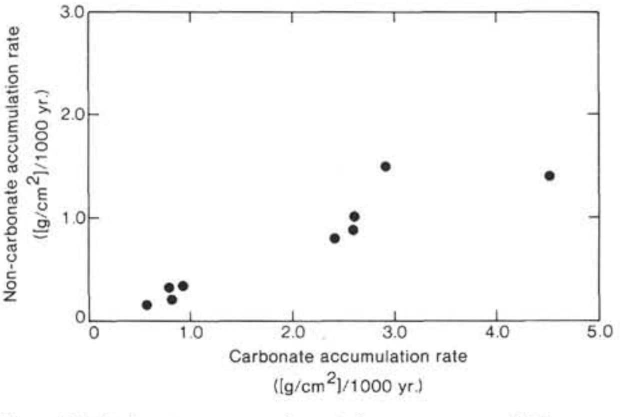


Figure 12. Carbonate versus carbonate-free mass accumulation rates at Site 572.

Within the VLHPC part of this section, sonic velocity (Fig. 13) is the most constant of the parameters measured, ranging between 1.52 and 1.56 km/s, with a slight gradient (0.2 per s) between 50 and 100 m. The uniformity of the sonic velocity data indicates that the variations in acoustic impedance are due almost entirely to the variations in wet-bulk density (Fig. 14), since impedance, Q, is the product of density (ρ_b) and velocity (V_p). The wet-bulk density (Fig. 14) varies between 1.2 and 1.6 g/cm^3, with a scatter of approximately 0.1 g/cm^3 locally. The wet-bulk density data and the carbonate-content data (Fig. 6) are similar, with high wet-bulk density corresponding to high carbonate content. The similarity of the curves is probably due to the high grain density of carbonate compared with that of biogenous silica and the fact that the calcareous nannofossils pack together more closely than the siliceous tests, which have a generally more open structure. Thus, lower grain densities correspond to higher porosities. It is interesting to note that the carbonate data support the density maximum at 140 m and the broad maximum at 240 m in the region of disturbed coring.

The porosity of the sediment decreases gradually with depth (Fig. 15) and complements the wet-bulk density profile (Fig. 14). From 0 to 180 m the values vary between 80 and 65%, from 200 to 340 m between 75 and 60%, and for the final 100 m of the hole between 70 and 55%.

The formation factor (Fig. 16) varies approximately between 1.2 and 2.0 for the first 160 m, 1.8 and 2.0 between 200 and 300 m, and between 1.8 and 2.5 for the last 50 m of the hole. Thermal conductivity (Fig. 17) increases gradually with depth, the initial values ranging between 2.4 and 3.0 (mcal/cm · s · °C) for the remainder of the section. The formation factor and thermal conductivity curves exhibit weak local minima at 100 m and maxima at 140 to 150 m. These features approximately correspond to a porosity maximum at 110 m and a porosity minimum at 140 to 150 m; the coincidence of the features illustrates the effect of water content on formation factor and thermal conductivity in soft sediments.

Toward the bottom of the section, where the recovered material has changed from ooze to chalk, all the parameters exhibit uniformity down to a depth of 400 m. At that depth all measurements indicate a change in the properties of the sediment. The decrease in porosity (from 60 to 55%) indicates compaction and lithification (i.e., an increase in grain-to-grain contact area). Compaction is also illustrated by the velocity increase from 1.6 to 1.8 km/s for the depths between 360 and 460 m.

PALEOMAGNETISM

The shipboard paleomagnetic analysis of Site 572 was complicated by the following factors:

1. Viscous components of magnetization appeared to be present in the samples from the Brunhes Normal Epoch. The problem was compounded by the possibility that chemical overprinting during sediment diagenesis had destroyed the primary magnetization.

2. The intensities of nearly all samples were low (below 1.0×10^{-6} G); 40% of the samples showed intensities of 1.0×10^{-8} G. The latter intensities required 2^8

spins and are in the range of the noise level of the onboard spinner magnetometer, precluding AF demagnetization experiments.

3. The absence of an azimuthal orientation of the HPC cores prevented us from orienting the different cores with respect to one another (see Introduction).

Because of these problems, no magnetostratigraphy was determined on board for this site (see Weinreich and Theyer, this vol.).

INTERSTITIAL-WATER CHEMISTRY

Shipboard pore-water analyses were conducted on two types of samples from Site 572: 20-cm lengths of the split core and 5-cm lengths of the whole core. The whole-core samples proved to be much more reliable.

Profiles of the variation of alkalinity and the concentration of calcium and magnesium with increasing depth show several trend reversals (Fig. 18). The reversals are probably related to diagenetic reactions and variations in the rate of sediment accumulation. Overall, calcium and magnesium decrease gradually to minimum values, then increase steadily toward the basement. Alkalinity displays an opposing trend—it gradually reaches a maximum value, then decreases toward the bottom of the hole.

The increase in strontium content with increasing depth suggests that calcite recrystallization has occurred. Concentrations steadily increase to a maximum near 350 m; they then abruptly decrease toward the base of the sedimentary section.

Samples from Hole 572 were allowed to sit at room temperature for up to 10 hr. before the interstitial water was analyzed. There is clear evidence that chemical reactions occurred during this waiting period. Evaporation is indicated by the higher chlorinity values for all samples from Hole 572. Values of pH are higher, and those of alkalinity and calcium are lower than in samples refrigerated immediately after the core arrived on deck. These differences in concentration are attributed to precipitation of calcium carbonate during storage at higher temperatures.

SUMMARY AND CONCLUSIONS

Site 572, which was located in 3900 m of water at the eastern edge of the equatorial high productivity zone, was drilled to acquire an expanded sequence of uppermost Miocene, Pliocene, and Pleistocene biogenous sediments. This site is just a few miles from DSDP Site 81, where the drilling (which was confined to one hole) recovered only the uppermost and lowermost few meters of the sediment section. Five holes were drilled at Site 572; the hydraulic piston coring used in the upper 170 m resulted in continuous recovery, and the rotary coring used in the bottom 310 m of the section resulted in nearly continuous recovery. A more detailed drilling summary follows.

In Hole 572, one HPC core was obtained in an unsuccessful attempt to establish the mudline.

In Hole 572A, 17 HPC cores were obtained. Total penetration was 154.1 m, and recovery was 99%. Coring stopped when the HPC was lost in the hole as the result of excessive pullout force (60,000 lb.).

In Hole 572B, four 5-m hydraulic piston cores were obtained. The coring began at the depth at which Hole 572A terminated (154.1 m) and ended at 172.1 m sub-bottom, where excessive pullout force forced an end to the coring. Total penetration was 18.1 m, with 100% recovery.

In Hole 572C, 20 HPC cores penetrated from the mudline to 168.5 m sub-bottom with 95% recovery. This hole, which represented the second coring of the upper part of the sedimentary section, was drilled to ensure continuous recovery.

In Hole 572D, 34 rotary cores were acquired. Drilling started at 151.0 m sub-bottom and penetrated 334.5 m, for a final sub-bottom depth of 485.5 m. Recovery at this hole was 81%; basement was encountered at 479.5 m sub-bottom, and Core 34 recovered 28 cm of basalt.

Lithology

The 479.5-m sedimentary section consists of laminated and burrow-mottled siliceous calcareous oozes to siliceous nannofossil oozes that grade to siliceous nannofossil chalks. The oozes and chalks have been assigned to a single lithologic unit. A second unit (metalliferous chalk) was defined as the result of the correlation of a small sample with the lithology defined for Site 81. Color varies cyclically throughout the sediment section, and the dominant colors were used to divide the first unit into four subunits. The subdivisions are lithologically arbitrary; sediment color does not appear to be directly related to texture or microfossil composition. The sedimentary units can, however, be recognized in all five holes, and they can be correlated with the oceanic formations defined for Site 81.

Lithologic Units

Unit I: Cyclic Siliceous Calcareous Ooze Chalk (0 to 464.50 m)

Subunit IA

Subunit IA consists of gray brown foraminiferal diatom nannofossil ooze to foraminiferal siliceous nannofossil ooze. It occurs from 0 to 2.35 m.

The average carbonate content of this subunit is 77%. The subunit corresponds to the cyclic unit of the Clipperton Oceanic Formation described by the scientists of DSDP Leg 9.

Subunit IB

Subunit IB consists of varicolored diatom nannofossil oozes to foraminiferal radiolarian nannofossil oozes and siliceous nannofossil oozes that are Quaternary to late Pliocene in age. It occurs from 2.35 to 37.45 m and contains purple, light gray, and yellow bands that are between 5 and 25 cm thick.

The average carbonate content of the subunit is 77%. Bioturbation is common; occasional burrow fillings have high pyrite content (30%) and elongate pyrite rods. This

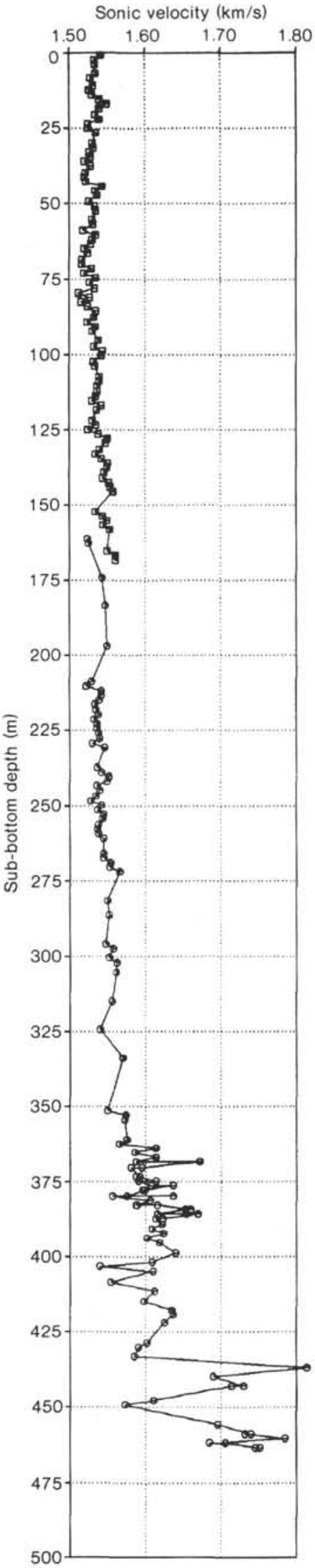


Figure 13. Sonic velocity plotted versus depth for Site 572. Profile is a composite of data from Holes 572C (squares, cored by HPC) and 572D (circles, rotary drilled).

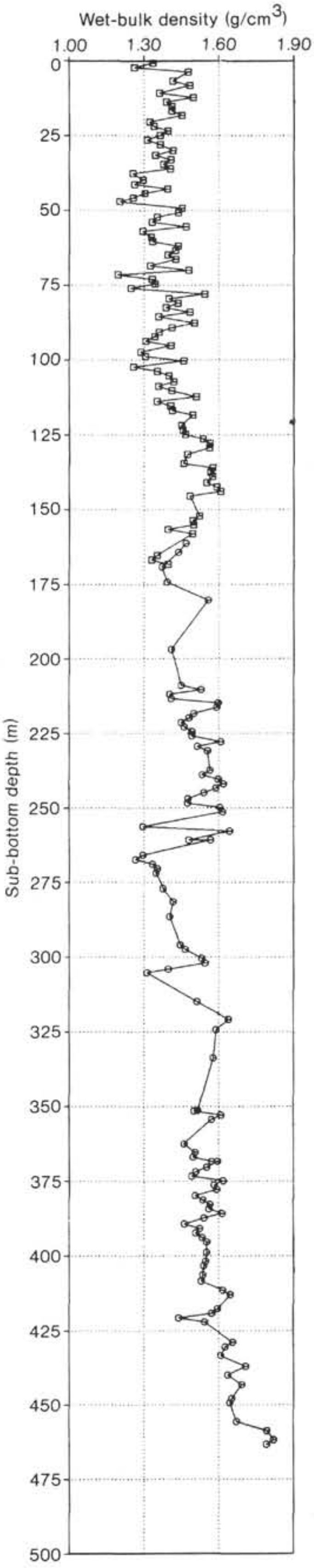


Figure 14. Wet-bulk density plotted versus depth for Site 572. Profile is a composite of data from Holes 572C (squares, cored by HPC) and 572D (circles, rotary drilled).

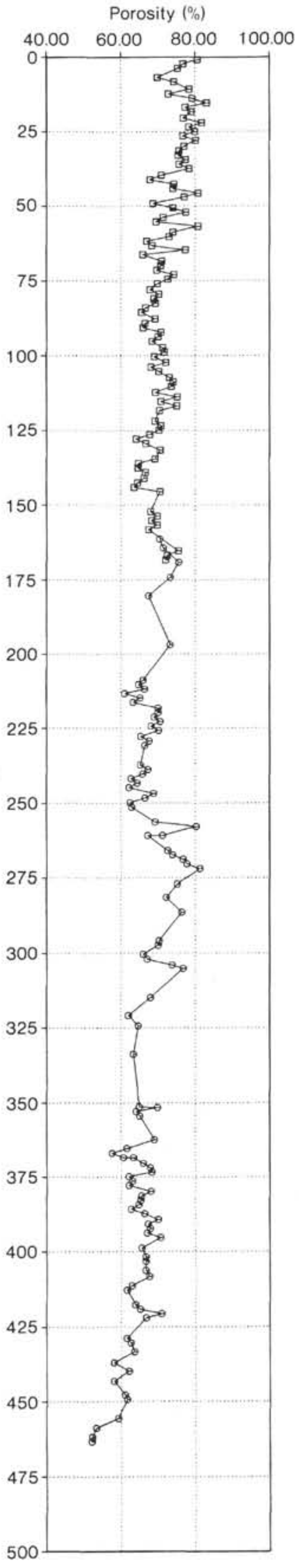


Figure 15. Porosity plotted versus depth for Site 572. Profile is a composite of data from Holes 572C (squares, cored by HPC) and 572D (circles, rotary drilled).

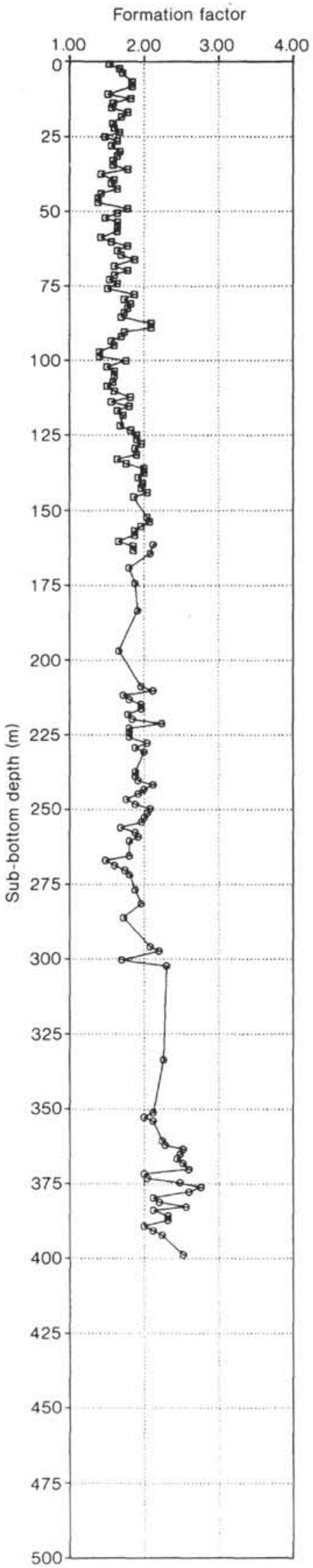


Figure 16. Formation factor (horizontal) plotted versus depth for Site 572. Profile is a composite of data from Holes 572C (squares, cored by HPC) and 572D (circles, rotary drilled).

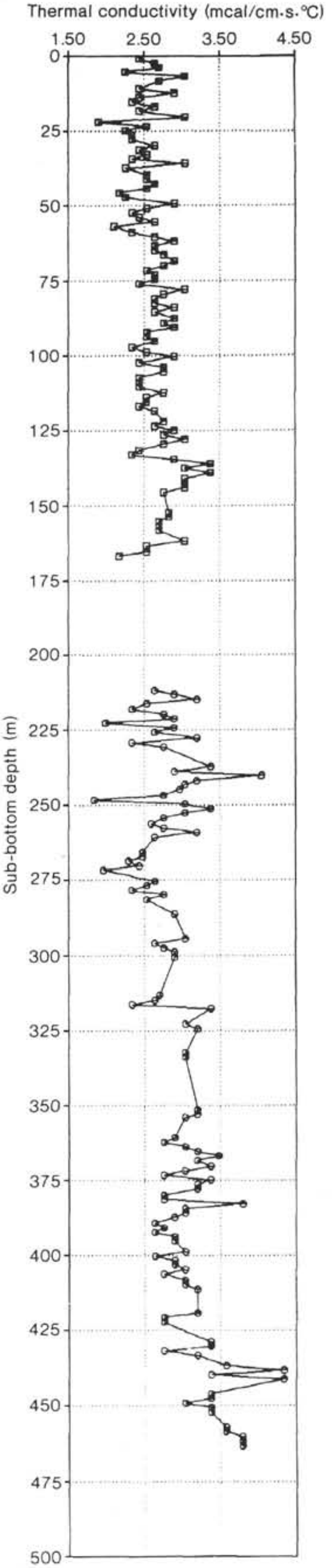


Figure 17. Thermal conductivity (uncorrected for temperature) plotted versus depth for Site 572. Profile is a composite of data from Holes 572C (squares, cored by HPC) and 572D (circles, rotary drilled).

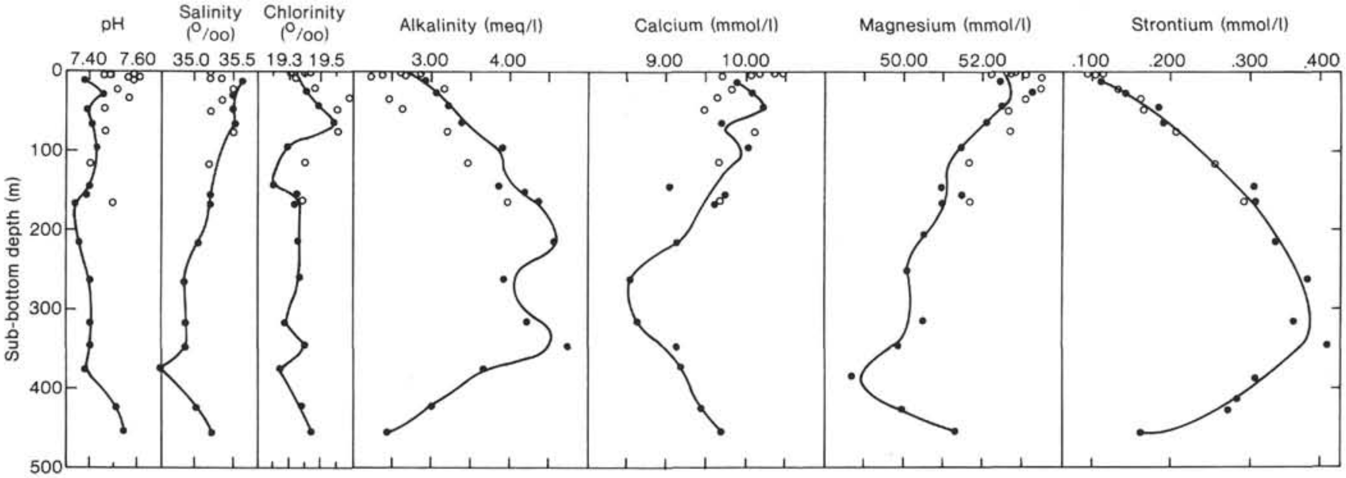


Figure 18. Interstitial-water chemistry, Site 572. Open circles are samples from Hole 572; solid circles are samples from all other holes.

subunit corresponds to the varicolored unit of the Clipperton Oceanic Formation described during DSDP Leg 9.

Subunit IC

Subunit IC consists of green varicolored ooze chalk that is late Pliocene to middle Miocene in age. It occurs from 37.45 to 458.75 m. The color varies between purple, light gray, yellow, and green; the variation is cyclic in the upper part of the subunit.

The chalk-ooze transition occurs within this subunit between 293.5 and 367.5 m. Within this interval there are alternating zones of stiff friable material and ooze. The material deeper than 367.5 m is consistently chalk and had to be split with a rock saw. There are well-preserved burrow structures in this unit, with excellent examples of the ichnogenera Chondrites, Planolites, and Zoophycos. From 37.45 to 293.5 m the unit consists of diatom nannofossil to siliceous nannofossil oozes, with an occasional discrete layer of nannofossil diatom ooze. From 293.5 to 367.5 m, siliceous nannofossil and diatom nannofossil oozes alternate with siliceous nannofossil and diatom nannofossil chalks; within this interval there are several small, green, banded chert fragments. Below 367.5 m, the subunit is composed of foraminiferal siliceous nannofossil chalk and foraminiferal radiolarian diatom nannofossil chalk. This lower part of the subunit, which is predominantly green in color, contains discrete layers of bright green diatomites and several laminated chert horizons 3 to 4 cm thick. The subunit has an average carbonate content of 72%; it corresponds to the San Blas Oceanic Formation described during DSDP Leg 9.

Subunit ID

Subunit ID consists of yellow chalk that is lowermost middle Miocene in age. It occurs from 458.5 to 464.5 m. The lowest sample is pale yellow and yellowish green siliceous foraminiferal nannofossil chalk. The burrow structures, which include Chondrites, Planolites, and Zoophycos, are well preserved.

Unit II: Metalliferous Chalk (464.5–? m)

The lowermost sample at Site 572 contains common pyrite (5%) and iron oxides (10%). We believe that the sedimentary unit to which the sample belongs overlies the basement, as it did at Site 81, and that the unit's lithology has probably been affected by interaction with hydrothermal fluids and basalt. The average carbonate content of this unit is 76%; Unit II and Subunit ID correspond to the Line Islands Oceanic Formation described by the scientists of DSDP Leg 9.

Carbonate Content

The entire sediment section is characterized by the cyclic alternation of intervals of high (80 to 90%) and low (45 to 65%) carbonate content. Many of these variations can be tied into previously established equatorial carbonate stratigraphies.

Biostratigraphy

At Site 572 a continuous sequence from the upper Pleistocene (0.22 Ma) through the lowermost middle Miocene (about 15 Ma) was sampled. Holocene and uppermost Pleistocene sediments were not recovered (they were probably lost in the coring process); the extinction of *Globoquadrina pseudofoliata* indicates that the youngest sediment cored is 0.22 Ma or older. The Pliocene/Pleistocene boundary is marked by the extinction of the foraminifers *Globigerinoides obliquus*, the nannofossil *Discoaster brouweri*, and the radiolarian *Pterocanium prismatium*. The first appearance of *Globorotalia tumida* and the disappearance *Globoquadrina dehiscens* mark the Miocene/Pliocene boundary. The oldest sediment recovered contains nannofossils of the *Sphenolithus heteromorphus* Zone, planktonic foraminifers of the N9 Zone, radiolarians that can be assigned to the *Dorcadospyris alata* Zone, and diatoms of the *Cestodiscus peplum* A Subzone. We have assigned an age of earliest middle Miocene (about 15 Ma) to this sediment.

All the major microfossil groups are represented at Site 572. Siliceous microfossils are common to abundant throughout the section. The abundance of calcareous microfossils depends on the degree of carbonate dissolution. Calcareous microfossils are abundant and well preserved throughout the Pliocene and Pleistocene. An abrupt change in preservation takes place at approximately 150 m sub-bottom (upper part of the upper Miocene, about 6 Ma). From that level down to the lowermost part of the section (435 m, middle Miocene), calcareous microfossils are represented by solution-resistant forms only, with particularly high dissolution indices at approximately 6.1 and 11 Ma. Well-preserved assemblages reappear in the deepest three cores in the section (436 to 464.5 m, middle Miocene, 14 to 15 Ma).

Radiolarians are well preserved throughout the section. Diatoms show good preservation above 365 m sub-bottom (13.3 Ma) but generally poor to moderate preservation below that level. High percentages of the upwelling diatoms *Thalassionema nitzschioides* and *Thalassiothrix longissima* dominate the intervals from 4.0 to 8.0 Ma (62 to 226 m) and 10.0 to 12.2 Ma (255 to 322 m). These intervals correspond to periods of high sedimentation rate, and they are characterized by severe carbonate dissolution.

Sedimentation Rate

The sedimentation rates at Site 572 are variable, and, in some intervals, remarkably high.

Shipboard physical property and carbonate analyses were used to calculate carbonate and noncarbonate mass accumulation rates. There is an inverse relationship between carbonate content and sedimentation rate; the inference is that carbonate was diluted during periods of high sedimentation rate. Comparisons of carbonate and noncarbonate accumulation rates reveal that when accumulation rates shift from low to high, the carbonate accumulation rate increases by a factor of three while the noncarbonate (biogenous silica) rate increases by a factor of five. The three intervals with a relatively high noncarbonate accumulation rate can be tentatively correlated with the passage of the site across the equator (4 to 7 Ma); an equatorial Pacific–wide interval of very high biogenic silica accumulation (12 to 13 Ma); and an interval characterized by a higher than usual silica accumulation rate (14 to 15 Ma) that affected more localized portions of the Pacific. A maximum carbonate accumulation rate at 14 to 15 Ma is consistent with previously established trends for the equatorial Pacific.

Although the initial analysis of the sedimentation rate curves suggests that sedimentation was continuous, the data may also be interpreted as indicative of three short hiatuses (at 120, 360, and 425 m sub-bottom). See Barron et al. (this vol.) and Theyer et al. (this vol.) for updated and more detailed discussions.

Paleomagnetism

Numerous paleomagnetic samples were taken on cores from all five holes at Site 572, but interpretation was virtually impossible because of the extremely low intensities measured. Compounding the problem of interpreting the low intensities was the apparent acquisition of viscous components of magnetization in samples from the Brunhes Normal Epoch and the overprinting of primary information by chemical alteration.

Interstitial-Water Chemistry

Calcium ion concentration and alkalinity show a roughly opposed trend overall, although they show a similar trend between 230 and 350 m sub-bottom. An increase in alkalinity at 140 to 220 m coincides with the occurrence of an H_2S odor, an increase in the abundance of pyrite, high sedimentation rates, and numerous diatom-rich layers. These observations suggest the rapid deposition of organic-carbon-rich material and the depletion of oxygenated interstitial water by microbial combustion.

Physical Properties

Thermal conductivity, electrical resistivity, and sonic velocity were measured on Site 572 cores. Samples were taken for the shipboard calculation of wet-bulk density, grain density, water content, and porosity. The values appear to be reliable except for those for the interval between 165 and 350 m—an interval too deep for the HPC and yet not indurated enough to be drilled without significant disturbance.

Sonic velocities are almost constant with increasing depth (ranging from 1.52 to 1.56 km/s) down to about 360 m; the variations in acoustic impedance are thus due primarily to the substantial variations in wet-bulk density (1.2 to 1.6 g/cm^3). Wet-bulk density variations correlate with changes in the sediment's percentage of calcium carbonate; the inference was drawn that the intervals characterized by high carbonate content (and high wet-bulk density) were dominated by dense, closely packed calcareous nannofossils and that the intervals characterized by low carbonate were dominated by less dense, loosely packed, biogenous silica. The variations in grain density support this interpretation. The formation factor and thermal conductivity curves show a maximum at 140 to 150 m sub-bottom that is correlated with a porosity minimum and a carbonate maximum. Deeper than about 400 m, all the physical properties except grain density exhibit an abrupt change. An increase in wet-bulk density and sonic velocity without a concurrent increase in grain density or carbonate content suggests that this part of the section is affected by diagenesis.

The seismic section at Site 572 is highly stratified throughout. The stratification is consistent with the presence of cyclic variations in wet-bulk density.

Site Migration and Subsidence History

The history of the migration and subsidence of Site 572 (and Site 81) is complicated by the possibility that a fossil ridge once ran between 5°N and the equator at about 115°W. The migration of the site depends on the existence and the time of extinction of this ridge crest; Site 572 may have participated in the motion of two successive plates (Cocos and Pacific). Uncertainties in the interpretation of the magnetic anomalies and topographic features of the area make it difficult to resolve whether the extinct ridge existed or not. In the following discussion we assume that the migration track calculated by van Andel et al. (1975) for Site 81 applies to Site 572 as well. Fortunately, these sites are relatively young, so the latitudinal errors that would result from miscalculating their paths are minimal.

The crust upon which Site 572 sits was generated approximately 16 Ma at about 2°30′S and a depth of 3200 m. The shallow initial depth and low latitude of the site explain the extremely high sedimentation and carbonate accumulation rates during the period between 16 and 14 Ma. The dominance of the accumulating sediment by the carbonate component indicates moderate productivity with diminished dissolution of carbonate. This high carbonate accumulation rate occurs in a period for which van Andel et al. (1975) reported a relatively low carbonate accumulation rate and a shallow CCD. The dissolution index for the oldest samples is moderate; it increases for sediments dated between 15 and 13.5 Ma, which were deposited as the site sank about 130 m. At about 13.5 Ma there was a small decrease in the accumulation rate of noncarbonate (biogenous silica), a decrease associated with a parallel but more pronounced decrease in the accumulation of carbonate. The decrease in the accumulation of carbonate is probably an effect of increased depth.

From approximately 13.0 to 11.8 Ma (3330 to 3430 m paleodepth, 1°53′S to 1°24′S paleolatitude), there is a large increase in the noncarbonate accumulation rate. This increase is associated with the presence of diatoms that are indicative of upwelling, a small increase in the carbonate accumulation rate, a decrease in carbonate content, and a high dissolution index. We interpret these factors to represent a time of very high productivity; the abundance of organic matter results in steep dissolution rate gradients and enhanced dissolution. The low carbonate content results from increased dissolution and dilution by biogenous silica.

From approximately 11.8 to 9 Ma, there is a sharp drop in both the carbonate and noncarbonate accumulation rates, as well as a decline in the abundance of upwelling diatoms. During this time period, the site sank from 3430 to 3680 m and migrated from 1°24′S to 0°21′S. Despite the deepening of the site and its proximity to the equator, there is evidence that carbonate dissolution decreased and that productivity also decreased.

Site 572 crossed the equator in the time period from 7 to 4 Ma (3678 to 3800 m paleodepth, 0°21′S to 0°24′N paleolatitude). The crossing is characterized by an increase in noncarbonate accumulation, with a proportional increase in carbonate accumulation. The resulting noncarbonate accumulation rate is significantly less than that of the period from 13.0 to 11.8 Ma, while the carbonate accumulation rate is equal to that for 13.0 to 11.8 Ma. The abundance of upwelling diatoms increases again, and there is a short interval (7 to 6.3 Ma) of elevated dissolution index, but for most of the interval the dissolution index is low and carbonate percentages are high (although slightly less than in the preceding period). Productivity has increased again, although not to the same degree as in the period from 13.0 to 11.8 Ma. The result is high carbonate and noncarbonate accumulation rates without the increased dissolution apparent between 13.0 and 11.8 Ma

From 4 Ma to the Pleistocene (3800 to 3900 m paleodepth, 0°24′N to 1°26′N paleolatitude), both carbonate and noncarbonate accumulation rates decrease, and as a result both carbonate preservation and content increase. We interpret these characteristics to be indicative of a period of relatively low productivity, slow accumulation, and enhanced carbonate preservation.

We have constructed a preliminary sedimentation model for Site 572 from a cursory evaluation of the accumulation rate curves and an examination of the site's depth and latitudinal migration. (See Theyer et al., this vol., for an update.) From 0 to 11.5 Ma and between 13 and 13.5 Ma, the carbonate and noncarbonate accumulation rates vary proportionally. During periods of low noncarbonate accumulation (low productivity), sedimentation rates are low, and the dilution and dissolution of carbonate material are also low; as a result, carbonate content is high. When productivity increases, sedimentation rates increase, and preservation and carbonate content decrease slightly. During two periods of time, however, the carbonate and noncarbonate accumulation rate curves vary disproportionately. From 11.8 to 13.0 Ma, the noncarbonate accumulation rate increases much more than the carbonate accumulation rate, with a concurrent large decrease in carbonate preservation. We interpret this to be the result of increased dilution by biogenous silica and enhanced dissolution from excess organic matter. From 13.0 to 15 Ma, the carbonate accumulation rate greatly exceeded the noncarbonate rate. This is attributed to the enhanced preservation of carbonate at the shallow depth of the site during that time.

A basic premise of this model is that the noncarbonate accumulation rate is a measure of productivity. This assumption is based on the presence of diatom species that are indicative of upwelling during times of high noncarbonate accumulation, the parallelism of the carbonate and noncarbonate accumulation rate curves, and the conclusion that the noncarbonate component is dominated by biogenous silica. Other mechanisms may be at work, but their determination and the investigation of their causes and relationships will have to await more detailed studies.

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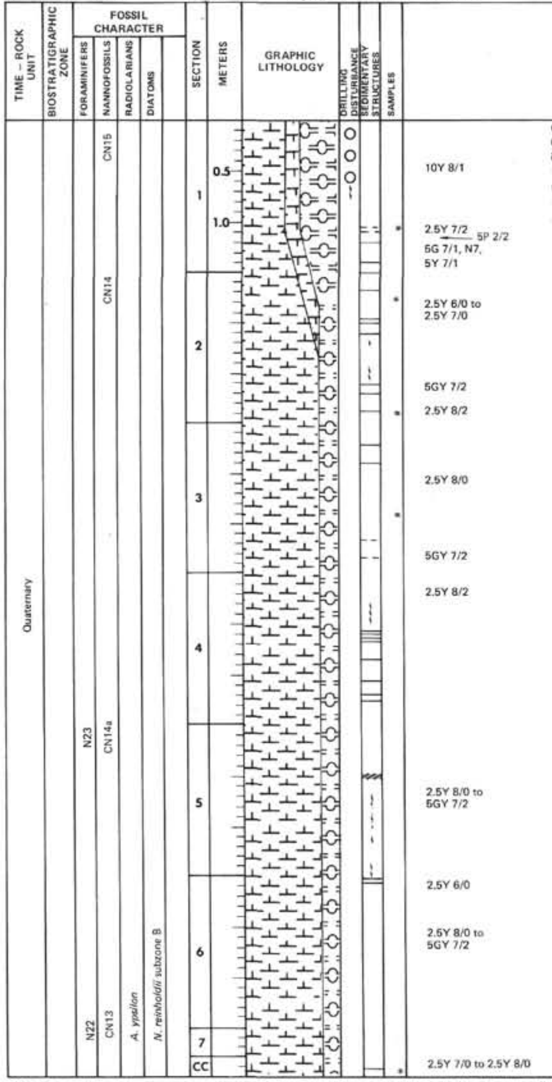
SITE 572 HOLE CORE 1 CORED INTERVAL 0.0–9.5 m



LITHOLOGIC DESCRIPTION

GRAY/BROWN OOZE (SUBUNIT IA) (0.0–1.1 m): Cyclic alternation between dark gray (2.5Y 6/0), greenish-gray (5GY 7/2), and light gray (2.5Y 7/0–10Y 8/1) foram siliceous nanno ooze, in distinct color bands with sharp contacts.

VARICOLORED OOZE (SUBUNIT IB) (1.1–9.5 m): Cyclic alternation between greenish-gray (5GY 7/2), purple (5P 2/2), dark gray (2.5Y 8/0), and light gray (2.5Y 8/2) siliceous nanno ooze, in distinct color bands.

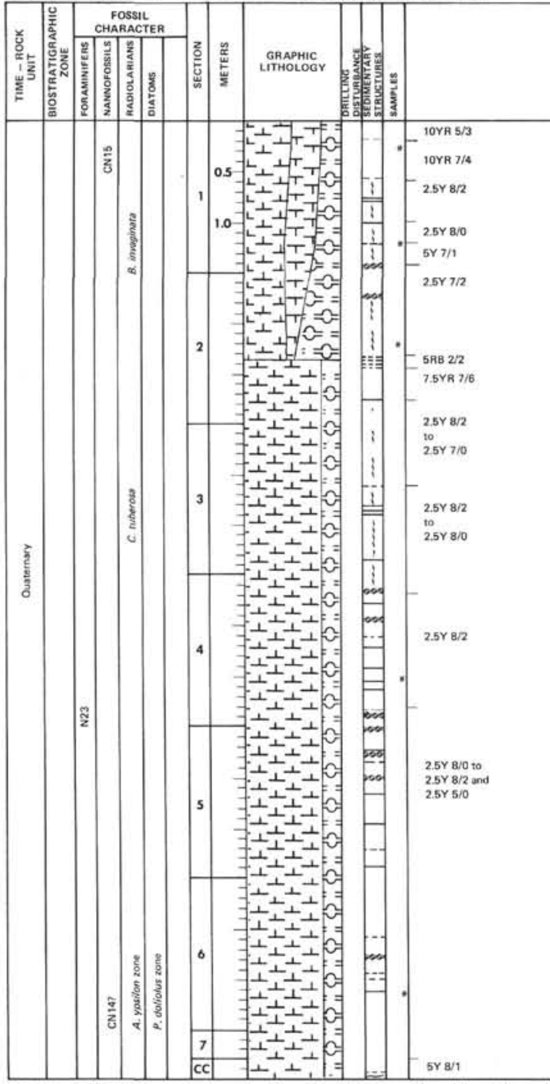
SMEAR SLIDE SUMMARY (%):

	1, 109	2, 30	2, 140	3, 95	CC
Texture:					
Sand	15	10	20	10	20
Silt	10	30	15	10	5
Clay	75	60	65	80	75
Composition:					
Volcanic glass	Tr	–	Tr	–	–
Carbonate unspec.	5	5	10	5	5
Foraminifers	15	15	5	5	20
Calc. nannofossils	40	60	70	75	70
Diatoms	15	5	10	5	Tr
Radiolarians	25	15	5	10	2
Sponge spicules	Tr	Tr	Tr	Tr	Tr
Silicoflagellates	Tr	Tr	Tr	Tr	Tr

CARBONATE BOMB:
1, 1 cm = 73%
1, 20 cm = 73%
1, 40 cm = 59%
1, 60 cm = 61%
1, 80 cm = 74%
1, 99 cm = 84%
1, 120 cm = 84%
1, 140 cm = 83%
2, 1 cm = 82%
2, 80 cm = 91%
3, 1 cm = 85%
3, 80 cm = 84%
4, 1 cm = 81%
4, 80 cm = 83%
5, 1 cm = 85%
5, 80 cm = 89%
6, 1 cm = 78%
6, 80 cm = 82%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE A CORE 1 CORED INTERVAL 0.0–9.5 m



LITHOLOGIC DESCRIPTION

GRAY/BROWN OOZE (SUBUNIT IA) (0.0–2.35 m): Cyclic alternation between brown (10YR 7/4) and gray (N3 to 5Y 7/1) foram siliceous ooze, in distinct color bands, with sharp contacts.

VARICOLORED OOZE (SUBUNIT IB) (2.35–9.5 m): Cyclic alternation between purple subunit (5P 2/2, N6, 5G 7/1), yellow subunit (2.5Y 8/4, 5Y 8/1), and light gray subunit (5B 9/1, N9–N7), siliceous nanno ooze to foram rad diatom nanno ooze, with sharp contacts. Individual color bands show evidence of burrow-mottling.

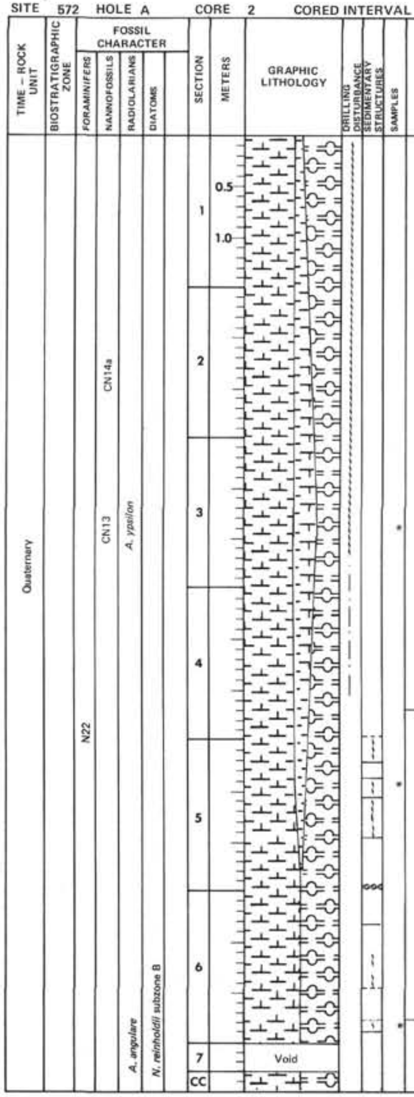
SMEAR SLIDE SUMMARY (%):

	1, 30	1, 125	2, 72	4, 106	6, 119
Texture:					
Sand	10	15	30	10	15
Silt	40	40	40	25	20
Clay	50	45	30	65	65
Composition:					
Volcanic glass	1	1	–	–	–
Carbonate unspec.	10	9	9	4	4
Foraminifers	15	9	15	9	15
Calc. nannofossils	50	45	30	65	65
Diatoms	15	25	30	9	5
Radiolarians	8	9	15	9	9
Sponge spicules	1	2	1	3	2
Silicoflagellates	Tr	Tr	Tr	1	Tr
Fish remains	–	–	–	–	Tr

CARBONATE BOMB:
1, 1 cm = 78%
1, 80 cm = 84%
2, 1 cm = 77%
2, 80 cm = 71%
3, 1 cm = 75%
3, 80 cm = 71%
4, 1 cm = 80%
4, 80 cm = 73%
5, 1 cm = 89%
5, 80 cm = 68%
6, 1 cm = 86%
6, 80 cm = 85%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE A CORE 2 CORED INTERVAL 9.5–19.0 m



2.5Y 8/0,
5B 9/1

5B 9/1

2.5Y 8/2
to
2.5Y 8/0

2.5Y 8/0,
5G 7/1

LITHOLOGIC DESCRIPTION

VARICOLORED OOZE (SUBUNIT IB):
Cyclic alternation between gray green to purple, yellow, and light gray to white burrow-mottled siliceous nanno ooze to foram rad diatom nanno ooze. Contacts between color bands are sharp.

Open burrows occur.

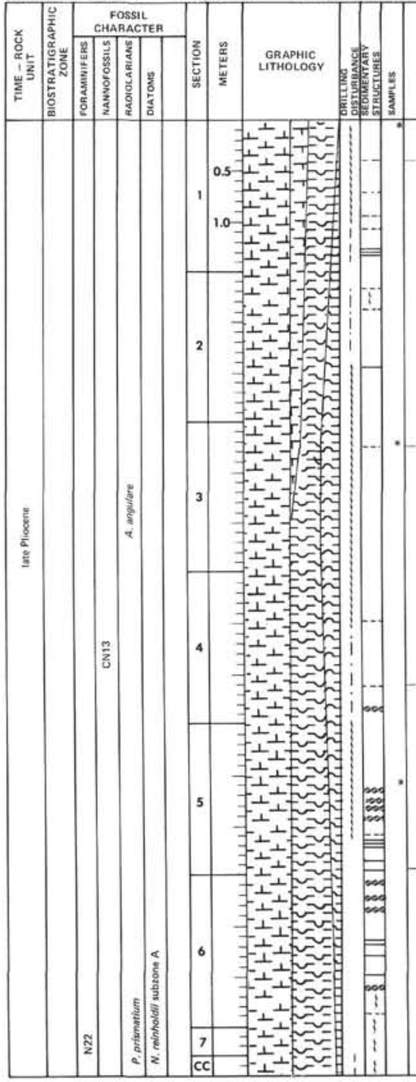
SMEAR SLIDE SUMMARY (%):

	3, 90	5, 43	6, 139
Texture:			
Sand	20	20	15
Silt	25	20	20
Clay	55	60	60
Composition:			
Volcanic glass	Tr	Tr	–
Carbonate unspec.	5	4	9
Foraminifers	15	9	9
Calc. nannofossils	55	55	60
Diatoms	12	15	5
Radiolarians	12	15	15
Sponge spicules	1	1	1
Silicoflagellates	Tr	1	1

CARBONATE BOMB:

1, 1 cm = 84%
1, 80 cm = 82%
2, 1 cm = 83%
2, 80 cm = 85%
3, 1 cm = 82%
3, 80 cm = 78%
4, 1 cm = 87%
4, 80 cm = 84%
5, 1 cm = 75%
5, 80 cm = 79%
6, 1 cm = 74%
6, 80 cm = 77%

SITE 572 HOLE A CORE 3 CORED INTERVAL 19.0–28.6 m



5B 9/1

2.5Y 7/0,
5GY 8/1

5P 7/2,
5GY 8/1

5GY 8/1,
2.5Y 7/0 to
2.5Y 7/2

2.5Y 7/0,
5Y 7/2,
5GY 7/1

LITHOLOGIC DESCRIPTION

VARICOLORED OOZE (SUBUNIT IB):
Cyclic variations in color between pale yellow, light gray to white, and purple to dark gray siliceous nanno ooze to rad diatom nanno ooze. Burrowing and color mottling are common. Contacts between color bands are sharp to gradational.

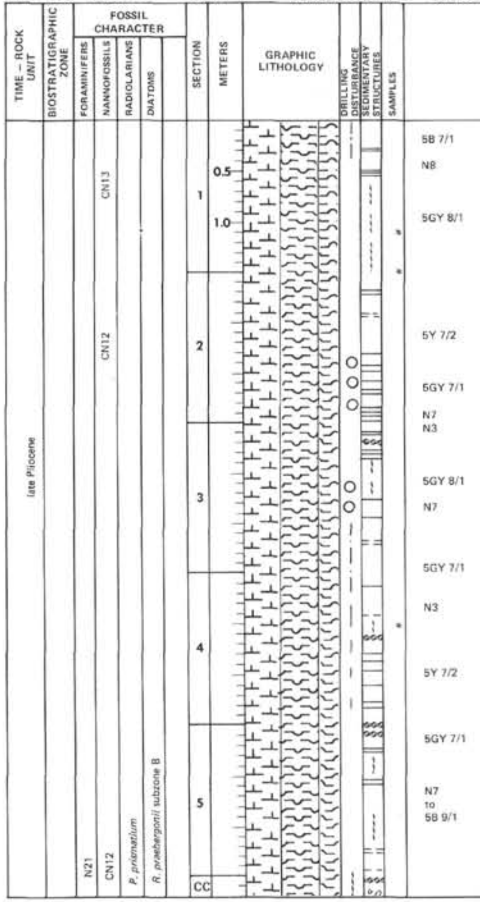
SMEAR SLIDE SUMMARY (%):

	1, 6	3, 27	5, 61
Texture:			
Sand	25	20	25
Silt	15	30	30
Clay	60	50	45
Composition:			
Heavy minerals	–	Tr	–
Volcanic glass	Tr	Tr	Tr
Carbonate unspec.	5	5	5
Foraminifers	15	10	15
Calc. nannofossils	50	50	45
Diatoms	25	15	25
Radiolarians	3	20	10
Sponge spicules	Tr	Tr	Tr
Silicoflagellates	2	Tr	Tr

CARBONATE BOMB:

1, 2 cm = 83%
2, 2 cm = 80%
6, 2 cm = 74%
6, 81 cm = 72%
7, 2 cm = 65%

SITE 572 HOLE A CORE 4 CORED INTERVAL 28.6–36.3 m



LITHOLOGIC DESCRIPTION

VARICOLORED OOZE (SUBUNIT IB):

Cyclic color variations between white (N8), yellowish gray (5Y 7/2), gray green (5GY 7/1), and dark gray (N3) rad diatom nanno ooze. Burrowing and color mottling are common. Gradations in color between color bands are common, laminations occur.

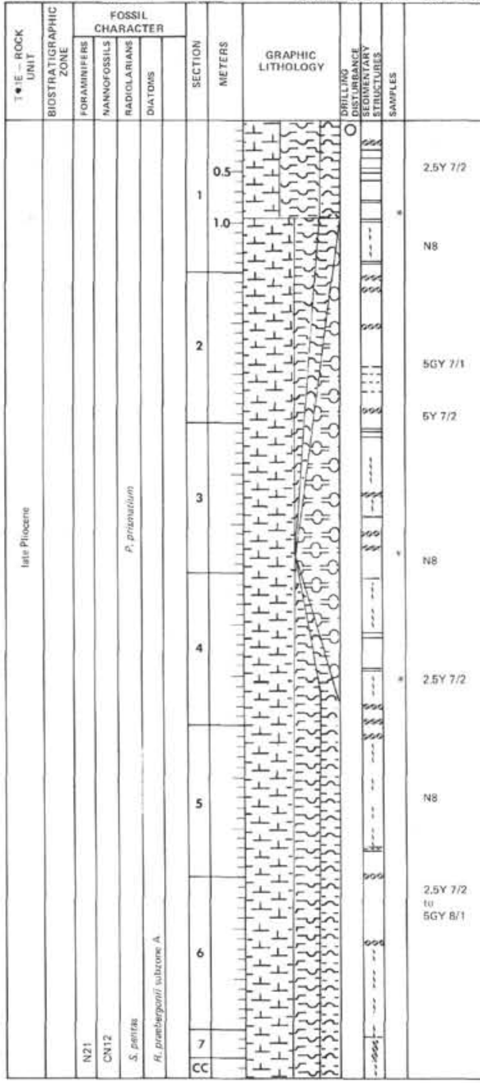
SMEAR SLIDE SUMMARY (%):

	1, 113	2, 7	4, 52
Texture:			
Sand	25	15	20
Silt	30	30	30
Clay	45	55	50
Composition:			
Volcanic glass	–	Tr	–
Pyrite	30	–	–
Carbonate unspec.	3	10	7
Foraminifers	10	10	8
Calc. nannofossils	40	40	40
Diatoms	15	25	25
Radiolarians	2	15	20
Sponge spicules	–	Tr	–
Silicoflagellates	–	Tr	Tr

CARBONATE BOMB:

1, 20 cm = 66%
1, 75 cm = 73%
2, 20 cm = 66%
2, 75 cm = 74%
3, 20 cm = 74%
3, 75 cm = 76%
4, 20 cm = 84%
4, 75 cm = 66%
5, 20 cm = 75%
5, 75 cm = 82%

SITE 572 HOLE A CORE 5 CORED INTERVAL 36.3–45.9 m



LITHOLOGIC DESCRIPTION

VARICOLORED OOZE (SUBUNIT IB) (36.3–37.3 m):

Cyclic color variations between color bands: white (N8), yellowish gray (5Y 7/2), and gray green (5GY 7/1) rad diatom nanno ooze. Burrowing and color mottling are common. Gradations in color are common.

GREEN VARICOLORED OOZE (SUBUNIT IC) (37.3–45.9 m):

Cyclic color variations between green (10G 6/2), white (N8–5B 9/1), yellowish gray (5Y 7/20, and gray green (5GY 7/1) rad diatom nanno ooze. Gradations in color between color bands are common. Burrowing and color mottling are common, laminations also common.

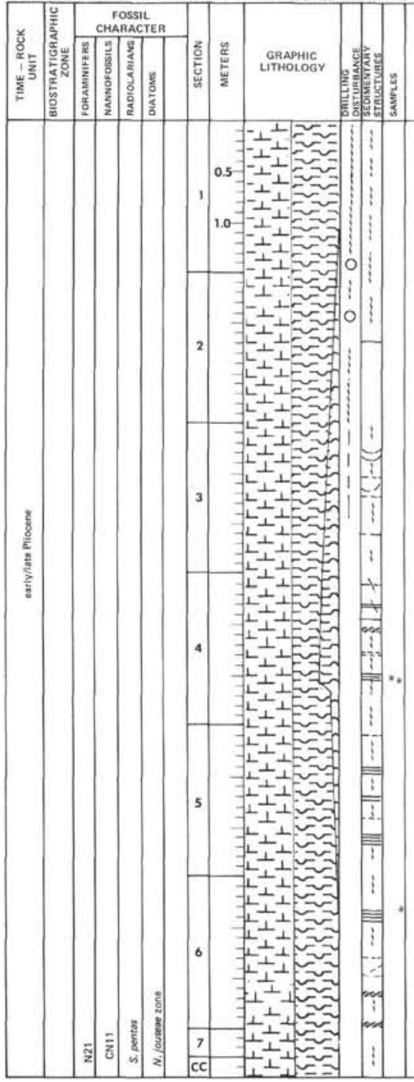
SMEAR SLIDE SUMMARY (%):

	1, 98	3, 134	4, 103
Texture:			
Sand	15	10	25
Silt	25	30	25
Clay	60	60	50
Composition:			
Volcanic glass	Tr	–	Tr
Pyrite	Tr	–	–
Carbonate unspec.	12	15	8
Foraminifers	8	7	5
Calc. nannofossils	35	63	35
Diatoms	25	10	30
Radiolarians	20	5	20
Sponge spicules	Tr	Tr	–
Silicoflagellates	Tr	Tr	2

CARBONATE BOMB:

1, 1 cm = 79%
1, 80 cm = 73%
2, 1 cm = 71%
2, 80 cm = 73%
3, 1 cm = 72%
3, 80 cm = 85%
4, 1 cm = 82%
4, 80 cm = 78%
5, 1 cm = 73%
5, 80 cm = 82%
6, 1 cm = 70%
6, 80 cm = 67%
7, 1 cm = 60%

SITE 572 HOLE A CORE 6 CORED INTERVAL 45.9–55.2 m



5GY 7/1
to
5GY 6/1

5Y 8/1
with
5Y 7/1

5GY 8/1
to
5G 8/1

5Y 8/1
vertical
streaks

5GY 8/1

5Y 8/1

5P 6/1

5Y 8/1

5G 7/1
5GY 8/1

5B 6/1

5Y 8/1

5G 7/1

LITHOLOGIC DESCRIPTION

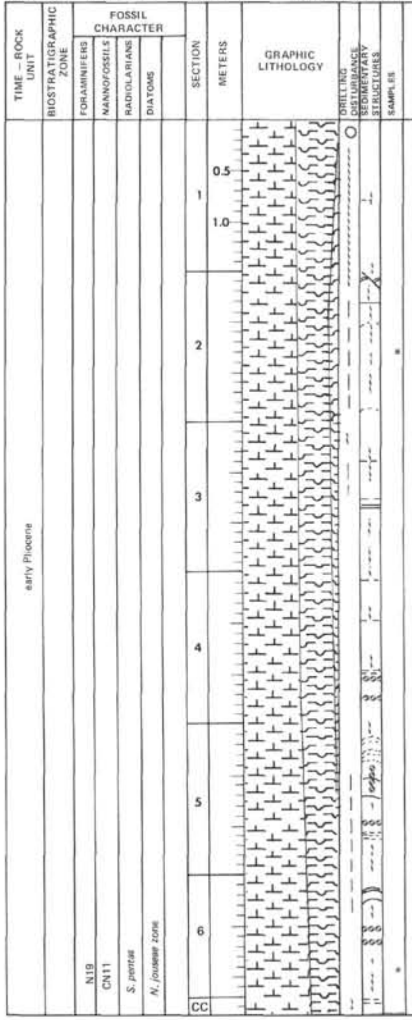
GREEN VARICOLORED OOZE (SUBUNIT IC'):
Cyclic color variations between gray-green to dark gray (5G 7/1–N3), white (5Y 8/1), and yellowish gray (5Y 7/2) rad diatom nanno ooze to siliceous nanno ooze, with discrete purple (5P 6/1) bands and *laminae*. Gradations in color between color bands are common. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	4, 103	4, 108	6, 31
Texture:			
Sand	25	15	5
Silt	25	30	40
Clay	50	55	55
Composition:			
Volcanic glass	Tr	Tr	–
Zeolite	–	Tr	–
Carbonate unspec.	8	15	25
Foraminifers	5	5	3
Calc. nannofossils	35	40	47
Diatoms	30	30	20
Radiolarians	20	10	5
Sponge spicules	–	Tr	–
Silicoflagellates	2	Tr	Tr

CARBONATE BOMB:
1, 1 cm = 55%
1, 80 cm = 67%
2, 1 cm = 65%
2, 80 cm = 74%
3, 1 cm = 67%
3, 80 cm = 88%
4, 1 cm = 75%
4, 80 cm = 80%
5, 1 cm = 74%
5, 80 cm = 53%
6, 1 cm = 64%
6, 80 cm = 77%
7, 1 cm = 71%

SITE 572 HOLE A CORE 7 CORED INTERVAL 55.2–64.1 m



5Y 8/1
5G 7/1
5BG 7/1

5P 6/1
5G 7/1

5Y 8/1

5G 7/1

5GY 7/1

5Y 8/1

5Y 8/1
to
5B 9/1

5Y 8/1
5G 7/1
5Y 8/2

5GY 7/1
5G 7/1
5BG 7/1

5Y 8/1

LITHOLOGIC DESCRIPTION

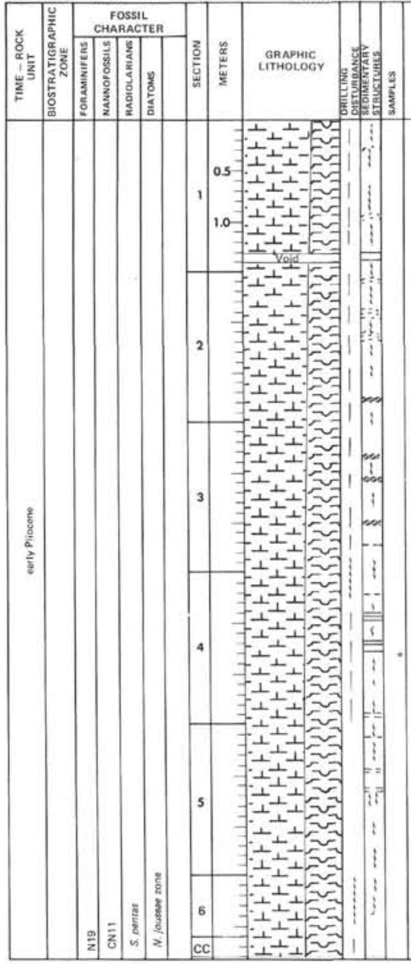
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white (5Y 8/1), light greenish gray (5G 7/1–5BG 7/1), and dark gray (N6) siliceous nanno ooze. Burrowing and color mottling are common, lamination occurs.

SMEAR SLIDE SUMMARY (%):

	2, 85	6, 92
Texture:		
Sand	15	10
Silt	35	30
Clay	50	60
Composition:		
Volcanic glass	Tr	–
Carbonate unspec.	20	18
Foraminifers	4	4
Calc. nannofossils	40	40
Diatoms	25	30
Radiolarians	10	8
Sponge spicules	Tr	–
Silicoflagellates	1	Tr

CARBONATE BOMB:
1, 1 cm = 69%
1, 80 cm = 71%
2, 1 cm = 56%
2, 80 cm = 76%
3, 1 cm = 62%
3, 80 cm = 61%
4, 1 cm = 77%
4, 80 cm = 72%
5, 1 cm = 85%
5, 80 cm = 86%
6, 1 cm = 77%
6, 80 cm = 89%

SITE 572 HOLE A CORE 8 CORED INTERVAL 64.1–72.3 m



LITHOLOGIC DESCRIPTION

5GY 7/1

5Y 8/1

5B 7/1
5Y 8/1

2.5Y 7/1

2.5Y 7/1

5Y 8/1,
5GY 8/1,
5G 8/1

5Y 8/1
to
5Y 8/2

5Y 8/2

5Y 8/2–
5GY 8/1

5Y 8/1

5Y 8/2

5Y 8/1–
N9
N7
5Y 7/1

5Y 8/1
and
2.5Y 8/1

5Y 8/1–
5Y 8/2

5Y 8/1

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white (5Y 8/1), light gray (N7), and greenish gray (5GY 8/1) diatom nanno ooze, with discrete blue gray (5B 7/1) bands and laminae. Gradations in color between color bands are common. Burrowing and color mottling are common.

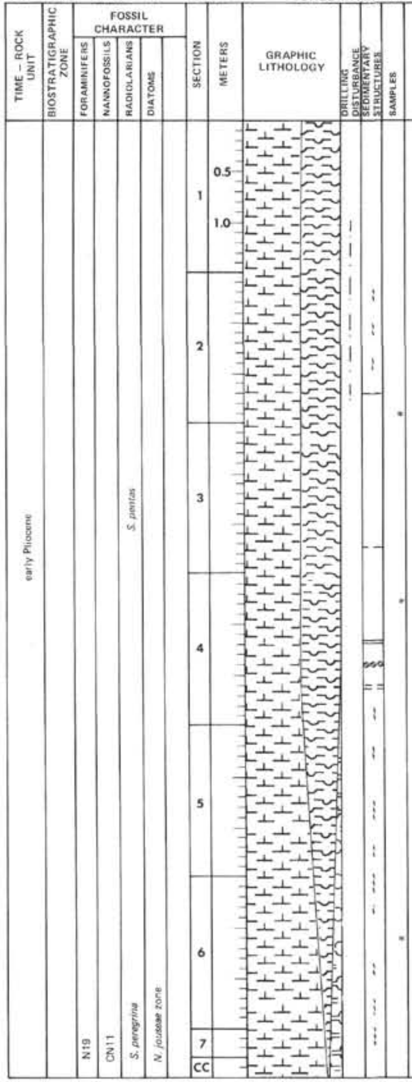
SMEAR SLIDE SUMMARY (%):

	4, 85
Texture:	
Sand	5
Silt	20
Clay	75
Composition:	
Pyrite	Tr
Carbonate unspec.	10
Foraminifers	5
Calc. nannofossils	40
Diatoms	40
Radiolarians	2
Sponge spicules	Tr
Silicoflagellates	Tr

CARBONATE BOMB:

1, 1 cm = 88%
1, 80 cm = 90%
2, 1 cm = 88%
2, 80 cm = 76%
3, 1 cm = 80%
3, 80 cm = 81%
4, 1 cm = 68%
4, 80 cm = 61%
5, 1 cm = 75%
5, 80 cm = 47%
6, 1 cm = 58%

SITE 572 HOLE A CORE 9 CORED INTERVAL 72.3–81.8 m



LITHOLOGIC DESCRIPTION

5Y 8/1,
N9,
5BG 7/1

5Y 8/1
and
5Y 6/2

5Y 6/2

5Y 8/1,
5Y 6/2,
and
5BG 7/1

5Y 6/2

5Y 8/1–N9

5Y 8/1–N9

5Y 8/1,
5BG 7/1,
N9

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white (N9, 5Y 8/1), pale yellow (5Y 6/2), and green (5BG 7/1) diatom nanno ooze to siliceous nanno ooze, with occasional purple (5RP 2/2) bands and laminae. Burrowing and color mottling are common.

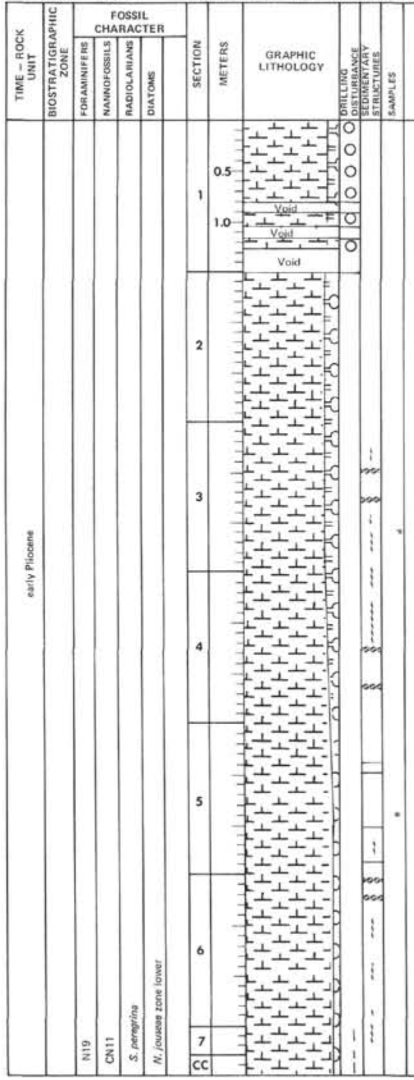
SMEAR SLIDE SUMMARY (%):

	2, 143	4, 30	6, 61
Texture:			
Sand	45	45	10
Silt	15	15	10
Clay	40	40	80
Composition:			
Volcanic glass	Tr	Tr	Tr
Carbonate unspec.	9	5	3
Foraminifers	1	Tr	2
Calc. nannofossils	40	40	80
Diatoms	40	45	6
Radiolarians	5	5	6
Sponge spicules	4	4	2
Silicoflagellates	1	1	1
Fish remains	Tr	Tr	–

CARBONATE BOMB:

1, 1 cm = 72%
1, 80 cm = 76%
2, 1 cm = 77%
2, 80 cm = 72%
3, 1 cm = 60%
3, 80 cm = 70%
4, 80 cm = 83%
5, 1 cm = 74%
5, 80 cm = 79%
6, 1 cm = 80%
6, 80 cm = 85%

SITE 572 HOLE A CORE 10 CORED INTERVAL 81.8–91.4 m



N7

N7

N7

5Y 8/1
to
N9

5RP 2/2

N9

5Y 8/2

5Y 8/1–N9

N8–5RP 2/2–5Y 8/2

2.5Y 8/1

2.5Y 8/2

5Y 8/1,
5RP 2/2

2.5Y 8/2

N9

5Y 8/1
with
2.5Y 8/2

5Y 8/2

LITHOLOGIC DESCRIPTION

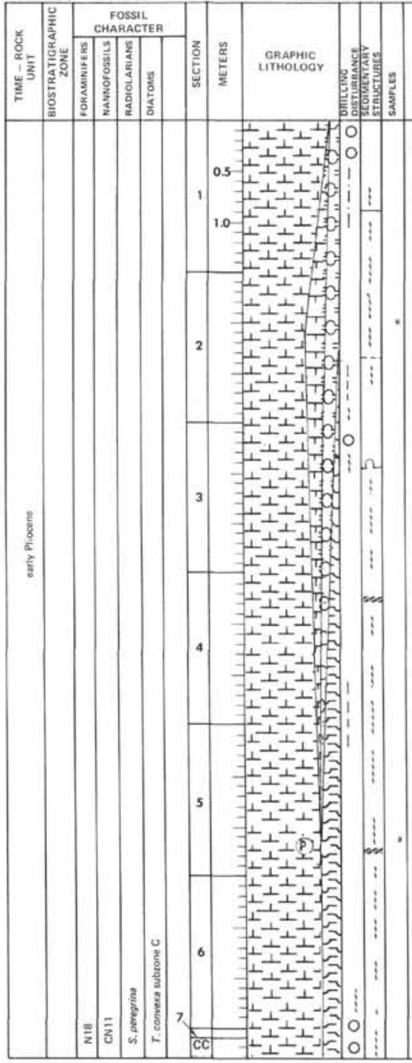
GREEN VARICOLORED OOZE (SUBUNIT IC):
Uppermost section is totally disturbed light gray (N7) soup. Cyclic color variations between light gray to white (5Y 8/1–N9), pale yellow (5Y 8/2), and purple (5RP 2/2) siliceous nanno ooze. Gradations in color between color bands are common. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	3, 114	5, 92
Texture:		
Sand	10	15
Silt	10	5
Clay	80	80
Composition:		
Volcanic glass	Tr	Tr
Carbonate unspec.	3	4
Foraminifers	1	5
Calc. nannofossils	80	80
Diatoms	4	4
Radiolarians	9	5
Sponge spicules	2	1
Silicoflagellates	1	1

CARBONATE BOMB:
2, 1 cm = 81%
2, 81 cm = 80%
3, 1 cm = 81%
3, 81 cm = 88%
4, 1 cm = 77%
4, 81 cm = 82%
5, 1 cm = 88%
5, 81 cm = 85%
6, 1 cm = 81%
6, 81 cm = 84%
7, 1 cm = 70%

SITE 572 HOLE A CORE 11 CORED INTERVAL 91.4–100.7 m



5GY 8/1,
5P 5/2,
5BG 8/2,
5Y 7/2

N9,
5Y 7/2,
5P 5/2,
5P 8/2

5GY 8/1
with
5P 5/2,
5BG 8/2

N9,
5Y 8/1,
5P 5/2,
and
5BG 8/2

N9
and
5Y 8/1

LITHOLOGIC DESCRIPTION

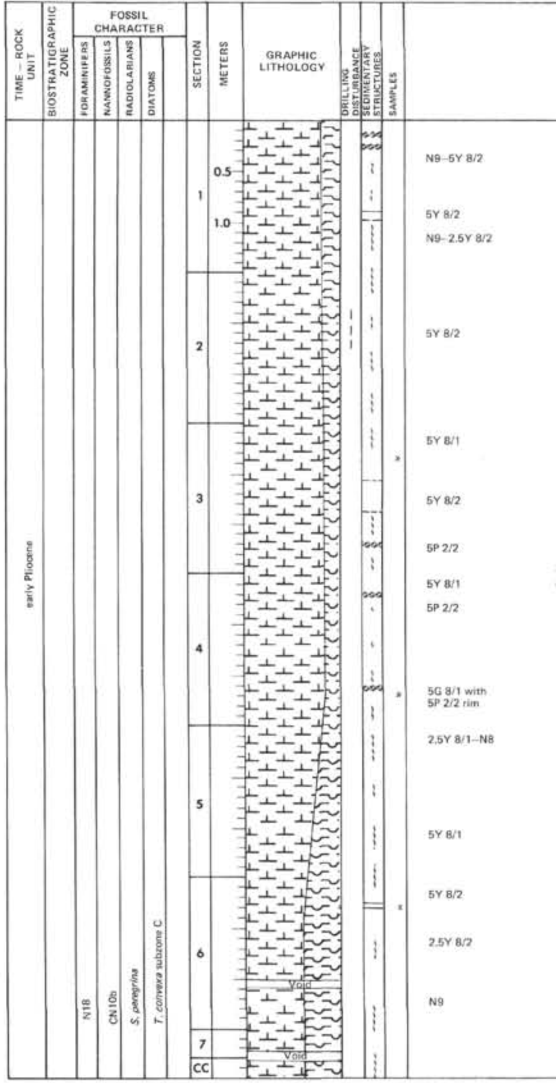
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color alternation between yellow green (5GY 8/1), purple (5P 5/2), olive gray (5Y 7/2), and blue green (5BG 8/2) bands of siliceous nanno ooze, grading down to color alternation between white to light gray (N9) and yellowish gray (5Y 8/1) diatom nanno ooze. Burrowing and color mottling are common throughout the entire core.

SMEAR SLIDE SUMMARY (%):

	2, 55	5, 111
Texture:		
Sand	10	10
Silt	15	30
Clay	75	60
Composition:		
Volcanic glass	Tr	Tr
Carbonate unspec.	3	7
Foraminifers	15	3
Calc. nannofossils	75	60
Diatoms	9	20
Radiolarians	5	6
Sponge spicules	2	3
Silicoflagellates	1	1

CARBONATE BOMB:
1, 1 cm = 86%
1, 80 cm = 75%
2, 1 cm = 72%
2, 80 cm = 89%
3, 1 cm = 72%
3, 80 cm = 75%
4, 1 cm = 83%
4, 80 cm = 84%
5, 1 cm = 74%
5, 80 cm = 70%
6, 1 cm = 53%
6, 80 cm = 64%
7, 1 cm = 80%

SITE 572 HOLE A CORE 12 CORED INTERVAL 100.7–109.9 m



LITHOLOGIC DESCRIPTION

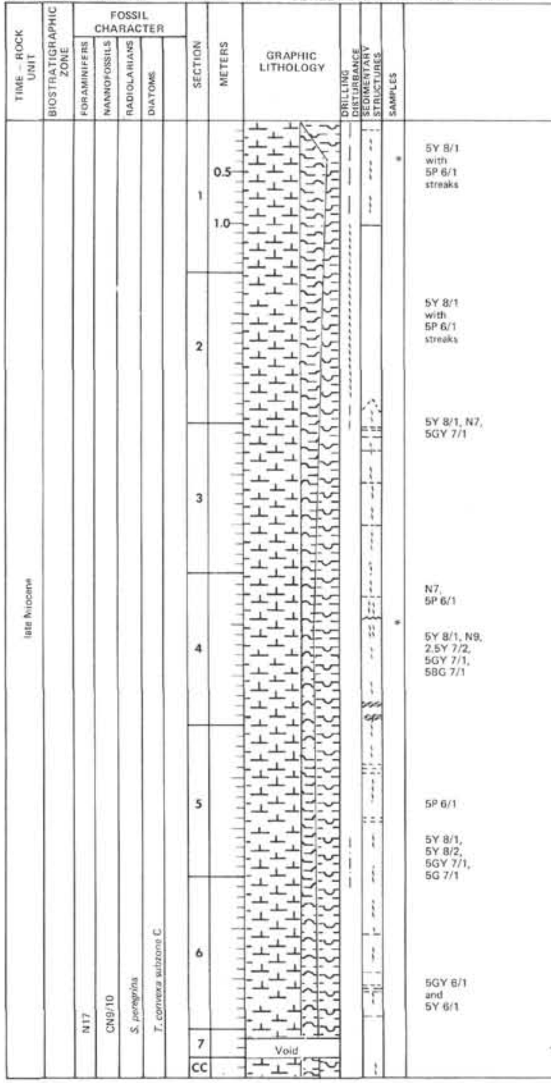
GREEN VARICOLORED OOZE (SUBUNIT IC):
Alternation of white to light gray (N9–5Y 8/1) and pale yellow (5Y 8/2) diatom nanno ooze, with individual purple (5P 2/2) bands, laminae, and reaction rims around burrows. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	3, 40	4, 120	6, 30
Texture:			
Sand	10	10	30
Silt	15	20	20
Clay	75	70	50
Composition:			
Volcanic glass	Tr	Tr	Tr
Carbonate unspec.	2	3	5
Foraminifers	1	Tr	Tr
Calc. nannofossils	75	70	50
Diatoms	15	15	40
Radiolarians	4	10	4
Sponge spicules	2	1	Tr
Silicoflagellates	1	1	1

CARBONATE BOMB:
1, 1 cm = 57%
1, 80 cm = 69%
2, 1 cm = 70%
2, 80 cm = 67%
3, 1 cm = 71%
3, 80 cm = 69%
4, 1 cm = 71%
4, 80 cm = 69%
5, 1 cm = 74%
5, 80 cm = 65%
6, 1 cm = 83%
6, 80 cm = 74%

SITE 572 HOLE A CORE 13 CORED INTERVAL 109.9–119.1 m



LITHOLOGIC DESCRIPTION

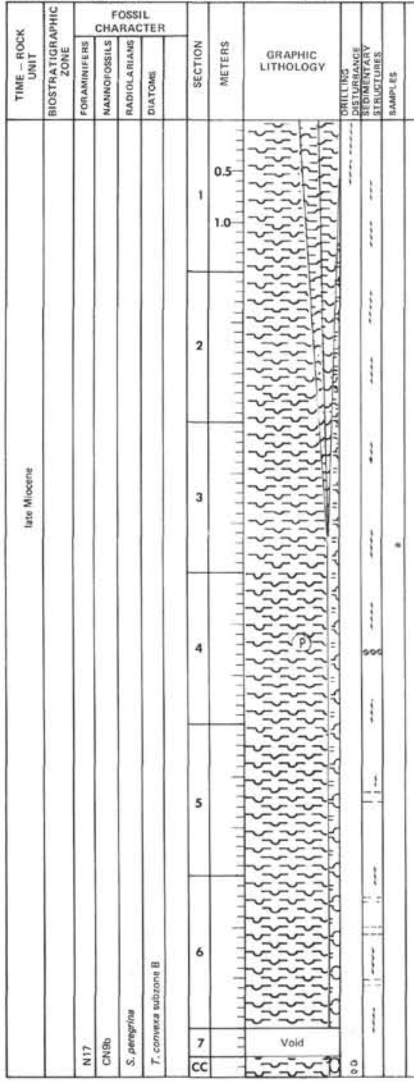
GREEN VARICOLORED OOZE (SUBUNIT IC):
Upper most two sections are highly distorted white (N9–5Y 8/1) sediment with light purple (5P 6/1) streaks. Other sections are cyclic alternation of white to light gray, blue green to greenish gray (5BG 3/2–5G 7/1), and yellowish gray rad diatom nanno ooze. Gradations of color between color bands are common. Burrowing and color mottling are seen, lamination present.

SMEAR SLIDE SUMMARY (%):

	1, 41	4, 50
Texture:		
Sand	5	10
Silt	20	40
Clay	75	50
Composition:		
Carbonate unspec.	10	10
Foraminifers	3	3
Calc. nannofossils	45	50
Diatoms	15	25
Radiolarians	25	10
Sponge spicules	Tr	–
Silicoflagellates	2	2

CARBONATE BOMB:
1, 1 cm = 74%
1, 80 cm = 55%
2, 1 cm = 76%
2, 80 cm = 73%
3, 1 cm = 72%
3, 80 cm = 71%
4, 1 cm = 83%
4, 80 cm = 76%
5, 1 cm = 74%
5, 80 cm = 73%
6, 1 cm = 79%
6, 80 cm = 60%
7, 1 cm = 75%

SITE 572 HOLE A CORE 14 CORED INTERVAL 119.1–128.3 m



LITHOLOGIC DESCRIPTION

5Y 8/1

5Y 8/1,
5Y 7/1,
with
5P 7/2,
5BG 7/1,
and
5BG 6/1
banding
and
lamination

5GY 2/1

5G 6/1

5G 6/1

5G 6/1

5G 6/1

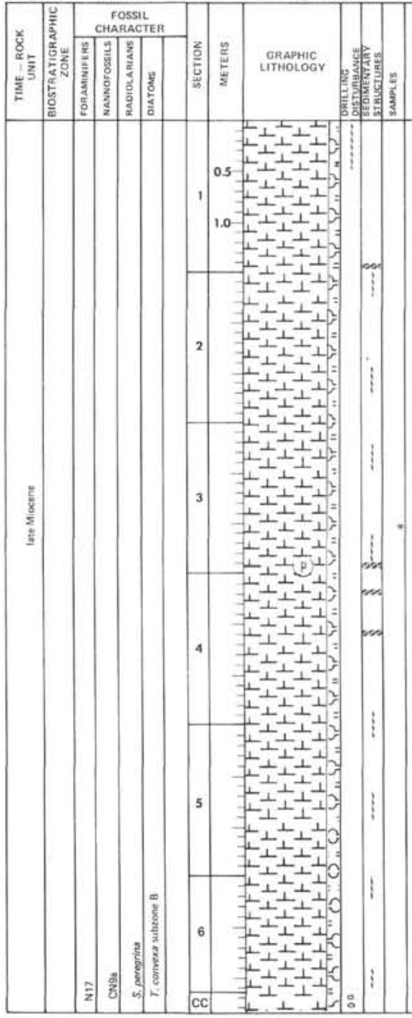
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between pale yellow gray (5Y 8/1), pale purple (5P 7/2), and blue green (5BG 6/1–5BG 7/1) siliceous nanno ooze. Burrowing and color mottling are seen. A pyritized burrow filled with greenish black (5GY 2/1) material is at Section 4, 78 cm.

SMEAR SLIDE SUMMARY (%):

	3, 122
Texture:	
Sand	5
Silt	10
Clay	85
Composition:	
Volcanic glass	Tr
Carbonate unspec.	1
Foraminifers	1
Calc. nannofossils	85
Diatoms	8
Radiolarians	3
Sponge spicules	1
Silicoflagellates	1
Fish remains	Tr

CARBONATE BOMB:
1, 1 cm = 65%
1, 80 cm = 75%
2, 1 cm = 77%
3, 1 cm = 70%
3, 80 cm = 83%
4, 1 cm = 74%
4, 80 cm = 47%
5, 1 cm = 74%
5, 80 cm = 77%
6, 1 cm = 66%
6, 80 cm = 63%

SITE 572 HOLE A CORE 15 CORED INTERVAL 128.3–137.1 m



LITHOLOGIC DESCRIPTION

N8–5Y 7/1
with
5BG 7/2,
5Y 8/1

5P 4/2

N8–5Y 7/1
with 5BG 7/2,
5Y 8/1

5G 6/1

5P 4/2

5P 4/2

N8 with
5BG 7/2,
5Y 8/1

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white to light gray (N8–N9), yellow gray (5Y 8/1), blue green (5BG 7/2), and purple (5P 4/2) diatom nanno ooze. Lower part of Section 6 is predominantly light gray colored.

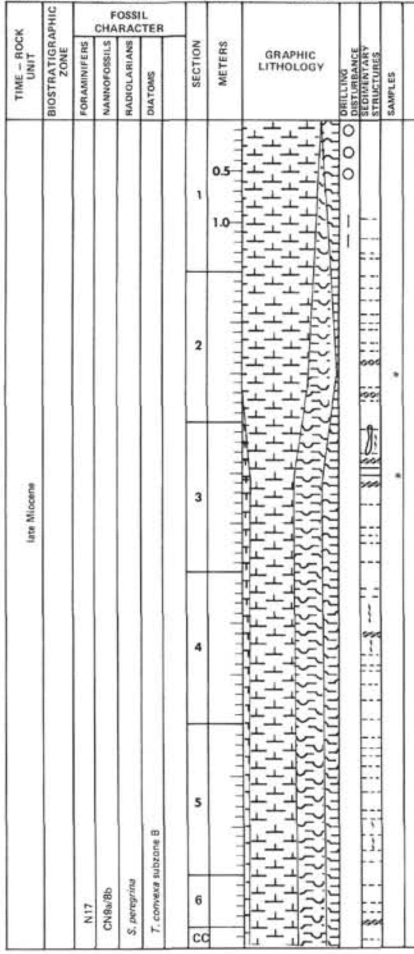
Burrowing and color mottling are seen. Lamination rare.

SMEAR SLIDE SUMMARY (%):

	3, 103
Texture:	
Sand	10
Silt	10
Clay	80
Composition:	
Carbonate unspec.	2
Foraminifers	1
Calc. nannofossils	80
Diatoms	13
Radiolarians	3
Sponge spicules	Tr
Silicoflagellates	1

CARBONATE BOMB:
1, 80 cm = 84%
2, 1 cm = 81%
2, 80 cm = 83%
3, 1 cm = 82%
3, 80 cm = 71%
4, 1 cm = 64%
4, 80 cm = 76%
5, 1 cm = 71%
5, 80 cm = 75%
6, 1 cm = 72%
6, 80 cm = 73%

SITE 572 HOLE A CORE 16 CORED INTERVAL 137.1–145.3 m



LITHOLOGIC DESCRIPTION

N8 with
5BG 7/1,
5BG 6/1,
5P 7/2,
5P 4/2 banding

5Y 8/2 with
5P 4/2 rim

5Y 8/2

Skolithos burrow

5Y 8/2

5Y 8/2

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white to light gray (N8–N9), blue green (5BG 7/1), pale purple to grayish purple (5P 7/2–5P 4/2), and yellow green (5Y 8/2) diatom nanno ooze to foram rad diatom ooze. Burrowing and color mottling are seen. Color contacts between color bends are sharp to gradational.

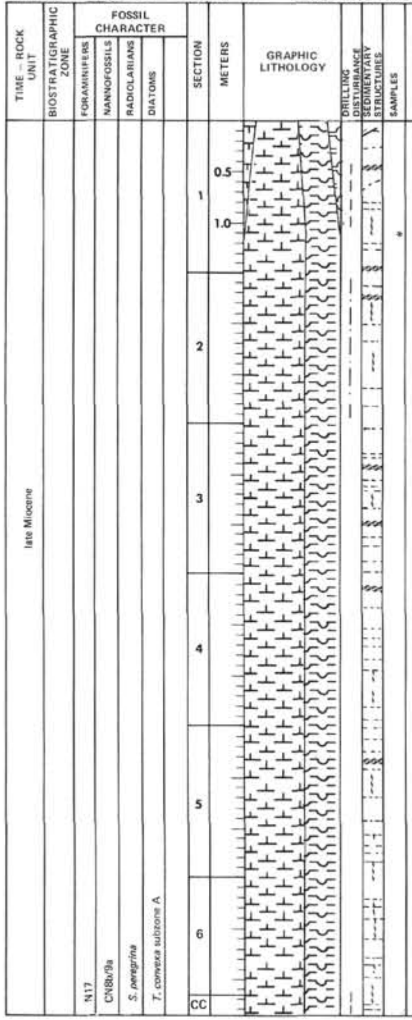
SMEAR SLIDE SUMMARY (%):

	2, 106	3, 51
Texture:		
Sand	10	25
Silt	40	35
Clay	50	45
Composition:		
Carbonate unspec.	14	10
Foraminifers	1	10
Calc. nannofossils	45	35
Diatoms	30	30
Radiolarians	8	15
Sponge spicules	Tr	–
Silicoflagellates	2	Tr

CARBONATE BOMB:

1, 80 cm = 77%	4, 1 cm = 84%
2, 1 cm = 71%	4, 80 cm = 83%
2, 80 cm = 76%	5, 1 cm = 75%
3, 1 cm = 87%	5, 80 cm = 82%
3, 80 cm = 89%	6, 1 cm = 90%

SITE 572 HOLE A CORE 17 CORED INTERVAL 145.3–154.1 m



LITHOLOGIC DESCRIPTION

5Y 8/2

5Y 8/2

5Y 8/2

N8, with
5BG 7/2,
5Y 8/2,
5P 4/2,
5P 7/2,
5BG 6/1 banding

5P 4/2

5Y 8/2

5Y 8/2

5P 4/2
5P 4/2

5Y 8/2

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white to light gray (N8–N9), blue green (5BG 7/1), pale purple (5P 7/2), and yellow green to pale green (5Y 8/2–5BG 7/2) diatom nanno ooze. Burrowing and color mottling are seen. Color contacts between color bands are sharp to gradational.

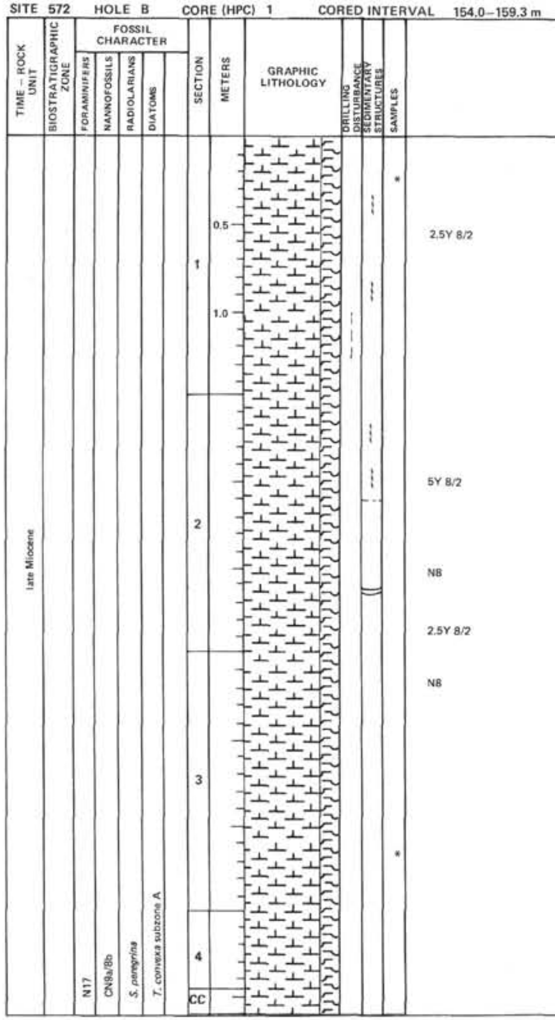
SMEAR SLIDE SUMMARY (%):

	1, 112
Texture:	
Sand	5
Silt	35
Clay	60
Composition:	
Carbonate unspec.	10
Foraminifers	5
Calc. nannofossils	45
Diatoms	35
Radiolarians	5
Silicoflagellates	Tr

CARBONATE BOMB:

1, 1 cm = 78%	4, 1 cm = 68%
1, 80 cm = 76%	4, 80 cm = 73%
2, 1 cm = 81%	5, 1 cm = 64%
2, 80 cm = 75%	5, 80 cm = 63%
3, 1 cm = 69%	6, 1 cm = 77%
3, 80 cm = 71%	6, 80 cm = 74%

SITE 572 HOLE B CORE (HPC) 1 CORED INTERVAL 154.0–159.3 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):
Green varicolored unit: cyclic alternation of green, yellow, bluish-white, and pale purple diatom nanno ooze to siliceous nanno ooze, with sharp contacts, lamination, and some burrow-mottling.

Some sections (2, 3) have H_2S odor upon splitting.

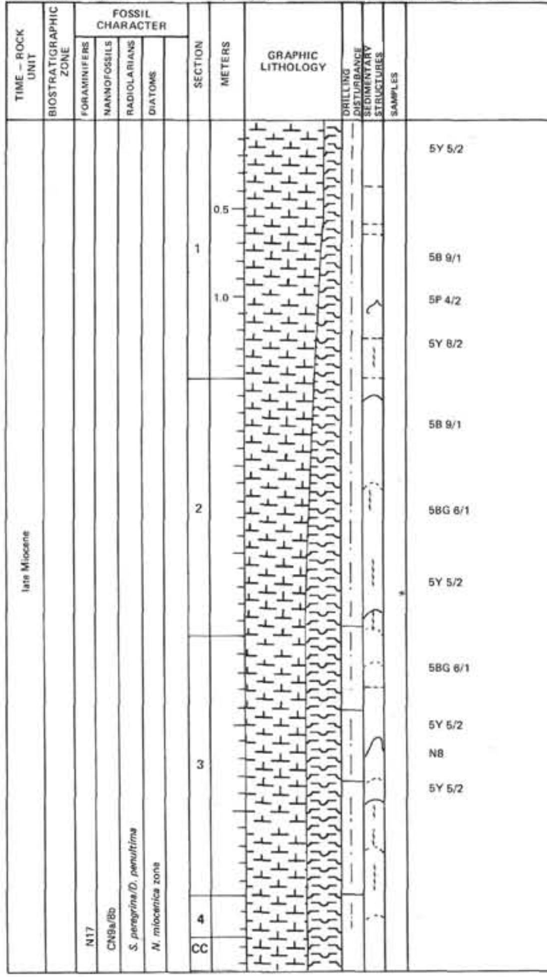
SMEAR SLIDE SUMMARY (%):

	1, 25	3, 117
Texture:		
Sand	5	5
Silt	15	15
Clay	80	80
Composition:		
Carbonate unspec.	2	2
Foraminifers	1	1
Calc. nannofossils	80	80
Diatoms	13	13
Radiolarians	3	3
Sponge spicules	Tr	Tr
Silicoflagellates	1	1
Fish remains	Tr	–

CARBONATE BOMB:

1, 1 cm = 78%	3, 1 cm = 65%
1, 85 cm = 72%	3, 80 cm = 78%
2, 1 cm = 74%	4, 1 cm = 67%
2, 80 cm = 72%	

SITE 572 HOLE B CORE (HPC) 2 CORED INTERVAL 159.3–164.2 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):
Green varicolored unit: cyclic alternation of bluish-white, pale purple to light blue, yellow to yellow-green, and pale green to olive green diatom nanno ooze to siliceous nanno ooze.

Gradations between colors in color bands are common. *Individual color bands show evidence of burrow-mottling.* Contacts are sharp to gradational. Cores have H_2S odor upon splitting.

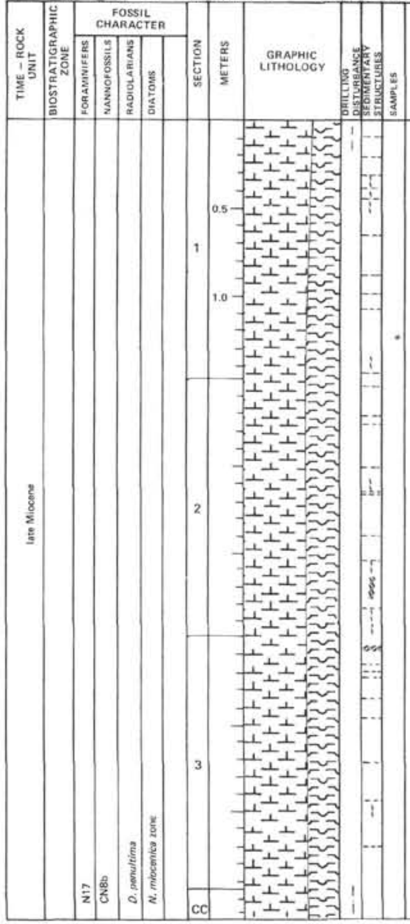
SMEAR SLIDE SUMMARY (%):

	2, 124
Texture:	
Sand	5
Silt	45
Clay	50
Composition:	
Clay	7
Carbonate unspec.	9
Foraminifers	2
Calc. nannofossils	35
Diatoms	40
Radiolarians	5
Silicoflagellates	2

CARBONATE BOMB:

1, 1 cm = 69%	3, 1 cm = 65%
1, 80 cm = 71%	3, 80 cm = 37%
2, 1 cm = 45%	4, 1 cm = 69%
2, 80 cm = 71%	

SITE 572 HOLE B CORE (HPC) 3 CORED INTERVAL 164.2–168.8 m



LITHOLOGIC DESCRIPTION

N8

5Y 8/2

5BG 7/2

5Y 5/2

5Y 8/2

5Y 5/2

5P 4/2

N8

5Y 8/2

GREEN VARICOLORED OOZE (SUBUNIT IC):

Cyclic alternation of bluish white, pale purple, yellow-green to yellow, and pale green diatom nanno ooze to siliceous nanno ooze. Contacts between color bands are sharp to slightly burrow-mottled. Cores have H_2S odor upon splitting.

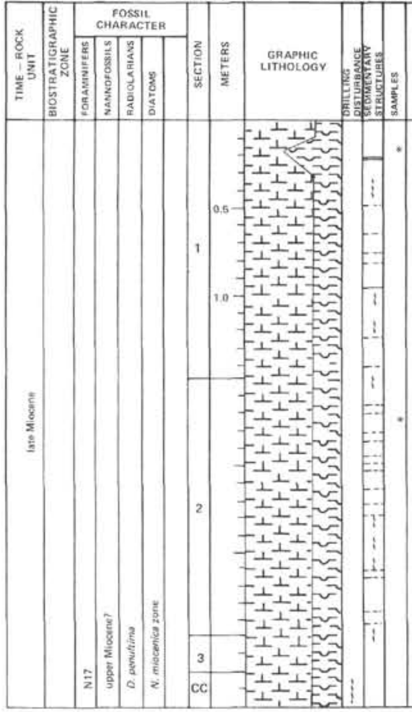
SMEAR SLIDE SUMMARY (%):

	1, 125
Texture:	
Sand	10
Silt	30
Clay	60
Composition:	
Clay	Tr
Pyrite	Tr
Carbonate unspec.	10
Foraminifers	5
Calc. nannofossils	50
Diatoms	30
Radiolarians	5
Silicoflagellates	1

CARBONATE BOMB:

1, 1 cm = 52%
1, 80 cm = 41%
2, 1 cm = 63%
2, 80 cm = 59%
3, 1 cm = 67%
3, 80 cm = 57%

SITE 572 HOLE B CORE (HPC) 4 CORED INTERVAL 168.8–172.1 m



LITHOLOGIC DESCRIPTION

N8

5Y 8/2

5P 4/2

N8

5BG 6/1

N8

5Y 8/2

GREEN VARICOLORED OOZE (SUBUNIT IC):

Green varicolored unit: cyclic alternation of yellow to yellow-green, white to bluish white, pale purple to dark gray, and green diatom nanno ooze to siliceous nanno ooze. Contacts between color bands are sharp. Individual color bands show evidence of burrow-mottling. Cores have H_2S odor upon splitting.

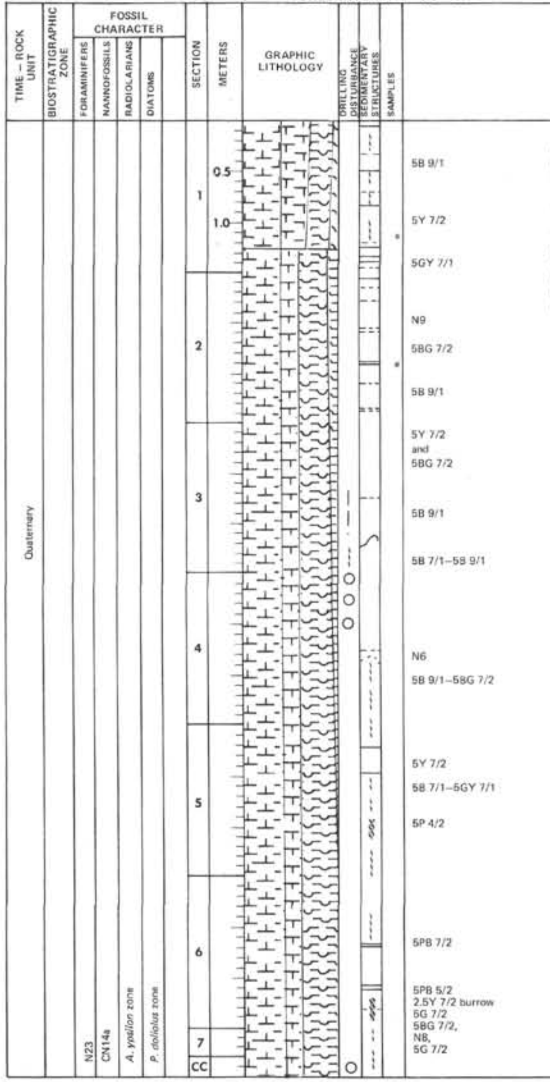
SMEAR SLIDE SUMMARY (%):

	1, 19	2, 26
Texture:		
Sand	2	15
Silt	58	40
Clay	40	45
Composition:		
Pyrite	15	15
Carbonate unspec.	–	10
Foraminifers	Tr	3
Calc. nannofossils	25	30
Diatoms	60	35
Radiolarians	1	6
Silicoflagellates	–	1

CARBONATE BOMB:

1, 1 cm = 62%
1, 80 cm = 70%
2, 1 cm = 63%
2, 80 cm = 40%
3, 1 cm = 58%

SITE 572 HOLE C CORE 1 CORED INTERVAL 0.0–10.1 m



LITHOLOGIC DESCRIPTION

GRAY/BROWN OOZE (SUBUNIT IA) (0.0–1.25 m): Cyclic alternation between white to bluish white (N9–5B 9/1) and yellowish gray to greenish gray (5Y 7/2–5G 7/1) rad foram diatom nanno ooze, in distinct color bands with sharp contacts.

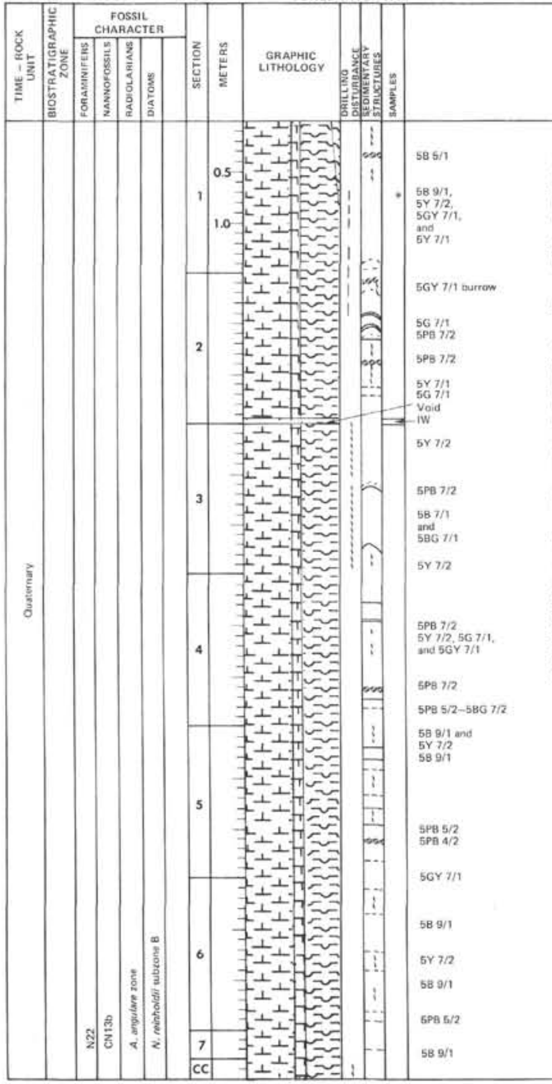
VARICOLORED OOZE (SUBUNIT IB) (1.25–10.1 m): Cyclic variation between white to bluish white (N9–5B 9/1), yellowish gray to greenish gray (5Y 7/2–5GY 7/1) and purple to dark gray (5P 2/2–N6) foram rad diatom nanno ooze, in distinct color bands and laminae with sharp contacts. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	1, 114	2, 90
Texture:		
Sand	30	15
Silt	30	35
Clay	40	50
Composition:		
Volcanic glass	Tr	Tr
Zeolite	–	Tr
Carbonate unspec.	–	15
Foraminifers	15	10
Calc. nannofossils	40	35
Diatoms	35	30
Radiolarians	10	10
Silicoflagellates	Tr	Tr

CARBONATE BOMB:
1, 1 cm = 81%
1, 75 cm = 74%
1, 109 cm = 74%
2, 1 cm = 72%
2, 75 cm = 77%
2, 109 cm = 75%
3, 1 cm = 77%
3, 75 cm = 89%
4, 1 cm = 85%
4, 100 cm = 88%
4, 109 cm = 83%
5, 1 cm = 85%
5, 75 cm = 89%
5, 109 cm = 89%
6, 1 cm = 88%
6, 75 cm = 92%
6, 109 cm = 81%
7, 1 cm = 87%

SITE 572 HOLE C CORE 2 CORED INTERVAL 10.1–19.7 m



LITHOLOGIC DESCRIPTION

VARICOLORED OOZE (SUBUNIT IB):
Cyclic variations between bluish white (5B 9/1–N9), yellowish gray (5Y 7/2), and greenish gray (5GY 7/1) foram diatom nanno ooze, in distinct color bands and laminae. Burrows and color mottling are common.

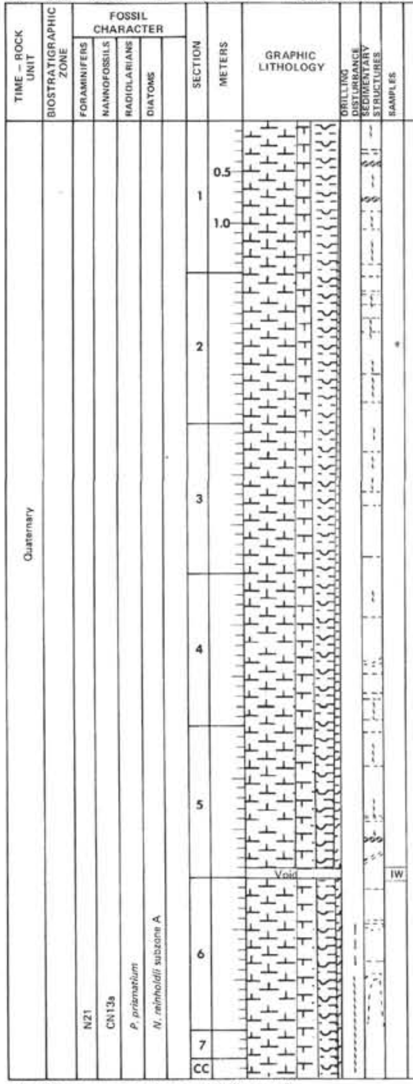
Section 3 is soupy light gray (5Y 7/2), with vertical flow lines of yellowish gray and greenish gray.

SMEAR SLIDE SUMMARY (%):

	1, 75
Texture:	
Sand	15
Silt	25
Clay	60
Composition:	
Carbonate unspec.	15
Foraminifers	10
Calc. nannofossils	42
Diatoms	30
Radiolarians	3
Sponge spicules	Tr
Silicoflagellates	Tr

CARBONATE BOMB:
1, 34 cm = 84%
1, 85 cm = 76%
1, 133 cm = 80%
2, 34 cm = 83%
2, 85 cm = 84%
2, 133 cm = 82%
3, 34 cm = 82%
3, 85 cm = 70%
3, 133 cm = 84%
4, 34 cm = 84%
4, 85 cm = 70%
4, 133 cm = 76%
5, 34 cm = 77%
5, 85 cm = 83%
5, 133 cm = 75%
6, 34 cm = 77%
6, 85 cm = 77%
6, 133 cm = 78%
7, 34 cm = 88%

SITE 572 HOLE C CORE 3 CORED INTERVAL 19.7–29.3 m



LITHOLOGIC DESCRIPTION

2.5Y 8/1
N8–5Y 8/1
5Y 7/1
N8–5B 9/1
N8
5Y 8/1
5Y 7/1
N8
5Y 7/1
N8
5P 6/1–5PB 7/2
5GY 7/1–5G 7/1
N8–5B 9/1
N7–5BG 7/1
5B 6/1–5P 6/2
5Y 7/1
5B 6/1
5Y 8/1
5Y 7/1
N9 with
5G 7/2
N7
5Y 8/1 with
N7 bands
5Y 8/1–5Y 7/1
N8–5B 7/1
N7–5B 7/1

VARICOLORED OOZE (SUBUNIT IB):
Cyclic color variations between white to light gray (N9–5B 9/1), yellow (5Y 7/1), purple to bluish gray (5P 6/2–5B 6/1). Rad foram diatom nanno ooze, in distinct color bands, lamination common. Burrowing and color mottling is common.

SMEAR SLIDE SUMMARY (%):

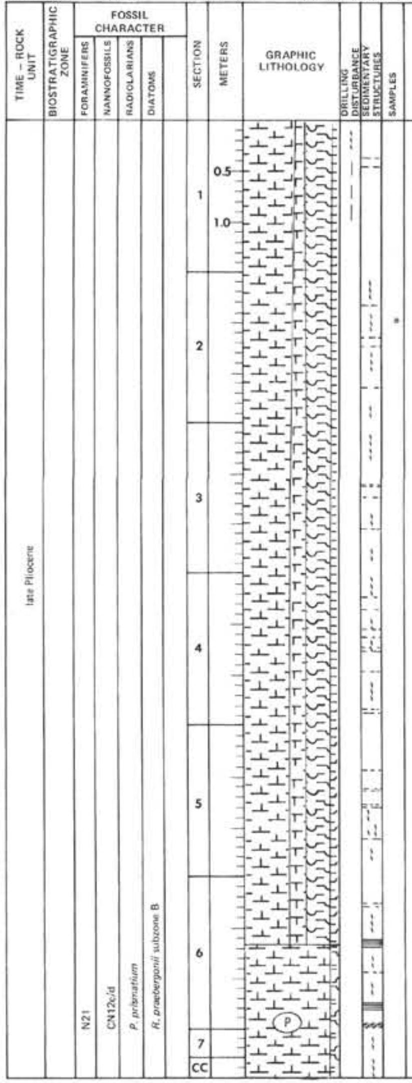
	2, 75
Texture:	
Sand	20
Silt	40
Clay	40
Composition:	
Pyrite	Tr
Zeolite	Tr
Carbonate unspec.	10
Foraminifers	15
Calc. nannofossils	35
Diatoms	30
Radiolarians	10
Sponge spicules	Tr
Silicoflagellates	Tr

CARBONATE BOMB:

1, 34 cm = 84%
1, 85 cm = 74%
1, 133 cm = 77%
2, 38 cm = 77%
2, 88 cm = 73%
2, 138 cm = 68%
3, 38 cm = 70%
3, 88 cm = 72%
3, 138 cm = 70%
4, 138 cm = 80%
5, 38 cm = 74%
5, 88 cm = 74%
5, 138 cm = 82%
6, 38 cm = 83%
6, 88 cm = 79%
7, 38 cm = 68%

IW = 10 cm sample removed for Interstitial Water sample.

SITE 572 HOLE C CORE 4 CORED INTERVAL 29.3–38.9 m



LITHOLOGIC DESCRIPTION

5Y 7/1–5Y 6/1
5Y 8/1
with
5B 7/1,
5BG 7/1,
5P 6/1
5Y 7/1
N7
5B 9/1 +
5G 7/1
5Y 8/1
N8–5Y 8/1
5GY 7/1
5P 6/2–N8
5G 8/1
5G 7/1
N8–5B 9/1
2.5Y 8/2
N8
5Y 8/1–5Y 8/2
5G 5/2–5G 7/1
5B 6/1
5Y 7/1
N7
5G 7/1
5GY 8/1

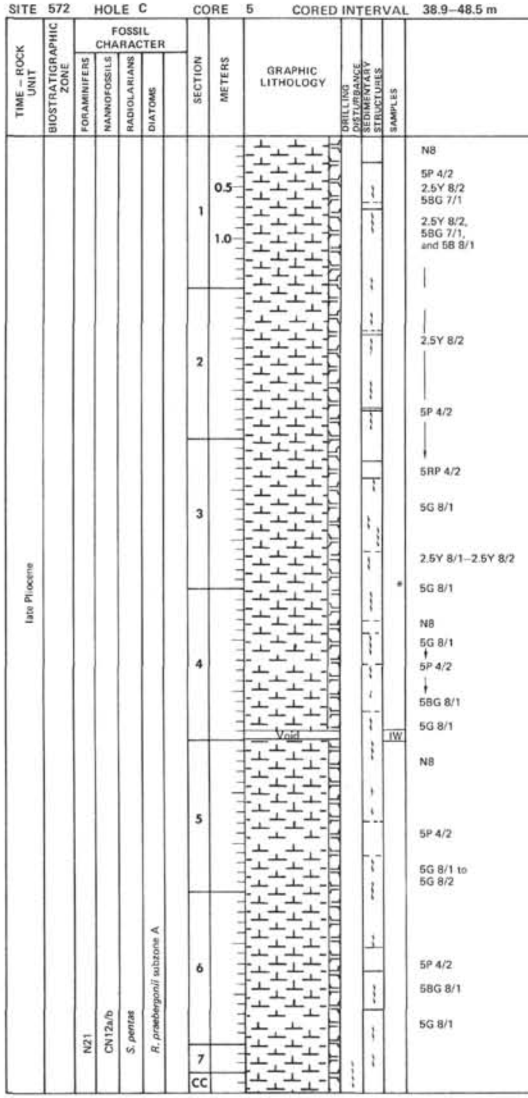
VARICOLORED OOZE (SUBUNIT IB) (29.3–37.5 m):
Cyclic color variations between white (N9–5B 9/1), greenish gray (5G 8/1), and purple to dark gray (5P 2/2, 5B 7/1, 5P 7/1) rad foram diatom nanno ooze, in distinct color bands, and laminae.

GREEN VARICOLORED OOZE (SUBUNIT IC)
(37.5–38.7 m):
Cyclic color variations between white (N9–5B 9/1), purple to dark gray (5P 2/2–5B 7/1), greenish gray (5G 8/1), and pale green (5G 5/2) siliceous nanno ooze, in distinct color bands and laminae. Burrowing and color mottling are seen.

SMEAR SLIDE SUMMARY (%):

	2, 50
Texture:	
Sand	20
Silt	30
Clay	50
Composition:	
Volcanic glass	Tr
Zeolite	Tr
Carbonate unspec.	10
Foraminifers	15
Calc. nannofossils	35
Diatoms	25
Radiolarians	10
Sponge spicules	Tr
Silicoflagellates	Tr

SITE 572 HOLE C CORE 5 CORED INTERVAL 38.9–48.5 m



LITHOLOGIC DESCRIPTION

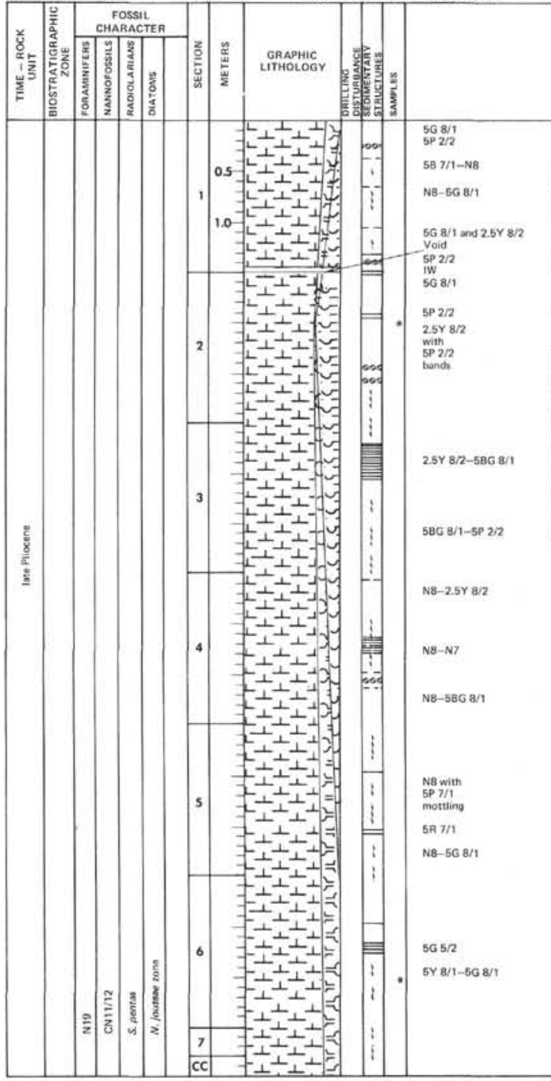
GREEN VARICOLORED OOZE (SUBUNIT IC):

Cyclic color variations between pale yellow (2.5Y 8/2) greenish gray (5BG 8/1), purple (5P 4/2), and white to light gray (N9–N8) siliceous nanno ooze, in distinct color bands. Burrowing and color mottling are seen, lamination present.

SMEAR SLIDE SUMMARY (%):

	3, 142
Texture:	
Sand	15
Silt	10
Clay	75
Composition:	
Volcanic glass	Tr
Carbonate unspec.	9
Foraminifers	3
Calc. nannofossils	75
Diatoms	8
Radiolarians	4
Sponge spicules	Tr
Silicoflagellates	1

SITE 572 HOLE C CORE 6 CORED INTERVAL 48.5–58.1 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):

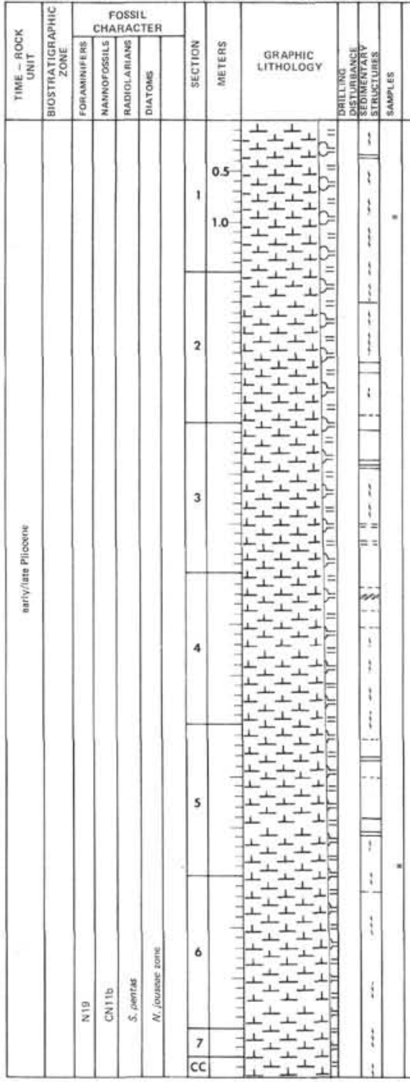
Cyclic color variations between pale yellow (2.5Y 8/2), purple (5P 2/2), greenish gray (5BG 8/1), and light gray (N8) diatom nanno ooze and siliceous nanno ooze, in distinct color bands.

Distinct dark-light laminations on a millimeter scale are common.

SMEAR SLIDE SUMMARY (%):

	2, 53	6, 106
Texture:		
Sand	25	15
Silt	10	15
Clay	65	70
Composition:		
Volcanic glass	Tr	Tr
Pyrite	–	1
Carbonate unspec.	5	6
Foraminifers	5	5
Calc. nannofossils	65	70
Diatoms	16	9
Radiolarians	9	9
Sponge spicules	Tr	Tr
Silicoflagellates	Tr	Tr

SITE 572 HOLE C CORE 7 CORED INTERVAL 58.1–67.7 m



5B 7/1

2.5Y 8/2

5B 7/1
with
2.5Y 8/2
mottling

5BG 8/1

5B 9/1
5G 8/1
5B 9/1

5G 8/1

N8

5P 2/2
N8 with
2.5Y 8/2

5P 2/2
5G 7/2

5B 9/1

5G 8/1

5BG 8/1

5B 7/1
with
2.5Y 8/2
mottling

2.5Y 8/4
5P 2/2

5B 9/1 and
5G 8/1

5P 2/2
5G 8/1

5B 9/1 to
5G 8/1

2.5Y 8/2,
5B 9/1,
and 5P 2/2
banding

5B 9/1 and
2.5Y 8/2

LITHOLOGIC DESCRIPTION

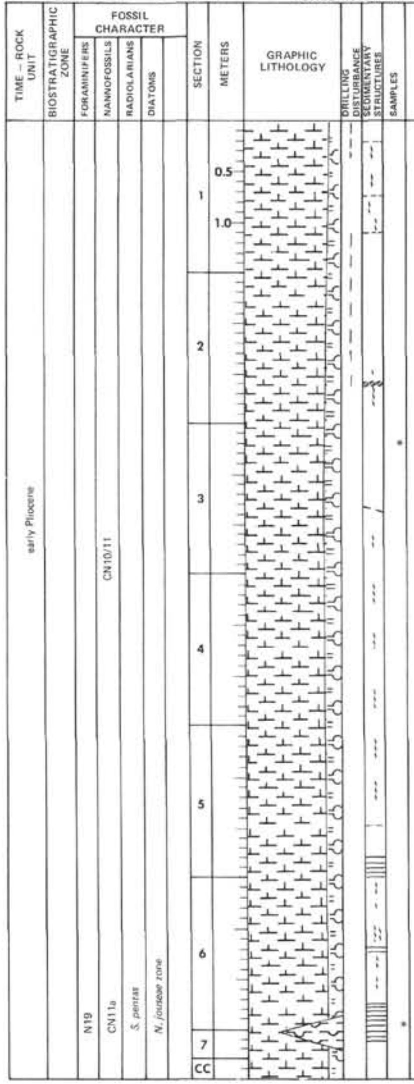
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between pale yellow (2.5Y 8/2), bluish gray (5B 7/1), light bluish gray to white (5B 9/1–N9), greenish gray (5BG 8/1), and pale purple (5P 2/2) siliceous nanno ooze.

Contacts sharp to gradational. Burrowing and color mottling are common, lamination present.

SMEAR SLIDE SUMMARY (%):

	1, 100	5, 140
Texture:		
Sand	10	10
Silt	10	10
Clay	80	80
Composition:		
Volcanic glass	Tr	Tr
Pyrite	–	Tr
Carbonate unspec.	3	5
Foraminifers	2	5
Calc. nannofossils	80	80
Diatoms	9	3
Radiolarians	6	7
Sponge spicules	Tr	Tr
Silicoflagellates	Tr	Tr
Fish remains	Tr	–

SITE 572 HOLE C CORE 8 CORED INTERVAL 67.7–77.3 m



5B 9/1

2.5Y 8/2

5B 9/1,
5P 2/2,
2.5Y 8/2

5B 9/1

5BG 8/1

5B 9/1
with
5P 2/2
and
2.5Y 8/2
mottles

N8, 5B 7/1
with
5Y 8/4
and
5P 2/2
mottles

5Y 8/4

5B 7/1,
5BG 8/1

5Y 8/4
5B 9/1 and
5P 2/2

5Y 8/4

5B 9/1

LITHOLOGIC DESCRIPTION

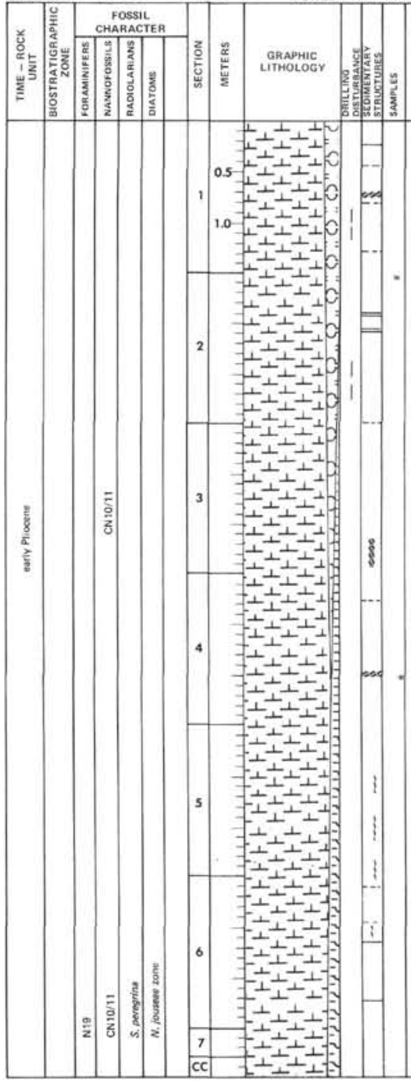
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between pale yellow to greenish yellow (2.5Y 8/2–5Y 8/4), light gray to white (5B 9/1–N9), greenish gray (5BG 8/1), and pale purple (5P 2/2) diatom nanno ooze.

Contacts sharp to gradational. Color mottling is common, lamination in Sections 6 and 7.

SMEAR SLIDE SUMMARY (%):

	3, 20	6, 148 M
Texture:		
Sand	10	2
Silt	15	78
Clay	75	28
Composition:		
Clay	–	Tr
Volcanic glass	Tr	Tr
Carbonate unspec.	4	2
Foraminifers	6	Tr
Calc. nannofossils	75	27
Diatoms	11	70
Radiolarians	4	1
Sponge spicules	Tr	–
Silicoflagellates	Tr	Tr

SITE 572 HOLE C CORE 9 CORED INTERVAL 77.3–86.9 m



LITHOLOGIC DESCRIPTION

5B 9/1
5RB 4/2
2.5Y 8/2
5B 9/1 with
5G 8/1
streaks
5B 9/1
2.5Y 8/2
5RP 4/2
2.5Y 8/2
5B 9/1
with
5P 2/2,
5G 8/1
bands
5B 9/1
burrow fill
2.5Y 8/2,
5P 2/2,
5G 8/1
bands
5B 9/2
burrow fill
2.5Y 8/2,
5P 2/2,
5G 8/1
bands
5B 9/1
2.5Y 8/2
2.5Y 8/2,
5P 2/2,
5G 8/1
5B 9/1

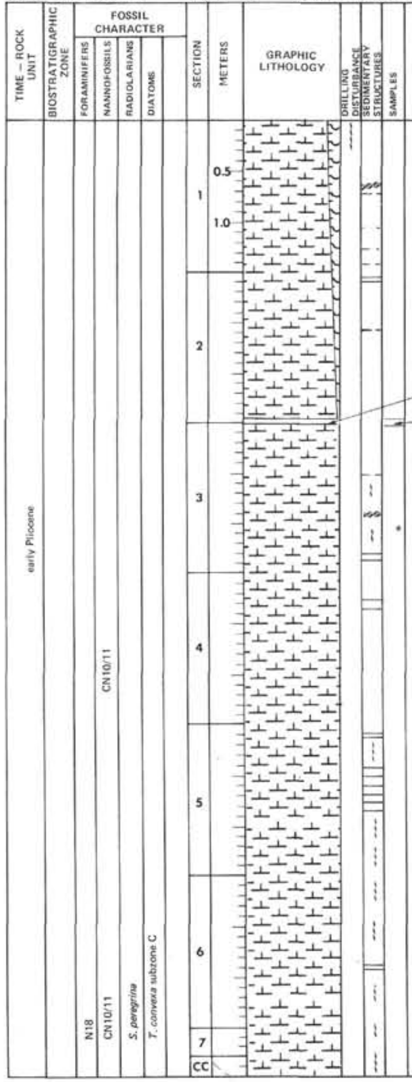
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between dusky purple (5RB 4/2), pale yellow (2.5Y 8/2), bluish gray to white (5B 9/1–N9), bluish green (5G 8/1), and purple (5P 2/2) siliceous nanno ooze to diatom nanno ooze, in distinct color bands. Burrowing and color mottling are common.

Core had H_2S odor upon splitting.

SMEAR SLIDE SUMMARY (%):

	2, 10	4, 107
Texture:		
Sand	15	–
Silt	10	–
Clay	75	–
Composition:		
Volcanic glass	–	Tr
Carbonate unspec.	2	4
Foraminifers	9	1
Calc. nannofossils	75	80
Diatoms	9	12
Radiolarians	4	3
Sponge spicules	Tr	Tr
Silicoflagellates	1	Tr

SITE 572 HOLE C CORE 10 CORED INTERVAL 86.9–96.5 m



LITHOLOGIC DESCRIPTION

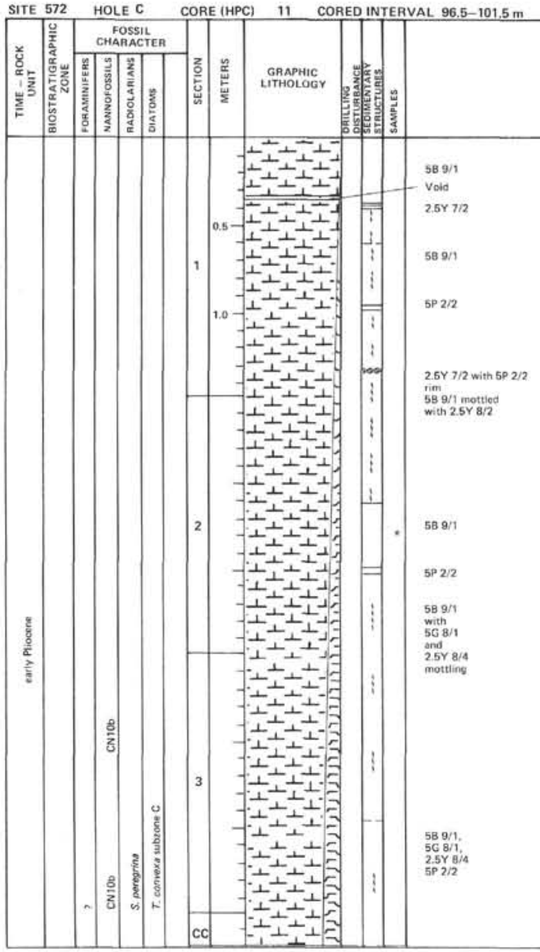
5B 9/1
2.5Y 8/2
burrow with
5P 2/2 rim
2.5Y 8/2
5BG 8/1
2.5Y 8/2
2.5Y 8/2
5B 9/1
2.5Y 8/2
Void
IW
5P 2/2 burrow rim
5B 9/1
2.5Y 8/2, 5P 2/2 bands
5B 9/1
2.5Y 7/2
5B 9/1
and
5BG 8/1
2.5Y 7/2
5B 9/1 with 5BG 8/1 mottling
5B 9/1 and 5P 2/2
bands
5B 9/1 and
2.5Y 8/2
mottled
2.5Y 8/2
2.5Y 8/2
and
5B 9/1

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between pale yellow (2.5Y 8/2), bluish gray (5B 7/1), white (N9), greenish gray (5BG 8/1), and pale purple gray (5BG 8/1), and pale purple (5P 2/2) nanno ooze, in distinct color bands and laminae. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	3, 105
Texture:	
Sand	5
Silt	5
Clay	90
Composition:	
Volcanic glass	Tr
Carbonate unspec.	2
Foraminifers	2
Calc. nannofossils	90
Diatoms	3
Radiolarians	2
Silicoflagellates	1

SITE 572 HOLE C CORE (HPC) 11 CORED INTERVAL 96.5–101.5 m



LITHOLOGIC DESCRIPTION

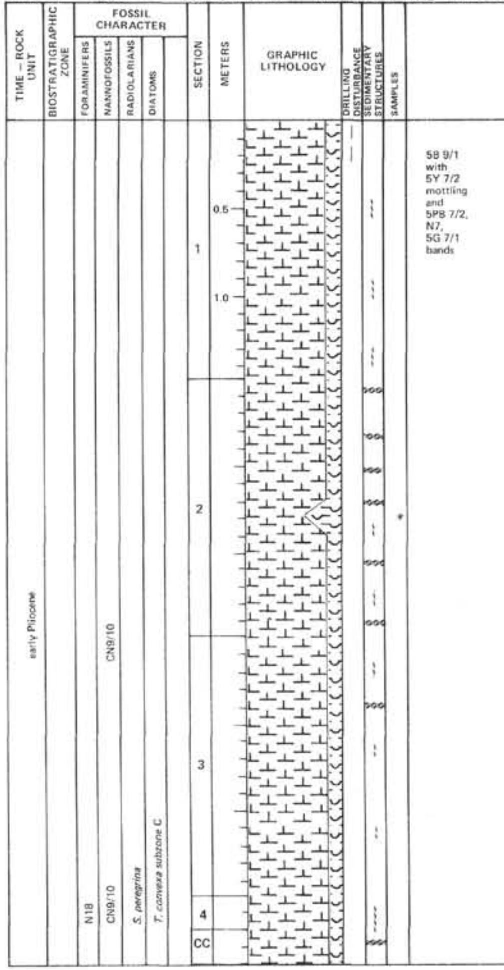
GREEN VARICOLORED OOZE (SUBUNIT IC):

Cyclic color variations between white (N9), bluish gray (5B 7/1), pale yellow (2.5Y 8/2), greenish gray (5BG 8/1) diatom nanno ooze, with distinct laminae of purple (5P 2/2) sediment. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	2, 80
Texture:	
Sand	5
Silt	20
Clay	75
Composition:	
Volcanic glass	Tr
Carbonate unspec.	4
Foraminifers	2
Calc. nannofossils	75
Diatoms	15
Radiolarians	3
Silicoflagellates	1

SITE 572 HOLE C CORE (HPC) 12 CORED INTERVAL 101.5–106.5 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):

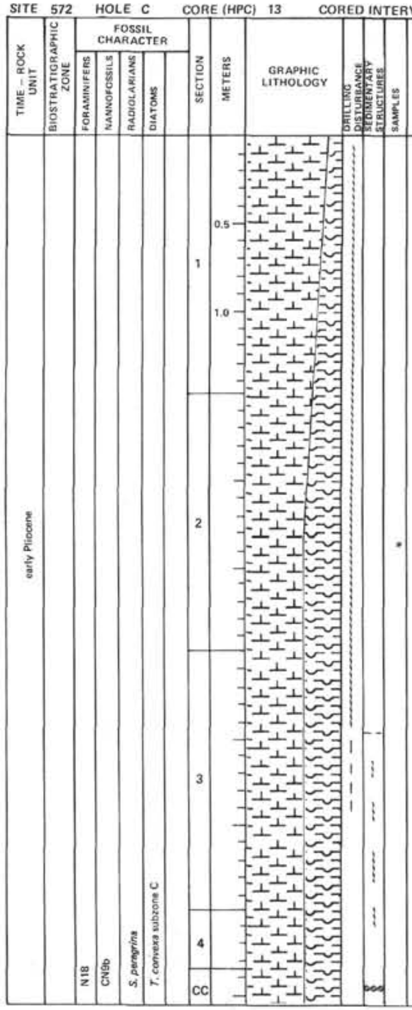
Cyclic color variations between greenish gray (5BG 8/1), pale yellow (2.5Y 8/2), white (N9), bluish gray (5B 7/1), and purple (5P 2/2) diatom nanno ooze.

Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	2, 80
Texture:	
Sand	5
Silt	25
Clay	70
Composition:	
Volcanic glass	Tr
Carbonate unspec.	13
Foraminifers	5
Calc. nannofossils	40
Diatoms	40
Radiolarians	2
Sponge spicules	Tr
Silicoflagellates	Tr

SITE 572 HOLE C CORE (HPC) 13 CORED INTERVAL 106.5–111.5 m



LITHOLOGIC DESCRIPTION

5Y 7/1
with
streaks
of 5G 8/1,
5Y 6/1,
5P 6/1

N9–5B 9/1
with bands of
N7, 5P 6/2,
5BG 7/1,
5G 8/1

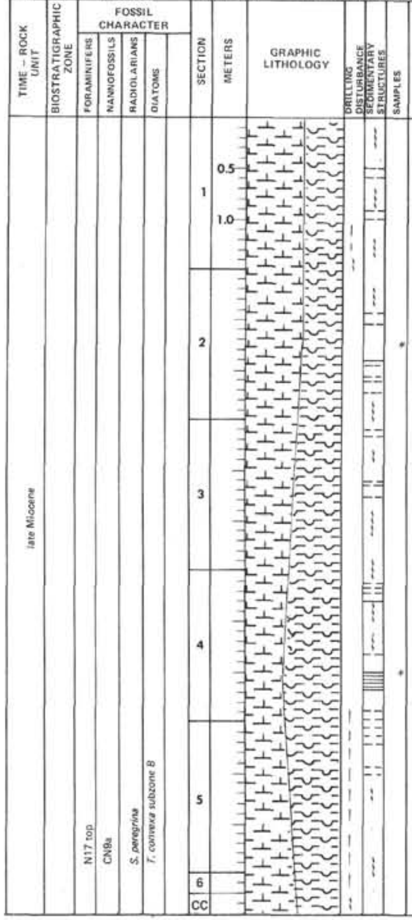
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between pale yellow (2.5Y 8/2), greenish gray (5BG 8/1), white (5B 9/1–N9), bluish gray (5B 7/1), and purple (5P 2/2) diatom nanno ooze.

Upper two sections have severe vertical streaking of colored laminae within a dominantly white background.

SMEAR SLIDE SUMMARY (%):

	2, 87
Texture:	
Sand	10
Silt	40
Clay	50
Composition:	
Volcanic glass	Tr
Carbonate unspec.	11
Foraminifers	3
Calc. nannofossils	40
Diatoms	40
Radiolarians	6
Sponge spicules	Tr
Silicoflagellates	Tr

SITE 572 HOLE C CORE 14 CORED INTERVAL 111.5–121.1 m



LITHOLOGIC DESCRIPTION

5Y 6/2–5Y 7/1

5Y 8/1

5GY 7/1

5Y 8/1

5Y 6/2

N9

5GY 7/1

N9

N9
N9

5Y 7/2

5P 6/2
N9 and 5P 6/2

5Y 7/2
5GY 7/1
5GY 6/1–5Y 6/1

N9
N9

5B 9/1

5Y 7/2

5B 9/1

5GY 7/1
5P 6/2
5P 6/2

N9

5P 6/2

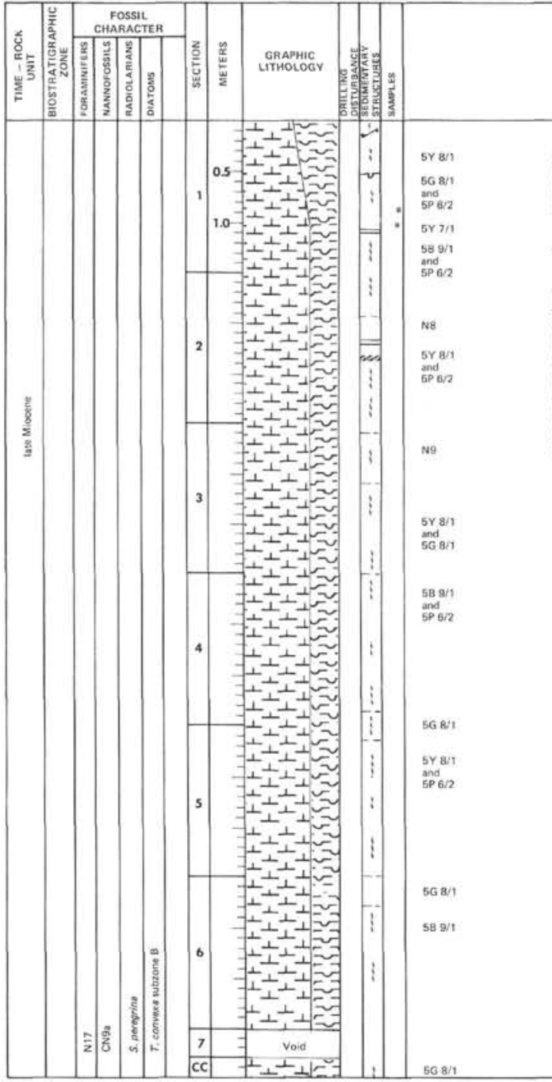
5Y 6/2–5Y 7/1

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white (N9–5Y 8/1), greenish gray (5GY 7/1), light gray (5Y 7/2), and pale purple (5P 6/2) diatom nanno ooze, in distinct color bands. Burrowing and color mottling are common, lamination occurs.

SMEAR SLIDE SUMMARY (%):

	2, 77	4, 104
Texture:		
Sand	5	2
Silt	45	50
Clay	50	48
Composition:		
Volcanic glass	Tr	–
Pyrite	–	Tr
Zeolite	Tr	–
Carbonate unspec.	5	–
Foraminifers	2	Tr
Calc. nannofossils	45	40
Diatoms	40	60
Radiolarians	8	Tr
Silicoflagellates	Tr	–

SITE 572 HOLE C CORE 15 CORED INTERVAL 121.1–130.7 m



LITHOLOGIC DESCRIPTION

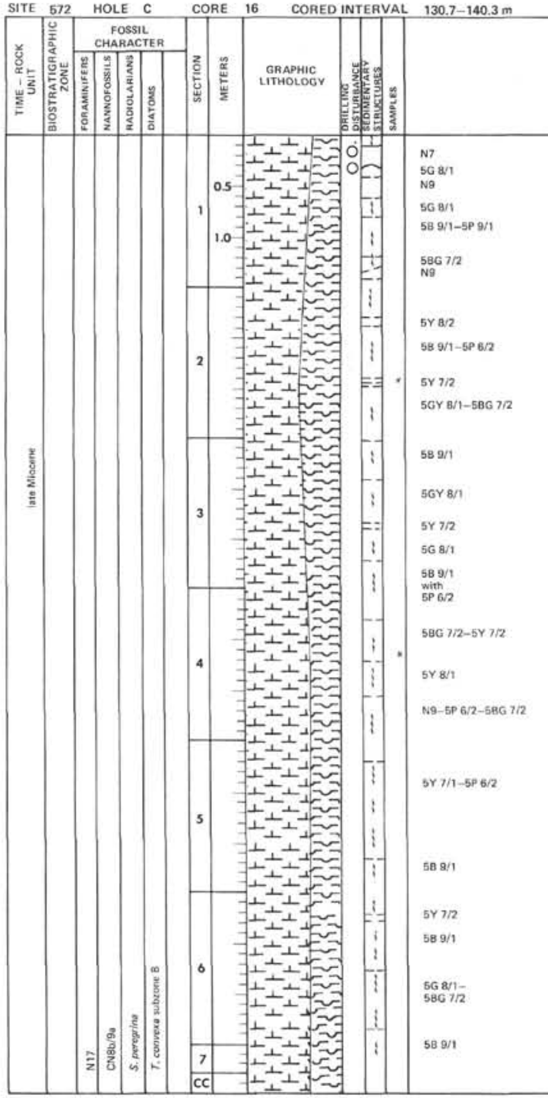
GREEN VARICOLORED OOZE (SUBUNIT IC):

Cyclic color variations between white to bluish white (N9–5B 9/1), greenish gray (5G 8/1), and pale purple (5P 6/2) diatom nanno ooze, in distinct color bands and laminae. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	1, 90	1, 107
Texture:		
Sand	20	5
Silt	30	35
Clay	50	60
Composition:		
Carbonate unspec.	8	17
Foraminifers	8	2
Calc. nannofossils	50	45
Diatoms	30	30
Radiolarians	4	1
Sponge spicules	Tr	–
Silicoflagellates	Tr	5

SITE 572 HOLE C CORE 16 CORED INTERVAL 130.7–140.3 m



LITHOLOGIC DESCRIPTION

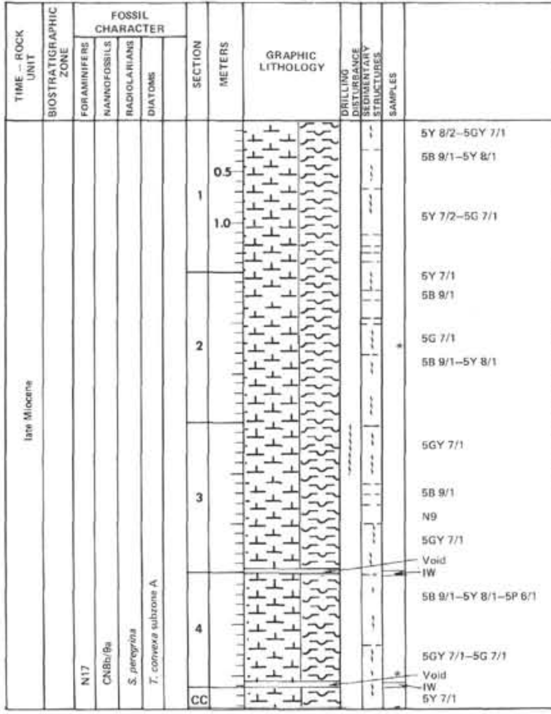
GREEN VARICOLORED OOZE (SUBUNIT IC):

Cyclic color variations between bluish white to white (5B 9/1–N9) light greenish gray (5G 8/1–5GY 8/1) pale purple (5P 9/1), and pale blue green (5BG 7/2) diatom nanno ooze to rad diatom nanno ooze, in distinct color bands and laminae. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	2, 93	4, 67
Texture:		
Sand	5	15
Silt	45	40
Clay	50	45
Composition:		
Clay	3	–
Volcanic glass	Tr	–
Pyrite	–	Tr
Carbonate unspec.	10	8
Foraminifers	1	10
Calc. nannofossils	40	40
Diatoms	40	30
Radiolarians	4	10
Sponge spicules	Tr	Tr
Silicoflagellates	2	2

SITE 572 HOLE C CORE 17 CORED INTERVAL 140.3–149.9 m



LITHOLOGIC DESCRIPTION

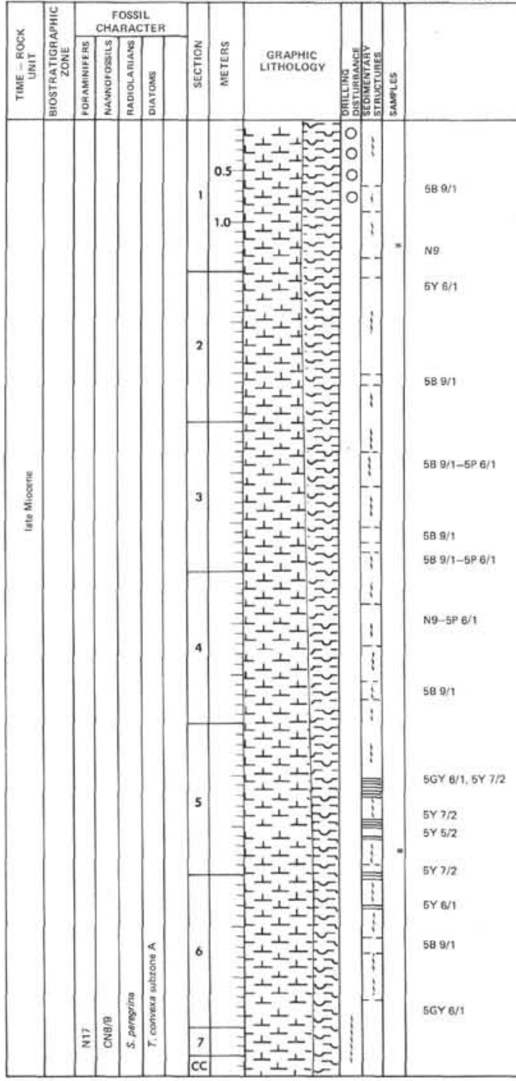
GREEN VARICOLORED OOZE (SUBUNIT IC)

Cyclic color variations between white to bluish white (N9–5B 9/1), greenish gray (5GY 7/1), bluish green (5G 7/1), and purple (5P 6/1) diatom nanno ooze, in distinct color bands. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	2, 77	4, 100
Texture:		
Sand	15	–
Silt	35	–
Clay	50	–
Composition:		
Volcanic glass	–	Tr
Carbonate unspec.	10	10
Foraminifers	4	3
Calc. nannofossils	40	40
Diatoms	40	40
Radiolarians	4	6
Sponge spicules	Tr	–
Silicoflagellates	2	1

SITE 572 HOLE C CORE 18 CORED INTERVAL 149.9–159.5 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC)

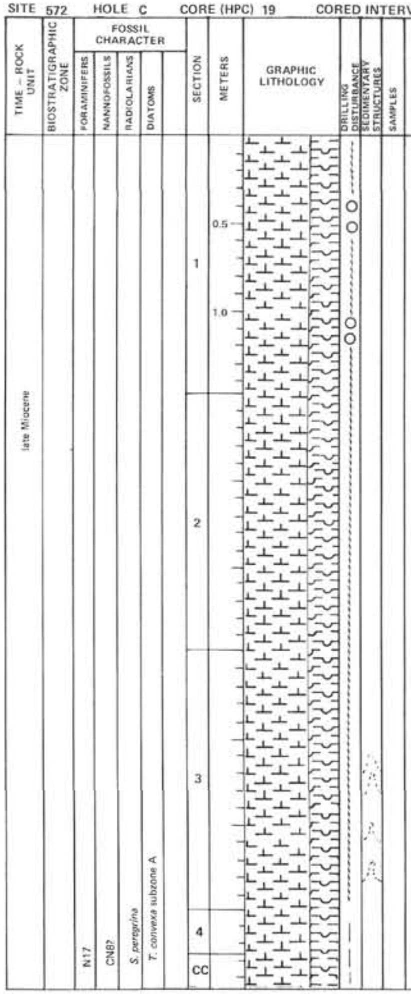
Cyclic color variations between white (N9–5B 9/1), greenish gray to light gray (5GY 6/1–5Y 7/2), olive green (5Y 5/2), and pale purple (5P 6/1) diatom nanno ooze, in distinct color bands and laminae.
color bands and laminae.

Core had H_2S odor upon splitting. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	1, 123	5, 129
Texture:		
Sand	5	3
Silt	45	47
Clay	50	50
Composition:		
Carbonate unspec.	10	–
Foraminifers	4	3
Calc. nannofossils	35	65
Diatoms	40	30
Radiolarians	6	1
Silicoflagellates	5	1

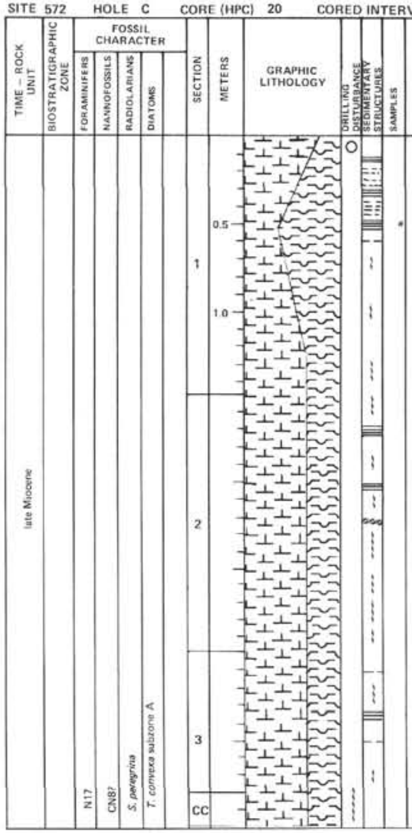
SITE 572 HOLE C CORE (HPC) 19 CORED INTERVAL 159.5–164.5 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC'):
White (N9), greenish gray (5GY 6/1), bluish gray (5B 7/1), and purple (5P 2/2) diatom nanno ooze.

SITE 572 HOLE C CORE (HPC) 20 CORED INTERVAL 164.5–169.5 m



LITHOLOGIC DESCRIPTION

5GY 7/1

5Y 7/2

5B 9/1,
5Y 7/2,
5P 6/1

5Y 7/2

5B 9/1–5P 6/1

5Y 7/2

N8, 5GY 7/1

5B 9/1,
5P 6/1

5Y 7/2
5GY 7/1

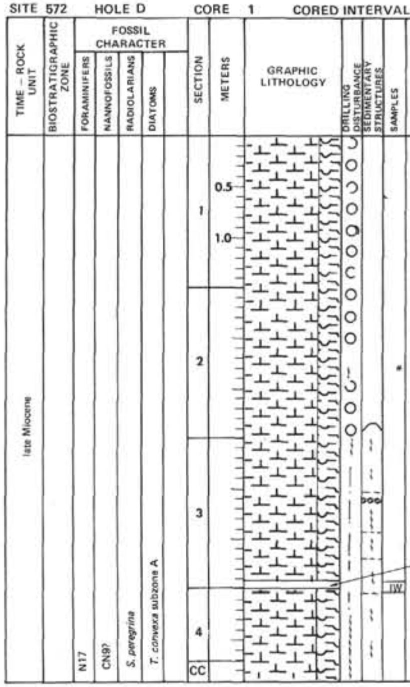
5B 9/1

GREEN VARICOLORED OOZE (SUBUNIT IC'):
Deepest HPC core at this site. Cyclic color variations between greenish gray (5GY 7/1), white (N9–5B 9/1), light gray (N8), and pale purple (5P 6/1) diatom nanno ooze, in distinct color bands and laminae. Burrowing and color mottling are common.

SMEAR SLIDE SUMMARY (%):

	1, 50
Texture:	
Sand	5
Silt	50
Clay	45
Composition:	
Pyrite	Tr
Carbonate unspec.	5
Foraminifers	1
Calc. nannofossils	30
Diatoms	60
Radiolarians	2
Sponge spicules	Tr
Silicoflagellates	2

SITE 572 HOLE D CORE 1 CORED INTERVAL 151.0–160.5 m



N8

N8

5Y 8/1–
5GY 7/1–
5P 6/1

N9–5B 9/1

5GY 7/1

Void
N9

5Y 8/1–5P 6/1

LITHOLOGIC DESCRIPTION

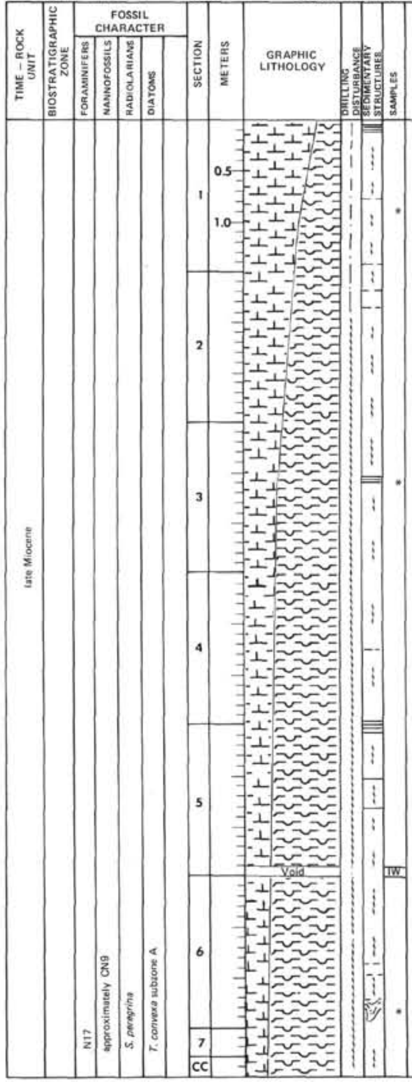
GREEN VARICOLORED OOZE (SUBUNIT IC):
Upper sections (1, 2) white (N8) diatom nanno ooze.

Lower sections (3, 4) have cyclic color variations between white to light gray (N8–5Y 7/1), greenish gray (5GY 7/1), green (5G 7/1), and purple (5P 6/1) diatom nanno ooze. Burrowing and color mottling evident in lower sections.

SMEAR SLIDE SUMMARY (%):

	2, 82
Texture:	
Sand	5
Silt	30
Clay	65
Composition:	
Zeolite	Tr
Carbonate unspec.	5
Foraminifers	1
Calc. nannofossils	68
Diatoms	25
Radiolarians	1
Sponge spicules	Tr
Silicoflagellates	Tr

SITE 572 HOLE D CORE 2 CORED INTERVAL 160.5–170.0 m



5Y 7/1 +
5G 7/2
N8–5P 8/2

N9–5Y 8/1

5RP 8/2

5Y 7/3

N9–5G 8/1
with 5P 6/1
streaks

5G 7/2

N9 with
5P 6/2
streaks

N8–5GY 8/1–5B 8/1

5G 6/1
5RP 7/2

N9

5P 6/1–N8

N9–5G 8/1–5Y 8/1

5P 6/1

5Y 8/1

N9

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between white to light gray (N9–5Y 8/2), pale purple to gray (5RP 8/2–5Y 7/1), pale yellow (5Y 7/3), and light green to greenish gray (5G 7/2–5GY 8/1) diatom nanno ooze to calcareous diatom ooze.

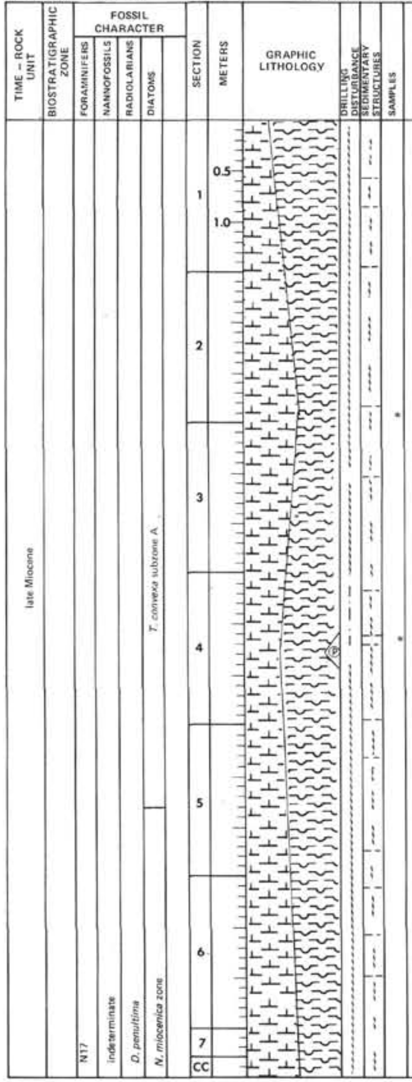
Sections moderately disturbed to severely disturbed.

SMEAR SLIDE SUMMARY (%):

	1, 90	3, 63	6, 140
Texture:			
Sand	3	2	2
Silt	40	40	55
Clay	57	58	43
Composition:			
Clay	–	–	5
Pyrite	–	3	–
Zeolite	–	Tr	–
Carbonate unspec.	5	5	3
Foraminifers	1	1	Tr
Calc. nannofossils	52	24	20
Diatoms	40	60	70
Radiolarians	1	1	1
Silicoflagellates	1	1	1

CARBONATE BOMB:
1, 49 cm = 61%
2, 49 cm = 47%
3, 49 cm = 61%
4, 49 cm = 66%
5, 49 cm = 76%
6, 49 cm = 70%
7, 49 cm = 62%

SITE 572 HOLE D CORE 3 CORED INTERVAL 170.0–179.5 m



N9
5Y 7/2,
5G 8/1

5G 8/1, N6

N9,
5G 8/1,
5P 6/1

5G 8/1,
5Y 7/2,
N4

N9,
5G 8/1,
5Y 7/2,
5P 6/1

N8,
5G 8/1,
5Y 8/1

N9, 5G 8/1

N6–N7

N9, 5P 6/1,
5Y 7/2

N8, 5Y 8/1,
5G 8/1

N9, 5P 6/1,
5G 8/1

5P 6/1,
N4–N7

N9,
5G 8/1

N7–N8,
N9

N9, 5P 6/1,
5Y 8/1

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):

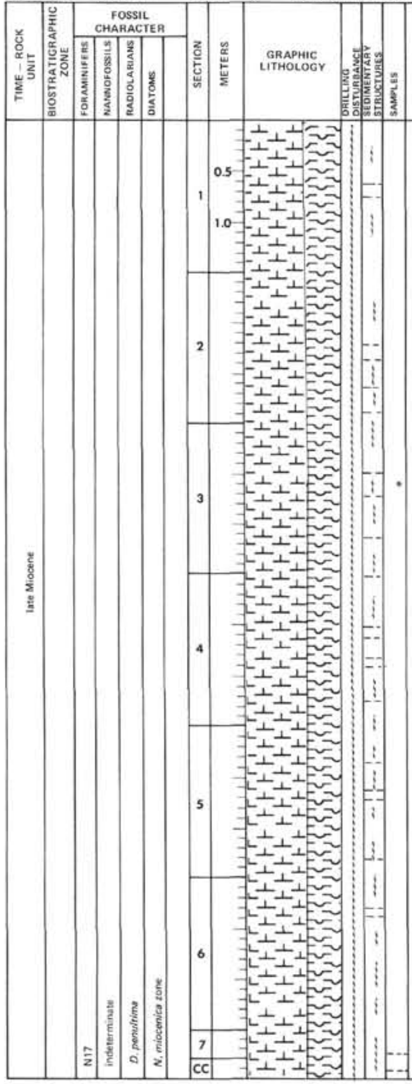
Entire core severely disturbed. Alternation of white to light gray (N9–5Y 8/2), green gray (5G 8/1), pale purple (5P 6/1), and dark gray (N4–N6) diatom nanno ooze to calcareous diatom ooze.

SMEAR SLIDE SUMMARY (%):

	2, 140	4, 67
Texture:		
Sand	5	2
Silt	45	60
Clay	50	38
Composition:		
Clay	5	3
Volcanic glass	Tr	–
Pyrite	–	10
Carbonate unspec.	–	5
Foraminifers	Tr	Tr
Calc. nannofossils	55	20
Diatoms	40	60
Radiolarians	Tr	1
Silicoflagellates	Tr	1

CARBONATE BOMB:
1, 47 cm = 59%
2, 47 cm = 53%
3, 47 cm = 52%
4, 47 cm = 63%
5, 47 cm = 65%
6, 47 cm = 62%

SITE 572 HOLE D CORE 4 CORED INTERVAL 179.5–189.0 m



N9,
5P 6/2,
5Y 7/3

5P 7/2

N9,
5P 6/2,
5G 8/1

5P 7/2

N9

5P 7/2,
5G 8/1
5Y 7/3–5G 8/1

5P 7/2

N9,
5Y 8/2

5BG 7/1

N9,
5Y 7/3

5P 7/2
N9
5G 7/2

N9

5BG 7/1,
5G 8/1

5P 6/1

N9,
5G 8/1,
5Y 7/3

5BG 7/1–
5P 7/1

5P 6/1

N9,
5BG 7/1,
5G 8/1

5G 7/2
N9

LITHOLOGIC DESCRIPTION

GREEN VARICOLOR OOZE (SUBUNIT IC'):

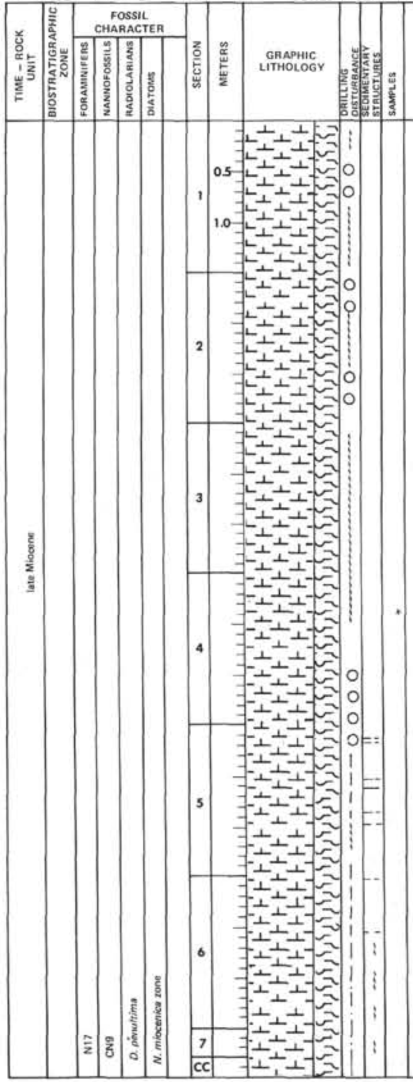
Entire core severely disturbed. Alternation of yellow (5Y 7/3), white to light gray (N9–5Y 8/2), purple (5P 6/1), and green to greenish gray (5G 7/2–5GY 8/1) diatom nanno ooze.

SMEAR SLIDE SUMMARY (%):

	3, 65
Texture:	
Sand	15
Silt	30
Clay	55
Composition:	
Clay	5
Carbonate unspec.	1
Foraminifers	2
Calc. nannofossils	50
Diatoms	35
Radiolarians	5
Sponge spicules	Tr
Silicoflagellates	2

CARBONATE BOMB:
1, 47 cm = 72%
2, 47 cm = 74%
3, 47 cm = 78%
4, 47 cm = 71%
5, 47 cm = 77%
6, 47 cm = 66%

SITE 572 HOLE D CORE 5 CORED INTERVAL 189.0–198.5 m



N7

N7

N7

N7

N7

5G 8/1

N9, 5P 6/1

5BG 7/1

N9, 5P 6/1
5G 8/1

N9, 5P 6/1

5G 8/1,
5BG 7/1

N9,
5G 8/1,
5P 6/1

LITHOLOGIC DESCRIPTION

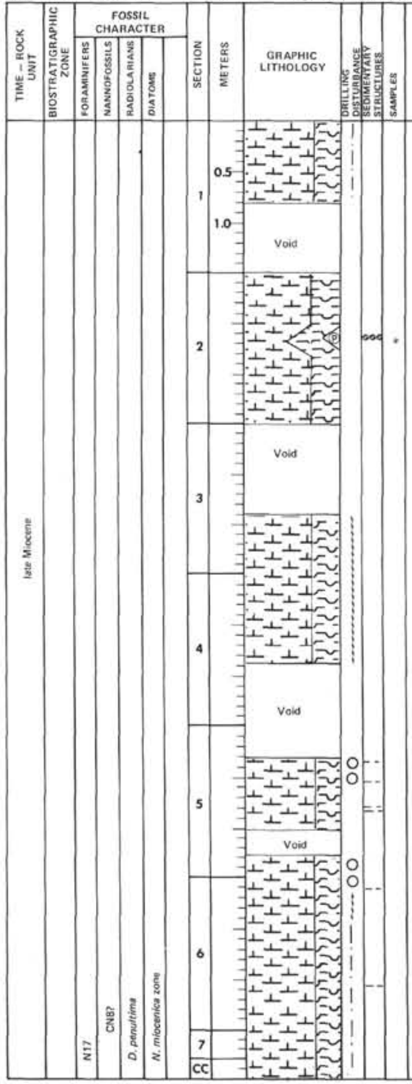
GREEN VARICOLORED OOZE (SUBUNIT IC):
Entire core deformed to soupy. Alternation of gray (N7) soupy areas with white to light gray (N9–5Y 8/2), green (5GY 8/1), and purple (5P 6/1) disturbed diatom nanno oozes. Pastel colors are found as distorted to vertical streaks in white colored background.

SMEAR SLIDE SUMMARY (%):

	4, 40
Texture:	
Sand	20
Silt	30
Clay	50
Composition:	
Clay	Tr
Pyrite	Tr
Carbonate unspec.	10
Foraminifers	5
Calc. nannofossils	50
Diatoms	30
Radiolarians	5
Sponge spicules	Tr
Silicoflagellates	Tr

CARBONATE BOMB:
1, 90 cm = 82%
2, 90 cm = 77%
3, 90 cm = 78%
4, 90 cm = 78%
5, 90 cm = 71%
6, 90 cm = 69%

SITE 572 HOLE D CORE 6 CORED INTERVAL 198.5–208.0 m



5P 4/2,
5GY 7/2,
5GY 8/1,
5B 9/1

5B 9/1,
5P 4/2,
5GY 7/2,
5GY 8/1

5GY 8/1,
5P 4/2,
5B 9/1

N7
5P 4/1

5GY 8/1
5P 6/2
5GY 8/1

5P 4/2,
5GY 8/1

5GY 8/1,
5P 6/2,
5Y 8/1

N9,
5Y 8/1

N9,
5P 6/1

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):
Entire core moderately to severely disturbed.

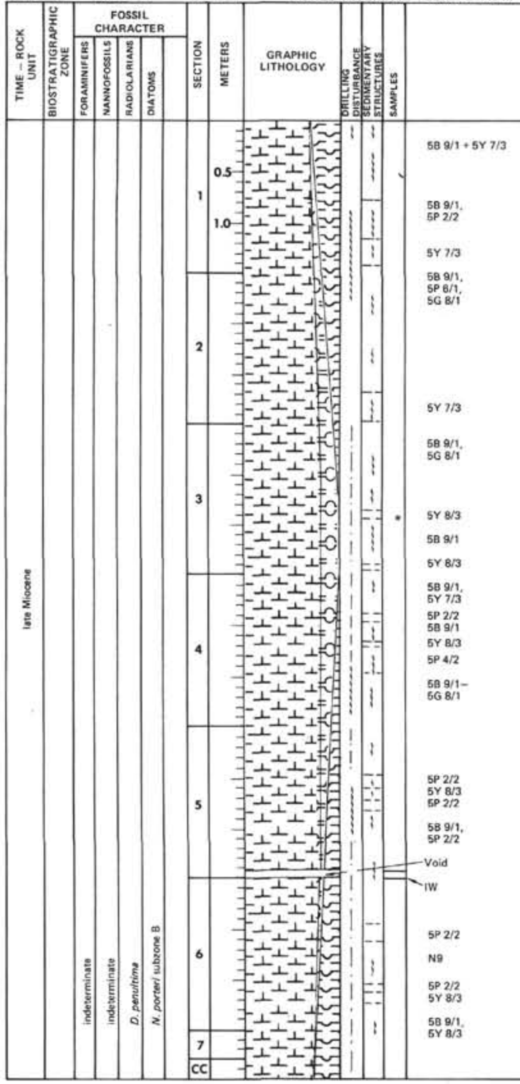
Purple to pale blue (5P 4/2–5B 6/2), yellow green (5GY 7/2), and light greenish gray (5GY 8/1) streaks in bluish white to white (5B 9/1–N9) diatom nanno ooze. Green colored streaks predominate.

SMEAR SLIDE SUMMARY (%):

	2, 70
Texture:	
Sand	35
Silt	15
Clay	50
Composition:	
Clay	3
Volcanic glass	Tr
Pyrite	20
Zeolite	Tr
Carbonate unspec.	5
Foraminifers	Tr
Calc. nannofossils	30
Diatoms	40
Radiolarians	2
Silicoflagellates	Tr

CARBONATE BOMB:
6, 90 cm = 75%

SITE 572 HOLE D CORE 7 CORED INTERVAL 208.0–217.5 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):

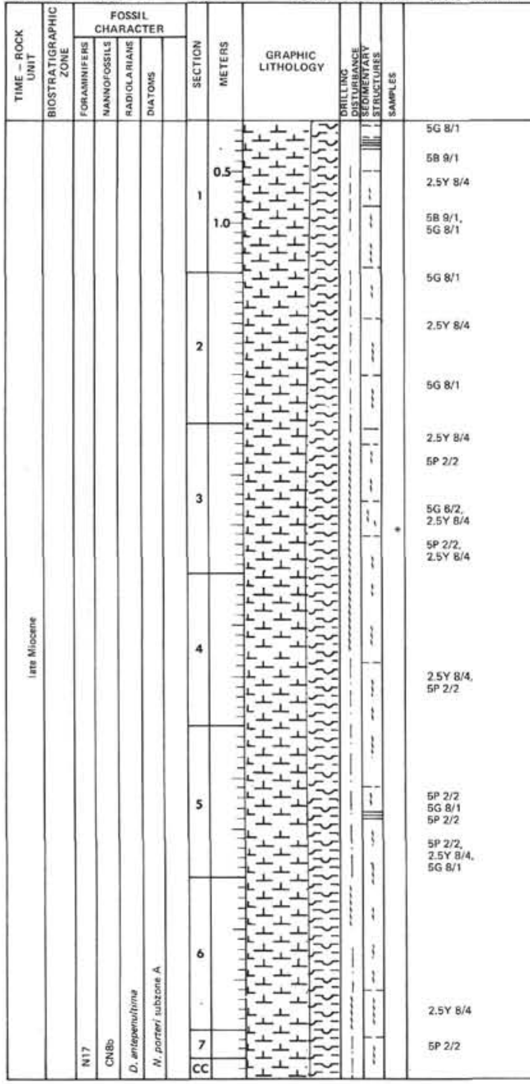
Alternation of white (N9–5B 9/1), pale yellow (5Y 7/3), greenish gray (5G 8/1) and dusky purple (5P 4/2) siliceous nanno ooze. Burrowing and color mottling are common, although disturbed.

SMEAR SLIDE SUMMARY (%):

	3, 94
Texture:	
Sand	4
Silt	8
Clay	88
Composition:	
Volcanic glass	Tr
Pyrite	Tr
Carbonate unspec.	14
Foraminifers	1
Calc. nannofossils	75
Diatoms	6
Radiolarians	2
Sponge spicules	Tr
Silicoflagellates	1
Fish remains	Tr

CARBONATE BOMB:
1, 90 cm = 81%
2, 90 cm = 85%
3, 90 cm = 74%
4, 90 cm = 78%
5, 90 cm = 86%
6, 90 cm = 83%

SITE 572 HOLE D CORE 8 CORED INTERVAL 217.5–227.0 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):

Entire core moderately to severely disturbed.

Alternation of greenish gray (5G 8/1), dusky purple (5P 2/2), pale yellow (2.5Y 8/4), and bluish white (5B 9/1) diatom nanno ooze.

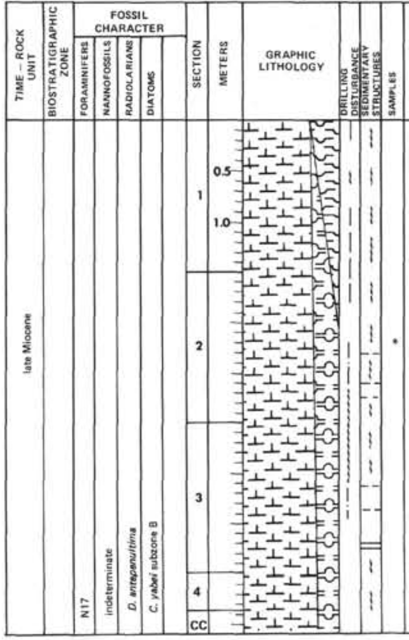
Burrowing and color mottling are common, although disturbed, some lamination visible.

SMEAR SLIDE SUMMARY (%):

	3, 105
Texture:	
Sand	8
Silt	22
Clay	70
Composition:	
Volcanic glass	Tr
Pyrite	1
Carbonate unspec.	10
Foraminifers	1
Calc. nannofossils	65
Diatoms	15
Radiolarians	7
Silicoflagellates	1

CARBONATE BOMB:
1, 90 cm = 76%
2, 90 cm = 73%
3, 90 cm = 77%
4, 90 cm = 64%
5, 90 cm = 79%
6, 90 cm = 68%

SITE 572 HOLE D CORE 9 CORED INTERVAL 227.0–236.5 m



5B 9/1,
5P 2/2,
2.5Y 8/4

5G 8/1,
5B 9/1
5P 6/2

2.5Y 8/4

5B 9/1–5P 6/2

2.5Y 8/4

2.5Y 8/2

5B 9/1,
5G 8/2

LITHOLOGIC DESCRIPTION

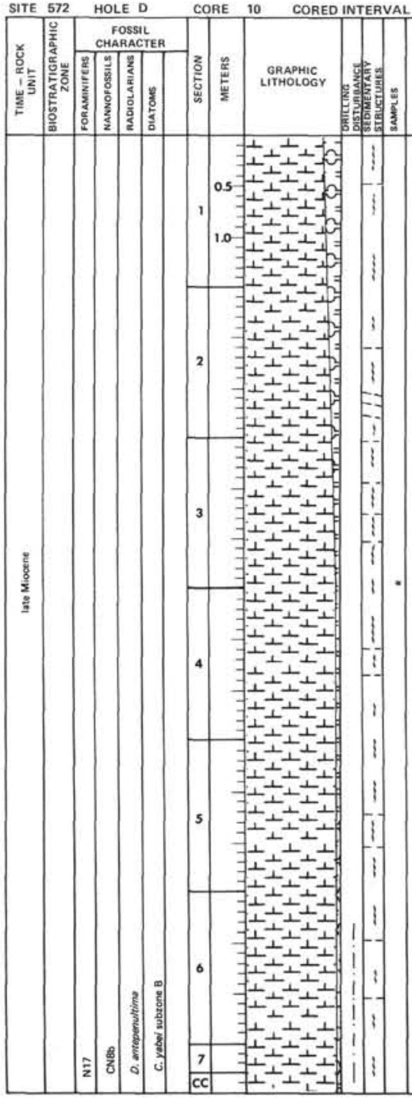
GREEN VARICOLORED OOZE (SUBUNIT IC):
Pale yellow (2.5Y 8/4), purple (5P 2/2), and bluish white (5B 9/1) with occasional distinct bands of greenish gray to blue gray (5G 8/1–5B 9/1) siliceous nanno ooze.

SMEAR SLIDE SUMMARY (%):

	2, 70
Texture:	
Sand	5
Silt	15
Clay	80
Composition:	
Volcanic glass	Tr
Pyrite	1
Carbonate unspec.	17
Foraminifers	1
Calc. nannofossils	65
Diatoms	9
Radiolarians	6
Silicoflagellates	1

CARBONATE BOMB:
1, 90 cm = 84%
2, 90 cm = 85%
3, 90 cm = 81%

SITE 572 HOLE D CORE 10 CORED INTERVAL 236.5–246.0 m



5P 6/2,
2.5Y 8/4

5B 9/1,
5P 6/2,
5G 8/1

5P 6/2

2.5Y 8/4
5P 6/2

2.5Y 8/4

5P 6/2

5B 9/1
5G 8/1

5P 6/2

5B 9/1,
5G 8/1

5P 6/2

5B 9/1, 5G 8/1

5P 6/2

5B 9/1,
5G 8/1

5B 9/1,
2.5Y 8/2

5P 6/2

LITHOLOGIC DESCRIPTION

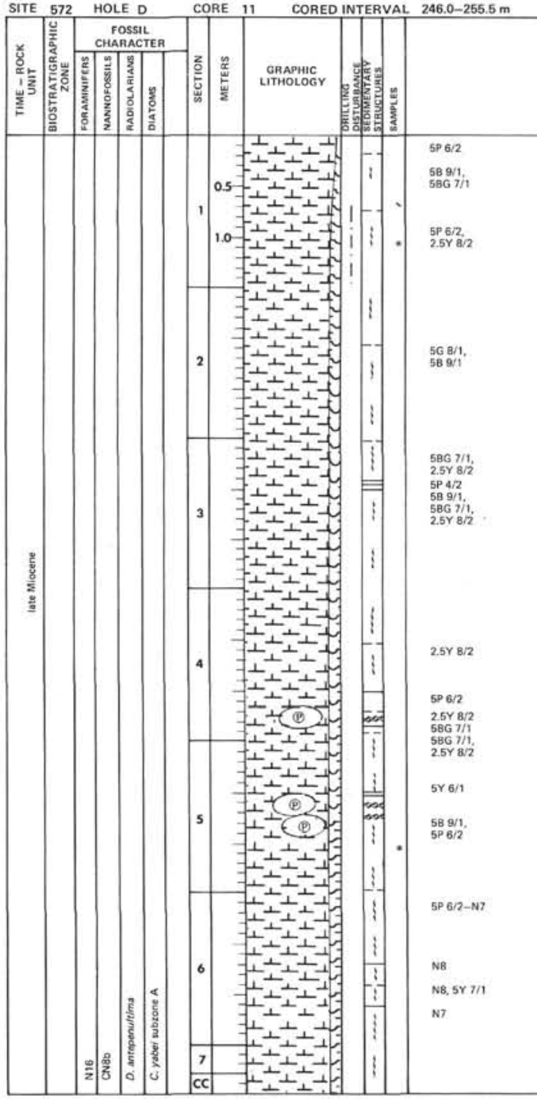
GREEN VARICOLORED OOZE (SUBUNIT IC):
Cyclic color variations between bluish white (N9–5B 9/1), greenish gray (5G 8/1), purple (5P 6/2), and pale yellow (2.5Y 8/4) nanno ooze. Contacts sharp to gradational.

SMEAR SLIDE SUMMARY (%):

	3, 145
Texture:	
Sand	3
Silt	7
Clay	90
Composition:	
Volcanic glass	Tr
Pyrite	Tr
Carbonate unspec.	37
Foraminifers	1
Calc. nannofossils	55
Diatoms	3
Radiolarians	3
Sponge spicules	Tr
Silicoflagellates	1

CARBONATE BOMB:
1, 90 cm = 81%
2, 90 cm = 81%
3, 90 cm = 87%
4, 90 cm = 90%
5, 90 cm = 84%
6, 90 cm = 84%

SITE 572 HOLE D CORE 11 CORED INTERVAL 246.0–255.5 m



LITHOLOGIC DESCRIPTION

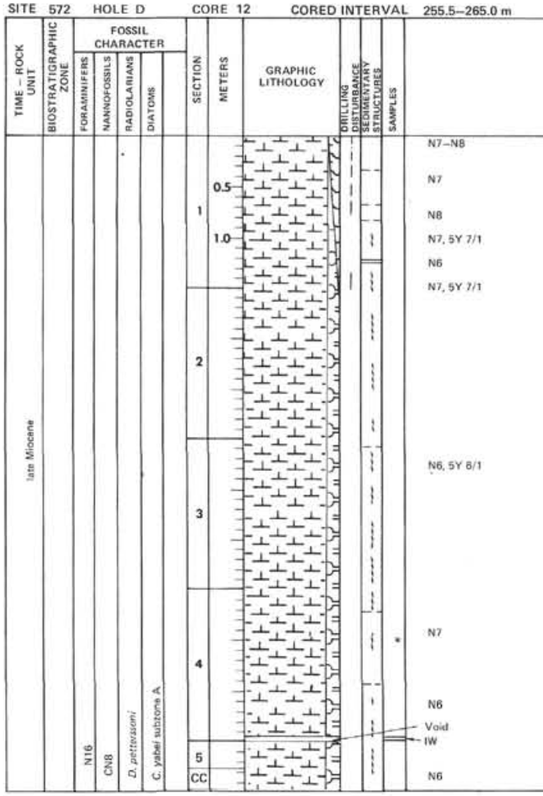
GREEN VARICOLORED OOZE (SUBUNIT IC'):
Cyclic color variations between pale yellow (2.5Y 8/2), greenish gray (5BG 7/1), dusky purple (5P 6/2), and bluish white (5B 9/1) diatom calcareous ooze. Contacts sharp to gradational. Burrowing and color mottling are common; some lamination present.

SMEAR SLIDE SUMMARY (%):

	1, 103	5, 102
Texture:		
Sand	5	10
Silt	10	15
Clay	85	75
Composition:		
Volcanic glass	Tr	Tr
Pyrite	1	1
Carbonate unspec.	55	50
Foraminifers	Tr	Tr
Calc. nannofossils	28	25
Diatoms	12	15
Radiolarians	3	9
Silicoflagellates	1	Tr

CARBONATE BOMB:
1, 90 cm = 72%
2, 90 cm = 81%
3, 90 cm = 89%
4, 90 cm = 85%
5, 90 cm = 69%
6, 90 cm = 73%
CC = 70%

SITE 572 HOLE D CORE 12 CORED INTERVAL 255.5–265.0 m



LITHOLOGIC DESCRIPTION

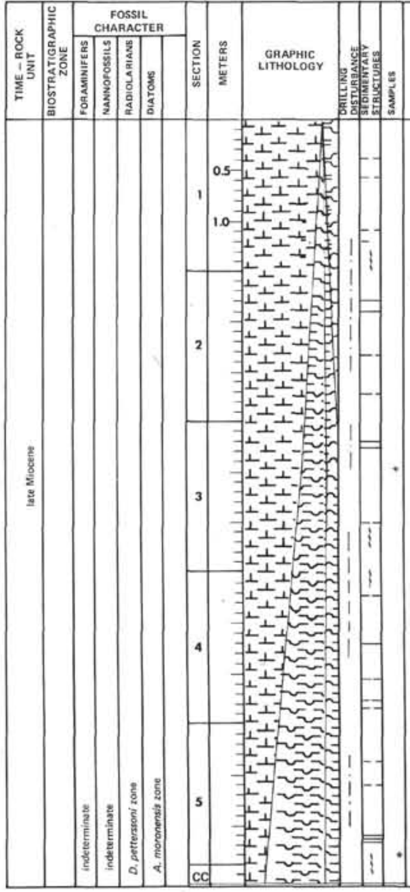
GREEN VARICOLORED OOZE (SUBUNIT IC'):
Cyclic color variations between dark gray (N6) and light gray (N7–N8) siliceous nanno ooze, with bluish gray (5Y 6/1) burrow mottling.

SMEAR SLIDE SUMMARY (%):

	4, 50
Texture:	
Sand	6
Silt	10
Clay	84
Composition:	
Volcanic glass	Tr
Pyrite	1
Carbonate unspec.	19
Foraminifers	Tr
Calc. nannofossils	65
Diatoms	5
Radiolarians	9
Silicoflagellates	1

CARBONATE BOMB:
1, 90 cm = 64%
2, 90 cm = 81%
3, 90 cm = 81%
4, 90 cm = 79%

SITE 572 HOLE D CORE 13 CORED INTERVAL 265.0–274.5 m



5B 8/2
5Y 7/1
5PB 7/2
5PB 5/2
N8,
2.5Y 7/1
5P 4/2
5Y 7/1,
5PB 7/2
5PB 5/2,
5G 7/2
5Y 7/1, N9
N2
5Y 7/1–5G 8/1
5B 8/2,
5Y 7/1
N7
5G 6/1
N7
5GY 8/1
5B 7/1–N7
5PB 7/2
5P 4/2
2.5Y 5/2,
5Y 5/2

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):

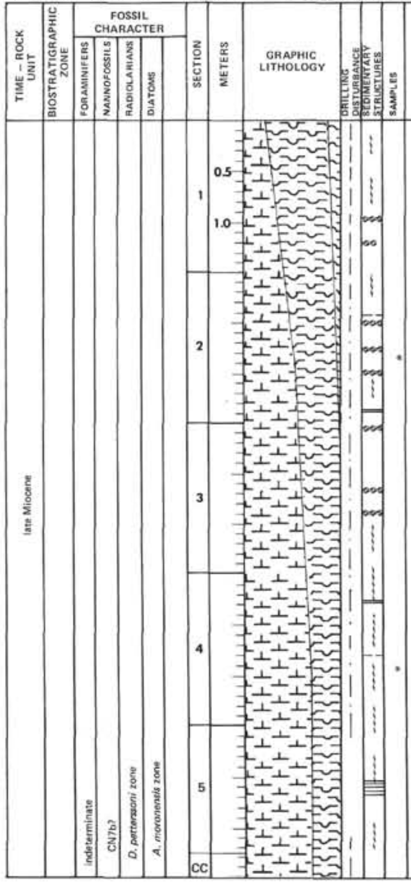
Alternation of pale blue (5B 8/2–5PB 7/2) with light gray (5Y 7/1) bands, greenish gray to pale green (5GY 7/1–5G 7/2), white (N9), and purple (5P 4/2) rad diatom nanno ooze to nanno diatom ooze.

SMEAR SLIDE SUMMARY (%):

	3, 50	5, 135
Texture:		
Sand	5	10
Silt	35	60
Clay	60	30
Composition:		
Volcanic glass	–	Tr
Zeolite	Tr	Tr
Carbonate unspec.	5	–
Foraminifers	Tr	2
Calc. nannofossils	60	25
Diatoms	25	65
Radiolarians	10	8
Sponge spicules	Tr	Tr
Silicoflagellates	Tr	Tr

CARBONATE BOMB:
1, 90 cm = 61%
2, 90 cm = 43%
3, 90 cm = 52%
4, 90 cm = 44%
5, 90 cm = 16%

SITE 572 HOLE D CORE 14 CORED INTERVAL 274.5–284.0 m



N8–N9
2.5Y 8/2
mottles
N7–5G 7/1,
5BG 7/1
5G 5/1
N8 + 2.5Y 8/2
5Y 7/1
N7–5P 6/1
N8, 2.5Y 8/2,
5Y 7/1
N7, 5P 6/1
N9 + 5Y 8/1

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE (SUBUNIT IC):
Alternation of white (N8–N9) and light gray to greenish gray (N7–5G 7/1–5BG 7/1) diatom nanno ooze, with distinct bands of green gray (5G 5/1) and purple (5P 6/1).

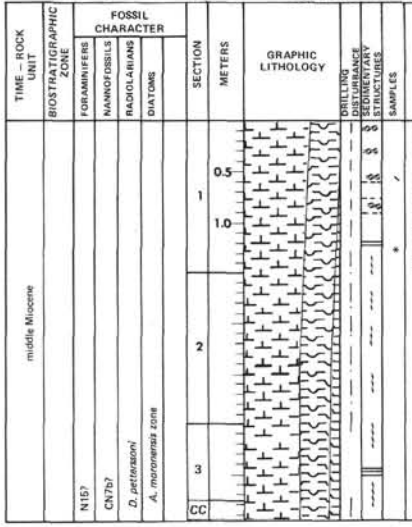
Core slightly to moderately disturbed.

SMEAR SLIDE SUMMARY (%):

	2, 82	4, 99
Texture:		
Sand	5	10
Silt	40	25
Clay	55	65
Composition:		
Volcanic glass	Tr	–
Pyrite	Tr	–
Carbonate unspec.	2	2
Foraminifers	2	8
Calc. nannofossils	53	55
Diatoms	35	30
Radiolarians	8	5
Sponge spicules	–	Tr
Silicoflagellates	Tr	Tr

CARBONATE BOMB:
1, 40 cm = 62%
1, 90 cm = 60%
1, 130 cm = 77%
2, 40 cm = 67%
2, 90 cm = 67%
2, 130 cm = 44%
3, 40 cm = 60%
3, 90 cm = 53%
3, 130 cm = 50%
4, 40 cm = 66%
4, 90 cm = 72%
4, 130 cm = 75%
5, 40 cm = 72%
5, 90 cm = 68%
5, 120 cm = 76%

SITE 572 HOLE D CORE 15 CORED INTERVAL 284.0–293.5 m



LITHOLOGIC DESCRIPTION

N8
5Y 7/2
5P 6/1
5Y 8/1, 5Y 7/2
5GY 8/1
5Y 7/2
5P 6/1, N8,
5Y 8/1
5P 4/2
N8

GREEN VARICOLORED OOZE (SUBUNIT IC):

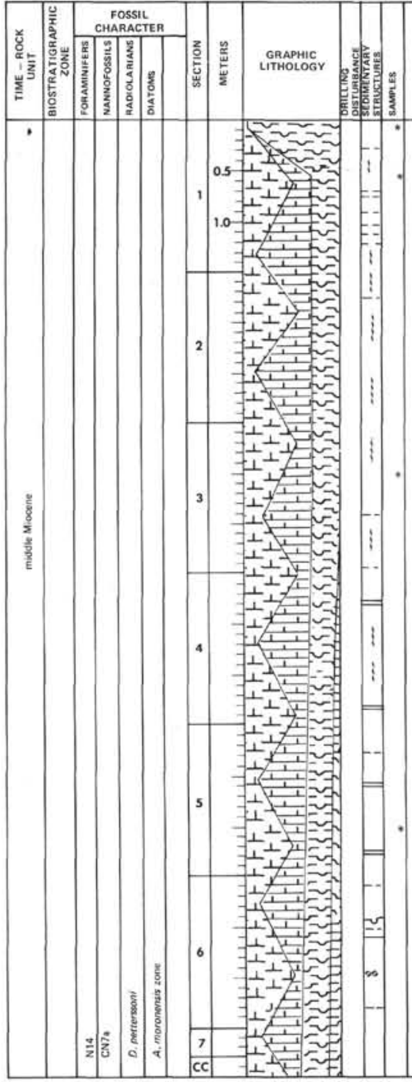
Alternation of white (N9), light greenish gray (5GY 8/1) light purple (5P 6/1), and dark gray (5YR 4/1) diatom nanno ooze.

SMEAR SLIDE SUMMARY (%):

	1, 127
Texture:	
Sand	10
Silt	35
Clay	55
Composition:	
Pyrite	1
Carbonate unspec.	5
Foraminifers	1
Calc. nannofossils	55
Diatoms	30
Radiolarians	8
Sponge spicules	Tr
Silicoflagellates	Tr

Hole 572D, Core 15
CARBONATE BOMB:
1, 40 cm = 39%
1, 90 cm = 41%
1, 130 cm = 45%
2, 40 cm = 53%
2, 90 cm = 52%
2, 130 cm = 53%
3, 40 cm = 45%

SITE 572 HOLE D CORE 16 CORED INTERVAL 293.5–303.0 m



LITHOLOGIC DESCRIPTION

N7
5P 6/1
N7
5YR 8/1
5Y 8/1
5G 8/1
N8
N7, 5P 6/1
5B 7/1–5BG 7/1,
5G 7/1
5GY 8/1, N8
5G 7/1
N7
5G 7/1–N7
5Y 8/1
N8
5GY 7/1
5P 6/1
N8
5G 7/1
5Y 8/1
5Y 7?2, 5P 6/1
5Y 8/1
5Y 7/2
5Y 8/1–5Y 7/2
N7

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC):
Cyclic color variations of light green gray to light gray (5G 7/1)–N7), light purple (5P 6/1), white (5Y 8/1) diatom nanno ooze to diatom nanno chalk.

Section 1 of this core first very stiff core (top of chalk diagenesis?).

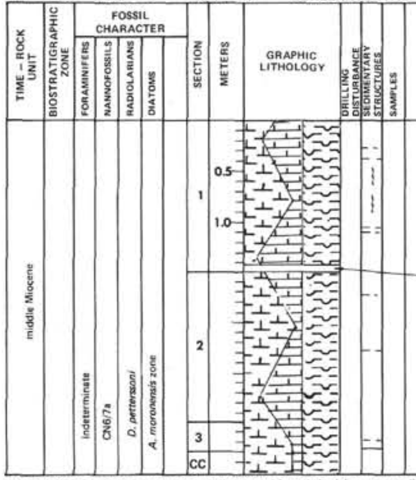
SMEAR SLIDE SUMMARY (%):

	1, 2	1, 57	3, 53	5, 106
Texture:				
Sand	1	10	15	15
Silt	90	25	15	15
Clay	9	65	70	70
Composition:				
Volcanic glass	Tr	Tr	Tr	–
Pyrite	1	Tr	–	–
Zeolite	Tr	–	–	Tr
Carbonate unspec.	–	–	5	–
Foraminifers	–	2	5	5
Calc. nannofossils	5	70	75	60
Diatoms	93	25	10	25
Radiolarians	1	3	5	10
Sponge spicules	Tr	–	–	Tr
Silicoflagellates	–	Tr	Tr	–

CARBONATE BOMB:
1, 37 cm = 60%
1, 101 cm = 40%
1, 134 cm = 63%
2, 38 cm = 57%
2, 90 cm = 69%
2, 130 cm = 76%
3, 40 cm = 69%
3, 90 cm = 81%
3, 130 cm = 81%
4, 40 cm = 71%
4, 90 cm = 88%
4, 130 cm = 79%
5, 40 cm = 79%
5, 90 cm = 74%
5, 130 cm = 72%
6, 40 cm = 56%
6, 90 cm = 76%
6, 130 cm = 76%
7, 12 cm = 87%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE D CORE 17 CORED INTERVAL 303.0–312.5 m



LITHOLOGIC DESCRIPTION

N8

5Y 7/2

5Y 8/1,
5P 6/2

5Y 7/2

5Y 8/1

Void

5Y 8/2,
5Y 6/2

5Y 6/2–5Y 6/1

5Y 8/2

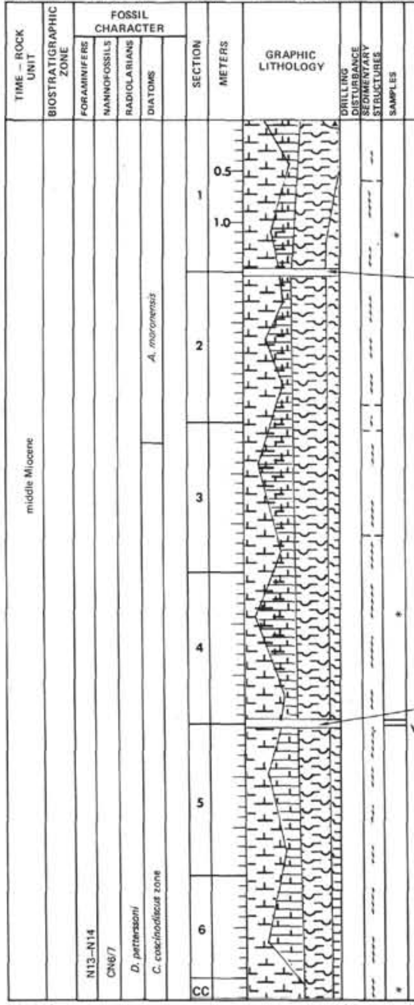
5Y 8/2

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC): Cyclic color variations of white (5Y 8/1–N9), light olive gray to gray (5Y 6/2–5Y 6/1), and light gray (5Y 7/2) diatom nanno ooze to diatom nanno chalk.

CARBONATE BOMB:
1, 40 cm = 55%
1, 90 cm = 56%
1, 130 cm = 64%
2, 40 cm = 44%
2, 90 cm = 20%
2, 130 cm = 22%
3, 14 cm = 21%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE D CORE 18 CORED INTERVAL 312.5–322.0 m



LITHOLOGIC DESCRIPTION

5Y 5/3

5Y 7/2–N7

N8, 5G 5/1,
5P 6/1

Void

5Y 8/1

N8,
5GY 7/1,
5Y 7/1,
5P 6/1

5Y 7/1,
5G 7/1,
5P 6/1,
5GY 7/1

Void

IW

5Y 7/1,
5G 7/1,
5P 6/1,
5GY 7/1

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC): Alternation of white (N8–5Y 8/1) with light green gray (5G 8/1) and pale purple (5P 6/1) bands, and light gray (N7–5Y 7/2) with pale purple and light green gray bands rad diatom nanno ooze and diatom nanno chalk.

Displaced 1 cm fragment of banded olive green (5Y 5/3) chert found at top of Section 1.

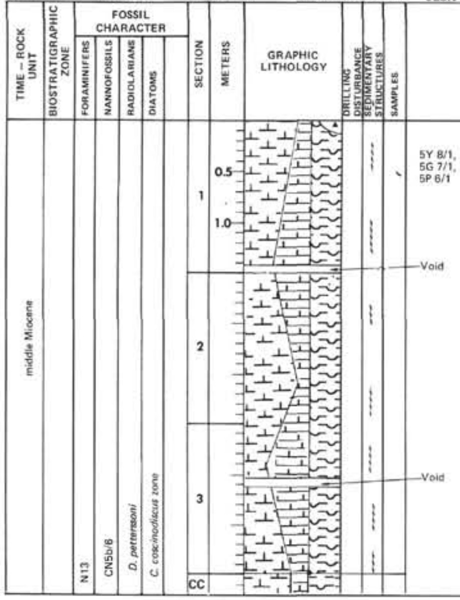
SMEAR SLIDE SUMMARY (%):

	1, 115	4, 45	CC
Texture:			
Sand	20	10	15
Silt	25	30	45
Clay	55	60	40
Composition:			
Volcanic glass	Tr	–	Tr
Pyrite	–	1	Tr
Carbonate unspec.	–	–	2
Foraminifers	5	1	1
Calc. nannofossils	45	53	64
Diatoms	35	35	30
Radiolarians	15	8	3
Silicoflagellates	Tr	2	Tr

CARBONATE BOMB:
1, 40 cm = 57%
1, 90 cm = 74%
1, 130 cm = 73%
2, 40 cm = 76%
2, 90 cm = 81%
2, 130 cm = 86%
3, 40 cm = 70%
3, 90 cm = 69%
3, 130 cm = 67%
4, 40 cm = 62%
4, 90 cm = 57%
4, 130 cm = 69%
5, 40 cm = 80%
5, 90 cm = 87%
5, 130 cm = 85%
6, 40 cm = 85%
6, 90 cm = 84%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE D CORE 19 CORED INTERVAL 322.0–331.5 m



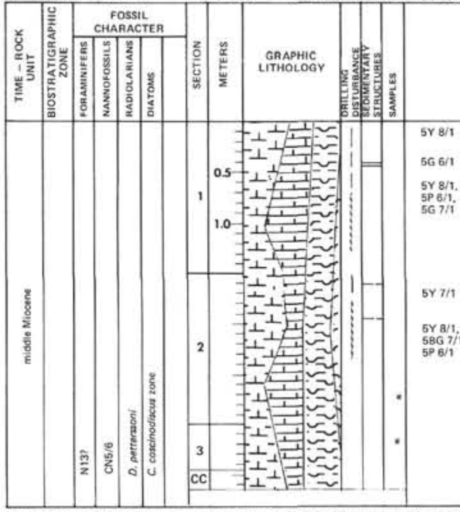
LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC'): Alternation of white (5Y 8/1), pale purple (5P 6/1), and light greenish gray (5G 7/1) diatom nanno ooze and diatom nanno chalk.

Displaced 1 cm fragment of olivegreen (5Y 5/3) chert found at top of Section 1.

CARBONATE BOMB:
1, 37 cm = 83%
1, 90 cm = 90%
1, 130 cm = 76%
2, 40 cm = 83%
2, 90 cm = 83%
2, 130 cm = 88%
3, 40 cm = 80%

SITE 572 HOLE D CORE 20 CORED INTERVAL 331.5–341.0 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC'):

Alternation of white (5Y 8/1–5Y 8/2) with light green gray (5BG 7/1–5G 7/1) and light purple (5P 6/1) bands and some laminae, and light gray (5Y 7/1) rad diatom nanno ooze and diatom nanno chalk.

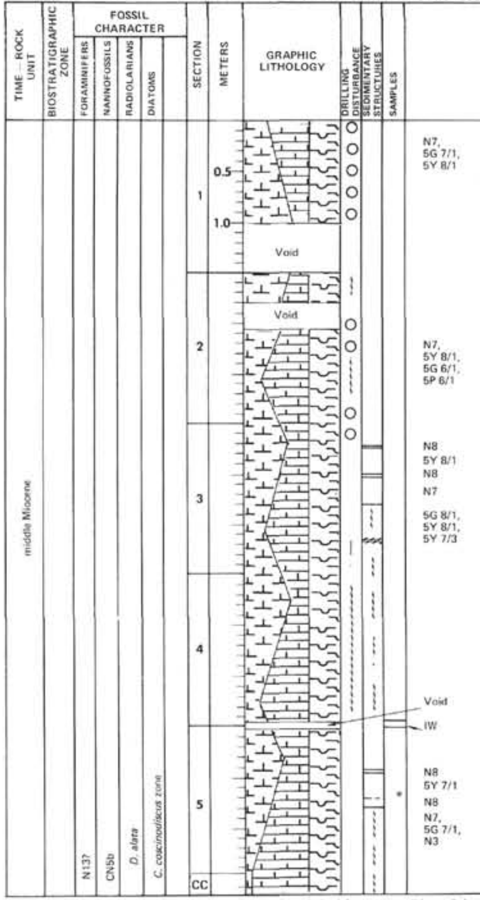
SMEAR SLIDE SUMMARY (%):

	2, 125	3, 20
Texture:		
Sand	15	25
Silt	35	30
Clay	50	45
Composition:		
Volcanic glass	–	Tr
Pyrite	Tr	Tr
Foraminifers	10	15
Calc. nannofossils	50	45
Diatoms	30	35
Radiolarians	10	5
Sponge spicules	Tr	Tr
Silicoflagellates	Tr	Tr

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

Hole 572D, Core 20
CARBONATE BOMB:
1, 40 cm = 72%
1, 92 cm = 79%
1, 130 cm = 74%
2, 40 cm = 76%
2, 92 cm = 86%
2, 130 cm = 76%
3, 30 cm = 70%

SITE 572 HOLE D CORE 21 CORED INTERVAL 341.0–350.5 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC'): Section 1 contains light gray (N7) soup with 2–3 mm chert fragments, and white (5Y 8/1) to light green gray (5G 7/1) diatom nanno ooze.

Lower part of core contains white, light green gray, light gray (N7), and dark gray (N4) diatom nanno ooze and diatom nanno chalk.

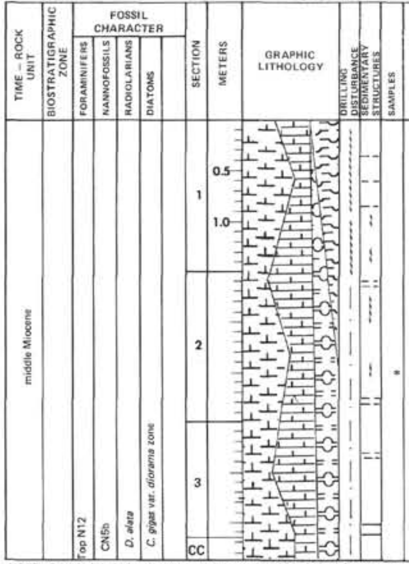
SMEAR SLIDE SUMMARY (%):

	5, 70
Texture:	
Sand	5
Silt	40
Clay	55
Composition:	
Volcanic glass	Tr
Pyrite	Tr
Carbonate unspec.	5
Foraminifers	3
Calc. nannofossils	50
Diatoms	35
Radiolarians	7
Sponge spicules	Tr
Silicoflagellates	Tr

CARBONATE BOMB:
1, 35 cm = 78%
2, 115 cm = 68%
3, 35 cm = 68%
3, 90 cm = 74%
3, 130 cm = 64%
4, 35 cm = 40%
4, 90 cm = 60%
4, 130 cm = 63%
5, 35 cm = 65%
5, 90 cm = 66%
5, 130 cm = 65%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE D CORE 22 CORED INTERVAL 350.5–360.0 m



5Y 7/1

2.5Y 7/2

5P 6/2

5BG 7/1,
5G 8/1,
2.5Y 8/2

5P 6/2

N8,
2.5Y 8/2,
5P 2/2

5P 7/2

5G 8/1,
2.5Y 8/2
5BG 7/1

N8, 5P 6/1,
2.5Y 8/2

5P 6/2

5G 8/1

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC):

Alternation of pale purple (5P 2/2), green to greenish gray (5G 8/1–5BG 7/1), pale yellow (2.5Y 7/2), and light gray to bluish white (N8–5B 9/1) siliceous nanno ooze and siliceous nanno chalk.

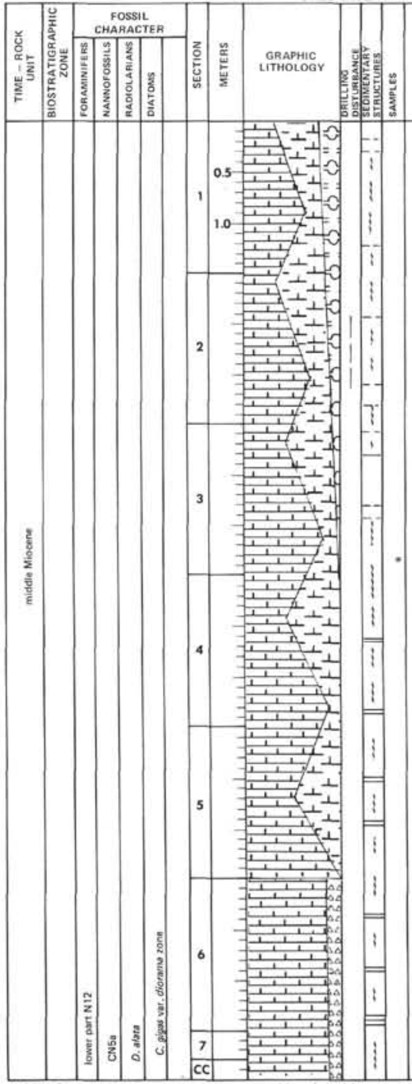
SMEAR SLIDE SUMMARY (%):

	2, 101
Texture:	
Sand	5
Silt	10
Clay	85
Composition:	
Volcanic glass	Tr
Pyrite	Tr
Carbonate unspec.	37
Foraminifers	2
Calc. nannofossils	45
Diatoms	7
Radiolarians	9
Silicoflagellates	Tr

CARBONATE BOMB:
1, 90 cm = 76%
2, 90 cm = 81%
3, 90 cm = 73%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE D CORE 23 CORED INTERVAL 360.0–369.5 m



2.5Y 8/2

N8,
5G 8/1,
5G 6/2

5G 8/1,
5G 7/2

N8

5G 6/2

2.5Y 7/2

5G 6/2

5G 8/1

N9

N9,
5G 8/1

N9

5G 8/1, N9

N6

5G 8/1

N9

5G 8/1

N7

5G 8/1–5G 6/2

2.5Y 8/2,
5P 6/2,
5B 7/6

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED OOZE/CHALK (SUBUNIT IC')
(360.0–367.5 m):

Alternation of light gray (N9), greenish gray (5G 8/1), pale yellow (2.5Y 8/2), and pale green (5G 6/2) siliceous nanno ooze and siliceous nanno chalk.

GREEN VARICOLORED CHALK (SUBUNIT IC')
(367.5–369.5 m):

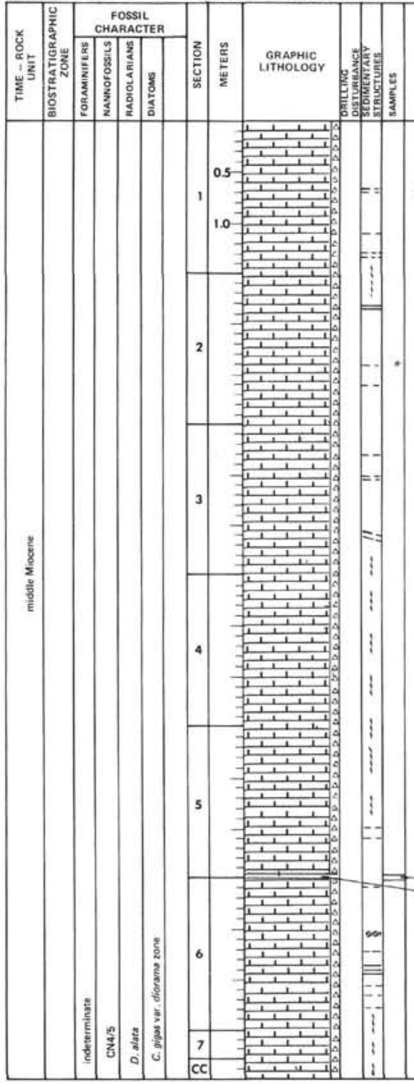
SMEAR SLIDE SUMMARY (%):

	3, 135
Texture:	
Sand	5
Silt	7
Clay	88
Composition:	
Pyrite	Tr
Carbonate unspec.	48
Foraminifers	3
Calc. nannofossils	40
Diatoms	7
Radiolarians	2
Sponge spicules	Tr
Silicoflagellates	Tr

CARBONATE BOMB:
1, 90 cm = 74%
2, 90 cm = 65%
3, 90 cm = 92%
4, 90 cm = 77%
5, 90 cm = 90%
6, 90 cm = 88%

NOTE: Graphic lithologies represent average compositions derived from smear slides and do not always reflect the detailed alternation of sediment types. Major lithologic boundaries are shown but gradational contacts, small-scale cyclicity and ooze-chalk alternations are represented schematically. Color changes approximate to lithologic changes.

SITE 572 HOLE D CORE 24 CORED INTERVAL 369.5–379.0 m



5BG 7/2,
5P 6/2

5P 6/2

5BG 7/2

5P 6/2

5BG 7/2

5P 6/2

5BG 6/2,
5BG 7/2

5GY 8/1

5BG 7/2,
5P 6/2

2.5Y 8/2
5B 9/1

5BG 7/1 + 2.5Y 8/2

N7 + 5P 6/2 bands

5BG 7/2 +
2.5Y 8/2 mottling

5BG 7/1,
2.5Y 8/2,
N7,
5P 6/2

5Y 7/1

5BG 7/2

IW
Void
5GY 8/1

N5

5G 7/2
5BG 7/2
N8

5BG 7/2

5B 7/1, N8,
2.5Y 8/2

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED CHALK (SUBUNIT IC):
Alternation of light greenish gray (5BG 7/2), pale purple (5P 6/2) pale yellow (2.5Y 8/2), and bluish white to light gray (5B 9/1–N7) siliceous nanno chalk: Lamination occurs.

Displaced 0.5 cm fragment of green chert found in top cm of Section 1.

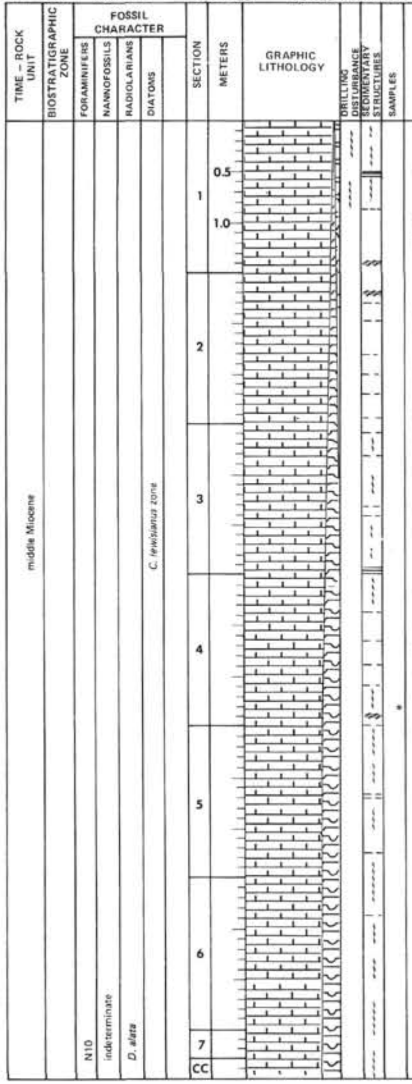
SMEAR SLIDE SUMMARY (%):

	2, 97
Texture:	
Sand	10
Silt	5
Clay	85
Composition:	
Volcanic glass	Tr
Pyrite	Tr
Carbonate unspec.	40
Foraminifers	4
Calc. nannofossils	45
Diatoms	7
Radiolarians	4
Silicoflagellates	Tr

CARBONATE BOMB:

1, 90 cm = 88%
3, 90 cm = 81%
4, 90 cm = 88%
5, 90 cm = 76%
6, 90 cm = 67%
2, 90 cm = 82%

SITE 572 HOLE D CORE 25 CORED INTERVAL 379.0–388.5 m



5B 7/1

5P 6/2,
5GY 7/1,
5G 7/1

5G 8/1

5GY 8/1

5G 7/1

5GY 7/1
5BG 7/1

5Y 7/1

5B 7/1

5GY 7/1

5B 7/1

5BG 7/1

5B 7/1

5BG 7/1

5B 7/1

5G 6/1

5BG 7/1

5G 6/1

N5
5B 6/1

5G 7/1

5B 6/1,
5G 7/1

LITHOLOGIC DESCRIPTION

GREEN VARICOLORED CHALK (SUBUNIT IC):
Core more uniform pale green (5G 6/1–5GY 7/1) to greenish gray (5GY 8/1) diatom nanno chalk, with discrete purple (5P 6/2) and gray (N5) bands and laminae.

Oval burrows seen in Sections 1, 4, 6, and 7.

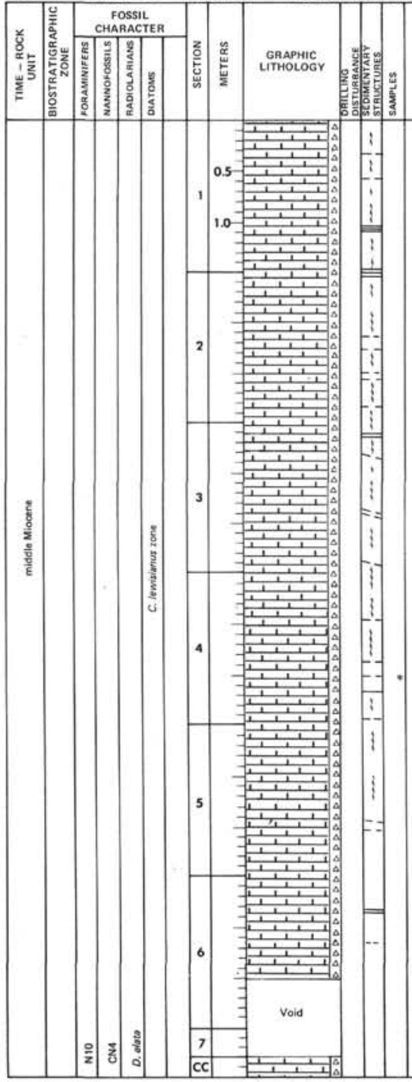
SMEAR SLIDE SUMMARY (%):

	4, 137
Texture:	
Sand	10
Silt	10
Clay	80
Composition:	
Volcanic glass	Tr
Micronodules	2
Carbonate unspec.	15
Foraminifers	2
Calc. nannofossils	65
Diatoms	15
Radiolarians	1
Silicoflagellates	Tr

CARBONATE BOMB:

1, 90 cm = 64%
2, 90 cm = 58%
4, 90 cm = 69%
5, 90 cm = 77%
6, 90 cm = 72%
3, 90 cm = 58%

SITE 572 HOLE D CORE 26 CORED INTERVAL 388.5–398.0 m



LITHOLOGIC DESCRIPTION

5B 7/1
5G 5/1
5Y 7/1
N5 + N8
5BG 7/1 +
5B 7/1
N8 + N5
5BG 7/1 +
5B 7/1
5Y 7/1
5B 7/1
5Y 7/1
5BG 7/1
5B 7/1
N5
5B 7/1
5GY 8/1
2.5Y 8/4
5B 7/1
5Y 7/1 + N8
5G 6/1
5Y 7/1
5G 6/1
5G 7/1
5BG 7/1
N5
5B 7/1
N5
5B 7/1
5B 8/2

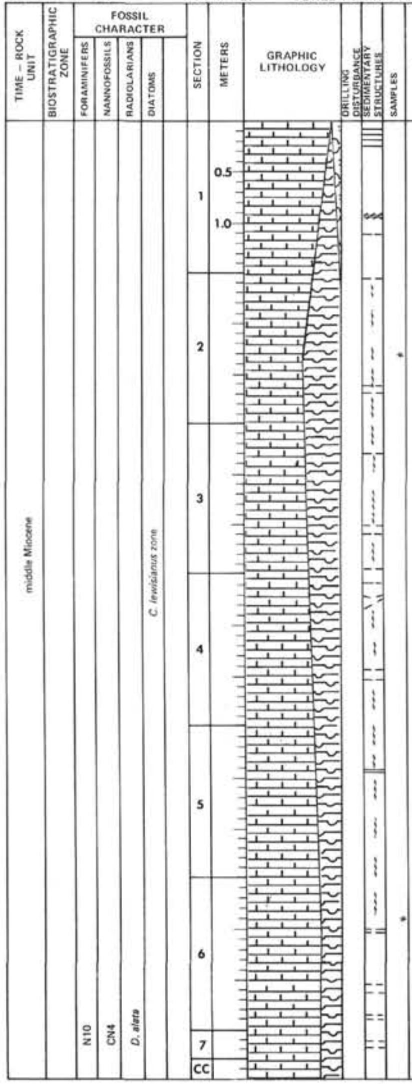
GREEN VARICOLORED CHALK (SUBUNIT IC):
Alternation of pale green (5Y 7/1) and greenish gray (5BG 7/1) siliceous nanno chalk, with discrete pale yellow (2.5Y 8/4) and gray (N5) bands, laminae and mottles.

SMEAR SLIDE SUMMARY (%):

	4, 103
Texture:	
Sand	10
Silt	5
Clay	85
Composition:	
Volcanic glass	Tr
Pyrite	Tr
Carbonate unspec.	20
Foraminifers	4
Calc. nannofossils	65
Diatoms	7
Radiolarians	4
Silicoflagellates	Tr

CARBONATE BOMB:
1, 90 cm = 70%
2, 90 cm = 64%
3, 90 cm = 79%
4, 90 cm = 79%
5, 90 cm = 76%
6, 90 cm = 75%

SITE 572 HOLE D CORE 27 CORED INTERVAL 398.0–407.5 m



LITHOLOGIC DESCRIPTION

5Y 7/1
N6
5G 7/1
5GY 7/1
5Y 8/1,
5G 7/1,
5P 6/1
5Y 7/1
5G 7/1
5Y 8/1
5P 6/1
5G 7/1
5P 6/1
5G 7/1
5P 6/1
5G 7/1
N8
5G 7/1
5P 6/1
5Y 8/1–
5G 8/1
5G 6/1
5G 8/1–
5Y 8/1
5G 6/1
5P 6/1
N9

GREEN VARICOLORED CHALK (SUBUNIT IC):
Cyclic color variations between white to light gray (N9–N7), blue green to pale green (5G 5/2–5BG 7/2), greenish gray (5G 7/1), and purple (5P 6/1) diatom nanno chalk.

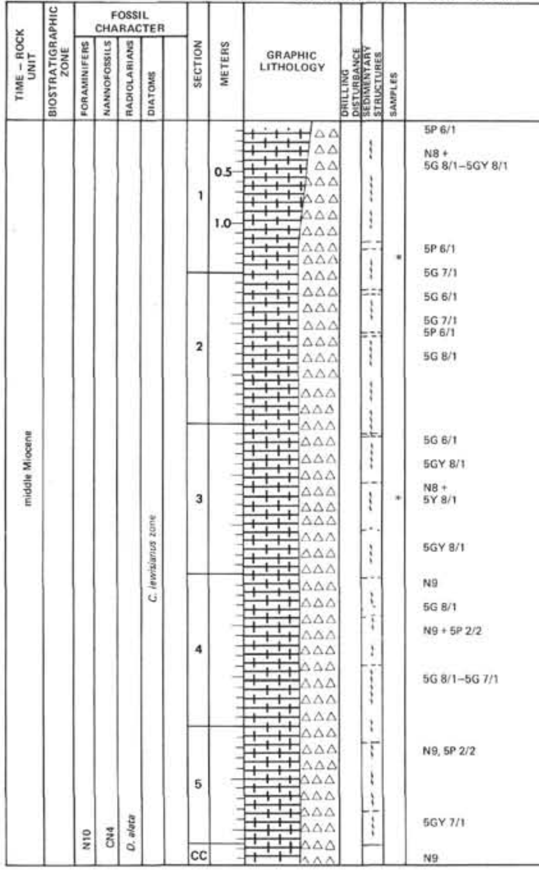
Well-preserved burrow structures of *Planolites* and *Chondrites* are found in the core.

SMEAR SLIDE SUMMARY (%):

	2, 82	6, 48
Texture:		
Sand	25	25
Silt	30	20
Clay	45	55
Composition:		
Volcanic glass	Tr	–
Pyrite	–	1
Foraminifers	2	2
Calc. nannofossils	50	67
Diatoms	40	25
Radiolarians	8	5
Sponge spicules	–	Tr
Silicoflagellates	Tr	–

CARBONATE BOMB:
1, 90 cm = 79%
2, 90 cm = 63%
3, 90 cm = 75%
4, 90 cm = 84%
5, 90 cm = 76%
6, 90 cm = 70%

SITE 572 HOLE D CORE 28 CORED INTERVAL 407.5–417.0 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED CHALK (SUBUNIT IC):
Cyclic color variation between white (N8–5Y 8/1), greenish gray (5G 8/1–5GY 8/1), and purple (5P 2/2) foram rad diatom nanno chalk.

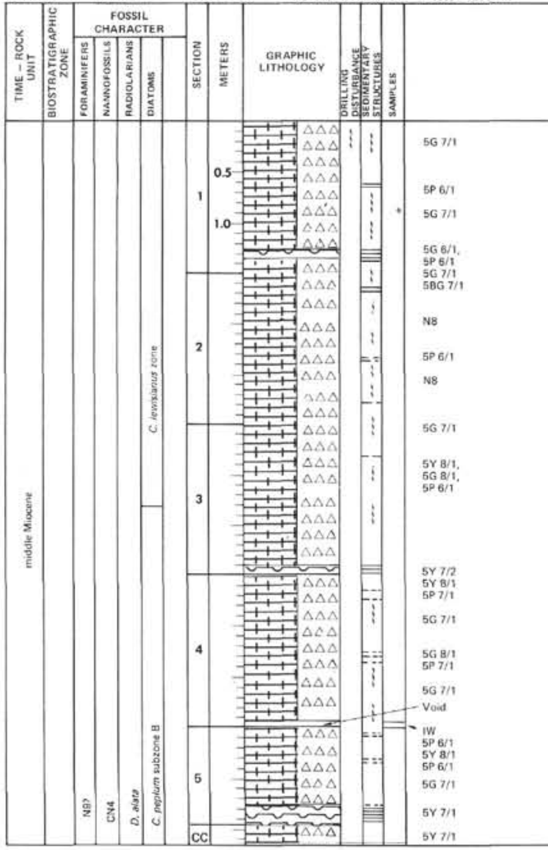
Burrowing is common, with well-preserved *Planolites* and *Chondrites*.

SMEAR SLIDE SUMMARY (%):

	1, 131	3, 75
Texture:		
Sand	20	20
Silt	20	30
Clay	60	50
Composition:		
Volcanic glass	Tr	–
Pyrite	–	Tr
Foraminifers	10	10
Calc. nannofossils	50	50
Diatoms	30	30
Radiolarians	10	10
Silicoflagellates	Tr	1

CARBONATE BOMB:
1, 90 cm = 81%
2, 90 cm = 76%
3, 90 cm = 83%
4, 90 cm = 85%
5, 90 cm = 86%

SITE 572 HOLE D CORE 29 CORED INTERVAL 417.0–427.5 m



LITHOLOGIC DESCRIPTION

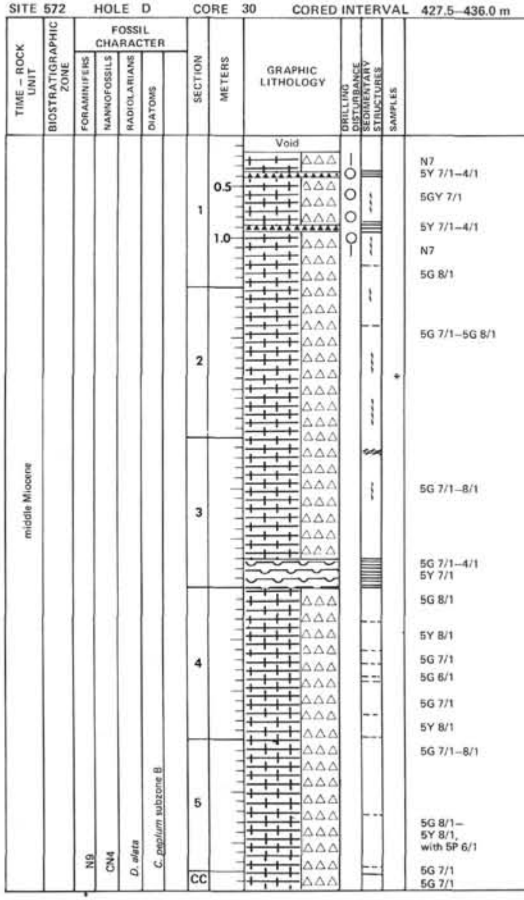
GREEN VARICOLORED CHALK (SUBUNIT IC):
Alternation of white (N8–5G 8/1) and gray green (5G 7/1–5Y 8/1) foram rad diatom nanno chalk with discrete bands of pale purple (5P 6/1), light gray (5Y 7/2), and laminated light gray (5Y 7/1) diatomites.

SMEAR SLIDE SUMMARY (%):

	1, 90
Texture:	
Sand	20
Silt	30
Clay	50
Composition:	
Pyrite	Tr
Foraminifers	10
Calc. nannofossils	45
Diatoms	35
Radiolarians	10
Silicoflagellates	Tr

CARBONATE BOMB:
1, 90 cm = 68%
2, 90 cm = 79%
3, 90 cm = 57%
4, 90 cm = 64%
5, 90 cm = 56%

SITE 572 HOLE D CORE 30 CORED INTERVAL 427.5–436.0 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED CHALK (SUBUNIT IC):
Interbedded light to dark gray (5Y 7/1–5Y 4/1) cherts and light gray (N7), pale purple (5P 6/1), to greenish gray (5G 8/1) rad foram diatom nanno chalks.

Chert layers located at Section 1, 36–40 and 88–91 cm.

Laminated light green gray (5G 7/1) to dark green gray (5G 4/1) diatomite located at Section 3, 120–150 cm.

Burrows of *Planolites* are common in Sections 3 to 5.

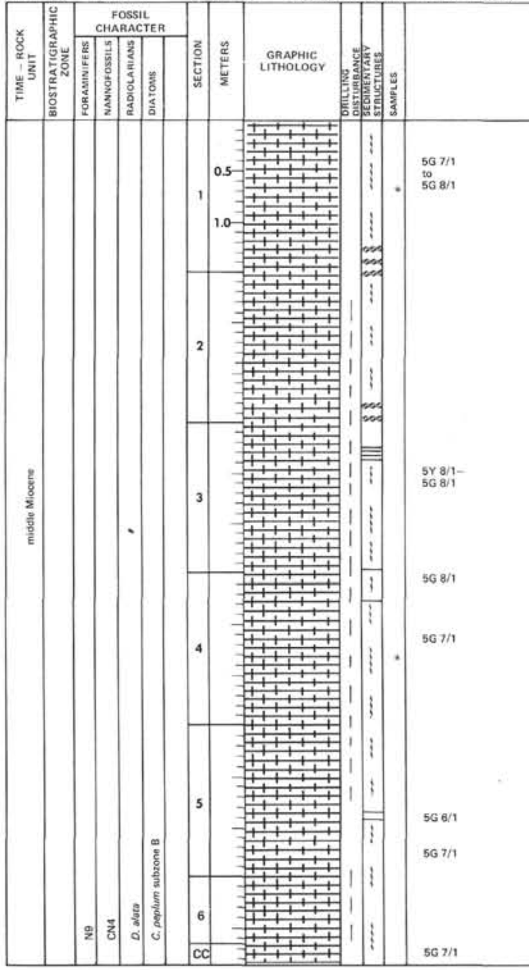
SMEAR SLIDE SUMMARY (%):

	2, 90
Texture:	
Sand	20
Silt	30
Clay	50
Composition:	
Pyrite	Tr
Foraminifers	15
Calc. nannofossils	45
Diatoms	30
Radiolarians	10

CARBONATE BOMB:

2, 90 cm = 79%
3, 90 cm = 73%
4, 90 cm = 75%
5, 90 cm = 64%

SITE 572 HOLE D CORE 31 CORED INTERVAL 436.0–445.5 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED CHALK (SUBUNIT IC):
Light green gray (5G 7/1–5G 8/1) foram nanno chalk, with occasional laminations of light purple (5P 7/1) and white (5Y 8/1).

Burrowing is common, with well-preserved *Planolites*, *Chondrites*, and *Zoophycos*.

Lamination occurs in Section 3.

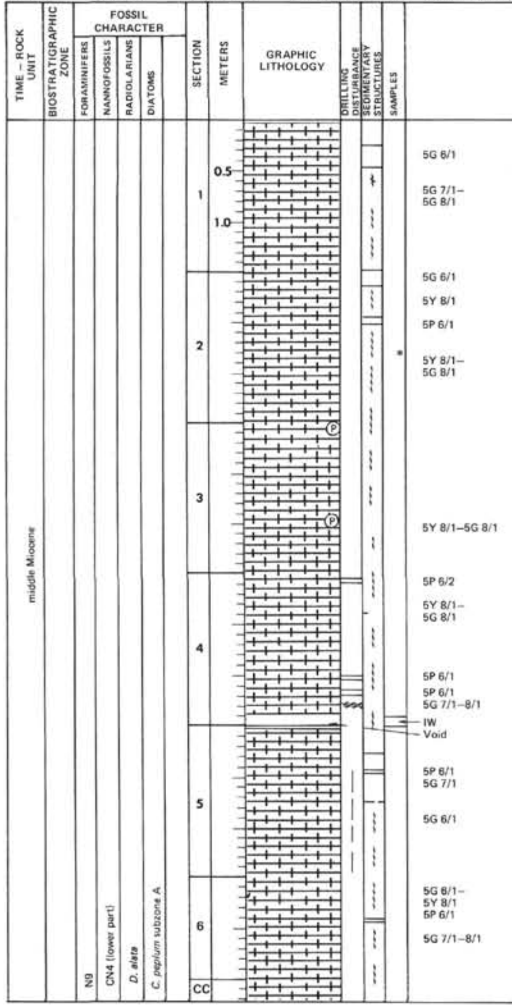
SMEAR SLIDE SUMMARY (%):

	1, 70	4, 86
Texture:		
Sand	10	20
Silt	40	40
Clay	50	40
Composition:		
Volcanic glass	Tr	Tr
Pyrite	Tr	–
Carbonate unspec.	20	35
Foraminifers	25	25
Calc. nannofossils	43	33
Diatoms	5	2
Radiolarians	7	5
Sponge spicules	Tr	–
Silicoflagellates	Tr	–

CARBONATE BOMB:

1, 90 cm = 86%
2, 90 cm = 82%
3, 90 cm = 87%
4, 90 cm = 75%
5, 90 cm = 76%

SITE 572 HOLE D CORE 32 CORED INTERVAL 445.5–455.0 m



LITHOLOGIC DESCRIPTION

GREEN VARICOLORED CHALK (SUBUNIT IC):
White (5Y 8/1) to light green gray (5G 8/1) foram nanno chalk, with discrete laminae of green gray (5G 6/1), pale purple (5P 6/1), and purple (5P 6/2).

Many parts have irregular and inclined laminations. Layers of pyrite particles 0.5–1.0 mm diameter found in Section 3, 3–8 and 85–88 cm.

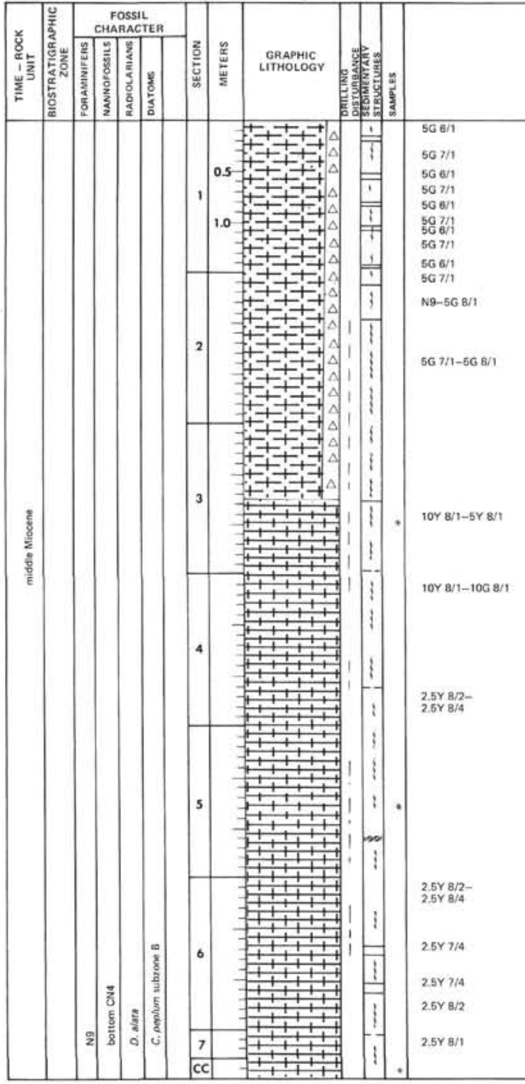
Burrowing is common, with well-preserved *Planolites*, *Chondrites*, and *Zoophycos*.

SMEAR SLIDE SUMMARY (%):

	2, 83
Texture:	
Sand	30
Silt	30
Clay	40
Composition:	
Zeolite	Tr
Carbonate unspec.	25
Foraminifers	25
Calc. nannofossils	40
Diatoms	5
Radiolarians	5
Silicoflagellates	Tr

CARBONATE BOMB:
1, 90 cm = 80%
2, 90 cm = 87%
3, 90 cm = 81%
4, 90 cm = 86%
5, 90 cm = 81%
6, 90 cm = 73%

SITE 572 HOLE D CORE 33 CORED INTERVAL 455.0–464.5 m



LITHOLOGIC DESCRIPTION

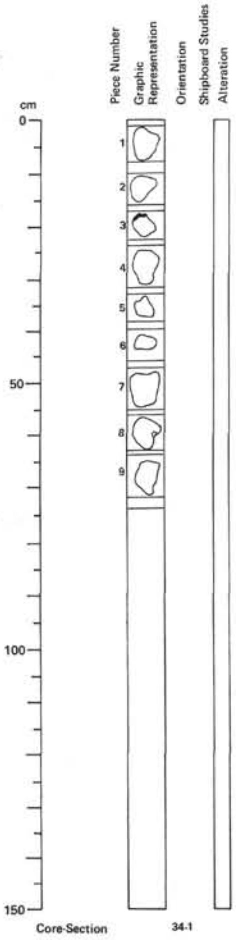
GREEN VARICOLORED CHALK (SUBUNIT IC) (455.0–458.8 m):
Alternation between light green gray (5G 7/1), green gray (5G 6/1), and white (N9) siliceous foram nanno chalk, in color bands with distinct contacts.

YELLOW CHALK (SUBUNIT ID) (458.8–464.5 m):
Alternation between yellow white (2.5Y 8/2), yellowish green (10Y 8/1), and white (5Y 8/1 to 2.5Y 8/1) foram nanno chalk. Burrowing is common, well-preserved *Zoophycos*, *Planolites*, and *Chondrites*.

SMEAR SLIDE SUMMARY (%):

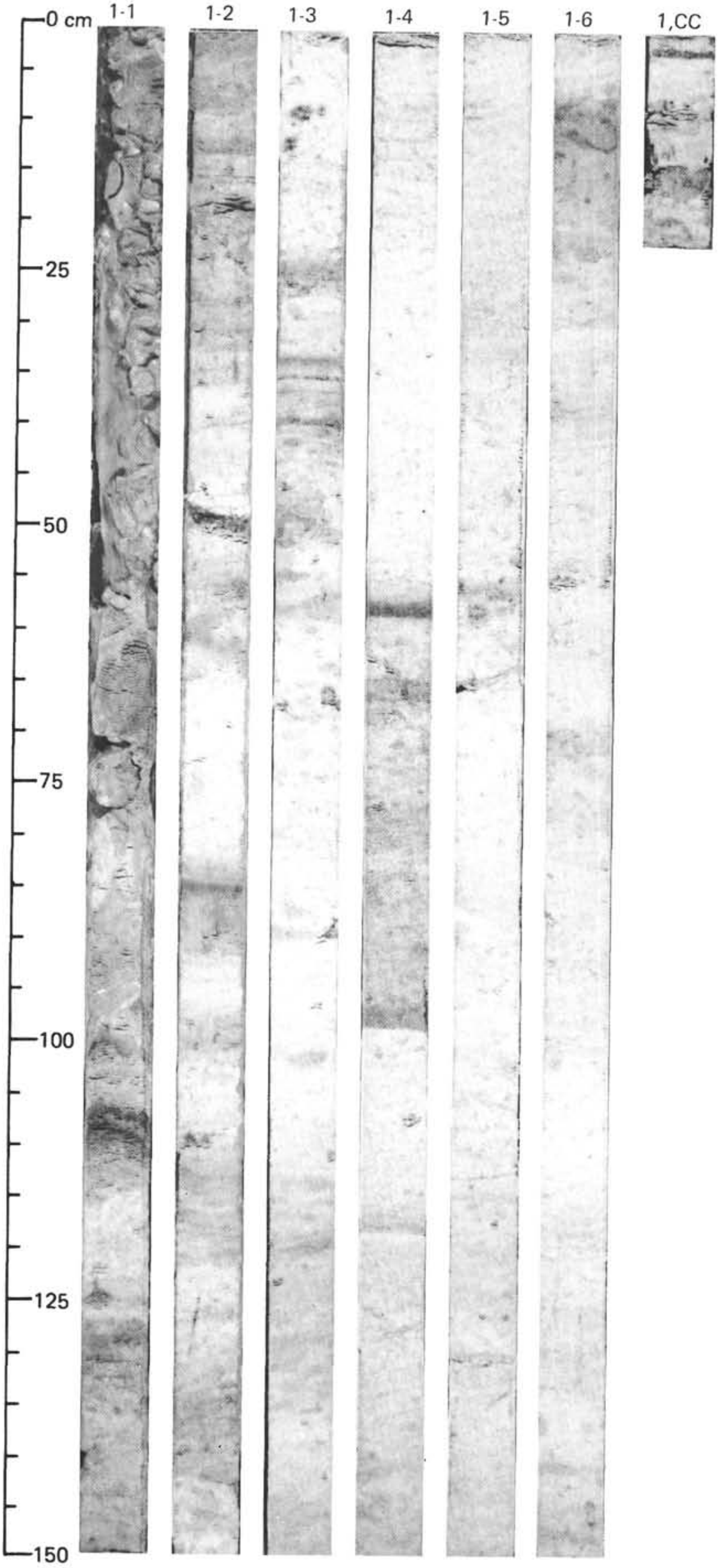
	3, 106	5, 80	CC
Texture:			
Sand	30	20	35
Silt	30	20	30
Clay	40	60	35
Composition:			
Pyrite	–	–	5
Carbonate unspec.	25	38	15
Foraminifers	20	20	20
Calc. nannofossils	40	35	50
Diatoms	7	2	–
Radiolarians	8	5	Tr
Silicoflagellates	Tr	–	–
Fe-oxides	–	–	10

CARBONATE BOMB:
1, 90 cm = 74%
2, 90 cm = 88%
3, 90 cm = 84%
4, 90 cm = 81%
5, 90 cm = 78%
6, 90 cm = 72%



85-572D-34-1 Depth 479.5–489.0 m

Nine pieces of fine grained basalt recovered. Total length of 28 cm. Piece 8 has glassy rind.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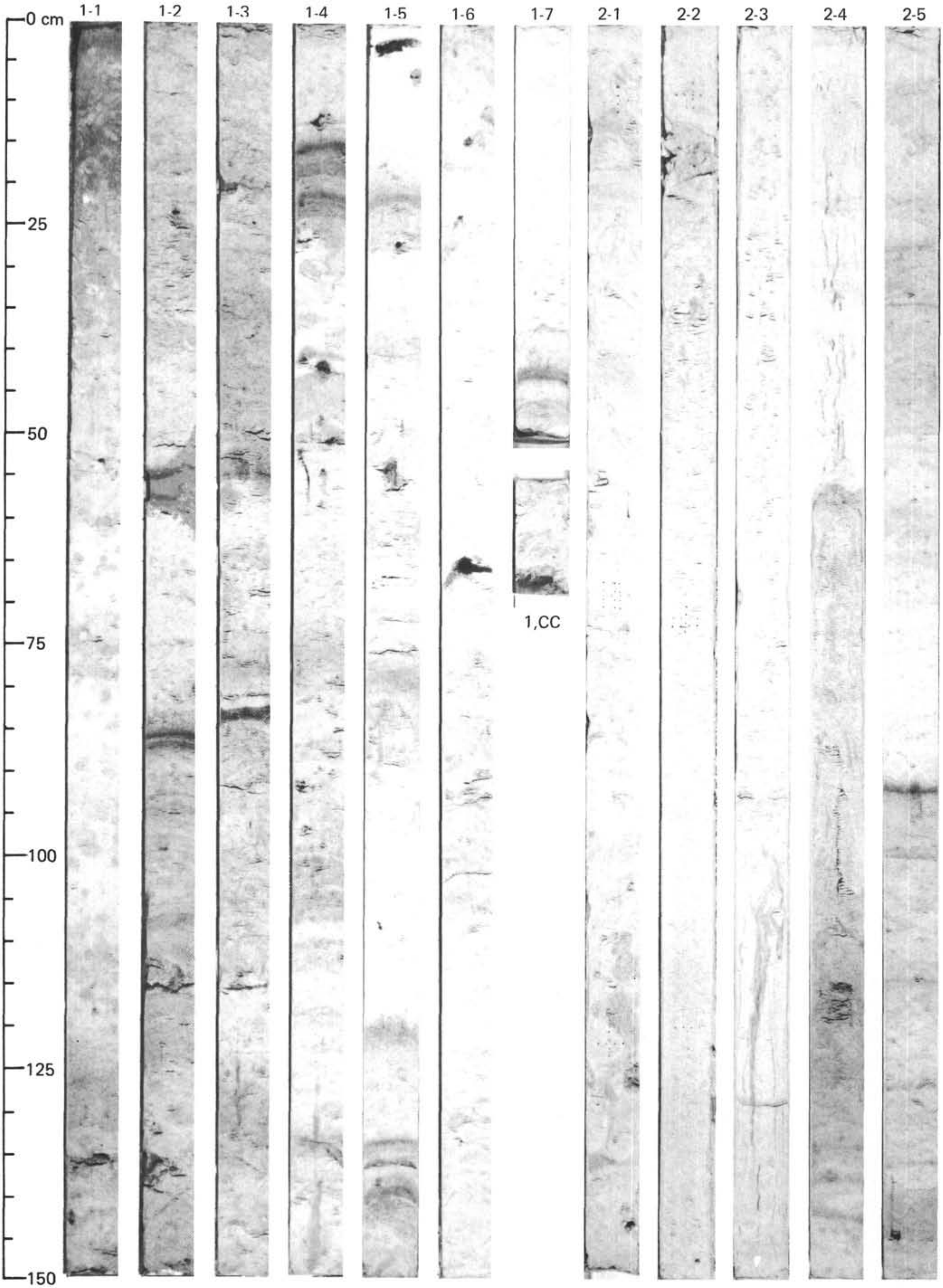
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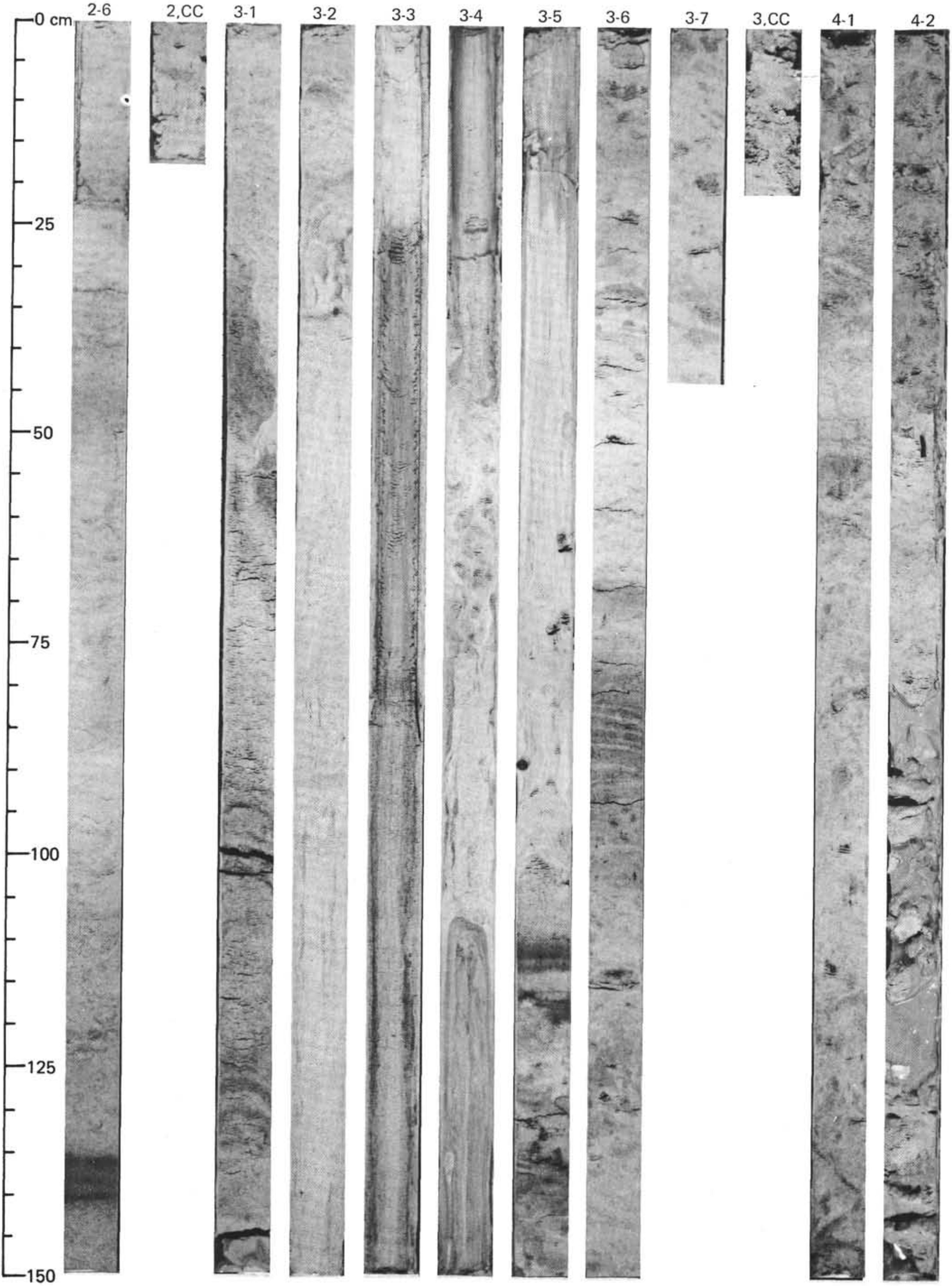
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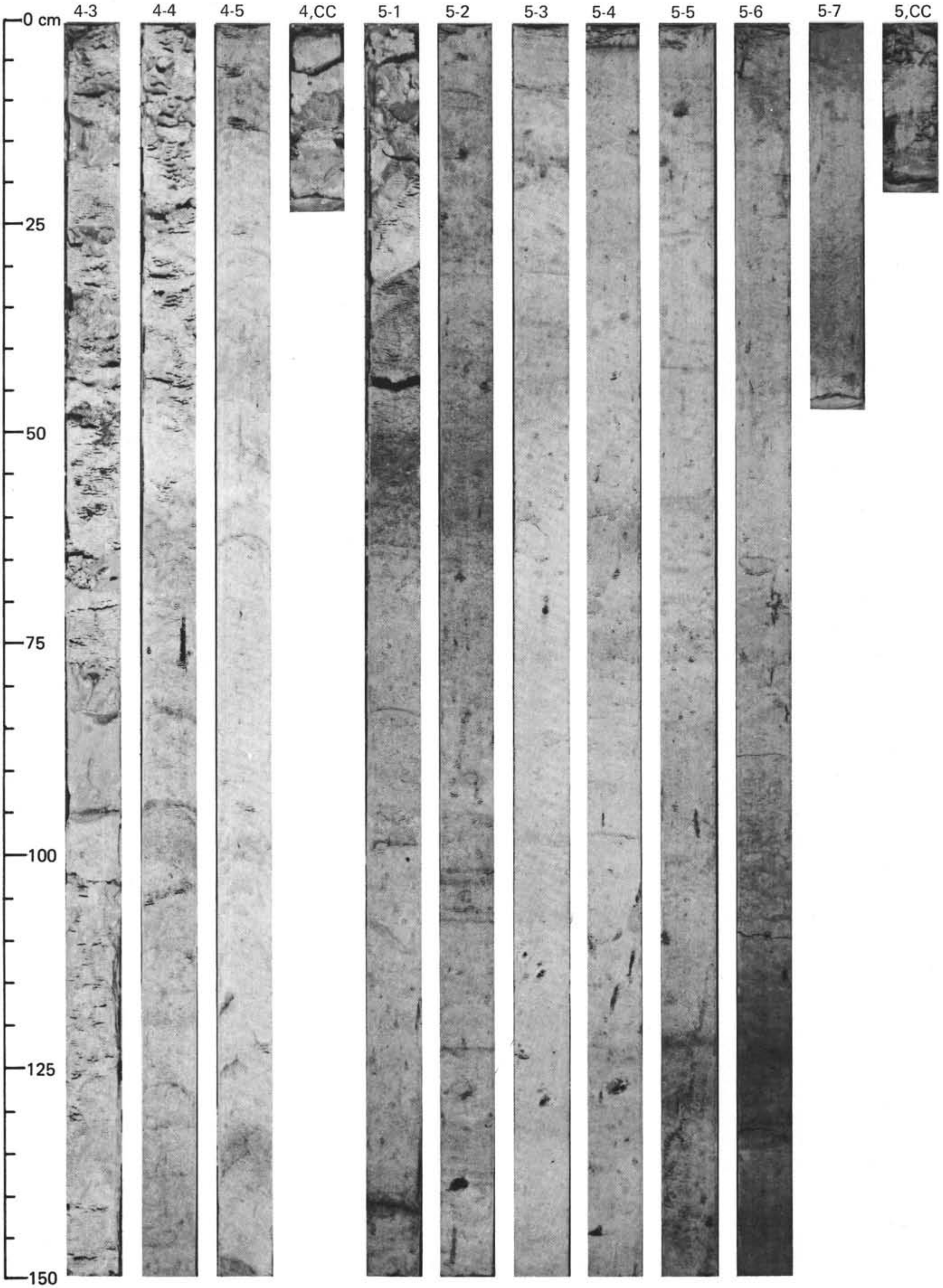
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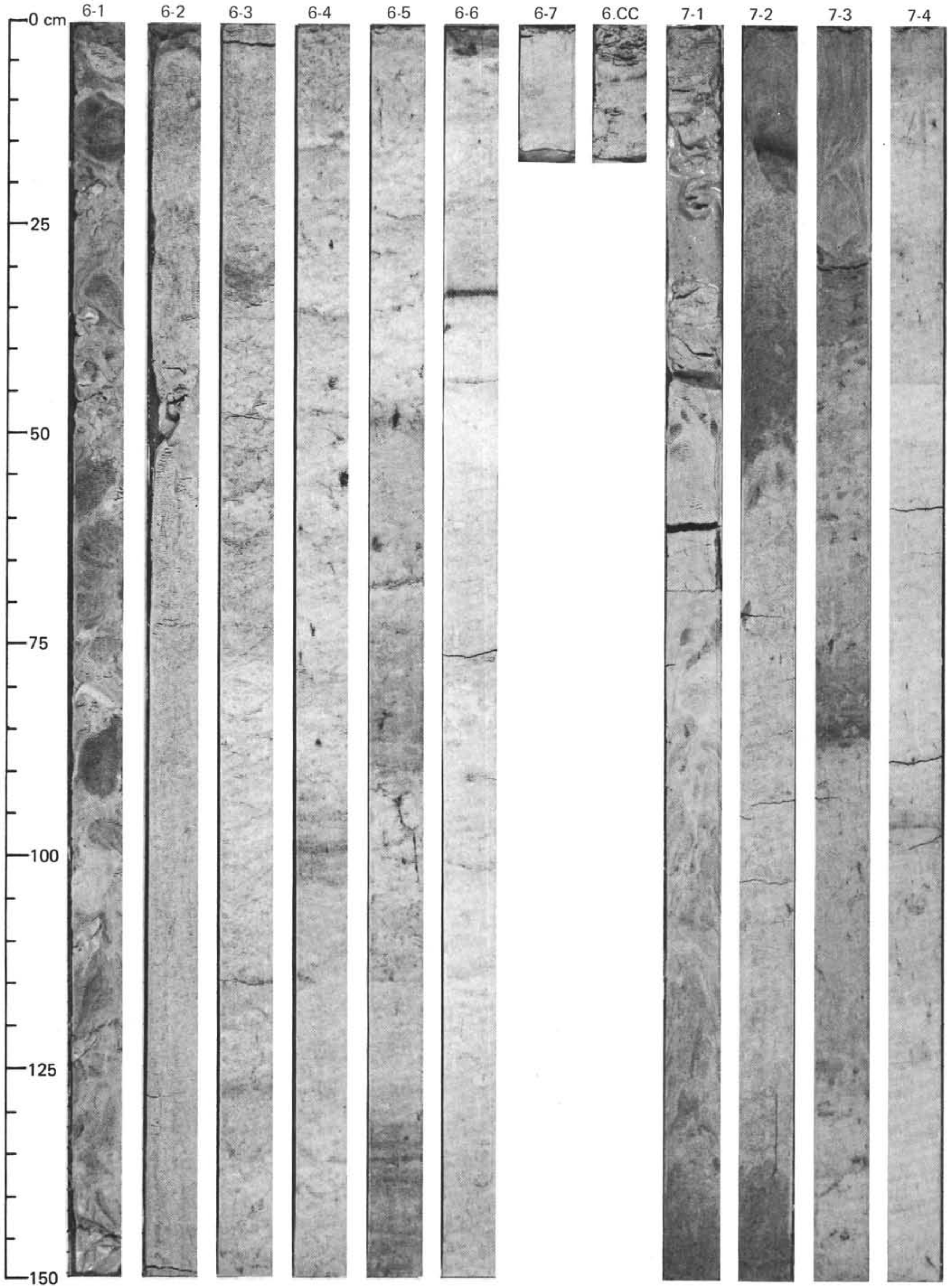

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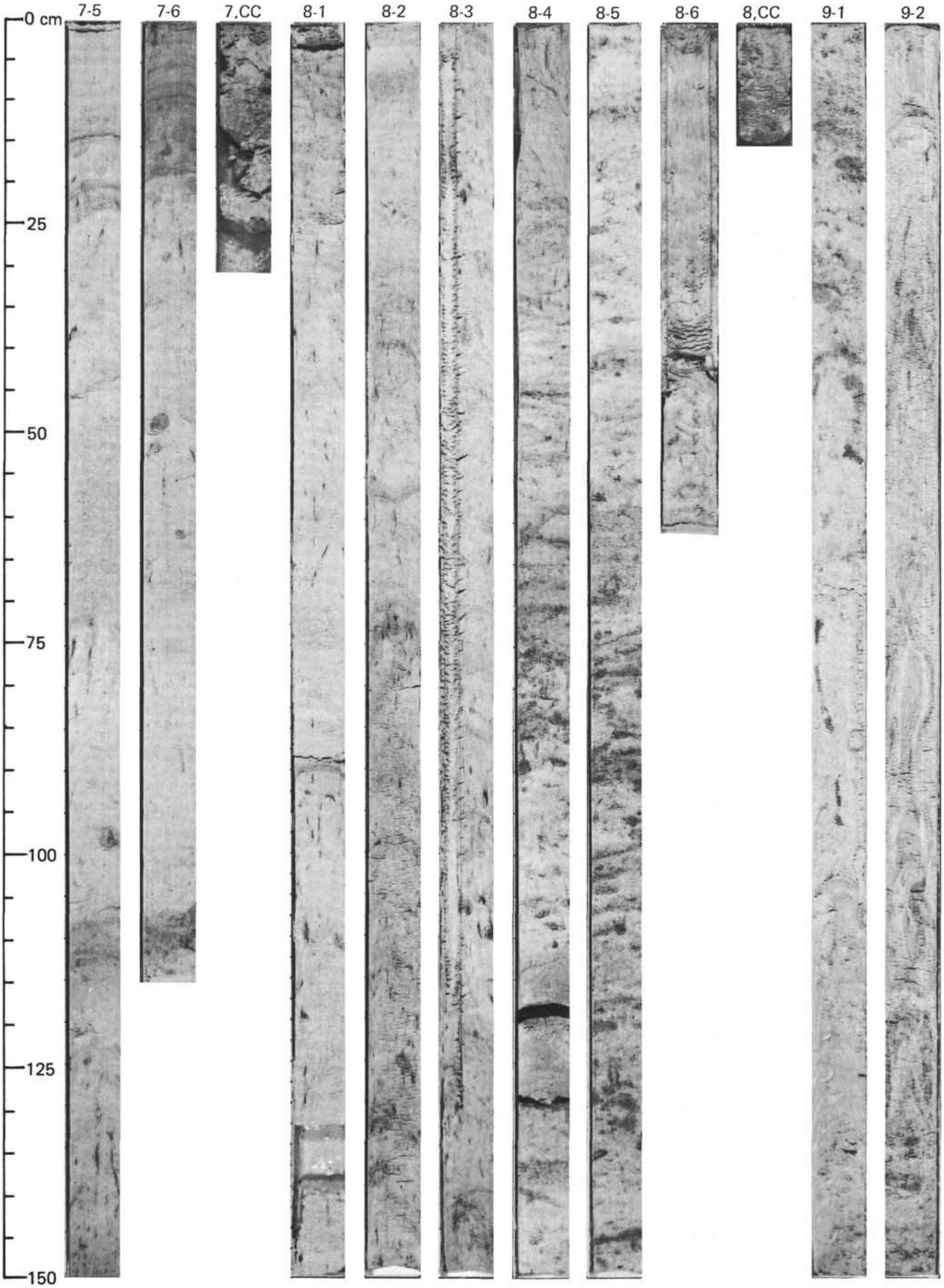
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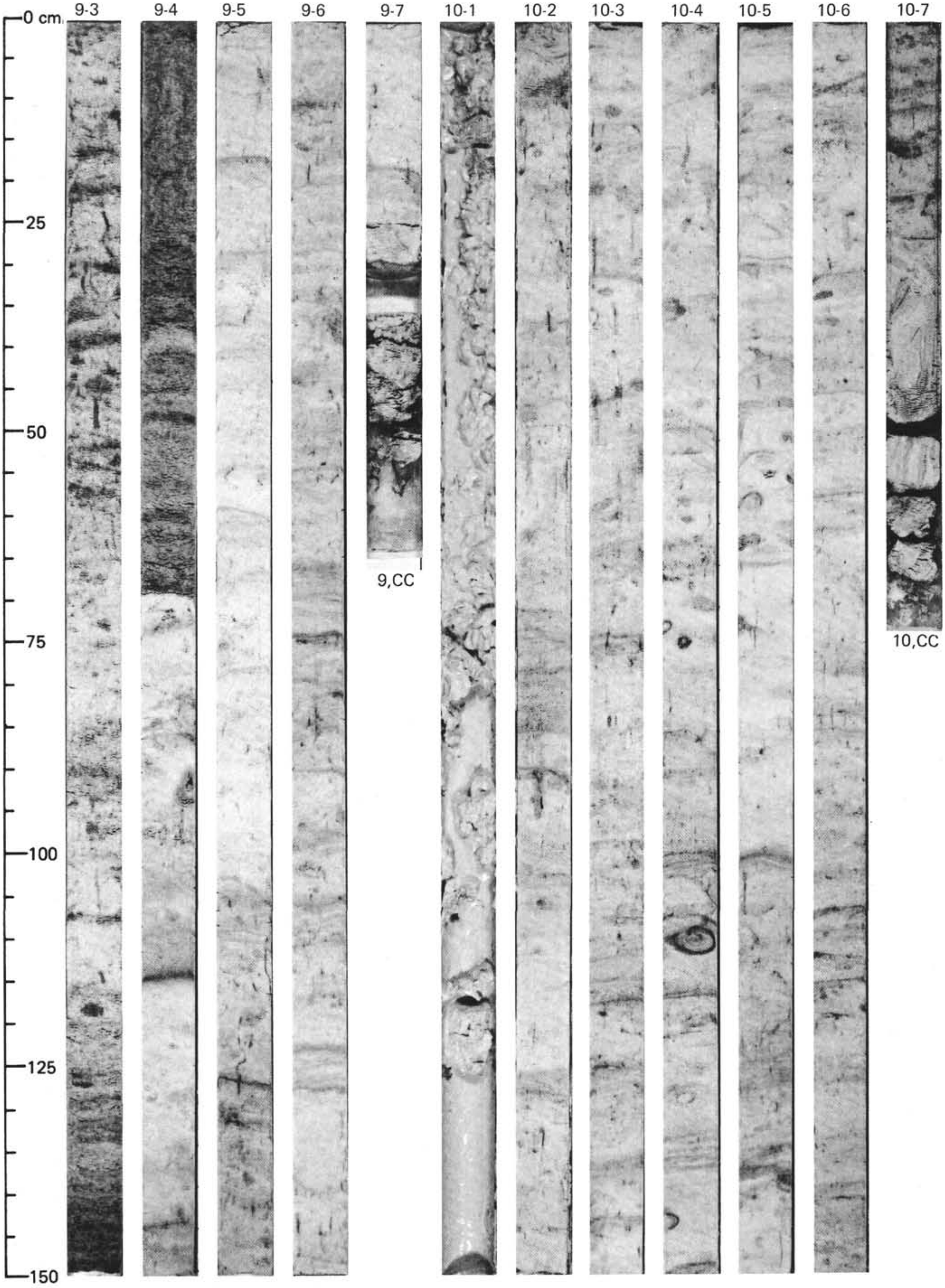
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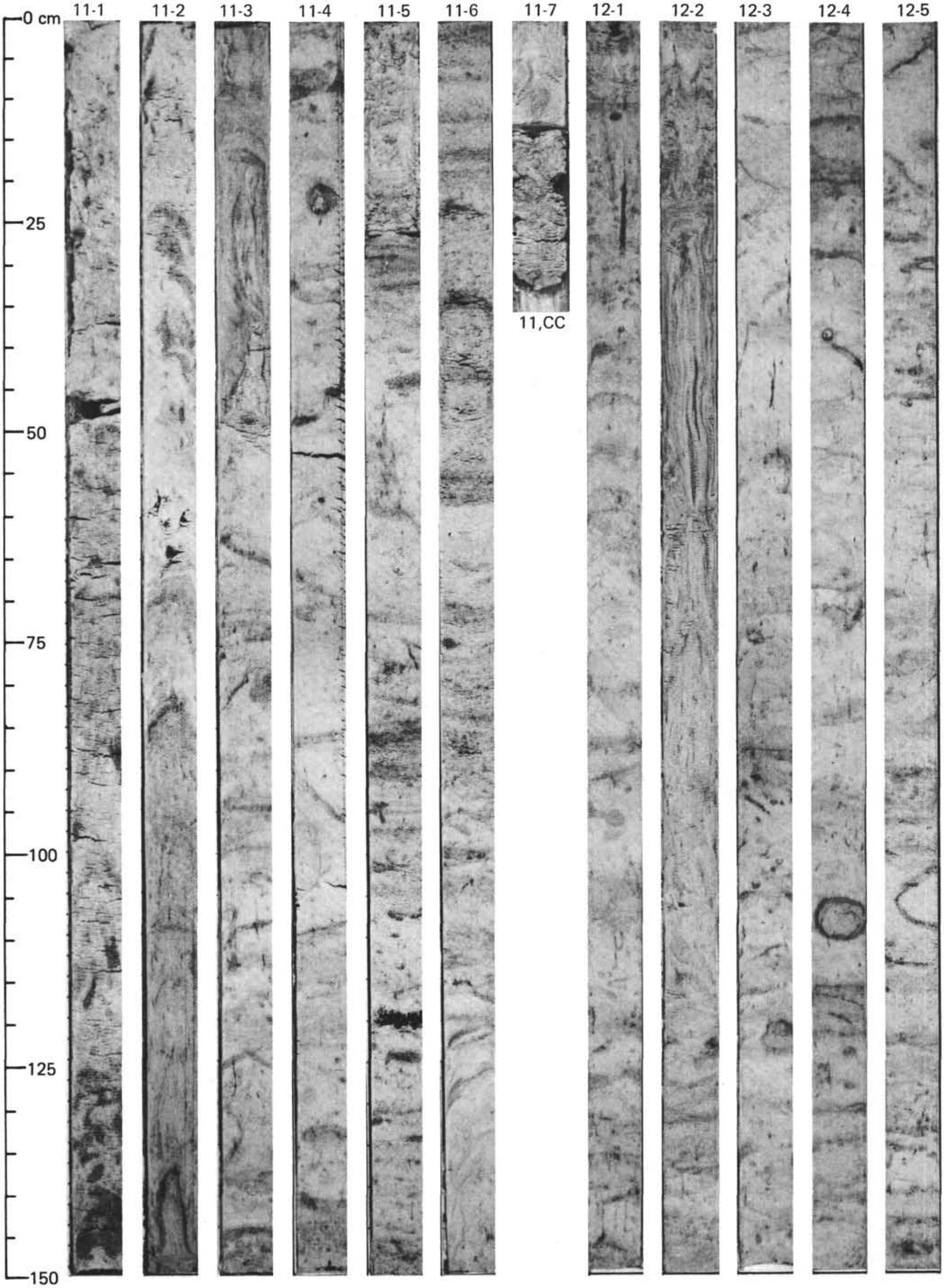
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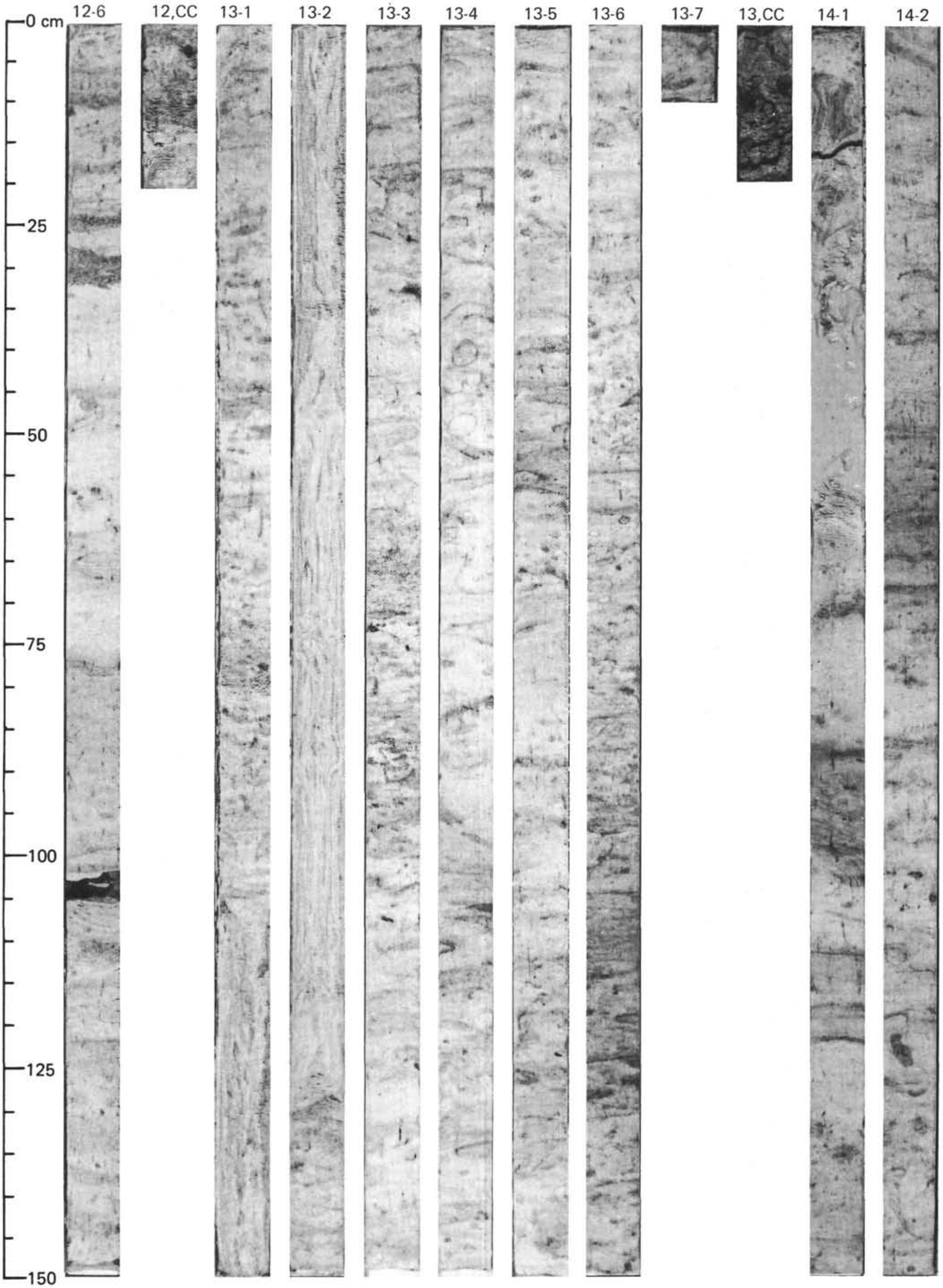
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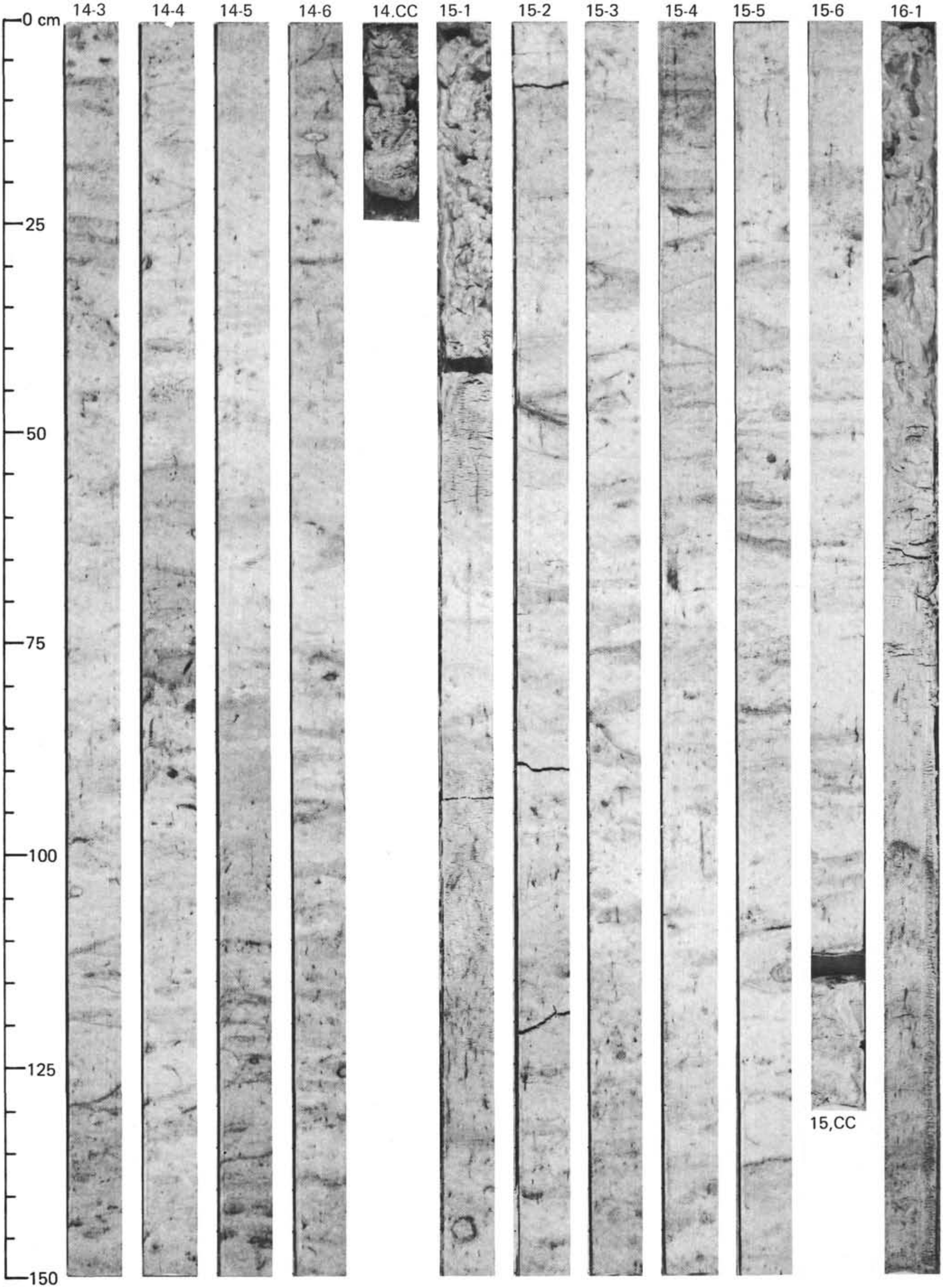
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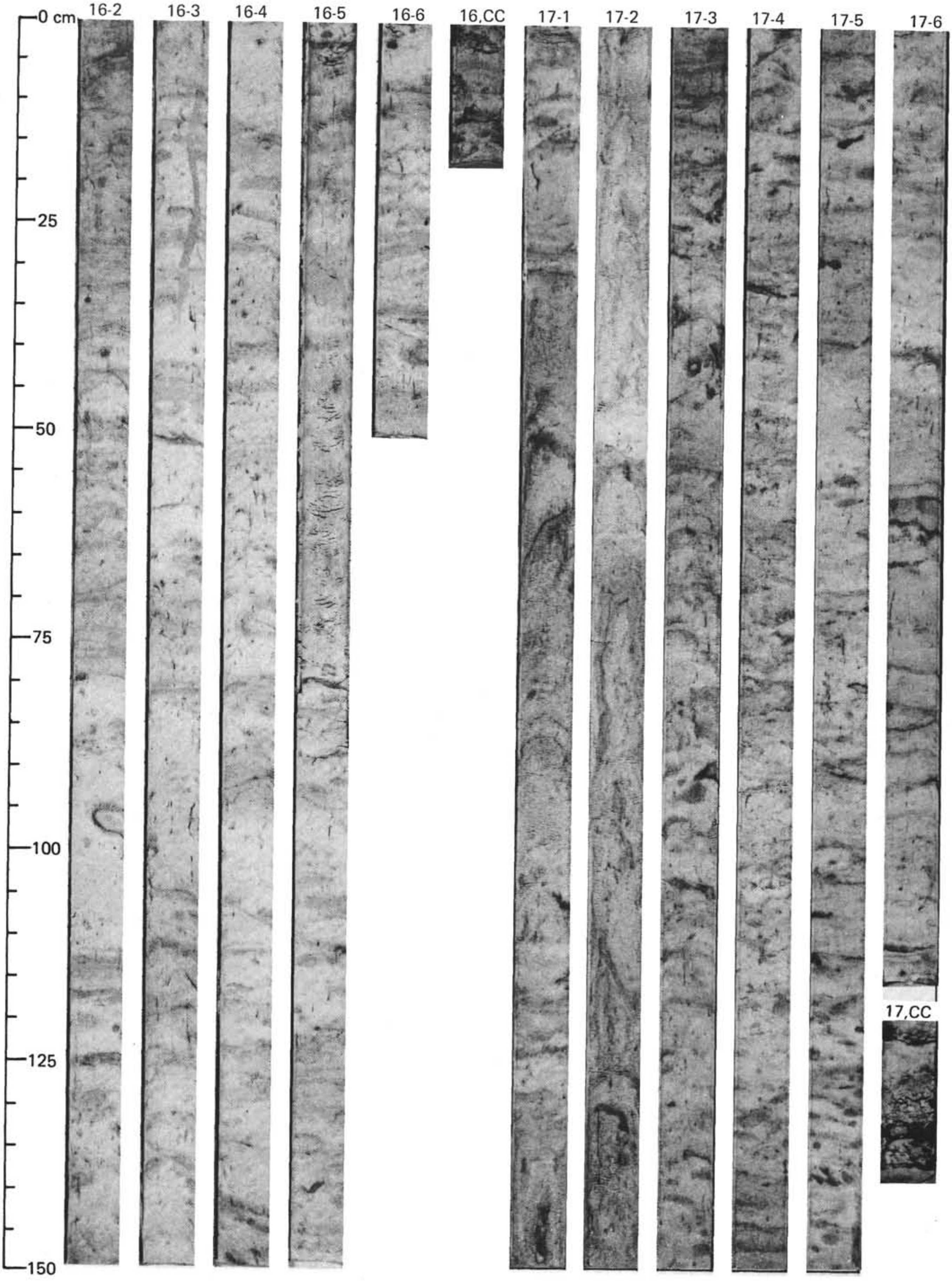
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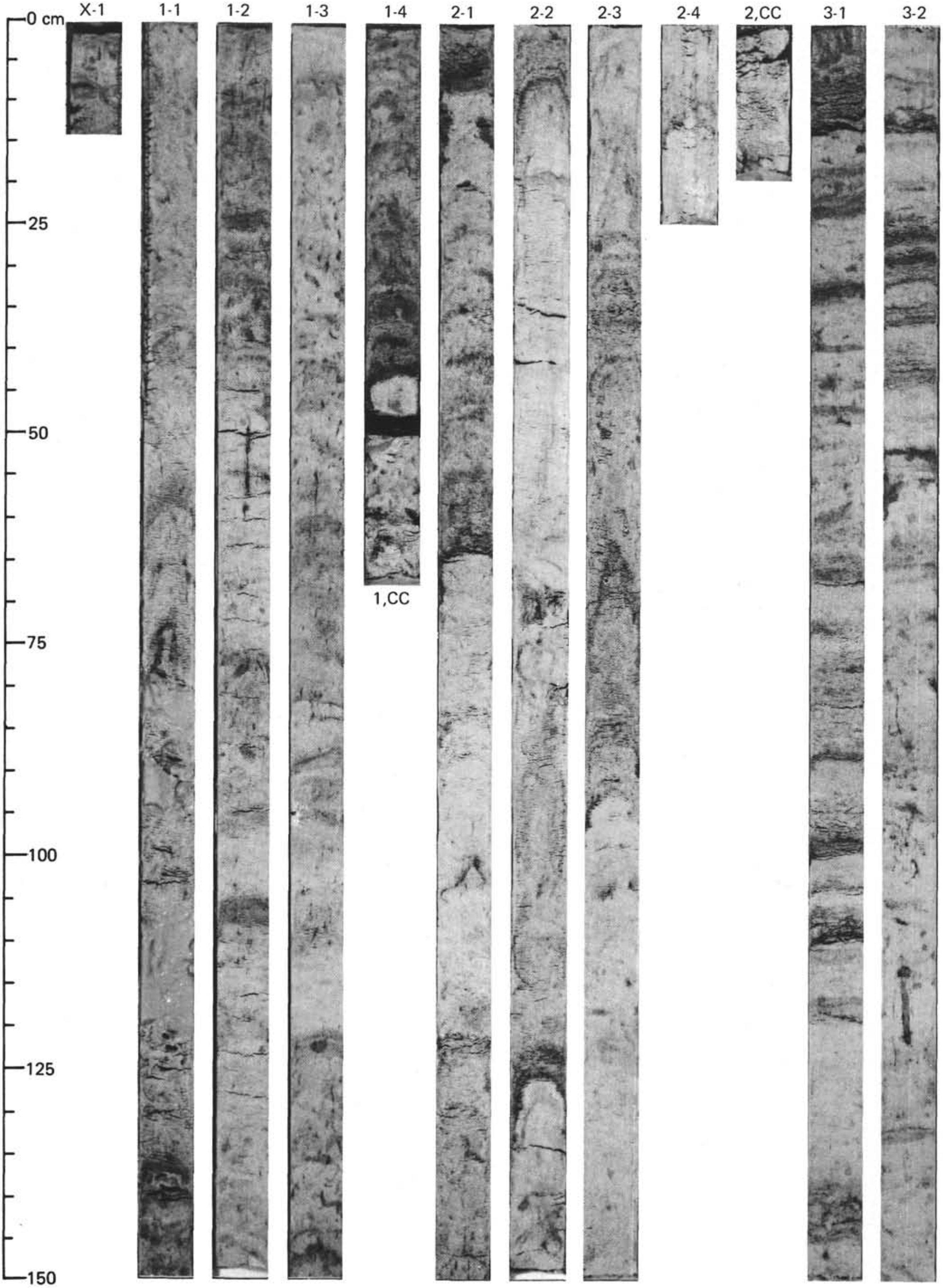
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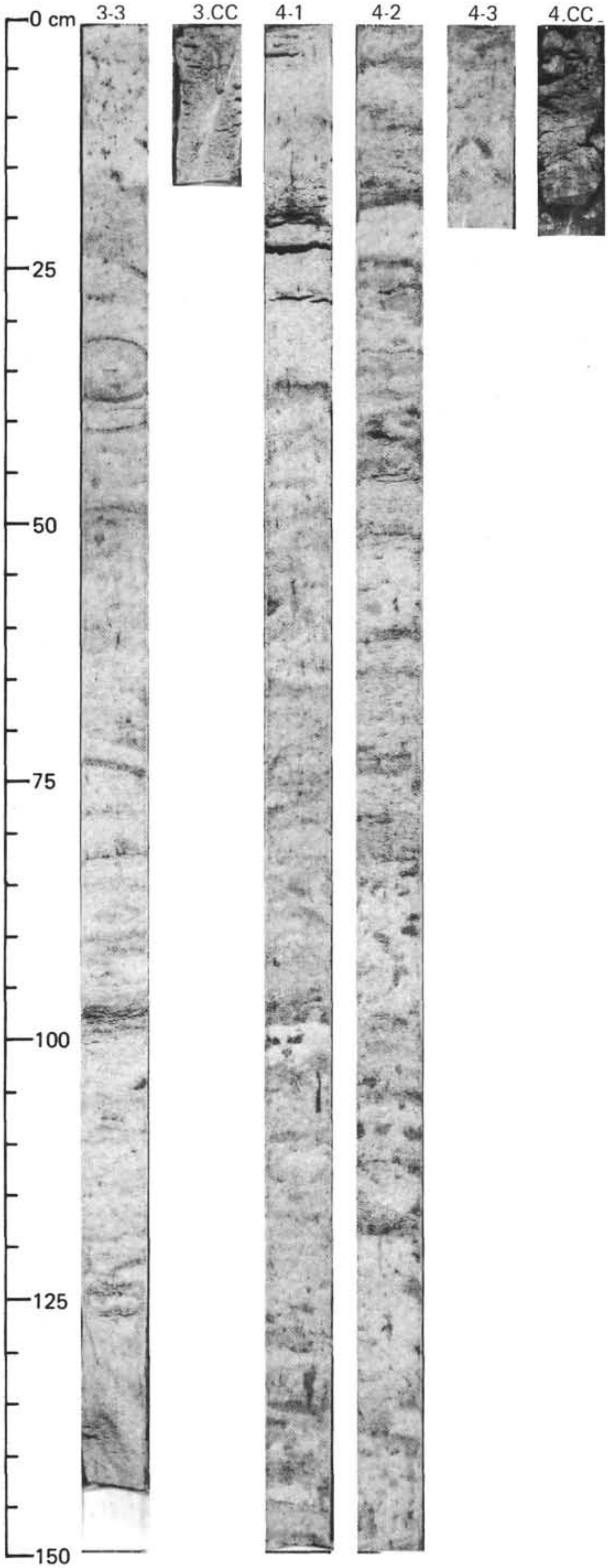
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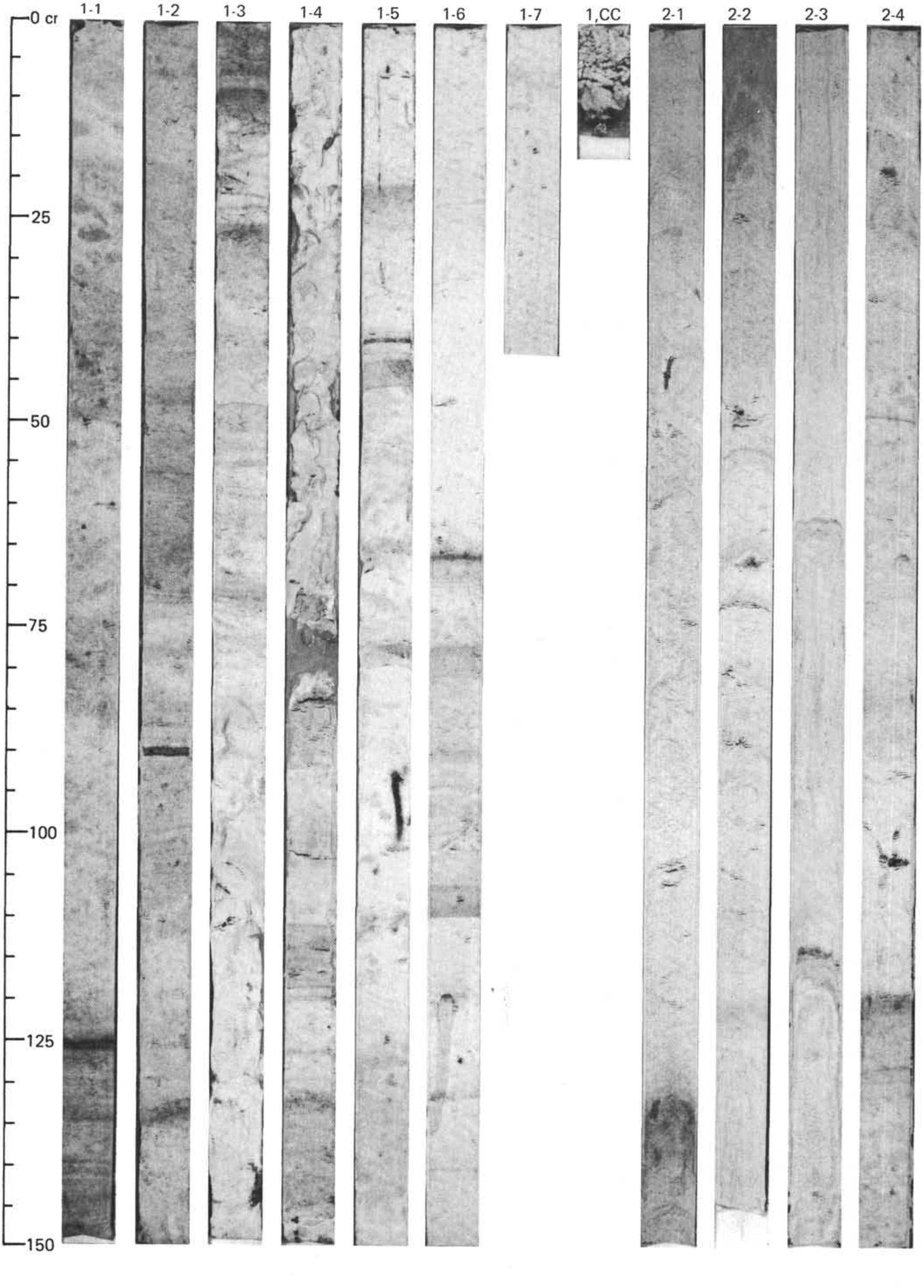
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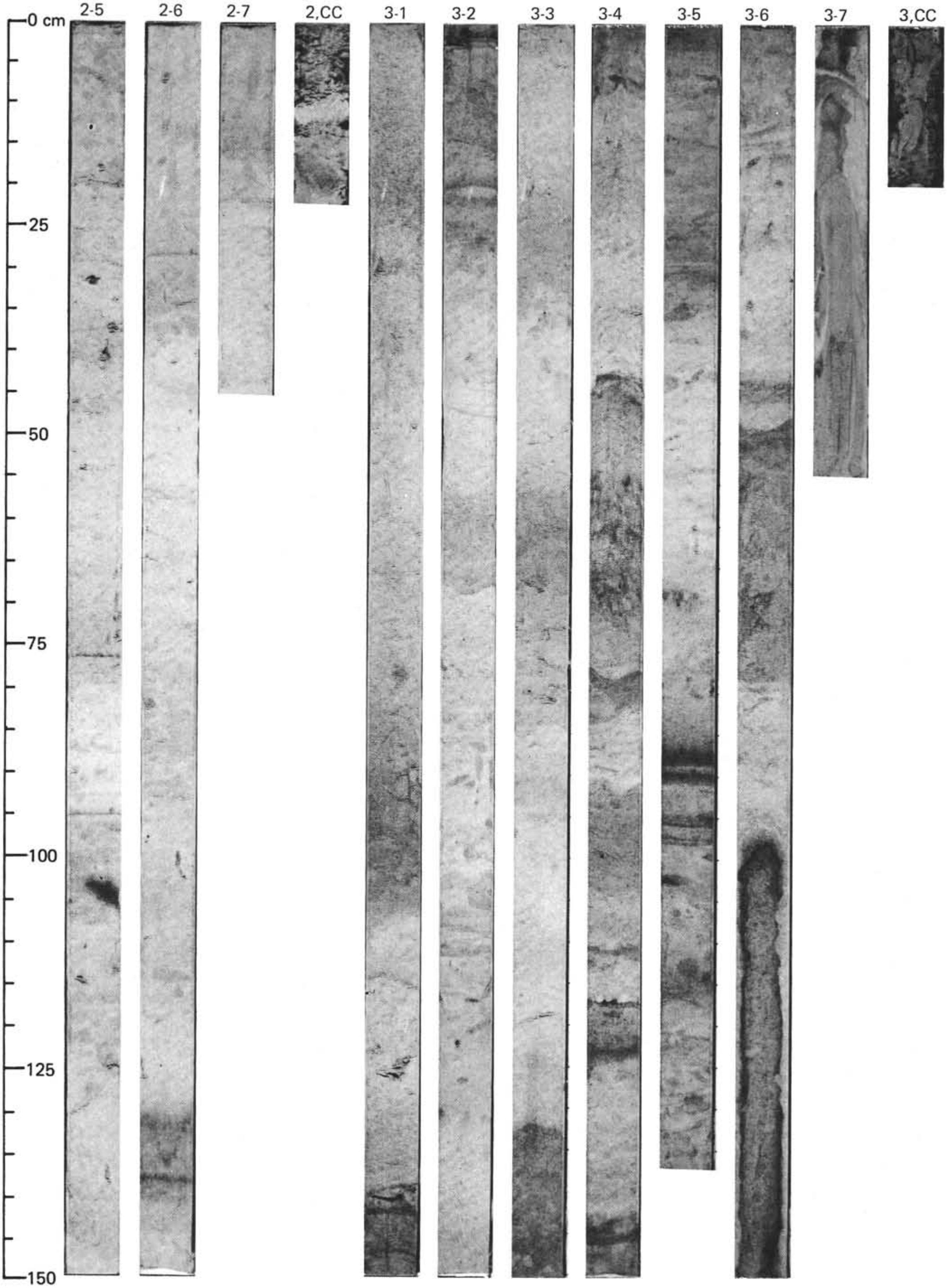
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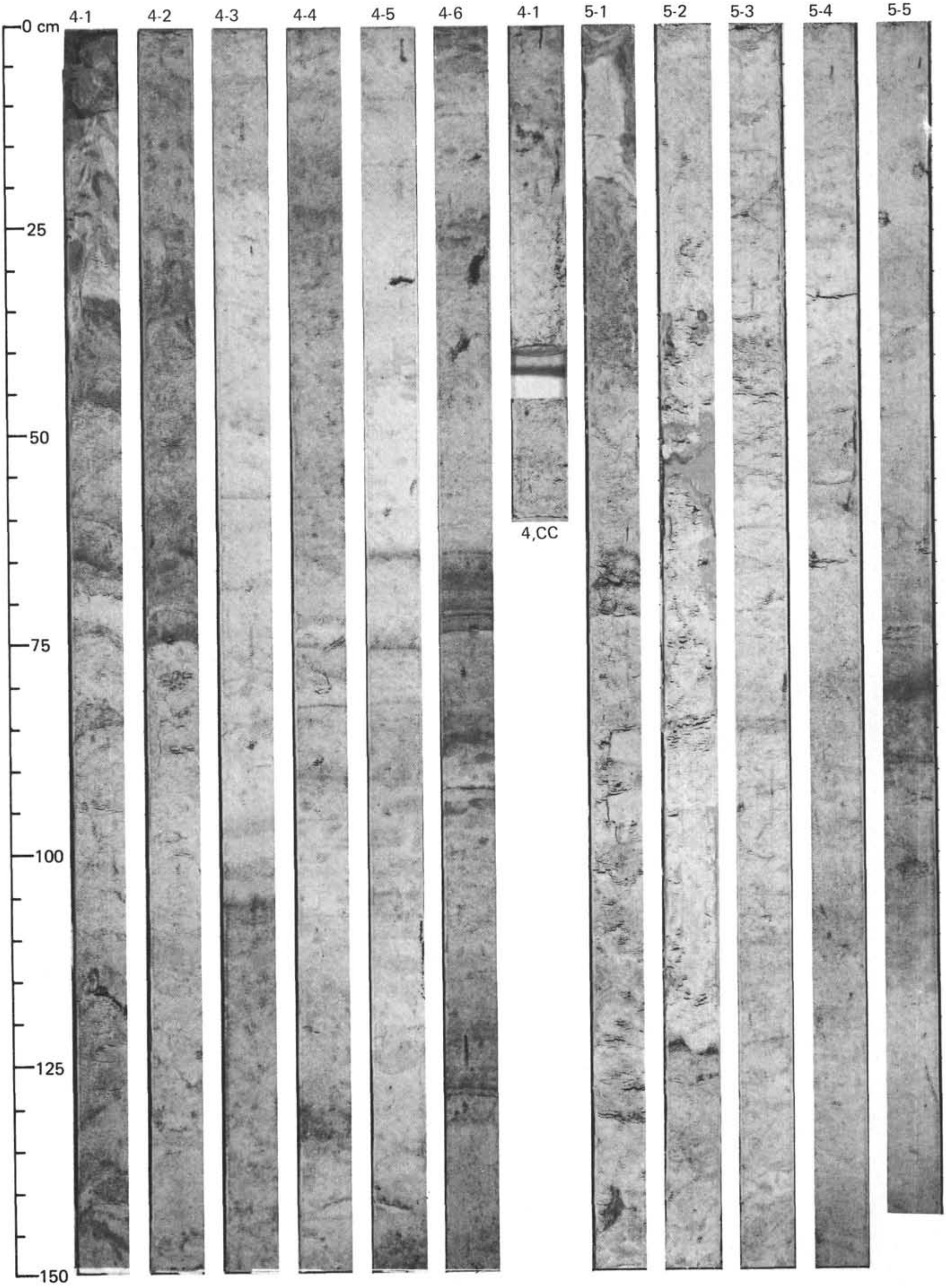
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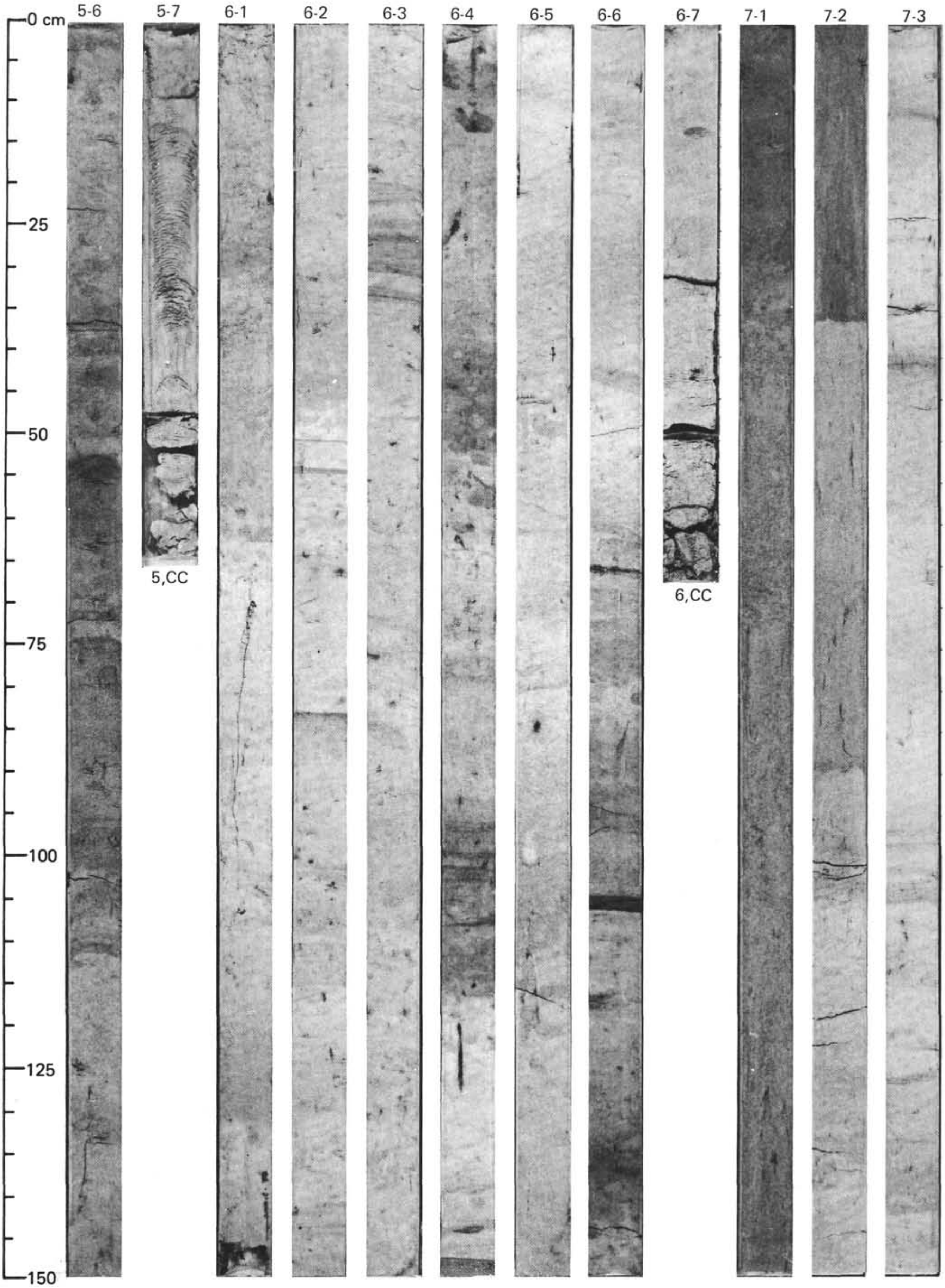
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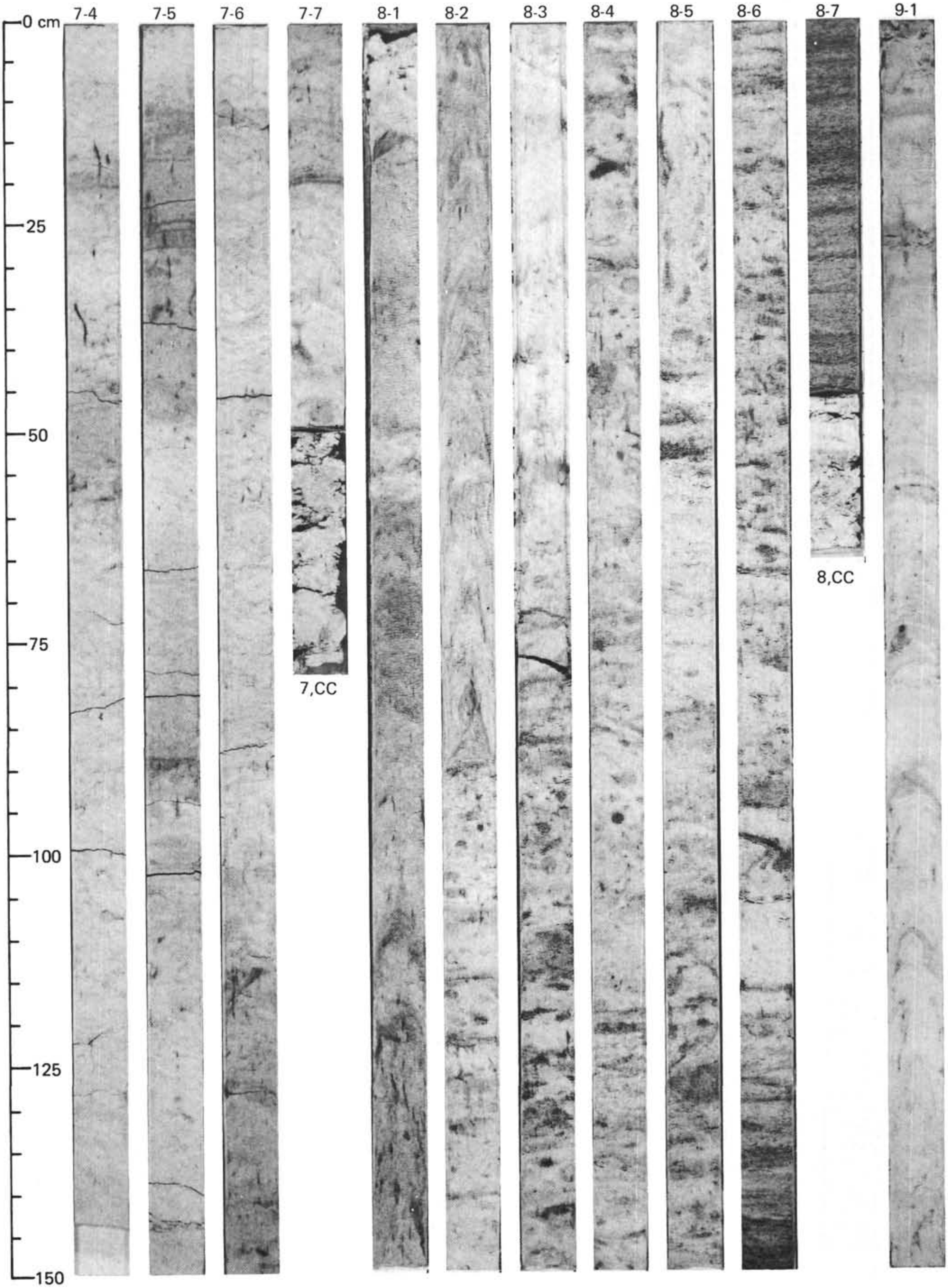
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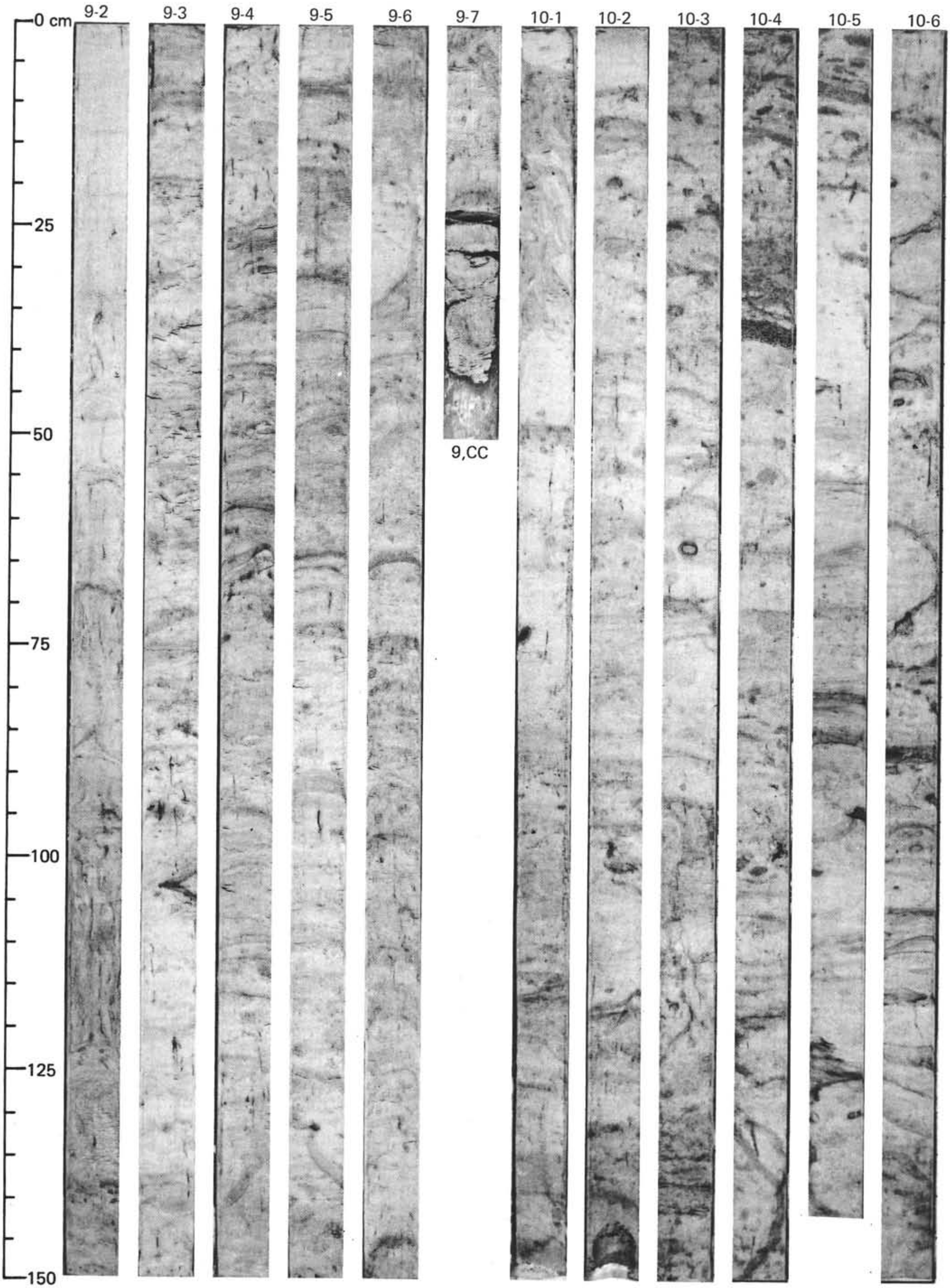
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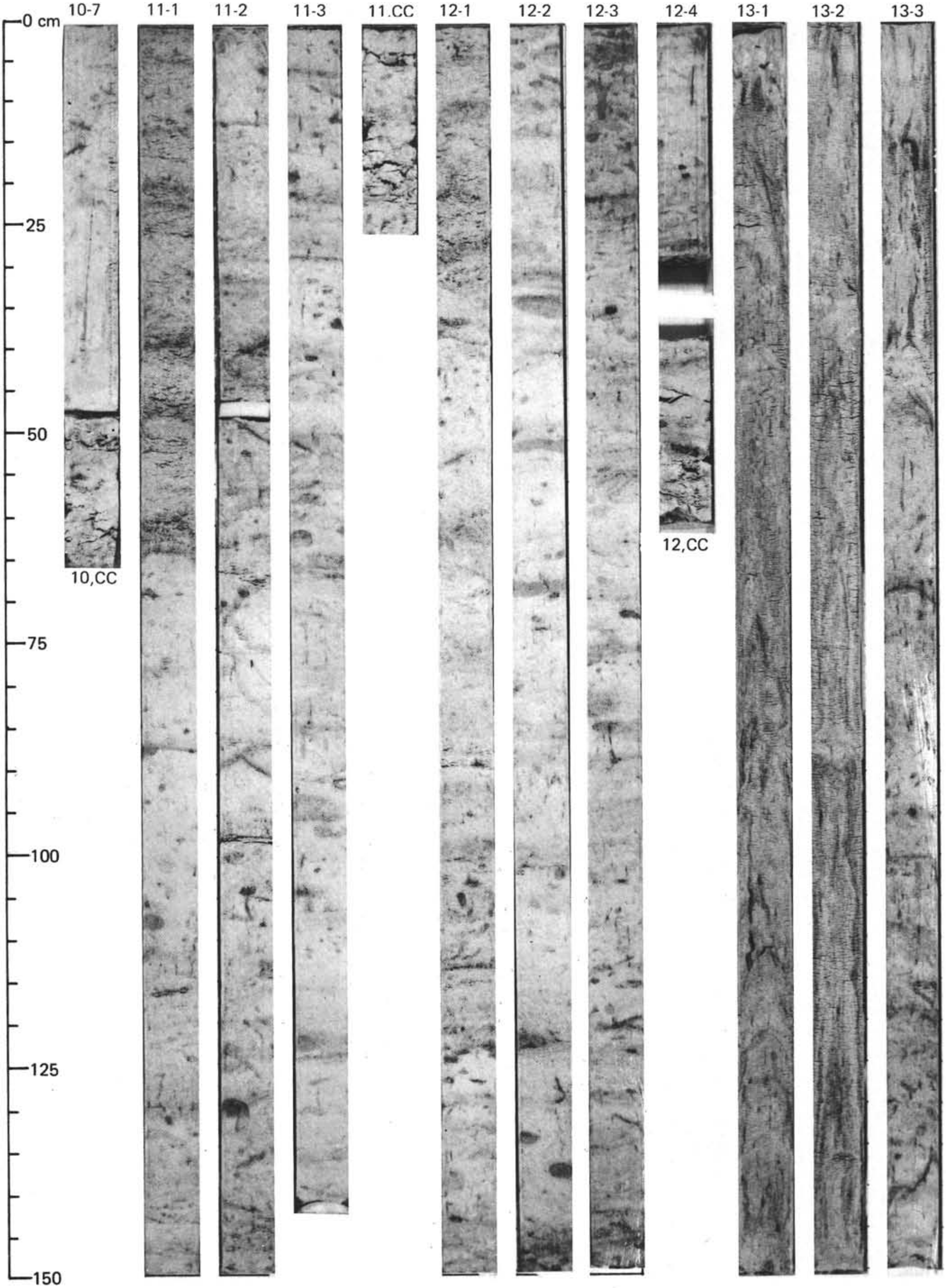
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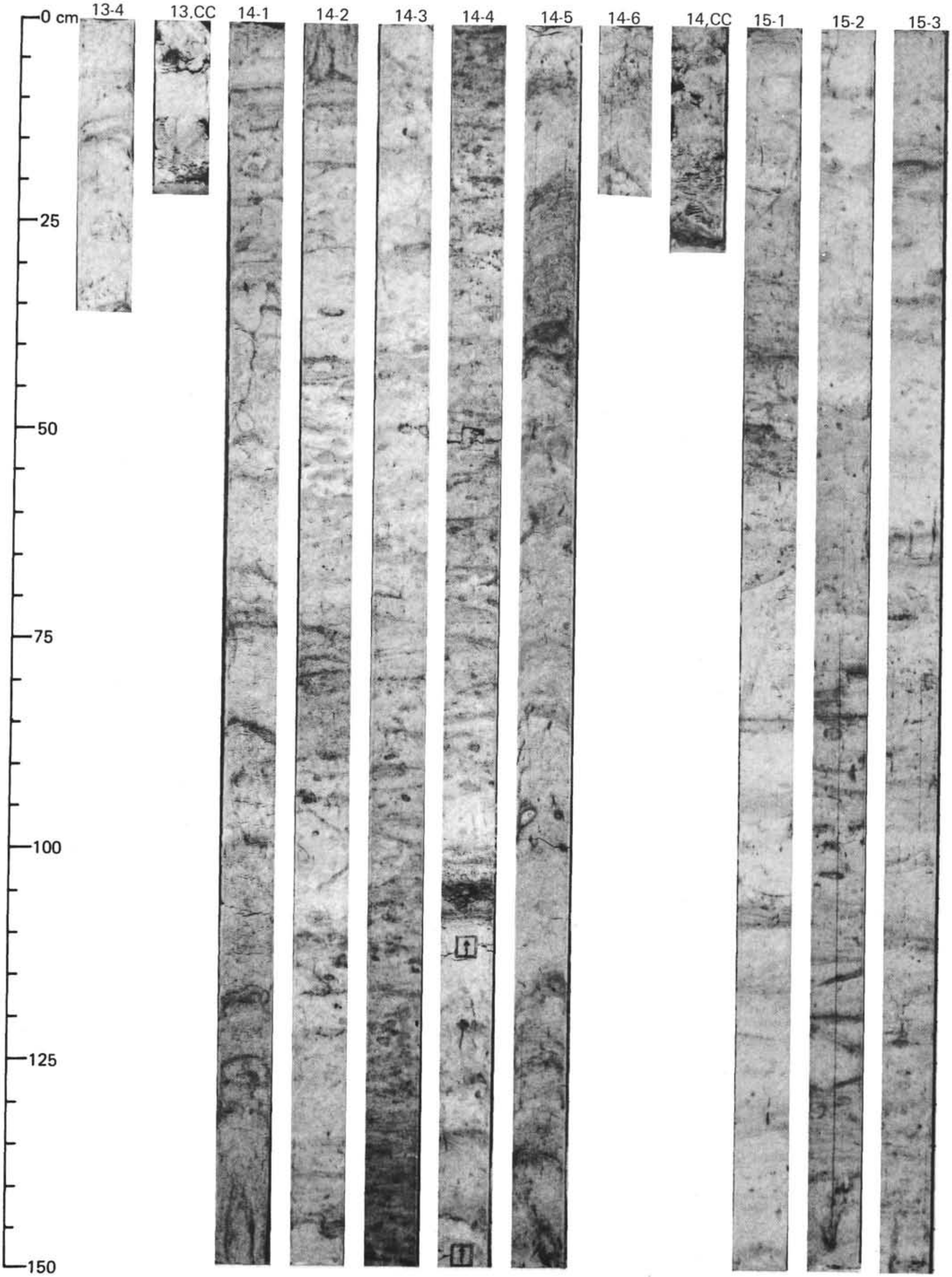
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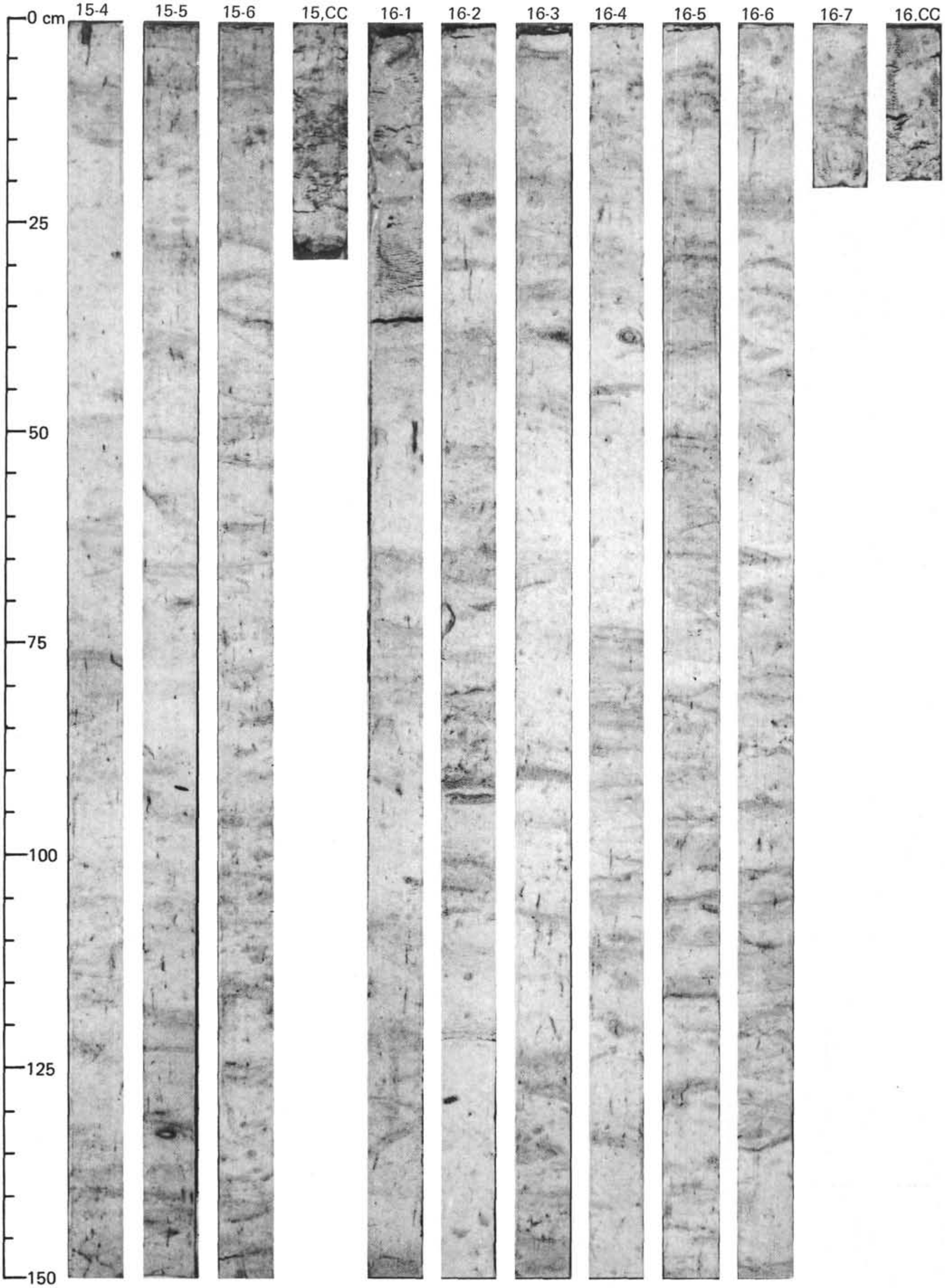
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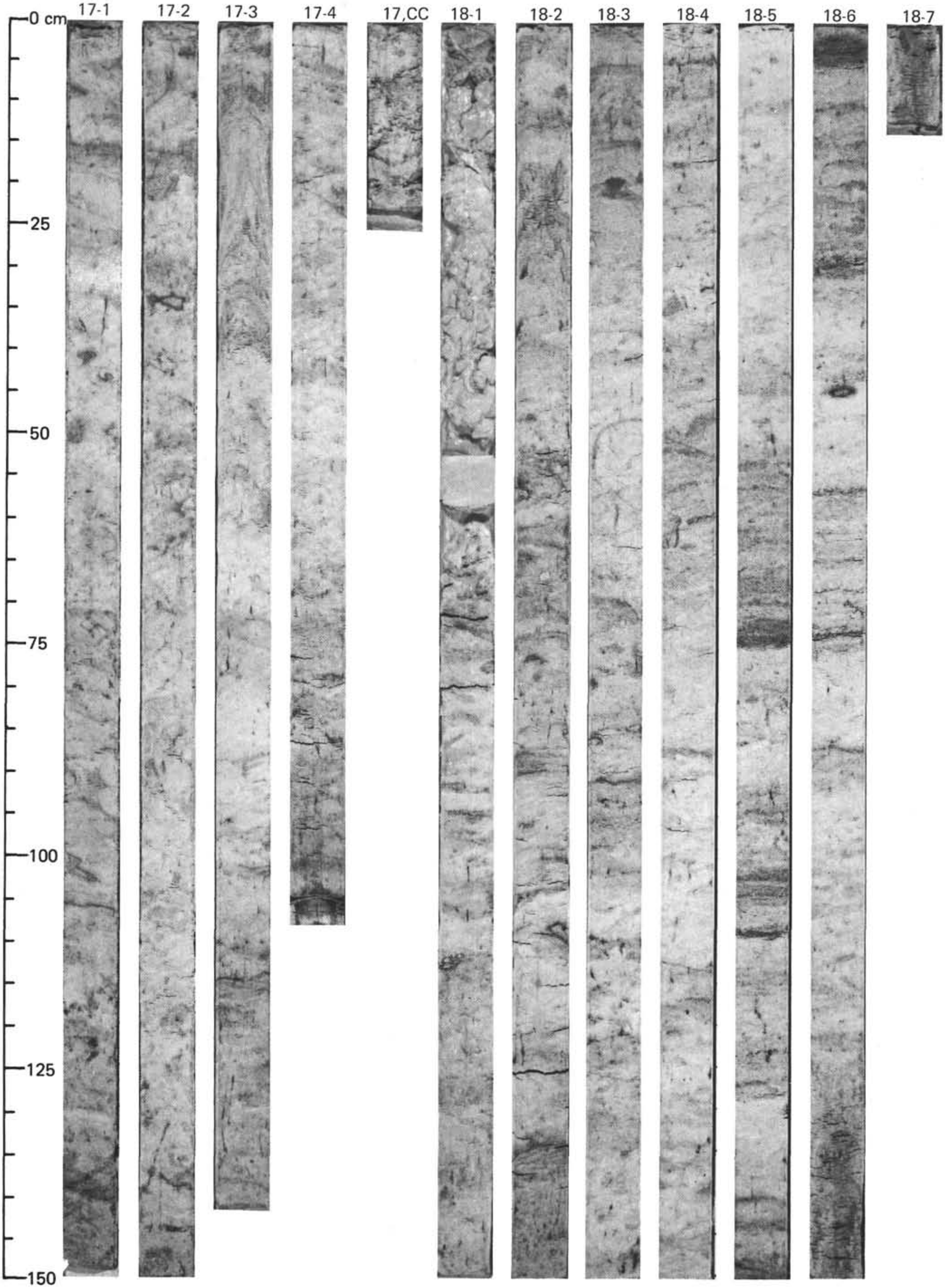
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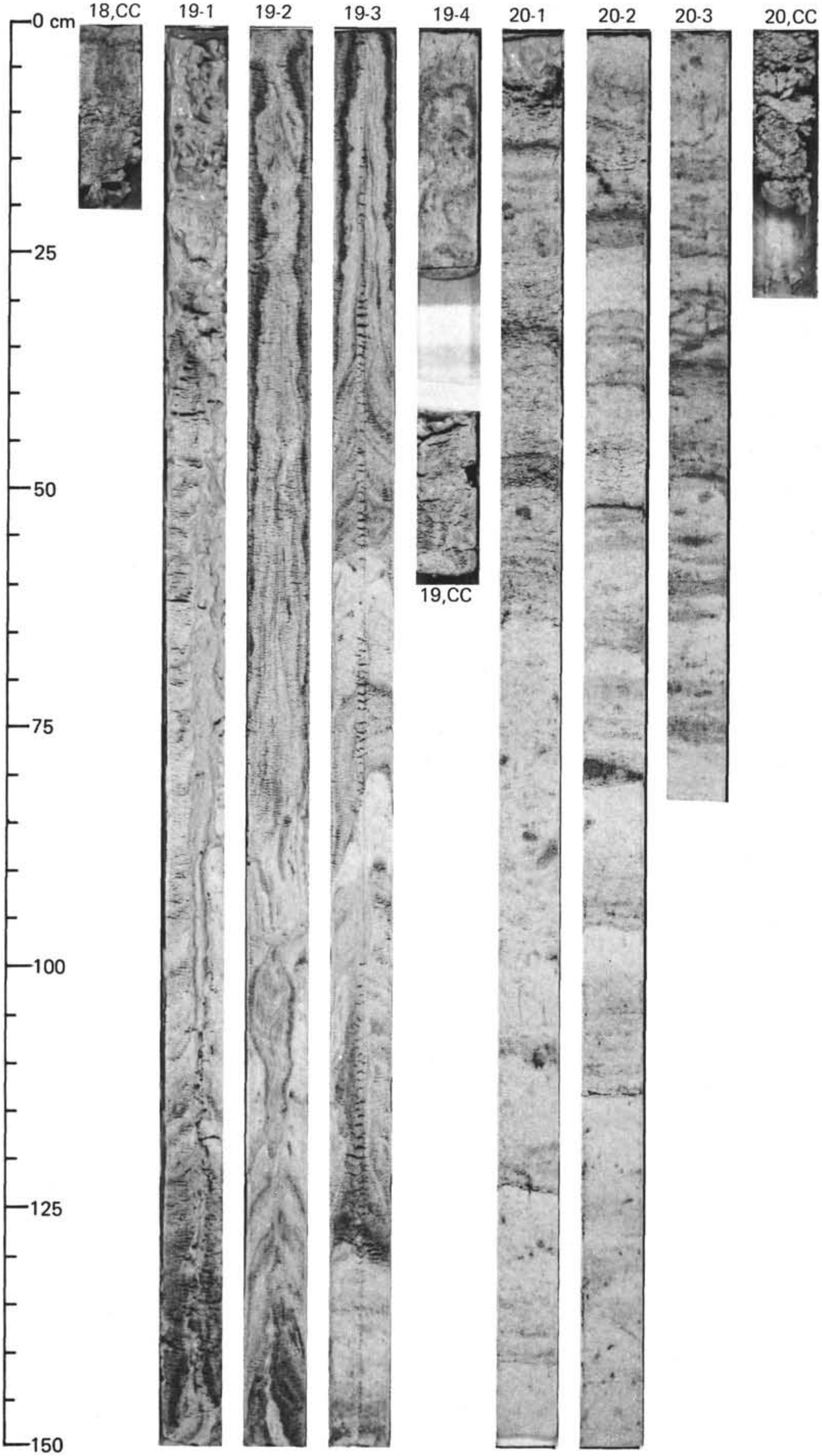
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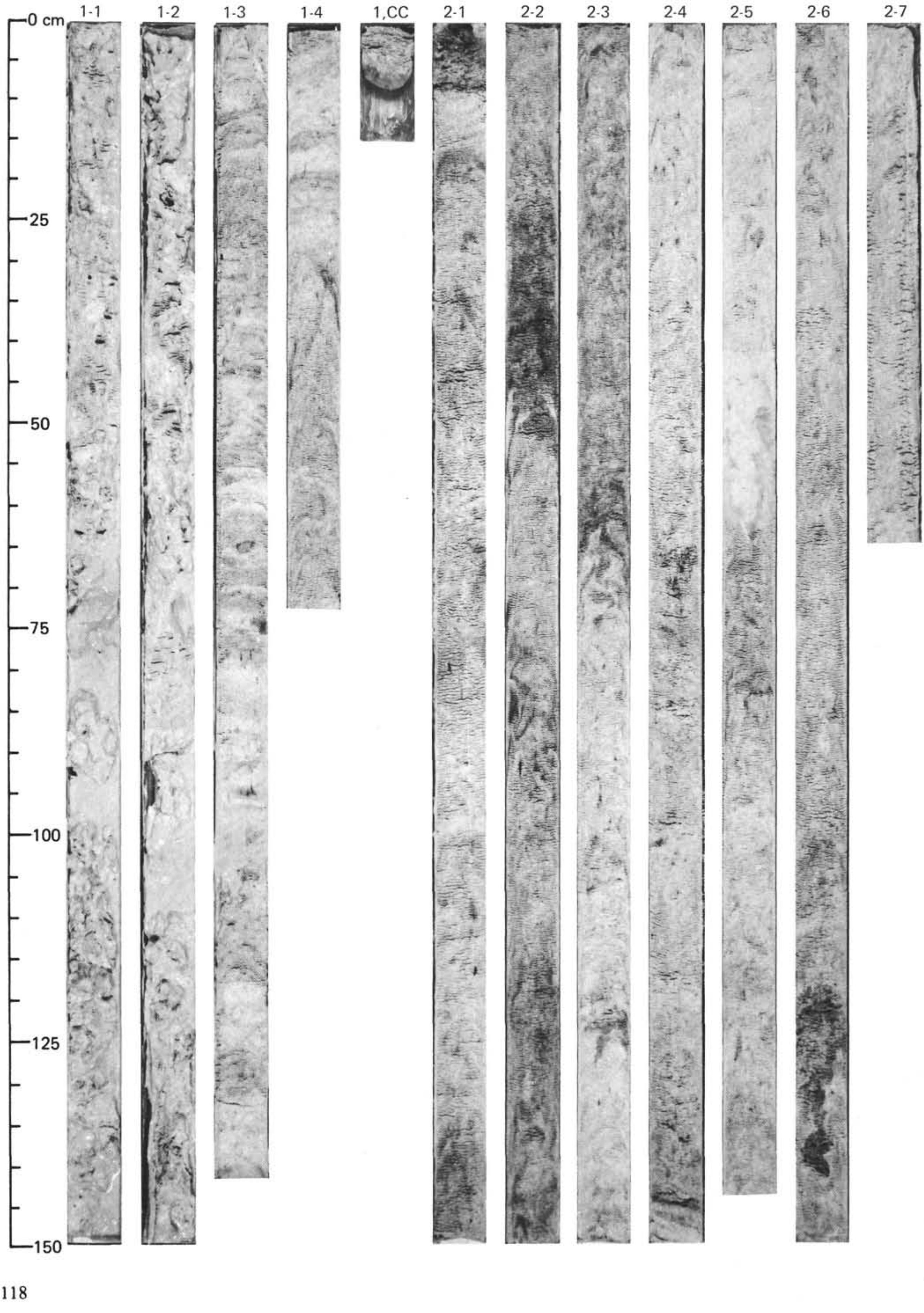
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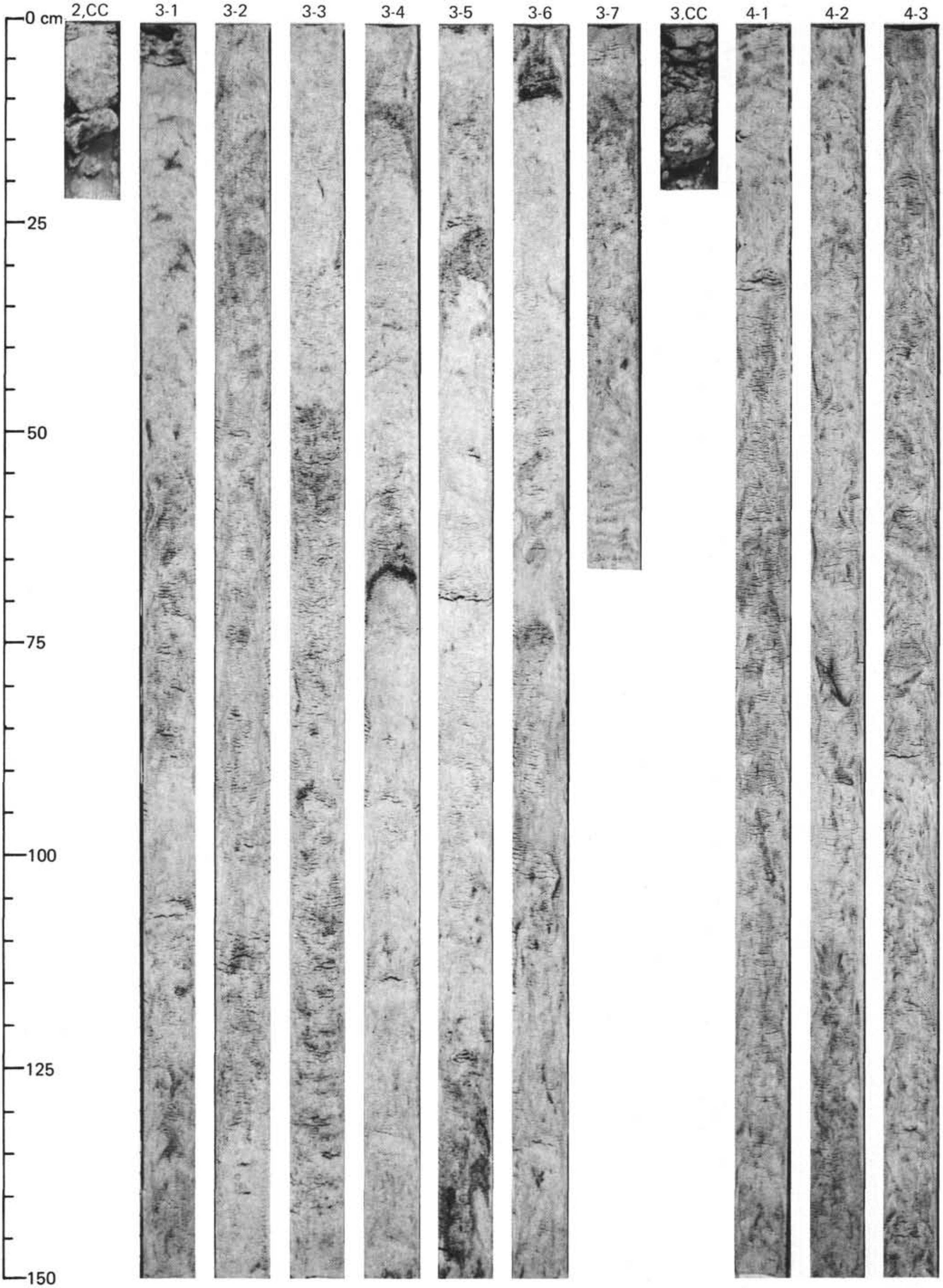
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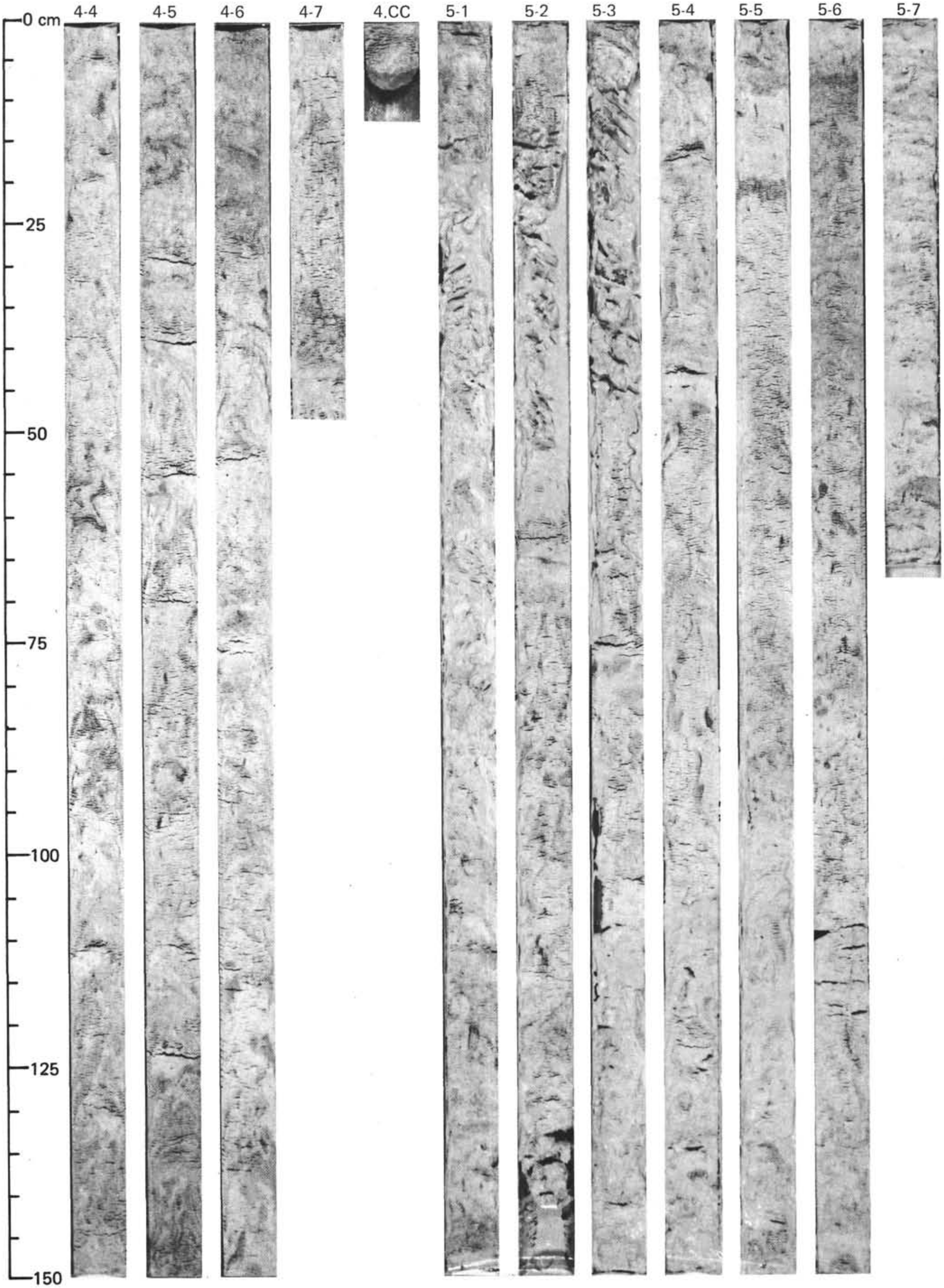
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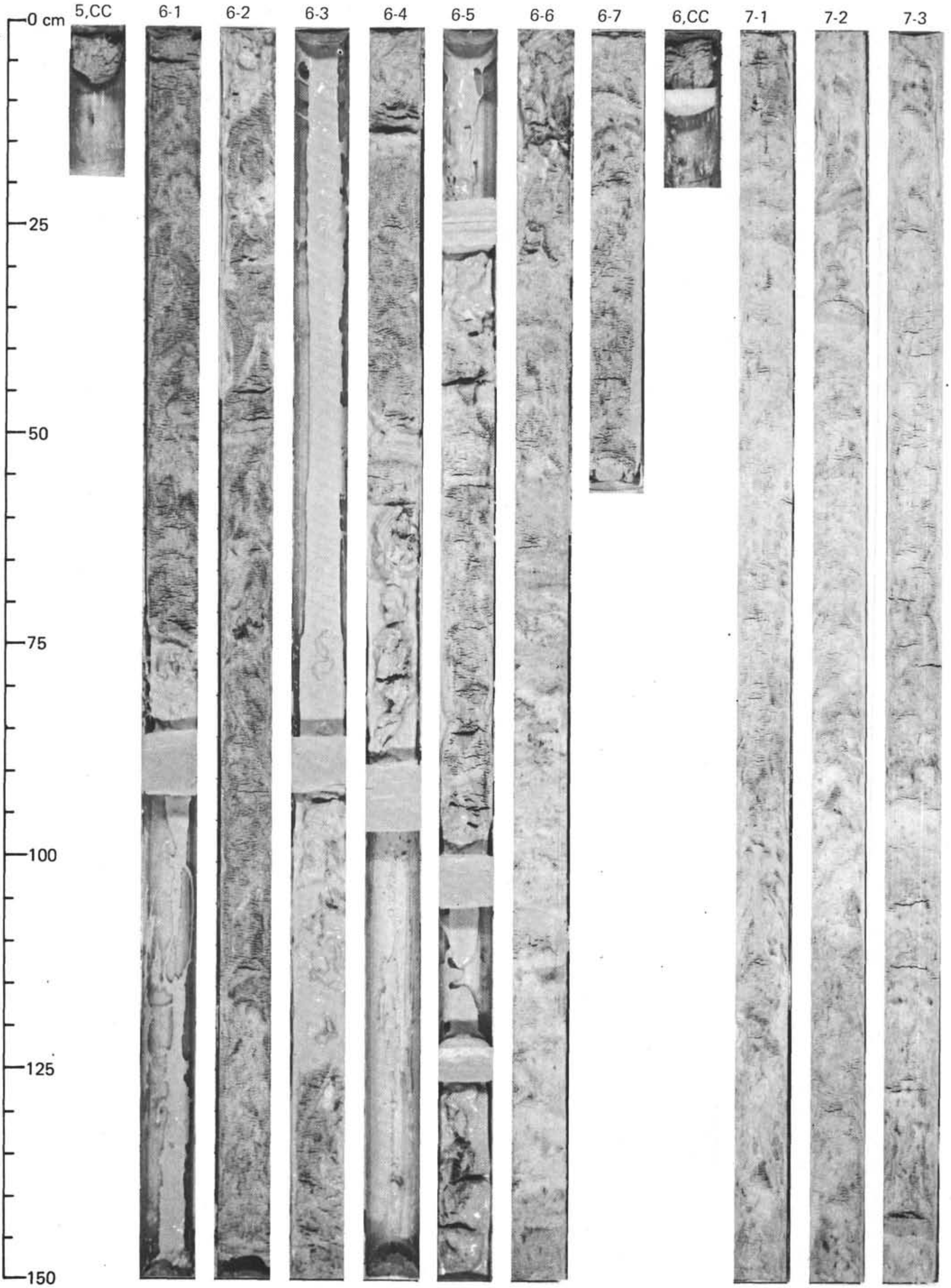
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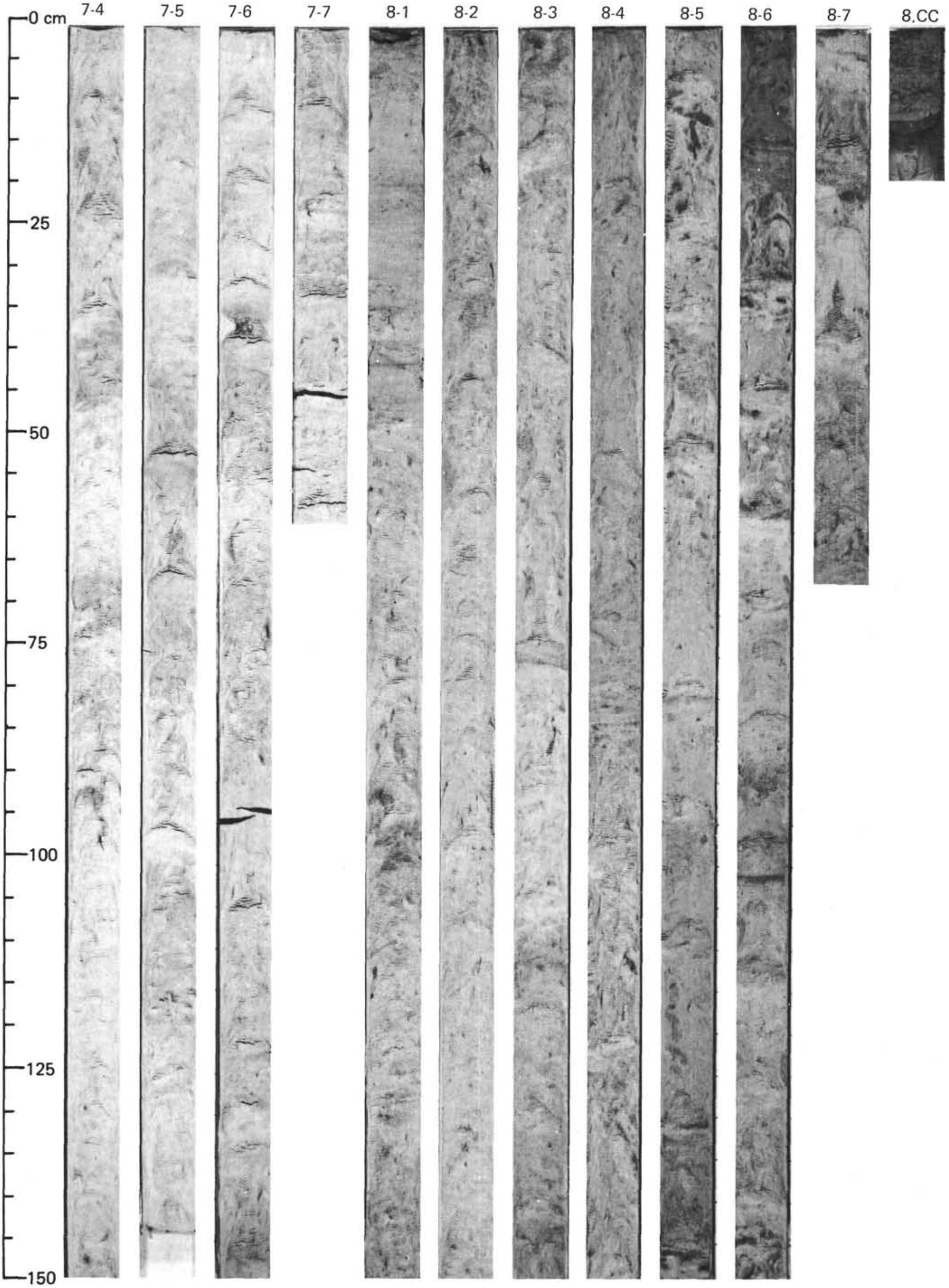
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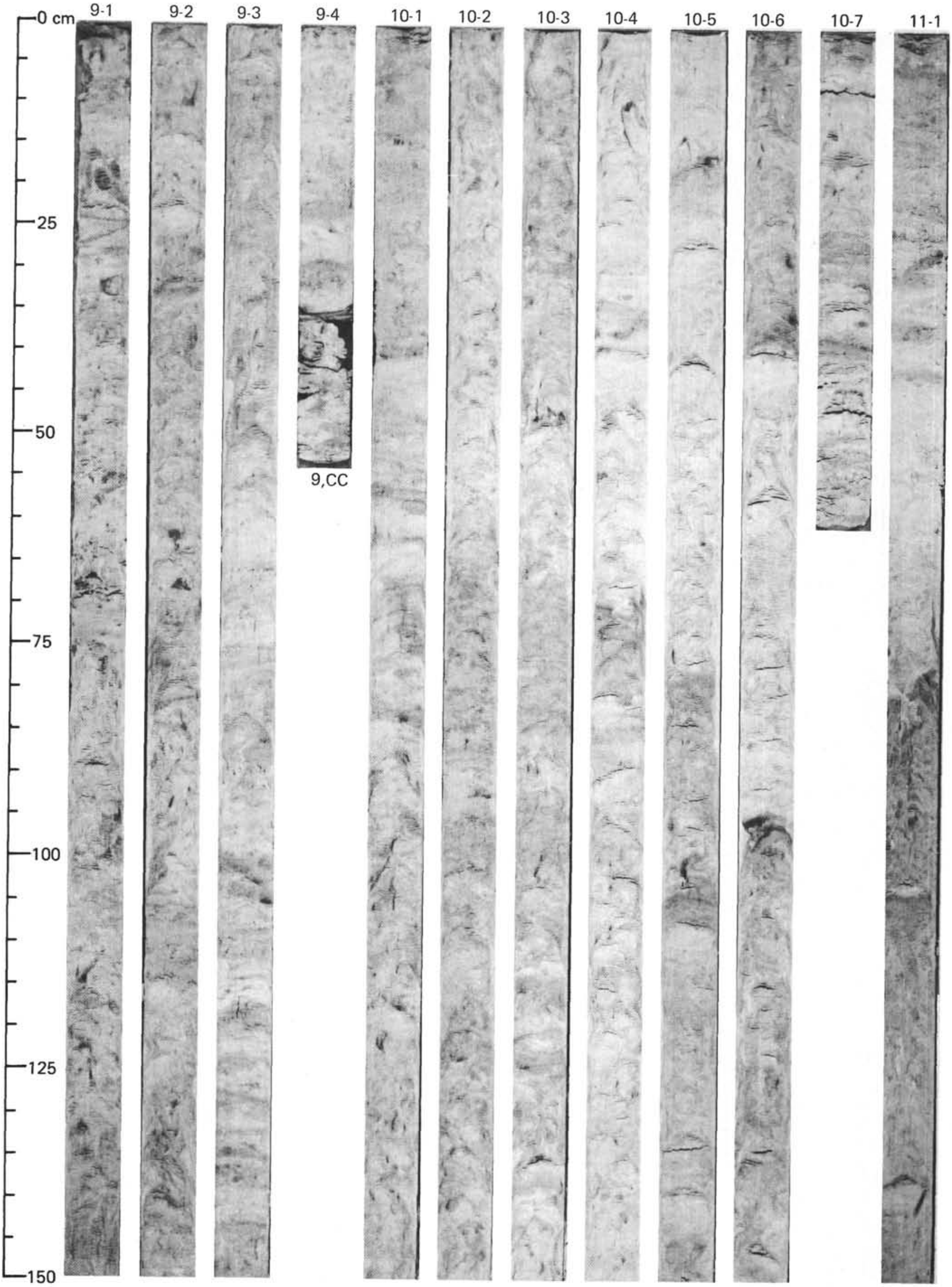
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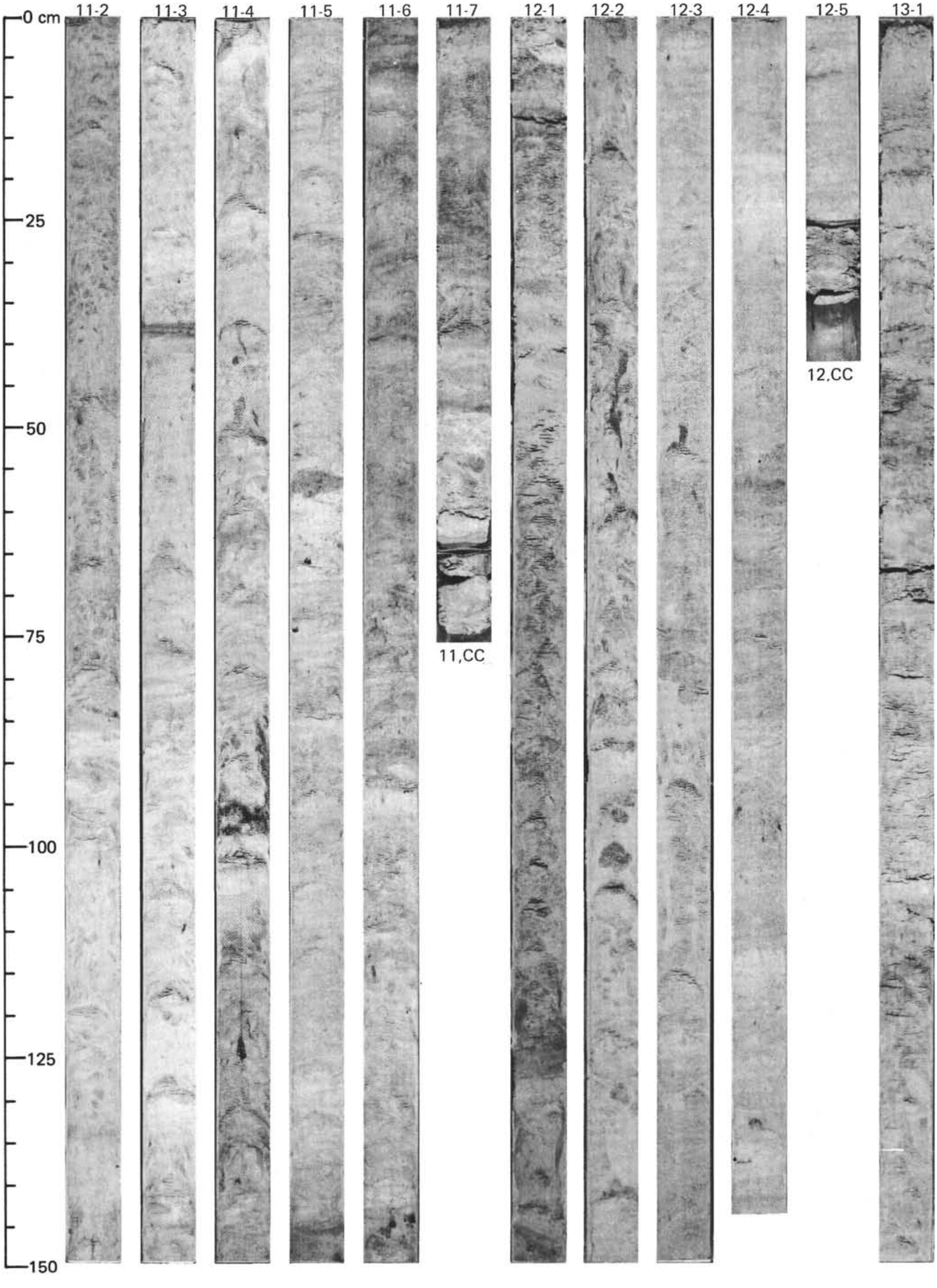
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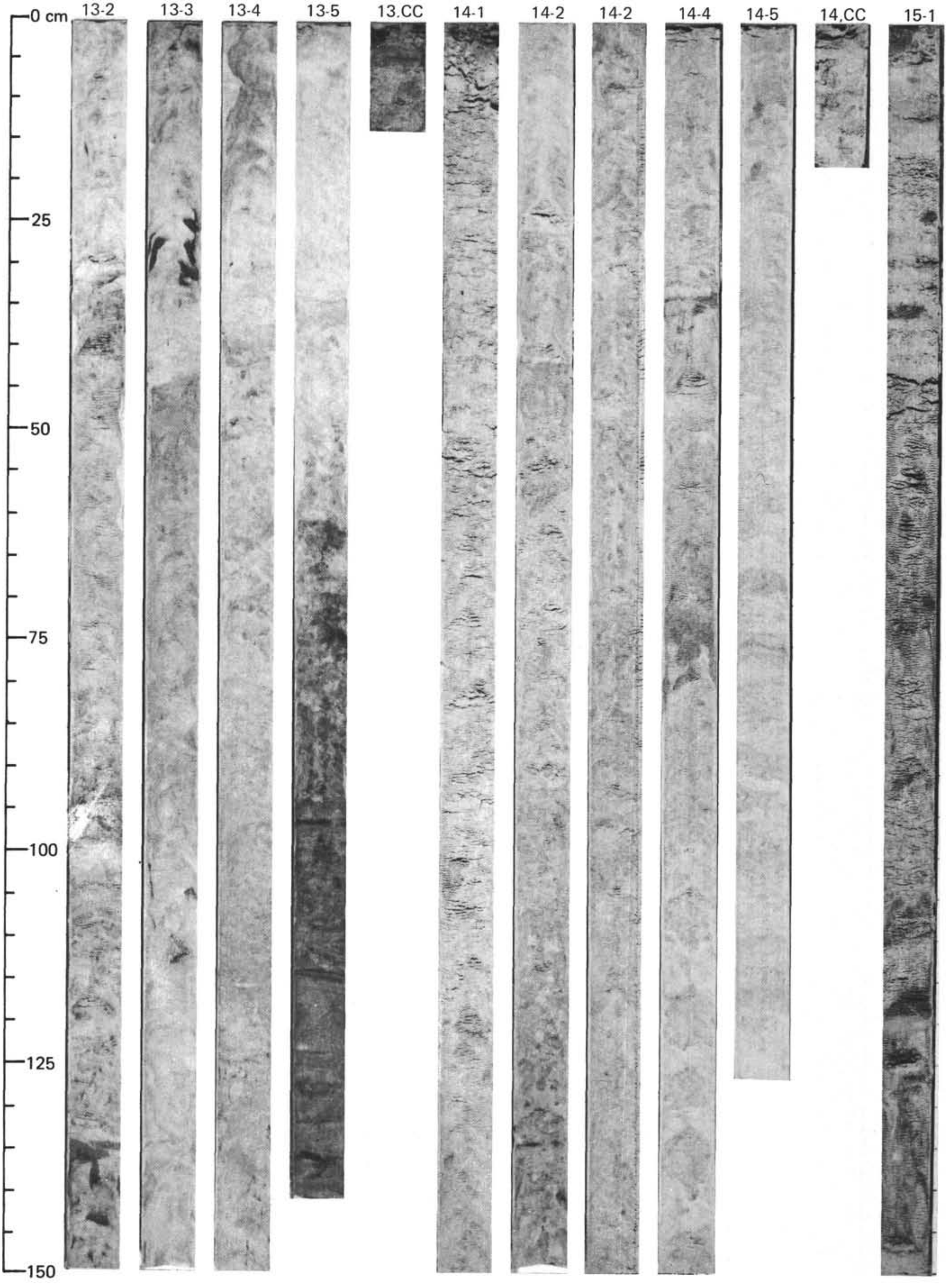
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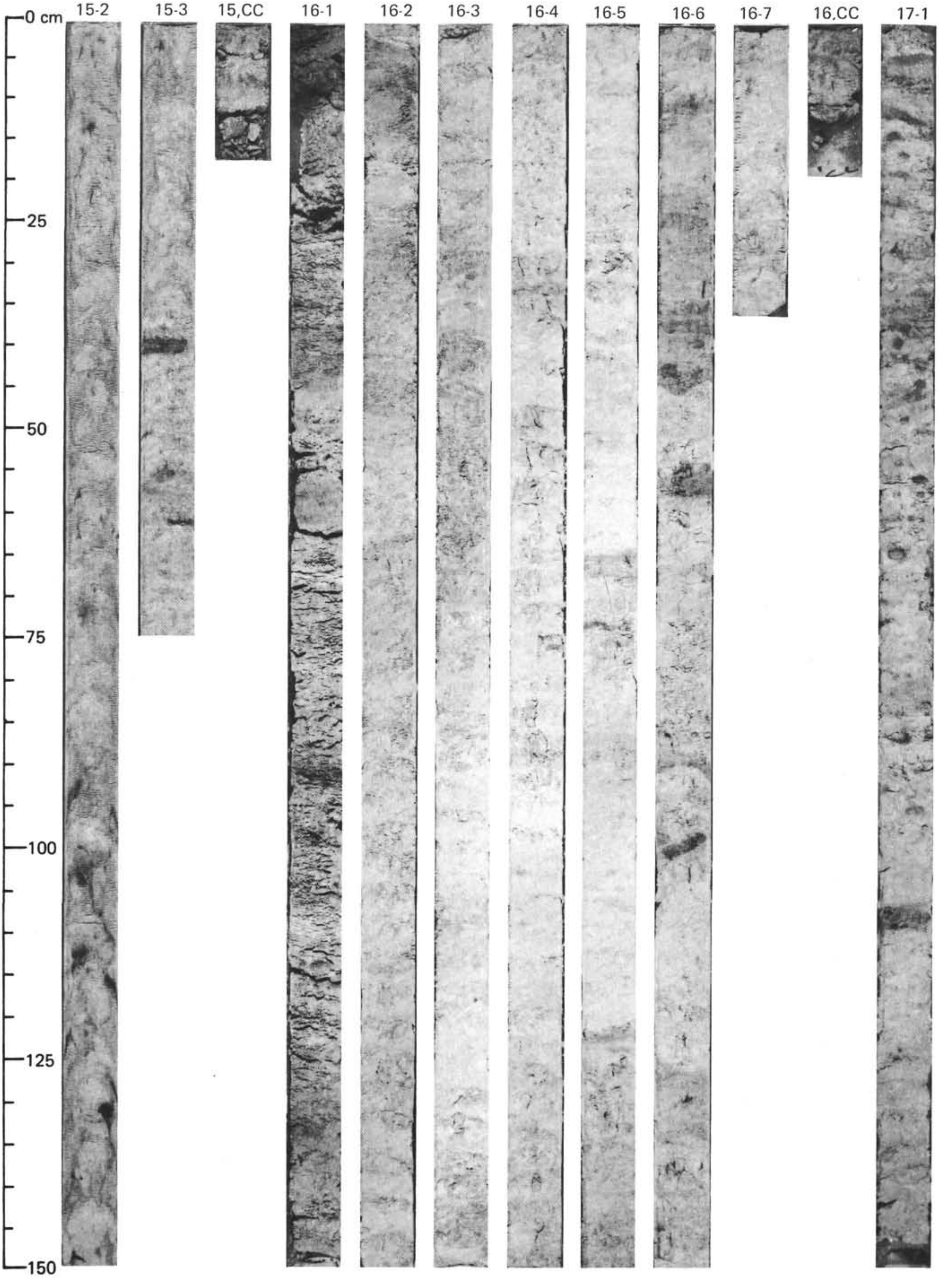
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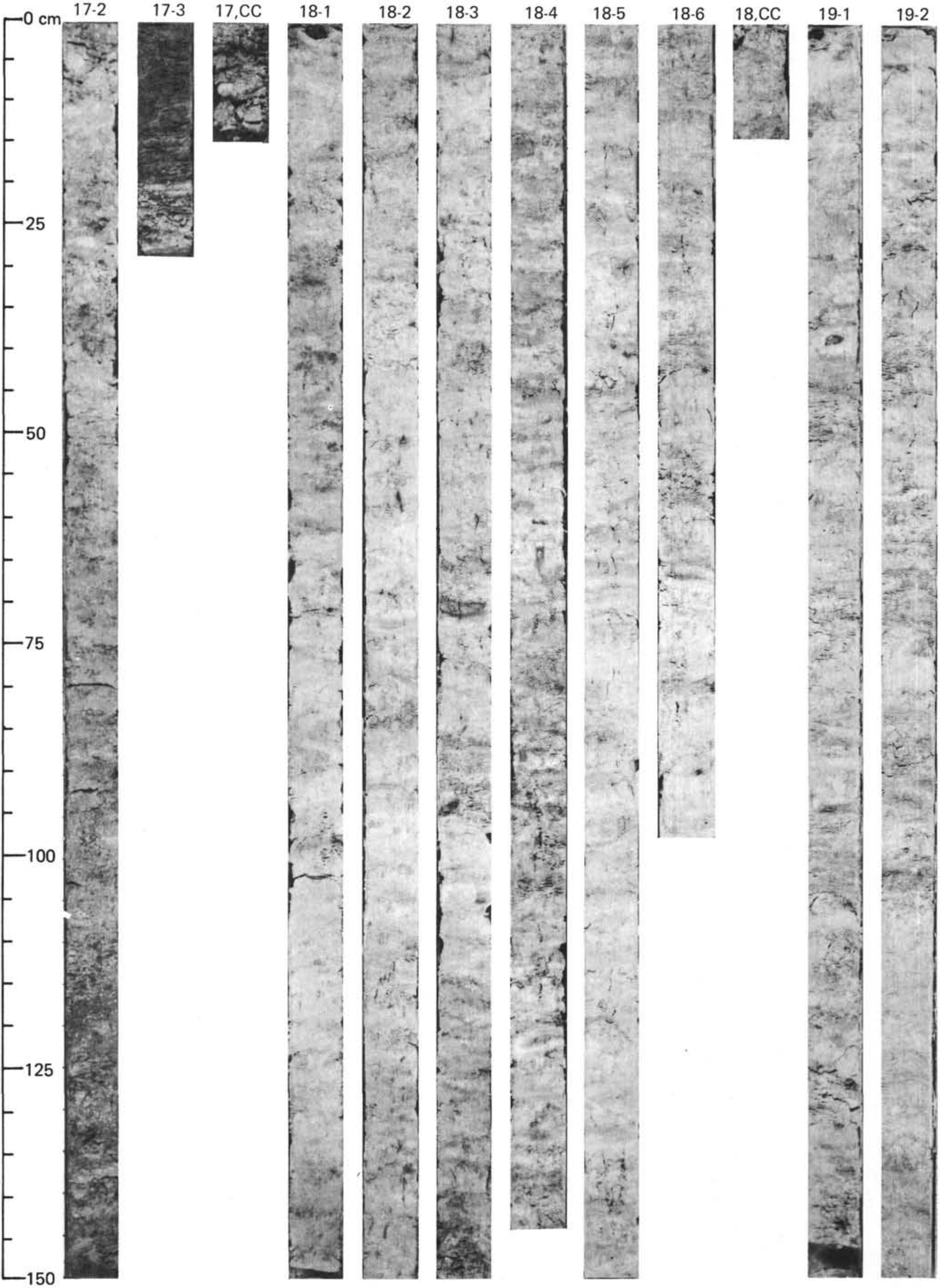
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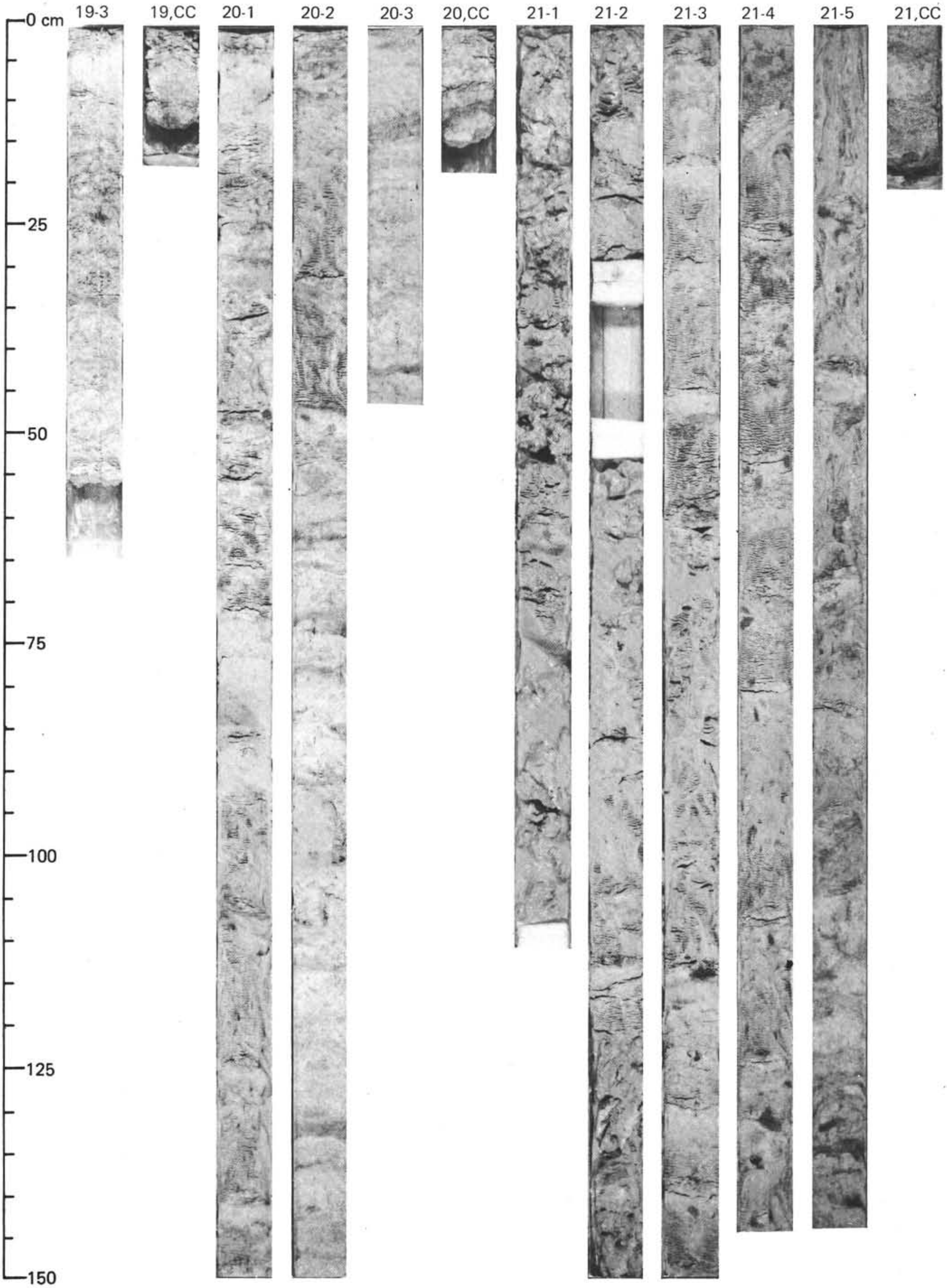
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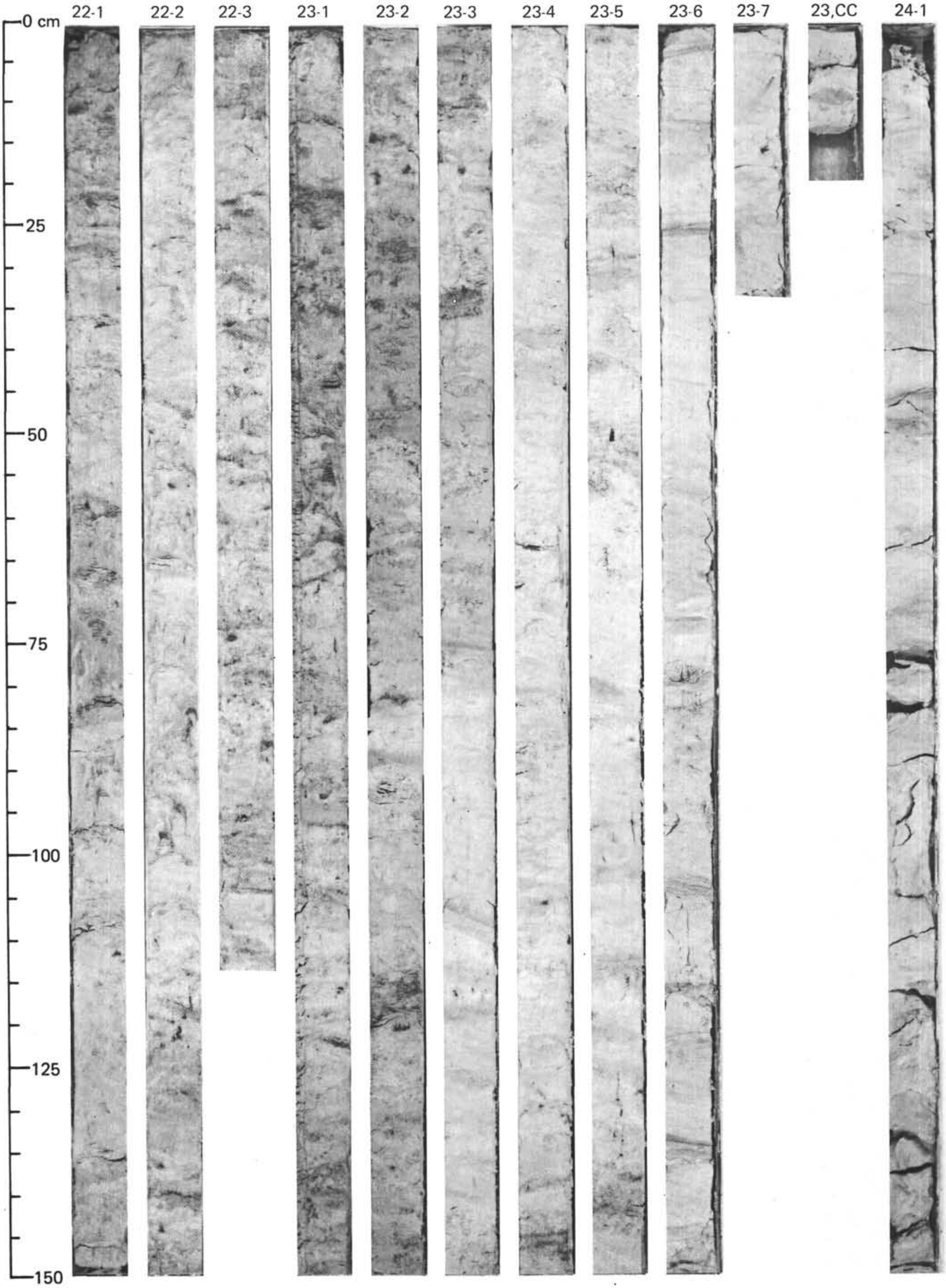
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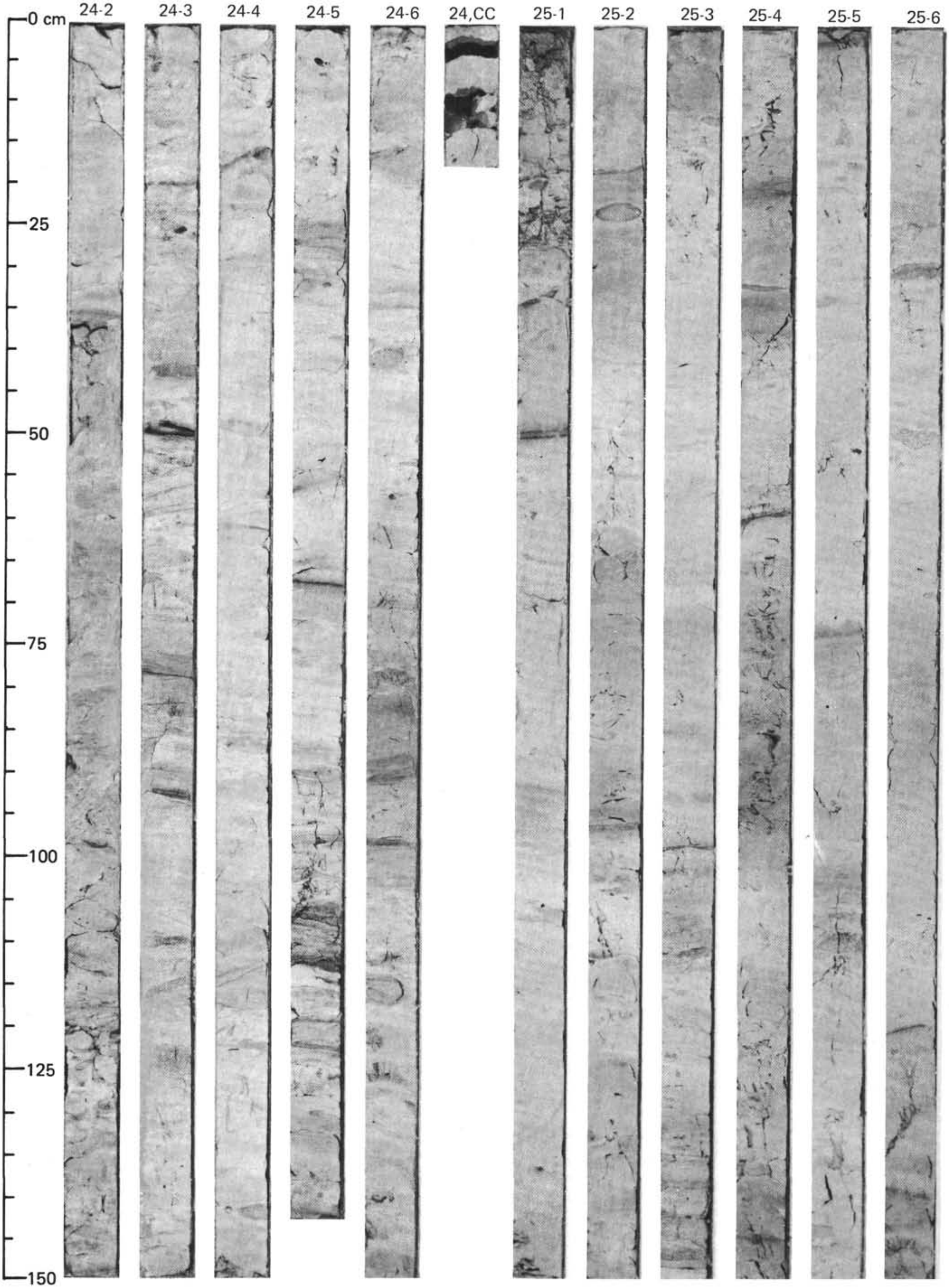
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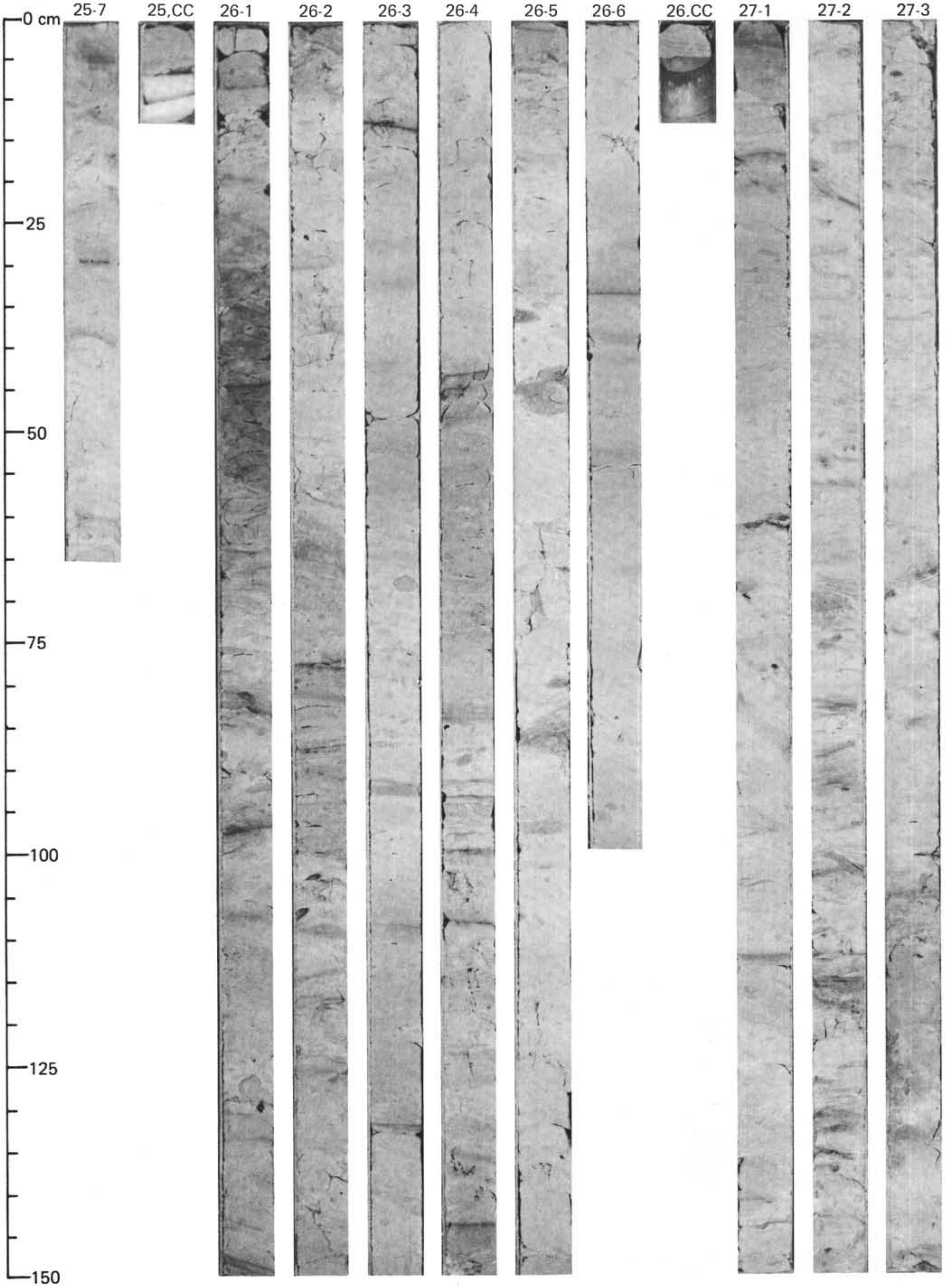
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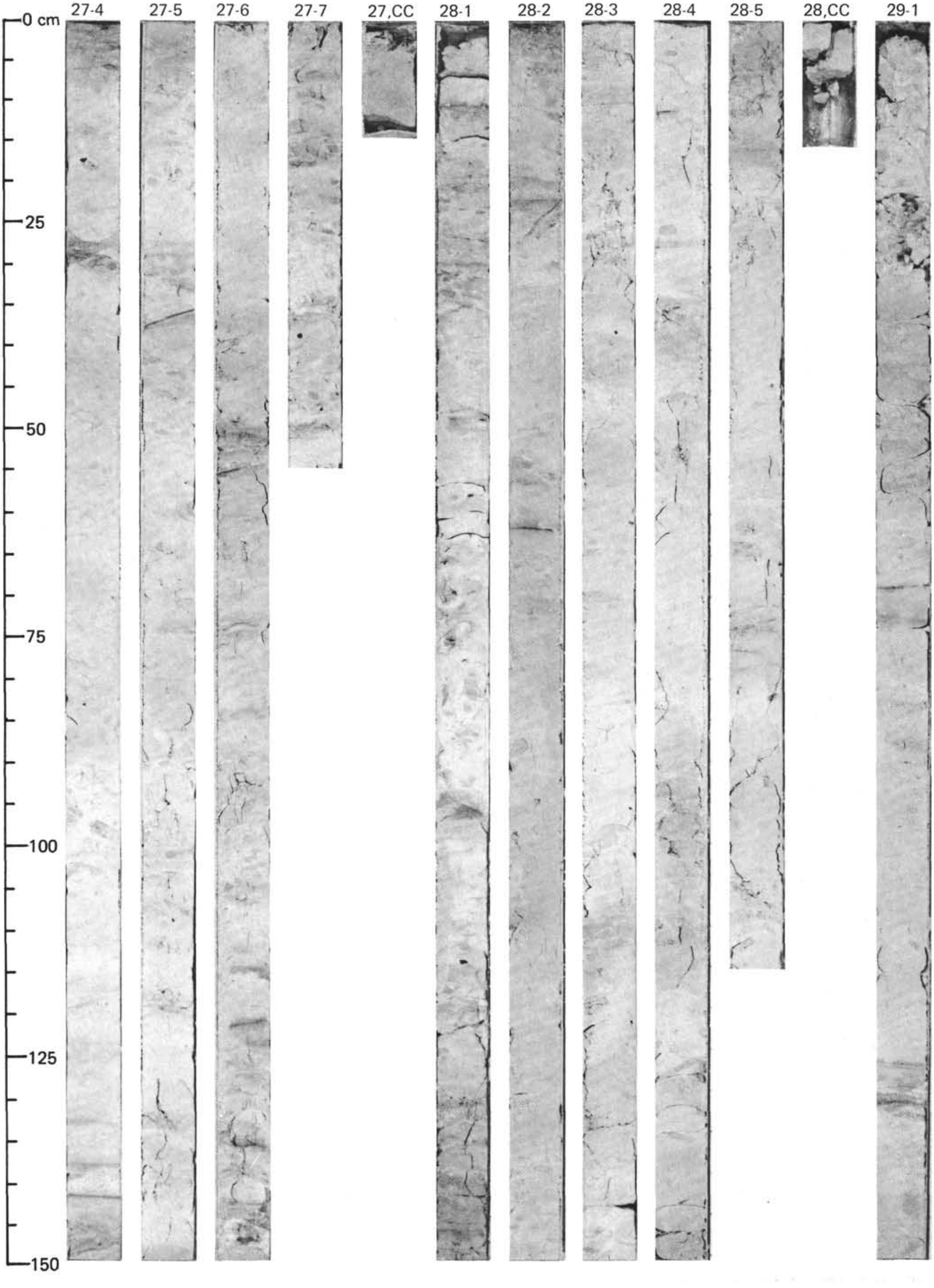
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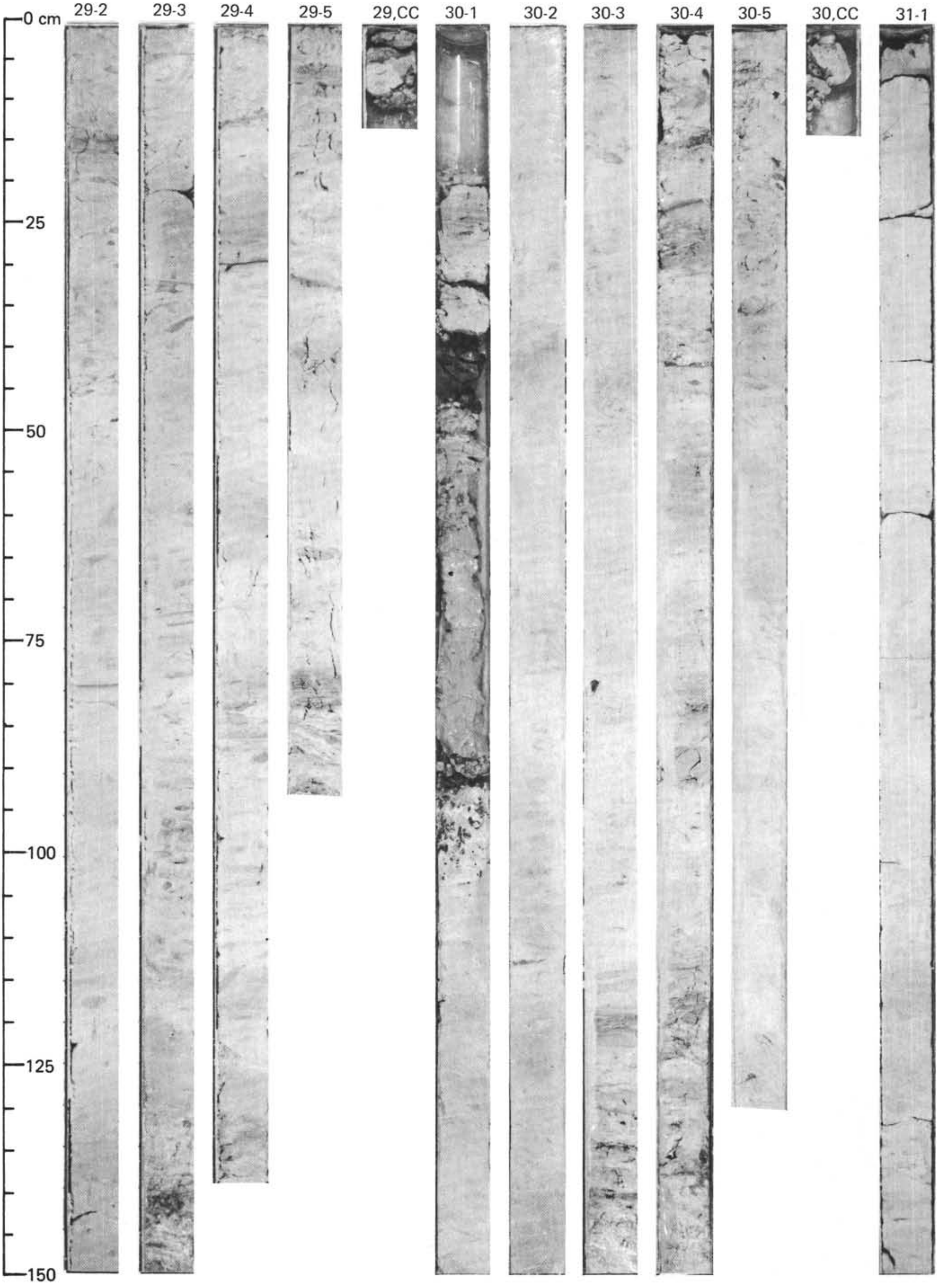
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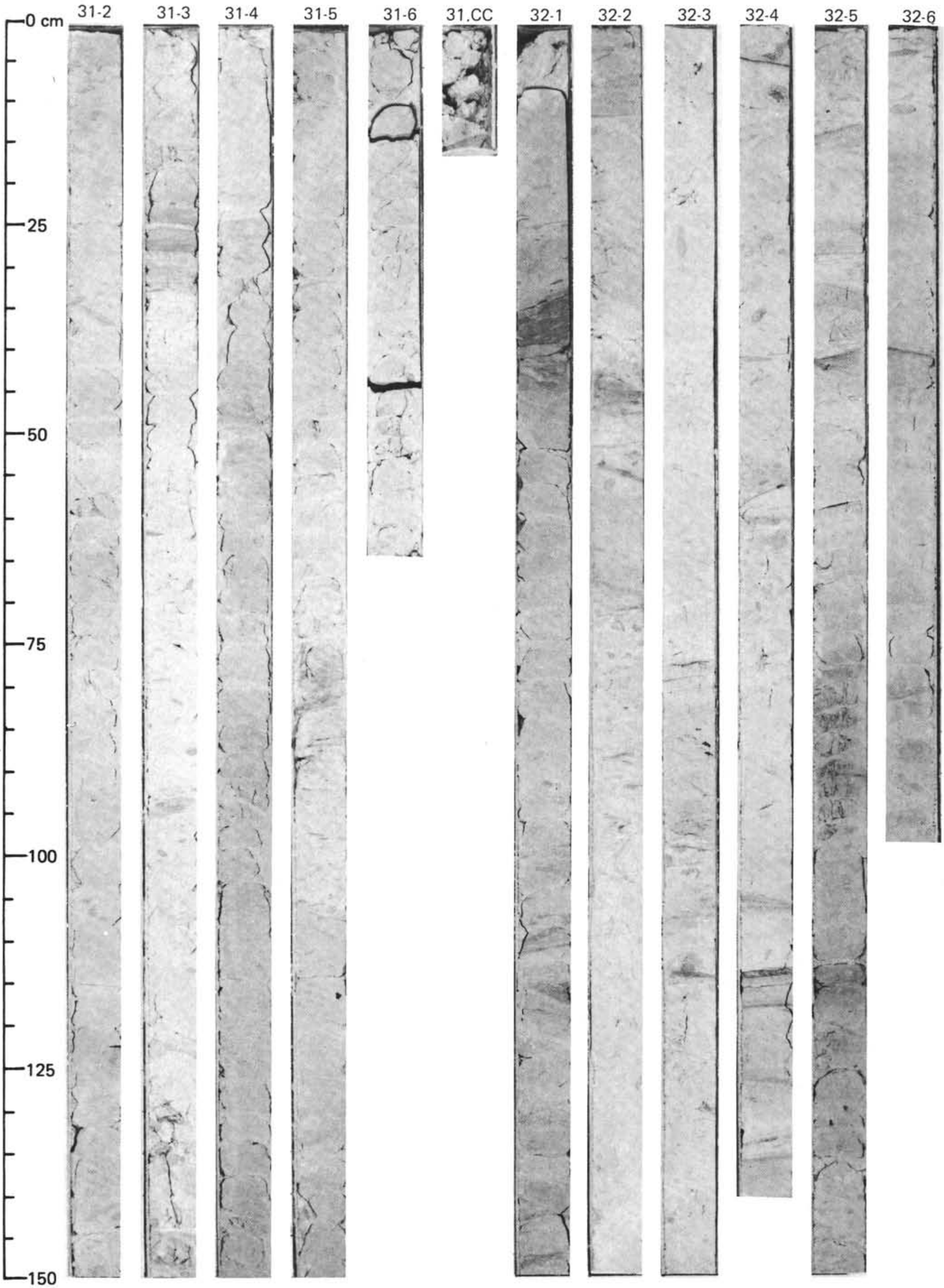
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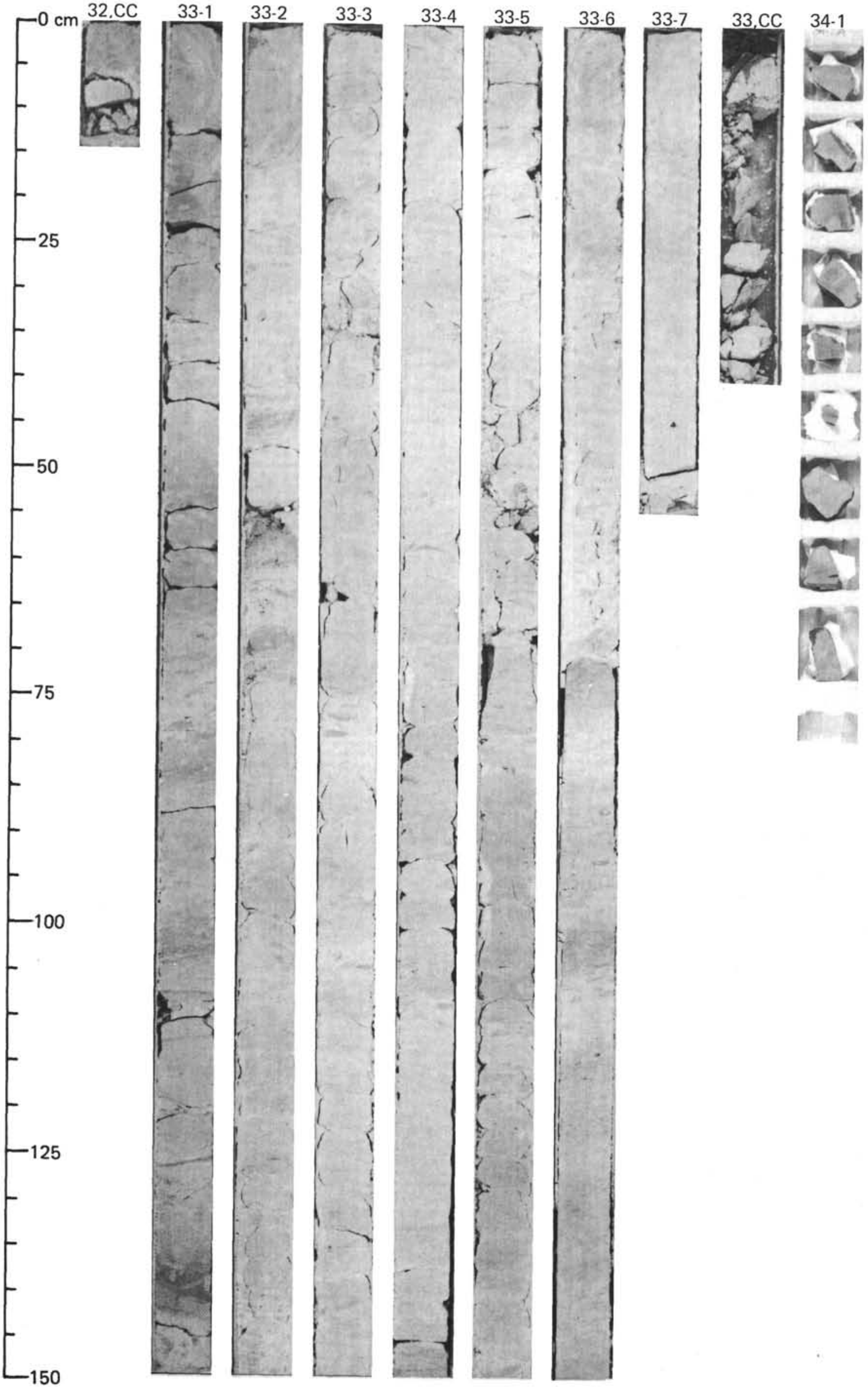
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