U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

CRUISE REPORT

USGS CRUISE F2-92
CENTRAL AND SOUTHERN CALIFORNIA MARGIN

PALEOCEANOGRAPHY OF THE CALIFORNIA CURRENT

REDWOOD CITY, CA TO REDWOOD CITY, CA
March 11, to March 30, 1992

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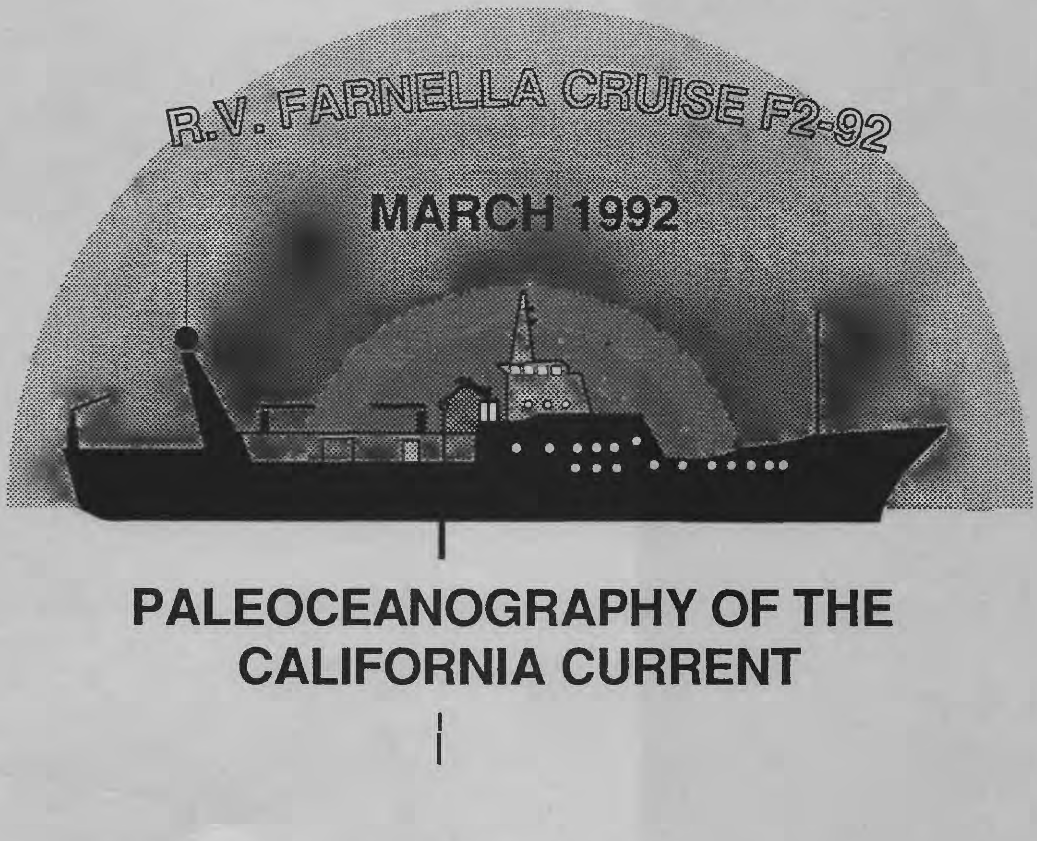

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OBJECTIVES

Cruise F2-92 of R.V. FARNELLA was funded by the USGS Global Change and Climate History Program to support the Correlation of the Marine and Terrestrial Paleoclimatic Records Project. The principle objective of the cruise was to collect a suite of piston cores across the California Current with records of at least the last 150 ka so that the temporal history of the current can be investigated. A second objective was to locate and core pelagic-carbonate sediments above the presumed 3000-m depth of the calcite lysocline on seamounts off the California margin to capture the uncontaminated (by terrestrial coponents) oceanic signal. Three seamounts were selected (Fig. 1) based on NOAA bathymetry and GLORIA imagery (EEZ-SCAN 84, 1986); Taney Seamounts west of San Francisco, Davidson Seamount off central California, and San Juan Seamounts off southern California.

The cruise began with surveying and coring of Taney Seamounts, followed by surveying and coring of Davidson Seamount, and then the collection of a suite of cores on the central and southern California continental margin (Figs. 2 and 3) for hemipelagic and varved records. Surveying of the San Juan Seamounts for a pelagic carbonate record revealed no likely targets. The remaining cruise time was devoted to coring basins of the Patton Ridge and additional coring of the central California margin. The complete cruise track is shown in Figure 4. These cores will provide the marine response to global climatic changes during the Late Quaternary and Holocene.

NARRATIVE

The following section is a daily log of the events of the cruise. All times in the Narrative are in local (L) time, which is GMT +8. The local month and day is given as the Julian Day (JD) in parentheses.

March 11, 1992 (JD 071 - 072)

We departed the USGS Marine Facility, Redwood City, CA, at 0800 L (1600 Z) and steamed directly for the northwest end of the Taney Seamount chain (Fig. 1). The 3.5-kHz fish was deployed at 1815 L, and was up and collecting data by 1900 L. We slowed the transit speed to 10 kts to save the 3.5-kHz cable and continued towards Taney Seamounts. The 10-kHz system could not be used because the recorder paper had been inadvertantly offloaded at MARFAC just prior to the cruise.

March 12 (JD 072-073)

Taney Seamounts is a NW-SE volcanic chain composed of four individual calderas, all with summits at about 2000 m water depth. The northwest Taney Seamount was seen at 0100 L and a northwest-to-southeast axial transect was started. The line was completed at 0810 L and no sediment ponds or prospective coring sites were found. It appears that the axial transect was not exactly down the main axis of the seamount chain, that is the transect did not intersect the summits of the seamounts. We continued the survey the seamounts, traversing across them on northeast-to-southwest lines to get complete coverage of potential sites. This survey was completed at 1915 L (073/0315 Z). No sediment ponds or prospective coring sites were located on any of the crossing lines, but the locations of the summits of the seamounts were noted on each line to help define a second axial transect that would come closer to intersecting the summits. This line, with an offset of about 1 nm north of the first axial line, was begun at 1951 hr L (0351 Z) and ended at 2330 L. A potential coring site was located on the offset axial line at 36°46.62' N, 125°24.16' W on a 4.5-nm wide, flat summit of the second seamount. The summit of the third of the four seamounts also contains a relatively flat summit at about 3000 m but was much more hummocky than the summit of the second seamount. Small sediment ponds occur between the hummocks but these were judged too risky to attempt coring. The offset axial line was completed and another axial line was plotted, again offset to the north about 1 nm. This line was plotted to intersect the first offset axial line at the potential coring site.

March 13 (JD 073 - 074)

We returned to the potential coring site and rigged a single-barrel (3-m) gravity core because the 3.5-kHz showed a very high-amplitude subbottom refector suggesting that the sediment may be volcanoclastic rather than carbonate. We did not want to jeopardize the corer on the first attempt of the cruise.

Core G1 was taken from 3045 m of water and recovered 0.80 m of fossiliferous green silty clay overlying a stiff volcanic ash. The core catcher sediment was a very blocky, stiff volacnic clay, apparently the material that stopped the corer. Smear slides reveal the silty clay to be composed of Radiolarians, diatoms, planktonic Foraminifera, nannos, and some volcanic glass. The basal volcanic glass is composed of clear, angular glass fragments.

Because of the short recovery length, we decided to depart Taney Seamounts and steam to Davidson Seamount. We were underway by 1150 Z (0450 L) but only at 4.5 kts using the bow thruster because of a problem in the engine room. The problem with the main engine was repaired and we increased speed to 10 kts at 0600L.

The transit line to Davidson Seamount crossed the Monterey Fan bedform field and several channels. The first line (Line 15) of the Davidson Seamount survey was begun at 2147 L.

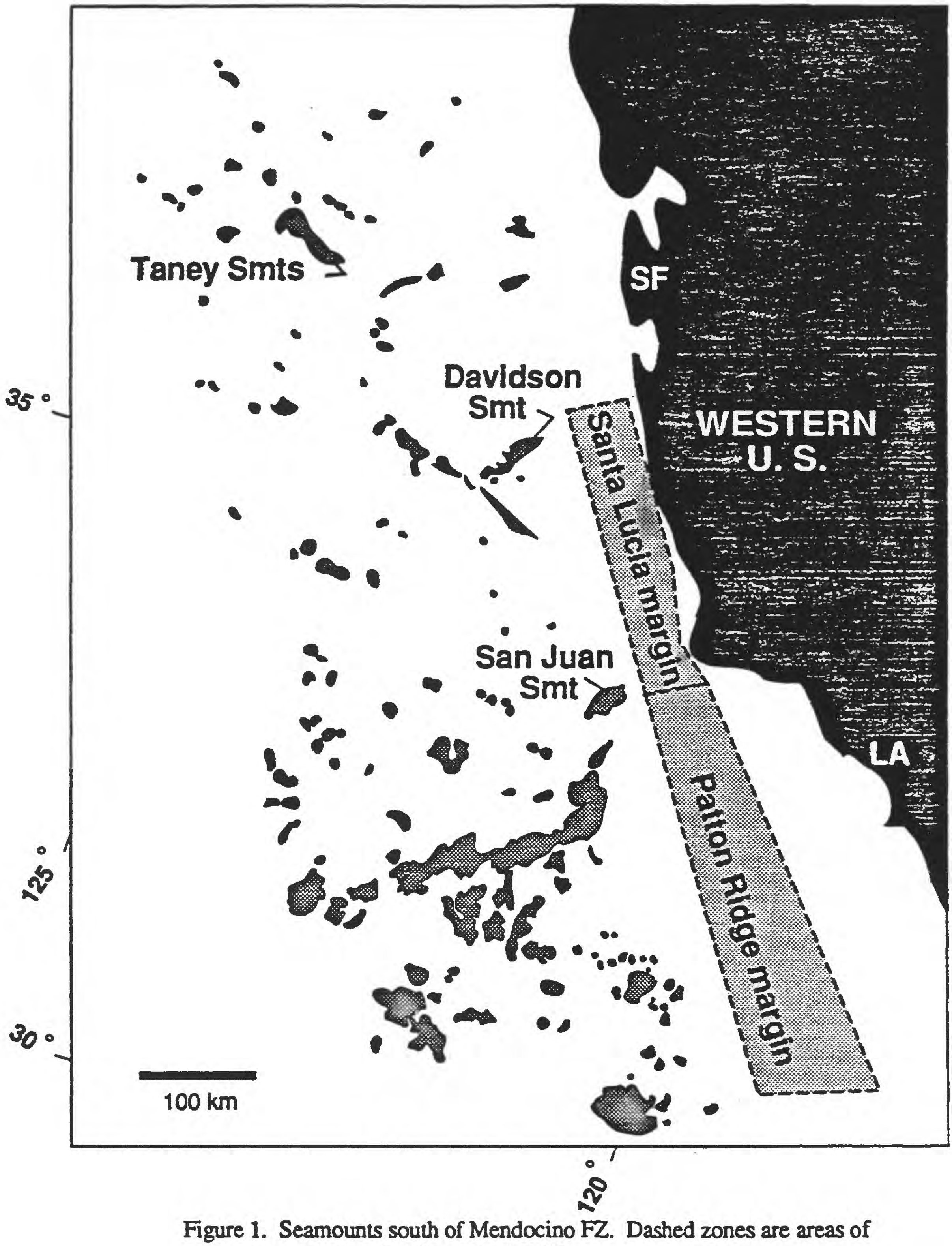

Figure 1. Seamounts south of Mendocino FZ. Dashed zones are areas of concentration for cruise F2-92

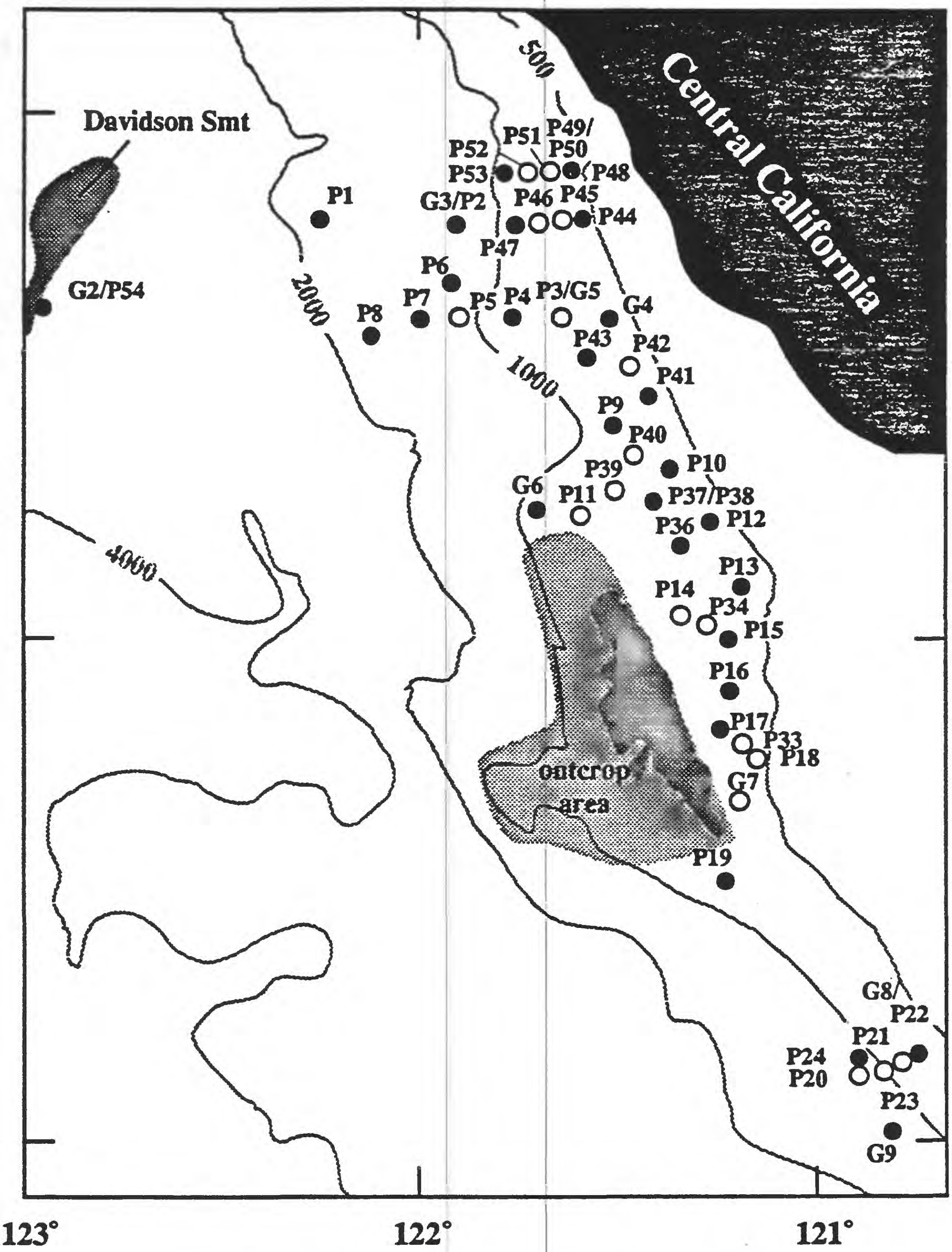

Figure 2. Map of central California margin coring locations, cores with laminations shown as open circles.

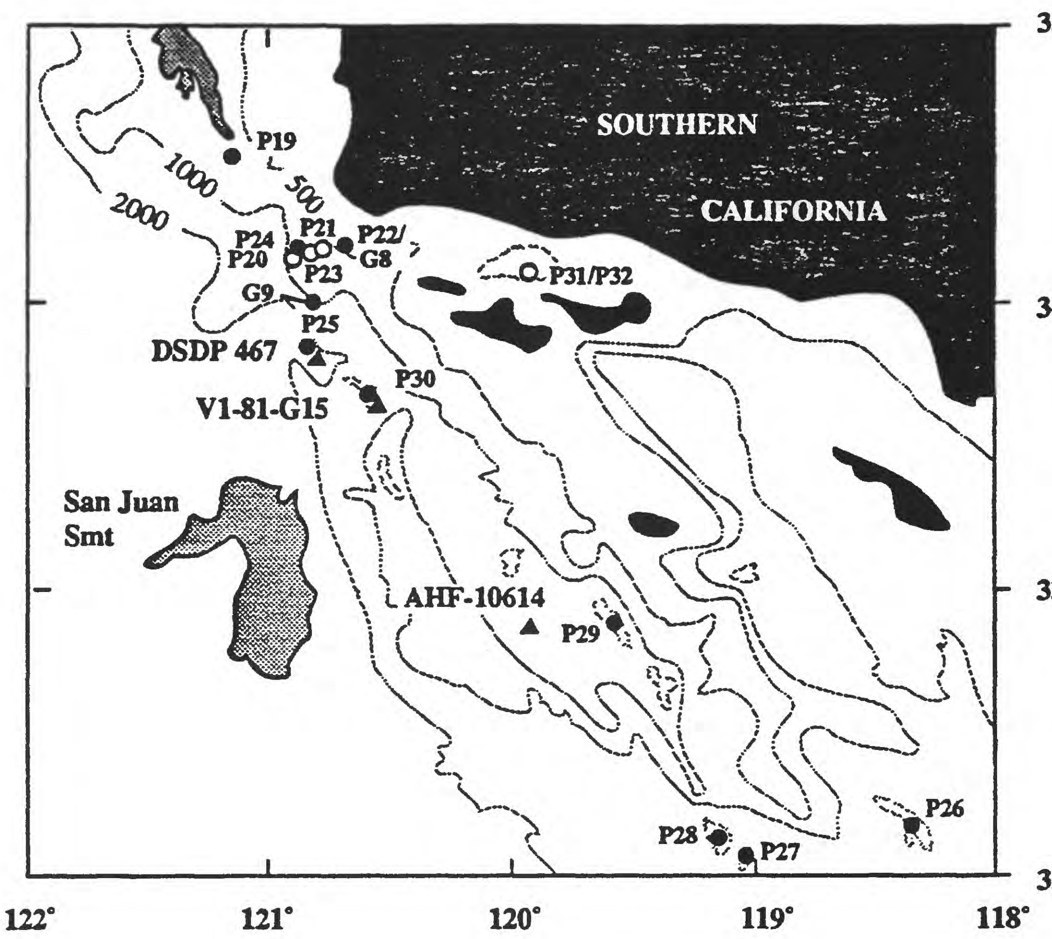

Figure 6. Coring sites in Patton Ridge basins, cores with laminations shown as open circles.

March 14 (JD 074 - 075)

The northeast end of Davidson Seamount has very steep relief with no sediment ponds. Sediment appears absent from the interfluves as well as from the crest and flanks. The lack of sediment is puzzling if the seamount is a result of Miocene plate realignment; why hasn't sediment accumulated at least in the interfluves?

The entire northern half of Davidson Seamount is devoid of sediment. The seamount is a series of pinnacles with very steep interfluves. However, a 30-m thick sediment pond was located at 3300 m on the lower southeast flank of the seamount and a 2-pipe (6-m) gravity core was rigged and deployed. Even though this target is below the CCD, it should be within the lysocline and should contain a relatively good carbonate record. **Core G2** recovered 5.50 m of green clay, very reminiscent of L13-81-G138 off the northern California margin. Although the sediment in G2 is composed predomiantly of clay, it does contain varying amounts of calcareous nannofossils, Foraminifera, diatoms, and Radiolaria, and should provide an excellent paleoceanographic record with numerous proxy variables.

Following recovery of core G2, we immediately started steaming for Monterey Bay to drop off Mary McGann. We anchored off the Coast Guard station in Monterey Bay at 1915 L, deployed the small boat, and put Mary ashore. We were underway to our next coring site by 1945 L.

March 15 (JD 075 - 076)

We surveyed across Monterey Fan to the site of Core P1. **Core P1** was rigged as a 2-pipe (6-m) piston corer (6 m) at a site located on the nose of a spur plateau at the northern end of the Santa Lucia Bank in 1330 m of water. The 3.5-kHz record shows a 30- to 40-m thick sequence of relatively transparent sediment with one prominent subbottom reflector at about 10 m. Core P1 recovered 3.61 m of green silty clay. The sediment filled the lower part of the barrel and water filled the volume between the sediment and the piston. The weight stand had mud all over it, suggesting that the corer penetrated to the weight stand; however, recovery was somewhat less than the barrel length. Once again, the piston-coring dilema of what is really happening. Is the water above the sediment acting as a block, not allowing sediment to fully penetrate the barrel? This implies that the water exhaust is not sufficient, even though on the present weight stand the exhaust cross-sectional area is twice the inside diameter of the liner. An alternative explanation is that the heave of the ship (we experienced ~ 15 ft swell) might jerk the piston up as the corer is free falling. This might explain why there is water between the piston and the sediment.

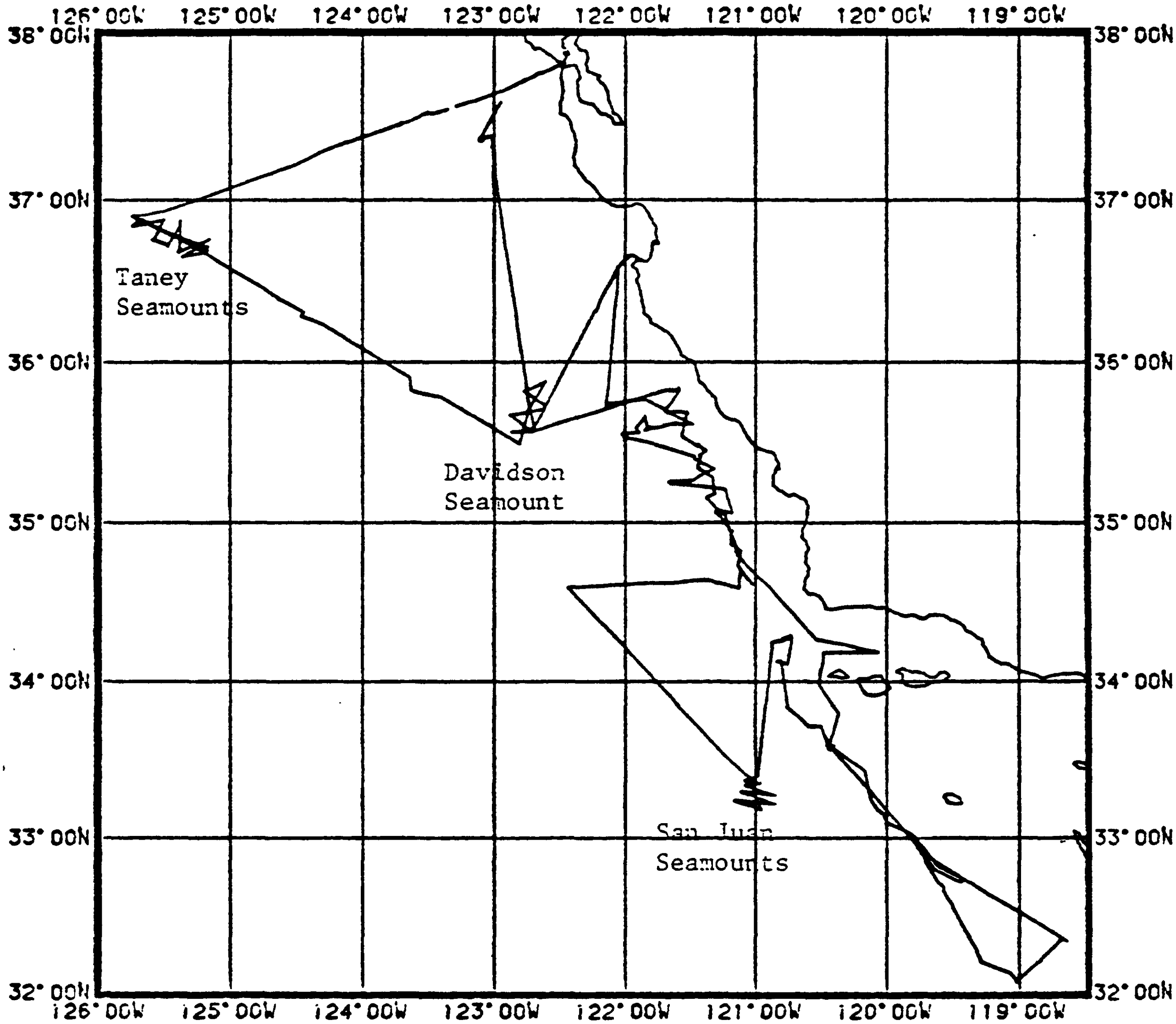

Figure 4. Track chart for USGS cruise F2-92.

Core P2 was collected from a relatively flat area of the lower Santa Lucia slope in 1120 m of water. Core P2 collected 4.16 m of green silty clay, and again there was water between the piston and the sediment. Both cores P1 and P2 show no evidence of flow-in; in fact, they have very well-defined horizontal layers of silt in the lower sections. **Core G3** was collected at the same station as core P2 to test out the above theory. G3 recovered 3.28 m of sediment and it was left unopened for subsequent geotechnical studies at the shore-based lab.

The ship held a memorial service today, Sunday, March 15, 1992, at 1230 PST, for Alan "Tozzer" Thompson, the ship's Bos'n and a wonderful shipmate to many aboard this cruise. The Captain conducted the service on the foredeck and scattered Tozzer's ashes in the sea. Wreathes from Alan's family, from the Farnella's crew, from the USGS Branch of Pacific Marine Geology, and from IOS were laid upon the Pacific. It was a very touching and sad ceremony.

The shallowest site of our first (northernmost) shelf-slope transects was in a water depth of 617 m. **Core G4** was launched at 1334 L and recovered only 1.4 m of sandy clay. We steamed to our next site on the transect and **Core G5** was launched at 1611 L in a water depth of 807 m. The weight stand of G5 was covered with mud and all of the exhaust ports were filled with mud. However, only 3.7 m of very soft laminated green clay was recovered. We rigged a two-pipe (6-m) piston core at the same site. **Core P3** was in the water by 1841 L in a water depth of 799 m. On recovery, mud was plastered on the bottom of the weight stand indicating that recovery was stopped by the weight stand and not the sediment. The barrels were completely full for a total recovery of 5.75 m. Both core G5 and P3 contain at least one zone of laminated sediment. We, therefore decided to rig for a three-pipe (9-m) piston core to be deployed at the next deeper site on the transect.

Piston **Core P4** was in the water at 2220 L in a water depth of 915 m. On recovery, the bottom of the weight stand was again plastered with mud, and we recovered six full sections (9 m) of H_2S-rich olive green clay .

March 16 (JD 076 - 077)

After the recovery of core P4, about 0000 L, the MTs informed us that they were completely exhausted. They both had been steadily working for the past 18 hours and felt that they could not continue through the night; they required a rest. Consequently, we agreed to hold off the next core until 0800 L.The senior MT felt they should not break up into separate shifts so we were faced with the prospect of 18 hrs of coring, then a sleep period. This proved to be OK because it allowed the lab to keep the processing up with the core recovery.

Core P5 was rigged as a 3-pipe, 9-m, core and deployed at 0800 L in a water depth of 1005 m. . We experienced some problems getting the core our of the barrels because the polybuterate core liner imploded and was stuck in the barrel. The entire corer had to be taken apart to retrieve the core. Core P5 recovered 8.6 m of green clay.

We tried a four pipe, 12-m, core for our next slope site at a water depth of 1045 m. **Core P6** was on bottom at 1415 L with nearly a 5 ton pullout. Once on deck, we were unable to pull out the liner because the top section of the liner had imploded. After removing the lowest of the four barrels, we were able to pull the liner out with the help of chinese fingers attached to a rope. Total recovery in P6 was 7.32 m. We decided to try another four-barrel core at the next site. The piston was loosened for P6 and it was loosened a little more for the next core to try to eliminate the problem of too much suction and implosion of the liner.

Core P7 was deployed at the next station in a water depth of 1010 m. Launch and revovery went smoothly, but the trigger weight core came up empty and the cutting head on the piston core was clean. There was fresh mud on the outside of the pipes for about 2/3 of the total length, but the mud was very gritty and there was black sand in the core catcher. After removing the lowermost core barrel, we attached chinese fingers to the exposed liner, threaded a line aft through the cut-out in the stack, and attached the line to the aft Tico crane. This removed the lower sediment-filled length of liner. Although core P7 recovered 7.32 m of green mud, this green mud is significantly different from previous sites at similar water depths (900-1000 m) in that it contained numerous layers of black sand. When split, core P7 was flow-in from section 2 to the bottom of the core. It is not known to what extent the sand may have contributed to the liner implosion and the flow-in. We decided that at the next site, which should be several hundred meters deeper, we would go back to a 3-pipe (9-m), system to see if that would eliminate the implosion problem.

March 17 (JD 077 - 078)

Core P8 recovered 2.58 m of sediment at a site that is 1329 m deep. The bottom liner cracked and the sediment is very sandy. It appears that the slope in this area is very sandy and possibly covered with glauconite crusts, suggesting very little sedimentation and exposed older sediment.

Core P9 was collected at 867 m and recovered 4.50 m of green clay. No liner implosion or any other problems were encountered. **Core P10** was collected in 595 m of water and recovered 5.86 m of green clay with no problems encountered.

The planned site of **Core P11** was just west of a north-south channel and the site appeared on the 3.5-kHz record to have a very hard bottom. The bottom about 10 nm back up slope to the east looked easier to penetrate than the planned site. Consequently, we steamed back to that location and a 3-pipe (9-m) piston core, P11, was deployed in 733 m water depth. Upon recovery, the trigger weight core had no recovery and the outsides of the barrels were clean. The core cutting head and core catcher were jammed full of hard sand and the 2-headed nails holding the cutting head to the barrel were sheared off. The liner was completely shattered above about 6 m from the bottom, and an unknown (~30 cm) of sediment was lost from the top of the core. The shattered liner contained sand and pebble-to-cobble-sized rock fragmants. The liner from about 3 m to 6 m was split along the entire length but we were able to tape it closed. Once the core was split, however, we were pleased to find that most of the core consisted of well strtatified to laminated silty clay with a diverse and well preserved microfossil assemblage dominated by diatoms, forams, and rads. Flow-in appears to be restricted to only about one meter of the recovered 5.8 m of section.

Considering the hard bottoms we encountered on the middle slope, we decided to try the next site down slope using a 2-pipe (6-m) gravity core. **Core G6** was deployed in a water depth of 968 m. Once again we encountered a hard sand bottom that bent the barrel and resulted in recovery of only 1.2 m of sand. At that point, the decision was made to eliminate the next 4 deep sites and go to the next series of shallower water (500 to 600 m) upper margin sites south of where we had been obtaining excellent piston-core recovery of nanno-bearing clay.

Core P12 was deployed as a 2-pipe (6-m) piston core in a water depth of 595 m. Upon recovery, the top and bottom of the weight stand were plastered with stiff mud, but only 2.52 m of green clay were recovered. The mud on the weight stand could represent either overpenetration and lack of recovery, or penetration for about 2.5 m and then the weight stand fell over. We decided to stay with a 2-pipe piston core for the next site to the south in about the same water depth.

March 18 (JD 078 - 079)

Core P13 was a 2-pipe (6-m) piston core deployed in 575 m of water. The core recovered 5.64 m of sediment, right to the top of the liner. The sediment is a green clay with no hint of silt. **Core P14** was a 3-pipe (9-m) piston core targeted for the upper part of the oxygen-minimum zone at 630 m water depth. The core recovered 5.29 m of sediment but the liner imploded and the struggle to get the liner out of the barrel resulted in the loss of the top approximately 1 m of sediment. Although the top of the core was lost, the bottom of the first section has a series of bioturbation cycles and the second section has bioturbation cycles and laminations. The laminations might be the result of sediment transport down the broad channel the core was collected from, but the appearance of the laminations and the associated tiered bioturbation suggest laminations/varves instead.

Core P15 was a 3-pipe (9-m) piston core at 585 m water depth. The core recovered 8.70 m of green silty clay. The first section was destroyed by liner implosion but the remainder appears to be undisturbed.

In spite of problems with liner implosion, we continue to get good recovery and, therefore, we decided to continue with 9-m core barrels. **Core P16** was deployed and recovered with no problems at the next site south in a water depth of 580 m. The core recovered 6.54 m of green silty clay with massive-laminated-bioturbated cycles below about 3 m similar to those found in core P14.

Core P17 was deployed and recovered at the next site south in a water depth of 564 m. This core recovered 7.76 m of green silty clay and no problems were encountered.

On the way to the next site for core P18 we observed on the 3.5-kHz record a rock knob sticking above the sediment and a syncline southwest of the knob. These features probably are related to the outcrop at the southern end of Santa Lucia Bank. The coring site would have been between the knob and the syncline, and coring problems undoubtedly would have occurred. Therefore, we decided to proceed to the next site farther south and closer to shore. Approaching this site, we observed another rocky hill on the 3.5-kHz record. We, therefore, turned around and went to a point between the two hills that appeared to have a good sediment cover. We deployed **Core P18** in 584 m water depth and recovered 5.06 m of green silty clay with distinct laminations in sections 2, 3, and 4. Again no problems were encountered, but a one-foot section of liner was broken for some unknown reason.

In attempting to find a location for core P18, we noticed that the 3.5-kHz record showed a series of outcropping reflectors in a depression. In order to try to date these older reflectors, we deployed a 6-m gravity core, **Core G7,** in 620 m of water and recovered 2.32 m of silty clay.

We then rigged a 6-m piston core and proceeded to a predetermined site at the southern end of Santa Lucia Bank to collect core P19.

March 19 (JD 079 - 080)

The launch of P19 turned dangerous, very quickly. Because it was a 2-piper (6-m) piston corer, the core was handled from the coring davit with no assist from the Tico crane, a technique we have used on this cruise several times. The barrels could not be lifted clear of the stansions, so the bucket safety bar was pulled and the barrels were lifted up over the stansions using the secondary winch on the coring boom. This procedure requires the coring boom to move with the bucket as the bucket is hydraulically moved outboard. If the boom and bucket do not move together, then the barrels are lifted above the horizontal because of shortening on the secondary-winch wire. This happened, and when the coring bucket was moved over the side of the ship, the barrels were lifted above the horizontal. The corer suddenly tipped upside down, sheared the 3/16" choker chain, and slid out of the bucket, whipping all the lose wire off the deck and ultimately breaking the main 9/16" coringwire. Luckily, no one was hurt and all we lost was the good weight stand and two pipes. From now on, we will always use the Tico to lift the barrels above the stanchions and the coring-bucket safety bar will stay in place until the corer is over the side, and we will lower the pipes with the Tico. This technique requires the barrels be lifted only a few inches to release the safety bar, thus eliminating the situation that might allow the corer to invert.

The most dangerous component of the existing system is that the bucket can rotate through 360°. A new design of a coring bucket MUST be made so that the bucket can only rotate from horizontal to vertical, 90° and NO MORE. Possibly it should travel a degree or two beyond the horizontal and vertical, but the design should definitely be no more than that. The design definitely should not allow the coring bucket to rotate 360°.

Core P19 successfully recovered 4.3 m of green clay with sand turbidites, and the core launch and recovery went very smoothly.

We steamed west to our next planned coring site at the southwest end of Santa Lucia Bank. However, the 3.5-kHz record showed another hard (rock?) bottom, probably another extension of Santa Lucia Bank outcrop that we encountered on the southeast end of the bank. The decision was made to eliminate that site and to go directly to the first of two deep-water sites on the basin floor. During the transet, the wind increased and rough seas began to develop. By the time the first deep-water site was reached at about 1530 L, the seas were too rough for coring, and the latest weather forcast indicated that rough seas would continue for the next few days. The decision was made to proceed south and begin the survey of San Juan Seamount; the deep-water sites could be cored later in the cruise if time permitted. Therefore, we steamed to the northeast end of San Juan Seamount.

March 20 (JD 080 - 081)

We arrived at San Juan Seamount and began a 3.5-kHz seismic survey at about 1000 L. The survey was completed by about 2300 L without finding any sediment pockets suitable for coring. A course was charted to resume coring southeast of Santa Lucia Bank.

March 21 (JD 081 - 082)

The next four cores form a transect across the oxygen-minimum zone, going from the base of the zone to the top. **Core P20,** a 9-m piston core, was launched and recovered without incident. The seas were very calm, perfect for coring. The core was at a water depth of 815 m, situated in the middle of the oxygen-minimum zone. The core collected 5.21 m of green silty clay with faint laminations in the second section. However, the bottom 1.6 meters of sediment below the laminations is flow-in material.

We deployed **Core P21** as a 9-m piston core in 735 m of water. Core P21 recovered 5.68 m of green silty caly with laminations in sections 1 and 2, but the bottom 0.7 m was flow-in material.

Another 9-m piston core, **Core P22,** was launched in 675 m of water at the next site in the oxygen-minimum zone transect. This core penetrated 7.94 m of silty sediment, but a considerable part of the liner imploded, rendering the top three sections (about 4.5 m) unusable.

Because cores P20 and P21 were taken within the middle of the oxygen-minimum zone, and, therefore, have the greatest potential for the best oxygen-minimum record, and because of the problem with flow-in in both of these cores, we went back and took another 9-m piston core between P20 and P21. This core, **Core P23**, was taken in 768 m of water with excellent recovery (8 m).

We went back to the site of core P22 and used a 9-m gravity core to recover the top of the section in P22 that was lost because of liner implosion. The 3.5-kHz record suggested the bottom consisted of block faulted horsts with sediment in small intergrabens. Core P22 aimed for a grabin but may have hit a horst. We took **Core G8** in one of the grabens in a water depth of 675 m. Core G8 collected 3.3 m of green clay with laminations in the first two sections. The bathymetric map of the Southern California Borderland area suggests that these horsts and grabens may be associated with the westward-flowing channel that forms the outlet across the sill of the Santa Barbara basin.

We steamed south for the first of two planned final sites for the Central California margin survey. About half way to the first site, the 3.5-kHz record showed that we crossed a series of normal faults, and the character of the sediment changed from semitransparent with multiple reflectors, to sediment with a single dense surface reflector. Consequently, we used a 6-m gravity core. **Core G9** was launched in 777 m of water but only recovered 2.23 m of fine sand.

The next site of the survey was in 795 m of water. **Core P24** collected 5.23 m of very sandy sediment that caused some implosion of the liner at the bottom of section 1 and the top of section 2. The entire core is composed of an oil (?)-stained, well-rounded sand.

March 22 (JD 082 - 083)

Our first stop on a transect to explore the basins of the Patton Ridge was at the location of DSDP Site 467. **Core P25**, a 4-barrel (12-m) attempt, was in 2096 m of water. The core recovered 7.54 m of green clay with distinct light-dark (carbonate dissolution?) cycles. The core also contained a considerable number of gas pockets. We collected this core because the top 20 m of sediment recovered at DSDP Site 467 was badly disturbed by the rotary drilling. Core P25 will allow us to correlate with the longer record recovered at Site 467 and to extend that record in greater detail and at higher resolution through the late Quaternary and Holocene.

The first basin on Patton Ridge southeast of Site 467 is an unnamed basin where we collected a 3-m gravity core in 1981 (V1-81-G15). We surveyed the basin with the 3.5-kHz system from about 1000 L until about 1500 L and finally found a good pocket of sediment for coring. As we were rigging the piston corer, we discovered that the new trigger arm needed some modification to fit on the bail of the weight stand (the trigger arm we had been using was damaged during coring operations for core P25). Because of this, together with increasing wind and heavy seas, we decided to continue profiling the basins to the southeast and come back to that site if time permitted on our return north. We began surveying these basins with the 3.5-kHz system at about 1800 L.

March 23 (JD 083 - 084)

The flat 1790-m floor of Tanner Basin presents a number of excellent coring sites, but the wind continued at a steady 25 kts and the seas were too rough to attempt coring. We continued surveying the Patton Ridge basins during the rough weather and reserved coring for better weather. In addition, we had to travel south to the East, Central, and West Cortes Basins and back, regardless, so that surveying them at this time represented no loss of time.

An excellent coring site in the East Cortes Basin with good 3.5-kHz penetration was selected in 1730 m of water for **Core P26**, a 9-m piston core . The core collected 5.68 m of silty clay with dark/light bioturbated cycles similar to those found in core P25, and numerous thin (several cm thick) layers of fine sand.

We steamed to the southeast end of the Central Cortes Basin and began profiling with the 3.5-kHz seismic system. The basin floor, like that of the East Cortes Basin was extremely flat and all sediment had a similar 3.5-kHz response. We stopped at the northwest end of the basin floor in a water depth of 1615 m and deployed **Core P27** as a 6-m piston core, recovering 4.31 m of green clay with numerous thin (several cm thick) light-colored sand layers.

Our final objective of the southernmost basins of Patton Ridge was West Cortes Basin. After surveying the basin floor, we selected a site about midway across the floor in 1800 m of water for **Core P28**, which was deployed as a 6-m piston core. Core P28 contains 4.22 m of H_2S-rich green clay with several sandy turbidites.

March 24 (JD 084 - 085)

We began our transit north, first to take cores in Tanner Basin and the northernmost basin on Patton Ridge, the basin where core V1-81-G15 was collected. These areas were surveyed on March 22 and 23 but were not cored because of weather and mechanical problems. This transit took us over the western part of Cortes Ridge.

Core P29 was collected on the west side of the north Tanner Basin in 1475 m of water. The core collected 6.19 m of green clay with lots of H_2S and distinct light-dark color cycles in Sections 4 and 5

We once again had a difficult time finding the deepest part of the floor of the northernmost basin, but **Core P30** was finally deployed as a 6-m piston core. Recovery in P30 was a disappointing 2.93 m and the sediment was predominately sandy turbidites. The bottom meter of the liner was empty. It is not known whether the entire core was sucked up one meter, or if one meter of sand was lost from the bottom.

We steamed northeast to Santa Barbara Basin and took a 9-m piston core in the deepest part of the basin. **Core P31** was deployed in 585 m of water and recovered 5.70 m of laminated green clay.

March 25 (JD 085-086)

The conditions in Santa Barbara Basin were perfect for an engineering test of the piston corer (calm seas, shallow water, soft sediment), so **Core P32** was taken at the same station as P31. However, the free-fall distance for P32 was increased 5 feet over that for P31. The scope was set at 19 feet and the trigger-weight cable was measured at 48.5 feet. The 9-m corer collected 8.94 m, a full three barrels, of undisturbed sediment. The additional 5 feet of free-fall distance made a big difference.

We steamed north to the southern Santa Lucia margin to begin a coring grid in the oxygen-minimum zone within the depth range where we found laminations earlier in the cruise (600 to 900 m) using the 3-barrel, 9-m piston corer with the new free-fall configuration. **Core P33** was collected in 575 m of water and returned 6.23 m of green clay with microbioturbated-macrobioturbated cycles in sections 1 through 3 and excellent laminated-bioturbated cycles in sections 4 and 5.

We collected **Core 34** in 610 m of water at the next site to the north and recovered 6.68 m of green clay, again with excellent laminated-bioturbated cycles. and faint laminations in sections 3 and 4.

The next site twas fairly close to Santa Lucia Bank outcrop. **Core P35**, deployed in 680 m of water, recovered 4 sections of sandy sediment. However, the upper 2 m of section were destroyed by imploded liner, and the lower 3 m were homogenized by sloshing water in the liner. The entire core was thrown out because it was of no use for any scientific or calibration study.

At the next site, closer to shore, **Core P36** was deployed in 655 m of water and recovered 8.26 m of green clay.

March 26 (JD 086-087)

Cores P37 and **P38** were collected at the next station in 660 m of water. Core P37 was processed for paleoclimate studies, and P38 was saved, unsplit, for a full suite of geotechnical studies in the Deer Creek labs. Core P37 recovered 8.40 m of generally structureless green clay with some faint laminations at the base of section 6. Core P38 was collected from 660 m water depth and recovered 8.82 m of sediment.

The ship's air conditioning failed during the night and it required 24 hr to repair. This necessitated first opening up the electronics lab to keep it cool, and then, by mid-day, shutting down all computers in the lab except VAX1.

Core P39 was collected in 845 m of water and recovered 6.7 m of green clay with some microbioturbated laminations.

The core logging operation became the main bottleneck in the sediment lab, and at this point we decided to stop coring until cores P37 and P38 had been logged. Once we resumed coring, the weather was ideal for coring with calm seas and warm temperatures. The ship's air conditioning was still out, and the temperature in the lab reached 93° F. The 3.5-kHz system was turned off to keep the lab temperature below

95°, the temperature when the VAX 4000/200 must be shut down. **Core P40** recovered 8.6 m of laminated green clay from a water depth of 760 m.

March 27 (JD 087-088)

A sail was rigged on the hatch aft of the main lab to catch outside air and funnel it down into cool the computers. The sail was so efficient at cooling the lab that we were able to bring VAX2 back up at 0200 L. **Core P41** was collected in a water depth of 640 m and recovered 8.71 m of gaseous homogeneous green clay. **Core P42** was collected in 725 m of water and recovered 8.49 m of homogeneous green clay with distinct laminations at the top of Section 4.

The ship's air conditioning was repaired and back on line at 1130 L. However, it required several hours to cool down the geophysics lab. **Core P43** collected 8.2 m of green clay with thin, sandy turbidites in 855 m of water.

We moved into shallower water (610 m) to begin the first of two transects in 600 to 900 m water depth across the slope to try to define the optimum depth of formation and preservation of laminations within the oxygen-minimum zone. **Core P44** collected 8.26 m of homogeneous green clay at this shallow site.

The next site was in 705 m of water, and **Core P45** collected 8.61 m of homogeneous green clay with laminations in the lower part of section 2. The implosion of the upper section or two of the core liner continued to plague us. The collapse usually was bad enough that the core liner could not be split and the sediment probably has been badly disturbed, especially for P45.

March 28 (JD 088-089)

Core P46 was deployed in a water depth of 705 m and recovered 7.95 m of green clay with laminations and a few thin sandy turbidites. No liner implosions occurred on this core, probably because the piston gaskets were very loosely set. **Core P47** was collected from 870 m water depth and recovered 8.02 m of green clay with intense gas cracking below about 340 cm.

Core P48 was collected at the shallowest site (624 m) on the most northern upper-slope transect. The core recovered 6.09 m of thoroughly bioturbated green clay. **Core P49** is from 720 m water depth and collected 7.23 m of green clay with laminations. **Core P50,** designated a geotechnical core, was collected at the same site as Core P49. Core P50 is 8.59 m long but was unsplit.

March 29 (JD 089-090)

Core P51 collected 8.56 m of green clay from 775 m of water. Only a small section of liner implosion occurred. The sediment is a green clay with bioturbation cycles, sandy turbidites and laminations. **Core P52** was collected from 865 m depth and recovered 8.13 m of green clay. Core P52 completed coring on the Santa Lucia margin, and we were underway at 0730 L to collect a long piston core from Davidson Seamount, at the site of core G2, to extend the record farther back than the 5.5 m already recovered by G2.

Core 53 was deployed as a 9-m piston core in a water depth of 3320 m., at the southwestern end of Davidson Seamount. No problems were encountered during launch and recovery, and the core recovered 8.16 m of biosiliceous green clay. We decided to add another barrel and go back for a 12-m core. **Core P54** recovered 9.97 m of biosiliceous green clay. This completed coring on Davidson Seamount, and we were underway at 2030 L to our final sites on the Farallone slope.

March 30 (JD 090-091)

We arrived at the Farallone slope at 0700 L and started running 3.5-kHz profiles to find a good coring site at about 800 m water depth. During the transit from Davidson Seamount to the Farallone slope, the wind and seas came up to a steady 30 kts with gusts of 40 kts and it started raining. The wind held steady at 25 to 30 kts throughout the morning and the seas became very lumpy and definitely not suitable for coring. We decided at 1000 L to call the agent to see if a pilot was available for early afternoon and, when one was available, we decided to terminate the cruise and head in. The 3.5-kHz fish was secured on deck and we transited to the pilot buoy.

SUMMARIES

Sediment Cores

The major objective of this cruise was to collect long piston cores of sediment from the central California continental margin, principally within the oxygen-minimum zone and from three adjacent seamounts. Fifty-four 6- to 10-m piston cores and nine 4- to 5-m gravity cores were collected along the margin from 36° N in the north to 32° N in the south (Figs. 2 and 3). Cores were recovered from two of the three seamount targets. Their records will be valuable in identifying the pelagic signal for this area and will allow us to separate that signal from the hemipelagic records from the continental margin and basins.

Eighteen of the cores have distinct laminations in the subsurface. The laminations resemble in scale, color, and in associated tiered bioturbation, the varves described on the northern California margin. We could, with confidence, predict the laminations would occur in water depths of 650 to 850 m, as well as the 2- to 3-m subbottom depth within a core. If the sedimentation rate (~10 cm/ka) determined from core V1-81-G15 apply to these new cores (an untested assumption at this point), then the laminations at 4 to 5 m below the sediment/water interface formed sometime during Isotope Stage 3 (40,000 to 50,000 yBP). One of the high post-cruise priorities will be to correlate and date the laminations using imaging techniques and AMS ^{14}C and isotopes) and determine whether these laminations are similar in timing and character to the varves that occur on the Russian River slope (Gardner and Hemphill-Haley, 1986).

Most of the cores collected on the central and southern California margin show distinct cycles in degree of bioturbation , color , and biogenic-component. It is clear from the smear slides made on the cruise that there are cyclic variations in concentrations of calcareous and siliceous biogenic components. These cycles should be well defined in the calcium-carbonate and biogenic-silica stratigraphies that will be done in the post-cruise analyses.

Most of the cores collected on the central and southern California margin appear to have much higher abundances of planktonic Foraminifera and coccoliths and lower abundances of diatoms and Radiolaria than do cores from the northern California margin. This difference in biogenic components probably reflects the less productive waters of the south, out of the zones of active upwelling, as well as the mixing of the southward-flowing California Current water with the more subtropical waters of the south.

Geophysics

The 3.5-kHz system performed flawlessly throughout the cruise. The lack of transducer power was apparent in water depths deeper than 3000 m. When Mudshark (the digital 3.5-kHz acquisition system) becomes operational, the Raytheon LSR recorder should be replaced by a large-screen waterfall display and a Raytheon TDU-850 thermal recorder.

The 10-kHz system was not used during this cruise because the wet paper for the Mufax recorder was inadvertantly taken off the ship in Redwood City prior to our departure.

Navigation

The VAX-based navigation system is not ready for the mode of operations that PMG usually operates in. Many of the ABC software packages for post-processing the data and many of the Gann PC realtime features should be implemented in the new system. These include, but are not restricted to: (1) allow the navigator to type in a series of way points and have the computer calculate the rhumb line distance and course to the next point; (2) allow the navigator to step through the entered way points as they are achieved, automatically post-processing the various navigation inputs (GPS, Loran C, speed log, gyro), (3) calculate the best navigation, and (4) a better screen display for the bridge.

Something seems amiss with the Trimble GPS receiver. When more than 3 satellites are acquired, the quality of our fixes was lower than that provided by three satellites.

Coring system

The new piston corer weight stand, with large exhaust ports, a stainless steel throat, and teflon-coated barrels, performed very well. We had some problems with liner implosion, liner breakage, and a lot of problems with the corer penetrating much deeper than the length of the recovered sediment length. A test was conducted in Santa Barbara Basin where we collected two 3-pipe (9-m) piston cores at the same station. The first attempt had a set free fall of 14 feet and the core collected 5.70 m of sediment. The second attempt had 19 feet of free fall and collected 8.94 m of sediment. The two cores will be correlated so that we can determine the amount of compression experienced by the first core. Clearly, the longer free fall produced better recovery.

The new weight stand was lost when the corer inverted during deployment. The mass of the weight stand with two barrels was heavy enough to rotate the coring bucket backwards and the bucket inverted so as to allow the corer to slide out the top of the bucket, weight-stand first, breaking the safety strap (3/16 inch cable) and fall over the side. The coring wire parted and we lost the system. Luckily, no one was injured but we lost the new weight stand and two teflon-coated barrels. A new design of a coring bucket must be made so that the bucket can only rotate from horizontal to vertical, 90° or possibly a degree or two beyond the horizontal and vertical, but no more than that. The design definitely should not allow the coring bucket to rotate 360°.

The coring routine was to first get the corer over the side with the help of the amidship Tico crane. Once vertical, the trigger arm was placed on the bail and the trigger weight was hooked to the arm. The corer was then lifted out of the bucket and brought over to the side of the ship so that the scope could be secured to the wire with tie-wraps, well above the corer. The safety pin was then pulled and the corer sent down. Recovery constituted first recovering the trigger weight, then taking the trigger arm off the wire with the piston corer still below the ship's hull. Then the weight stand was captured by the bucket, the corer was rotated to the horizontal with the aid of the amidship Tico crane, and the corer was secured to the stanchions. This routine was extremely safe and allowed for a smooth operation. Two deck hands and one winch operator are all the personnel required to efficiently and safely piston and gravity core.

Sediment Lab

The sediment lab was the scene of much activity. Each core was cut into 1.50 m sections on deck. Prior to splitting, every 1.50-m section was logged for p-wave velocity, density, and magnetic susceptibility, using the Core MultiLogger. Although the logger worked fine, the logger speed considerably slowed down the processing time in the lab, typically requiring several hours before the core could be split, imaged, and described. We found, on the next to last day of the cruise, that the speed of the logger was directly related to whether the screen saver After Dark was active on the logger Macintosh. With After Dark on, the logger took more than 45 min per section. With After Dark off, the logger took only 30 min per section. Even at 30 min per section, a 9-m core requires more than 3 hrs to log. This logging time backed up cores in the sediment lab and often required us to stop coring so that the lab could catch up.

After logging, every core section (except the trigger weights) was split in half longitudinally and the core halves were designated as Archive and Working halves. The surface of the Archive half was cleaned and imaged with the 8-mm digital video camera. The Working half was analyzed for shear strength every 30 cm using the motorized shear vane system, and sampled for water content. Smear slides were made at obvious lithologic boundaries, and a preliminary visual description was made of the Archive half. We decided to only analyze for ephemeral physical properties (shear strength and water content) during this cruise because of the volume of core material anticipated and the time-consuming logging required. Sampling for biostratigraphy, geochemistry, sedimentology, etc. will be carried out at the Deer Creek Marine Sediment Lab.

The Core Imaging System consists of a Sony Hi-8 movie camera and lights mounted above the Core Logger and a color TV monitor mounted on the bulkhead over the Core Multilogger. The transporting bed of the logger was used to move the split Archive half beneath the camera. Every core collected on the cruise was imaged with this system, thereby eliminating the need for any color photography. The system proved to be very efficient and took very little time. The 8-mm film casette was then played back through a second Hi-8 camera, used as a VCR, hooked to a Macintosh CX with a RasterOps 24STV frame-grabber card. Each 20-cm interval was grabbed and mosaiced into a color composite image of the entire core. The frame grabbing required very little time but the mosaicing took a lot of time and storage space. We used a Sony erasable/optical disk to store images and had no problems with storage space.

F2-92 CRUISE PARTICIPANTS

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Table 1. Summary of core recovery.

ID	water depth	recovery	comments
			GRAVITY CORES
G1	3045 m	0.80 m	(Taney Smt) green fossiliferous clay above ash!
G2	3310 m	5.50 m	(base of Davidson Smt) green clay
G3	1120 m	3.28 m	same station as P2 – left unopened for geotech
G4	617 m	1.40 m	sandy clay
G5	807 m	3.70 m	green clay with laminations
G6	968 m	1.2 m	sand; bent barrel
G7	620 m	2.32 m	silty clay with distinct laminae in sect. 1
G8	675 m	3.3 m	green clay with some laminations
G9	777 m	2.23 m	fine sand
			PISTON CORES
P1	1330 m	3.61 m	green silty clay
P1 TW	1330 m	0.38 m	left unopened
P2	1120 m	4.16 m	green silty clay
P2 TW	1120 m	0.57 m	left unopened
P3	799 m	5.75 m	green clay with laminations
P3 TW	799 m	0.41 m	left unopened
P4	915 m	9.00 m	green clay w/H_2S
P4 TW	915 m	0.44 m	left unopened
P5	1005 m	8.61 m	green clay with hints of microbioturbated laminae
P5 TW	1005 m	0.48 m	left unopened
P6	1045 m	7.32 m	green clay
P6 TW	1045 m	0.48 m	left unopened
P7	1010 m	7.32 m	very sandy green clay. Section 2 to bottom all flow-in
P7 TW	1010 m	0	no recovery
P8	1329 m	2.58 m	very sandy with glauconite(?) crusts and clasts
P8 TW	1329 m		left unopened
P9	867 m	4.50 m	green clay
P9 TW	867 m	0.32 m	left unopened

Table 1 (cont.). Summary of core recovery.

ID	water depth	recovery	comments
P10	595 m	5.86 m	green clay
P10 TW	595 m	0.57 m	left unopened
P11	733 m	5.82 m	**laminated** silty clay
P11 TW	733 m	0	no recovery
P12	595 m	2.52 m	green clay
P12 TW	595 m	0.55 m	no recovery
P13	575 m	5.64 m	green clay
P13 TW	575 m	0.53 m	left unopened
P14	630 m	5.29 m	lost top ~1 m from liner implosion. **Laminations**
P14 TW	630 m	0.44 m	left unopened
P15	585 m	8.70 m	top section messed up by liner implosion
P15 TW	585 m	0.00 m	no recovery
P16	580 m	6.54 m	green silty clay w/ **laminated-bioturbated cycles**
P16 TW	580 m	0.40m	left unopened
P17	564 m	7.76 m	green silty clay w/ one sandy turbidite
P17 TW	564 m	0.35 m	left unopened
P18	584 m	5.06 m	green silty clay with **laminae** in sect. 2, 3, and 4
P18 TW	584 m	0.0 m	no recovery
P19	850 m	4.28 m	green clay with sand turbidites
P19 TW	850 m	0.53 m	left unopened
P20	815 m	5.21 m	green silty clay with some **laminae** in sect. 2 and 1.6 m of flow-in below the lamina
P20 TW	815 m	0.15 m	left unopened
P21	735 m	5.68 m	green silty clay with **laminae** in sect. 1 and 2, and 70 cm of flow-in
P21 TW	735 m	0.5 m	left unopened
P22	675 m	7.94 m	green silty clay
P22 TW	675 m	0.5 m	left unopened
P23	768 m	8.0 m	green silty clay with faint hints of **laminations**
P23 TW	768 m	0.56 m	left unopened
P24	795 m	5.23 m	oil (?)-stained sand
P24 TW	795 m	0	no recovery

Table 1 (cont.). Summary of core recovery.

ID	water depth	recovery	comments
P25	2096 m	7.54 m	green clay with dark/light cycles
P25 TW	2096 m	0.35 m	left unopened
P26	1730 m	5.68 m	green silty clay with dark/light cycles
P26 TW	1730 m	0.57 m	left unopened
P27	1615 m	4.31 m	green clay w/light-colored sands
P27 TW	1615 m	0.54 m	left unopened
P28	1790 m	4.22 m	green clay with sandy turbidites
P28 TW	1790 m	0.55 m	left unopened
P29	1475 m	6.19 m	green clay w/ H_2S
P29 TW	1475 m	0.45 m	left unopened
P30	1412 m	2.93 m	sandy turbidites
P30 TW	1412 m	0.30 m	left unopened
P31	608 m	5.70 m	green laminated clay
P31 TW	585 m	0.55 m	left unopened
P32	583 m	8.94 m	green laminated clay
P32 TW	583 m	0.50 m	left unopened
P33	575 m	6.23 m	green clay with laminated-bioturbated cycles
P33 Tw	575 m	0.0 m	no recovery
P34	610 m	6.68 m	green clay with bioturbation cycles and faint laminataions at the base of section 3 and in section 4
P34 TW	610 m	0.53 m	left unopened
P35	680 m	0.0	entire core destroyed by imploded liner and homogenization of sediment by water in the liner
P35 TW	680 m	0.0	no recovery
P36	655 m	8.26 m	green clay
P36 TW	655 m	0.56 m	left unopened
P37	660 m	8.40 m	homogeneous green clay
P37 TW	660 m	0.50 m	left unopened
P38	660 m	8.82 m	geotechnical core, left unopened
P38 TW	660 m	0.56 m	left unopened
P39	845 m	6.69 m	green clay with microbioturbated laminations
P39TW	845 m	0.44 m	left unopened
P40	760 m	8.60 m	green clay with laminations
P40 TW	760 m	0.25 m	left unopened

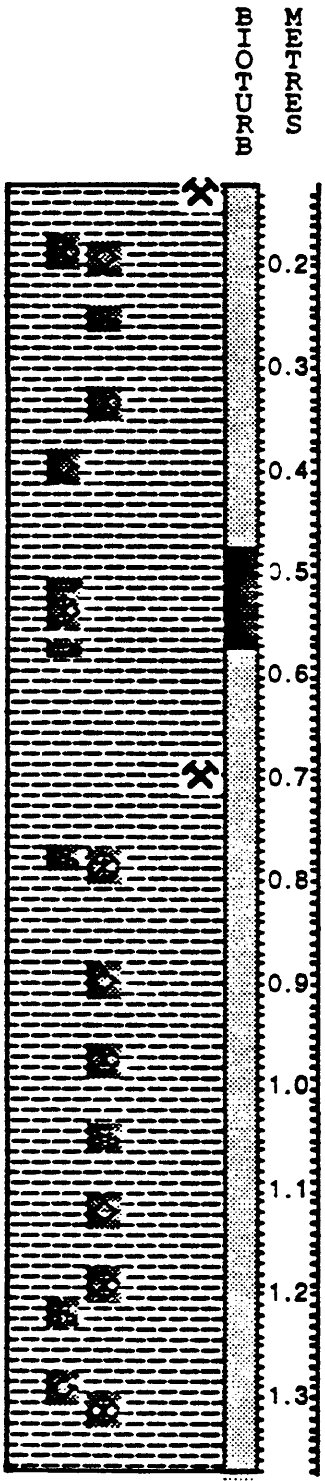
Table 1 (cont.). Summary of core recovery.

ID	water depth	recovery	comments
P41	640 m	8.71 m	homogenous green clay with gas cracks below 4.9 m
P41 TW	640 m	0.52 m	left unopened
P42	725 m	8.49 m	homogeneous green clay with **laminations** in sect. 4
P42 TW	725 m	0.55 m	left unopened
P43	855 m	8.16 m	green clay with sandy turbidites
P43 TW	855 m	0.47 m	left unopened
P44	610 m	8.26 m	homogeneous green clay. Liner implosion
P44 TW	610 m	0.45 m	left unopened
P45	705 m	8.61 m	homogeneous green clay with **laminations** in sect. 2, color, and microbioturbation cycles at base. Liner implosion
P45 TW	705 m	0.46 m	left unopened
P46	795 m	7.03 m	green clay with **laminations**
P46 TW	795 m	0.55 m	left unopened
P47	870 m	8.02 m	homogeneous green clay
P47 TW	870 m	0.54 m	left unopened
P48	624 m	6.09 m	homogeneous green clay
P48 TW	624 m	0.52 m	left unopened
P49	720 m	7.23 m	green clay with well-defined **laminations**
P49TW	720 m	0.15 m	left unopened
P50	720 m	8.59 m	geotechnical core, left unopened
P50 TW	720 m	0.43 m	left unopened
P51	775 m	8.56 m	green clay with bioturbation cycles & **laminations**
P51 TW	775 m	0.52 m	left unopened
P52	865 m	8.13 m	green clay
P52 TW	865 m	0.56 m	left unopened
P53	3320 m	8.16 m	siliceous green clay
P53 TW	3320 m	0.29 m	left unopened
P54	3305 m	9.97 m	siliceous green clay
P54 TW	3305 m	0.0 m	small amount of mud in core catcher; sampled for Forams and Diatoms

Appendix I. Core descriptions of sediments recovered.

p 38 FOLLOWS

F2-92-G2 SECTION 1
35 34.29N, 122 43.06W, 3310m



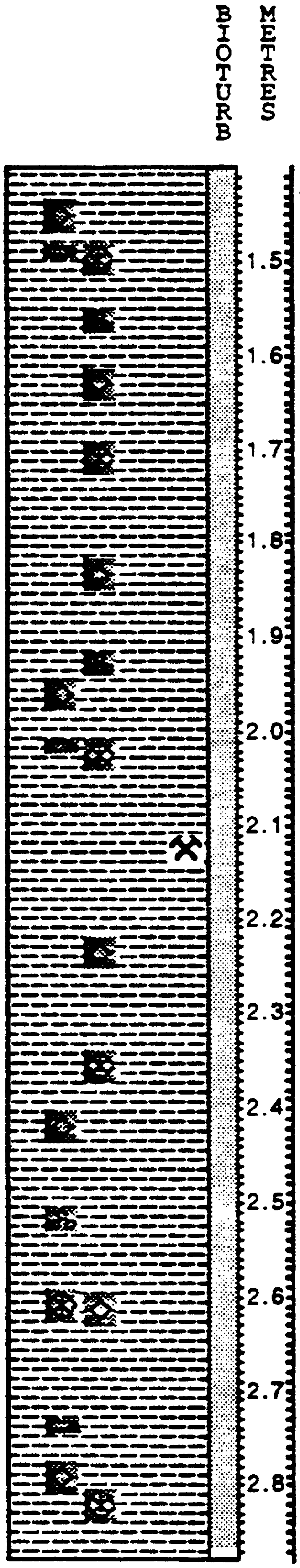
Liner is 145 cm long; top of core contains 7-cm void that has been filled with floral foam; therefore, section 1 contains 138 cm of recovered sediment

CLAY, nanno-, foram, rad-, and diatom-bearing, grayish olive (10Y4/2), homogeneous

smear slide, 3cm: Nanno-bearing, biosiliceous CLAY
Clay, dominant
Rads and diatoms, abundant
Nannos, common
Forams, rare

Smear slide, 70 cm: Foram- and rad-bearing nanno CLAY
Clay, dominant
Nannos, abundant
Forams and rads, common
Volcanic glass, rare

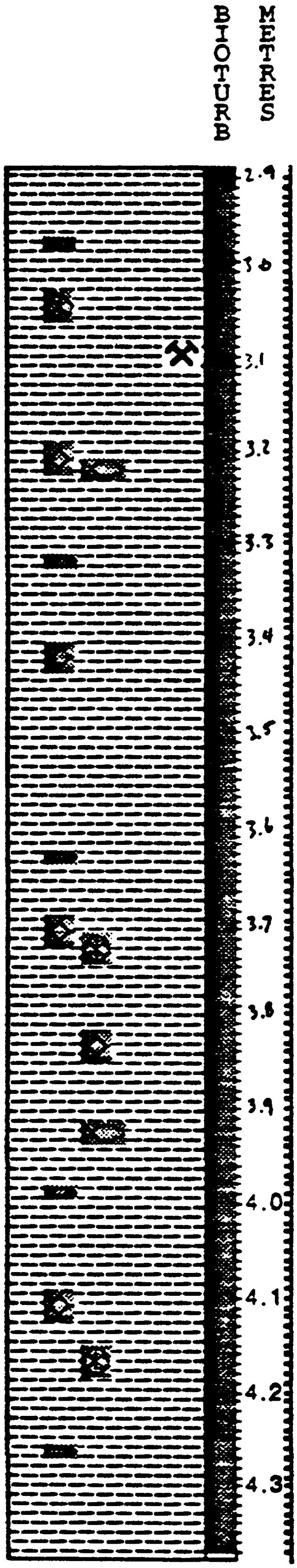
F2-92-G2 SECTION 2
35 34.29N, 122 43.06, 3310m



Section 2: 138-288 cm
CLAY, biosiliceous, nanno- and foram-bearing, grayish olive (10Y4/2), homogeneous

Smear slide, 213cm: diatom-, rad-, nanno-, and foram-bearing CLAY

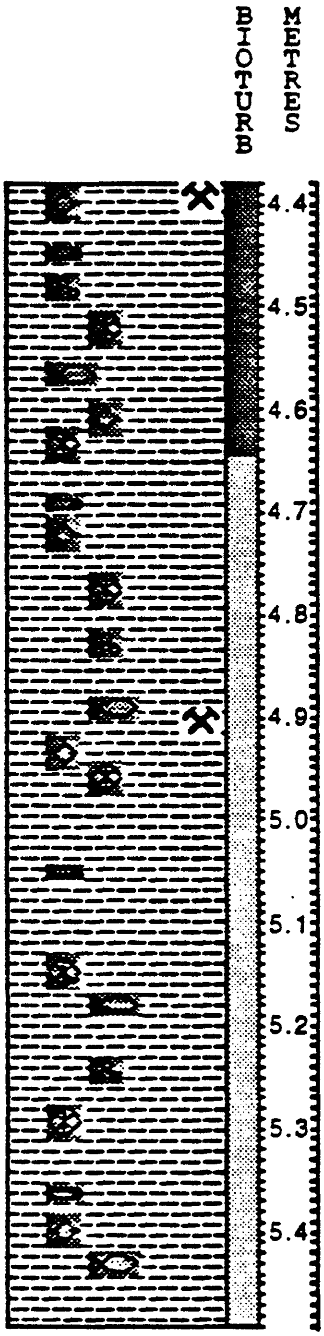
F2-92-G2 SECTION 3
35 34.29N, 122 43.06W, 3310m



Section 3: 288-438 cm
CLAY, siliceous, grayish olive (10Y4/2), homogeneous

Smear slide 308 cm: siliceous nanno-bearing CLAY
Clay, dominant
Siliceous spines, abundant
Nannos, common
Fish debris, rare

F2-92-G2, SECTION 4
35 34.29N, 122 43.06W, 3310m

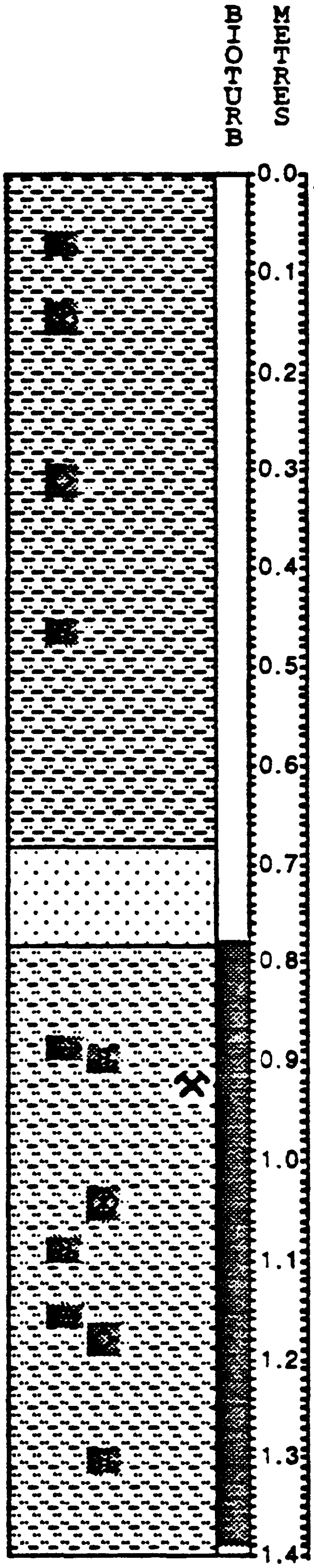


CLAY, siliceous, dark grayish olive (Y3/2; 438 to 466 cm) to grayish olive (10Y4/2; 466 to 550 cm), homogeneous; black flecks throughout

Smear slide 445 cm: siliceous CLAY
Clay, dominant
siliceous spicules, abundant
diatoms, common
fish debris, common
nannos, forams, and rads, rare

Smear slide 490 cm: siliceous CLAY
Clay, dominant
Siliceous spicules, abundant
Fish debris, common
nannos, forams, rads, and diatoms, rare

F2-92-G4, SECTION 1
35 36.98, 121 28.99W, 618 m



0-69 cm : SILTY CLAY, olive gray (5Y3/2); homogeneous (soupy)

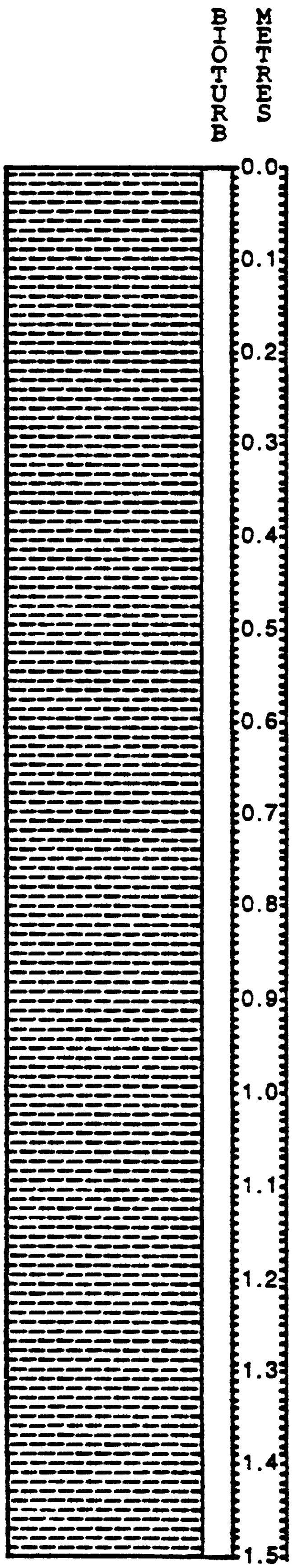
69-78 cm: SAND, greenish black (5G2/1); fining upward

78-140 cm: CLAYEY SILT, olive gray (5Y3/2)

Smear slide, 91 cm:
Minerals, abundant
Forams, abundant
Siliceous spicules, common
Diatoms and Rads, rare

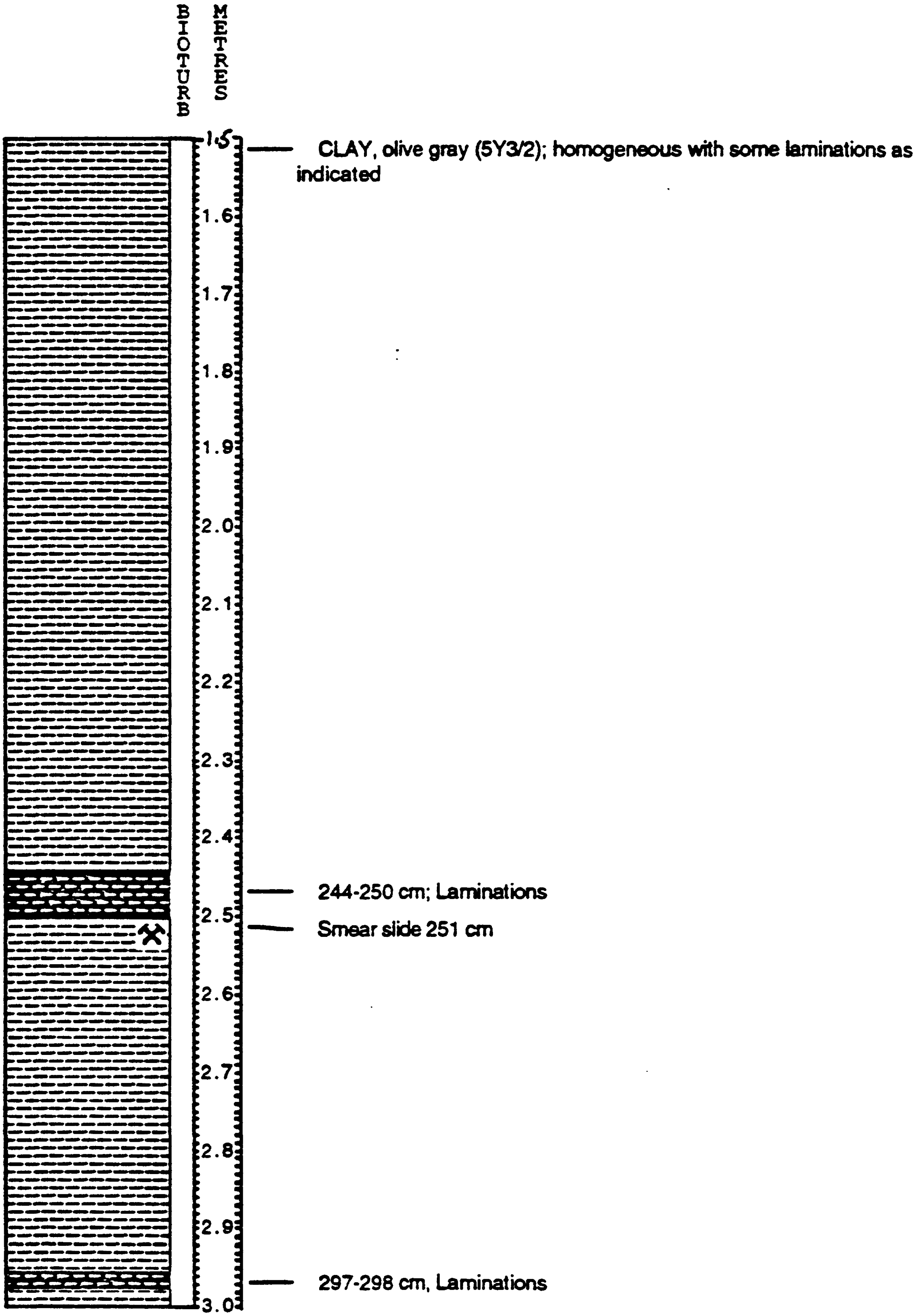
140 cm = base of core

F2-92-G5, SECTION 1
35 37.26 N, 121 36.53 W, 805 m

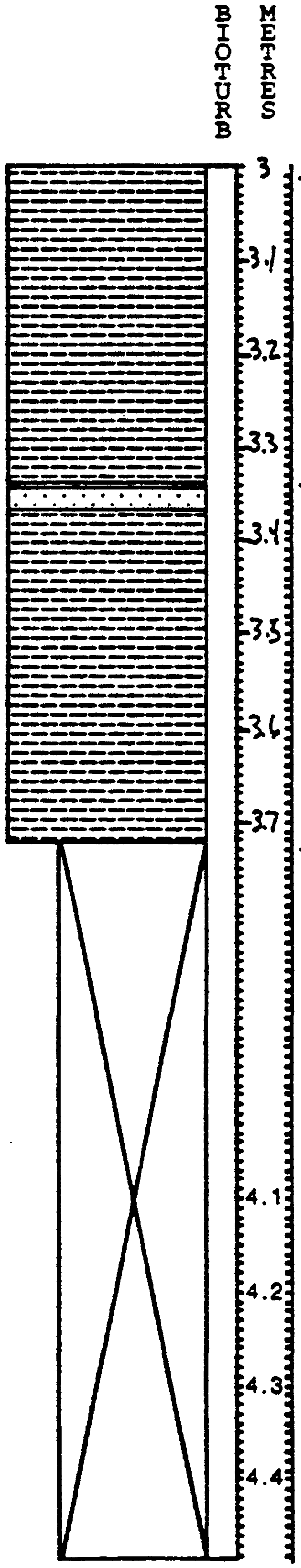


CLAY, olive gray (5Y3/2); homogeneous

F2-92-G5, SECTION 2
35 37.26 N, 121 36.53 W, 805 m



F2-92-G5, SECTION 3
35 37.26 N, 121 36.53 W, 805 m

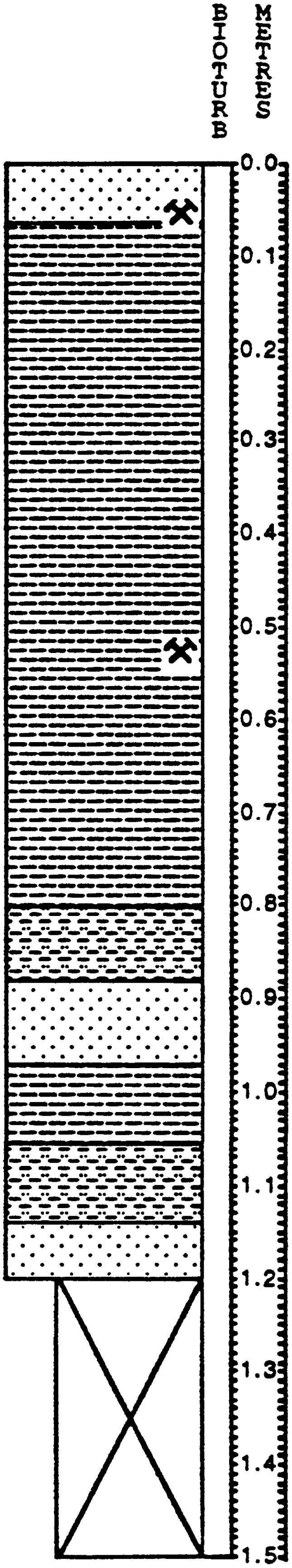


CLAY, olive gray (5Y3/2); homogeneous

334-337 cm; FINE SAND, dark gray (N3)

373 cm; base of core

F2-92-G6, SECTION 1
35 15.48 N, 121 38.80 W, 968 m



0-7 cm: FINE SAND, olive black (5Y2/1)

7-80 cm: CLAY, mottled olive black (5Y2/1), olive gray (5Y3/2), and moderate olive brown (5Y4/4)

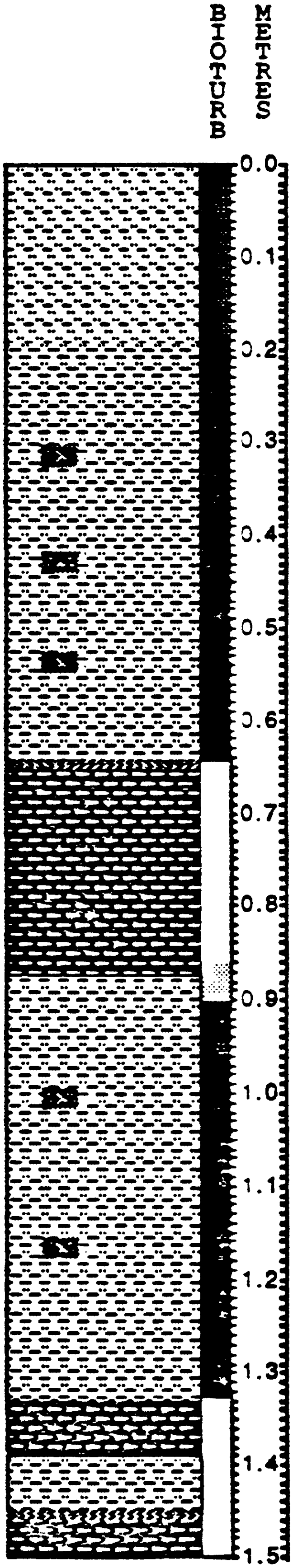
Smear slide, 5 cm:
Sand grains, rounded (looks like beach sand)
Forams

Smear slide, 52 cm:
Sand grains, rounded to subrounded
Few fossils (a few larger Forams)

80-120 cm: CLAY, SILT, SAND, olive black (5Y2/1)

120 cm = base of core

F2-97-G7 Section 1
34° 41.13'N 121° 06.85'W 620m



CLAYEY SILT (0-19 cm), Olive gray (5Y 3/2); bioturbation common.

SILTY CLAY (19-150 cm), Grayish olive (10Y 4/2) and Light olive gray (5Y 5/2). Distinct laminations between 65-87 cm, upper and lower contacts bioturbated. Faint bedding with abundant forams between 133-139 cm, sharp lower contact and gradational uppercontact. Abundant bioturbation bewteen 19-65 cm and 90-133 cm. Massive/low bioturbation zone between 86-90 cm.

strongly bioturbated zone

distinct laminations overprinted by large burrows

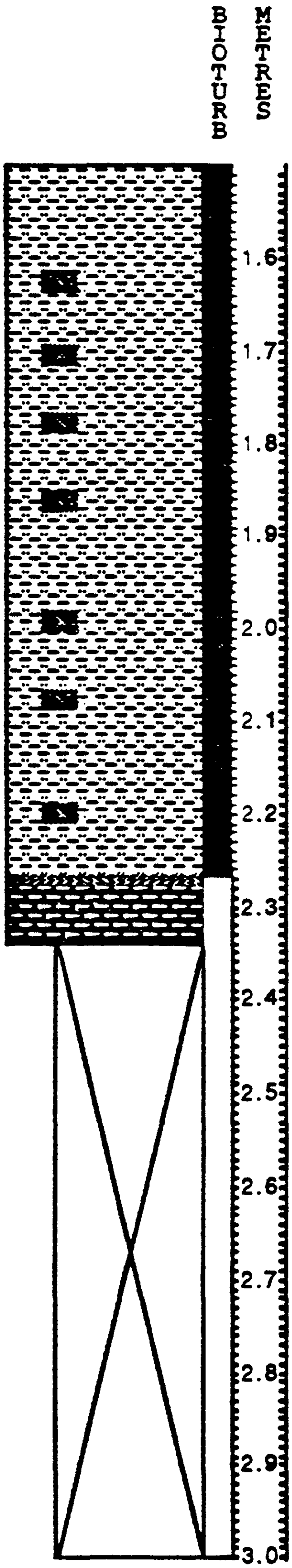
gradational lower contact with massive/low bioturbation zone (btw 87-91 cm)

bioturbated zone

Faint mm-scale bedding with abundant forams (sharp lower contact, gradational upper contact)

faint bedding with bioturbated upper contact

F2-92-G7 Section 2
34° 41.13'N 121° 06.85'W 620m



SILTY CLAY (150-227 cm), Grayish olive (10Y 4/2). Abundant bioturbation.

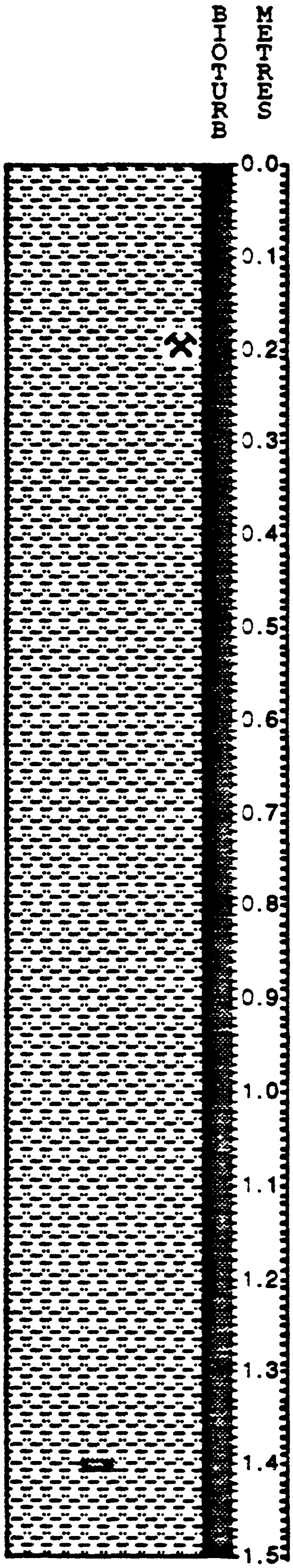
Moderately distinct laminations between 227-234 cm; bioturbated upper contact.

Moderately distinct mm-scale laminations; bioturbated upper contact.

bottom of core = 234 cm

F2-92-G8 Section 1

34° 17.40'N 120° 43.75'W 675m

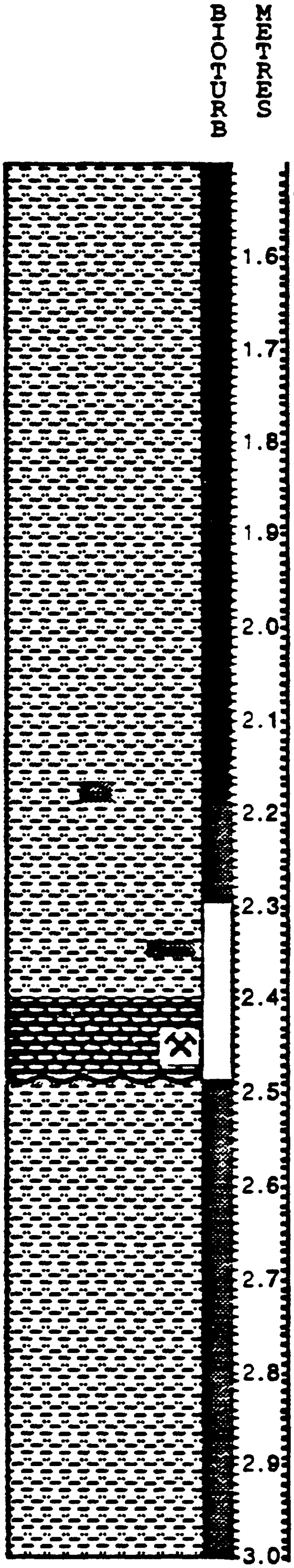


SILTY CLAY, Grayish olive (10Y 4/2); homogeneous; bioturbation common.

smear slide (20 cm):
clay - C
detrital grains -C
diatom frags - C
radiolarian frags - R to C
CaCO3 frags - VR
nannos - C

large burrow

F2-92-G8 Section 2
34° 17.40'N 120° 43.75'W 675m



CLAY (150-249 cm), Grayish olive (10Y 4/2), homogeneous with abundant bioturbation and large burrows between 150-220 cm; common bioturbation and small burrows btw 220-230 cm. Faint bedding visible btw 230-240 cm; wavy mm-scale laminations btw 240-249 cm, with gradational upper contact and undulating lower contact. Scaphopod shell @ 218 cm.

scaphopod shell

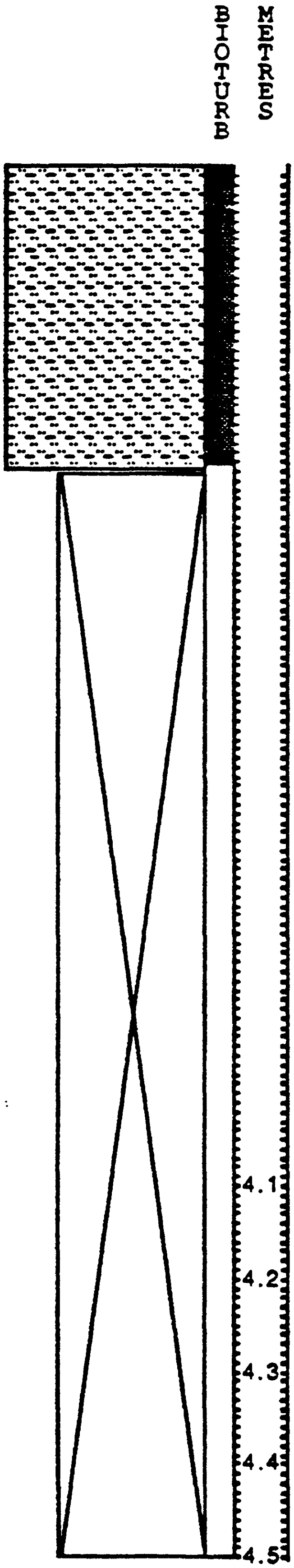
small burrows

faint bedding 230-240 cm

clay-A
spicules - R
diatom frags - R
CaCO3 frags - R
nannos - C to A

SILTY CLAY (249-300 cm), Grayish olive (10Y 4/2), with silt in pockets; shell fragments @ 260 cm. Bioturbation common.

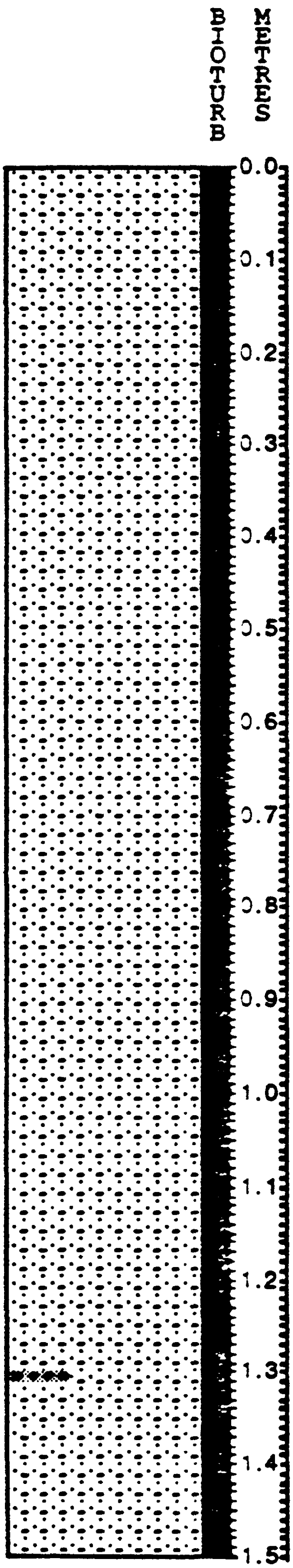
F2-92-G8 Section 3
34° 17.40'N 120° 43.75'W 675m



CLAYEY SILT (300-333 cm), Grayish olive (10Y 4/2) with Olive gray (5Y 3/2) fine-grained sand in patches. Bioturbation common.

base of core G8 @ 333 cm

F2-92-G9 Section 1
34° 06.24'N 120° 45.60'W 777m



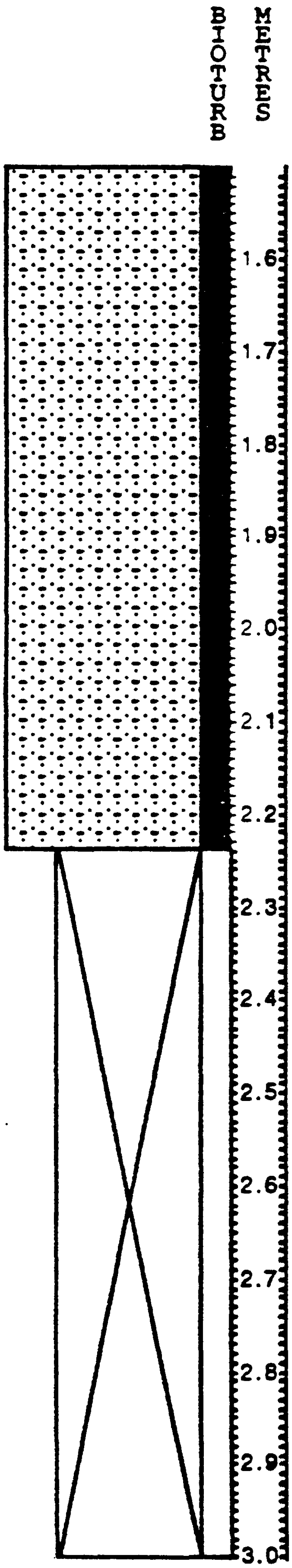
CLAYEY FINE SAND, mottled Olive gray (5Y 3/2) and Light olive gray (5Y 5/2); abundant bioturbation/large burrows.

8-cm diam. basalt cobble @ 130 cm.

8-cm diam. (long axis) basalt cobble

F2-92-G9 Section 2

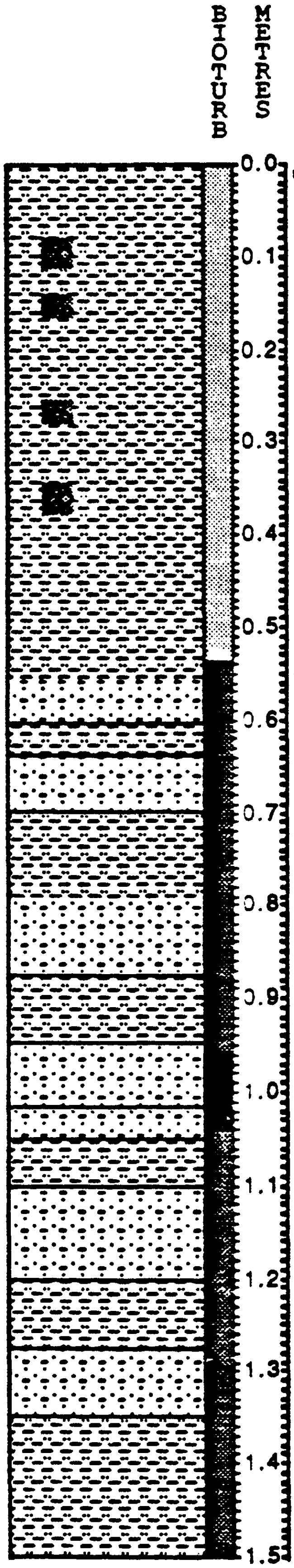
34° 06.24'N 120° 45.60'W 777m



CLAYEY FINE SAND (150-224 cm), mottled Olive gray (5Y 3/2) and Light olive gray (5Y 5/2). Bioturbation abundant.

base of core = 224 cm

F2-92-P1, SECTION 1
35 44.18 N, 122 08.46 W, 1330 m



Smear slide, 0 cm: diatom-bearing silty clay

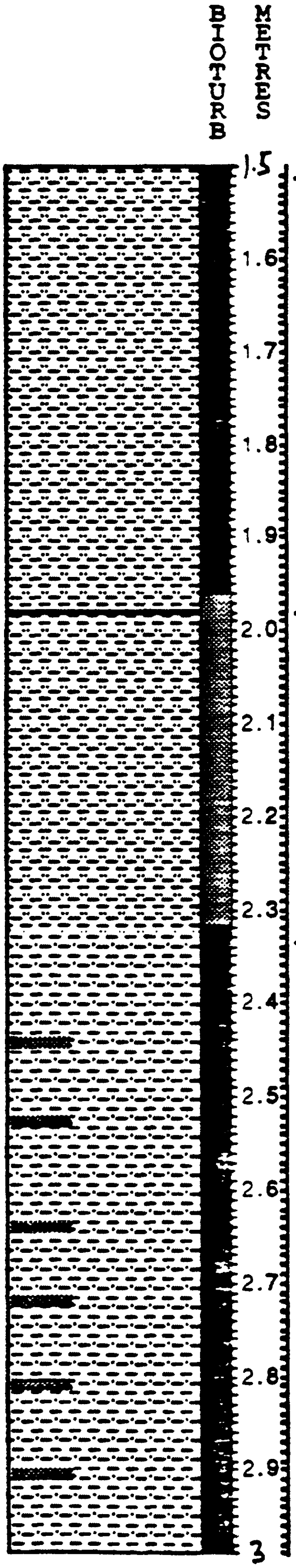
0-55 cm: SILTY CLAY, grayish olive green (5GY3/2); massive; gradational lower contact; Foram rich zone betwen 15-30 cm

55-79 cm: SILTY CLAY with layers of CLAYEY FINE SAND, grayish olive green (5GY3/2)

Smear slide, 70 cm: Nanno-bearing silty clay

79-150 cm: SILTY CLAY with layers of CLAYEY FINE SAND, strongly mottled grayish olive green (5GY3/2) and olive black (5Y2/1)

F2-92-P1, SECTION 2
35 44.18 N, 122 08.46 W, 1330 m

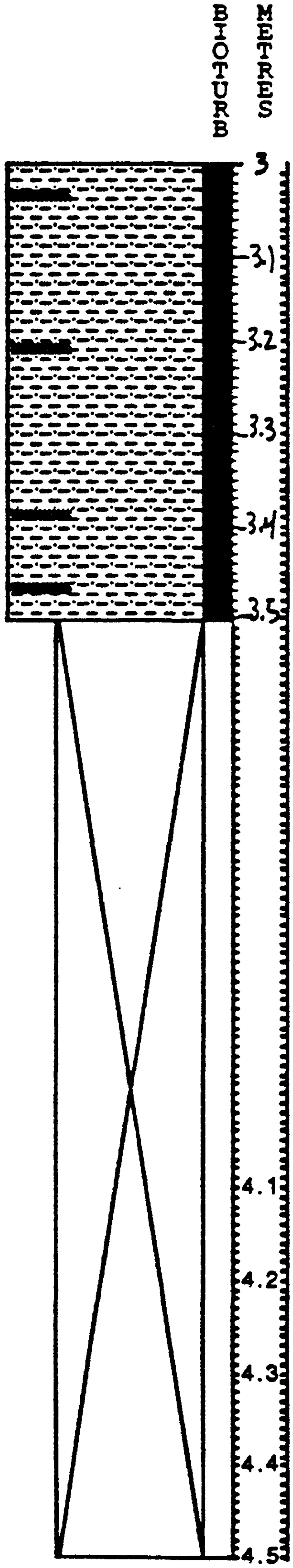


150-198 cm: SILTY CLAY, strongly mottled olive gray (5Y3/2) and light olive gray (5Y5/2); sharp lower contact

198-233 cm: SILTY CLAY, light olive gray (5Y5/2); moderately mottled; gradational lower contact

233-300 cm: SANDY CLAY, light olive gray (5Y5/2) CLAY with pockets of olive black (5Y2/1), angular, fine to medium SAND

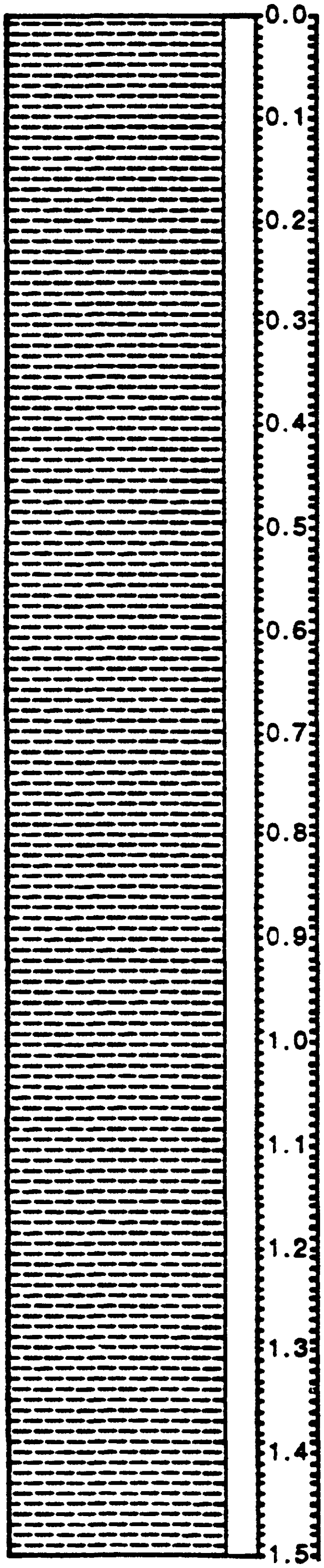
F2-92-P1 Section 3
35° 44.18'N 122° 08.46'W 1330m



SANDY CLAY (300-350 cm). Light olive gray (5Y 5/2) and Olive black (5Y 2/1). Abundant bioturbation. Sand is subangular, medium to fine grained, in irregular patches.

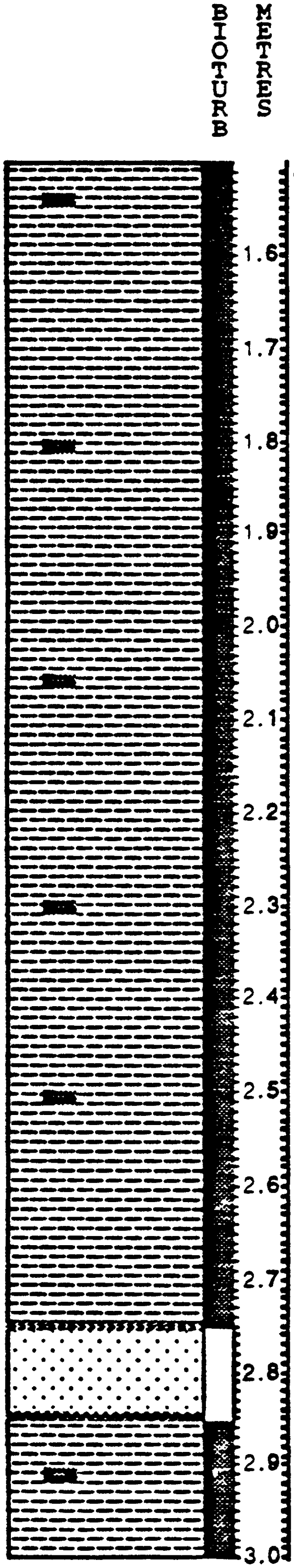
F2-92-P2, SECTION 1
35 46.39N, 121 50.93W, 1120m

BIOTURB METRES



CLAY to FINE SILTY CLAY, grayish olive (10Y4.2), massive; bioturbation not obvious; gas pockets present along entire length of co

F2-92-P2, SECTION 2
35 46.39N, 121 50.93W, 1120m

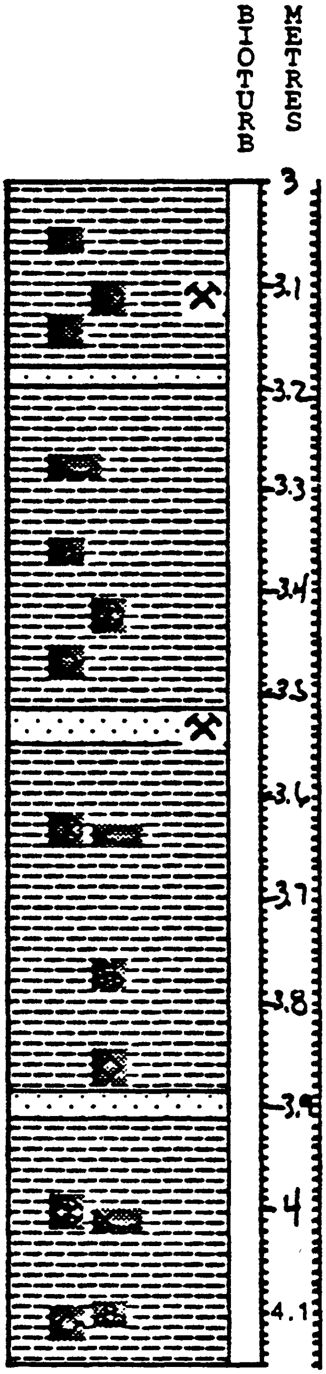


CLAY, grayish olive green (5GY3/2) with common bioturbation; occasional sand pockets or layers, especially near 270 cm where sand from turbidite is bioturbvated into the overlying clay.

FINE SAND, grayish black (N2), subangular; bioturbated upper contact, erosional (scowered) lower contact (turbidite)

CLAY, grayish olive green (5GY3/2); common bioturbation, burrows filled with black sand from overlying turbidite

F2-92-P2, SECTION 3
135 46.39N, 121 50.93W, 1120m

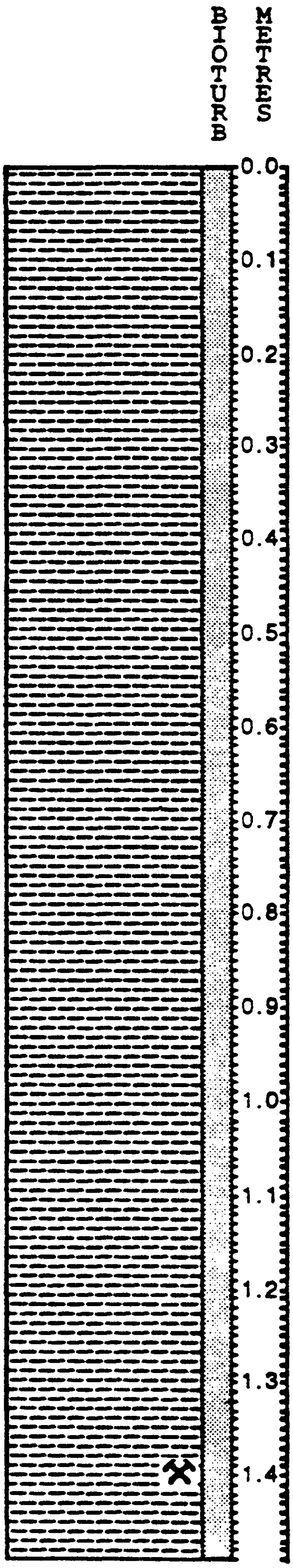


CLAY, grayish olive green (5GY4/2); siliceous; massive; turbidite layers with bioiturbated upper contacts at 320, 340, 355, and 390 cm

Smear slide 311: siliceous CLAY
Clay, dominant
siliceous spines, common
diatoms, common
Nannos, forams, rads, fish debris, carbonate fragments, rare

Smear slide 354 cm: fine SAND
Sand, dominant (quartz, plagioclase, carbonate fragments, polycrystalline mosaic grains (rock fragments), glauconite, volcanic glass; grains mostly subangular to subrounded)
Forams, common
Fish debris, common
Rads, rare

F2-92-P3, SECTION 1
35 37.39N, 121 36.28W, 799M

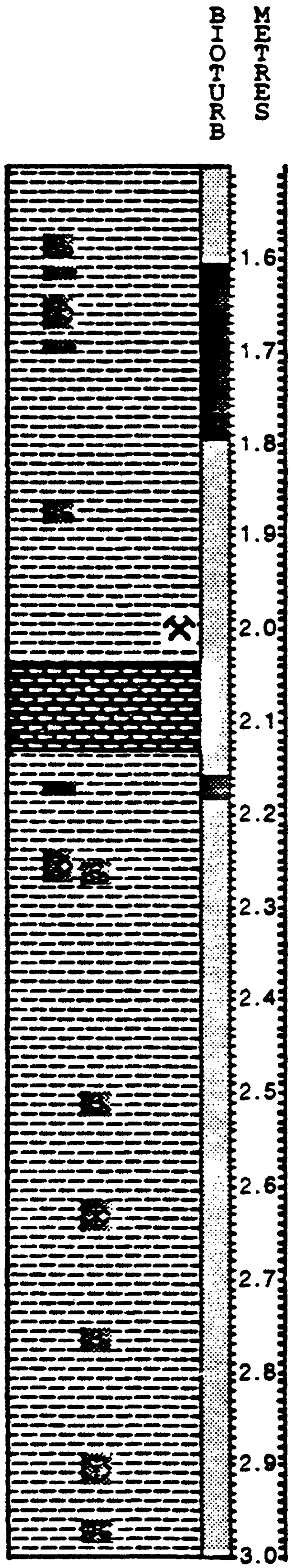


CLAY, olive gray (5Y3/2), mostly homogeneous with lenses of dark gray N3) mud at 140-150 cm.

shell

SS 141 cm:
mostly clay
Forams, rare
Diatoms, rare

F2-92-P3, SECTION 2
35 37.39N, 121 36.28W, 799 m



CLAY, olive gray (5Y3/2)

shell

shell

shell

shell

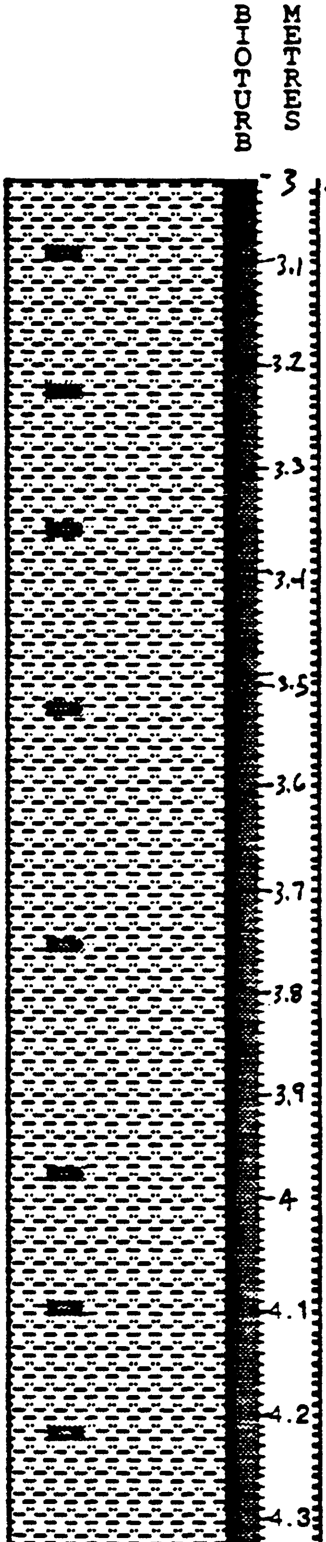
Smear slide, 200 cm: Forams (planktonic and benthic), abundant; nannos, abundant; diatoms

204-214 cm: good laminations with laminae becoming thinner downward; condrites burrows; benthic foram layer just below laminations

shell

shells, 270-300 cm

F2-92-P3, SECTION 3
35 37.39N, 121 36.28W, 799 m

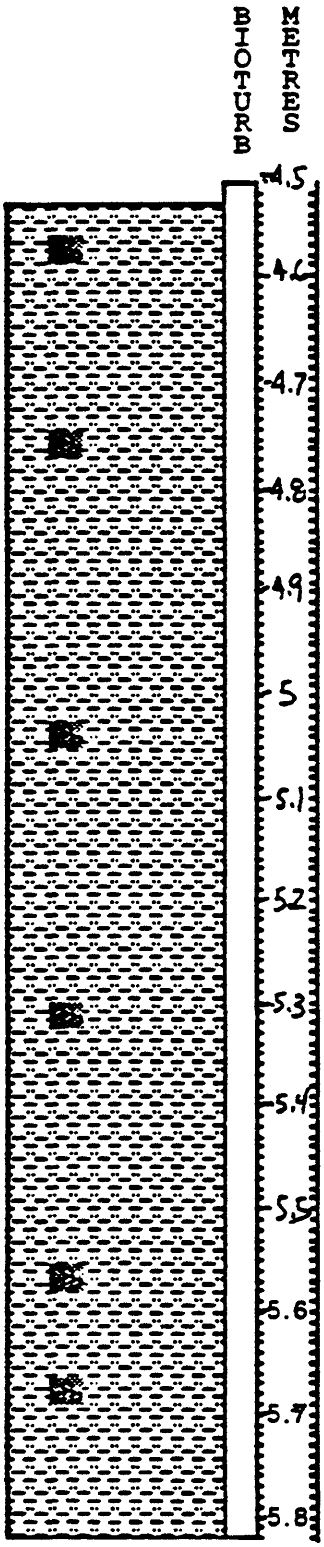


SILTY CLAY, grayish olive (10Y4/2); mottled appearance; condrites-type shallow burrows throughout

Smear slide, 350 cm:
Clay, dominant
Nannos, abundant
Forams, rare

360 cm: faint laminations

F2-92-P3, SECTION 4
35 37.39N, 121 36.28W, 799 m



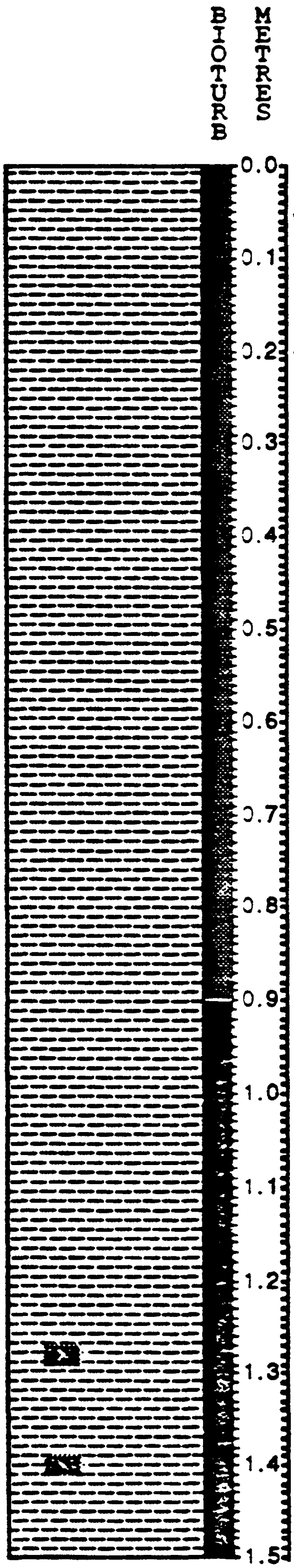
top of section at 452 cm

SILTY CLAY, grayish olive (10Y4/2), homogeneous; black specks throughout section below 512 cm; foram fragments throughout

silty lenses (olive gray, 5Y3/2) at 505-512 cm

bottom of core at 582 cm

F2-92-P4 Section 1
35° 36.48'N 121° 42.20'W 915m

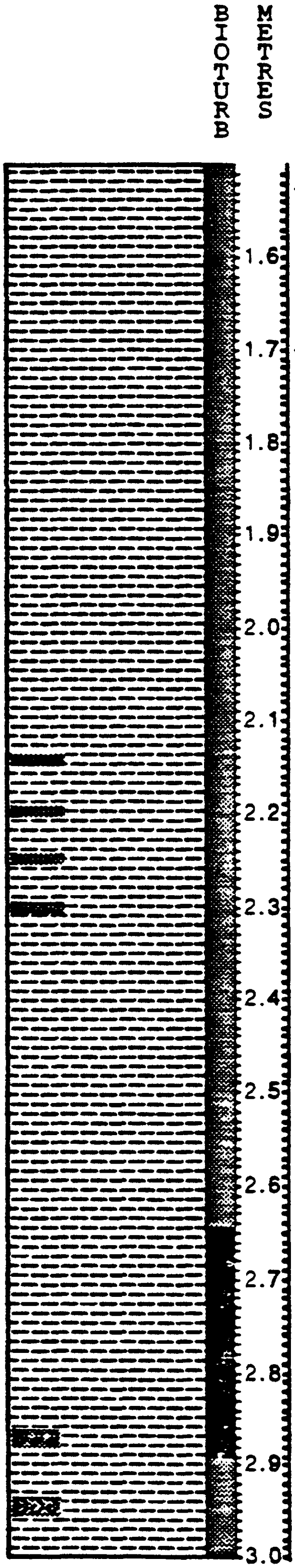


CLAY, Grayish olive green (5 GY 3/2), homogeneous, large infilled burrows between 90-150 cm.

smear slide (20 cm): Detrital grains - C; clay - A; nannos - R; diatom frags - R; volcanic glass - R; radiolarian frags - R.

smear slide (100 cm): Nannos - C to A; clay - A; volcanic glass - R; detrita grains - C; carbonate frags - R; radiolarian frags - R.

F2-92-P4 Section 2
35° 36.48'N 121° 42.20'W 915m



CLAY, Grayish olive geen (5 GY 3/2) and Grayish olive (10Y 4/2); faint bedding between 215-230 cm; bioturbation abundant between 265-290 cm, otherwise occasional. Round Mn rock fragment at 238 cm; small bivalve fragments between 290-300 cm.

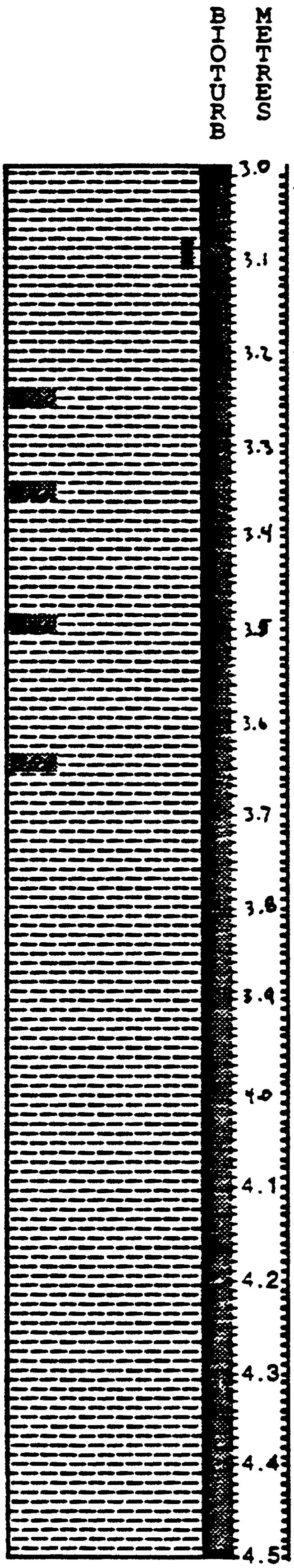
smear slide (170 cm): Nannos - C; clay - C; detrital frags - C; diatom frags - R.

smear slide (270 cm): Nannos - R; clay - C; diatoms - C; radiolarian frags - R; Mn micronodules - R; detrital grains - R; silicoflagellates - R; carbonate fragments - C.

bivalve fragments

F2-92-P4 Section 3

35° 36.48'N 121° 42.20'W 915m

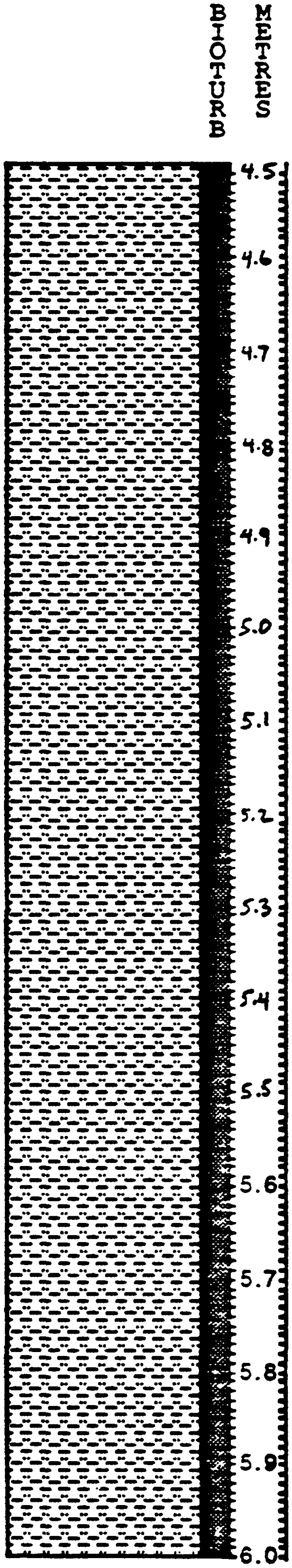


CLAY, Grayish olive green (5 GY 3/2), bioturbation common throughout; mm-size shell fragments common between 320-335 cm and 350-365 cm; turbidite @ 311-312 cm; 2-cm wide round burrow @ 345 cm; 1-cm long shell fragment @ 390 cm.

smear slide (320 cm):
Radiolarian frags - R
clay - C
silt - R
Mn micronodules - R
diatoms - R to C

smear slide (420 cm):
clay - C
nannos - R
detrital fragments - R
radiolarian frags - R
diatom frags - R
Mn micronodules - R
ash - R
forams - R

F2-92-P4 Section 4
35° 26.48'N 121° 42.20'W 915m



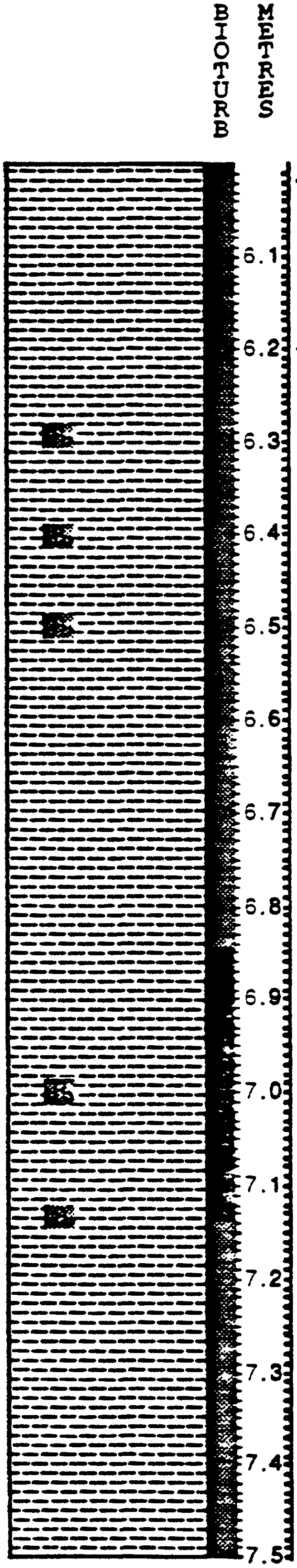
SILTY CLAY, Grayish olive green (5 GY 3/2), bioturbation common, homogeneous, no obvious break in lithology.

smear slide (480 cm):
forams - C
diatoms - C
nannos - A
radiolarian frags - R
clay - A
detrital grains - R
Mn micronodules - C
fish debris - R

smear slide (580 cm):
nannos - R
diatoms - C
radiolarians - R
forams - R
clay - A
volcanic ash - R

F2-92-P4 Section 5

35° 36.48'N 121° 42.20'W 915m

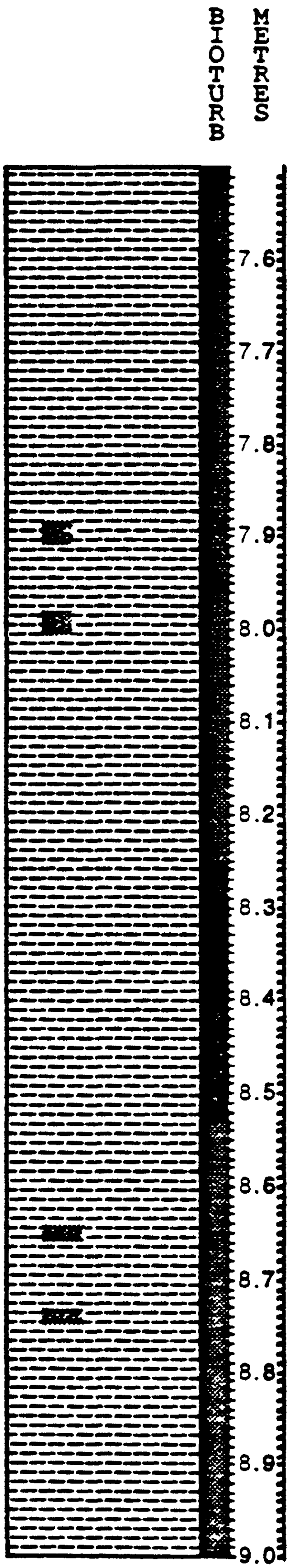


CLAY, Grayish olive green (5 GY 3/2), bioturbation common (abundant between 685-715 cm); foram-rich zones btw 630-650 cm and 700-715 cm.

smear slide (620 cm)
nannos - R
forams - R
rads - C
diatoms - R
clay - A
fish debris, Mn micronodules - R

smear slide (720 cm)
nannos - R
radiolarians - R
diatoms - R
clay - C
detrital grains - R
Mn micronodules - R
pollen grains - VR

F2-92-P4 Section 6
35° 36.48'N 121°42.20'W 915m

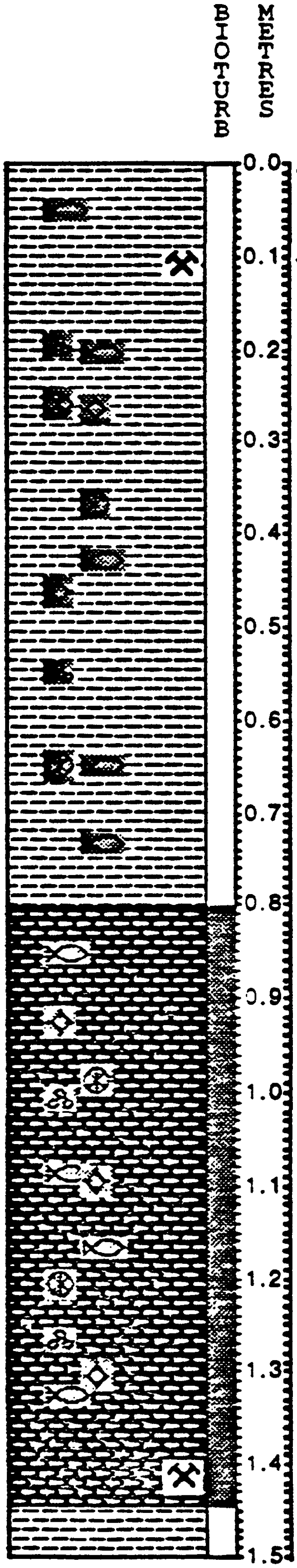


CLAY, Grayish olive green (5 GY 3/2), homogeneous with common bioturbation (except for zone of abundant bioturbation 825-855 cm). Faint large burrows between 860-885 cm.

smear slide (770 cm)
nannos - C
diatoms - R
radiolarians - R
clay - A
detrital grains - C
ash - R

smear slide (870 cm)
nannos - C
diatoms - C
radiolarians - R
clay - A
detrital grains, carbonate fragments, sponge spicules - R
Mn micronodules - VR

2-92-P5, SECTION 1
35 35.88N, 121 49.43W, 1005m



SILICEOUS NANNO CLAY, dark grayish olive (10Y3/2), homogeneous, 0-80cm; faint laminations. 80-145 cm

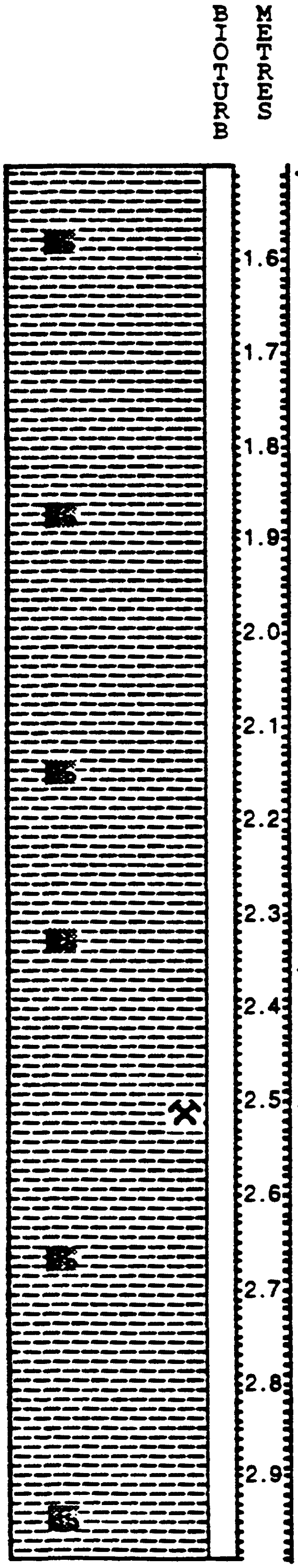
Smear slide, 10 cm:
Clay, dominant
Nannos, siliceous spines, fish debris, abundant
Brown, amorphous organic matter, abundant
Forams, diatoms, rads, rare

80-144 cm: relict lamination? (faint, discontinuous, whispy lamination) that has been microbioturbated

shell fragments

Smear slide 140 cm:
Clay, dominant
Nannos, siliceous spines, fish debris, common
Forams, diatoms, rads, rare

F2-92-P5, SECTION 2
35 35.88N, 121 49.43W, 1005 m

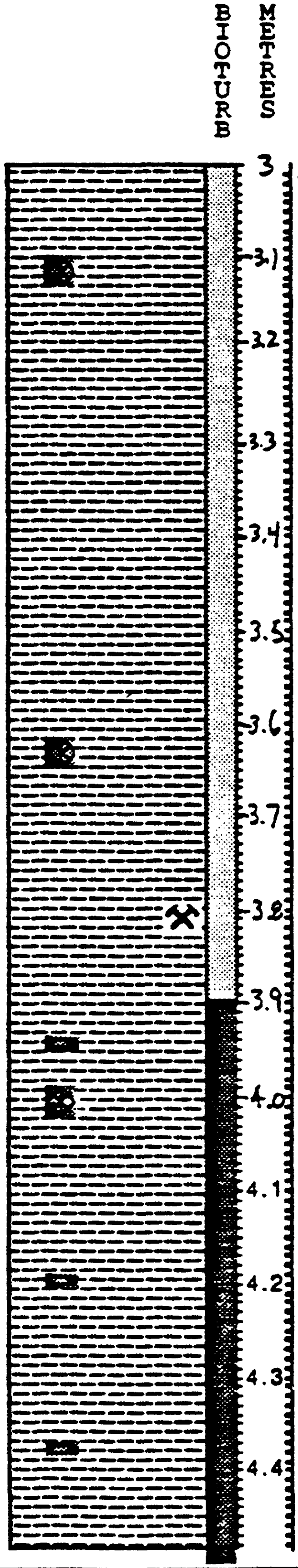


SILICEOUS NANNO CLAY, dark grayish olive (10Y3/2), homogeneous to slightly burrow mottled

shell fragments

Smear slide, 250 cm:
Clay, dominant
Nannos abundant
Diatoms, rare
forams, siliceous spicules, rads, present

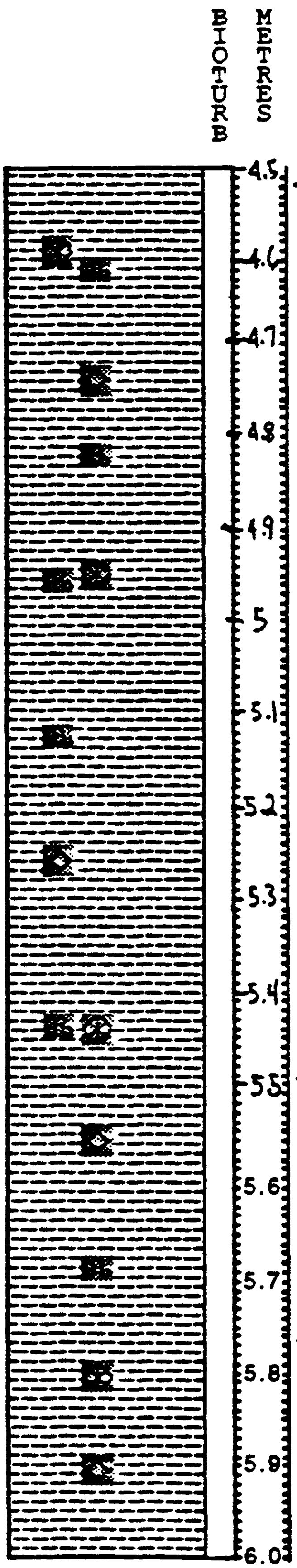
F2-92-P5, SECTION 3
35 35.88N, 121 49.43W, 1005 m



SILICEOUS NANNO CLAY, olive gray (5Y3/2), homogeneous to 390 cm, mottled dark olive gray and olive gray 390-450 cm.

Smear slide, 380 cm:
Clay dominant
Nannos, abundant
Siliceous fragments, common
quartz grains and other minerals

F2-92-P5, SECTION 4
35 35.88N, 121 49.43W, 1005 m

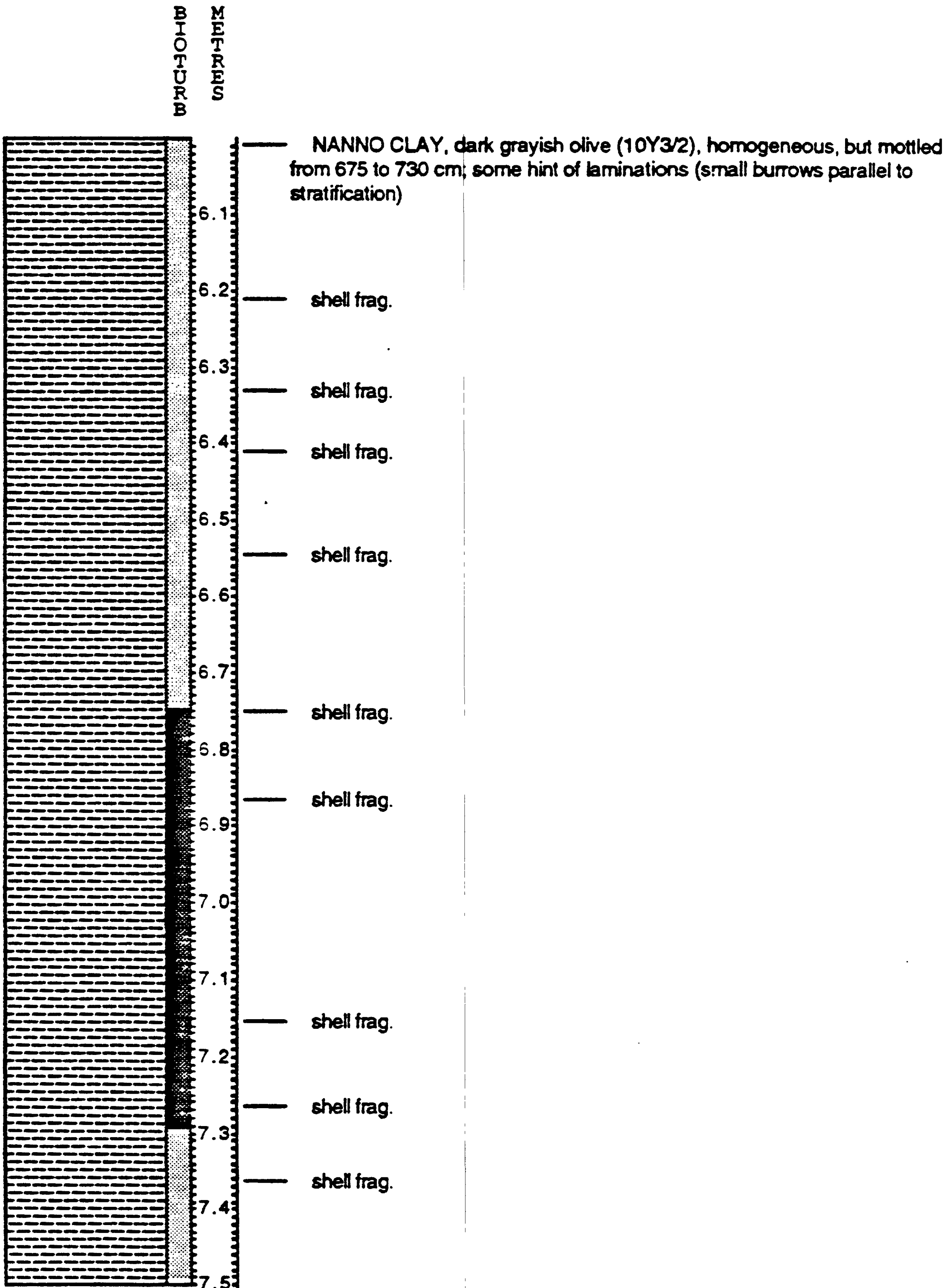


NANNO CLAY, grayish olive (10Y4/2) 450-480cm; grayish olive (10Y4/2) 480-600 cm

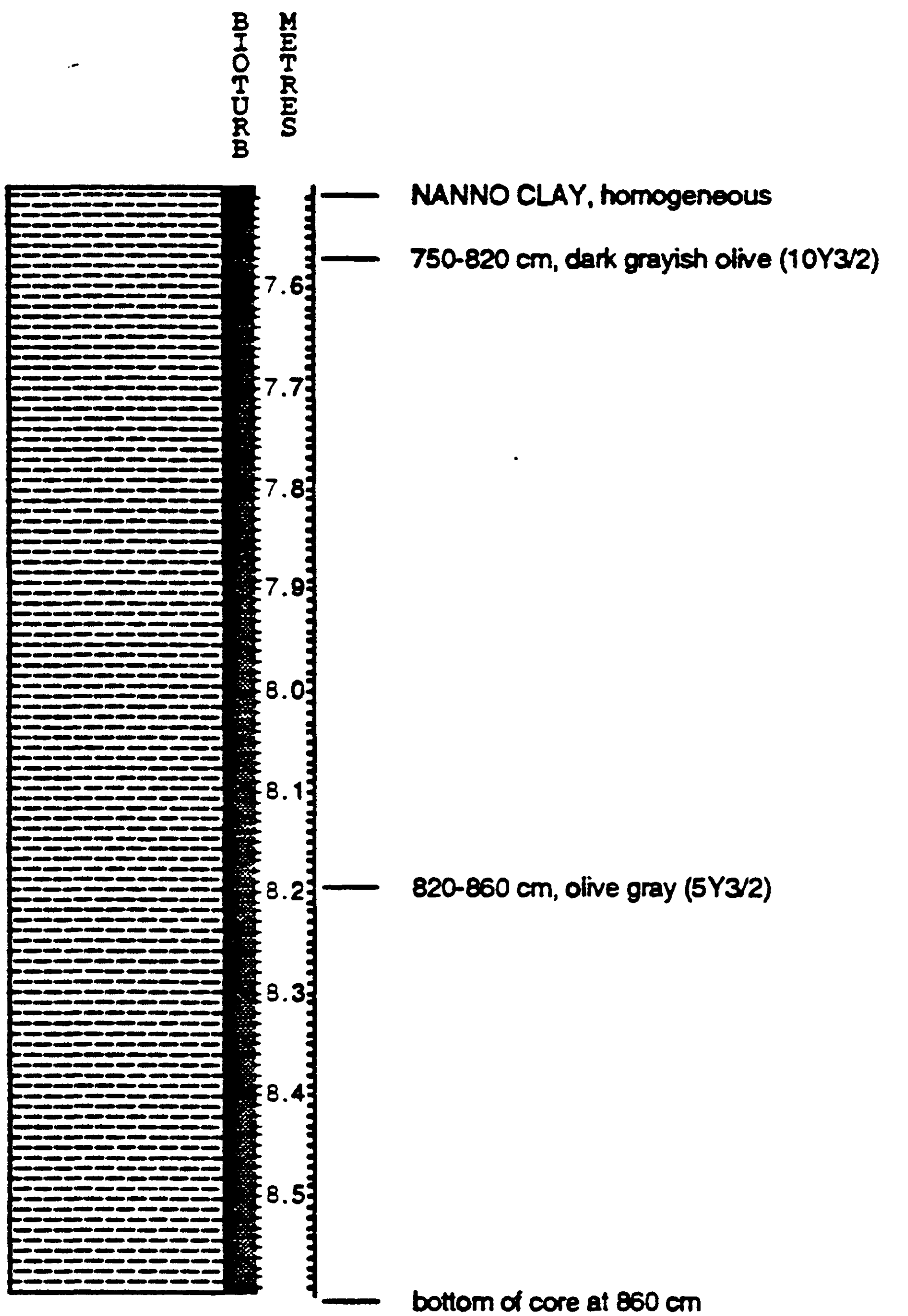
Smear slide 548 cm:
Clay dominant
Nannos, abundant
Forams, present
Diatoms, rare not well preserved
Rads, rare

Sect 4A (450-576 cm); 4B (576-600 cm)

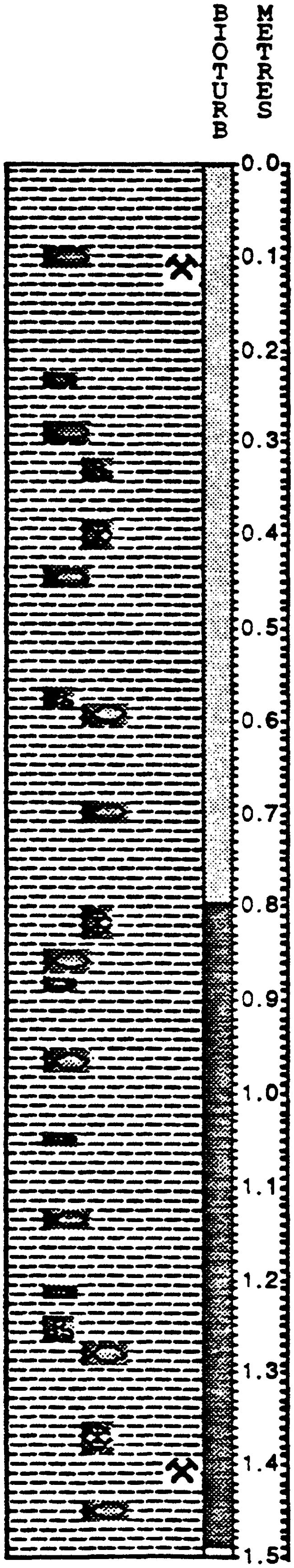
F2-92-P5, SECTION 5
35 35.88N, 121 49.43W, 1005 m



F2-92-P5, SECTION 6
35 35.88N, 121 49.43W, 1005 m



F2-92-P6, SECTION 1
35 39.65N, 121,50.79W, 1040m

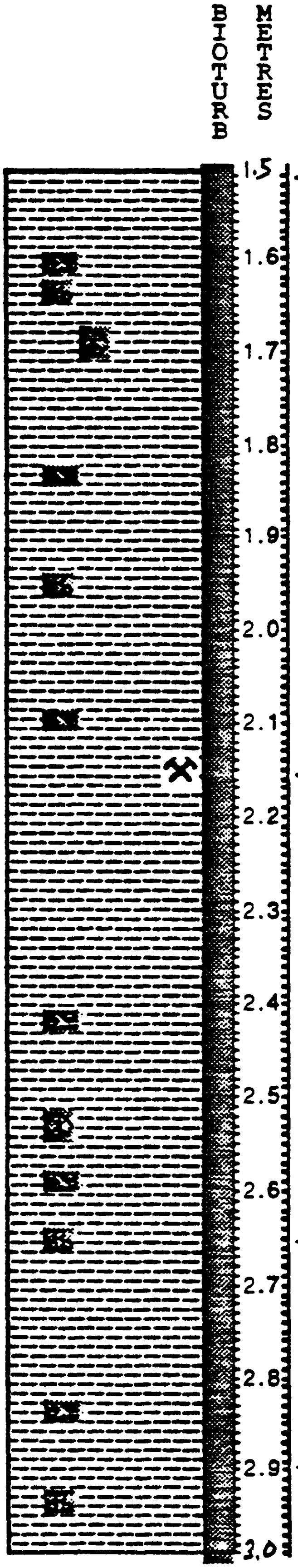


SILICEOUS NANNO CLAY, dark olive brown (5Y3/4), homogenous

Smear slide, 10 cm:
Clay, dominant
Nannos, abundant
Siliceous spicules, common
Fish debris, common
Diatoms, forams, and rads, rare

Smear slide, 140 cm:
About the same as smear slide at 10 cm

F2-92-P6, SECTION 2
35 39.65N, 121 50.79W, 1040m



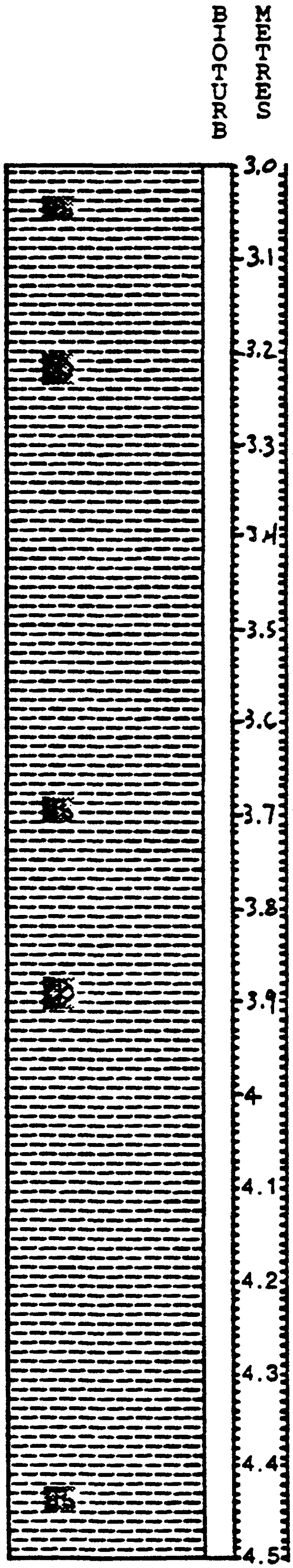
SILICEOUS NANNO CLAY, dark olive brown (5Y3/4), homogeneous, some mottling; shallow burrowing (chondrites type)

Smear slide, 215 cm:
Clay dominant
Nannos, abundant
Forams common
whole siliceous fossils, rare
Siliceous spines, common
Angular quartz grains

pocket of forams

290-300 cm - darker color but still dark olive brown (5Y3/4)

F2-92-P6, SECTION 3
35 39.65N, 121 50.79W, 1040m



SILICEOUS NANNO CLAY, color varies as indicated from olive gray (5Y3/2) and grayish olive (10Y4/2); homogeneous; black specks increase with depth

10Y4.2

5Y3/2

10Y4/2

5Y3/2

10Y4/2

5Y3/2

10Y4/2

5Y3/2

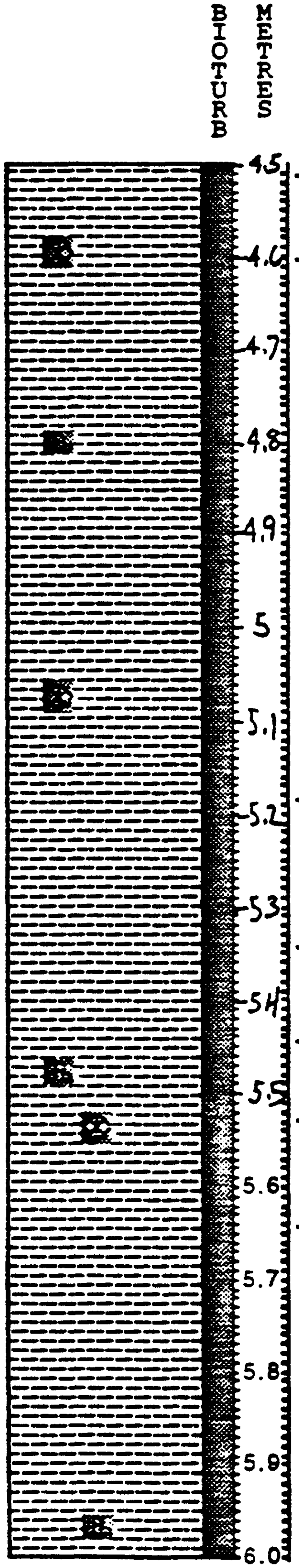
10Y4/2

5Y3/2

10Y4/2

5Y3/2

F2-92-P6, SECTION 4
35 39.65N, 121 50,79W, 1040m



SILICEOUS NANNO CLAY, color varies as indicated from grayish olive (10Y4/2) to olive gray (5Y3/2); homogeneous with occasional burrows

10Y4/2

5Y3/2

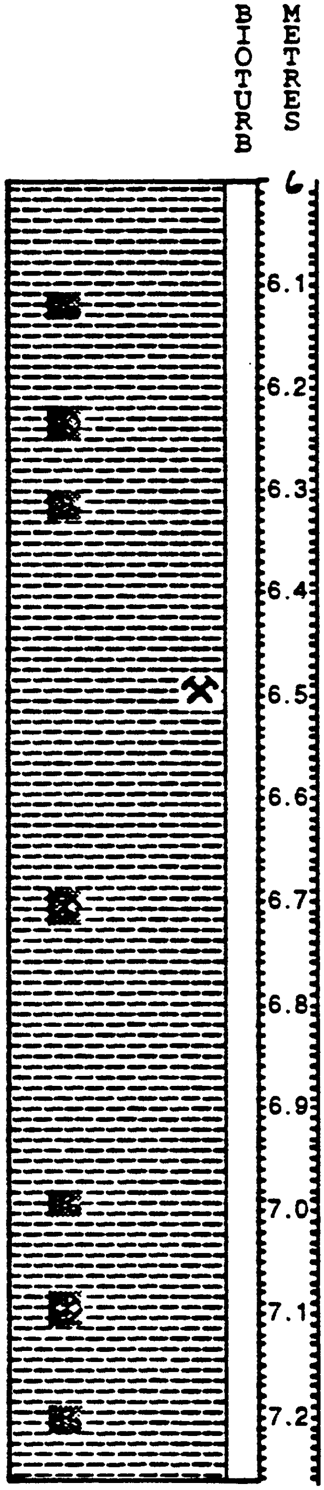
10Y4/2

5Y3/2

10Y4/2

5Y3/2

F2-92-P6, SECTION 5
35 39.65N, 121 50,79W. 1040m

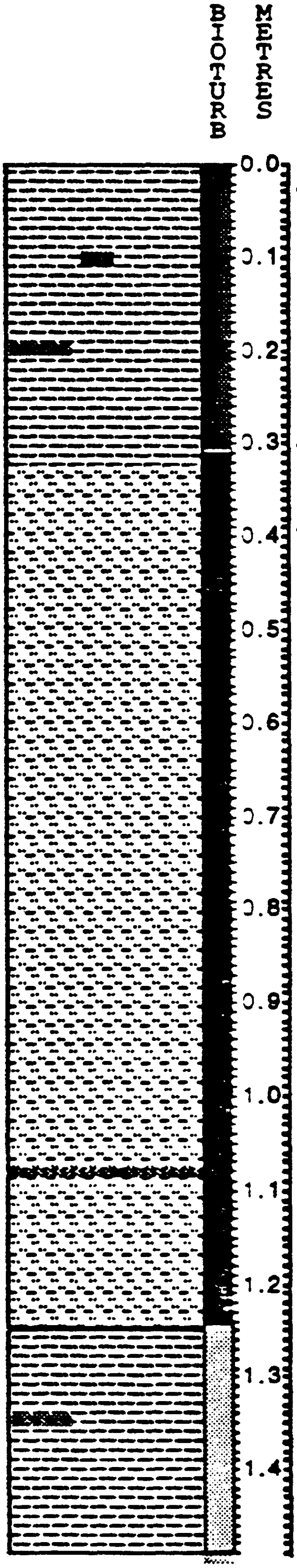


SILICEOUS NANNO CLAY, oilve gray (5Y3/2) and dark grayish olive (10Y3/2); homogeneous

Smear slide, 650 cm

base of core = 726 cm

F2-92-P7 Section 1
35° 35.32'N 121° 54.70'W 1010m



CLAY (0-32 cm), Dusky yellow green (5 GY 5/2), mixed with Greenish black (5GY 2/1) fine sand; sand lamina @ 20 cm; infilled burrow @ 10 cm. Bioturbation common; lower contact gradational.

smear slide (30 cm)
clay - C
detrital grains - R
nannos - A
$CaCO_3$ frags - C
forams - R
Mn micronodules - R

CLAY (32-108 cm), Grayish olive green (5GY 3/2), and CLAYEY SILT, Black (N1), strongly mixed, bioturbation abundant. Gradational upper contact, bioturbated lower contact.

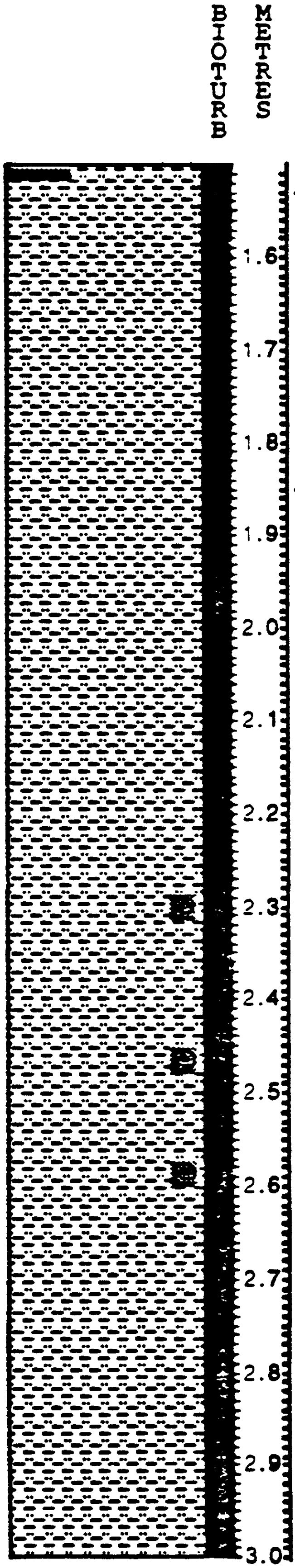
CLAYEY SILT (108-125 cm), Black (N1), homogeneous, bioturbated upper contact, sharp lower contact.

smear slide (120 cm): clay -A; detrital grains - R; nannos - C; $CaCO_3$ frags - R.

smear slide (130 cm): clay - A; detrital grains - R; ash - R; nannos - A; rads - R; diatom frags - R; spicules - R.

CLAY (125-150 cm), Grayish olive (10Y 4/2), massive, 5-cm long rock fragment @ 135 cm. Bioturbation not obvious (rare?)

F2-92-P7 Section 2
35° 53.32'N 121° 54.70'W 101m



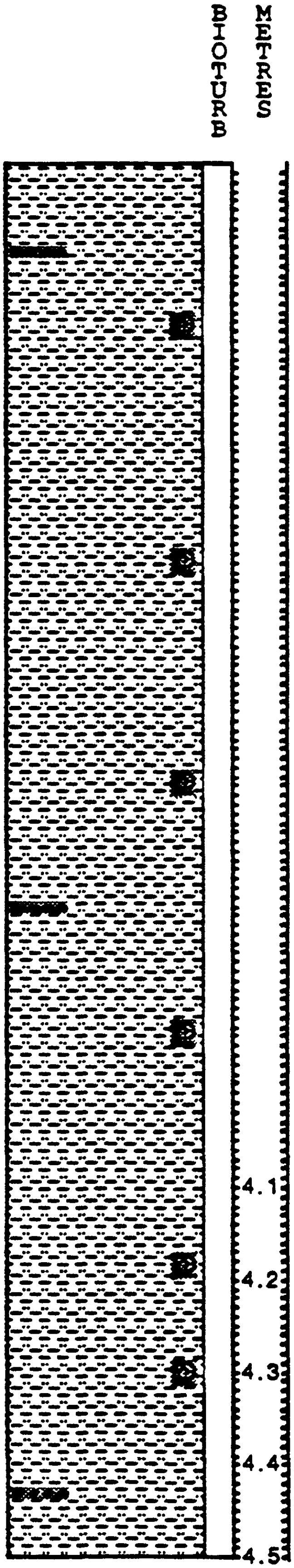
SILTY CLAY, Grayish olive (10Y 4/2) w/ minor amounts of fine sand between 150-175 cm and 190-210 cm. Foram-rich. Deformation features ("FLOW-IN STRUCTURES") very distinct between 230-260 cm. Black (N1) angular pebbles (3-5 cm diam.) @ 190 cm and 208 cm. Bioturbation abundant.

smear slide (185 cm)
clay - A
nannos - D
CaCO3 frags - C
forams - R

beginning of FLOW-IN STRUCTURES (continues to bottom of section 5)

F2-92-P7 Section 3

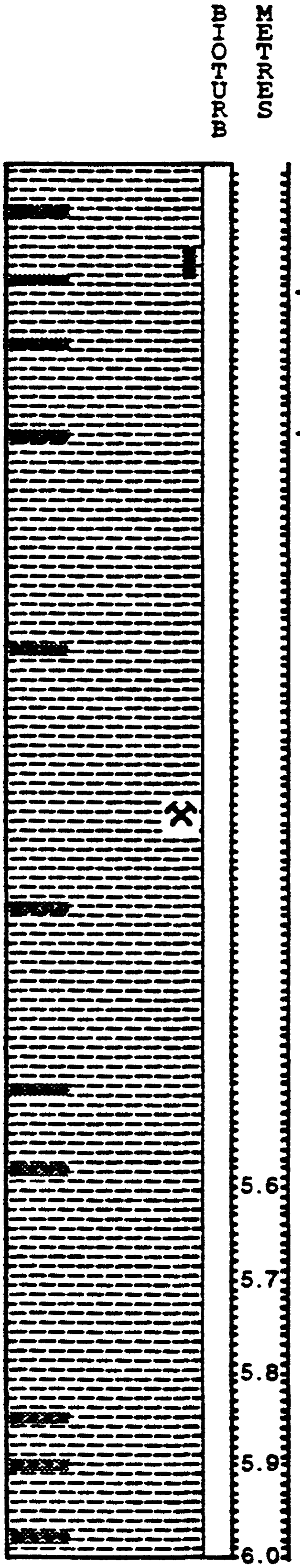
35° 35.32'N 121° 54.70'W 1010m



SILTY CLAY, Grayish olive (10Y 4/2) and Olive black (5Y 2/1); homogeneous with FLOW-IN structures throughout. Rock fragments @ 380 cm and 445 cm. Forams (visible in handlens) common throughout. Bioturbation indistinguishable because of sediment deformation.

rock fragment

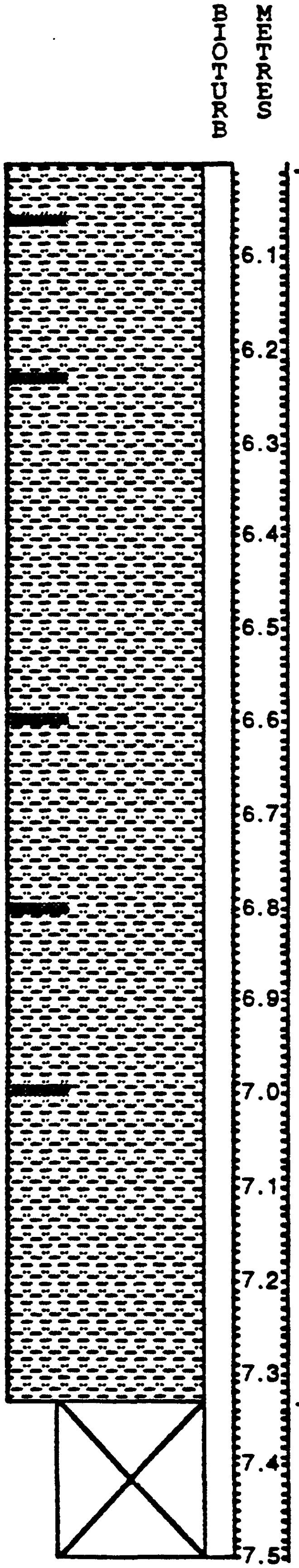
F2-92-P7, SECTION 4
35° 35.32'N, 121°54.70'W, 1010 m



460-461 cm - turbidite

CLAY, grayish olive (10Y 4/2) and olive gray (5Y 3/2), strongly deformed (fill-in structures) below 460 cm; turbidite between 460-461 cm; pebbles scattered throughout; bioturbation indistinguishable because of deformation.

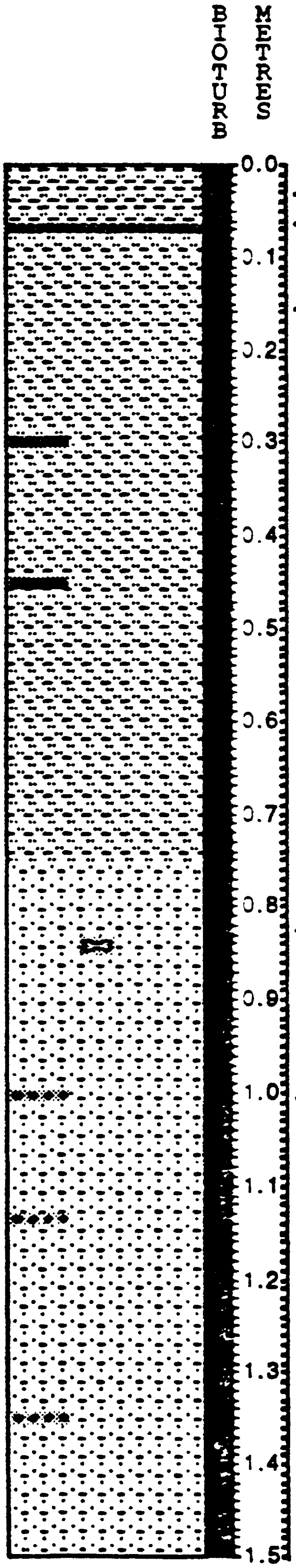
F2-92-P7, SECTION 5
35° 35.32'N, 121°54.70'W, 1010 m



SILTY CLAY, grayish olive (10Y 4/2) and olive gray (5Y 3/2), vertical deformation structures (flow-in) throughout; 0.5 - 2 cm diameter pebbles scattered throughout.

End of Core - 733 cm

F2-92-P8 Section 1
35° 33.21'N 122° 01.01'W 1329m



SILTY CLAY 90-7 cm), Dusky yellow green (5GY 5/2), bioturbated lower contact, bioturbation abundant.

smear slide (5 cm)
clay - A
detrital grains - R
nannos - C
CaCO3 frags - C

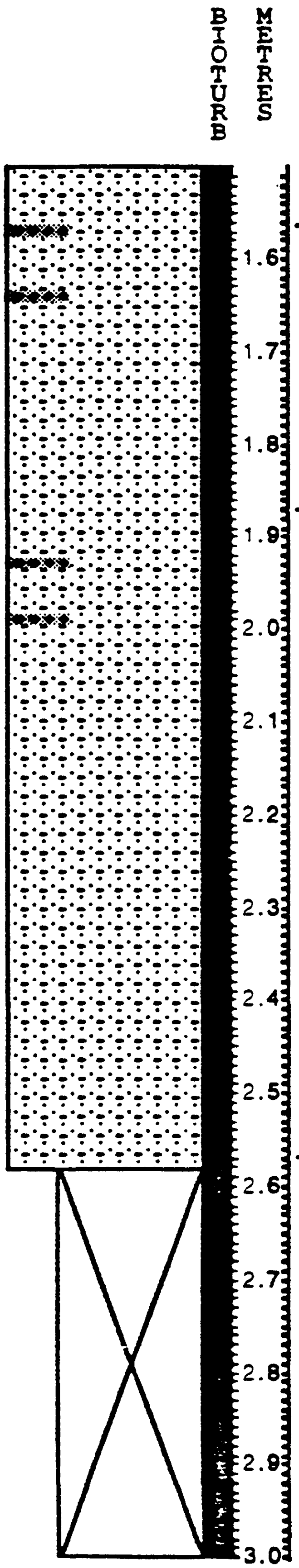
CLAYEY SILT (7-75 cm), Black (N1), homogeneous; several 2-cm diam. rounded pebbles @ 20 and 30 cm.

SILTY SAND (75-150 cm), Black (N1), homogeneous; a few scattered small pebbles; shark tooth @ 84 cm. Gradational upper contact.

smear slide (100 cm)
clay - A
siliceous (radiolarian?) spines - A (crystalization of picolite?)
detrital grains - R

F2-92-P8 Section 2

35° 33.21'N 122° 01.01'W 1329m

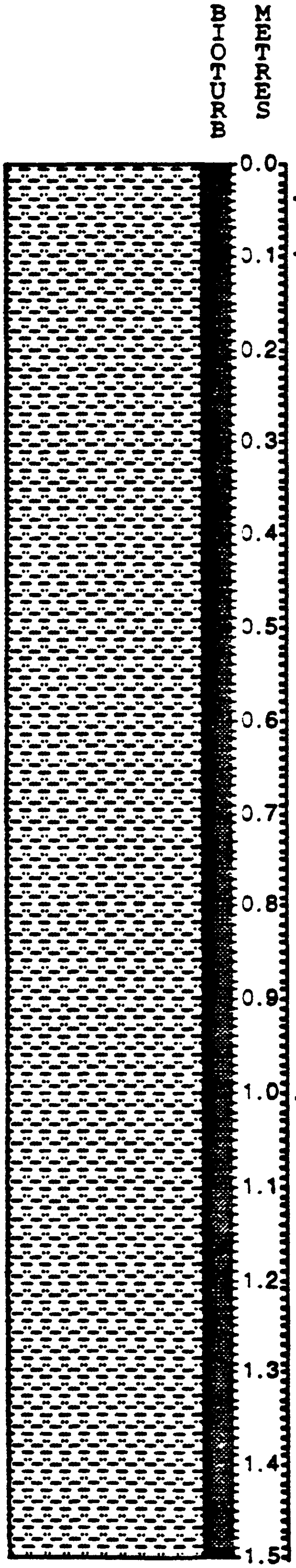


CLAYEY SAND (150-258 cm), Fine to medium grained, Black (N1), homogeneous, scattered 2-8 mm diam. pebbles throughout.

smear slide (200 cm)
clay - A
detrital grains - C
nannos - R

Bottom of core = 258 cm

F2-92-P9 Section 1
35° 24.97'N 121° 28.05'W 867m

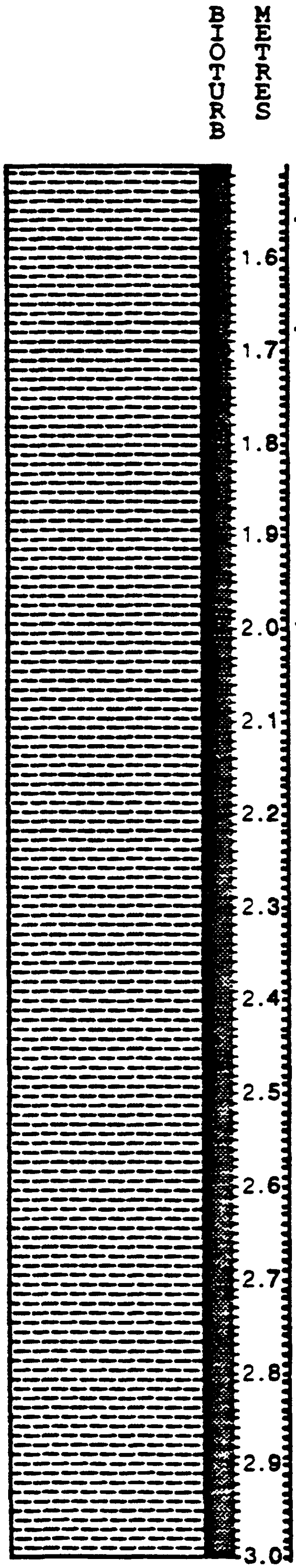


SILTY CLAY, Dusky yellow green (5GY 5/2), homogeneous, bioturbation common, possibly faint bedding @ 137 cm.

smear slide (5 cm)
clay - A
detrital grains - C
spicules - R
diatom frags (Chaetoceros spines) - C
nannos - C

smear slide (100 cm)
clay - A
detrital grains - C
forams - R
nannos - C

F2-92-P9 Section 2A & 2B
35° 24.97'N 121° 28.05'W 867m



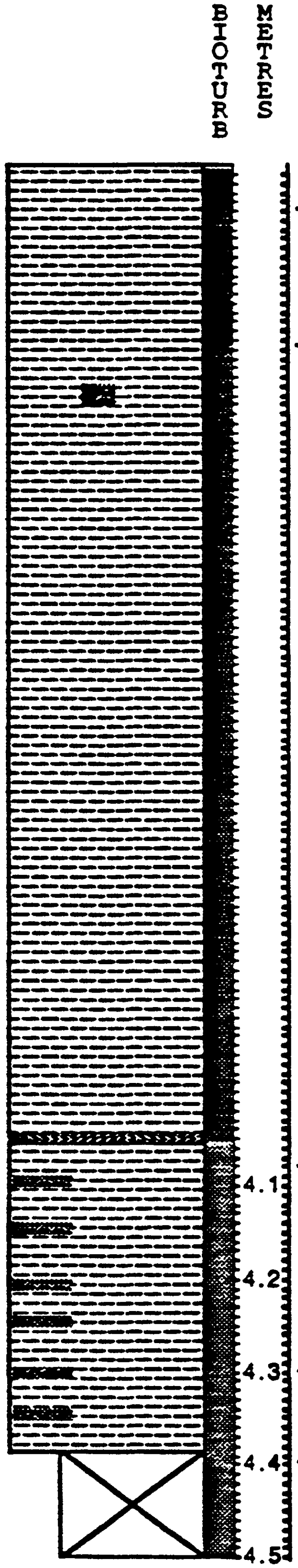
CLAY, Dusky yellow green (5GY 5/2) to Grayish olive green (5GY 3/2); homogeneous, bioturbation common.

Section 2A = 150-167 cm
Section 2B = 167-300 cm

smear slide (200 cm)
clay - C
detrital grains - C
diatom frags - R
spicules - R
forams - C
nannos - C
CaCO3 frags - C

smear slide (280 cm)
clay - A
detrital grains - C
forams - C
spicules - R
CaCO3 frags - C
nannos - R

F2-92-P9 Section 3
35° 24.97'N 121° 28.05'W 867m



CLAY (300-405 cm), Dusky yellow green (5GY 5/2) and Grayish olive green (5GY 3/2), massive, common bioturbation. Large faint burrows at 325 cm. Bioturbated lower contact.

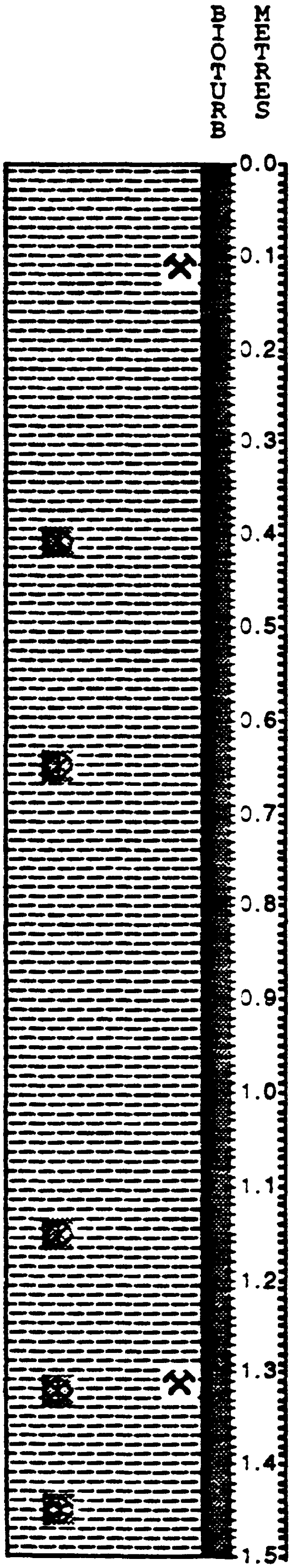
smear slide (320 cm)
nannos - A
clay - A
foram frags - C
diatoms - R
detrital grains - R
siliceous spines - R

CLAY (405-439 cm), Dusky yellow green (5GY 5/2) and Grayish olive green (5GY 3/2), faintly bedded (not distinctly bedded as in laminae) with layers 1mm to 1 cm thick; wavy. Bioturbation occasional.

smear slide (430 cm)
clay - A
detrital grains - C
nannos - A
Mn micronodules - R
forams - R
diatoms - R to C
silicoflagellates - R

Bottom of core = 439 cm

F2-92-P10, SECTION 1
35° 20.28' N, 121° 18.93' W, 595 m

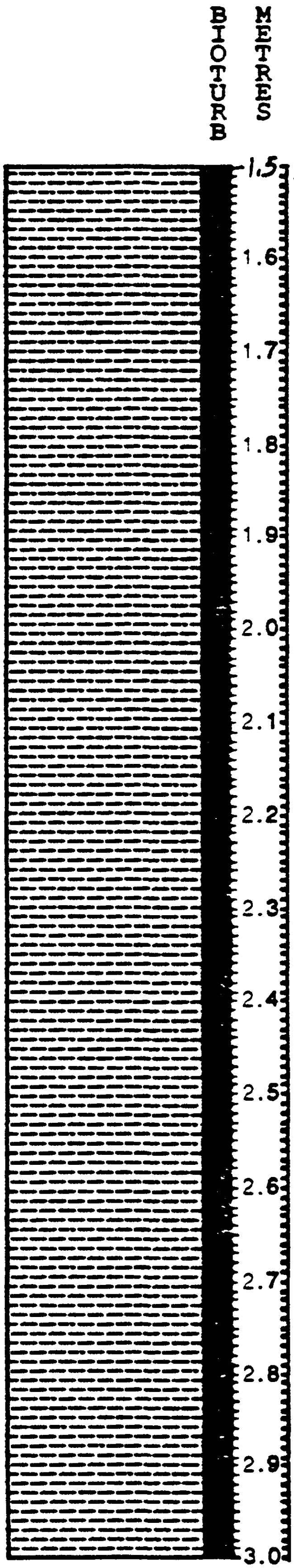


CLAY, grayish olive (1oY4/2); homogeneous; bioturbation commonm troughout

Smear slide, 10 cm:
Clay-A; Carb. frags.-C; Detrital grains-C; Diatoms-R; Forams-R; Nannos-R

Smear slide, 130 cm:
Clay-A; Siliceous spicules-C; Diatom frags.-Carb. frags.-C; Nannos-C; Detrital grains-R

F2-92-P10, SECTION 2
35° 20.28' N, 121° 18.93'W, 595 m



CLAY, grayish olive (10Y4/2); homogeneous but with large burrows as indicated

180-220, large burrows

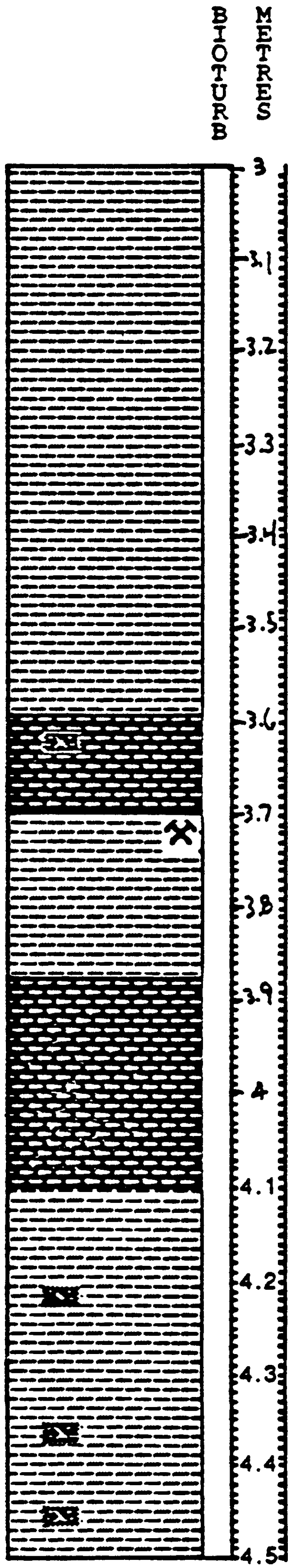
Smear slide, 200 cm:
Clay-C; Nannos-C; Forams -R; Diatoms-R; Forams-R; Rads-R

A/B 263cm = join Sect 2A/B

263-300, large burrows

Smear slide, 280 cm:
Clay-A; Nannos-C; Rads-R; Siliceous spicules-R; Forams-R

F2-92-P10, SECTION 3
35° 20.28' N, 121° 18.93' W, 595 m



CLAY, grayish olive (10Y4/2); homogeneous

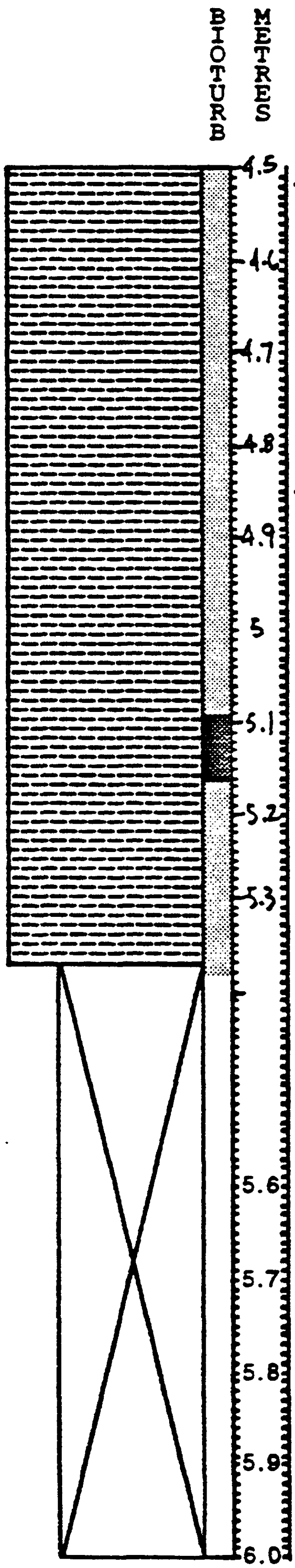
360-370 cm: weakly laminated with chondrites burrows

Smear slide, 371 cm:
Clay-A; Benthic Forams-A; Nannos-C; Carb. frags.-C; Planktonic Forams-R; Diatoms-R

488-410 cm: weakly laminated

420-450 cm: chondrites-type burrows

F2-92-P10, SECTION 4
35°20.28' N, 121° 18.93' W, 595 m

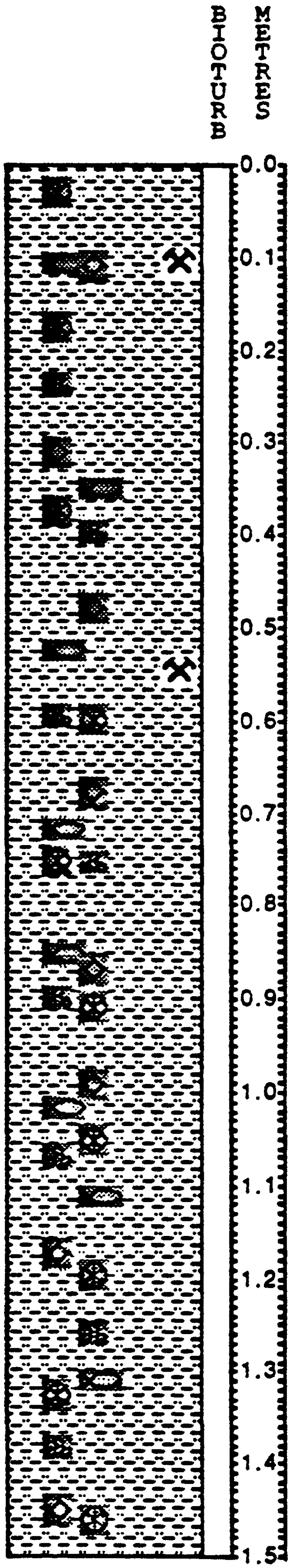


CLAY, olive gray (5Y3/2); homogeneous with rare burrows; gas charge cracks throughout

Smear slide, 485 cm:
Clay-C; Nannos-C; Siliceous spicules-C; Forams-R; Diatoms-R; Rads-R

537 cm = base of core

F2-92-P11, SECTION 1
35 15.91N, 121 28.24 W, 733 m



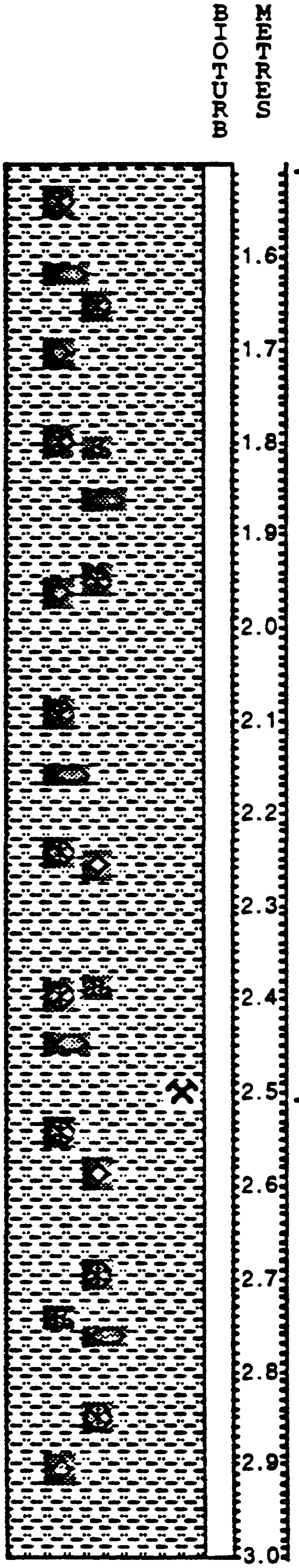
DIATOM SILTY CLAY, olive (5Y2/1) with cm-scale layers of dark olive brown (5Y3/4); well bedded with distinct color layers; surface appears hackley or fluffy (due to gas?); darker layers generally coarser and foram-rich

Smear slide, 10 cm:
Clay, abundant
Diatoms, abundsant snd well preserved
Forams, common and well preserved
Rads, common and well preserved
Fish debris, common
Nannos, common

Smear slide, 55 cm:
Clay, dominant
Diatoms, abundant and well preserved
Rads, common and well preserved
Forams, common and well preserved
Siliceous spines, common
Carbonate (recrystalized) fragments, common
Nannos, rare

NOTE!: The top of this section (0.0 cm) does not represent the top of the core; some unknown amount of sediment (ca. 30 cm) was lost in shattered liner at the top of the core.

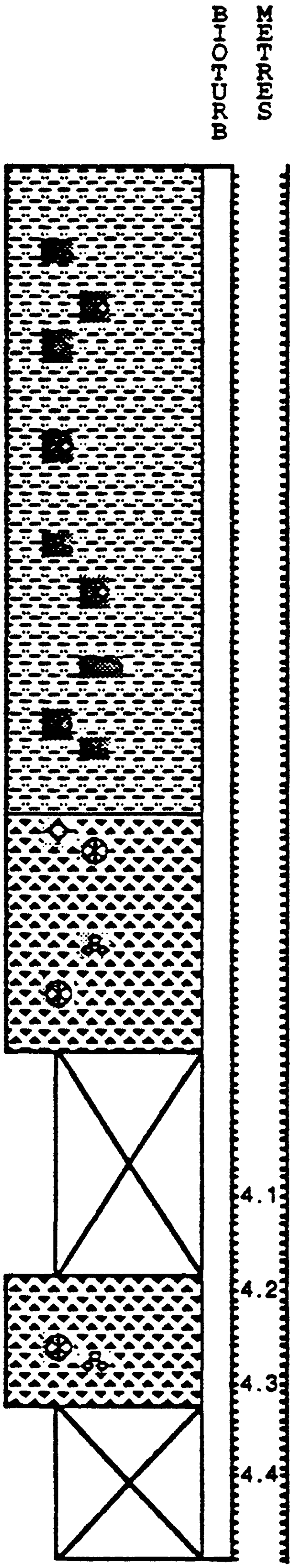
F2-92-P11, SECTION 2
35 15.91N, 121 28.24 W, 733 m



DIATOM SILTY CLAY, olive gray (5Y3/2) with layers and lenses of dark olive brown (5Y3/4); surface often has hackley or fluffy appearance due t gas(?)

Smear slide, 250 cm:
Clay, dominant
Diatoms, abundant and well preserved
Silicoflagellates (?), abundant
Fish debris, common
Nannos, common
Siliceous spines, common

F2-92-P11, SECTION 3
35 15.91 N, 121 28.24 W, 733 m



— DIATOM SILTY CLAY, alternating beds of olivwe gray (5Y3/2) silty clay, and moderate olive brown (5Y4/4) sandy silty clay; surface hackley or fluffy due to gas(?); material from 370 to base of section is all flow-in with several air pockets (water pockets when core was opened)

— Smear slide, 332 cm:
Clay, dominant
Diatoms, abundant
Carbonate (recrystallized) fragments, abundant
Siliceous spines, common
Nannos, common
Forams, common
Fish debris, rare

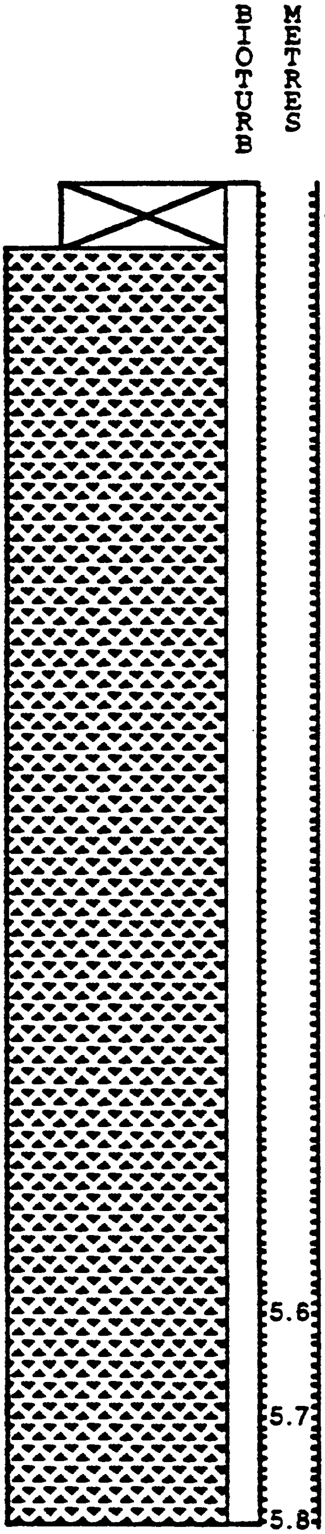
— begin flowin (370 cm)

— void, 395-419 cm

— flowin, 419-433

— void 433-450 cm

F2-92-P11, SECTION 4
35 15.91N, 121 28.24W, 7333 m



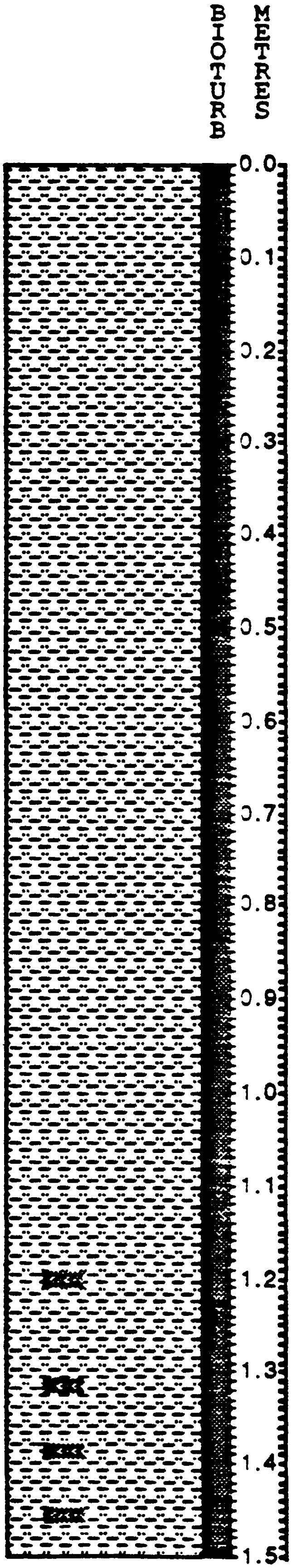
void

DIATOM SILTY CLAY, olive gray (5Y3/2); all material is flow-in with vertical bedding

581 cm = bottom of core

F2-92-P12 Section 1

35° 12.49'N 121° 13.15'W 595m

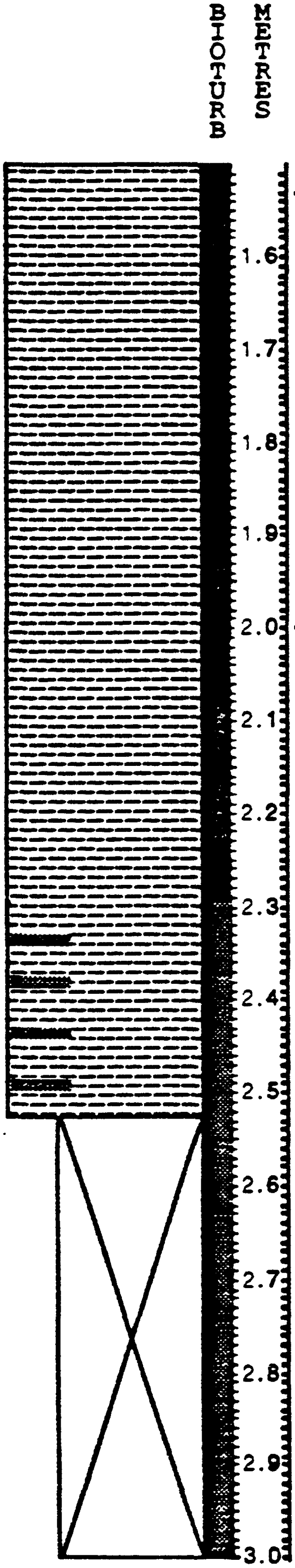


SILTY CLAY, Grayish olive (10Y 4/2), homogeneous; bioturbation common with large burrows visible between 120-150 cm.

smear slide (20 cm)
clay - A
detrital grains - C
diatom frags - R
spicules - C
CaCO3 frags - C
forams - R
nannos - C

smear slide (120 cm)
clay - A
detrital grains - C
diatom frags - R
spicules - R
forams - R
nannos - R
CaCO3 frags - C

F2-92-P12 Section 2
35° 12.49'N 121° 13.15'W 595m



CLAY (150-230 cm), Grayish olive (10Y 4/2), homogeneous. Bioturbation abundant, lower contact gradational.

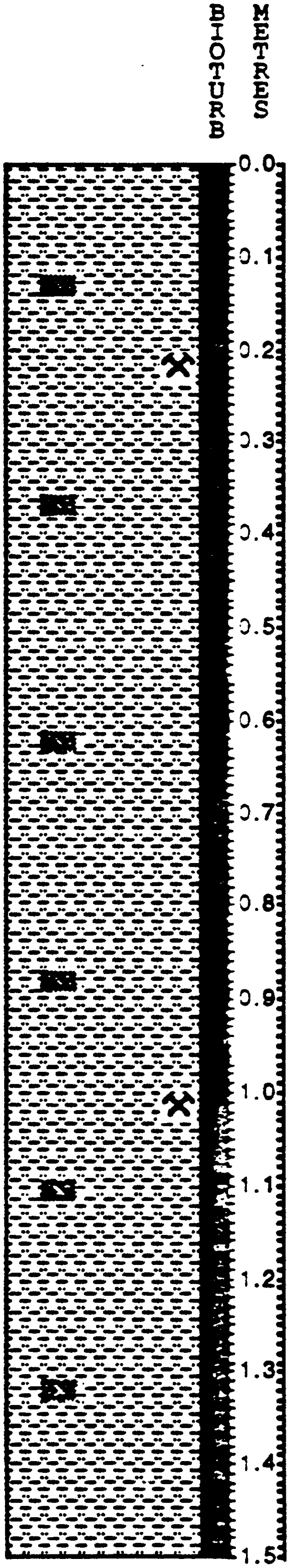
smear slide (200 cm)
clay - C
detrital grains - C
spicules - R
diatom frags - VR
nannos - C to A
CaCO3 frags - A

CLAY (230-253 cm), Grayish olive (10Y 4/2), with faint bedding; microbioturbation common.

Bottom of core = 253 cm

F2-92-P13 Section 1

35° 04.09'N 121° 10.51'W 553m

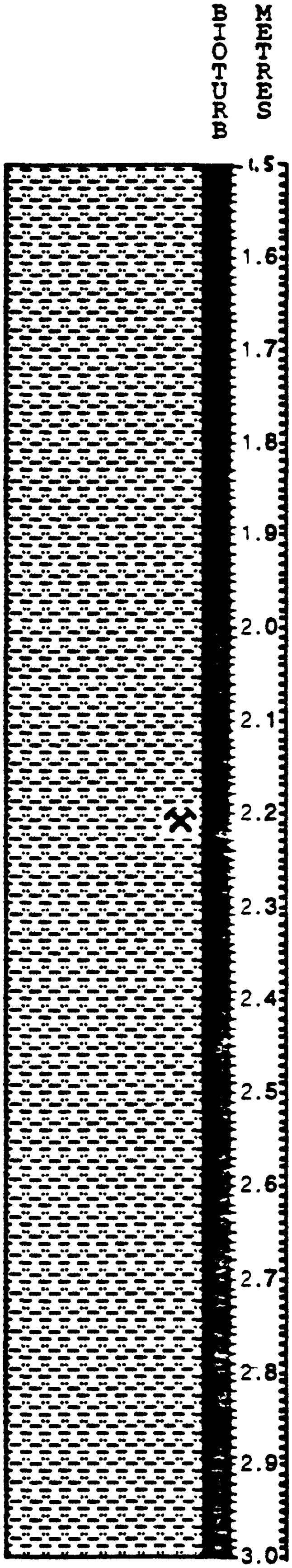


SILTY CLAY (0-150 cm), Grayish olive (10Y 4/2) and Light olive gray (5Y 5/2), homogeneous, bioturbation abundant throughout.

smear slide (20 cm):
clay - Common
detrital grains - Common
spicules - Common
forams - Rare
nannos - Rare

Smear slide (100 cm):
detrital grains - Common
clay - Common
spicules - Rare
nannos - Common

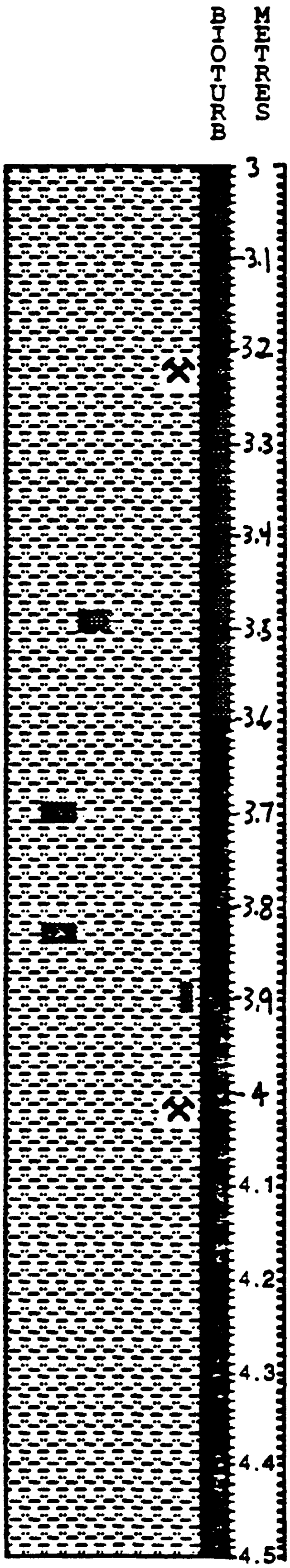
F2-92-P13 Section 2
35° 04.09'N 121° 10.51'W 553m



SILTY CLAY (150-300 cm), with very fine SILT, mottled grayish olive green (5GY 3/2) and dusky yellow green (5GY 5/2); homogeneous; bioturbation abundant.

smear slide (220 cm):
clay - Common
detrital grains - Rare
spicules - Rare
forams - Rare
nannos - Common to Abundant

F2-92-P13 Section 3
35° 04.09'N 121° 10.51'W 553m



SILTY CLAY (300-450 cm), dark greenish gray (5GY 4/1); sand turbidite @ 390 cm and 420 cm; bioturbation common between 300-360 cm and abundant between 360-450 cm. Zone of distinct small burrows between 370-390 cm; large burrows between 420-450 cm.

smear slide (320 cm):
clay - Abundant
detrital grains - Common
spicules - Rare
forams - Rare
nannos - Rare

shell fragment

zone of abundant small burrows between 370-390 cm

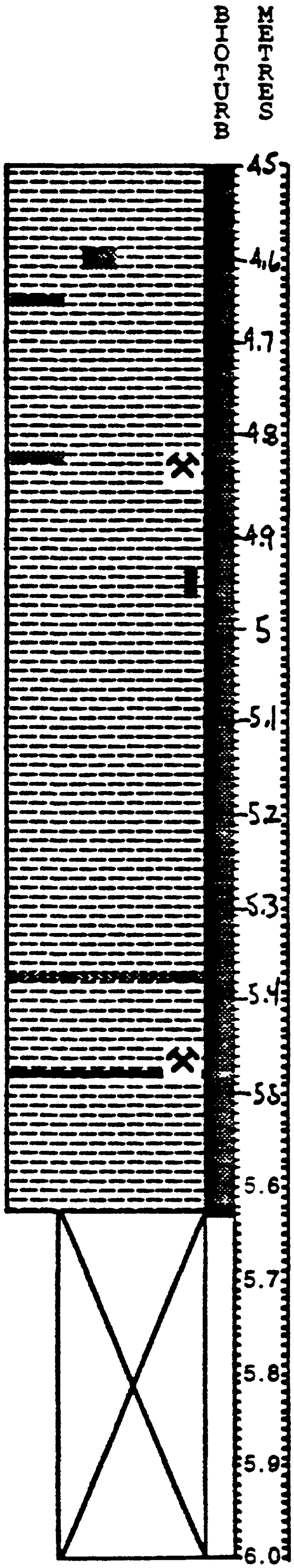
turbidite at 390 cm

smear slide (400 cm):
clay - Abundant
detrital grains - Rare
fish debris - Rare
siliceous picules - Rare
forams - Rare
$CaCO_3$ fragments - Rare
nannos - Rare

large burrows between 420-450 cm

sand-filled burrow @ 440 cm

F2-92-P13 Section 4
35° 04.09'N 121° 10.51'W 553m



CLAY (450-538 cm), grayish olive green (5GY 3/2), silty turbidite layers @ 465 cm and 492 cm. Light gray (N6) silty layers between 474-476 cm and 480-485 cm. Degassing cracks extend from 520 cm to the base of the core. Shell fragments @ 460 cm and 467 cm.

smear slide (482 cm):
clay - Abundant
detrital grains - Rare
volcanic glass - Rare
spicules - Very Rare
forams - Very Rare
nannos - Rare

turbidite @ 492-497 cm

CLAY (538-548 cm), mottled light gray (N6) and grayish olive green (5GY 3/2); strongly bioturbated; bioturbated upper contact, sharp lower contact.

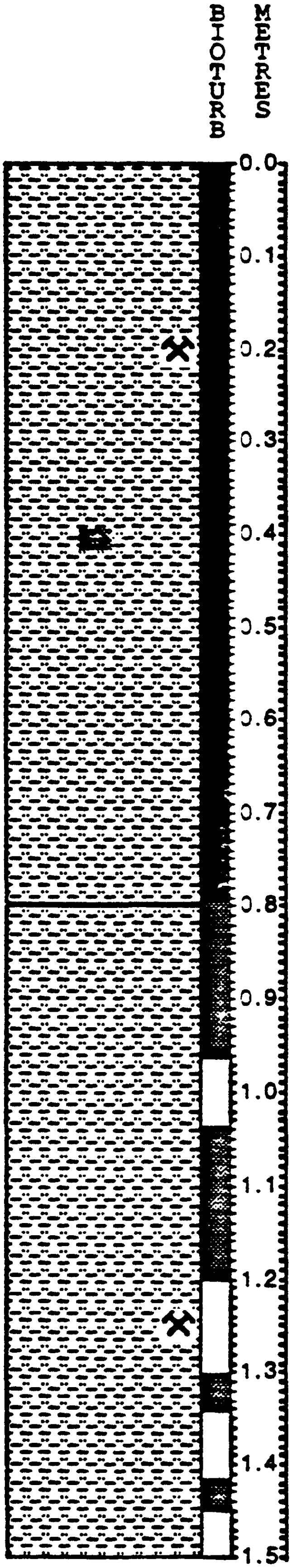
smear slide (545 cm):
clay-A; detrital grains - C; spicules - R; forams - R; nannos - R

CLAY (548-563 cm), grayish olive green (5GY 3/2); massive, bioturbation common; degassing cracks common, 0.5-1.5 cm long.

bottom of core = 563 cm

F2-92-P14 Section 1

35° 04.89'N 121° 17.18'W 630m



SILTY CLAY (0-80 cm), Grayish olive green (5GY 3/2), homogeneous, bioturbation abundant. Shell fragments at 38-40 cm.

smear slide (20 cm):
clay - A
silt - C
forams - R to C
spicules - R
nannos - C

shell fragments

NOTE: Uppermost ~0.5 -1.0 m of sediment LOST during coring.

sharp contact

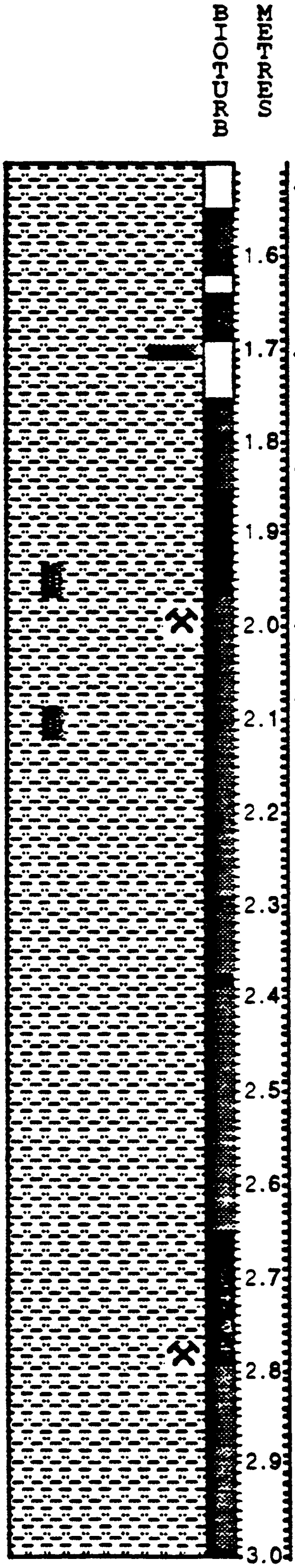
SILTY CLAY (80-150 cm), Grayish olive green (5GY 3/2) in alternating zones of small-burrow bioturbation and massive sediment. Forams (Bolivina) common throughout, abundant btw 105-115 cm. Upper contact sharp.

small burrows 80-96 cm

massive sediment 96-104 cm

smear slide (125 cm):
clay - C
detrital grains - C
nannos - A
CaCO3 frags - C
forams - R
diatoms - VR

F2-92-P14 Section 2
35° 04.89'N 121° 17.18'W 630m



SILTY CLAY (150-167 cm), Grayish olive green (5GY 3/2) and Dusky yellow green (5GY 5/2) in alternating small-burrow bioturbation and massive zones. Gradational lower contact.

SILTY CLAY (167-176 cm), color as above, w/ faint bedding and abundant benthic forams. Gradational lower boundary.

AILTY CLAY (176-304 cm), Grayish olive green (5GY 3/2) and Dusky yellow green (5GY 5/2), bioturbation abundant btw 186-197 cm, 237-240 cm, and 265-280 cm; bioturbation otherwise common. Upper contact gradational, other contacts bioturbated.

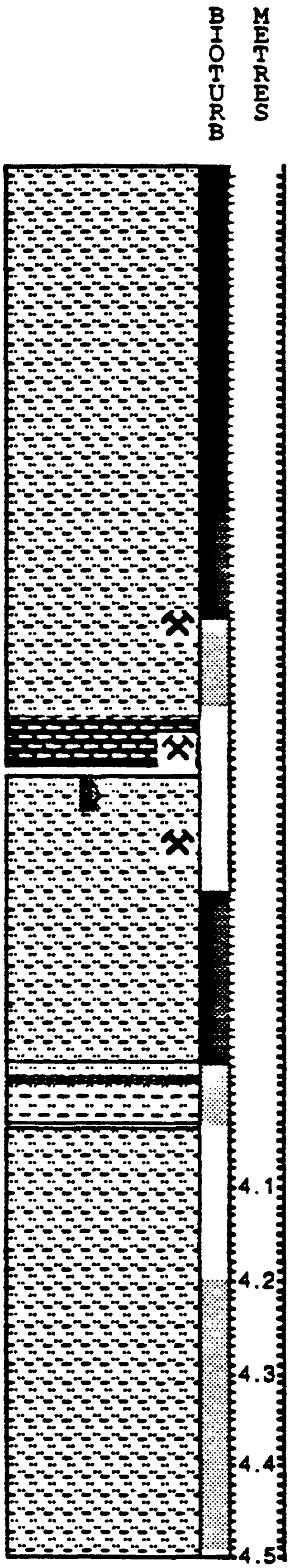
smear slide (200 cm):
clay - C
detrital grains - C
spicules - R
forams - C
CaCO3 frags - R
nannos - R

forams abundant btw 195-210 cm

smear slide (278 cm):
clay - A
detrital grains - C
spicules - C
diatoms - R
radiolarians - R
forams - C
nannons - A

bottom of SECTION 2 = 304 cm

F2-92-P14 Section 3
35° 04.89'N 121° 17.18'W 630m



top of section 3 = 304 cm

CLAYEY SILT, Dark greenish gray (5GY 3/2), with 2 cycles of laminae/strong bioturbation. Distinct laminae @ 360-365 cm; fainter mm-scale laminae @ 398-403 cm. Massive, unbioturbated units @ 365-378 cm and 410-420 cm.

small-scale bioturbation

smear slide (350 cm): clay - A; detrital grains - R; diatom frags - C; radiolarians - R; nannos - C; forams - R

faint bedding

smear slide (363 cm): clay - C; detrital grains - R; diatoms - C; forams - R; radiolarians - R; nannos - R

laminae 1-2 mm; abundant forams

foram-rich layer at base of laminae @ 365.5-367 cm

smear slide (373 cm): clay - A; detrital grains - C; spicules - R; diatom fragments - R; forams - R; nannos - R; CaCO3 frags - C

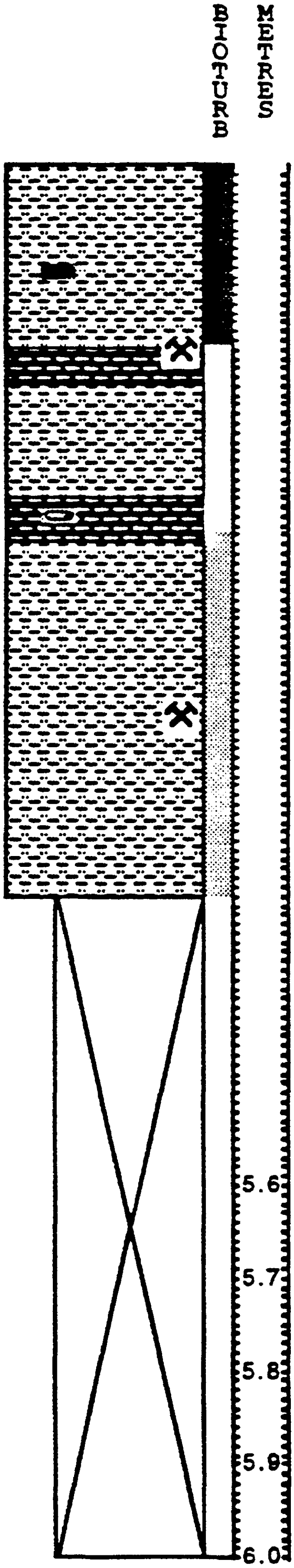
massive, unbioturbated, sharp upper contact with foram layer

mm- to cm-scale faint bedding, abundant forams

unbioturbated, massive, gradational upper contact, bioturbated uneven lower contact

bottom of section 3 = 454 cm

F2-92-P14 Section 4
35° 04.89'N 121° 17.18'W 630m



top of section 4 = 454 cm

SILTY CLAY (454-529 cm), Grayish olive green (5GY 3/2), mm-scale laminae between 470-475 cm and 486-491 cm. Foram-concentrated layer @ 502 cm; foram-rich zone 500-506 cm. Siltier below 502 with rare bioturbation.

large burrow superimposted over taint bedding

smear slide (470 cm): clay - A; diatom frags - R to C; nannos - C

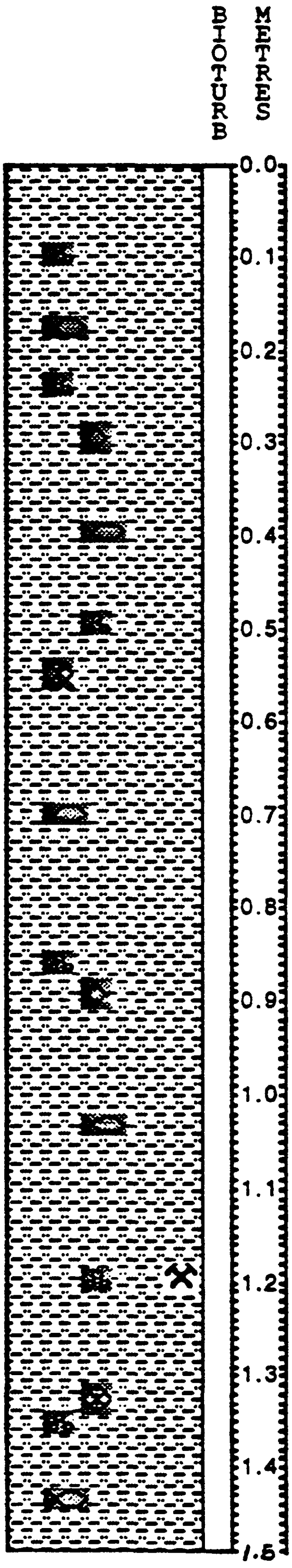
massive, unbioturbated zone

laminae disrupted by large burrow; foram-rich layer at base of laminae.

smear slide (510 cm): clay - A; detrital grains - C to A; diatoms + fragments - R to C; CaCO3 frags - R; nannos - R

base of core = 529 cm

F2-92-P15, SECTION 1
34 56.62N, 121 11.08W, 585 m

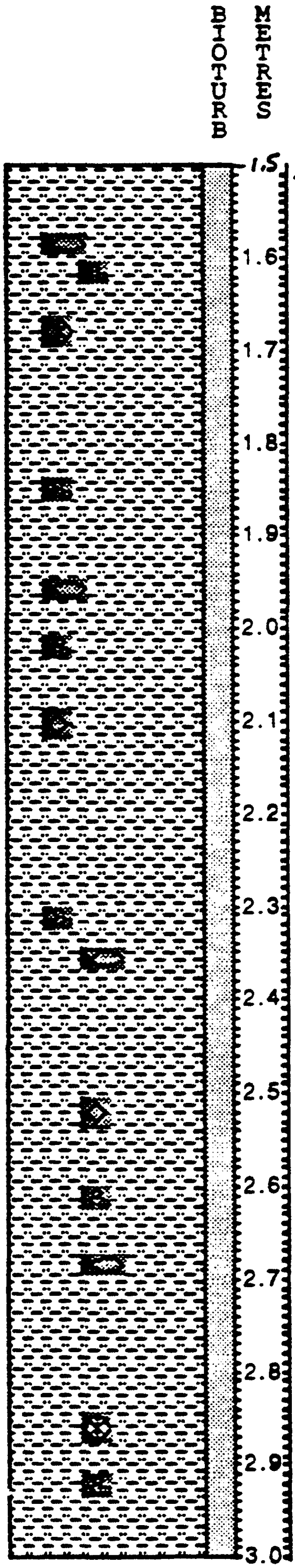


SILTY CLAY, olive gray (5Y3/2); homogeneous; strongly deformed between 60 and 120 cm where core liner imploded

NOTE: This section contains only an archive half due to disturbance by implosion during the coring operation

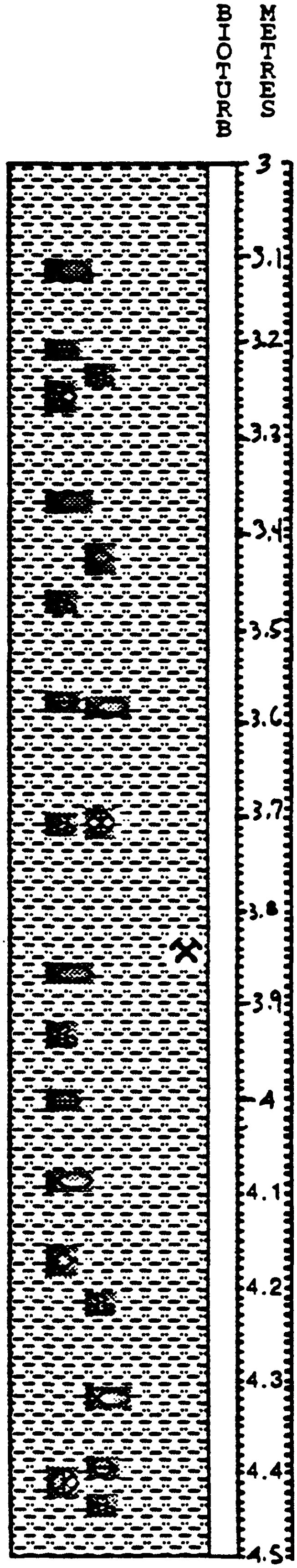
Smear slide, 118 cm:
Clay, dominant
Siliceous spines, common
Fish debris, common
Forams, common
Quartz grains, silt-size, subangular to angular, common
Nannos, common
Carbonate grains (recrystallized), common
Rads and diatoms, rare

F2-92-P15, SECTION 2
34 56.62N, 121 11.08 W, 585 m



SILTY CLAY, grayish olive (10Y4/2); homogeneous

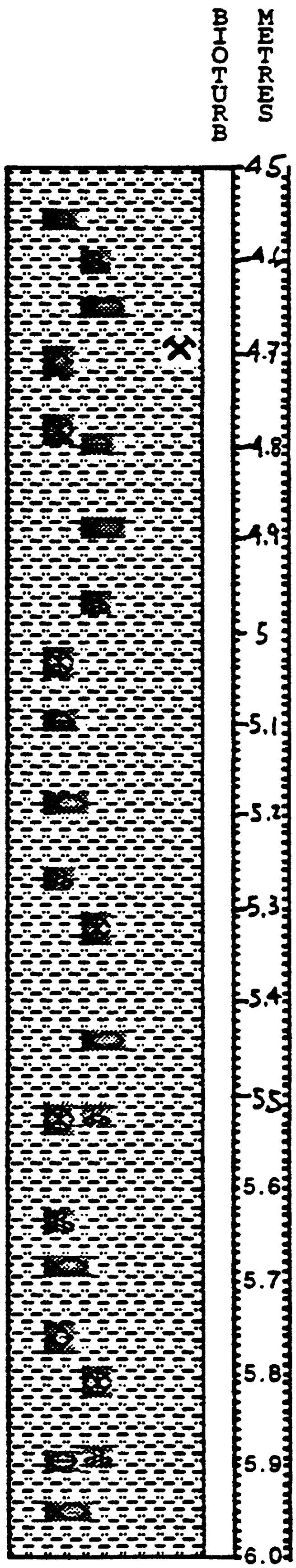
F2-92-P15, SECTION 3
34 56.62 N, 121 11.08 W, 585 m



SILTY CLAY, grayish olive (10Y4/2); homogeneous; shell fragments scattered throughout

Smear slide, 838 cm:
Clay, dominant
Fish debris, common
Forams, common
Carbonate fragments (recrystallized), common
Quartz grains, silt-size, angular to subangular, common
Diatoms, Nannos, and Rads, rare

F2-92-P15, SECTION 4
34 56.62 N, 121 11.08 W, 585 m

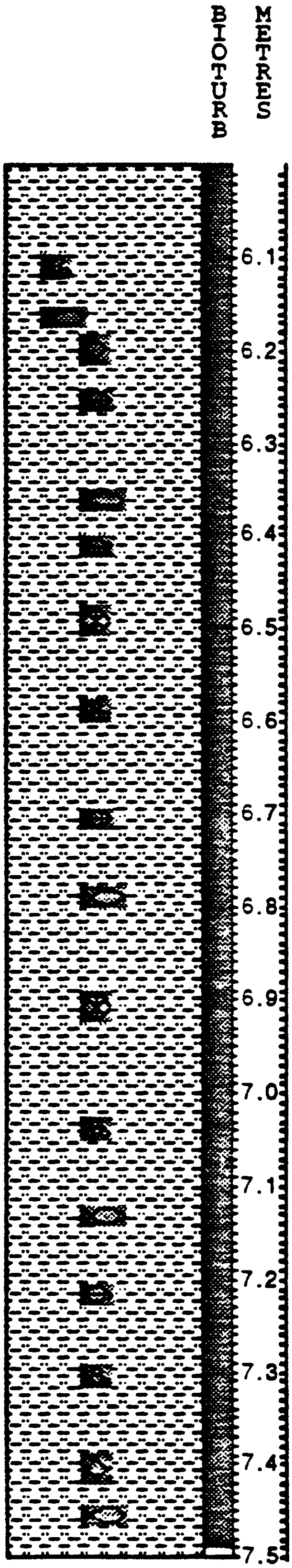


SILTY CLAY, grayish olive (10Y4/2); homogeneous; shell fragments scattered throughout

Smear slide, 469 cm:
Clay, dominant
Quartz grains, silt-size, angular to subangular, abundant
Carbonate fragments (recrystallized), common
Fish debris, common
Siliceous spines, common
Diatoms, common
Rads, rare

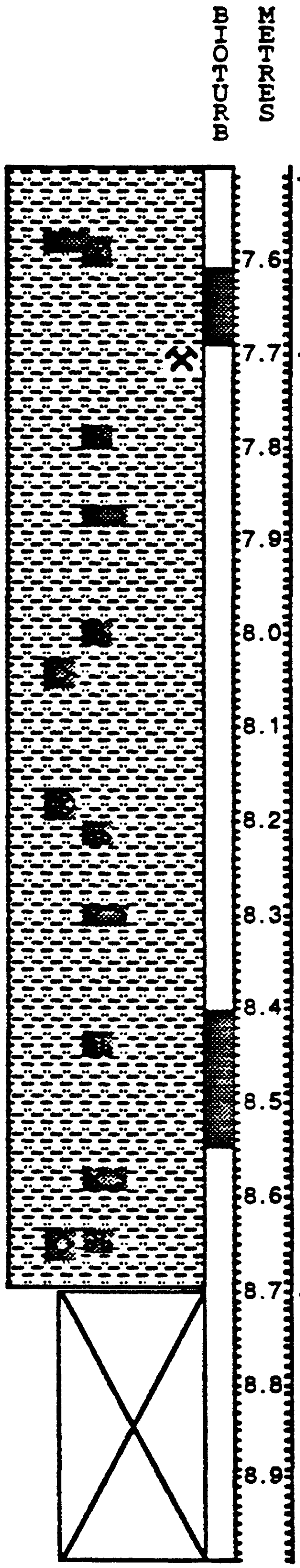
Section 4A/B join

F2-92-P15, SECTION 5
34 56.62 N, 121 11.08 W, 585 m



SILTY CLAY, grayish olive (10Y4/2); homogeneous

F2-92-P15, SECTION 6
34 56.62 N, 121 11.08 W, 585 m

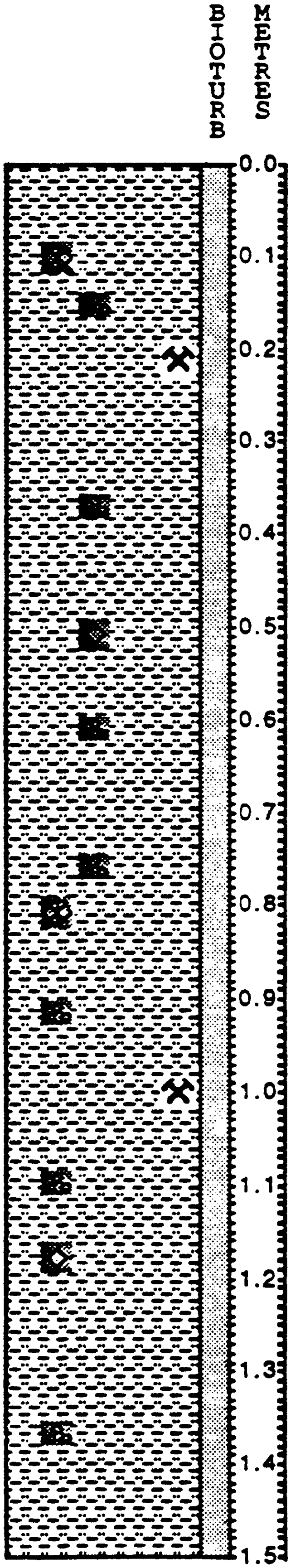


SILTY CLAY, grayish olive (10Y4/2); homogeneous

Smear slide, 770 cm:
Clay, dominant
Siliceous spines, common
Quartz grains, silt-size, angular to subangular, commn
Carbonate fragments (recrystallized), common
Fish debris, common
Nannos, Forams, Diatoms, and Rads, rare

870 cm = bottom of core

F2-92-P16, SECTION 1
34 52.13N, 121 10.84W, 580 m

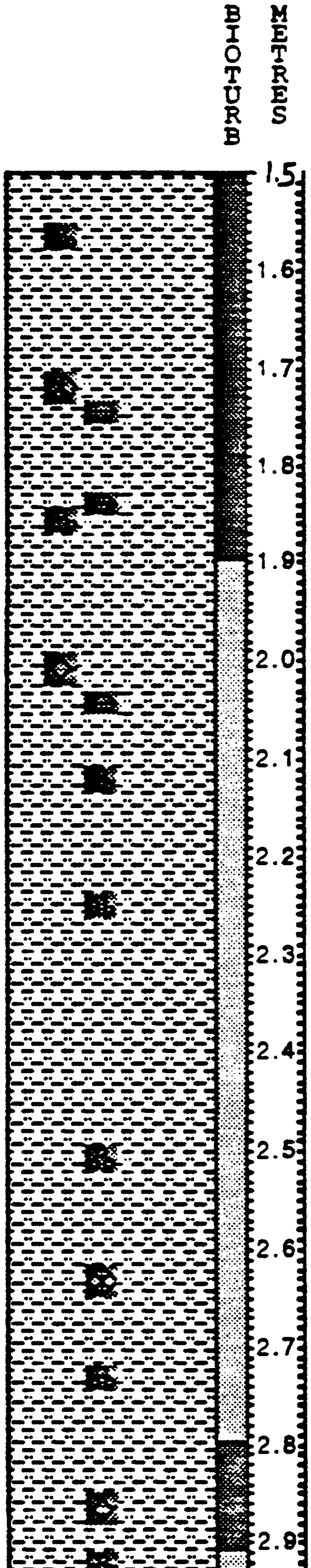


SILTY CLAY, olive gray (5Y3/2) at top grading to dark olive brown (5Y3/4) at base

Smear slide, 20 cm:
Clay, abundant
Quartz grains, silt-size, angular to subangular, common
Nannos, Forams, Diatoms, and Rads, rare

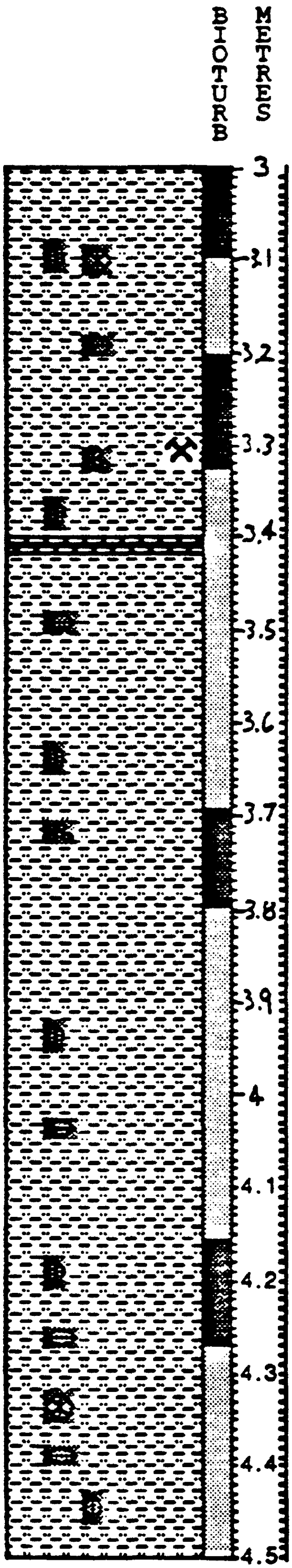
Smear slide, 99 cm:
Clay, abundant
Forams, common
Siliceous spicules, common
Nannos, common
Diatoms and Rads, rare

F2-92-P16, SECTION 2
34 52.13N, 121 10.84 W, 580 m



SILTY CLAY, grayish olive (10Y4/2); shell fragments scattered throughout

F2-92-P16, SECTION 3
34 52.13 N1, 121 10.84 W, 580 m



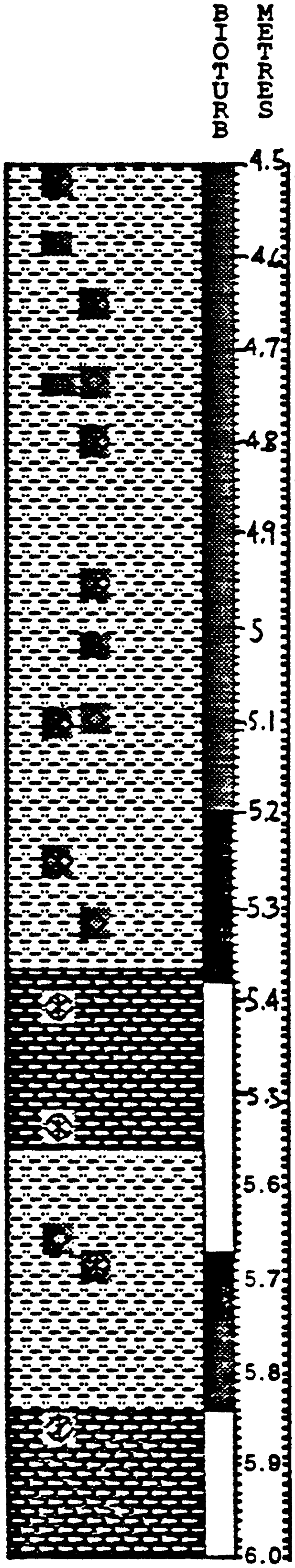
SILTY CLAY, grayish olive (10Y4/2); homogeneous where not burrowed; shell fragments scattered throughout

Smear slide, 330 cm:
Clay, abundant
Siliceous spicules, common
Nannos, common
Forams, common (large benthic Forams)
Diatoms, rare

laminations

Section 3A/B join

F2-92-P16, SECTION 4
34 52.13 N, 121 10.84 W, 580 m



SILTY CLAY, grayish olive (10Y4/2); cycles of massive to laminated to bioturbated sediment with gradational contacts between cycles

Large burrow, 485-506 cm

heavily bioturbated, 520-537 cm

Laminated, 538-556 cm

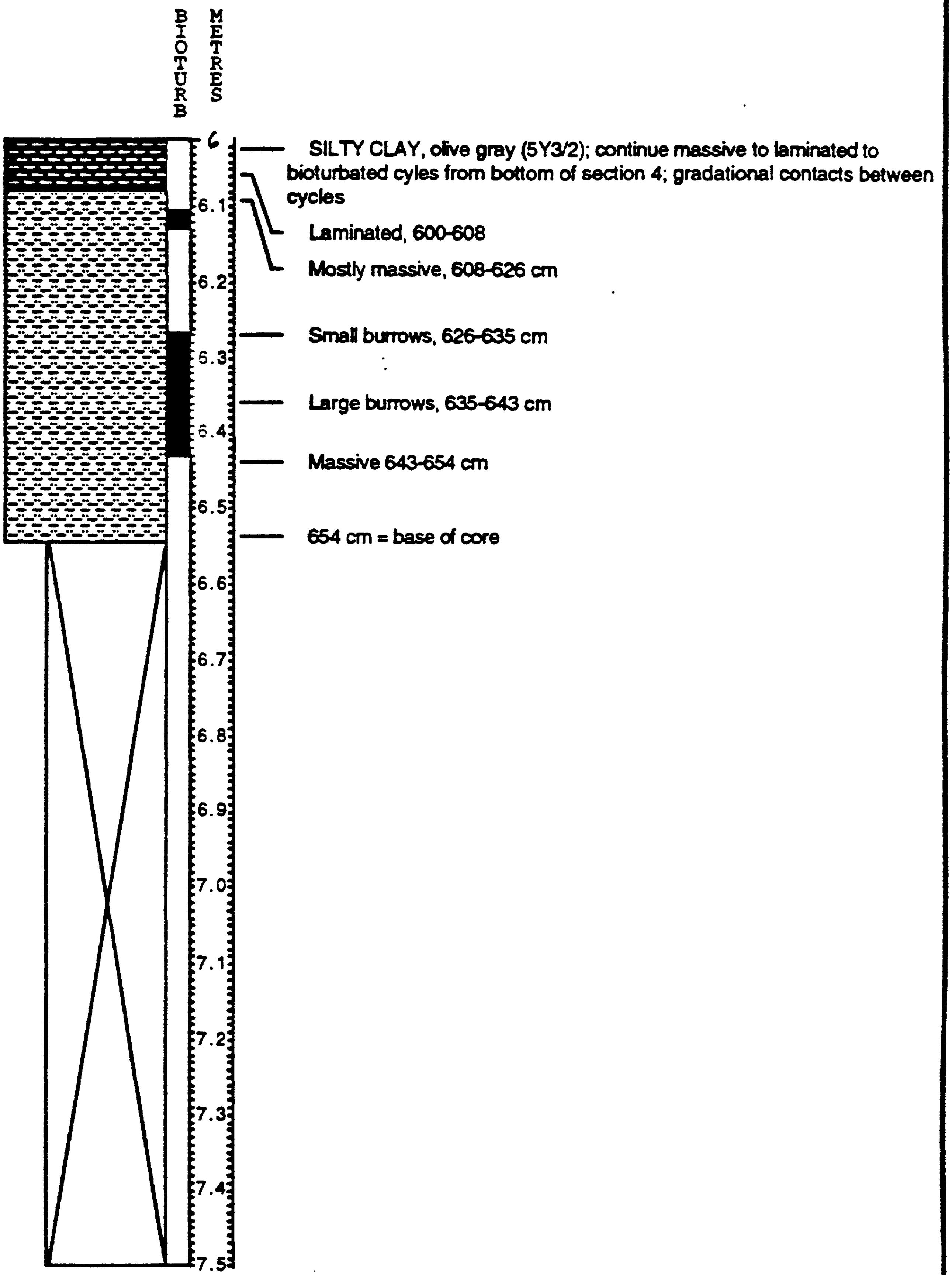
Smear slide, 551 cm:
Clay, abundant
Diatoms, abundant and well preserved
Quartz grains, angular, common
Nannos and Rads, common

Massive, 556-567 cm

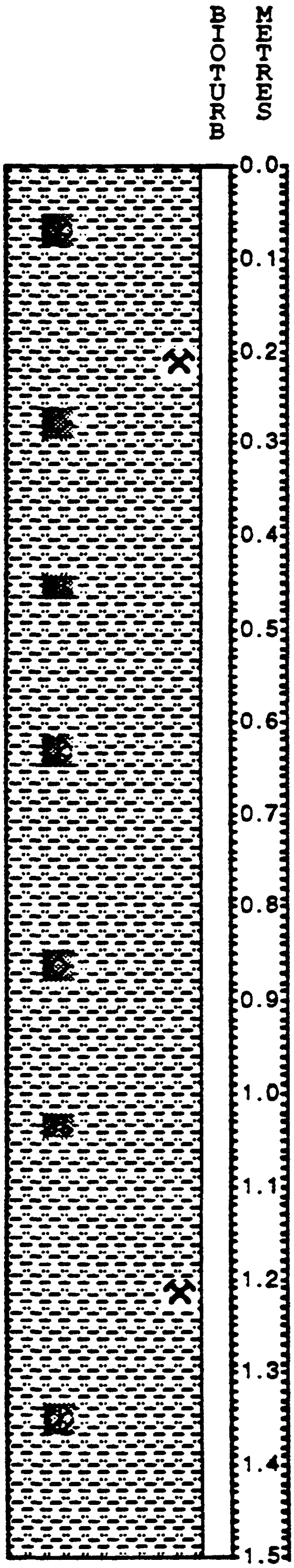
Heavily bioturbated, 567-575 cm

Smear slide, 571 cm:
Clay, abundant
Diatoms, abundant but poorly preserved
Siliceous spicules, abundant
Quartz grains, angular, common
Carbonate fragments, common
Forams and Rads, rare

F2-92-P16, SECTION 5
34 52.13N, 121 10.84W, 580 m



F2-92-P17, SECTION 1
34 06.99N, 121 06.99W, 564 m

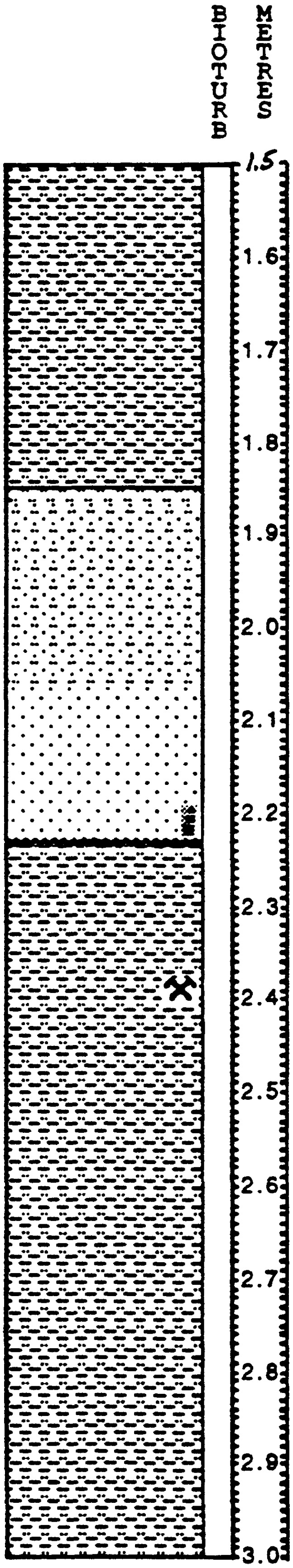


SILTY CLAY, dark grayish olive (10Y3/2); homogeneous to slightly mottled

Smear slide, 20 cm:
Clay, dominant
Quartz grains, common, angular
Carbonate fragments, common
Forams, common
Nannos and diatoms, rare

Smear slide, 120 cm:
Clay, dominant
Quartz grains, abundant; subangular
Nannos, forams, diatoms, and rads, rare

F2-92-P17, SECTION 2
34 49.52N, 121 06.99W, 564 m



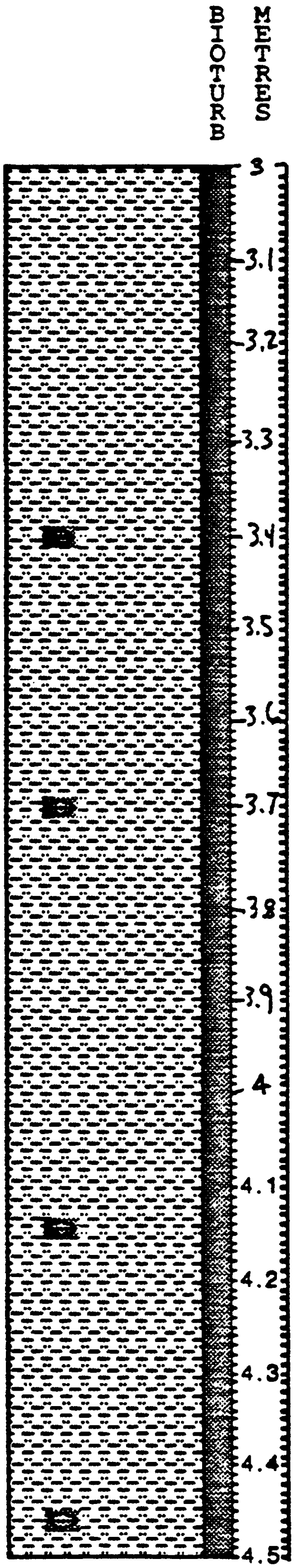
silty clay

SILTY CLAY (223-300 cm) WITH SAND TURBIDITE (150-223 cm), grayish olive (10Y4/2); homogeneous

fine sand

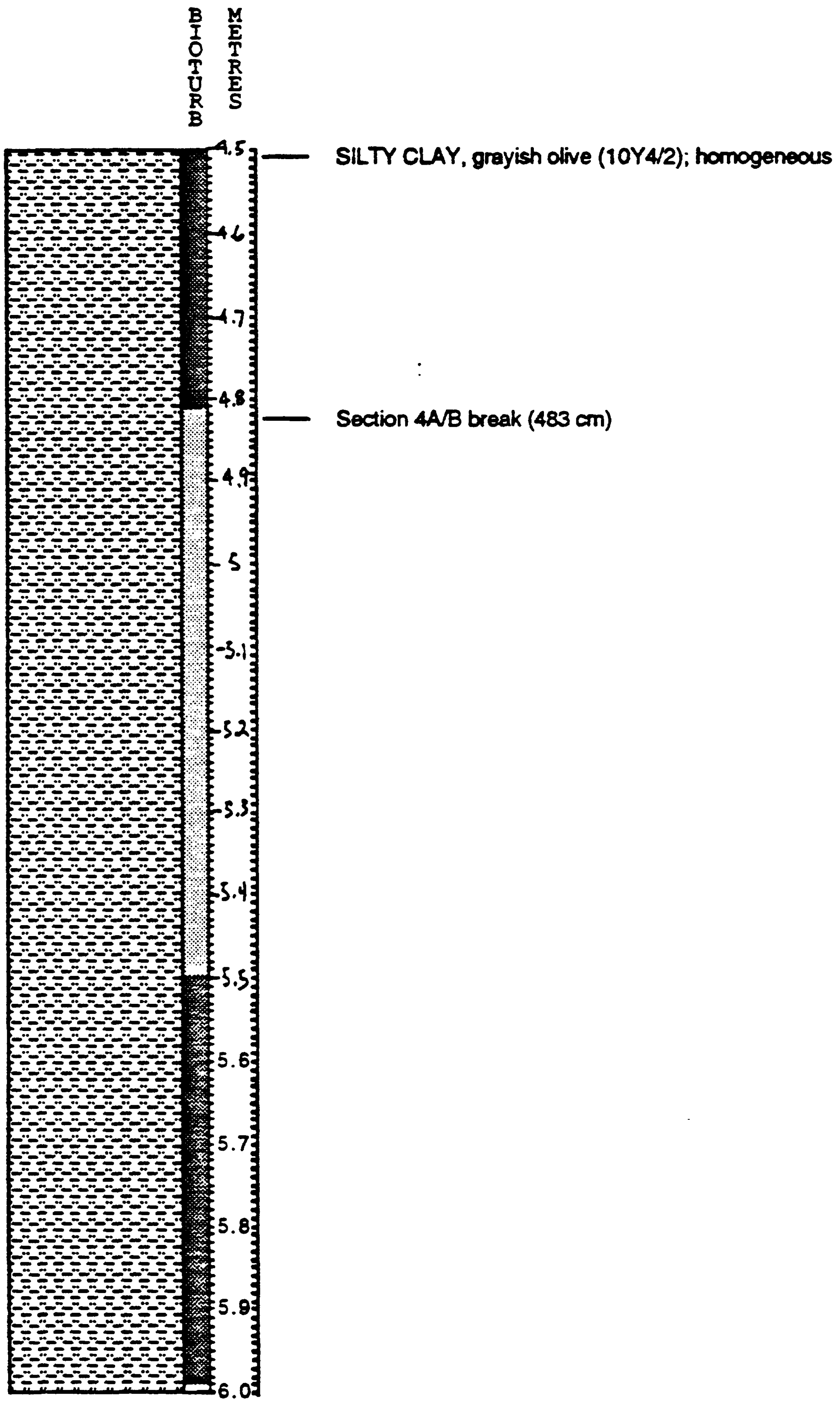
Smear slide, 238 cm

F2-92-P17, SECTION 3
34 49.52, 121 06.99W, 564 m

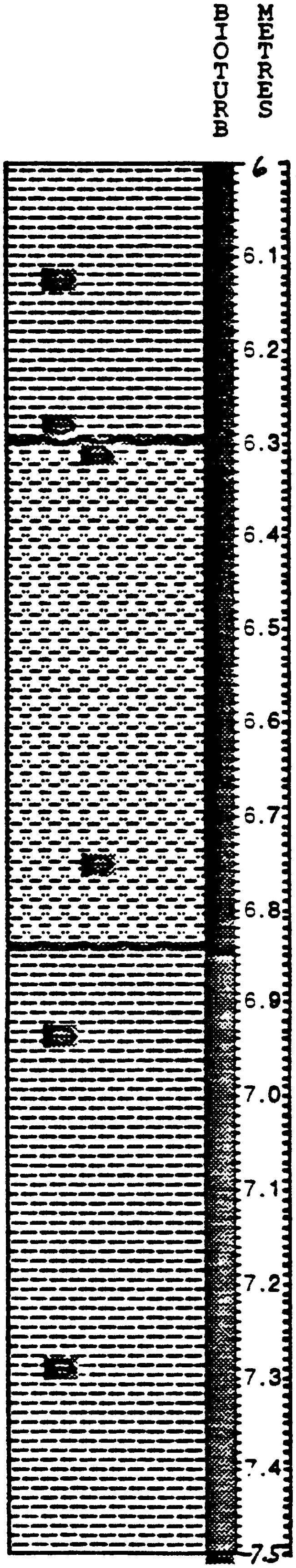


SILTY CLAY, grayish olive (10Y4/2); homogeneous; shell fragments throughout, with several articulated clams

F2-92-P17, SECTION 4
34 49.52N, 121 06.99W, 564 m



F2-92-P17, SECTION 5
34 49.52N, 121 06.99W, 564 m

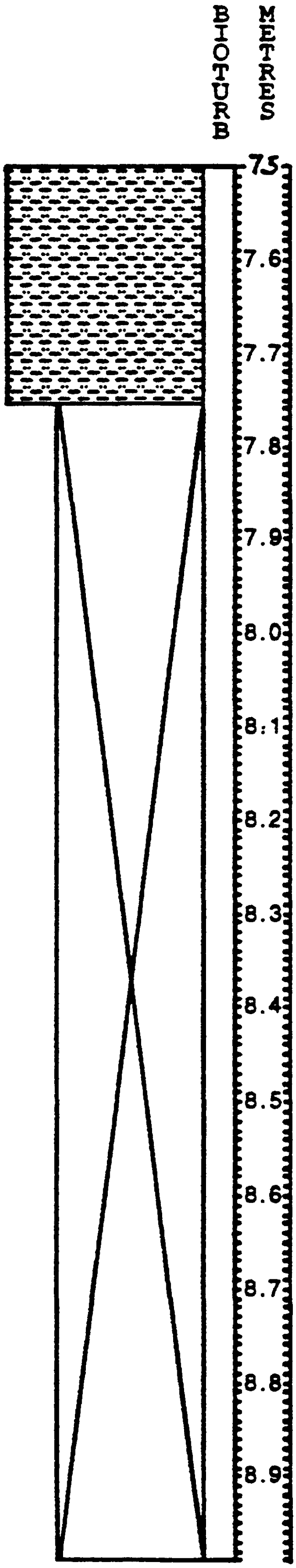


CLAY, grayish olive (10Y4/2)

SILTY CLAY, grayishg olive (10Y4/2)

CLAY, grayish olive (10Y4/2)

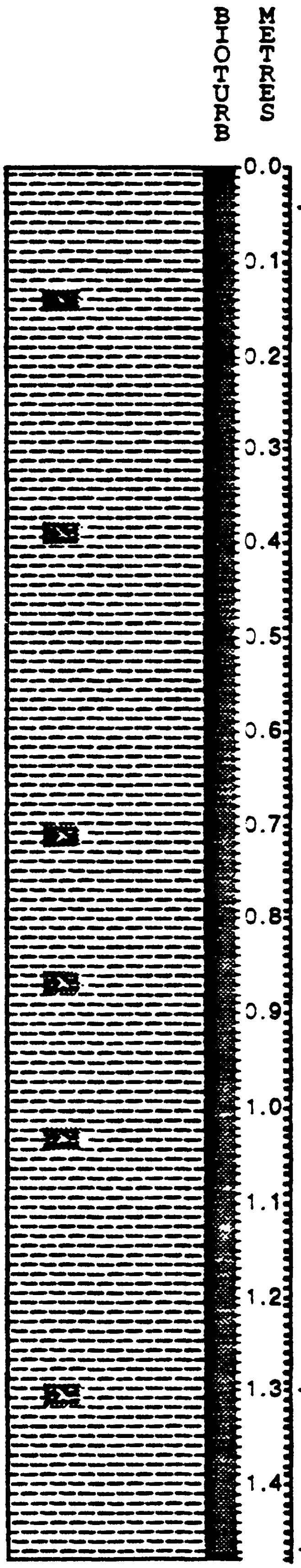
F2-92-P17, SECTION 6
34 49.52N, 121 06.99W, 564 m



SILTY CLAY, grayish olive (10Y4/2); homogeneous; hints of vertical bedding (flow-in?)

776 cm = bottom of core

F2-92-P19 Section 1
34° 35.16'N 121° 07.50'W 850m



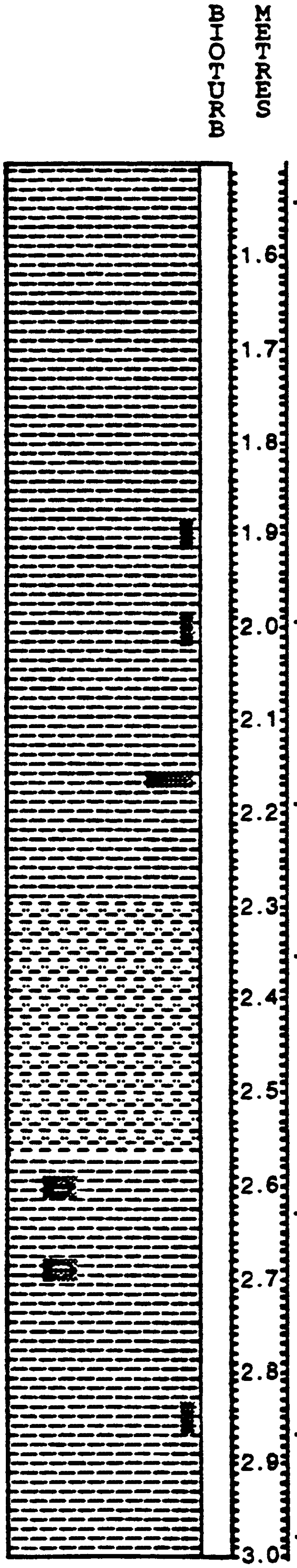
CLAY (0-148 cm), Grayish olive (10Y 4/2), homogeneous, common bioturbation. Evidence of shallow bioturbation -- no large burrow structure.

small burrows

bottom of SECTION 1 = 148 cm

F2-92-P19 Section 2

34° 35.16'N 121° 07.50'W 850m



SECTION 2 = 148-298 cm

CLAY (148-230 cm), Grayish olive (10Y 4/2), homogeneous, common bioturbation. Large turbidite between 190-204 cm (Medium dark gray (N4)). Shell fragment @ 158 cm.
Faint horizontal cm-scale bedding btw 210-217 cm.

turbidite btw 190-204 cm

faint cm-scale horizontal bedding

SILTY CLAY (230-257 cm), Grayish olive (10Y 4/2) and Medium dark gray (N4), mottled, common bioturbation.

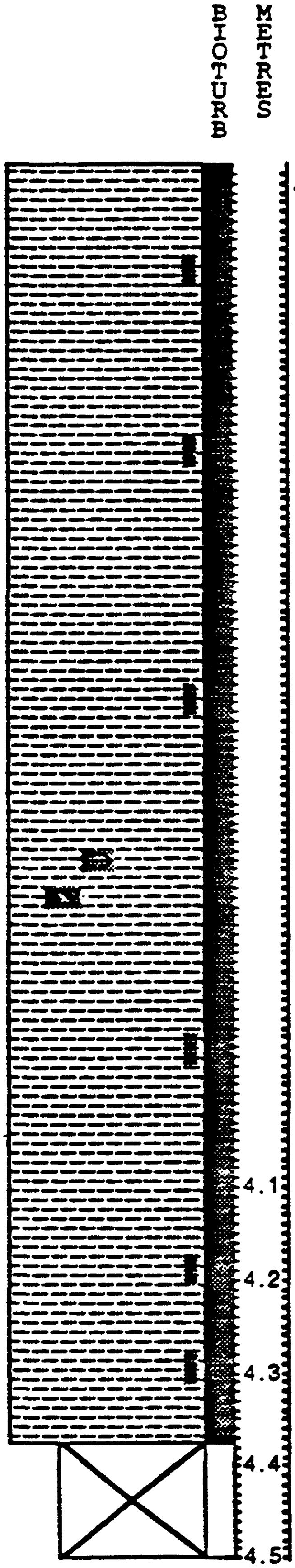
CLAY (257-298 cm), Grayish olive (10Y 4/2) with minor Medium dark gray (N4) silt layers; turbidites between 290-298 cm; common bioturbation. Shell fragment @ 261 cm and 269 cm.

turbidites btw 290-298 cm

bottom of SECTION 2 = 298 cm

F2-92-P19 Section 3

34° 35.16'N 121° 07.50'W 850m



SECTION 3 = 298-438 cm

CLAY, Grayish olive (10Y 4/2) with numerous cm-scale sand beds (possibly turbidites). Sand, fine grained, Olive gray (5Y 3/2).

bedded sand and sand pockets btw 317-333 cm

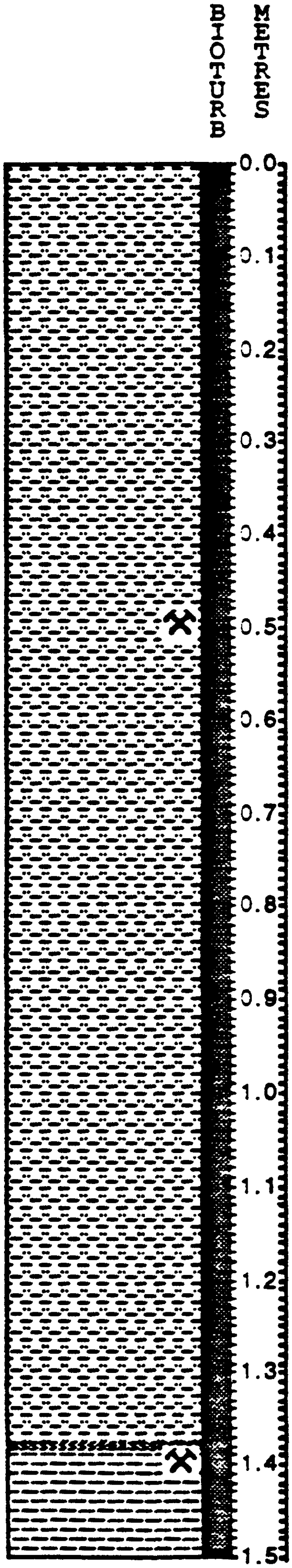
sand layer with shell lag

sand bed

sand bed

bottom of core = 438 cm

F2-92-P20 Section 1
34° 15.14'N 120° 49.99'W 815m



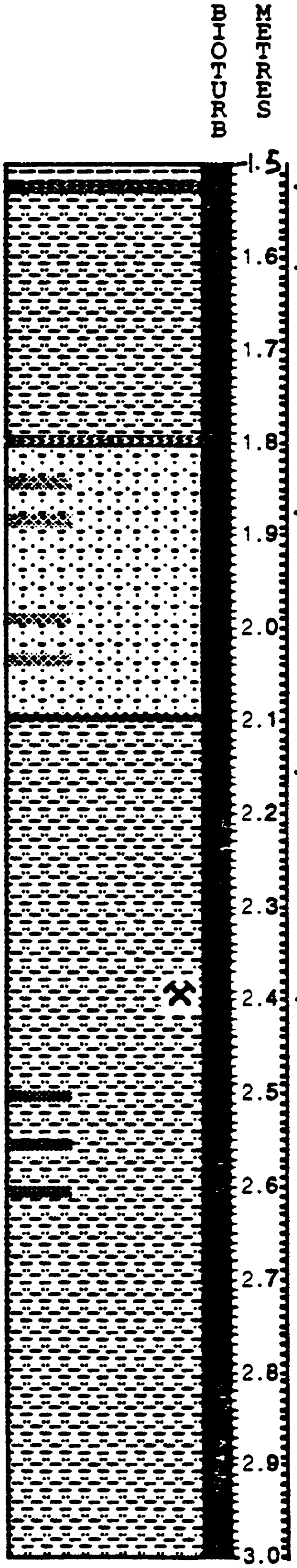
SILTY CLAY (0-138 cm), Grayish olive (10Y 4/2) with common horizontal burrows; unconsolidated between 0-40 cm. Possible faint cm-scale bedding, but definitely bioturbated throughout; lower contact bioturbated.

smear slide (50 cm):
clay - A
forams - R
diatom frags - R
spicules - R
nannos - C to A

contact irregular and bioturbated @ 138 cm

CLAY (138-150 CM), Light olive gray (5Y 5/2), distinct small burrows from 146-150 cm (extends to 152 cm).
smear slide (140 cm): clay - A; detrital grains - R; spicules - R; CaCO3 frags - R; nannos - C

F2-92-P20 Section 2
34° 15.14'N 120° 49.99'W 815m



CLAY (150-152 cm), Light olive gray (5Y 5/2) with small burrows

SECTION 2A = 150-246 cm
SECTION 2B = 246-300 cm

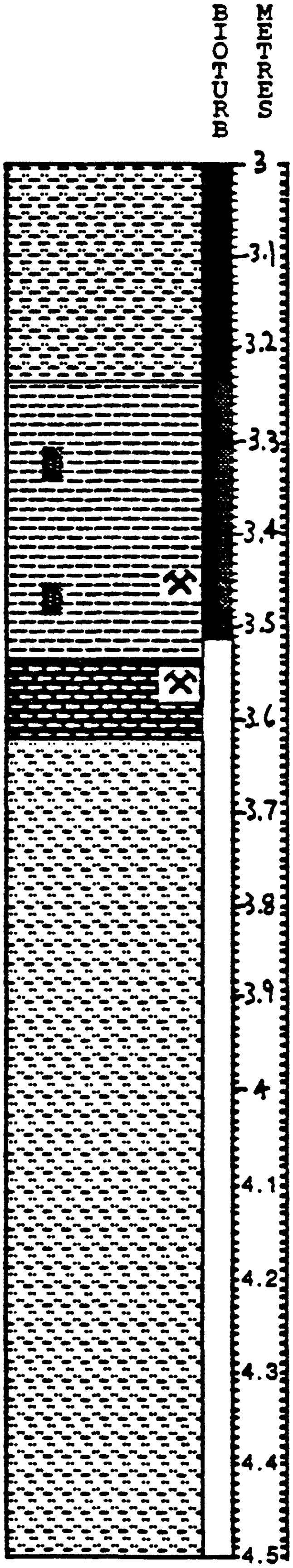
SILTY CLAY (152-180 cm), Grayish olive (10Y 4/2), sand layer @ 175 cm. Bioturbation abundant; bioturbated upper and lower contacts.

CLAYEY FINE SAND (180-210 cm), Grayish olive (10Y 4/2) and Olive gray (5Y 3/2), thoroughly bioturbated. Bioturbation abundant; scoured lower contact.

SILTY CLAY (210-300 cm), Grayish olive (10Y 4/2), sand patches @ 215 cm and 220 cm. Bioturbation abundant. Bioturbated sand layers common between 250-300 cm.

smear slide (240 cm):
clay - A
detrital grains - R
forams - R
diatoms - R
spicules - R
CaCO3 frags - R
nannos - R

F2-92-P20 Section 3
34° 15.14'N 120° 49.99'W 815m



SILTY CLAY (300-324 cm), Grayish olive (10Y 4/2) and Light olive gray (5Y 5/2); abundant bioturbation; strongly mottled.

CLAY (324-362 cm), Grayish olive (10Y 4/2) and Light olive gray (5Y 5/2) with bioturbation cycles. Medium gray (N5) sand turbidites @ 327 cm and 354 cm. Alternating zones of foram-rich sediment with small burrows and massive non-bioturbated sediment between 332 cm and 348 cm; faint bedding btw 349-354 cm; distinct laminations btw 354-360 cm. Gradational lower contact. Sieved for forams @ 346 cm: 95% Bolivina!

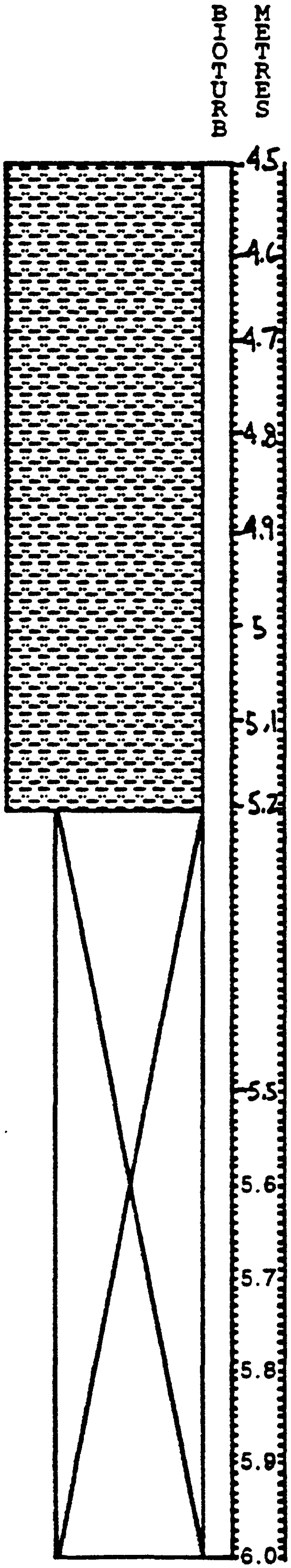
smear slide (356 cm):
clay - A; detrital grains - R; diatoms - C (dominated by Chaetoceros and Thalassionema); forams - R; nannos - R; rad fragments - R to C.

CLAYEY SILT (362-451 cm), Grayish olive (10Y 4/2).
Deformed: Fill-In structures to bottom of core @ 521 cm.

FILL-IN STRUCTURES

bottom of SECTION 3 = 451 cm

F2-92-P20 Section 4
34° 15.14'N 120° 49.99'W 815m

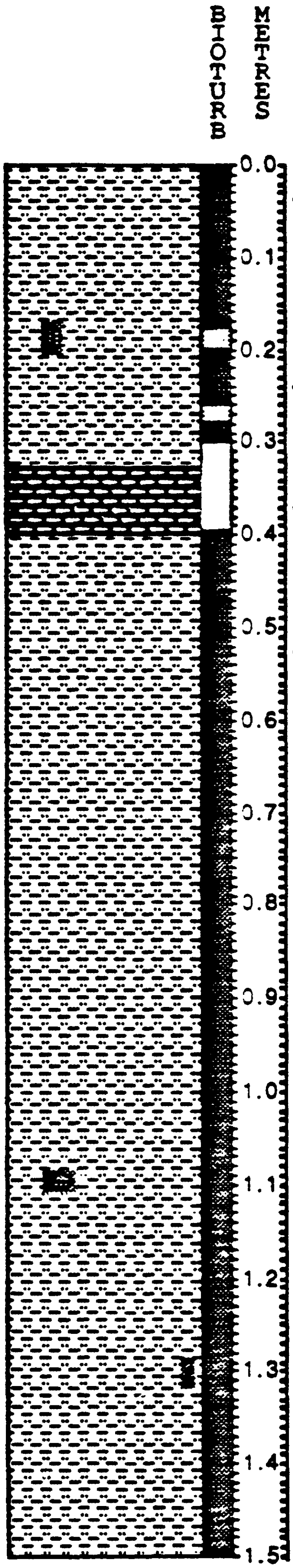


SILTY CLAY (451-521 cm), Grayish olive (10Y 4/2).

DEFORMED: FILL-IN STRUCTURES.

bottom of core = 521 cm

F2-92-P21 Section 1
34° 15.98'N 120° 46.04'W 735m



SILTY CLAY (0-40 cm), Grayish olive (10Y 4/2). Homogeneous with common bioturbation btw 0-18 cm. Foram-rich zones with small burrows @ 18-20 cm, 27-28 cm, and 30-31 cm alternate with mroe strongly bioturbated zones. Distinct mm-scale laminae between 33-40 cm.

foram-rich zones

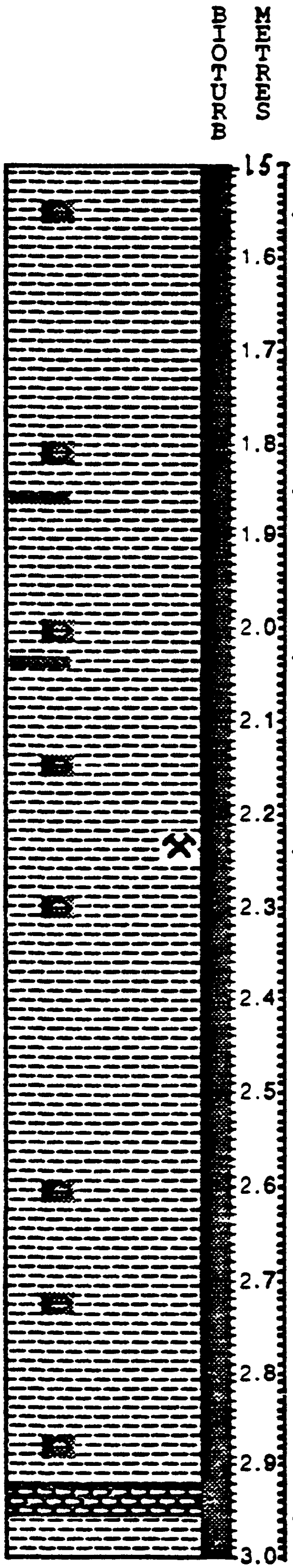
Distinct mm-scale laminae

SILTY CLAY (40-150 cm), Grayish olive (10Y 4/2), homogeneous, common bioturbation. Turbidite @ 130 cm.

shell fragment

turbidite (Medium gray sand (N5))

F2-92-P21 Section 2
34° 15.98'N 120° 46.04'W 735m



CLAY, Grayish olive (10Y 4/2) with small lenses of fine sand (Olive gray (5Y 3/2)). Narrow, short horizontal burrows throughout.

Section of thin laminae between 292-296 cm.

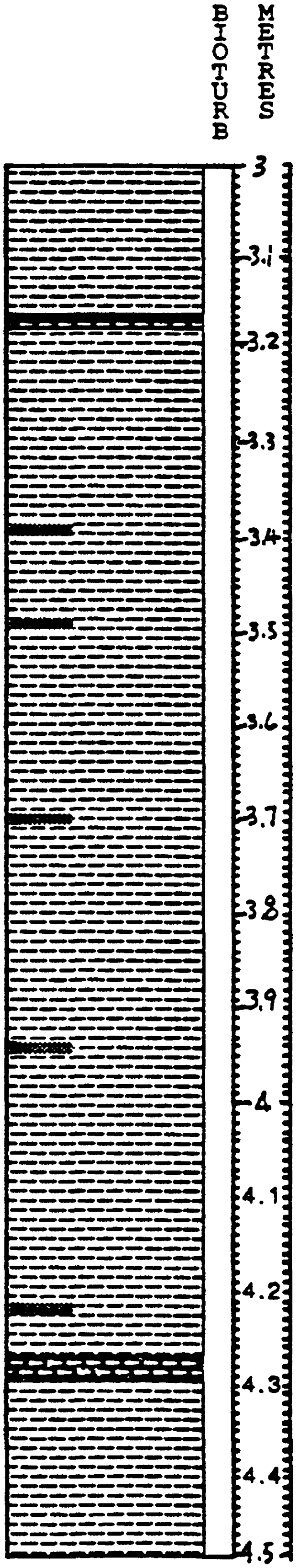
lenses of fine sand

lenses of fine sand

smear slide (224 cm):

zone of narrow laminae

F2-92-P21 Section 3
34° 15.98'N 120° 46.04'W 735m

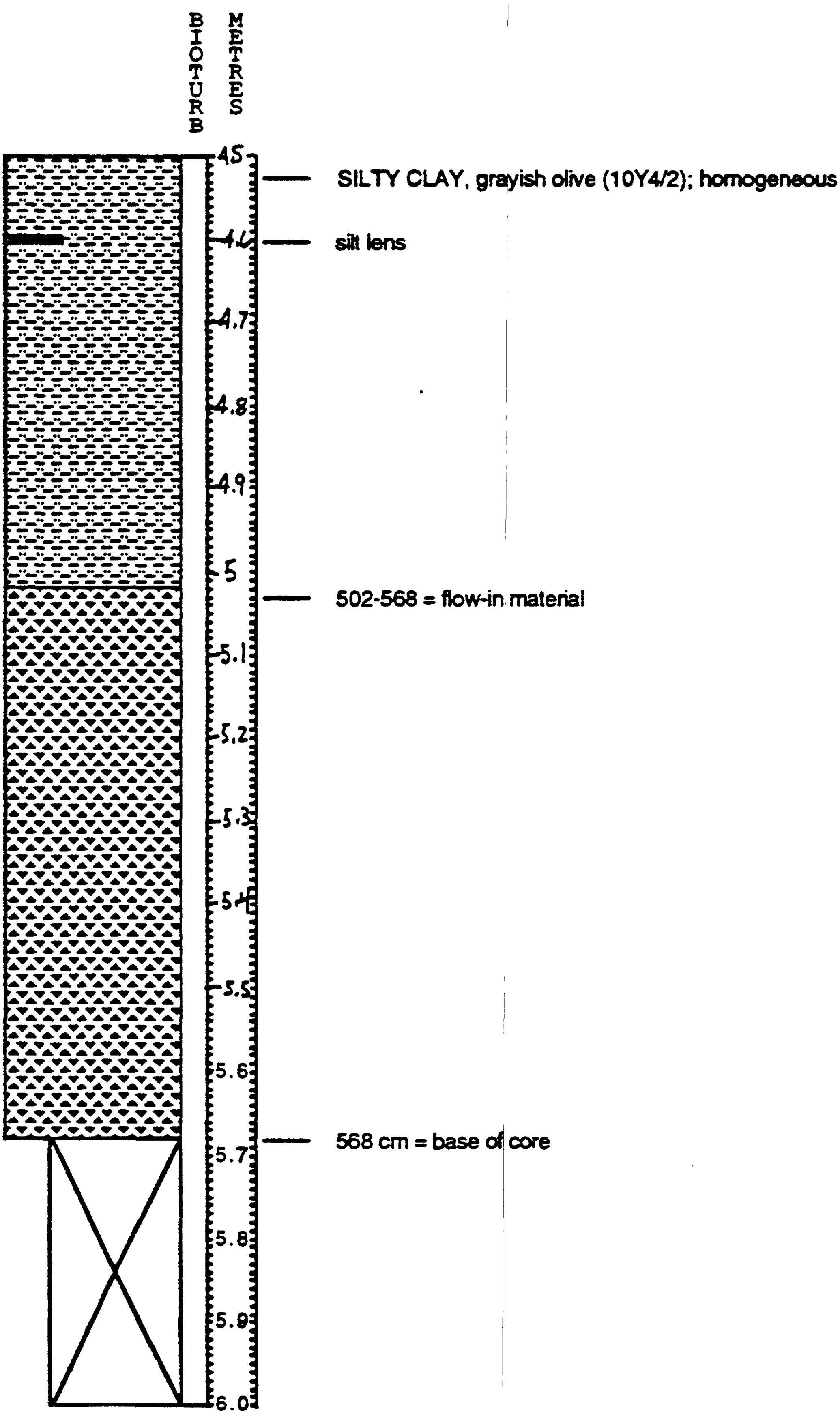


CLAY, grayish olive (10Y4/2); fairly homogeneous with shallow bioturbation throughout and several thin laminated sones; several medium gray (N5) sand stringers and pockets throughout

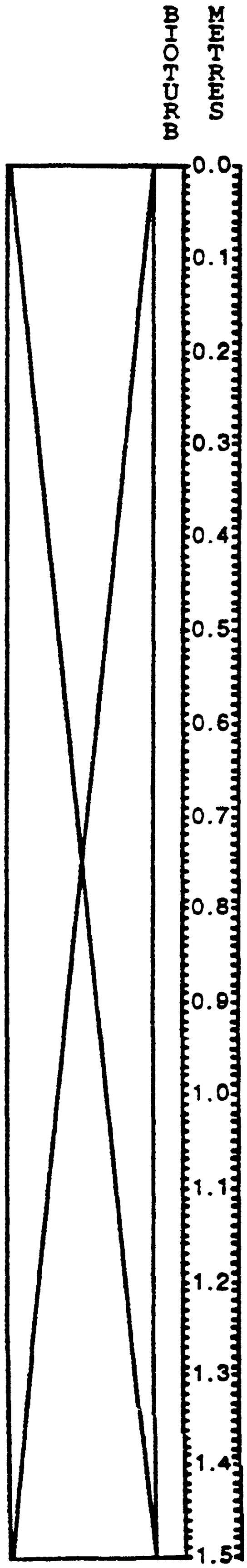
316 cm, faint laminations

427-429, faint laminations

F2-92-P21 Section 4
34° 15.98'N 120° 46.04'W 735m

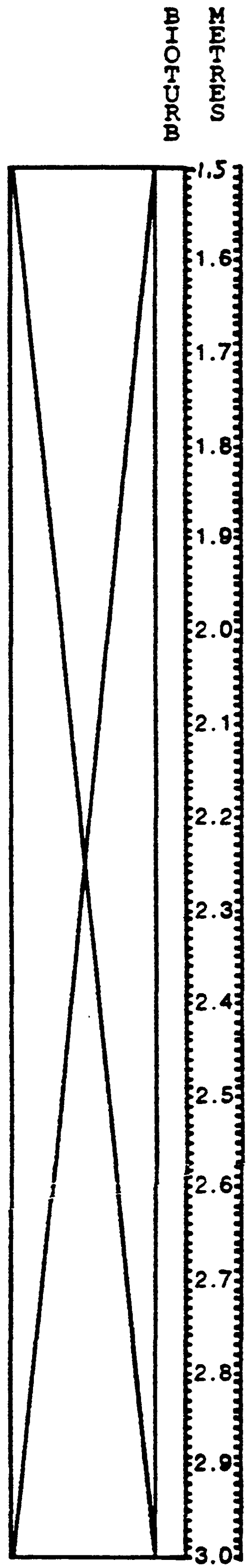


F2-92-P22, SECTION 1
34° 17.32', 120° 43.82', 675 m



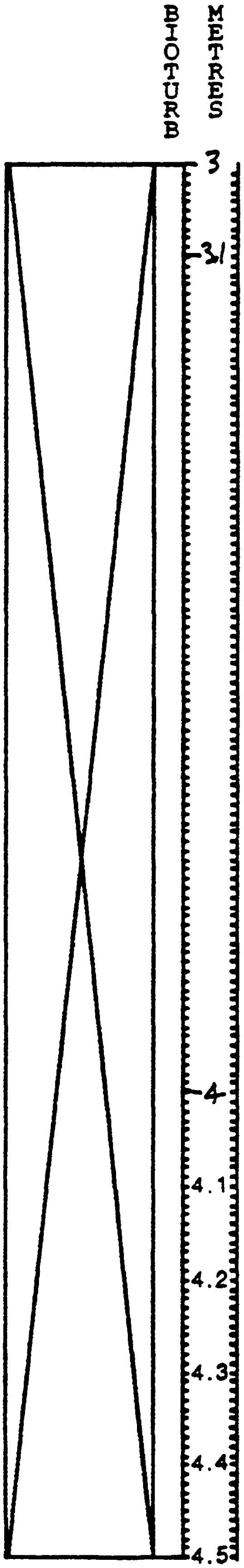
SECTION NOT SPLIT DUE TO IMPLOSION OF LINER

F2-92-P22, SECTION 2
34° 17.32' N, 120° 43.82' W, 675 m



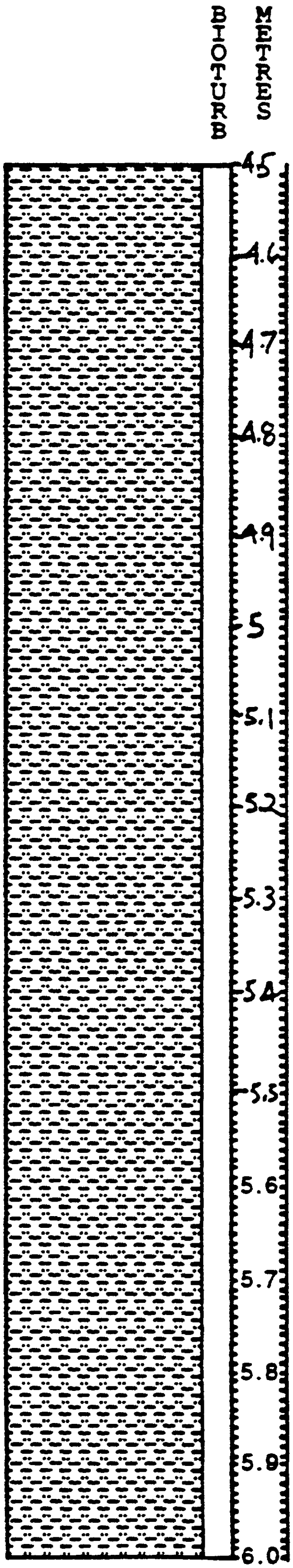
SECTION NOT SPLIT DUE TO IMPLOSION OF LINER

F2-92-P22, SECTION 3
34° 17.32' N, 120° 43.82' W, 675 m



SECTION NOT SPLIT DUE TO IMPLOSION OF LINER

F2-92-P22, SECTION 4
34° 17.32' N, 120° 43.82' W, 675 m

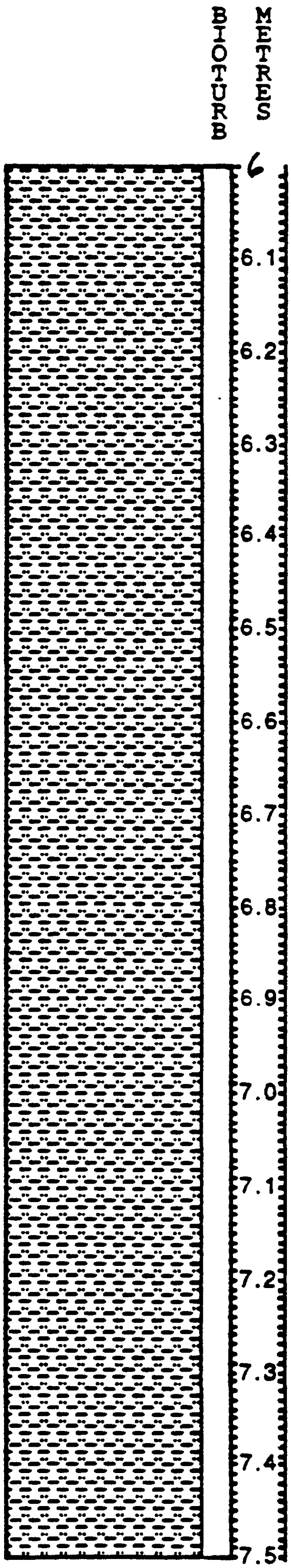


SILTY CLAY, dark grayish olive (10Y3/2); homogeneous except for several darker silt layers

466-474, silt layers

A/B 510 cm = join between Sect. 4A/B

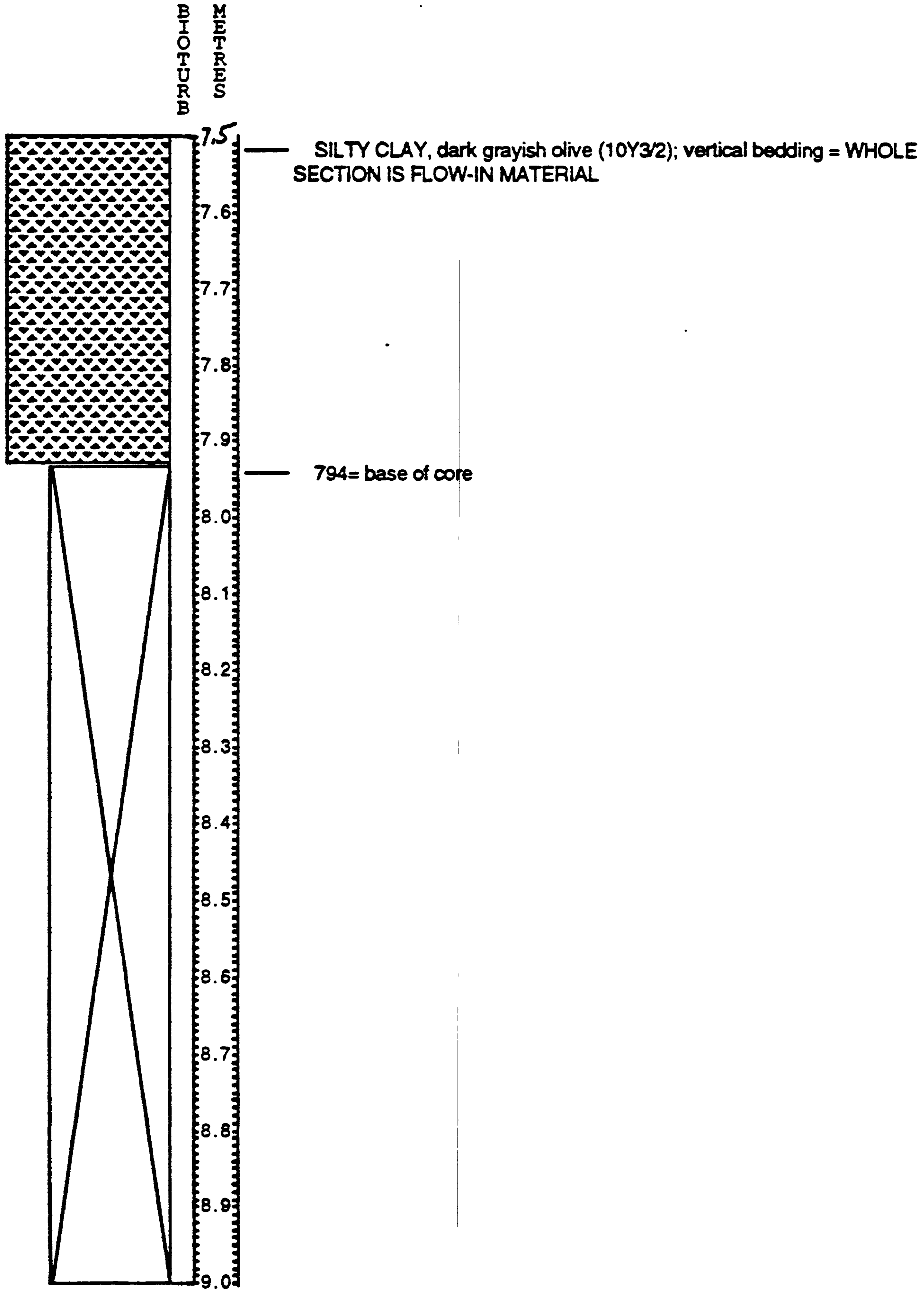
F2-92-P22, SECTION 5
34° 17.32' N, 120° 43.82' W, 675 m



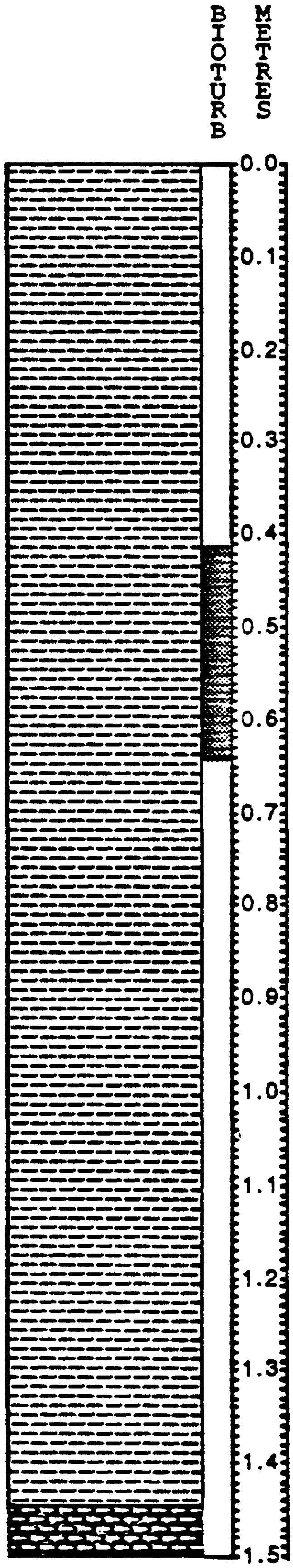
SILTY CLAY, dark grayish olive (10Y3/2); homogeneous except for coarse (silty) lenses throughout

741-742 cm, lenses of fine sand, olive gray (5Y3/2)

F2-92-P22, SECTION 6
34° 17.32' N, 120° 43.82' W, 675 m



SECTION 1
34°16.14' N, 120° 47/26' W, 768 m

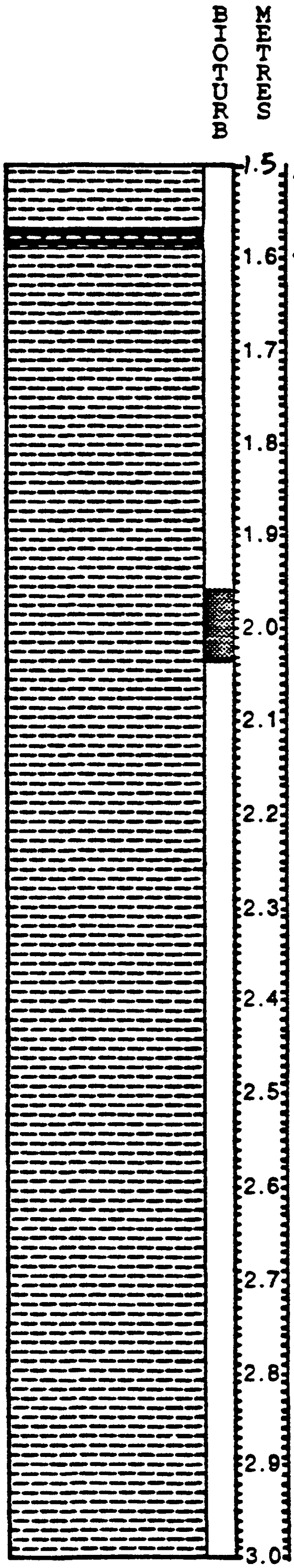


CLAY, dark olive brown (5Y3/4)

95-150: horizontally oriented black flecks

145-150: very faint laminations

F2-92-P23, SECTION 2
34° 16.14 N, 120° 47.26 W, 768 m

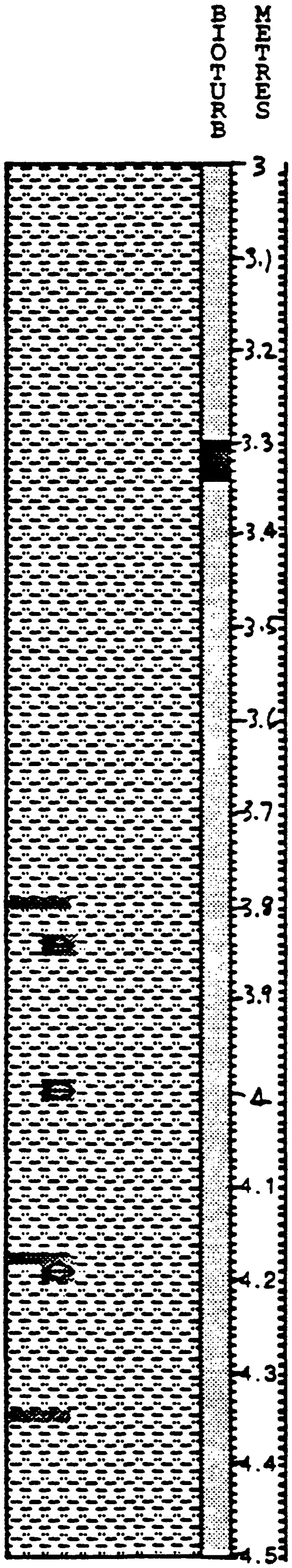


CLAY, grayish olive (10Y4/2); homogeneous ; black specks common
205-228 cm

157-160 cm; faint laminations

280 cm: fine sand layer

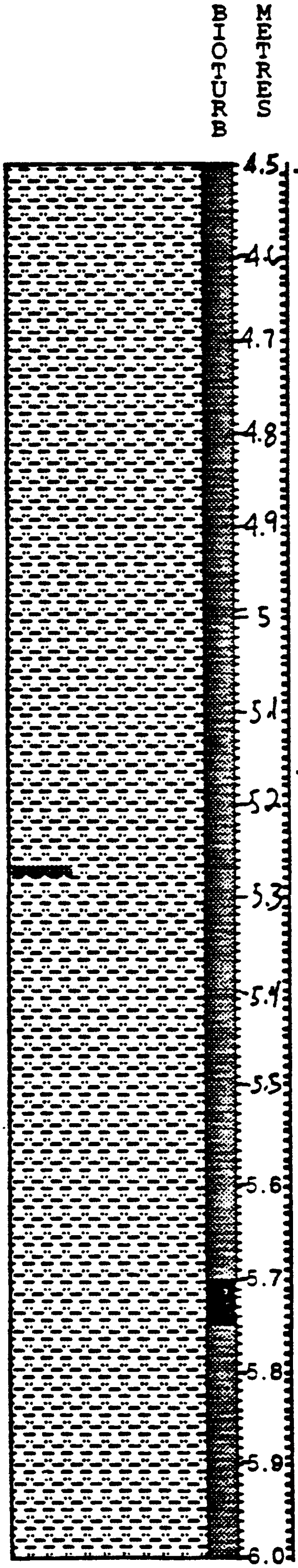
F3-92-P23, SECTION 3
34° 16.14' N, 120° 47.26' W, 768 m



SILTY C LAY, grayish olive (10Y4/2); homogeneous with rare bioturbation; fine sand layers and lenses and shell fragments common in interval 380-450 cm

330-335: horizontal small burrows

F2-92-P23, SECTION 4
34° 16.14' N, 120° 47.26' W, 768 m

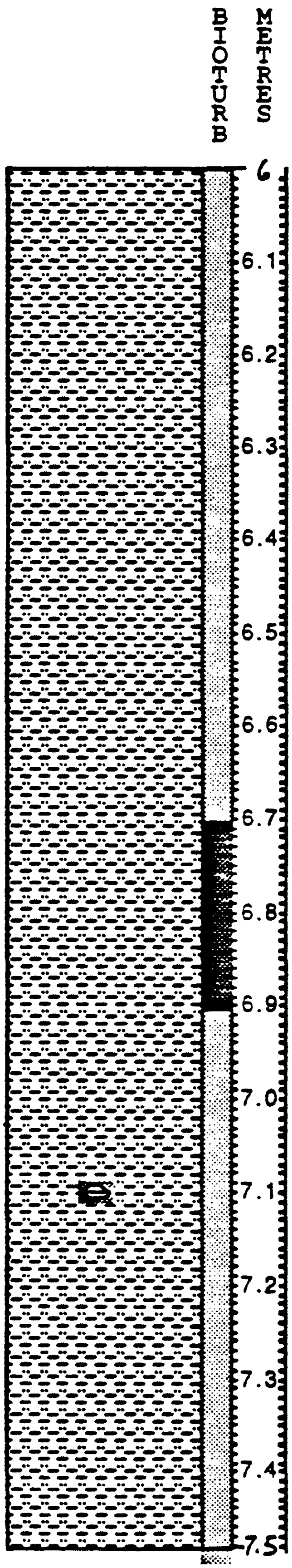


SILTY CLAY, grayish olive (10Y4/2); homogeneous with occasional burrows

Join between Sect. 4A/B

570-757 cm: pseudolamination? (small horizontal burrows)

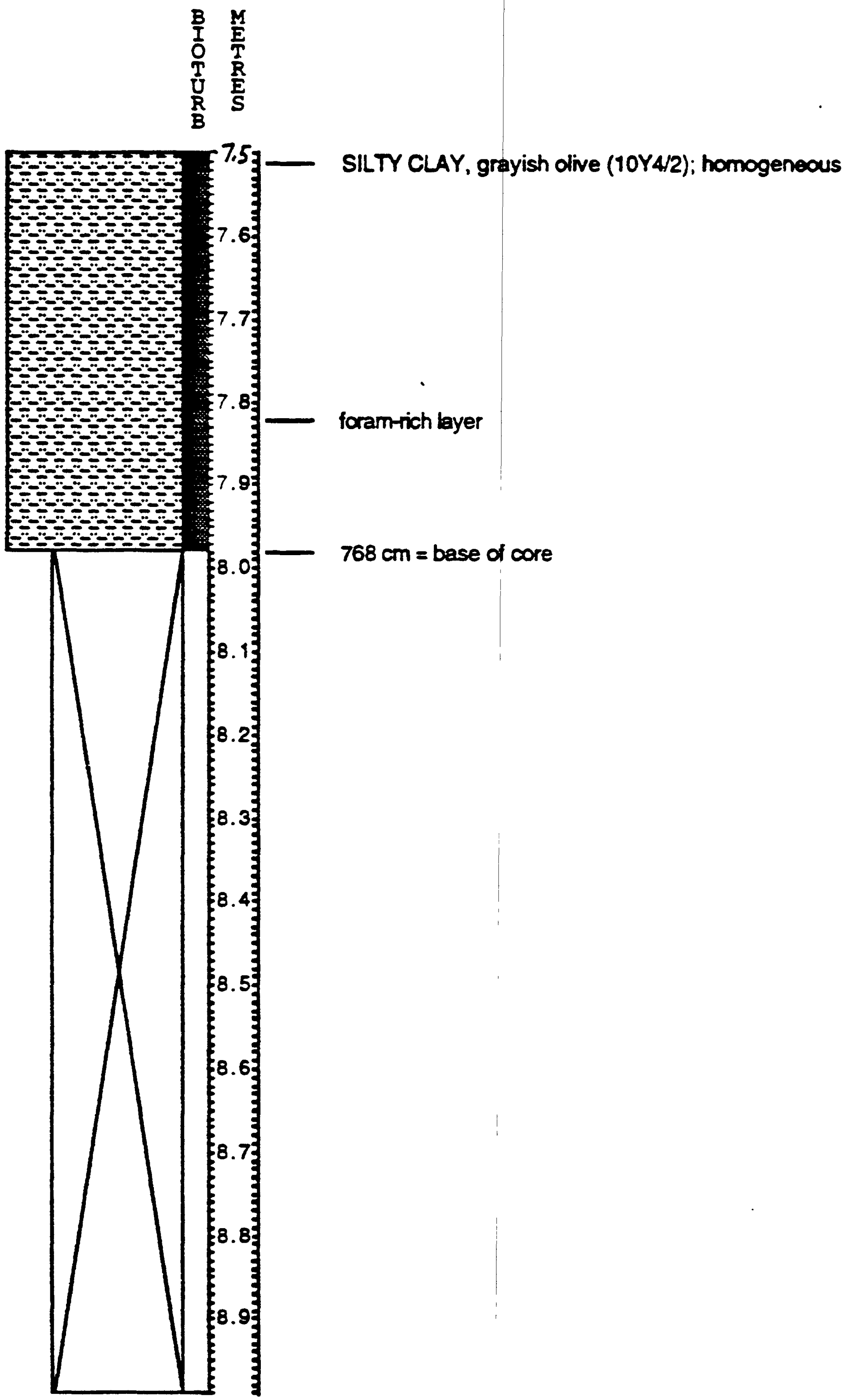
F2-92-P23, SECTION 5
34° 16.14' N, 120° 47.26' W, 768 m



SILTY CLAY, grayish olive (10Y4/2); homogeneous; burrows rare

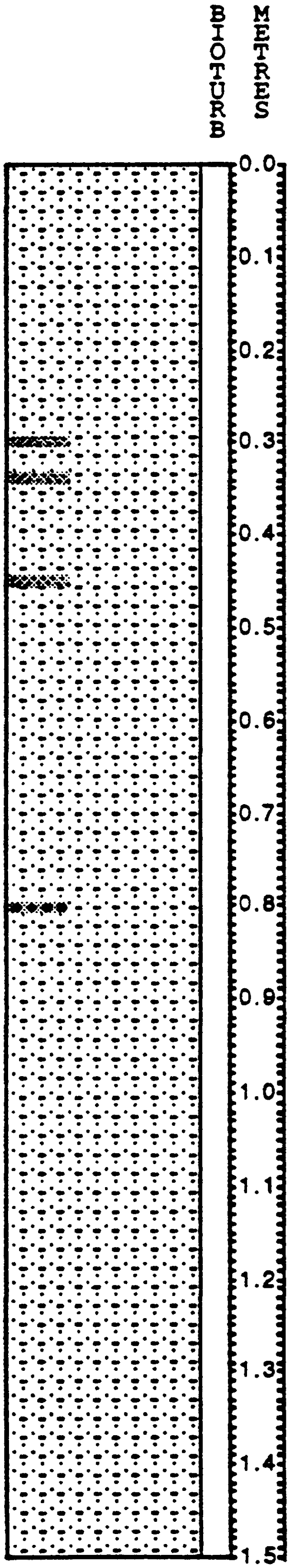
671-691 cm: horizontally microbioturbated (pseudolaminated)

F2-92-P23, SECTION 6
34° 16.14' N, 120° 47.26' W, 768 m



F2-92-P24 Section 1

34° 07.42'N 120° 48.41'W 795m



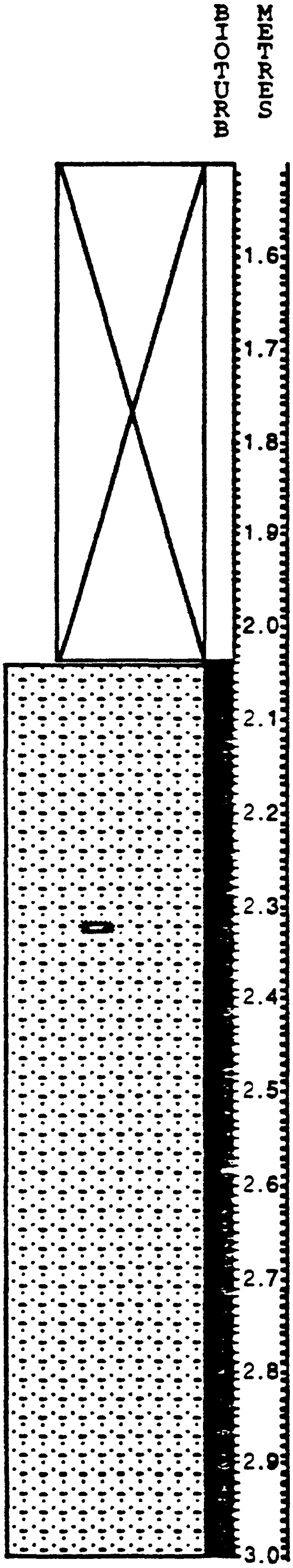
NOTE: One longitudinal half of the core liner was lost because of implosion. There is only one split half for this section.

CLAYEY FINE SAND, mottled Grayish olive (10Y 4/2) and Olive black (5Y 2/1). Abundant bioturbation throughout.

Forams common to abundant throughout. Sieved sample at 5 cm contained large benthic species: Eponides, Cassidulina californica, Uvigerina, plus a few planktonics.

pebble @ 80 cm

F2-92-P24 Section 2
34° 07.42'N 120° 48.41'W 795m



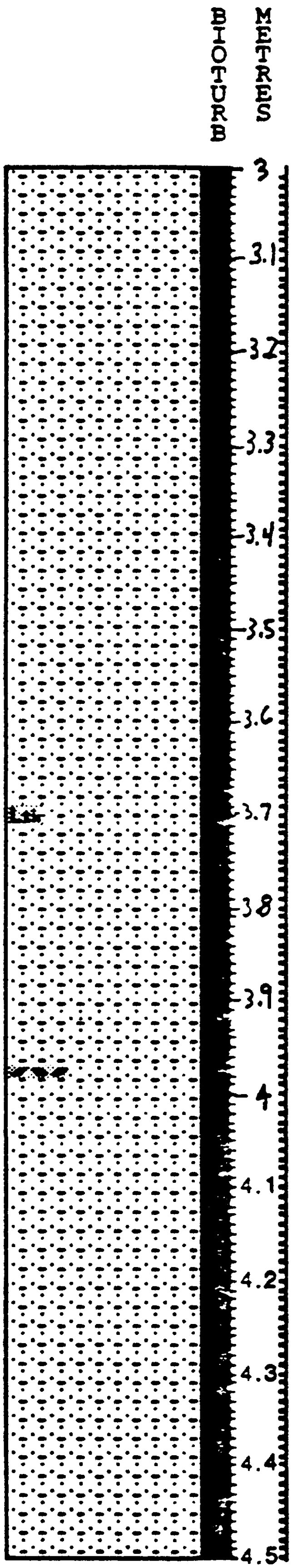
Section 2A (150-204 cm): Core liner imploded – not split.

CLAYEY FINE SAND, mottled Grayish olive (10Y 4/2) and Olive black (5Y 2/1). Bioturbation abundant. Shiny angular black pebbles @ 237 cm.

large burrow @ 225-235 cm

F2-92-P24 Section 3

34° 07.42'N 120° 48.41'W 795m



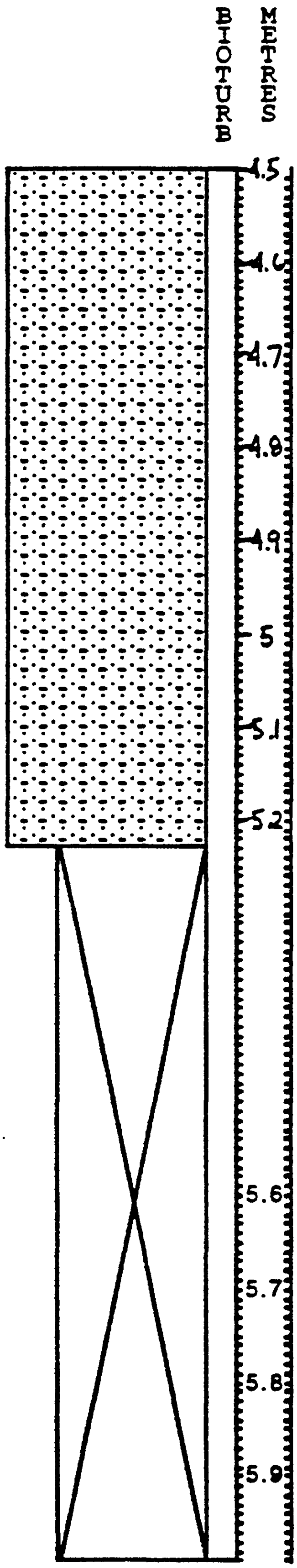
CLAYEY FINE TO MEDIUM SAND, Grayish black (N2) and Olive gray (5Y 4/1); angular rock fragment @ 330 cm; mud clast @ 398 cm. Bioturbation abundant.

rock fragment @ 370 cm

mud clast @ 398 cm

F2-92-P24 Section 4

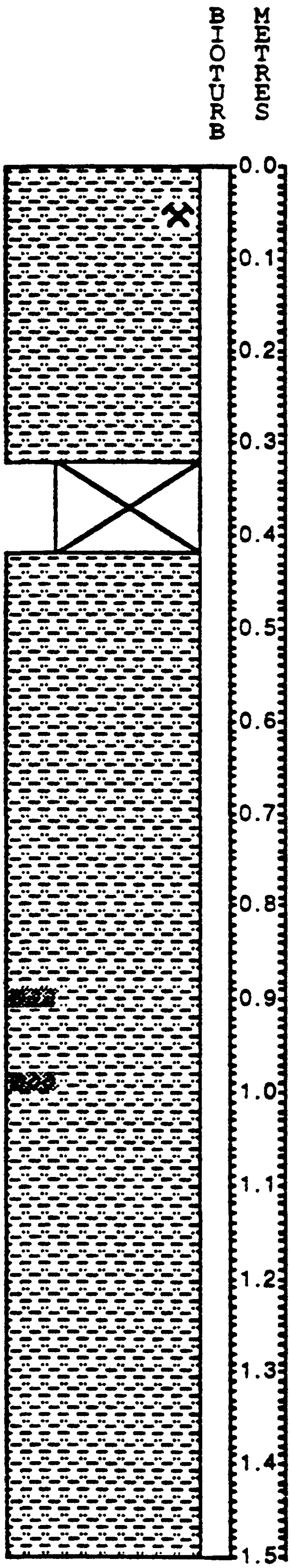
34° 07.42'N 120° 48.41'W 795m



CLAYEY FINE SAND, Black (N1), bituminous, homogeneous, water-saturated. Bioturbation not distinguishable.

base of core = 523 cm

F2-92-P25 Section 1
33° 50.23'N 120° 45.40'W 2176 m



FINE SILTY CLAY, Grayish olive (10Y 4/2) and Light olive gray (5Y 5/2). Gas pockets in zones 0-25 cm, 60-85 cm, and 120-140 cm. Bioturbation abundant throughout. Very small (< 1 mm) shell frags in zone btw 90-100 cm.

smear slide (5 cm): Clay - C; planktonic and benthic forams - C; rads - C; spicules - C; nannos - A; $CaCO_3$ frags - R; detrital grains - R

zone of gas pockets

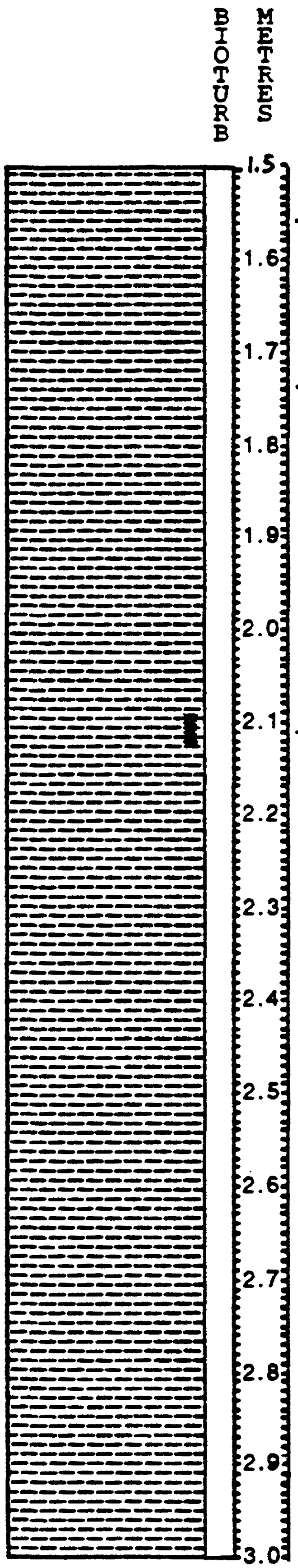
damaged by plastic core liner material

zone of gas pockets

very small shell fragments btw 90-100 cm

zone of gas pockets

F2-92-P25 Section 2
33° 50.23'N 120° 45.40'W 2176m



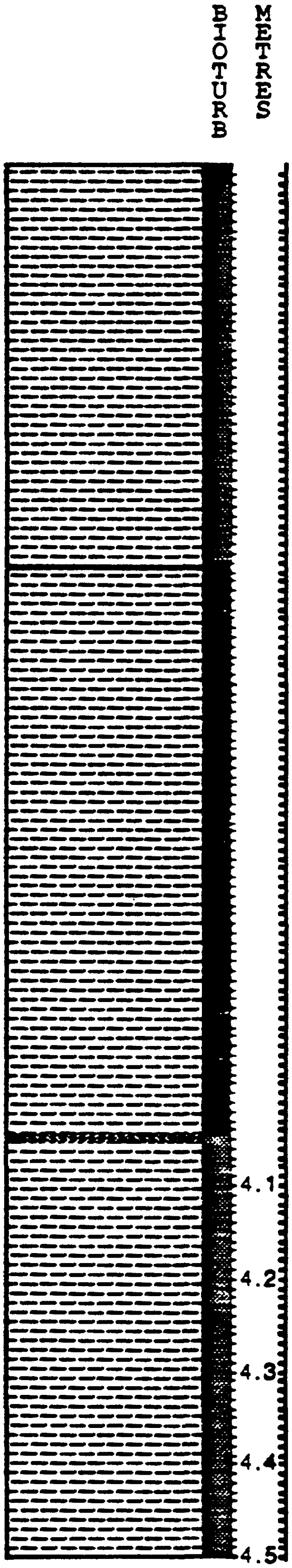
SECTION 2A = 150-174 cm
SECTION 2B = 174-300 cm

CLAY, Moderate olive brown (5Y 4/4); bioturbation abundant. Gas pockets scattered throughout. Turbidite layer between 210-215 cm.

boundary btw SECTION 2A and SECTION 2B

sand turbidite between 210-215 cm

F2-92-P25 Section 3
33° 50.23'N 120° 45.40'W 2176m



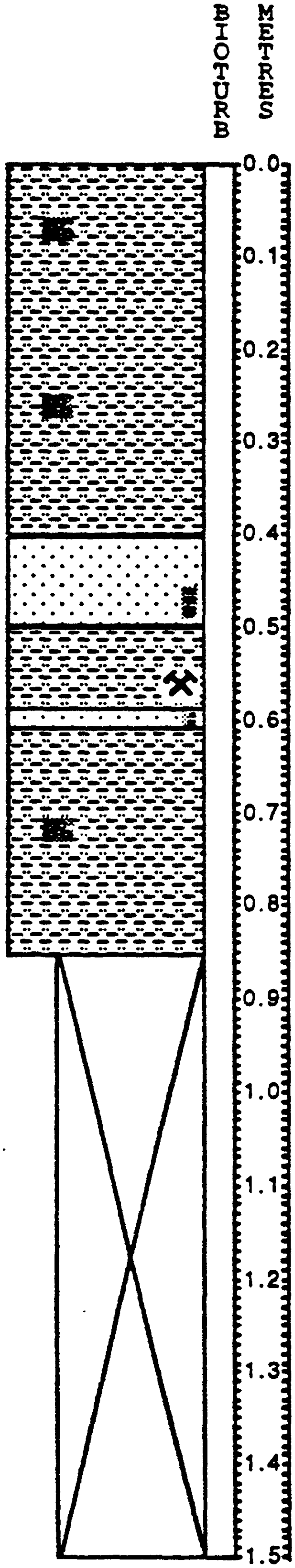
*Beginning of sediment-color cycles in SECTION 3.

CLAY, Light olive gray (5Y 5/2), homogeneous; common bioturbation. Scattered gas pockets.

CLAY (344-405 cm), Grayish olive (10Y 4/2) (i.e., darker green than superjacent or subjacent units, with intense bioturbation (small burrows). Sharp upper contact, bioturbated lower contact. Scattered gas pockets.

CLAY (405-450 cm), Light olive gray (5Y 5/2), homogeneous; bioturbation common.

F2-92-P26, SECTION 1
32° 21.10' N, 118° 40.62' W, 1729 m



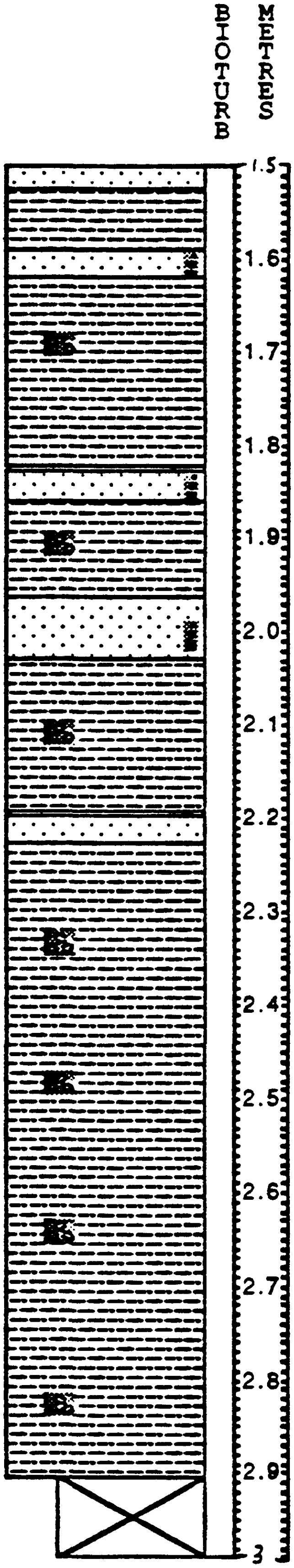
SILTY CLAY, dark olive brown (5Y3/4), with fine sand turbidites

Sect 1A: 0-85 cm
Sect 1B: 85-150 cm (not split)

Smear slide, 55 cm:
Clay-A; Forams-C; Terrigenous grains-C; carbonate fragme nts-C; Diatoms-R; Rads-R

85 cm = join between Sect 1A/B; 1B not opened due to shattered line

F2-92-P26, SECTION 2
32° 21.10' N, 118° 40.62' W, 1729 m



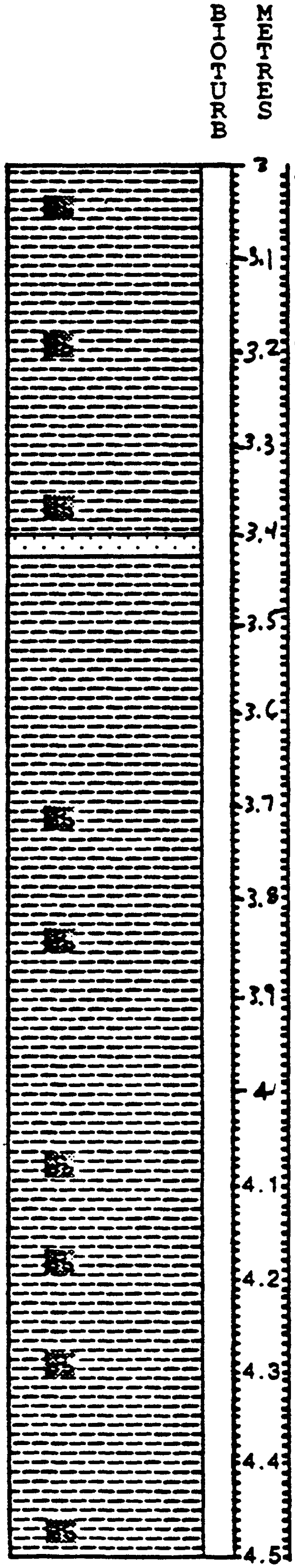
CLAY, olive gray (5Y3/2), homogeneous, becomming more bioturbated at the base; FINE SAND turbidites, grayish olive (10Y4/2) at intervals indicated

Section 2A: 150-291 cm
Section 2B: 291-300 cm (not split)

Smear slide, 232 cm:
Clay-A; Nannos-A; Siliceous spicules-C; Forams-C; Diatoms-R; Rads-R

291 = join, Sect. 2A/B

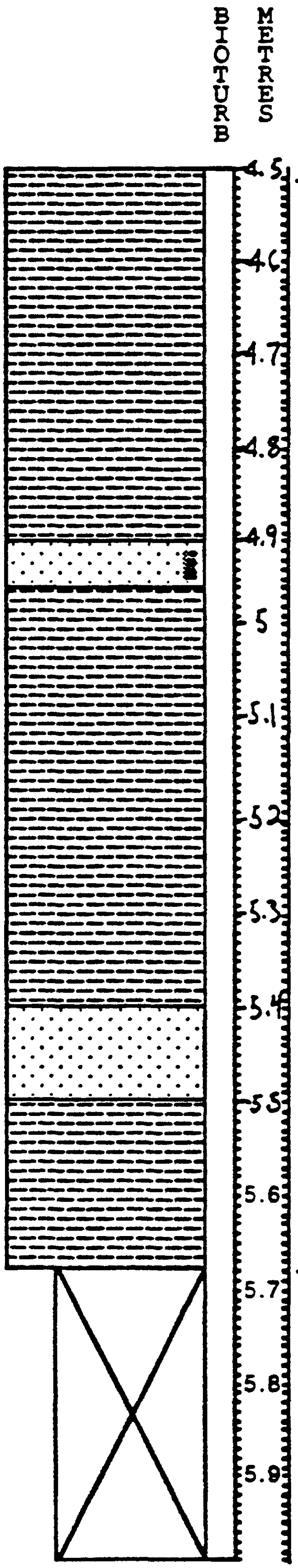
F2-92-P26, SECTION 3
32° 21.10' N, 118° 40.62'W, 1729 m



CLAY, in light-dark color cycles ranging from olive gray (5Y3/2; domina color) to moderate olive brown (5Y4/4) or olive black (5Y2/1) in the dark parts of cycles; several FINE SAND turbidite layers

Smear slide, 319 cm:
Caly-A; Nannos-A; Forams-A; Carbonate fragments-C

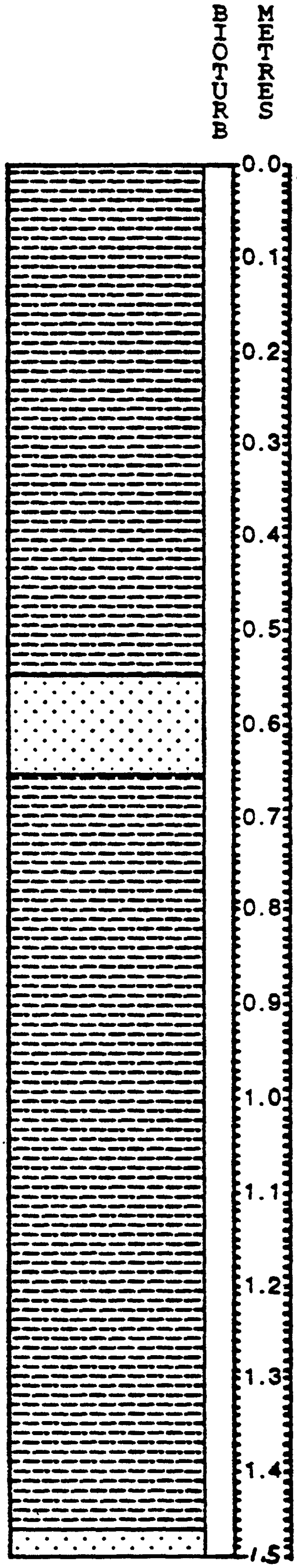
SECTION 4
32° 21.10' N, 118° 40.62' W, 1729 m



CLAY, light-dark color cycles ranging from grayish olive (10Y4/2) in light parts of cycles to oilve gray (5Y3/2) and olive black (5Y2/1) in dark parts of cycles; homogeneous to slightly burrowed; FINE SAND turbidite layers, grayish olive (10Y4/2)

568 = base of core

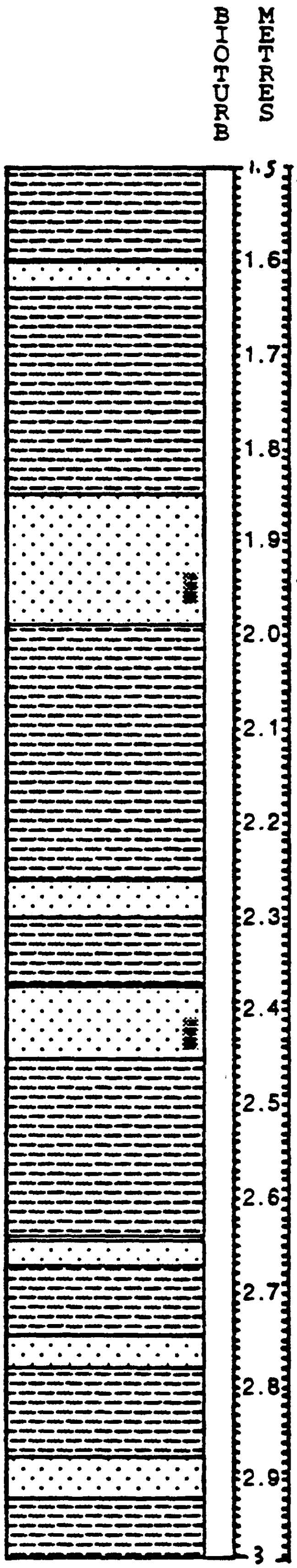
F2-92-P27, SECTION 1
32° 07.78' N, 119° 03.94' W, 1615 m



SILTY CLAY, moderate olive brown (5Y4/4); homogeneous; biotutbation rare; FINE SAND turbidite layers at intervals indicated

Smear slide, 17 cm:
Clay-A; Nannos-A; Forams-C; carbonate fragments-C; Diatoms and Rads-R

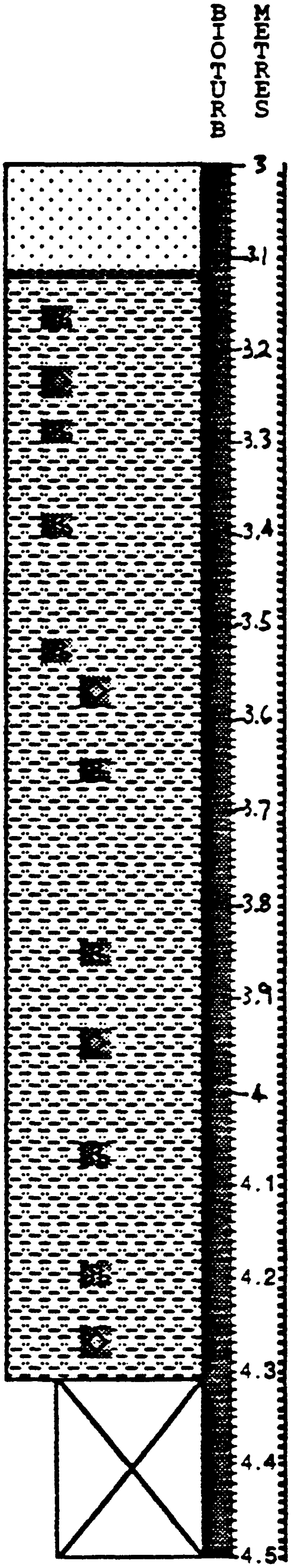
F2-92-P27, SECTION 2
32° 07.78' N, 119° 03.94' W, 1615 m



CLAY, medium olive gray (5Y3/1); homogeneous; FINE SAND turbidites, grayish olive (10Y4/2) at intervals indicated

Smear slide, 195 cm:
angular terrigenous grains (quartz; pyroxene; mica); Forams

F2-92-P27, SECTION 3
32° 07.78' N, 119° 03.94' W, 1615 m



SAND, dark olive (10Y6/2) and olive gray (5Y3/2); medium grained

SILTY CLAY, moderate olive brown (5Y4/4); homogeneous 312-370 cm and 405-431 cm; alternating light (light olive gray, 5Y5/2) and dark (moderate olive brown, 5Y4/4) 370-405 cm; all contacts bioturbated; bioturbation common throughout

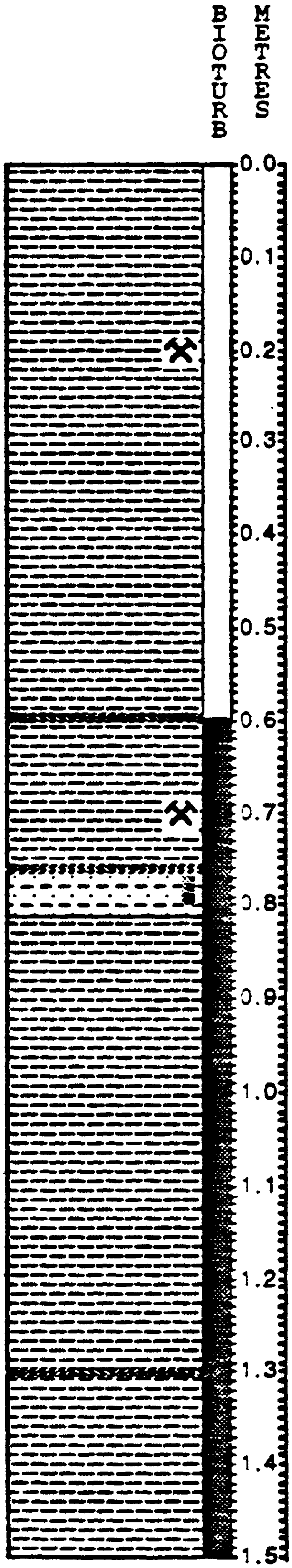
Smear slide, 320 cm:
Clay-A; Nannos-A; Forams-C; Rads-C; siliceous spines-R; Detrital grains-R

370-405 cm: light-dark color cycles

431 cm = base of core

F2-92-P28 Section 1

33° 16.23'N 119° 18.63'W 1800m



CLAY, Pale olive (10Y 6/2) between 0-60 cm and 80-130 cm; Light olive gray (5Y 5/2) getween 60-75 cm and 130-150 cm. Sediment very fine grained. Contacts between lighter and darker units are bioturbated.

Sand turbidite btw 75-80 cm with scoured lower contact and bioturbated upper contact.

Bioturbation not obvious 0-60 cm; common 60-150 cm.

smear slide (20 cm):
clay - A
fecal pellets - C
forams - C
radiolarians - R
spicules - R
nannos - A

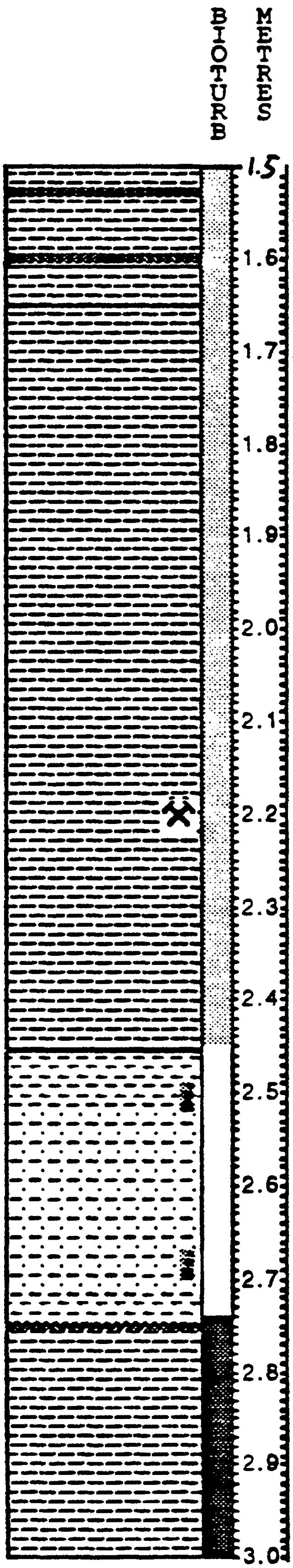
smear slide (70 cm):
clay - A
nannos - A
detrital grains - R
diatoms - R
radiolarians - R
forams - C

turbidite

bioturbated contact

F2-92-P28 Section 2

33° 16.23'N 119° 18.63'W 1800m



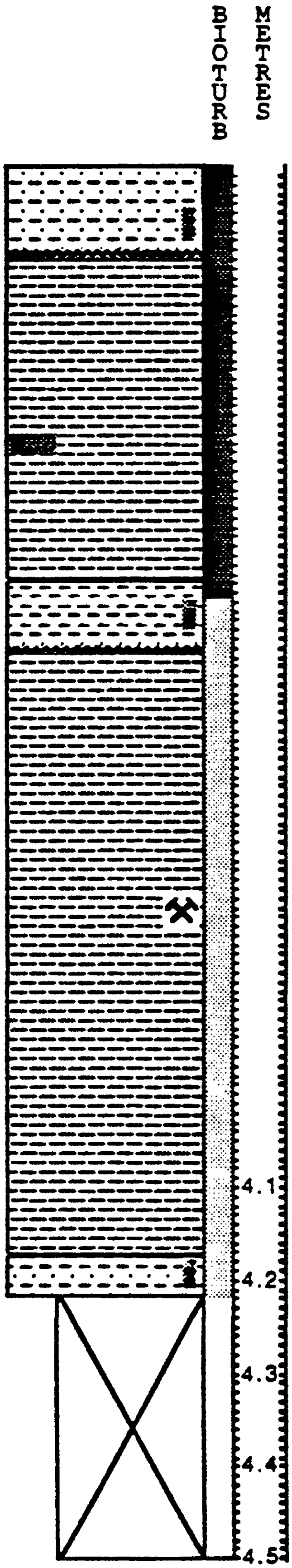
lighter-colored (grayish olive) sediment; bioturbated contacts

CLAY, Light olive gray between 153-160 cm, otherwise Grayish olive (10Y 4/2), massive, bioturbation rare (consists of large isolated burrows) between 150-245 cm; bioturbation common btw 275-300 cm.

Series of sandy turbidites btw 245-275 cm; sharp upper contact, scoured lower contact.

series of sandy turbidites

F2-92-P28 Section 3
33° 16.23'N 119° 18.63'W 1800m



turbidite

CLAY, Grayish olive (10Y 4/2), homogeneous, bioturbation common 300-348 cm and rare 348-422 cm.

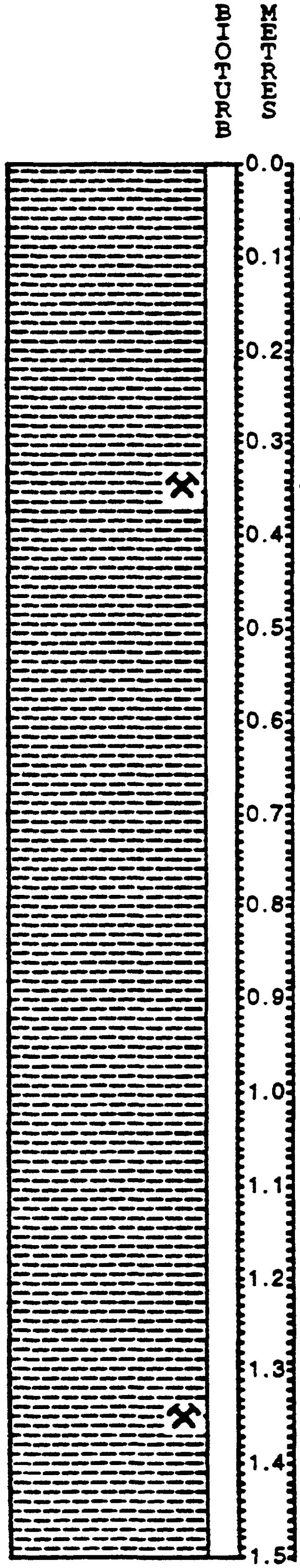
Sand turbidites 300-312 cm; 348-352 cm; and 420-422 cm.

dead smelly bivalve

turbidite

smear slide (380 cm):
clay - A
nannos - A
spicules - R
forams - R
diatoms - R

F2-92-P29 Section 1
32° 54.92'N 119° 44.23'W 1475m

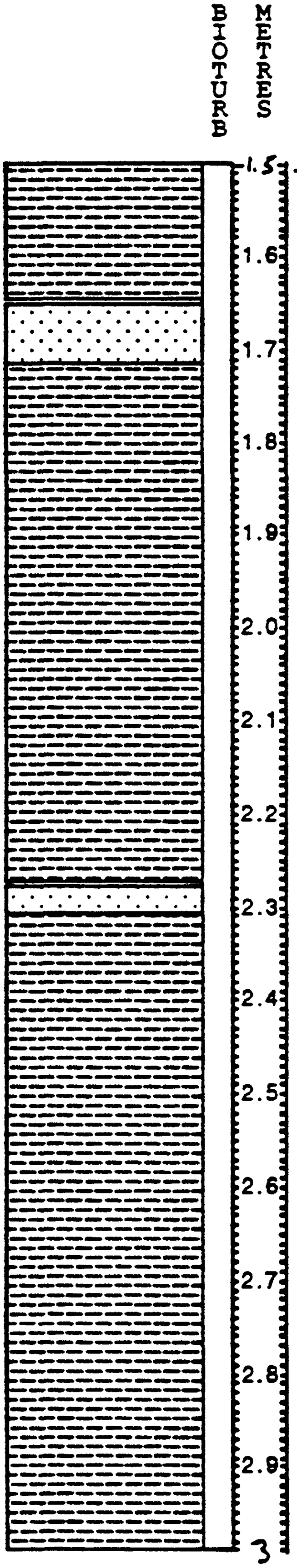


CLAY, Moderate olive brown (5Y 5/2), homogeneous, poorly consolidated 0-70 cm; bioturbation occasional throughout; gas pockets scattered throughout.

smear slide (35 cm):
clay - A
nannos - A
rads - R
spicules - R

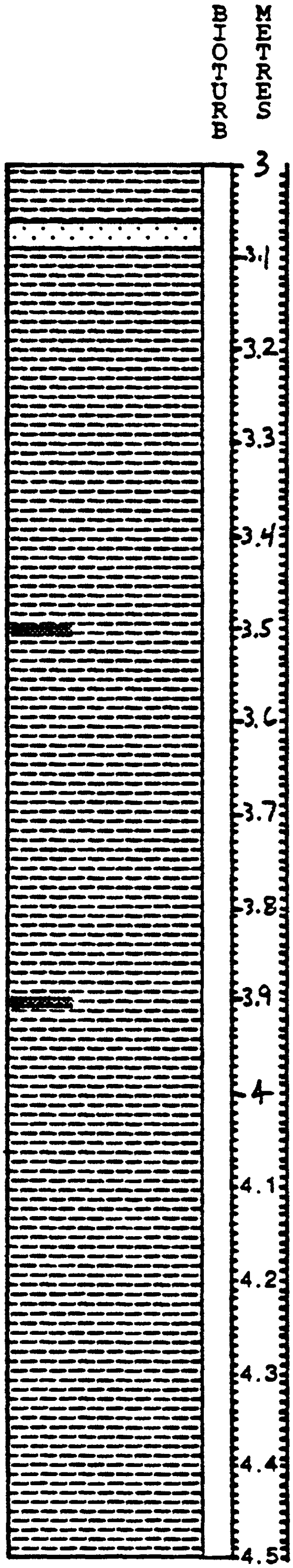
smear slide (135 cm):
clay - A
rads - R
spicules - R
forams - R
nannos - A

F2-92-P29, SECTION 2
32° 52.92' N, 119° 4.23' W, 1430 m



CLAY, moderate olive brown (5Y4/4; dominant color) and dark olive brown (5Y3/4); SAND turbidite layers at intervals indicated

F2-92-P29, SECTION 3
32° 52.92' N, 119° 44.23' W, 1430 m

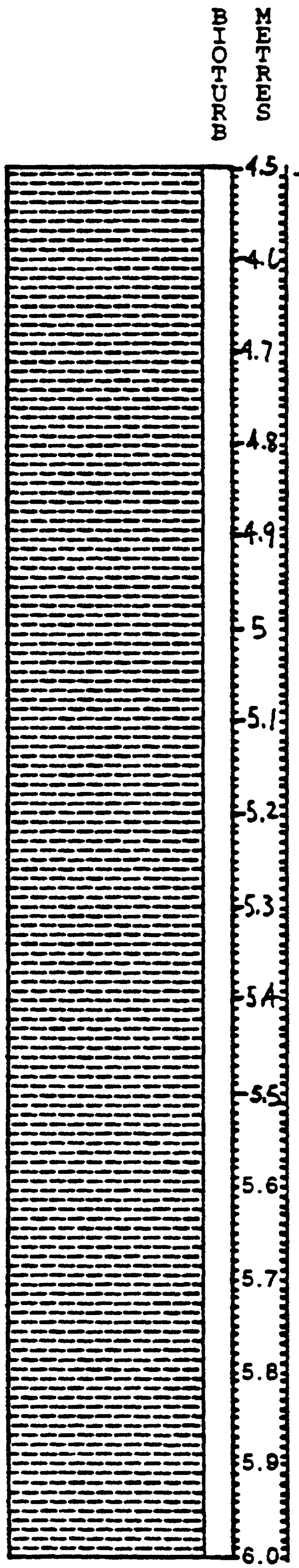


CLAY, grayish olive (10Y4/2) to olive gray (5Y3/2); homogeneous; bioturbation rare; fine SAND lenses and layers at intervals indicated

Section 3A: 300-342 cm
Section 3B: 342-450 cm

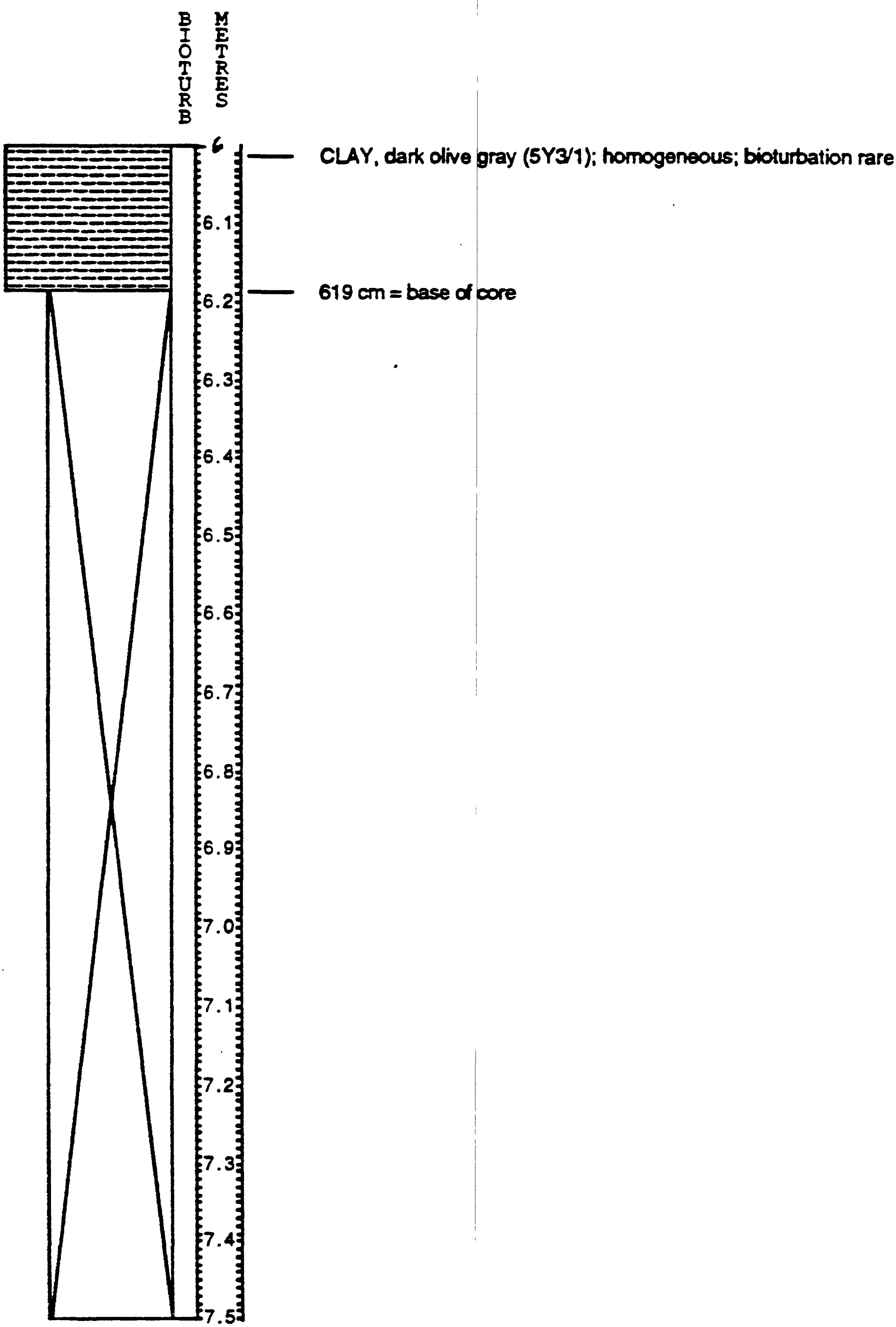
342 cm = join, sect. 3A/B

F2-92-P29, SECTION 4
32° 52.92' N, 119° 44/23' W, 1430 m

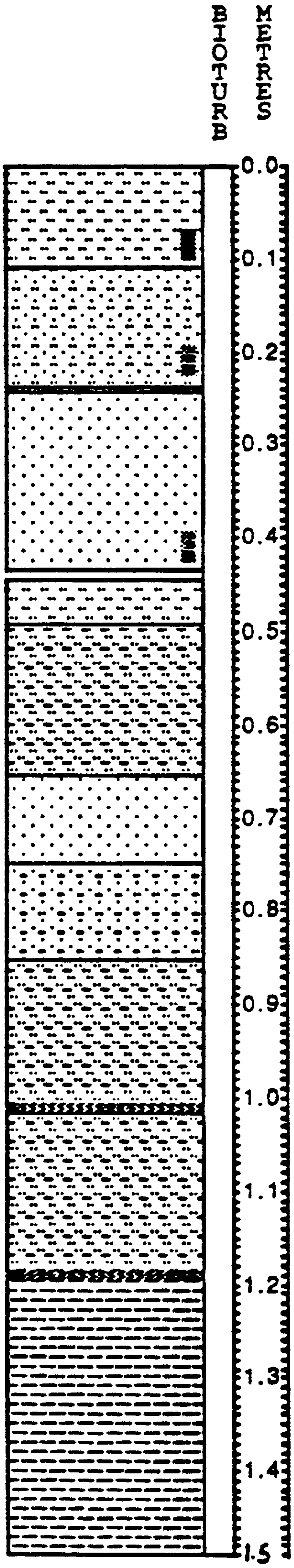


CLAY, 10-20-cm-scale light-dark cycles ranging from grayish olive (10Y4/2) in the lighter parts of cycles to dark grayish olive (10Y3/2) and olive black (5Y2/1) in the darker parts of cycles; homogeneous with rare bioturbation

F2-92-P29, SECTION 5
32° 52.92' N, 119° 44.23' W, 1430 m



F2-92-P30, SECTION 1
33° 35.70' N, 120° 26.15' W, 1412 m



FINE SAND to SILT, dark olive brown (5Y3/4) graded turbidite; occasional burrows; homogeneous at base (44cm)

SILT

CLAYEY SILT, olive gray (5Y3/2)

FINE SAND, Foram-rich

interfingered CLAY and SAND, grayish olive (10Y4/2); Foram-rich

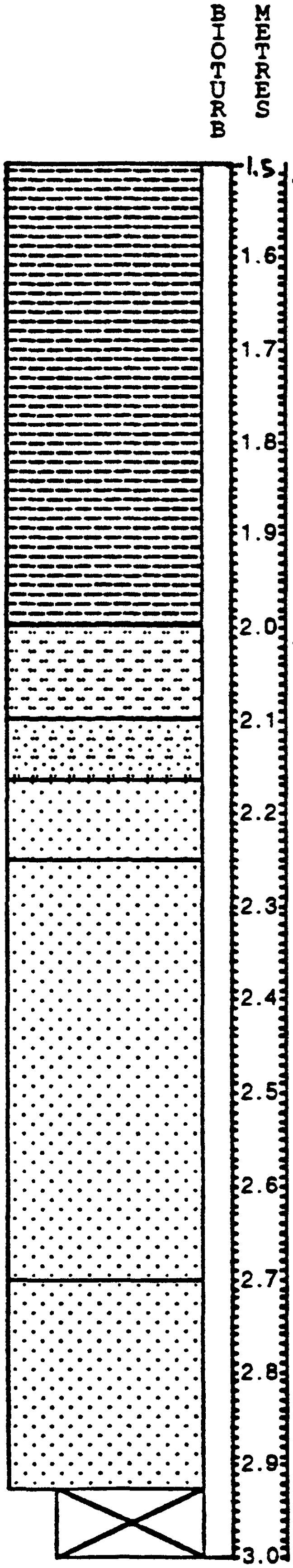
Smear slide, 78 cm:
Forams-A; Nannos-C; anguair quartz grains-C; Carbonate fragments-C; Diatoms and Rads-R

CLAYEY SILT, olive gray (5Y3/2)

CLAYEY SILT, grayish olive (10Y4/2)

CLAY, olive gray ((5Y3/2); top of turbidite in Section 2

F2-92-P30, SECTION 2
33° 35.70' N, 120° 26.15' W, 1412m



150-200 cm: CLAY, olive gray (5Y3/2)

NOTE: entire section, and continuing into bottom of Sect. 1, appears to be one turbidite

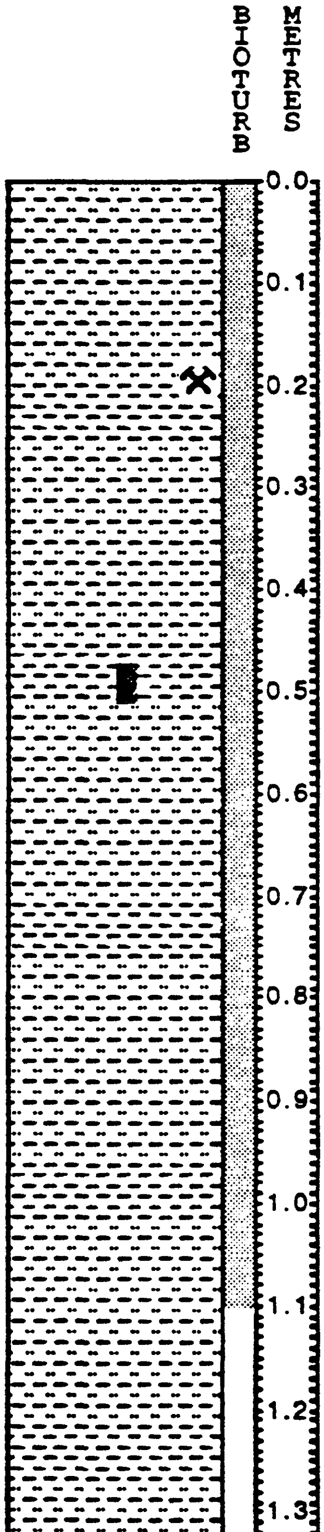
200-225 cm: SAND, very fine grading upward to SILT, grayish olive (10Y4/2)

225-270 cm: SAND, fine, moderate olive brown (5Y4/4); layered

270-293 cm: SAND, dark olive brown (5Y3/4); massive with black flecks

293 cm = base of core

F20-92-P31 Section 1
34° 10.99'N 120° 03.78'W 608m



SILTY CLAY (0-138 cm), Moderate olive brown (5Y 4/4), faintly laminated with common black (hydrotrolite?) beds between 0-110 cm; distinct but wavy laminae (sub-mm scale!) between 110-138 cm.

smear slide (20 cm):
clay - A
diatoms - C
forams - R
rads - R
nannos - R

gastropod @ 49 cm

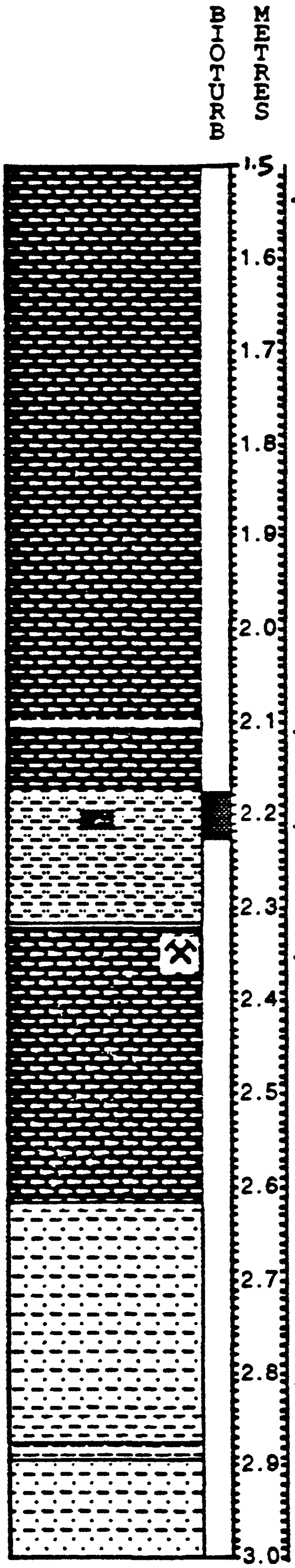
zone of faint laminae

zone of faint wavy sub-mm laminae

smear slide (140 cm): clay - A; spicules - R to C; diatoms - R to C; forams - R; rads - R; nannos - C

SILTY CLAY (138-150 cm), darker green than above, Grayish olive (10Y 4/2), distinct parallel sub-mm scale laminae; sharp upper contact.

F2-92-P31 Section 2
34° 10.99'N 120° 03.78'W 608m



SILTY CLAY, Grayish olive (10Y 4/2) and Moderate olive brown (5Y 4/4), finely laminated (varved) between 150-218 cm and 232-262 cm. Faintly bedded between 262-300 cm. Massive sections between 218-220 cm and 223-232 cm, separated by horizontal chondrites between 218-223 cm. All contacts are gradational.

Several distinctive light gray clay layers @ 210, 215 and 291 cm.

Texture change to slightly coarser-grained at 165 cm.

gray clay layers @ 210 and 215 cm

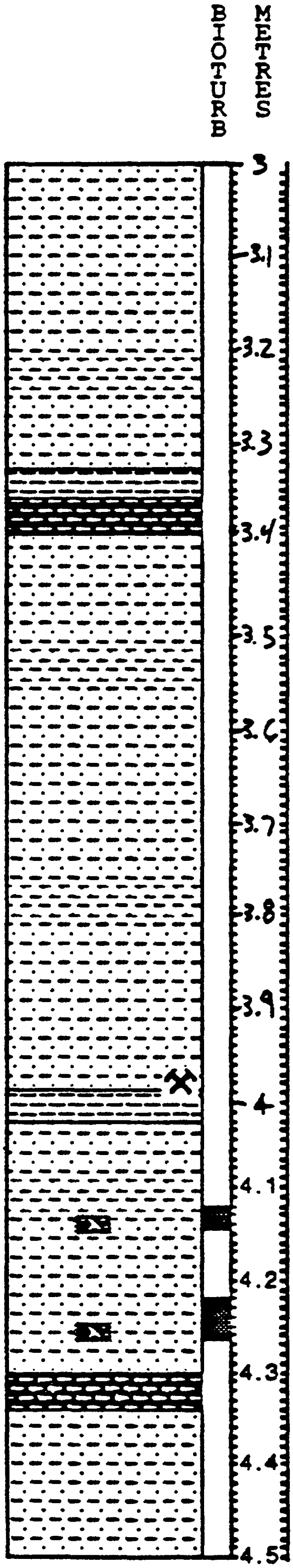
horizontal chondrites in middle of massive zone

smear slide (235 cm):
clay - C
diatoms - C
rads - R
spicules - C
CaCO3 frags - R
nannos - C

faintly bedded 262-300 cm

gray clay layer @ 291 cm

F2-92-P31 Section 3
34° 10.99'N 120° 03.78'W 608m



SILTY CLAY, Moderate olive brown (5Y 4/4), faintly bedded throughout except for distinct laminae between 337-340 cm and 430-432 cm; horizontal chondrites @ 413-417 cm and 423-426 cm.

gray clay layer above zone of distinct laminae

smear slide in gray clay layer (399 cm):
clay - A
detrital grains - R
nannos - R
-- not biogenic!--

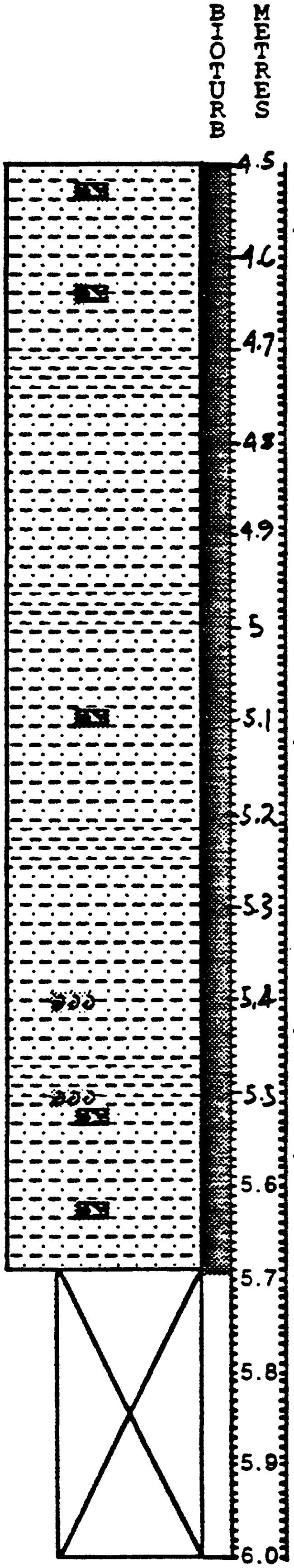
horizontal chondrites (413-417 cm)

horizontal chondrites (423-426 cm)

distinct laminae (423-426 cm)

F2-92-P31 Section 4

34° 10.99'N 120° 03.78'W 608m



SILTY CLAY, Grayish olive (10Y 4/2), faintly bedded (not distinctly varved) with zones of horizontal chondrites; bioturbation occassional throughout.

Shell fragments @ 540 cm and 550 cm

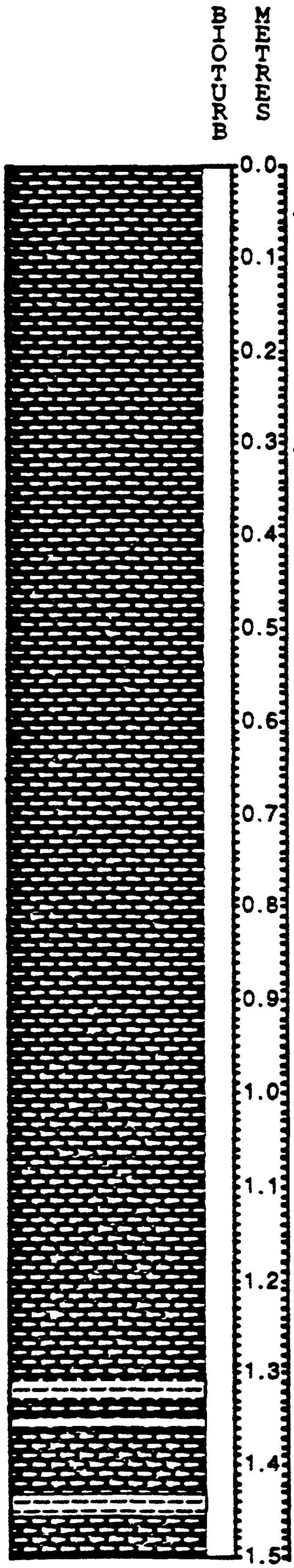
horizontal chondrites

shell fragments @ 540 cm and 550 cm

horizontal chondrites

bottom of core = 570 cm

F2-92-P32 Section 1
34° 11.00'N 120° 03.81'W 583m



SILTY CLAY, Grayish olive (10Y 4/2), sub-mm scale laminae throughout. Black reduced (hydrolite?) layers 0-50 cm.

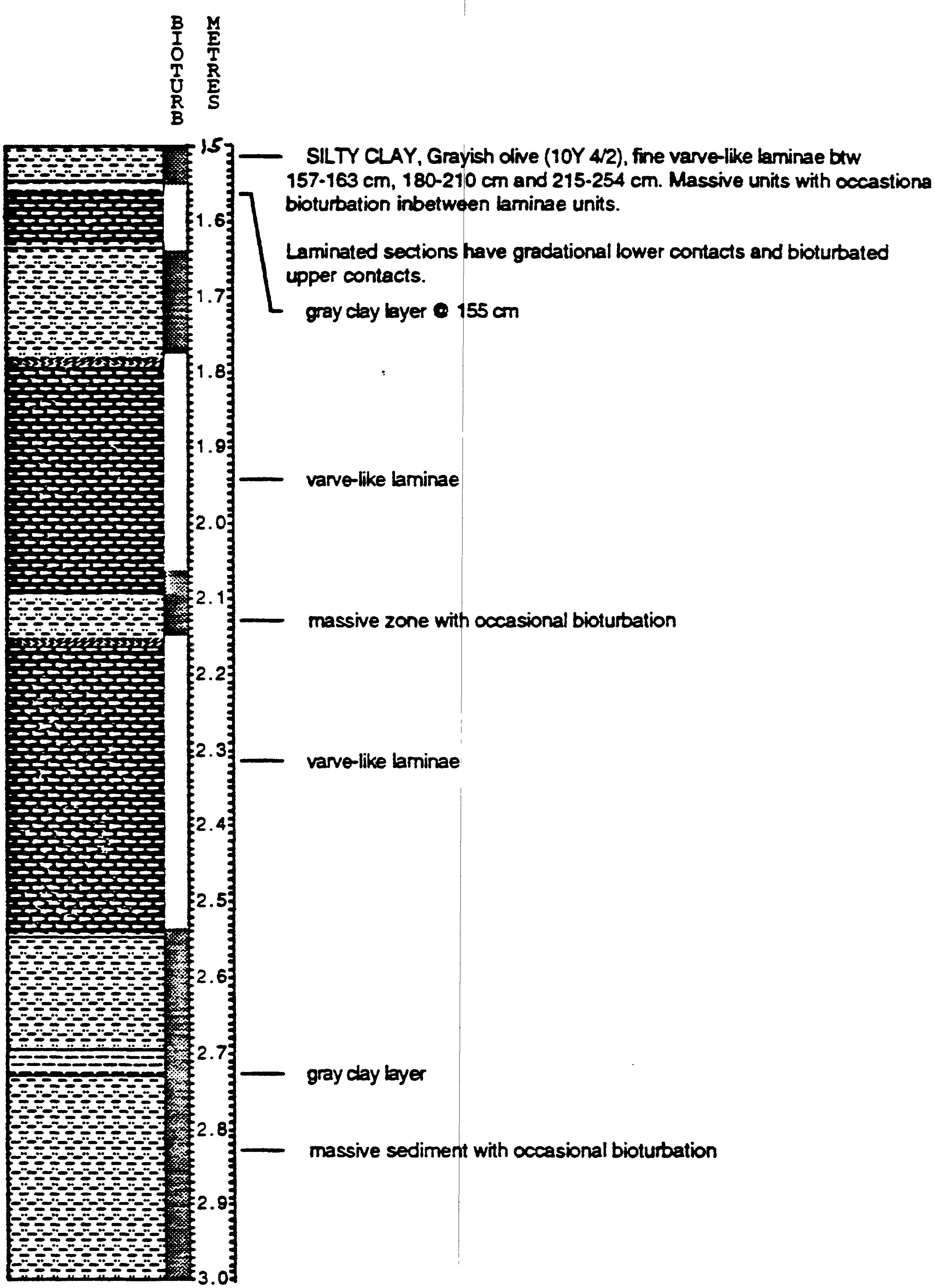
Medium light gray (N6) layers @ 132, 135 and 144 cm.

zone of black reduced layers

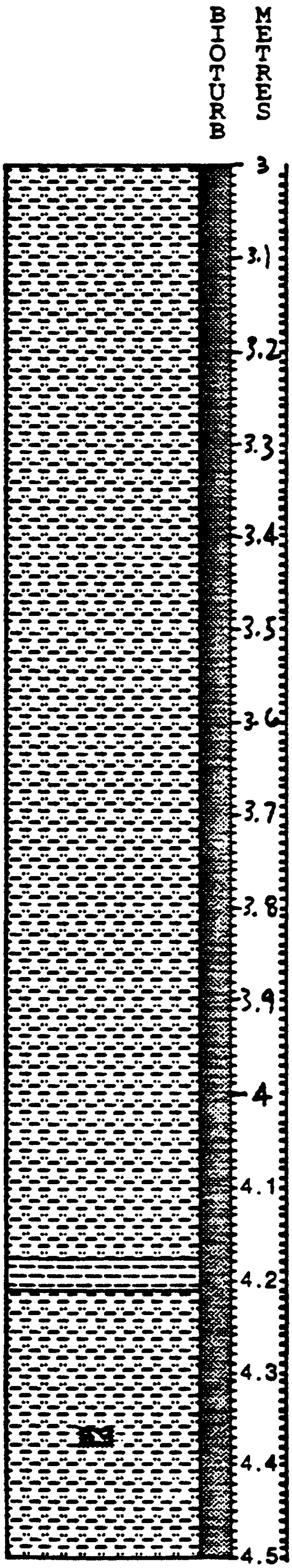
distinct varve-like laminae throughout

Medium light gray (N6) layers @ 132 cm, 135 cm and 144 cm

F2-92-P32 Section 2
34° 11.00'N 120° 03.81'W 583m



F2-92-P32 Section 3
34° 11.00'N 120° 03.81'W 583m



top of SECTION 3 = 301 cm

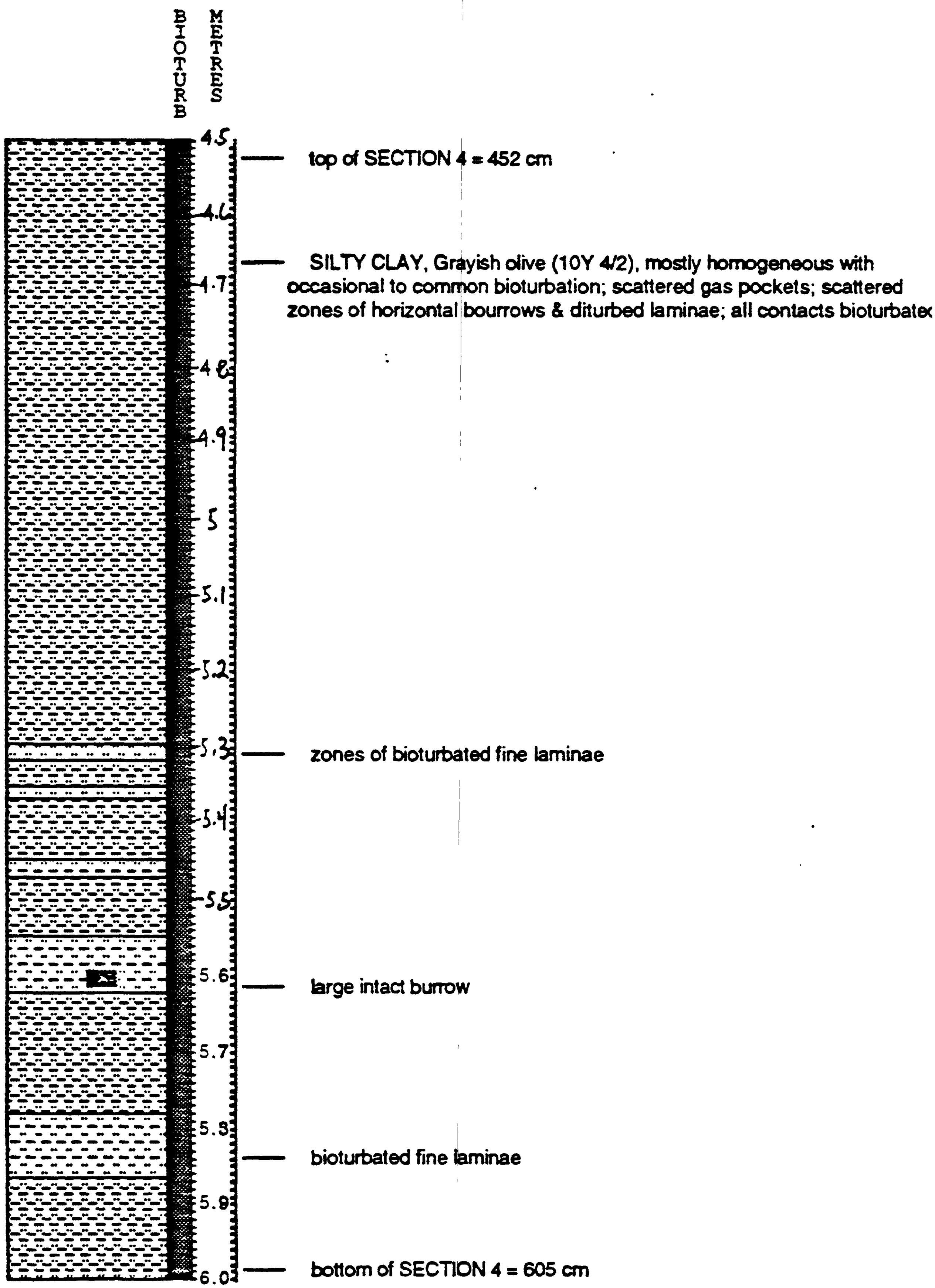
SILTY CLAY, Grayish olive (10Y 4/2), faintly bedded with occasional bioturbation (horizontal chondrites); 2-cm thick gray clay layer @ 418-420 cm.

Medium light gray (N6) clay layer.

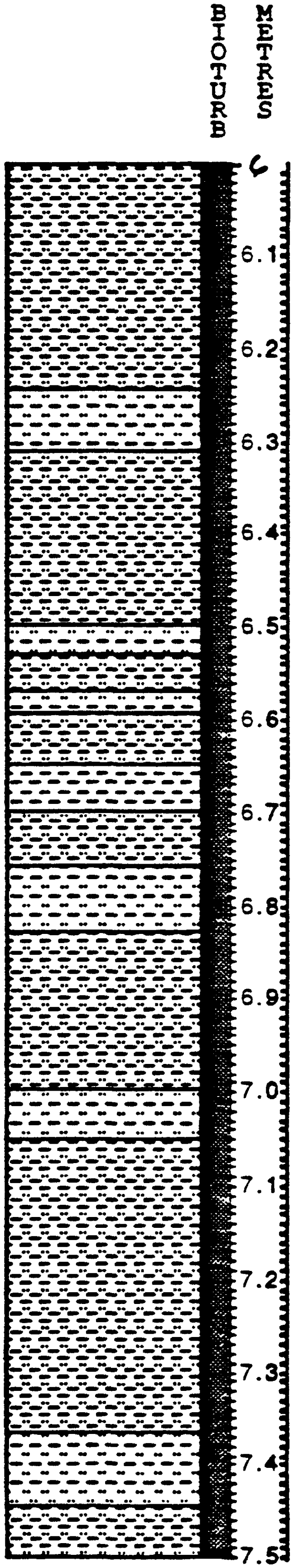
horizontal chondrites

bottom of SECTION 3 = 452 cm

F2-92-P32 Section 4
34° 11.00'N 120° 03.81'W 583m



F2-92-P32 Section 5
34° 11.00'N 120° 03.81'W 583m



SILTY CLAY, Grayish olive (10Y 4/2) with massive and faintly laminated sections. Massive sections show common bioturbation; laminae are disturbed by horizontal Chondrites. All contacts are bioturbated.

Sediment very cohesive -- difficult to split core.

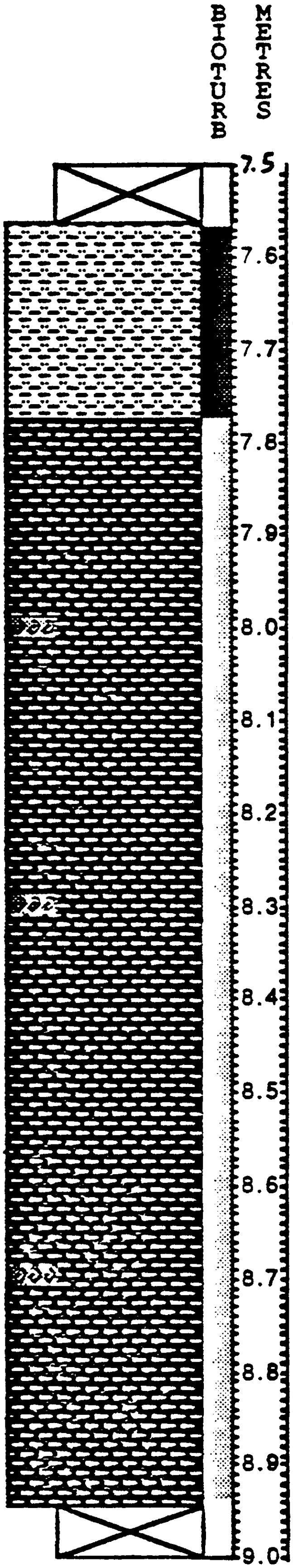
Top of SECTION 5 = 607 cm (bottom of SECTION 4 = 605 cm, plus 2 cm were lost on deck during core recovery).

occurrences of bioturbated fine laminae

bioturbated fine laminae

bioturbated fine laminae

F2-92-P32 Section 6
34° 11.00'N 120° 03.81'W 583m



top = 757 cm

SILTY CLAY, Grayish olive (10Y 4/2), very cohesive (difficult to split core); gas pockets scattered throughout; massive with common bioturbation 757-778 cm, mm-scale to cm-scale laminae in narrow zones of very small horizontal burrows between 778-894 cm.

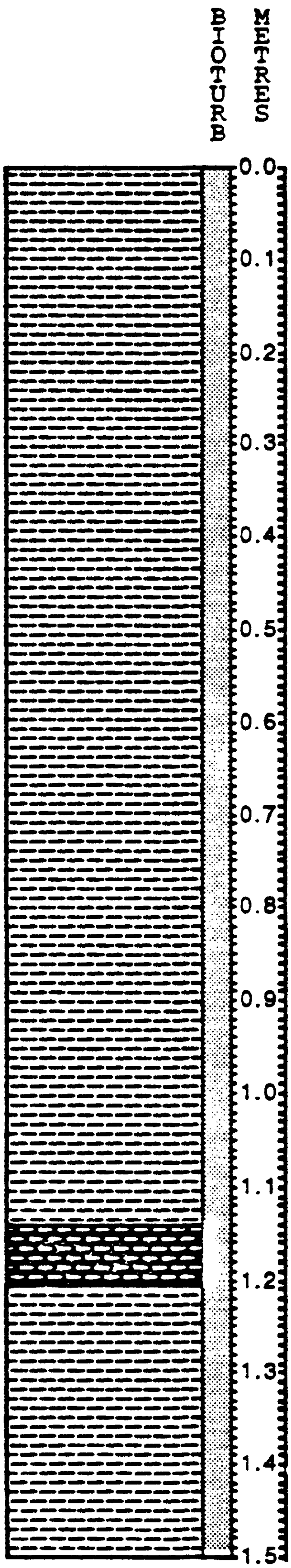
shell fragment

shell fragment

shell fragment

bottom of core = 894 cm

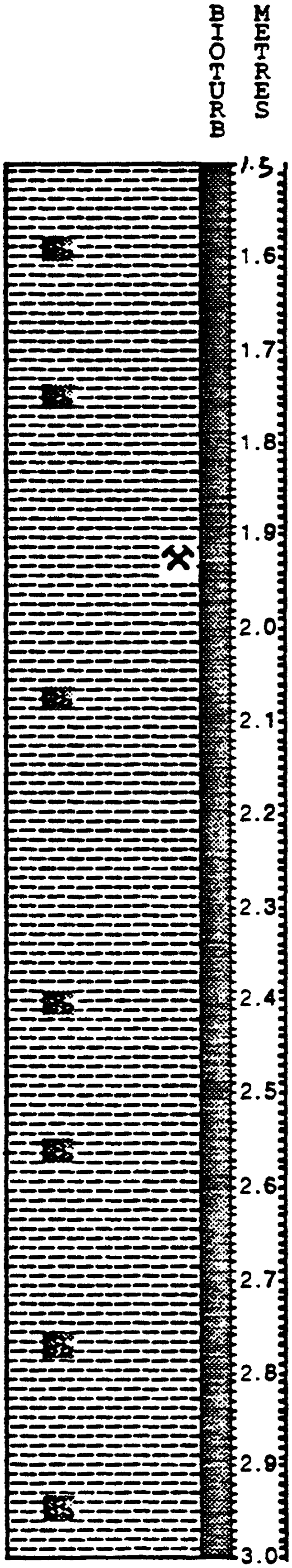
F2-92-P33, SECTION 1
34° 48.09' N, 121° 08.32' W, 757m



CLAY, dark grayish olive (10Y3/2); homogeneous; burrows rare; faint laminations as indicated

faint laminations

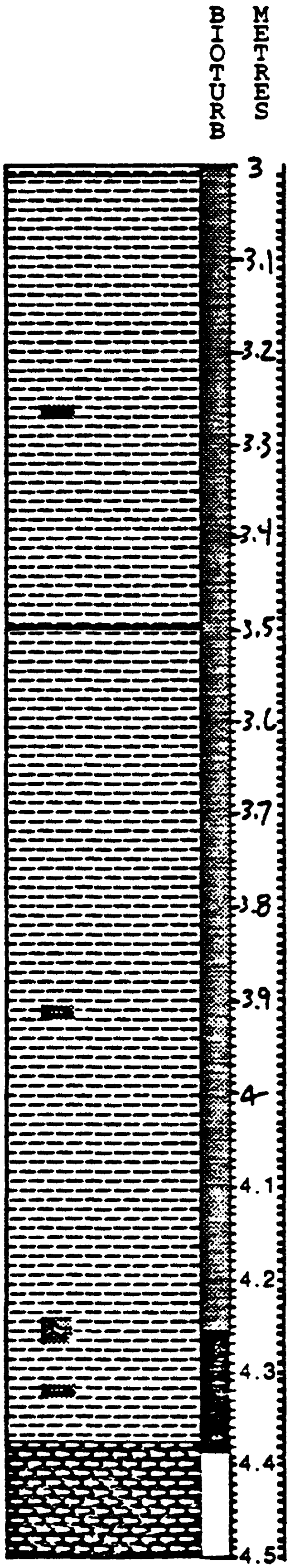
F2-92-P33, SECTION 2
34° 48.09" N, 121°08.32' W, 575m



CLAY, dark grayish olive (10Y4/2); homogeneous; occasional burrows, some large (planolites-type) and some small (chondrites-type); Foram rich

Smear slide, 192 cm:
Dominantly angular sand-size quartz grains; Siliceous spicules-C; Nannos-C; Diatoms, Formas, and Rads all Rare

F2-92-P33, SECTION 3
34° 48.09' N, 121° 08.32' W, 575 m



CLAY, dark grayish olive (10Y3/2); homogeneous with occasional burrows; lower 10 cm faintly laminated

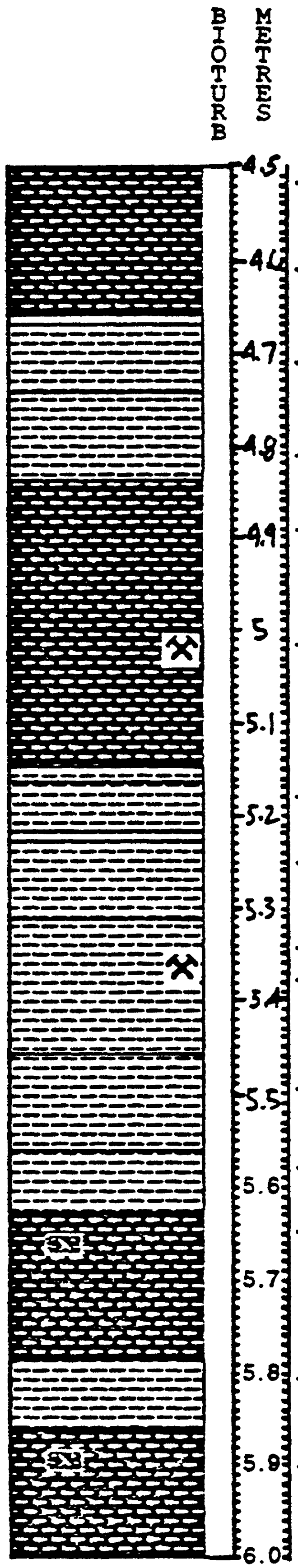
Sect. 3A: 300-350 cm
Sect. 3B: 350-450 cm

350 cm = join, sect 3A/B

heavily bioturbated; large burrows overprinting smaller burrows

faint fine laminations

F2-92-P33, SECTION 4
34° 48.09' N, 121° 08.32' W, 575 m



CLAY, dark grayish olive (10Y3/2) to olive gray (5Y3/2) with laminated bioturbated cycles; cycles consist of a laminated zone that grades upwar into a microbioturbated zone (Chondrites-type) that is overprinted by larger burrows that go down into the laminated zone (Planolites-type); th bioturbated zone is then overlain by a massive zone

laminated

massive

microbioturbated

laminated

Smear slide, 502 cm:
Benthic and planktonic Forams-A; Diatoms-A; Nannos-C; Siliceous spicules-C; large, angular quartz grains-C; Rads-R

small burrows

Massive

small burrows

Smear slide 536 cm:
mostly terrigenous grains with Siliceous spicules-C; carbonate fragments-C; Diatoms, Formas, and Rads all R

large burrows

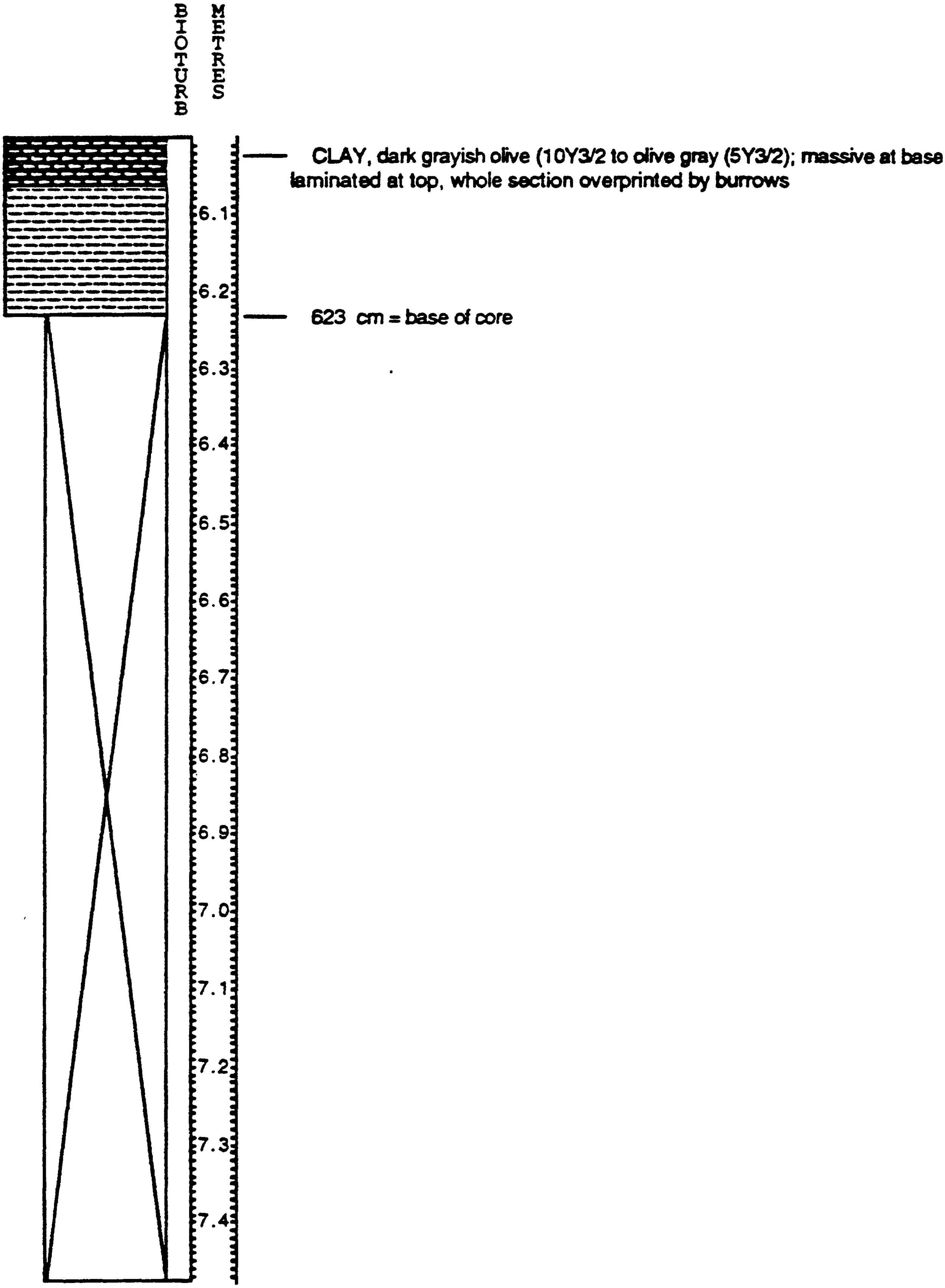
massive

laminated zone overlain by microbioturbated zone

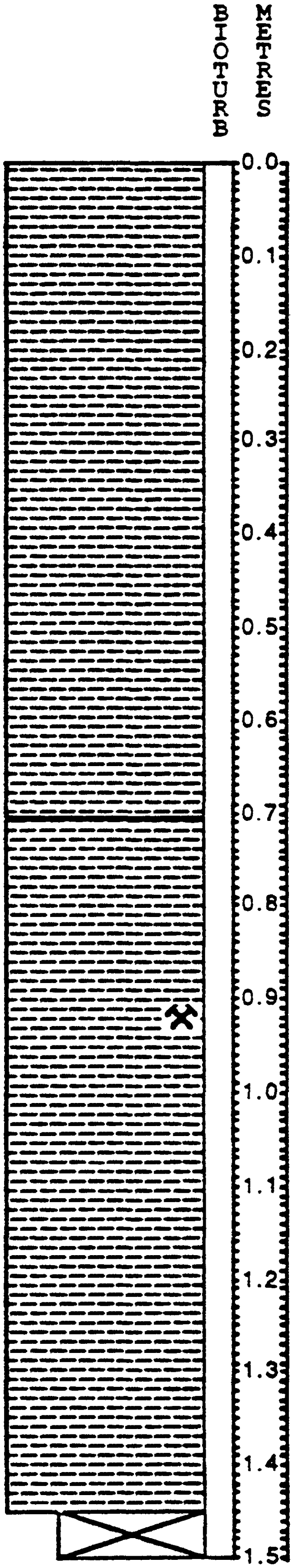
massive

laminated zone overlain by microbioturbated zone

F2-92-P33, SECTION 5
34° 48.09' N, 121° 08.32' W, 575 m



F2-92-P34, SECTION 1
35° 0185' N, 121° 13.54' W, 610 m



CLAY, 0-70 cm = olive gray (5Y3/2), 70-145 cm = dark olive brown (5Y3/4); homogeneous mottled with horizontal fabric

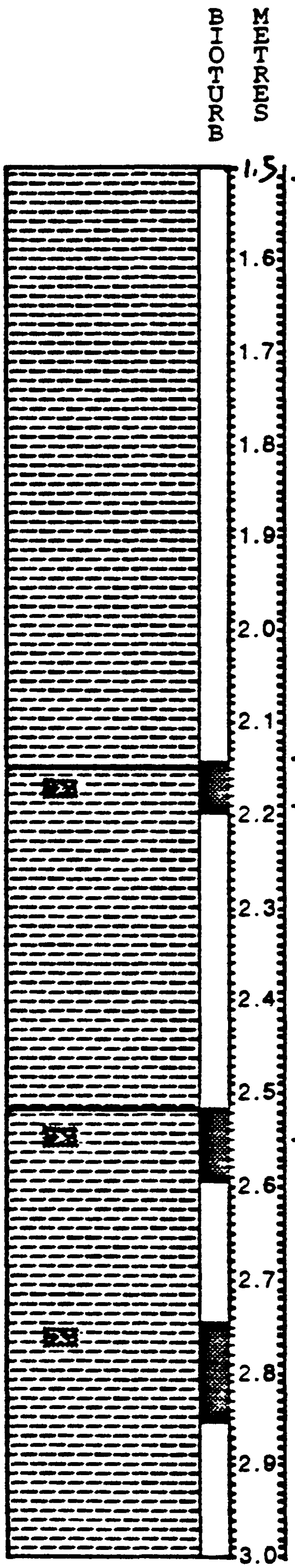
5Y3/2

5Y3/4

Smear slide, 91 cm:
silt and clay; Nannos-C; Forams-C; Diatoms and Rads-R

145-150 cm = void

F2-92-P34, SECTION 2
35° 01.85' N, 121° 13.54' W, 610 m



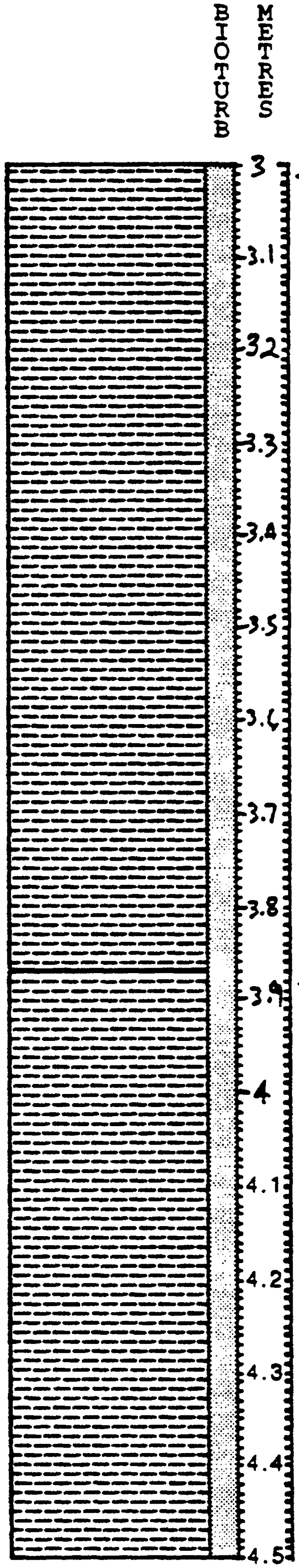
CLAY, dark olive brown (5Y3/4) to grayish olive (10Y4/2), with SILT lenses; cycles with massive zones interbedded with bioturbated zones

5Y3/4

10Y4/2

5Y3/4

F2-92-P34, SECTION 3
35° 01.85' N, 121° 13.54' W, 610 m

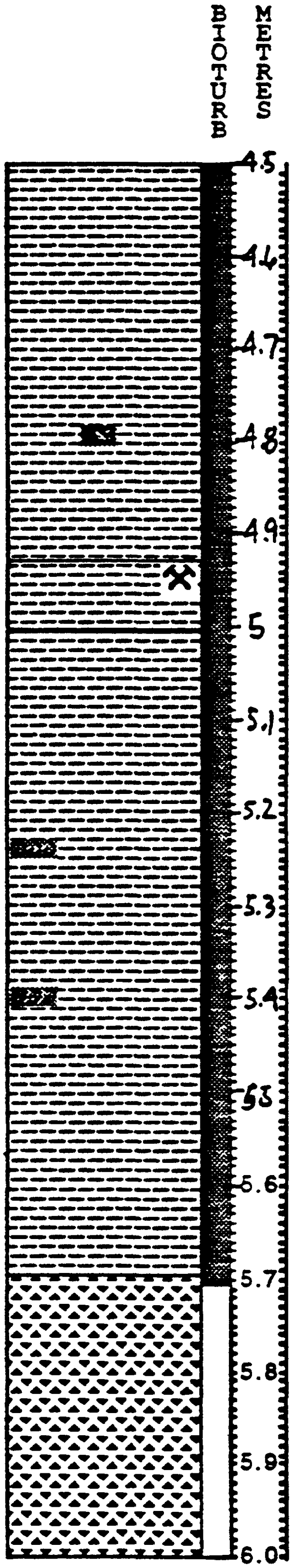


Sect. 3A, 300-387 cm: CLAY, grayish olive (10Y4/2), moderate olive brown (5Y4/4), and olive gray (5Y4/1) in color bands several cm thick; homogeneous, burrows rare

Sect 3B, 387-450 cm: CLAY, grayish olive (10Y4/2); homogeneous, slightly mottled; burrows rare

F2-92-P34 Section 4

35° 01.85'N 1221° 13.54'W 610m



CLAY, Grayish olive (10Y 4/2), homogeneous with common bioturbation except: 480-493 cm (= horizontal Chondrites); 493-499 cm(= Medium light gray (N6) clay layer; 499-501 cm (= Medium light gray and black speckled clay layer). Shell fragments @ 525 cm and 540-545 cm.

FLOW-IN STRUCTURE BELOW 570 cm.

horizontal Chondrites

smear slide (496 cm):
clay - A
biogenic poor

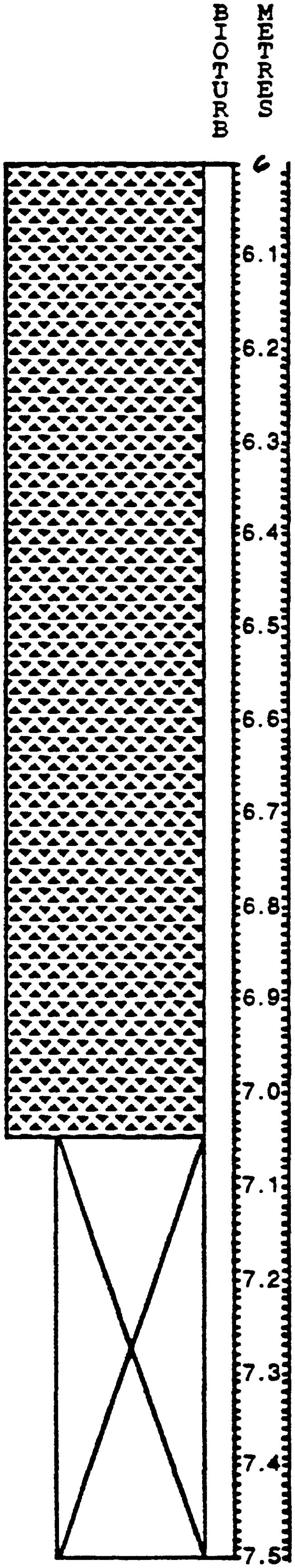
Medium light gray (N6) clay layer

shell fragment

flow-in structure 570-600 cm

SECTION 5

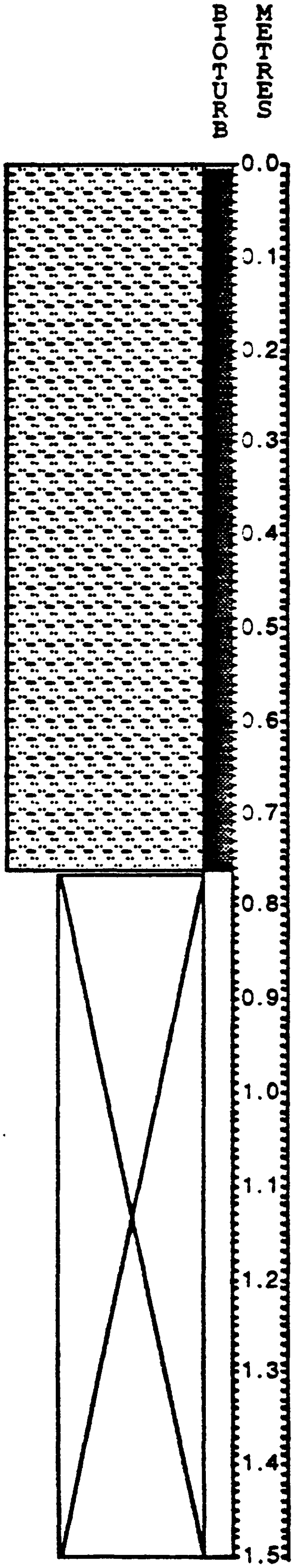
35° 01.85'N 121° 13.54'W 610m



CLAY, Olive gray (5Y 3/2) and Grayish olive (10Y 4/2), deformed (flow-i
structures) throughout.

voids between 608-630 cm and 638-645 cm

F2-92-P36 Section 1
35° 10.91'N 121° 18.13'W 655m

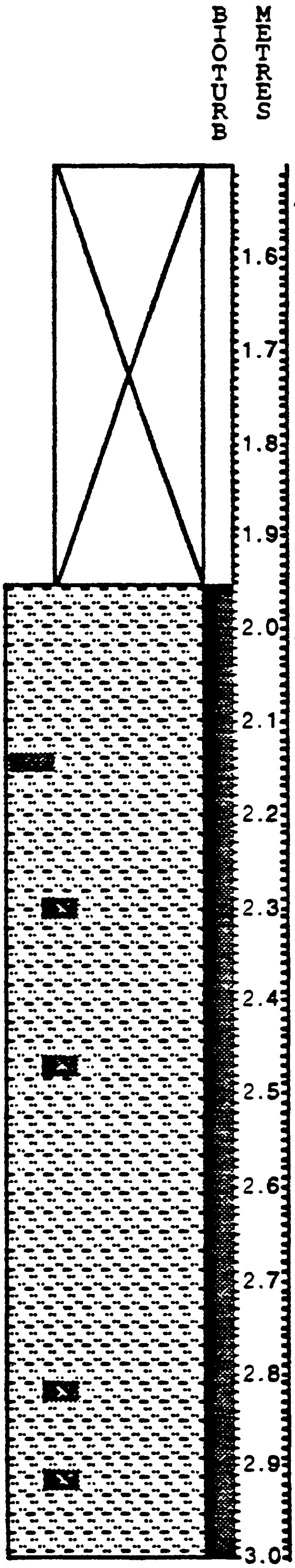


CLAYEY SILT, Grayish olive (10Y 4/2), homogeneous, bioturbation common; poorly consolidated.

bottom of SECTION 1a = 76 cm

SECTION 1b (76-150 cm): Badly imploded, not split

F2-92-P36 Section 2
35° 10.91'N 121° 18.13'W 655m



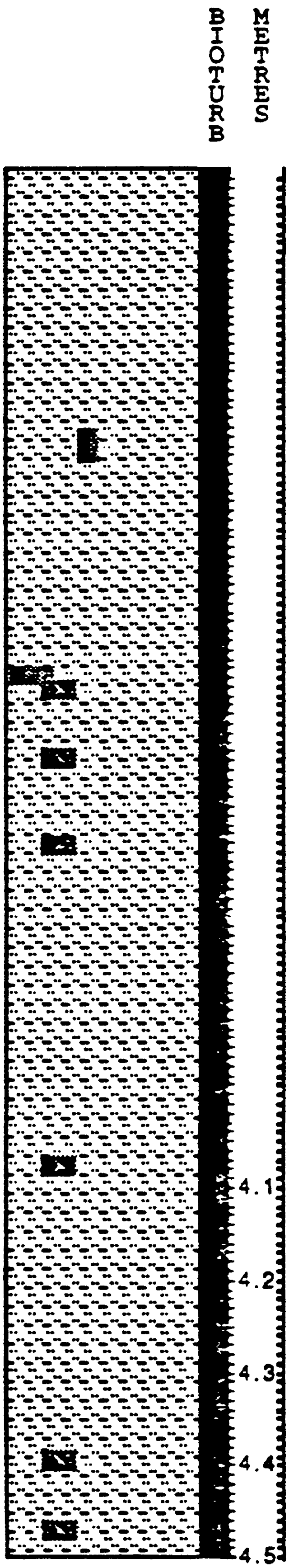
SECTION 2a (150-196 cm): Badly imploded, not split.

SECTION 2b (196-300 cm)

CLAYEY SILT, Grayish olive (10Y 4/2), homogeneous with scattered large burrows; bioturbation common.

shell fragments

F2 -92-P36 Section 3
35° 10.91'N 121° 18.13'W 655m



CLAYEY SILT, Grayish olive (10Y 4/2), with bioturbation cycles. Distinct large burrows, horizontal Chondrites, and abundant forams in zones 328-333 cm, 360-375 cm, 400-405 cm, 413-417 cm, 435-450 cm. Sediment otherwise homogeneous. Shell fragments @ 354 cm. Very interesting vertical burrow @ 445 cm.

abundant forams

shell fragment

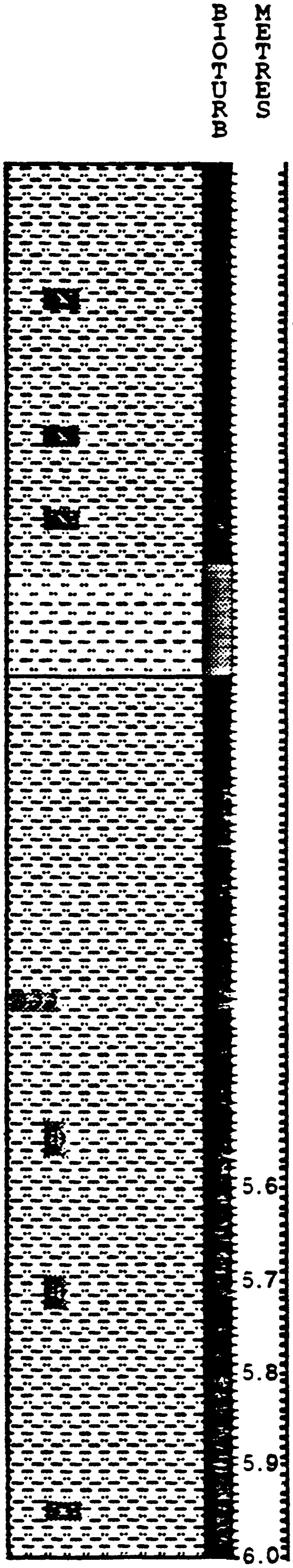
zone of distinct bioturbation and abundant forams (360-371 cm) -- includes large burrows and horizontal Chondrites

zone with distinct small burrows and abundant forams

zone with distinct small burrows and abundant forams

distinct small burrows, one vertical burrow; abundant forams (439-449 cm)

F2-92-P36 Section 4
35° 10.91'N 121° 18.13'W 655m



SILTY CLAY, Olive gray (10Y 4/4), one bioturbation/lamination cycle between 470-505 cm. Laminae faint, NOT VARVE-LIKE, 498-502 cm; distinct small burrows 470-498 cm; abundant forams btw 485-502 cm. Shell fragments btw 537-546 cm. Foram-rich zone between 555-575 cm

Massive zones have abundant bioturbation.

massive

strongly bioturbated

massive

shell fragments

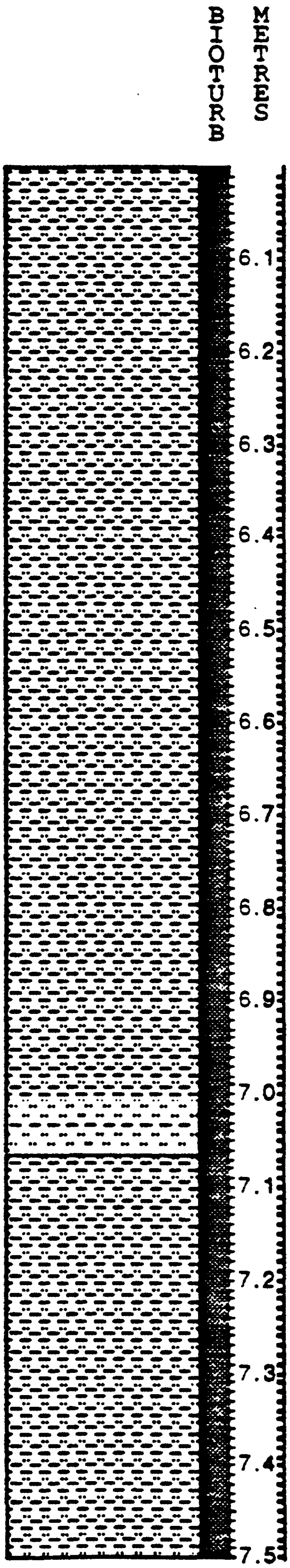
SECTION 4a = 450-550 cm
SECTION 4b = 550-600 cm

massive foram-rich zone

horizontal Chondrites

F2-92-P36 Section 5

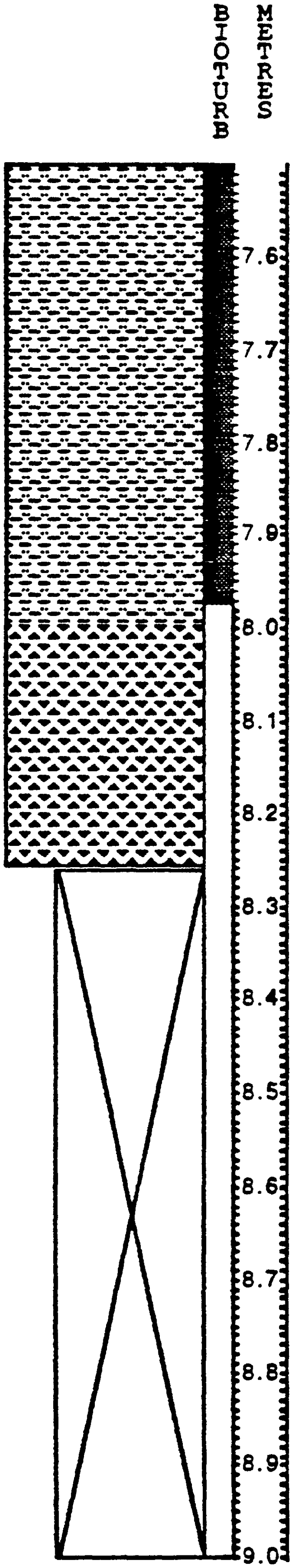
35° 10.91'N 121° 18.13'W 655m



SILTY CLAY, Grayish olive (10Y 4/2). Zone of large burrows btw 615-625 cm and in isolated patches throughout. Faintly bedded (and bioturbated) section btw 700-705 cm. Bioturbation common.

disturbed beds

F2-92-P36 Section 6
35° 10.91'N 121° 18.13'W 655m



SILTY CLAY, Grayish olive (10Y 4/2) with 2 bioturbation cycles (large burrows giving way to small burrows) @ 755-770 cm and 780-800 cm; massive (faintly bioturbated) sections btw 750-755 cm and 770-780 cm.

CORE DEFORMED 800-826 cm.

large burrows

faintly bioturbated

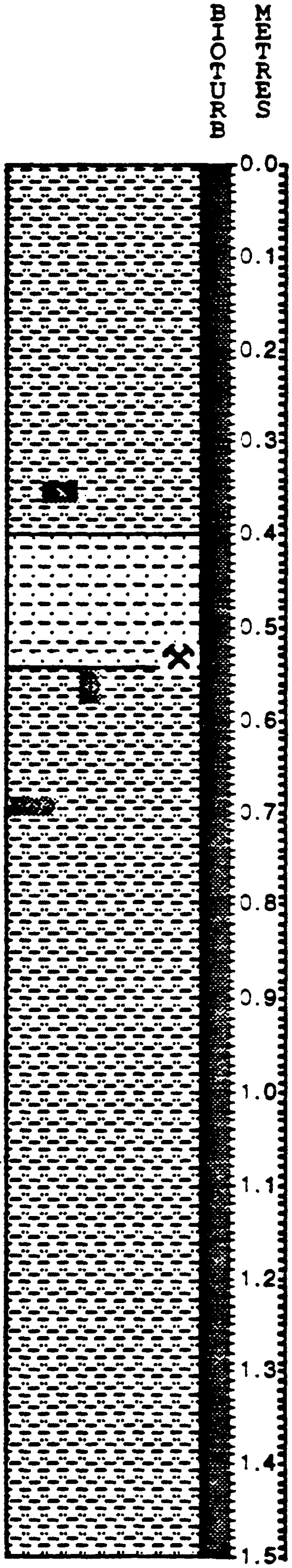
small burrows

large burrows

deformed -- flow-in structure

base of core = 826 cm

F2-92-P37 Section 1
35° 16.69'N 121° 19.36'W 660m



SILTY CLAY, Grayish olive (10Y 4/2); foram-rich layer @ 55 cm; faint bedding above that to 40 cm. Core otherwise homogeneous with common bioturbation.

large burrow

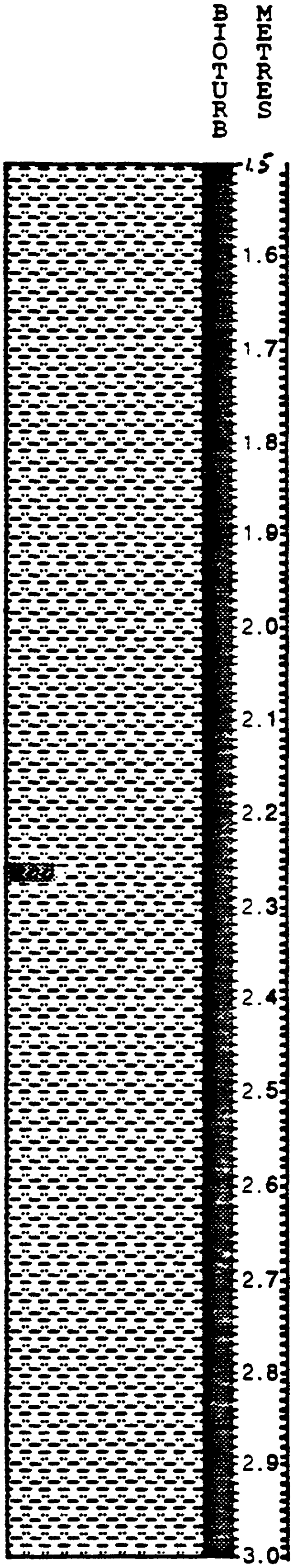
faintly bedded btw 40-55 cm

smear slide (53 cm): clay - A; diatoms - C; rads - R; spicules - R; forams - R; detrital grains - R; nannos - R.

foram-rich zone at 55 cm (Bolivina)

shell fragment

F2-92-P37 Section 2
35° 16.79'N 121° 19.36'W 660m

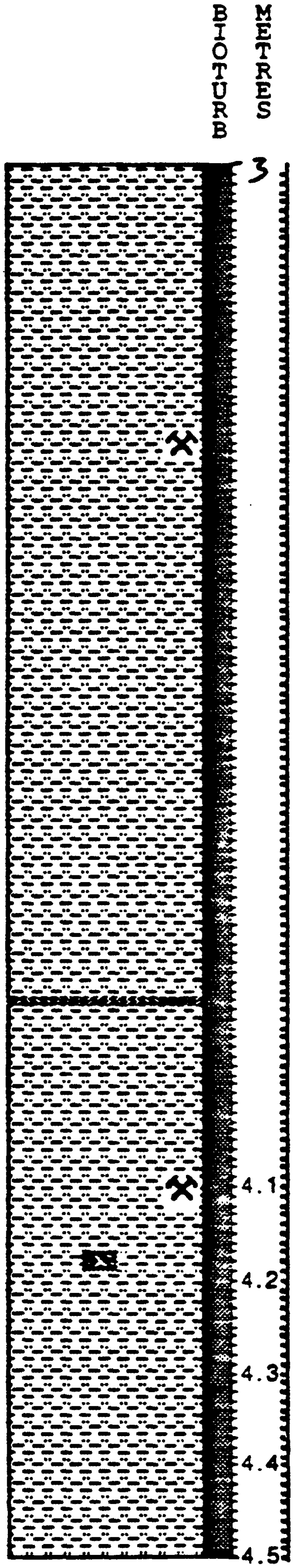


SILTY CLAY, Grayish olive (10Y 4/2), massive, common bioturbation.

Gas pockets @ 160 cm and 250 cm.

shell fragments btw 225-235 cm

F2-92-P37 Section 3
35° 16.79'N 121° 19.36'W 660m



SILTY CLAY, Grayish olive (10Y 4/2) between 300-390 cm, with slight color change across a bioturbated contact to Dusky yellow green (5GY 3/2). Bioturbation common throughout.

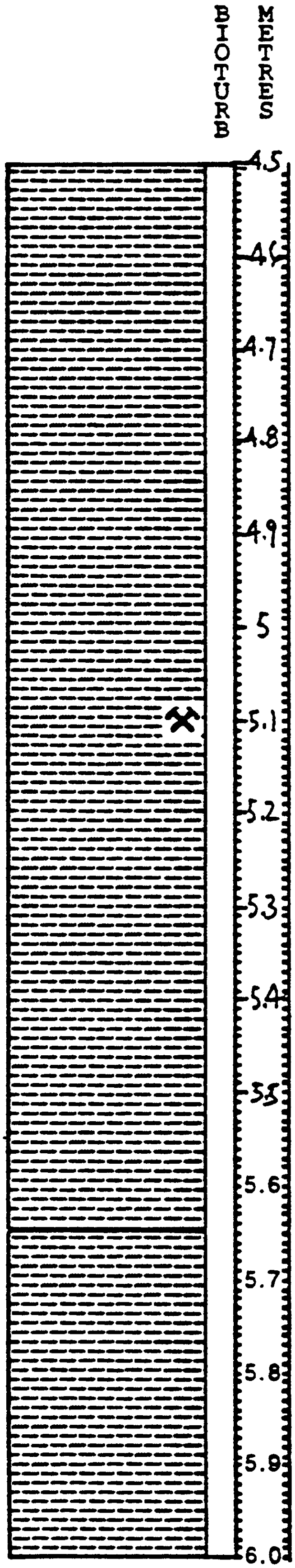
grayish olive color

Dusky yellow green color (or something close to that)

smear slide (410 cm):
clay - C
detrital grains - C
spicules - R
nannos - R
forams - R
diatoms - R

large burrow

F2-92-P37, SECTION 4
35° 16.79' N, 121° 19.36' W, 660 m



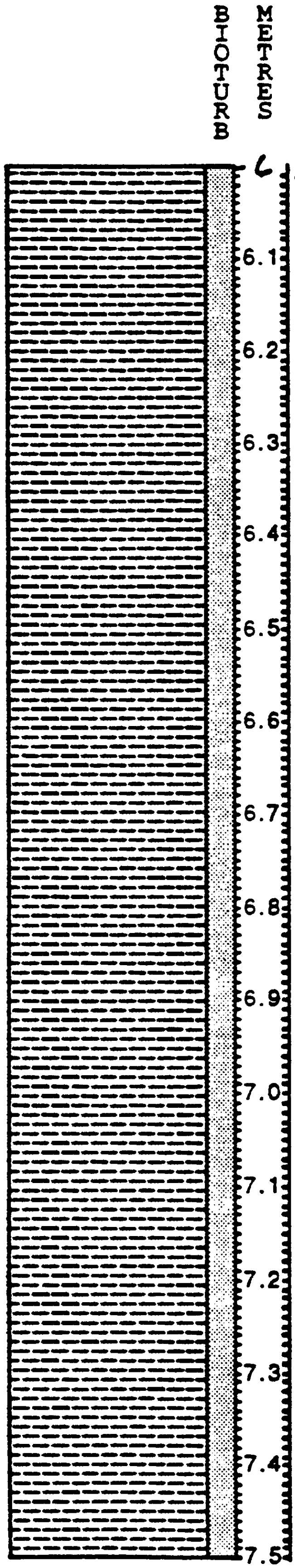
CLAY, grayish olive (10Y4/2); homogeneous; no burrows visible; some gray flecks

Sect. 4A: 450-565 cm
Sect. 4B: 565-600 cm

Smear slide, 510 cm:
Clay-A; Siliceous spicules-C; Diatoms, Rads, Forams, Nannos all R

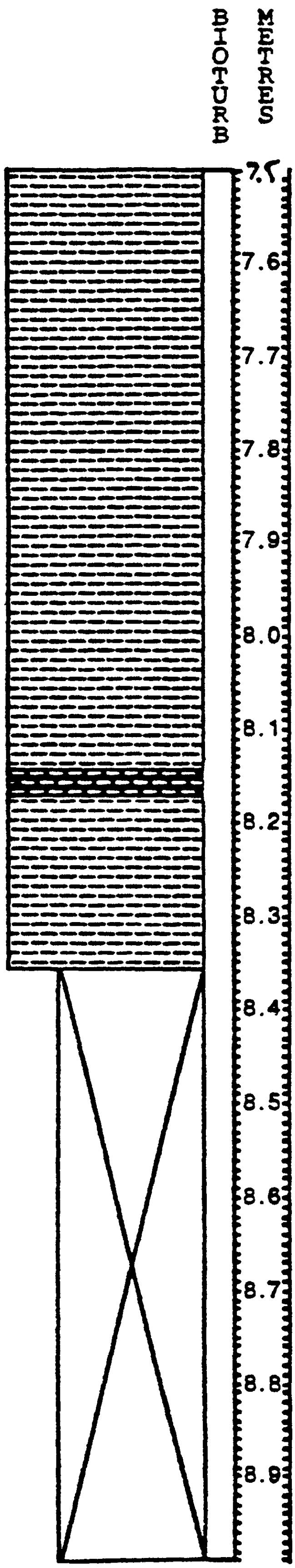
565 cm = join Sect. 4A/B

F2-92-P37, SECTION 5
35° 16.79' N, 121° 19.36' W, 660 m



Clay, grayish olive (10Y4/2); homogeneous with rare burrows and shell fragments

F2-92-P37, SECTION 6
35° 16.79' N, 121° 19.36' W, 660 m

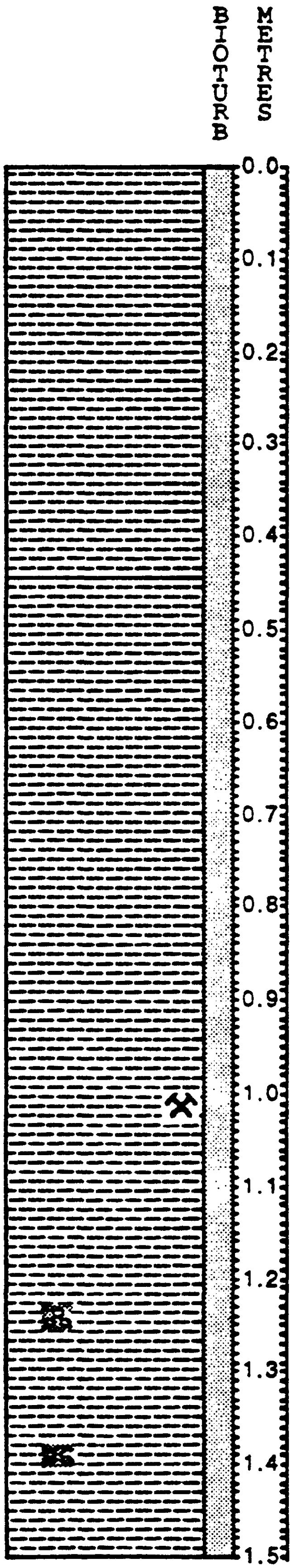


CLAY, grayish olive (10Y4/2); homogeneous with burrows; lamination
816-819 cm

Smear slide, 817 cm:
Clay-A; Diatoms-C; Forams, Nannos, Siliceous spicules all R

836 cm = base of core

F2-92-P39, SECTION 1
35° 20.06' N, 121° 25.97' W, 845 m



10Y3/2

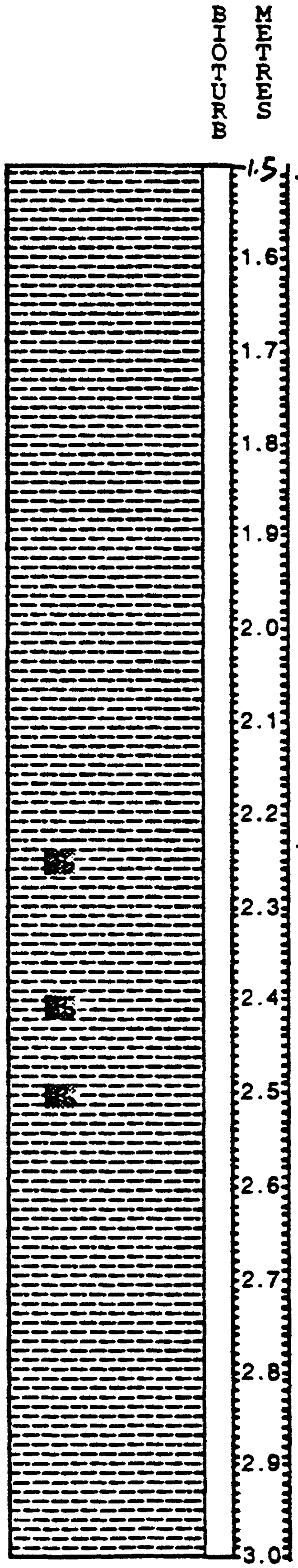
CLAY, grayish olive (10Y4/2), dark grayish olive (10Y3/2), and dark olive brown (5Y4/4); homogeneous; bioturbation rare; Foram-rich zones in lower part of core

10Y4/2

Smear slide, 100 cm:
Clay-A
Forams and Nannos-C
Diatoms and Rads-R

5Y4/4

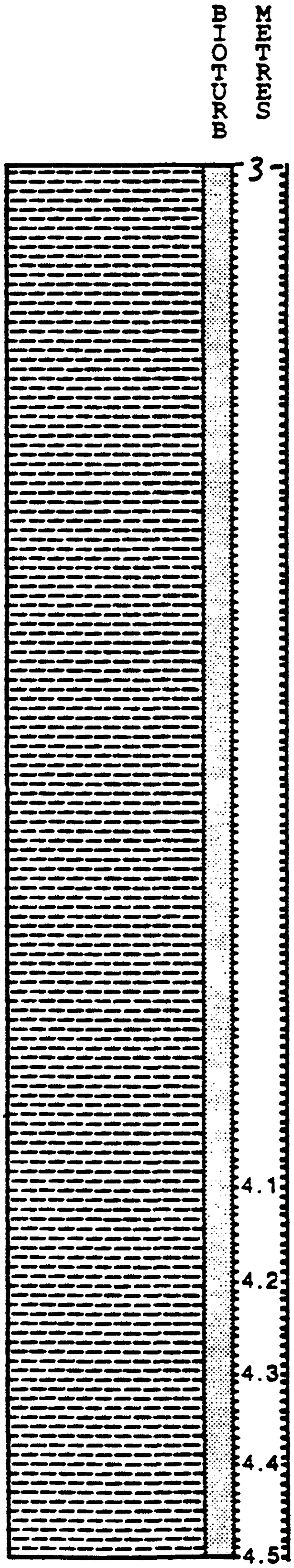
F2-92-P39, SECTION 2
35° 20.06' N, 121° 25.97' W, 845 m



CLAY, grayish olive (10Y4/2); mostly homogeneous with several zone
of microbioturbated laminae (?); Foram-rich zones in interval 225-255 cm

Smear slide, 224 cm:
Clay abundant; Diatoms, Forams, and Nannos-C; Rads-R

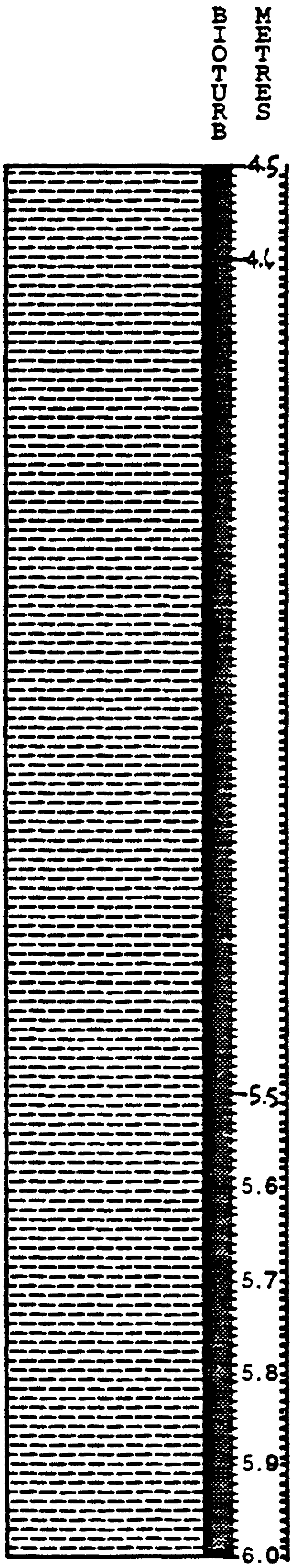
F2-92-P39, SECTION 3
35° 20.06' N, 121° 25.97' W, 845 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; faint microbioturbated (?) laminations 310-315 cm

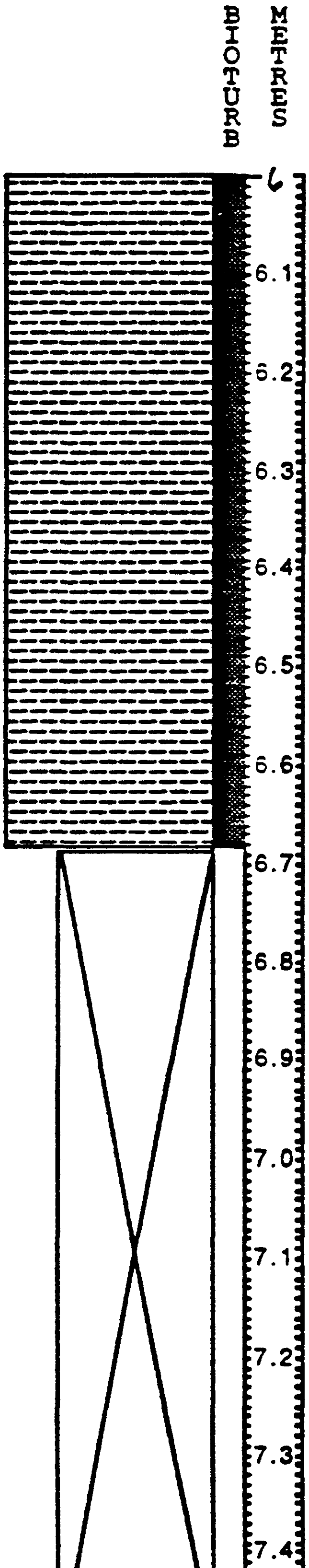
F2-92-P39 Section 4

35° 20.06'N 121° 25.97'W 845m



CLAY, Moderate olive brown (5Y 4/4); homogeneous, bioturbation common.

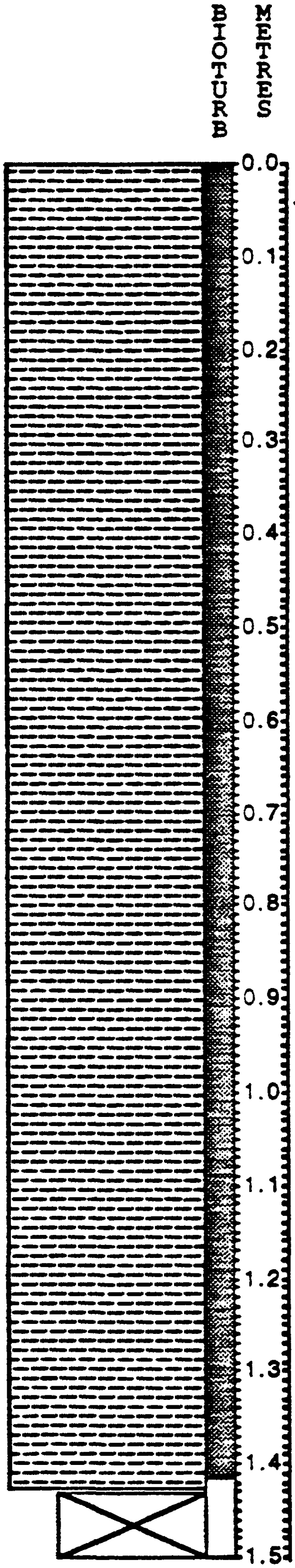
F2-92-P39 Section 5
35° 20.06'N 121° 25.97'W 845m



CLAY, Moderate olive brown (5Y 4/4), homogeneous, bioturbation common.

base of core = 669 cm

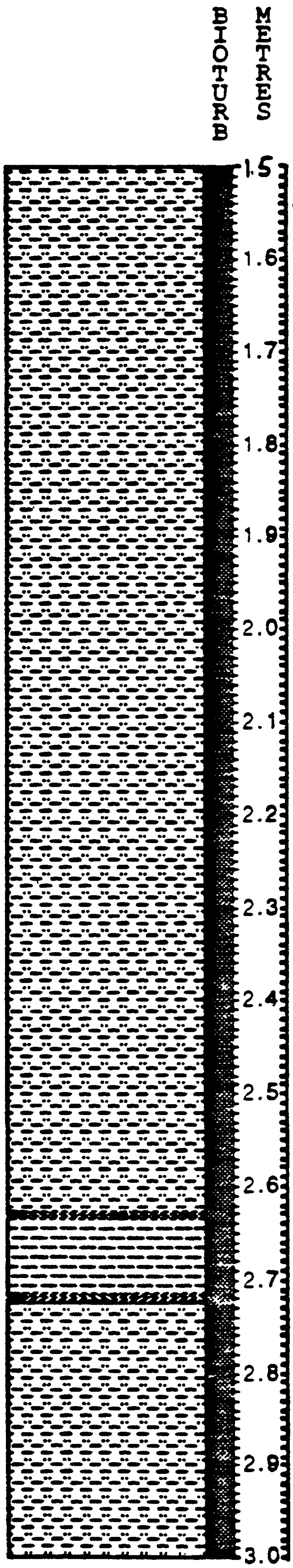
F2-92-P40 Section 1
35° 25.09'N 121° 24.95'W 760m



SILTY CLAY, Grayish olive (10Y 4/2); homogeneous, bioturbation occasional. Poorly consolidated 0-77 cm.

gap due to core being compressed upward

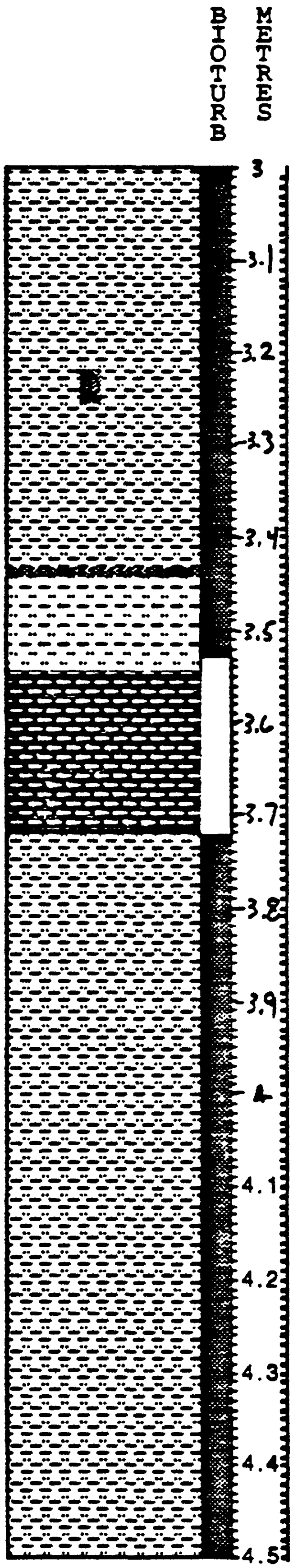
F2-92-P40 Section 2
35° 25.09'N 121° 24.95'W 760m



SILTY CLAY, Grayish olive (10Y 4/2), homogeneous, common bioturbation throughout. Very mottled gray clay layer btw 263-270 cm

mottled gray and green clay zone (heavily bioturbated) – possibly the bioturbated remnant of a gray clay layer similar to that @ 496 cm in core P34.

F2-92-P40 Section 3
35° 25.09'N 121° 24.95'W 760m



SILTY CLAY, Grayish olive (10Y 4/2), with one lamination/bioturbation zone. Foram-rich layer at 370 cm, overlain by distinct mm-scale laminae between 355-372 cm, overlain by fainter bedding disturbed by small-scale bioturbation between 345-355 cm, overlain by horizontal Chondrites and another foram-rich zone. Remainder of core thoroughly bioturbated with small to medium-sized burrows.

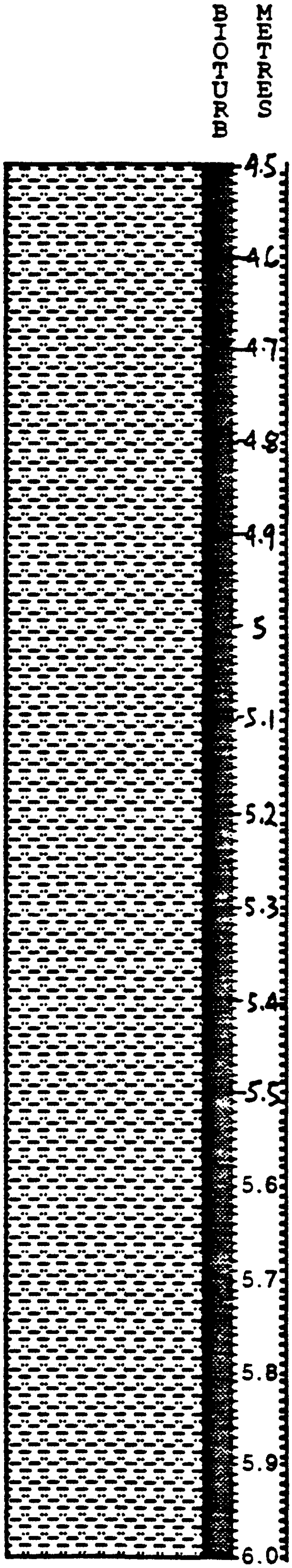
foram-rich zone scattered through 325-332 cm

faint cm-scale bedding

distinct mm-scale laminae

foram-rich zone below laminae

F2-92-P40 Section 4
35° 25.09'N 121° 24.95'W 760m

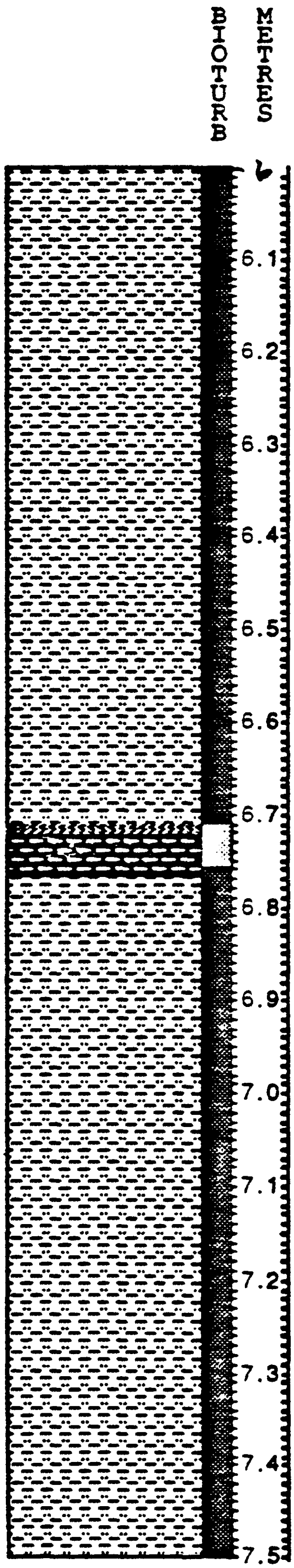


SILTY CLAY, Grayish olive (10Y 4/2), homogeneous, common bioturbation throughout.

bottom of section 4a = 551 cm

bottom of section 4b = 601 cm

F2-92-P40 Section 5
35° 25.09'N 121° 24.95'W 760m



SILTY CLAY, Grayish olive (10Y 4/2), mostly homogeneous with common bioturbation.

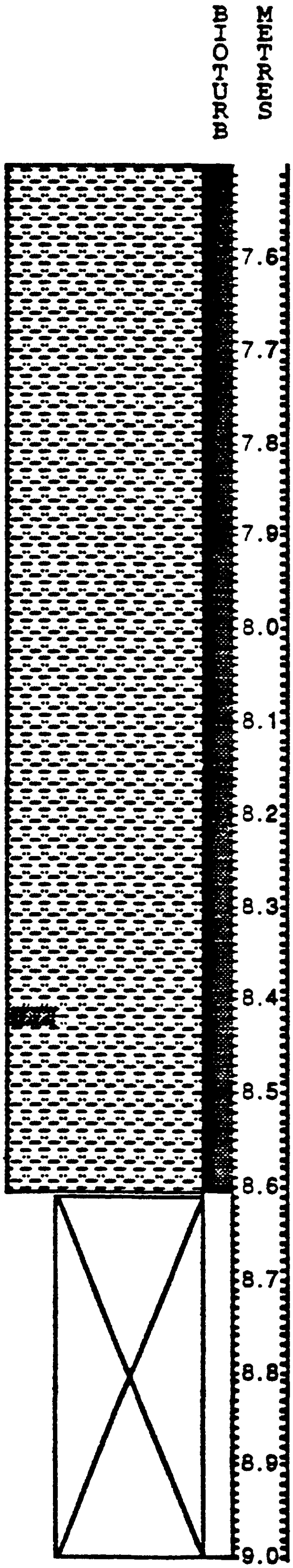
Faint mm-scale laminae (disturbed by small-scale bioturbation) between 673-676 cm; common forams in the upper part of the laminated zone.

There is a slightly lighter olive green colored zone between 690-695 cm.

horizontal Chondrites (faint) between 660-672 cm

faint mm-scale laminae (disturbed by bioturbation); forams common nea 673 cm

F2-92-P40 Section 6
35° 25.09'N 121° 24.95'W 760m



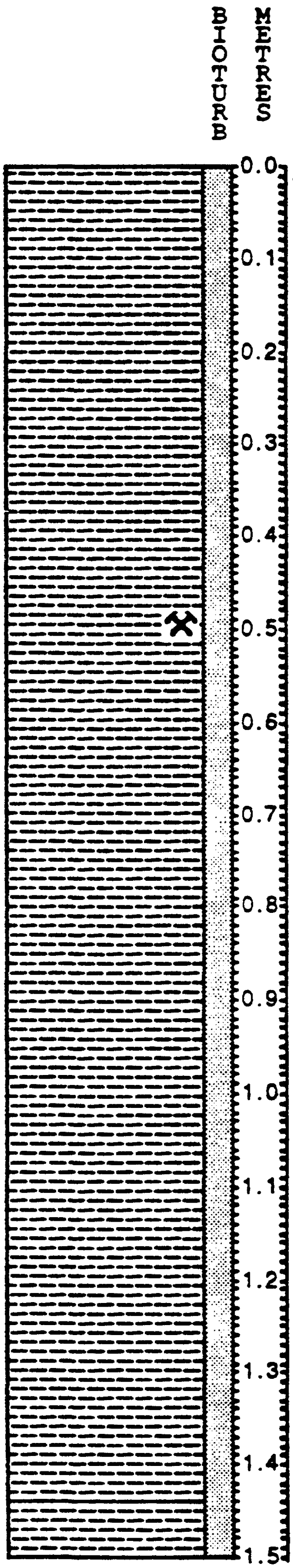
top of SECTION 6 = 751 cm

SILTY CLAY, Grayish olive (10Y 4/2), homogeneous with common bioturbation.

shell fragments

base of core = 861 cm

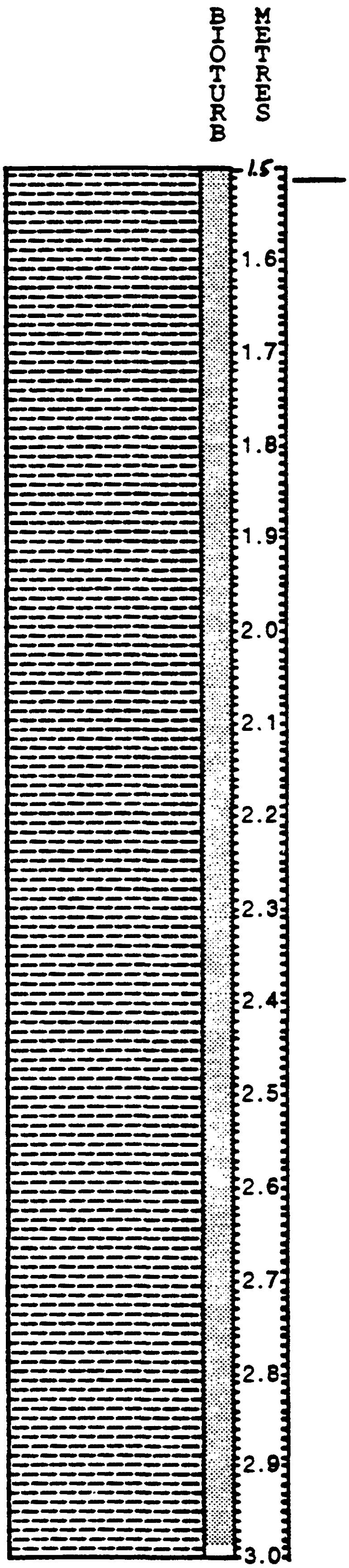
F2-92-P41, SECTION 1
35° 27.33' N, 121° 23.08' W, 640 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

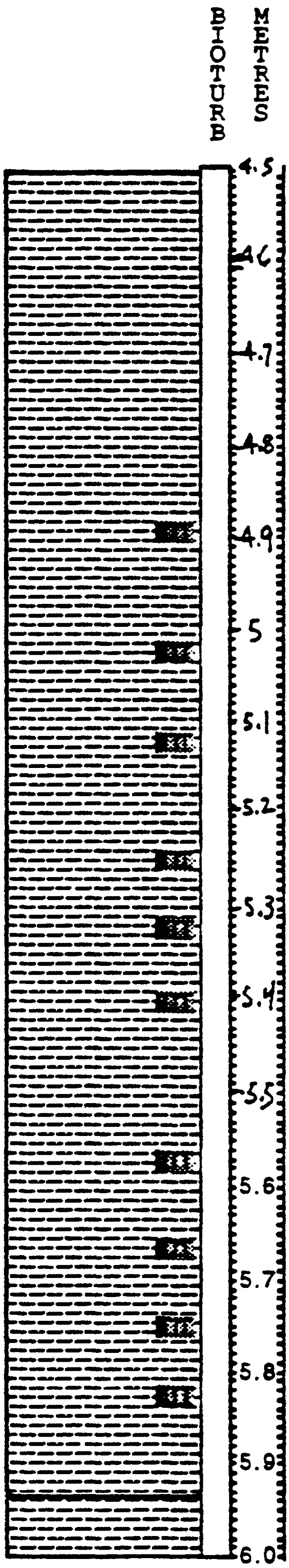
Smear slide, 50 cm:
Clay dominate
Fish debris-C
Siliceous,spicules -C
Carbonate grains, recryst.-C
Detrital grains, silt size-C
No Nannos, Diatoms, Forams, or Rads

F2-92-P41, SECTION 2
35° 27.33' N, 121° 23.08' W, 640 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

F2-92-P41, SECTION 4
35° 27.33' N, 121° 23.08' W, 640 m



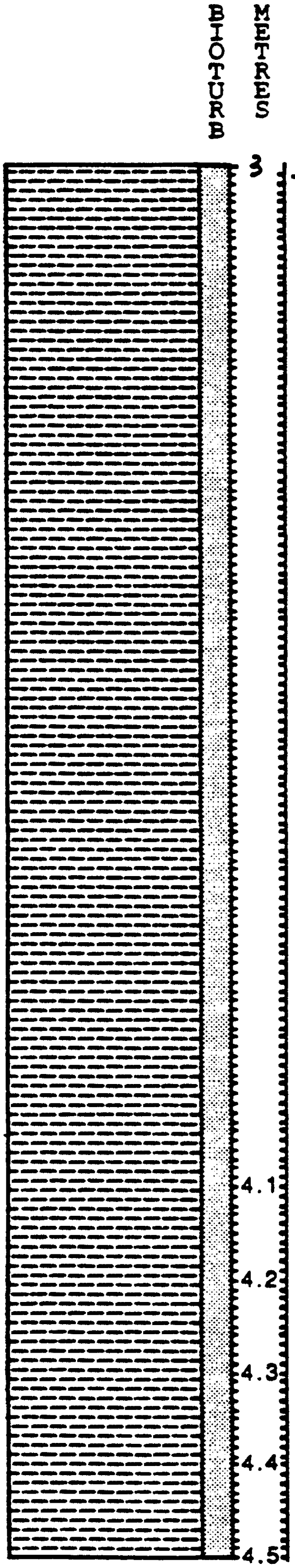
CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; 490 cm, gas cracks begin and increase with depth

Sect. 4A: 450-594 cm
Sect 4B: 594-600 cm (not split)

490 cm - begin gas cracks

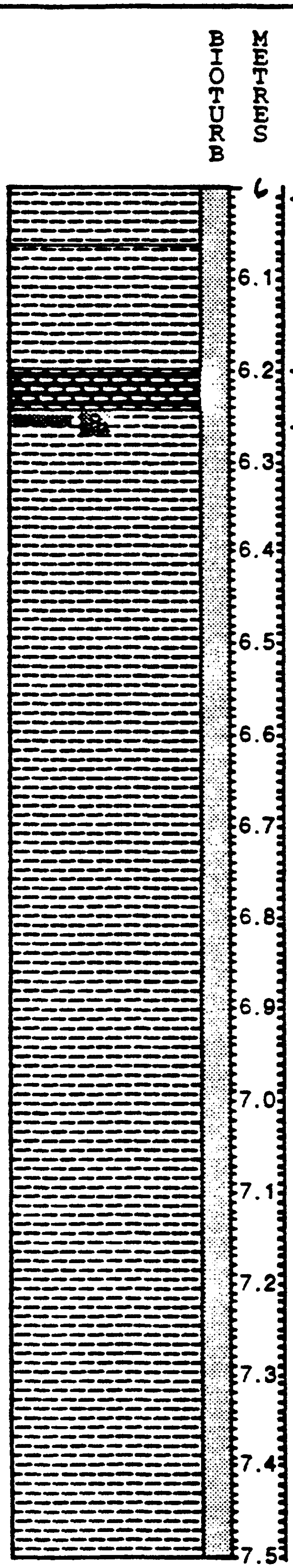
594 cm = join, Sect. 4A/B

F2-92-P41, SECTION 3
35° 27.33' N, 121° 23.08' W, 640 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

F2-92-P41, SECTION 5
35° 27.33' N, 121° 23.08' W, 640 m

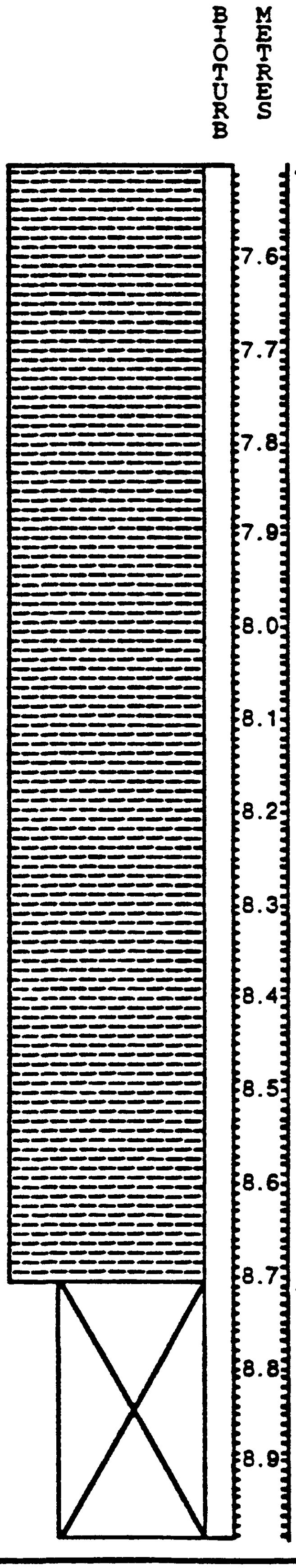


CLAY, grayish olive (10Y4/2); homogeneous except for laminations at 620-623 cm; bioturbation rare

620-623 faint laminations

624 cm - Foram-rich layer

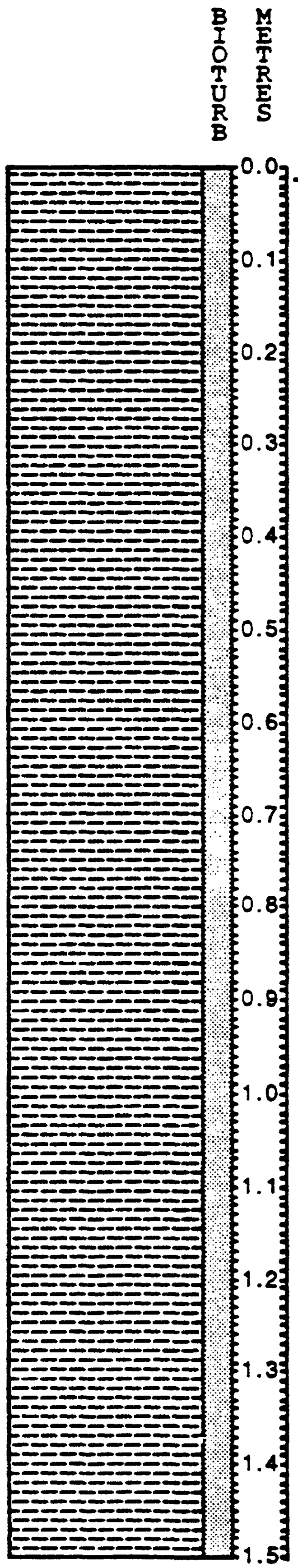
F2-92-P41, SECTION 6
35° 27.33' N, 121° 23.08' W, 640 m



CLAY, grayish olive (10Y4/2); homogeneous; black flecks common throughout

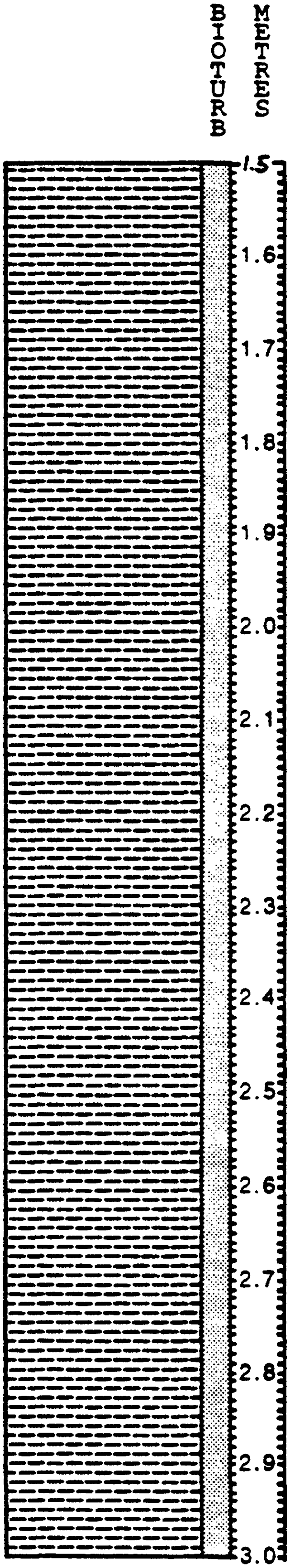
871 cm = base of core

F2-92-P42, SECTION 1
35° 29.51' N, 121° 26.33' W, 725 m



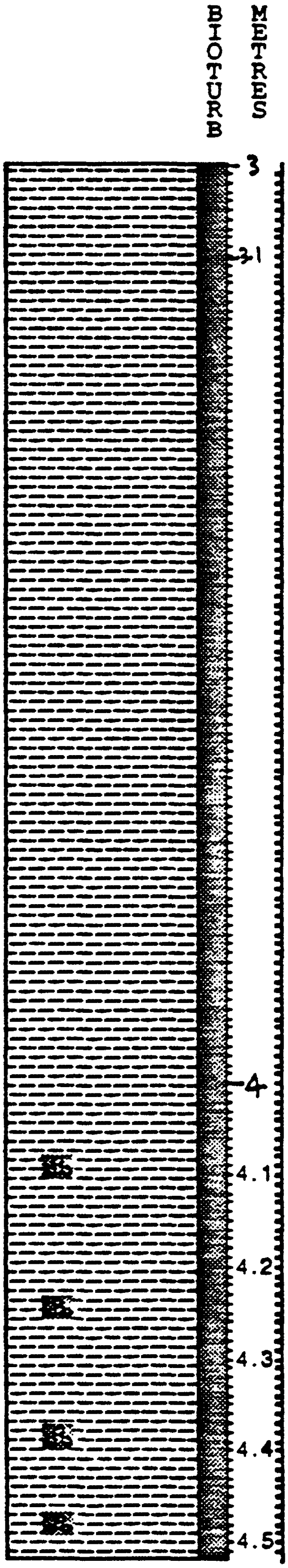
CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

F2-92-P42, SECTION 2
35° 29.51' N, 121° 26.33' W, 725 mh



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

F2-92-P42, SECTION 3
35° 29.51' N, 121° 26.33' W, 725 m

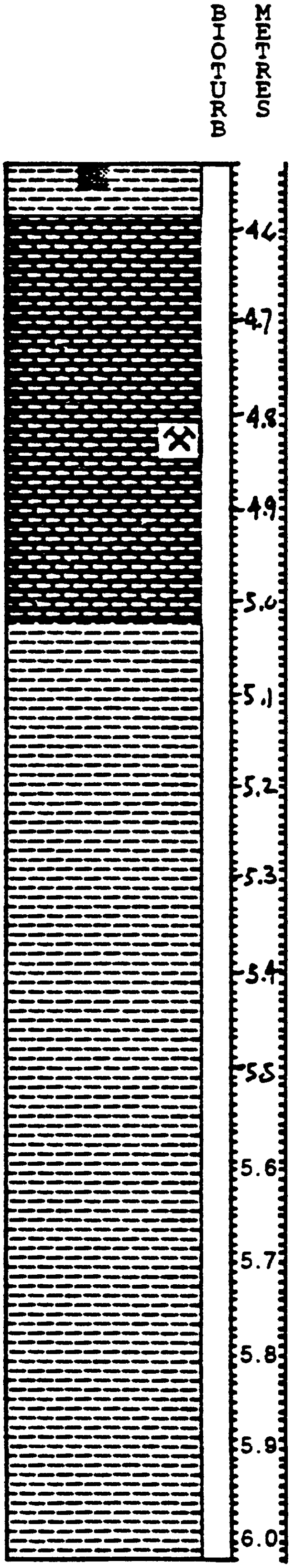


CLAY, grayish olive (10Y4/2); homogeneous; Foram-rich zones below 400 cm

Smear slide, 435 cm:
Clay-A; Diatoms-C; Forams-C; Siliceous spicules-C; Nannos-C; Quartz, grains, angular-C; opaque micronodules-R; Glauconite(?)-R

bottom of section = 452 cm

FG2-92-P42, SECTION 4
35° 29.51' N, 121° 26.33' W, 725 m



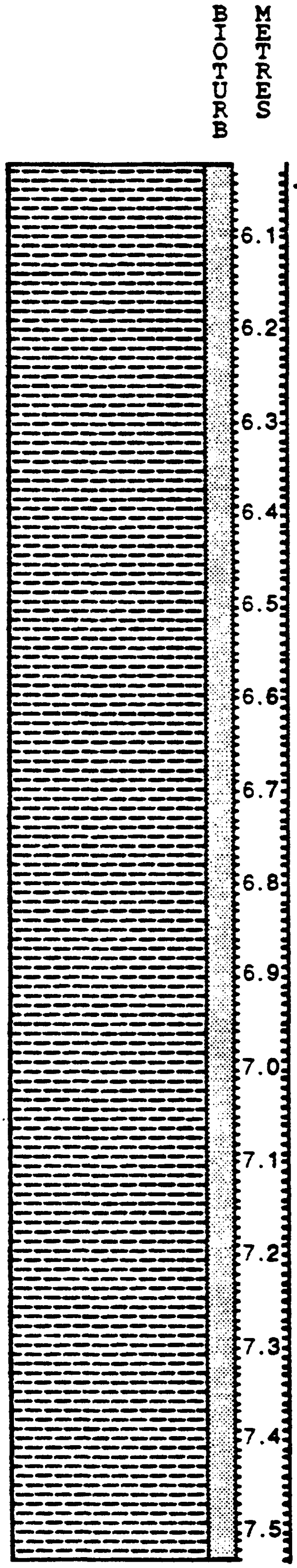
Top of Section = 452 cm

CLAY, grayish olive (10Y4/2); mostly homogeneous with laminated secrtion 458-502 cm; black specks common below 502 cm.

Smear slide, 481 cm:
Clay-A; Nannos-C; Diatoms-C; Micronodules-C; Forams-R; Glauconite (?)-R

base of section = 602 cm

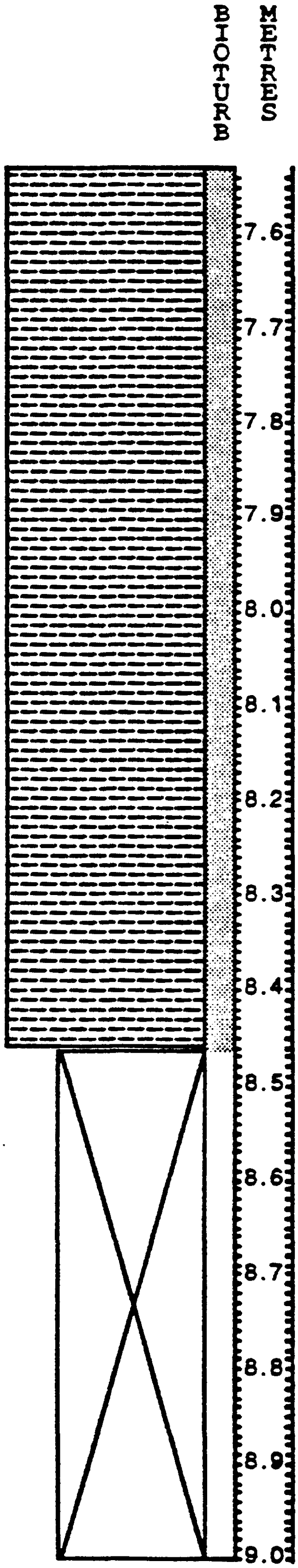
F2-92-P42, SECTION 5
35° 29.51' N; 121° 26.33' W, 725 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; black flecks throughout

bottom of sect. = 753 cm

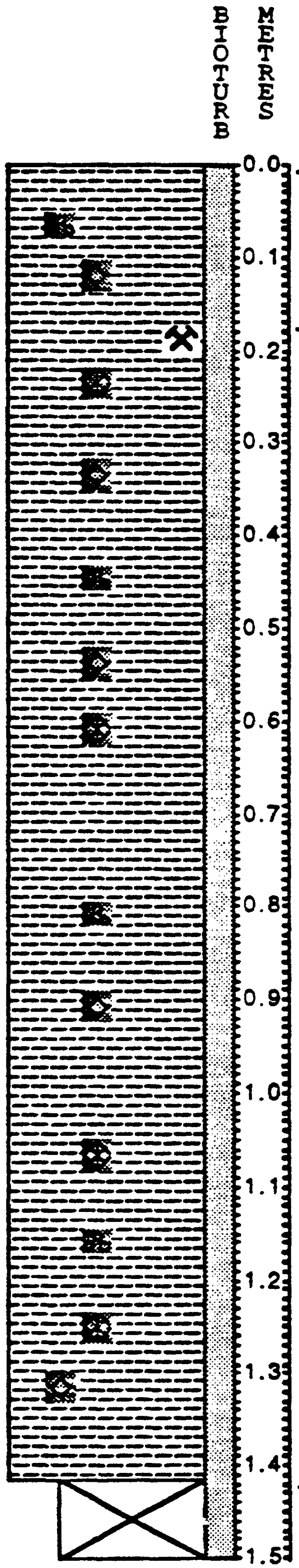
F2-92-P42, SECTION 6
35° 29.51' N, 121° 26.33' W, 725 m



top of section = 753 cm; CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; black flecks present throughout

846 cm = base of core

F2-92-P43, SECTION 1
35° 32.33' N, 121° 33.94' W, 855 m

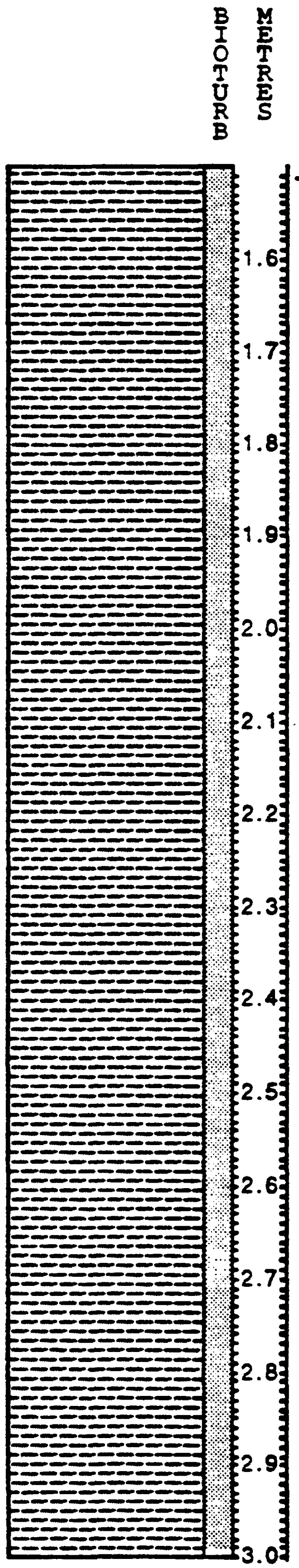


CLAY, 0-25 cm = olive gray (5Y3/2), 25-142 cm = dark grayish olive (10Y3/2); homogeneous; bioturbation rare

Smear slide, 18 cm:
Clay-A; Rads, Diatoms, Siliceous spicules, Forams, and Carbonate fragments all C

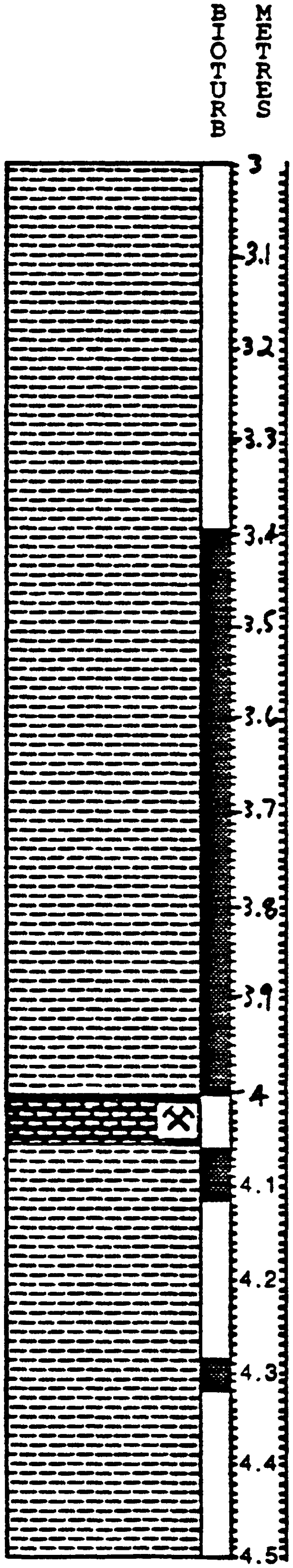
Void

F2-92-P43, SECTION 2
35° 32.33' N, 121° 33.94' W, 855 m



CLAY. grayish olive (10Y4/2); homogeneous; bioturbation rare

F2-92-P43, SECTION 3
35° 32.33' N, 121° 33.94' W, 855 m



CLAY, grayish olive (10Y3/2); homogenous; massive to bioturbated as indicated; faint laminations 400-405 cm.

massive

bioturbated

Smear slide, 400 cm:
Clay -A; Siliceous debris, Siliceous spicules, Forams, and Nannos all C; Diatoms and Rads -R

faint laminations

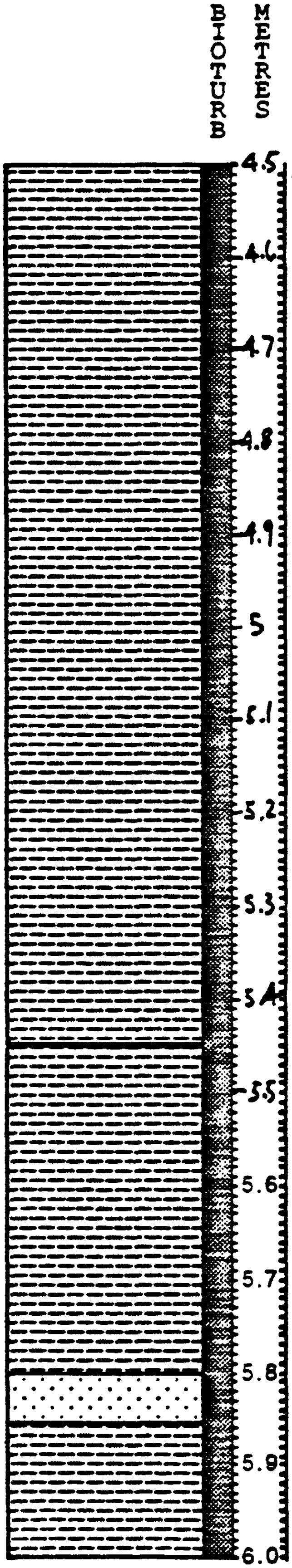
bioturbated

massive

bioturbated

massive

F2-92-P43, SECTION 4
35° 32.33' N, 121° 33.94' W, 855 m



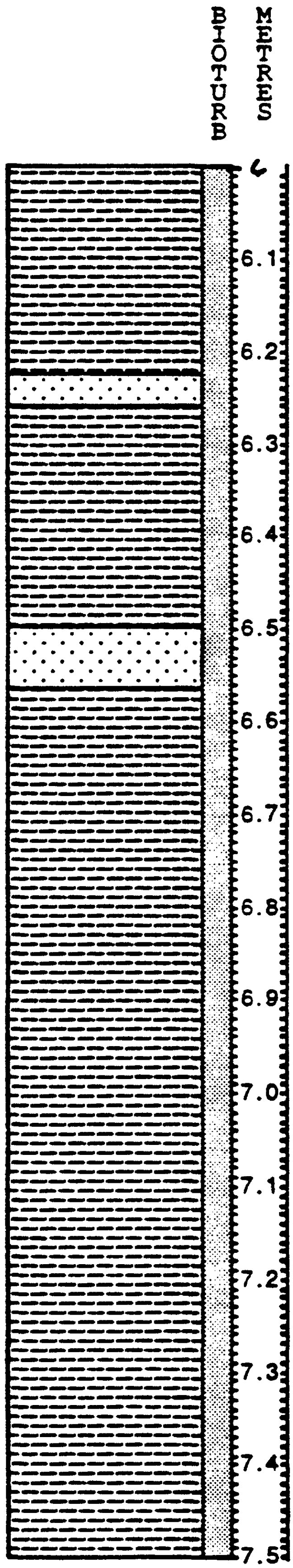
CLAY, grayish olive (10Y4/2); homogenous; occasional small burrows; black flecks throughout

Sect. 4A: 450-545 cm
Sect. 4B: 545-600 cm

545 cm = join, Sect. 4A/B

SAND, greenish black (5GY2/1)

F2-92-P43, SECTION 5
35° 32.33' N, 121° 33.94' W, 855 m

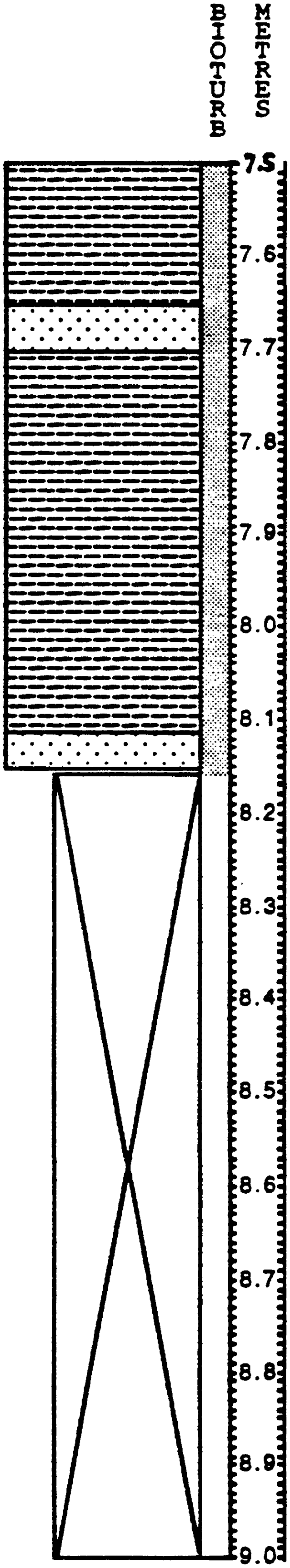


CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

SAND, greenish black (5GY2/1)

SAND, greenish black (5GY2/1)

F2-92-P43, SECTION 6
35° 32.33' N, 121° 33.94' W, 855 m



CLAY, grayish olive (10Y4/2); homogenous; bioturbation rare

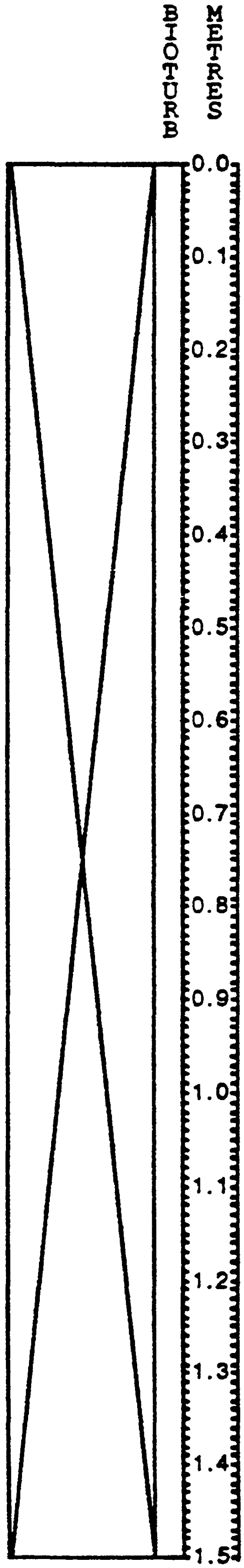
SAND, greenish black (5GY2/1)

SAND, greenish black (5GY2/1)

816 cm = base of core

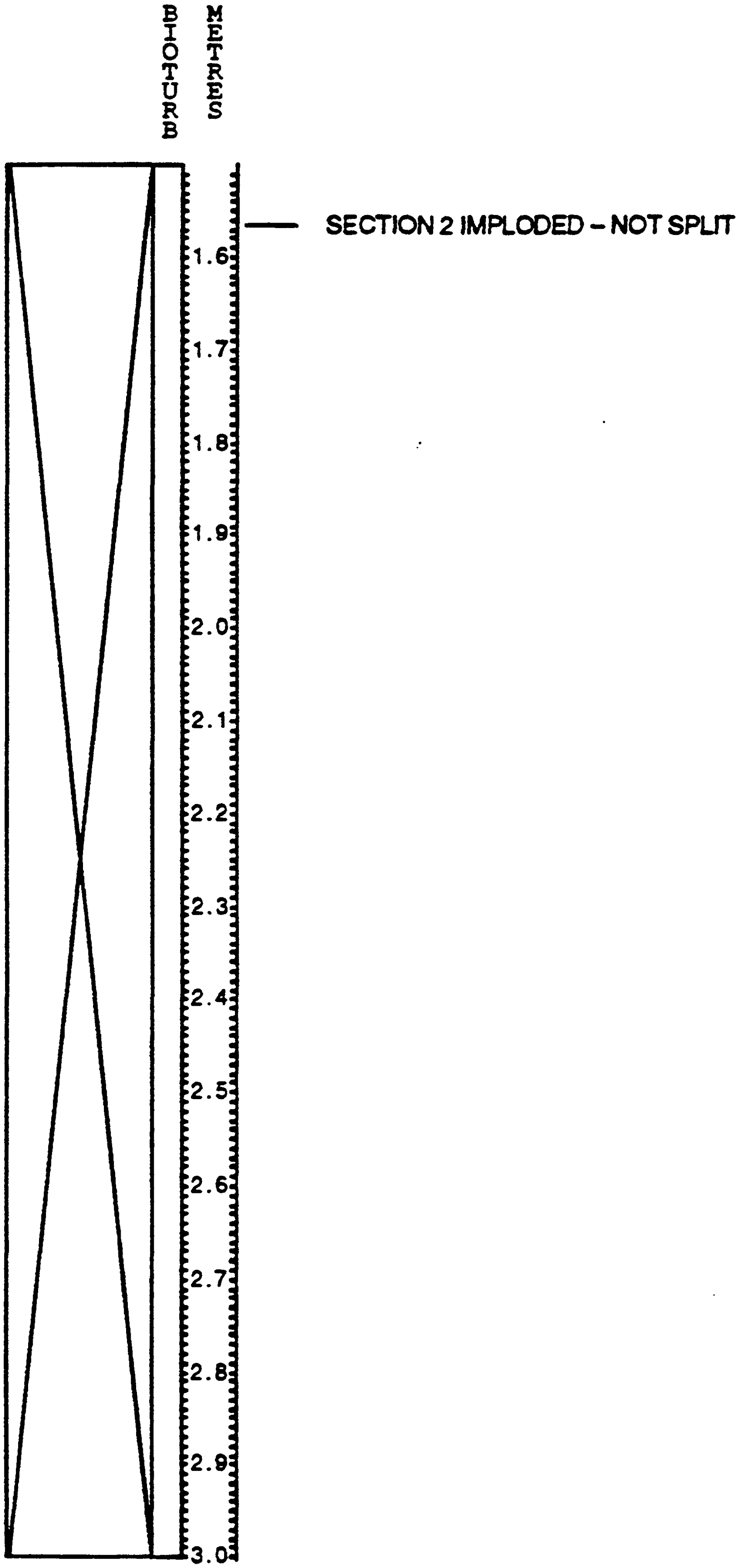
F2-92-P44 Section 1

35° 41.47'N 121° 31.43'W 610m

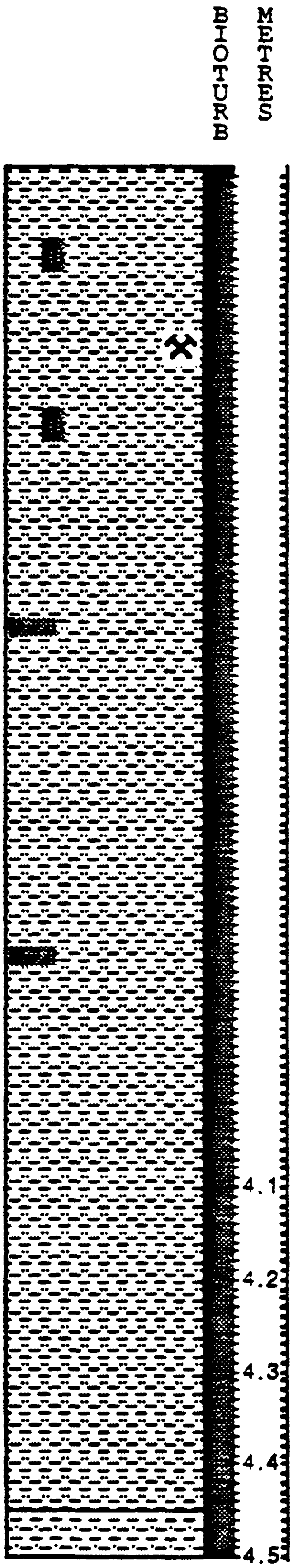


SECTION 1 IMPLODED – NOT SPLIT

F2-92-P44 Section 2
35° 41.47'N 121° 31.43'W 610m



F2-92-P44 Section 3
35° 41.47'N 121° 31.43'W 610m



SILTY CLAY, Grayish olive (10Y 4/2), gray sandy turbidite @ 448 cm; shell fragments @ 350 cm and 380 cm. Bioturbation common.

Foram-rich zone between 310-330 cm.

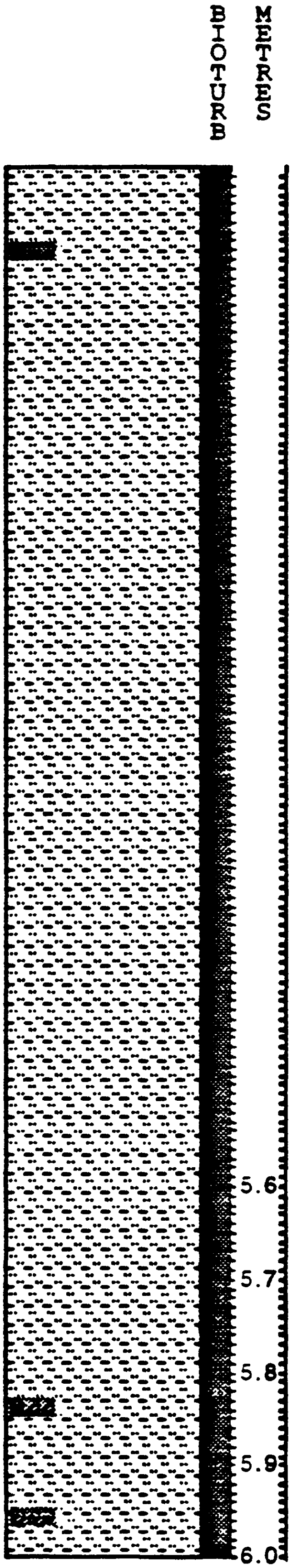
forams scattered between 310-330 cm

shell fragment

shell fragment

sandy turbidite at 448 cm

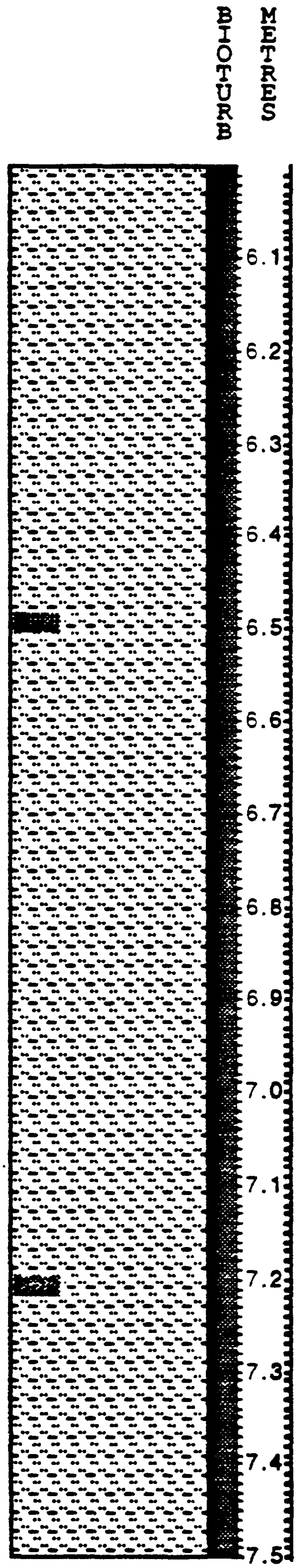
F2-92-P44 Section 4
35° 41.47'N 121° 31.43'W 610m



CLAYEY SILT, Olive gray (10Y 4/2), homogeneous with common bioturbation. Hydrotrolite smears throughout. Very small shell fragments scattered throughout.

SECTION 4a = 450-550 cm
SECTION 4b = 550-600 cm

F2-92-P44 Section 5
35° 41.47'N 121° 31.43'W 610m

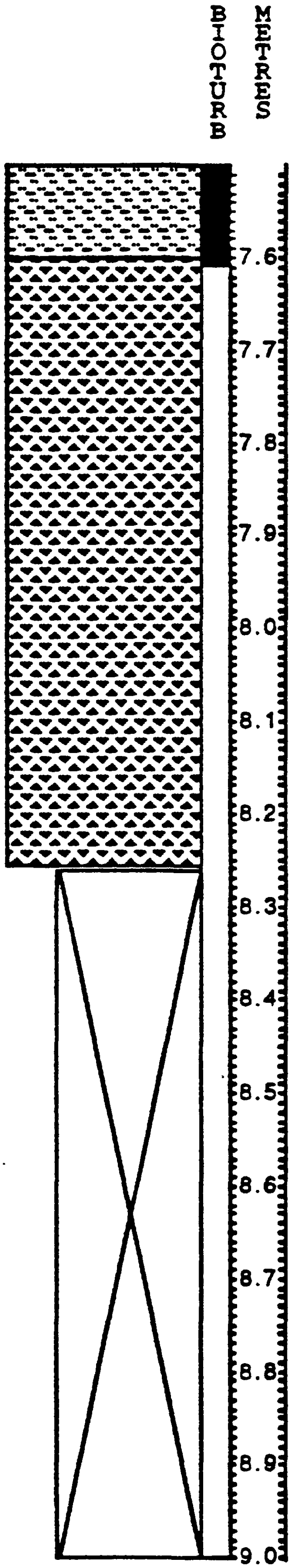


CLAYEY SILT, Grayish olive (10Y 4/2), shell fragments @ 650 cm and 720 cm. Homogeneous; bioturbation common.

shell fragments

shell fragments

F2-92-P44 Section 6
35° 41.47'N 121° 31.43'W 610m

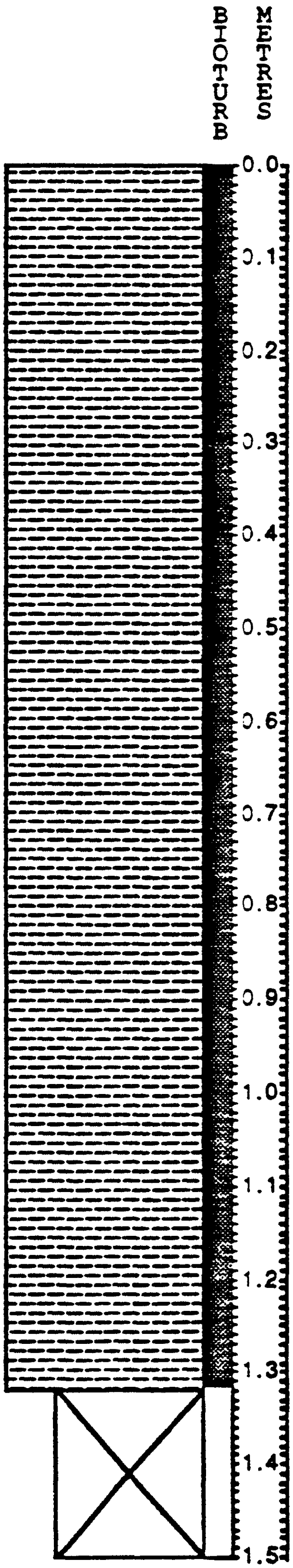


CLAYEY SILT, Grayish olive (10Y 4/2), with sandy pockets between 750-760 cm; flow-in structures between 760-826 cm. Bioturbation abundant.

FLOW-IN STRUCTURES (760-826 cm)

base of core = 826 cm

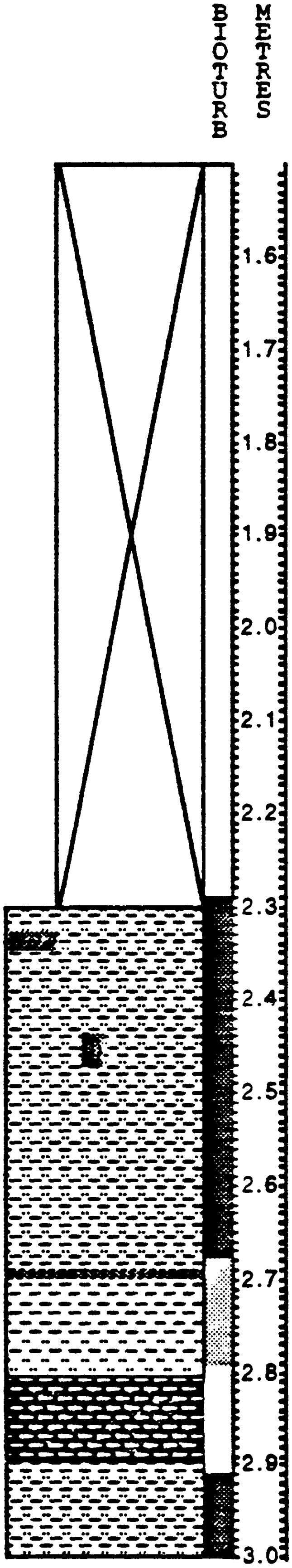
F2-92-P45 Section 1
35° 41.50'N 121° 34.67'W 705m



CLAY, Grayish olive (10Y 4/2), homogeneous, bioturbation common.

SECTION 1 – imploded below 132 cm (not saved)

F2-92-P45 Section 2
35° 41.50'N 121° 34.67'W 705m



SECTION 2 – imploded between 150-230 cm (not saved)

SILTY CLAY, Grayish olive (10Y 4/2), distinct mm-scale laminae between 280-290 cm; faint laminae btw 270-280 cm. Forams common 291-300 cm; several foram-rich layers @ 248 cm, 253 cm, and below laminae @ 290 cm. Seds above and below the laminae show common bioturbation.

Note: horizontal Chondrites not distinct like in other cores.

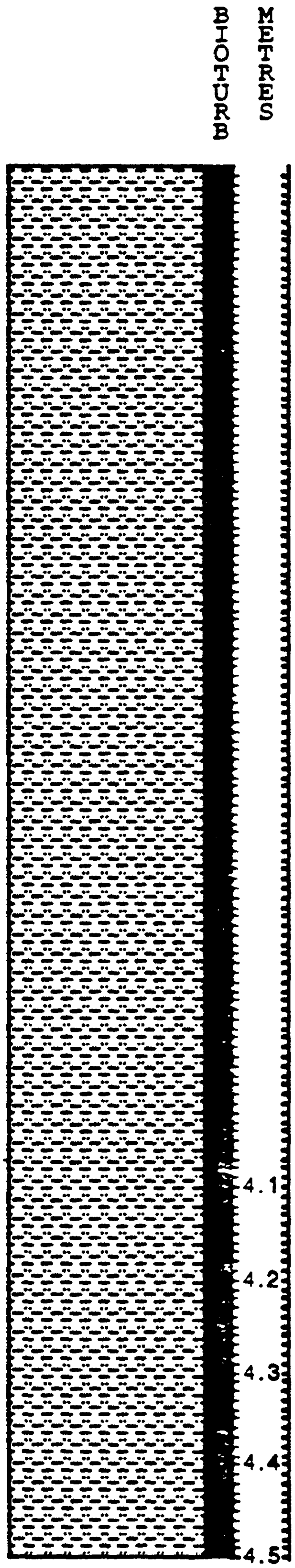
faint laminae

distinct varve-like laminae

foram-rich layer (common forams also scattered lower to 300 cm); sharp contact with superjacent laminae

F2-92-P45 Section 3

35° 41.50'N 121° 34.67'W 705m

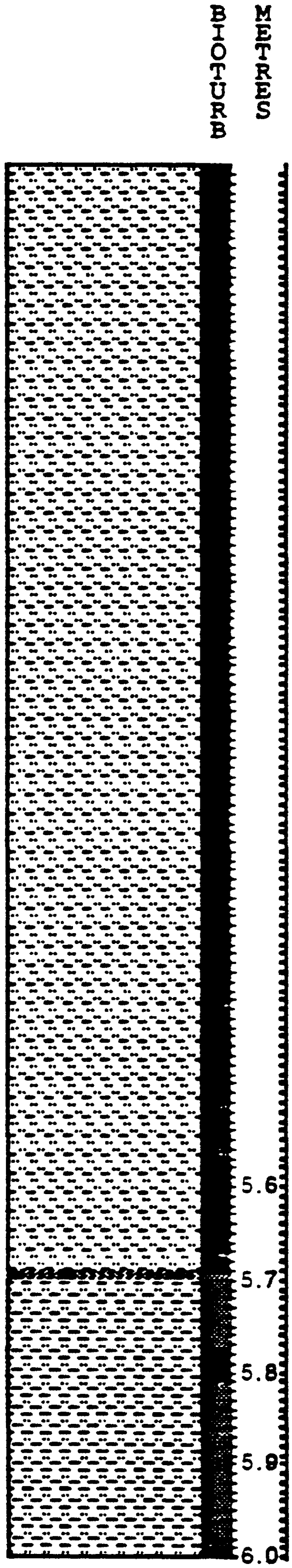


SILTY CLAY, Grayish olive (10Y 4/2), homogeneous, bioturbation common to abundant.

Rare patches of coarse silt or fine sand @ 320, 385 and 404 cm.

F2-92-P45 Section 4

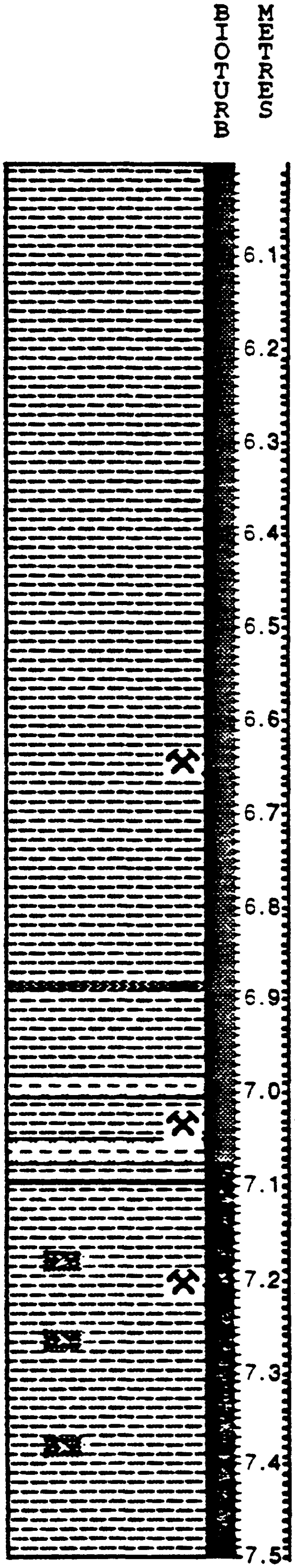
35° 41.50'N 121° 34.67'W 705m



CLAYEY SILT (450-570 cm), Grayish olive (10Y 4/2), abundant bioturbation; sandy burrows scattered throughout between 450-570 cm; finer grained below 570 cm.

SILTY CLAY (570-600 cm), Grayish olive (10Y 4/2), homogeneous, zone of intense bioturbation between 578-582. Bioturbation otherwise common.

F2-92-P45 Section 5
35° 41.50'N 121° 34.67'W 705m



CLAY (600-688 cm), mostly Grayish olive (10Y 4/2) but with slight coloration changes in approx. 10 cm-thick bands. Bioturbation common throughout. Small Chondrites burrows in dense zone btw 675-688 cm.

smear slide (665 cm):
clay - A
detrital grains - A
forams - R
spicules - R
diatoms - R
nannos - C

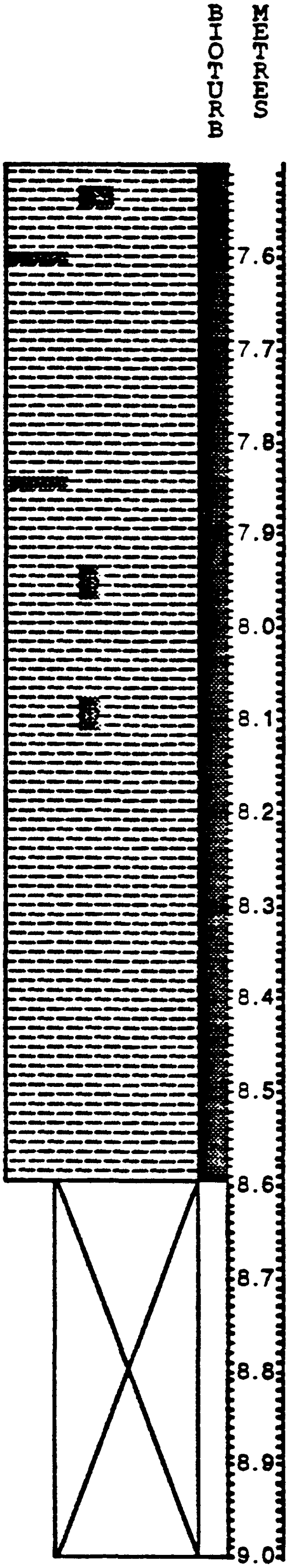
CLAY (688-710 cm), Moderate olive brown (5Y 4/4) -- more "yellow" than the superjacent unit. Faint bioturbated laminae btw 699-702 cm and 704-707 cm. Foram-rich zones @ 695 cm and 708 cm; bioturbation common.

smear slide (703 cm):
clay - A; detrital grains - C; diatoms - A; spicules - C; nannos - R.

CLAY (710-750 cm), Grayish olive (10Y 4/2); homogeneous, with abundant Chondrites.

smear slide (720 cm):
clay - A
detrital grains - R
diatoms - R
spicules - c
nannos - C

F2-92-P45 Section 6
35° 41.50'N 121° 34.67'W 705m`



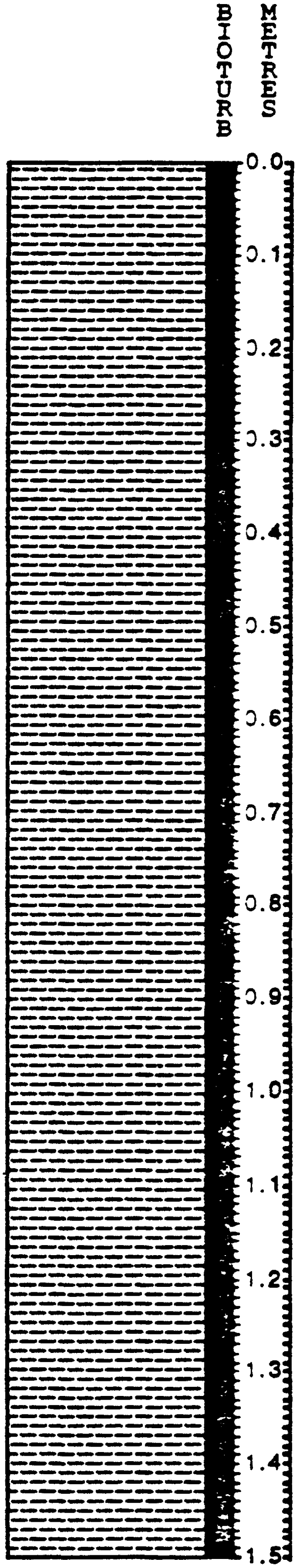
CLAY, Grayish olive (10Y 4/2) to Moderate olive brown (5Y 4/4), with minor faint horizontal cm-scale bedding; bioturbation common; foram-rich zone between 795-810 cm and 850-855 cm.
Horizontal chondrites near top of section.

abundant forams between 755-810 cm

base of core = 860 cm

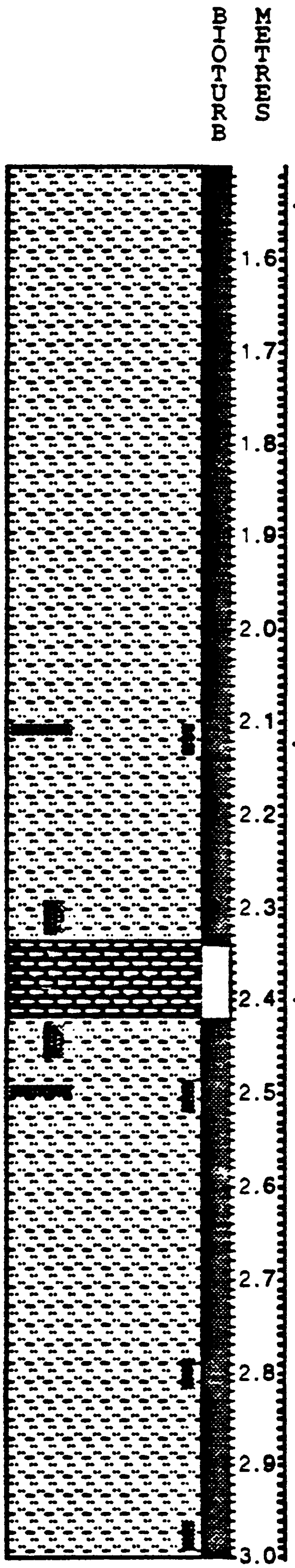
F2-92-P46 Section 1

35° 41.49'N 121° 38.08'W 795m



CLAY, Grayish olive (10Y 4/2); homogeneous; common to abundant bioturbation throughout.

F2-92-P46 Section 2
35° 41.49'N 121° 38.08'W 795m

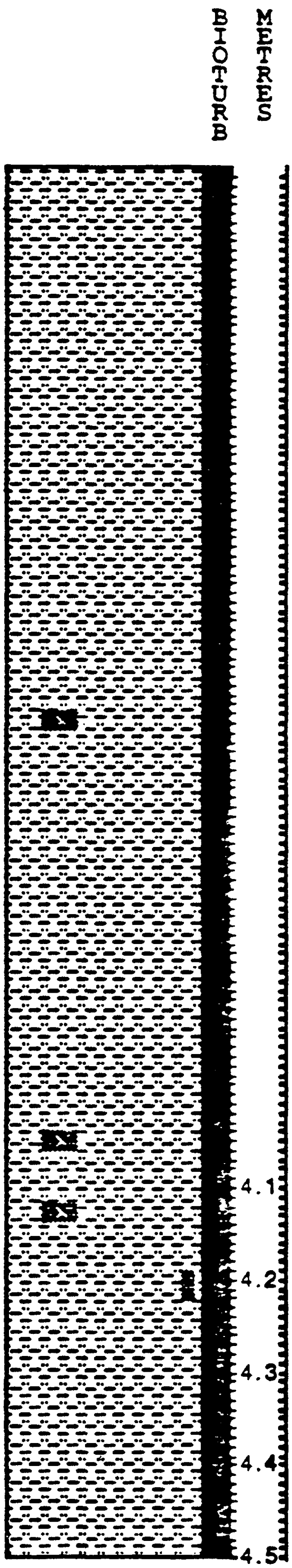


CLAYEY SILT, Grayish olive (10Y 4/2), distinct laminae btw 235-242 cm; foram-rich zones above and below laminae.
Bioturbation otherwise common throughout. Black (N1) sand turbidites at 212, 250, 280, 290 and 300 cm.

turbidite

distinct varve-like laminae; foram-rich zones above and below laminae

F2-92-P46 Section 3
35° 41.49'N 121° 38.08'W 795m



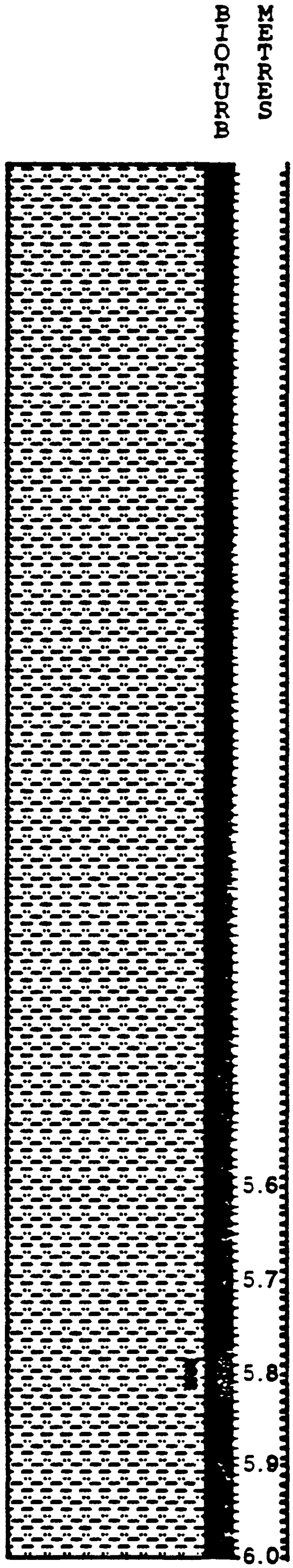
SILTY CLAY, Grayish olive (10Y 4/2), homogeneous. Bioturbation abundant (with zones of distinct horizontal Chondrites) throughout; Blac (N1) sandy turbidite at 418-420 cm

horizontal Chondrites

horizontal Chondrites

turbidite, strongly disturbed by bioturbation, scoured lower contact anc bioturbated upper contact

F2-92-P46 Section 4
35° 41.49'N 121° 38.08'W 795m



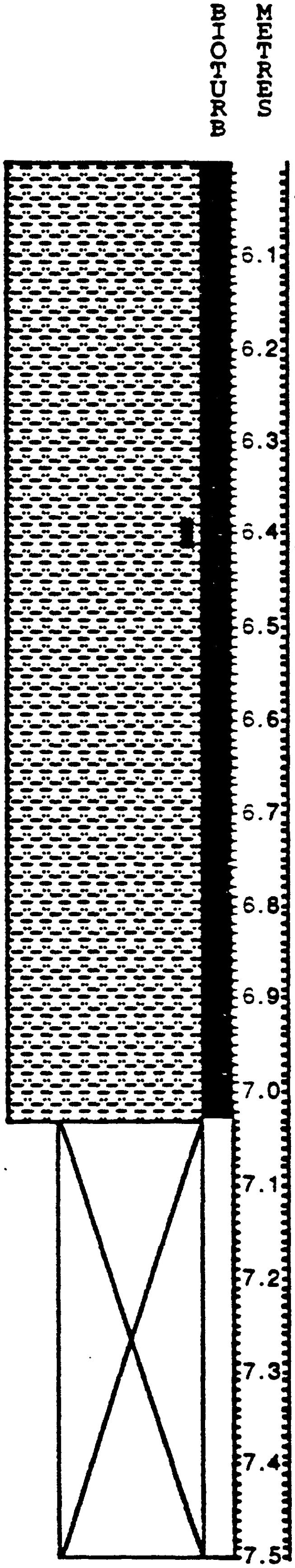
SILTY CLAY, Grayish olive (10Y 4/2), slight coloration changes in approx. 5-cm thick bands between 460-470 cm; mostly homogeneous with abundant bioturbation.

Bioturbated black sand turbidite @ 580 cm.

turbidite

F2-92-P46 Section 5

35° 41.49'N 121° 38.08'W 795m

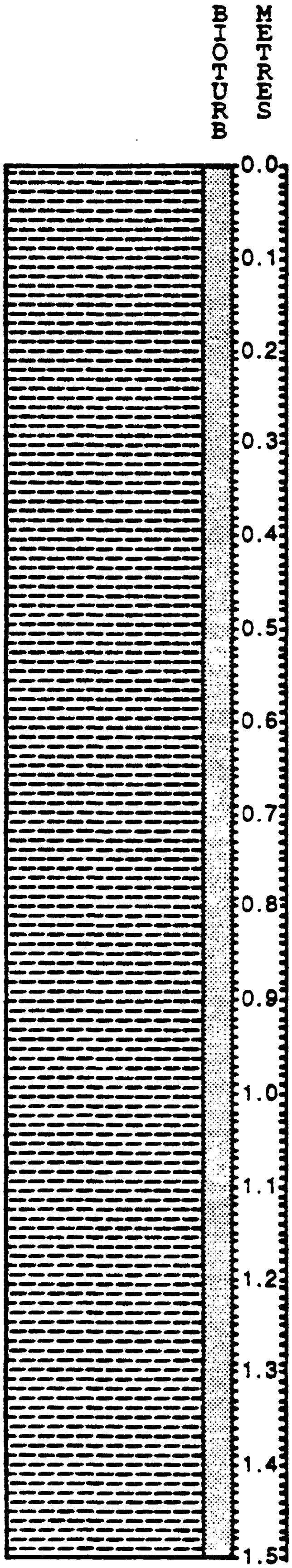


SILTY CLAY, Grayish olive (10Y 4/4), bioturbation abundant throughout.

sandy turbidite, bioturbated and mixed upward

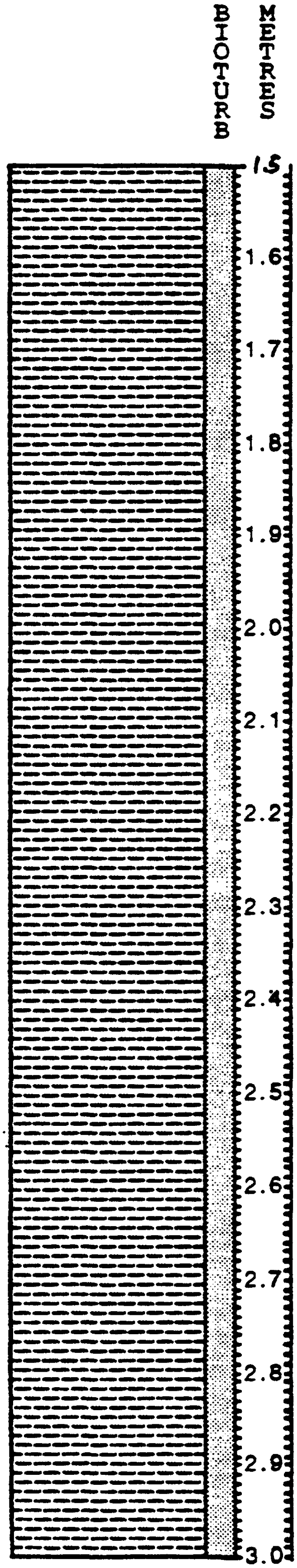
base of core = 703 cm

F2-92-P47, SECTION 1
35° 41.35' N, 121° 40.75' W, 870 m



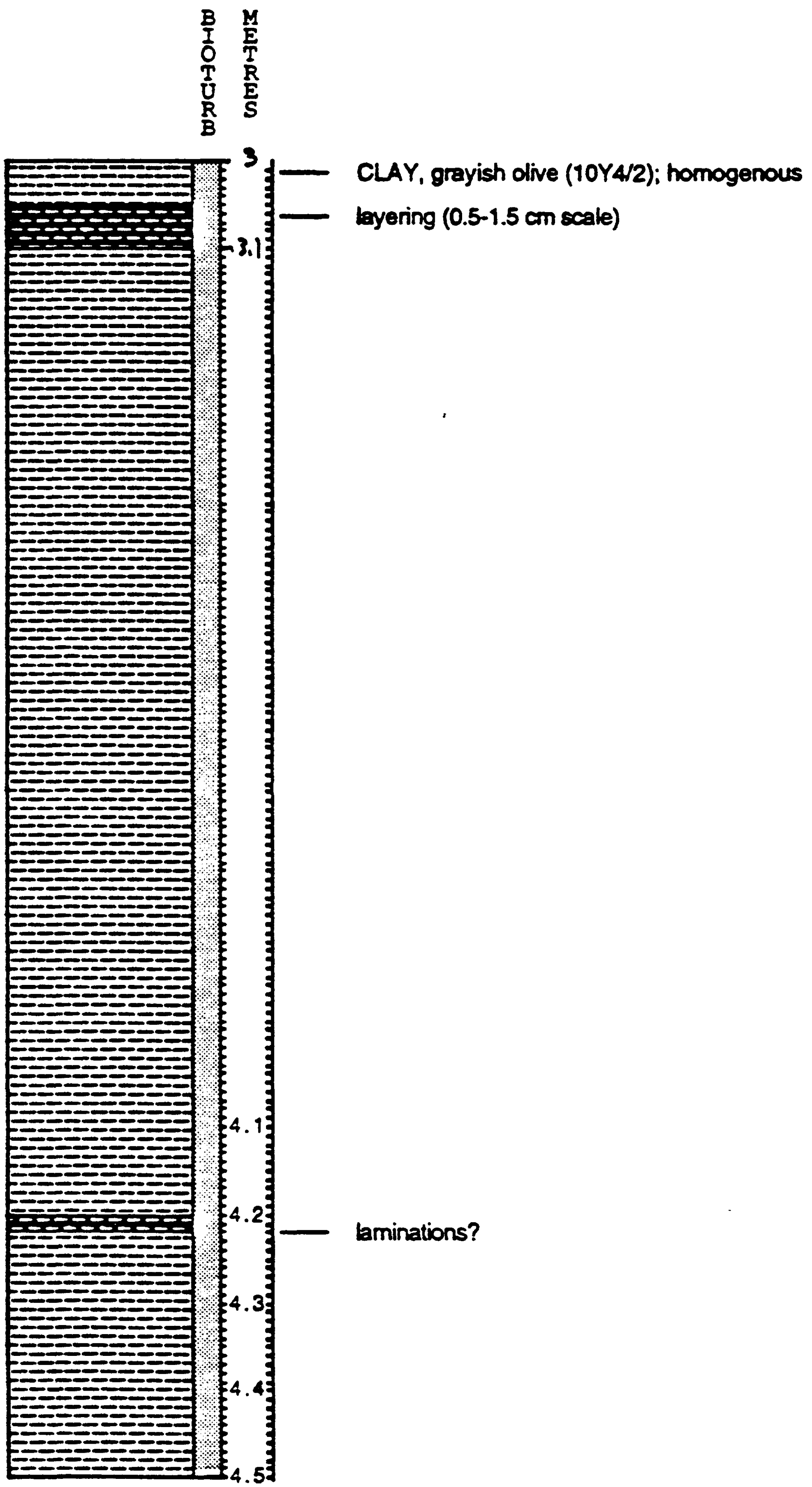
CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

F2-92-P47, SECTION 2
35° 41.35' N, 121° 40.75' W, 870m

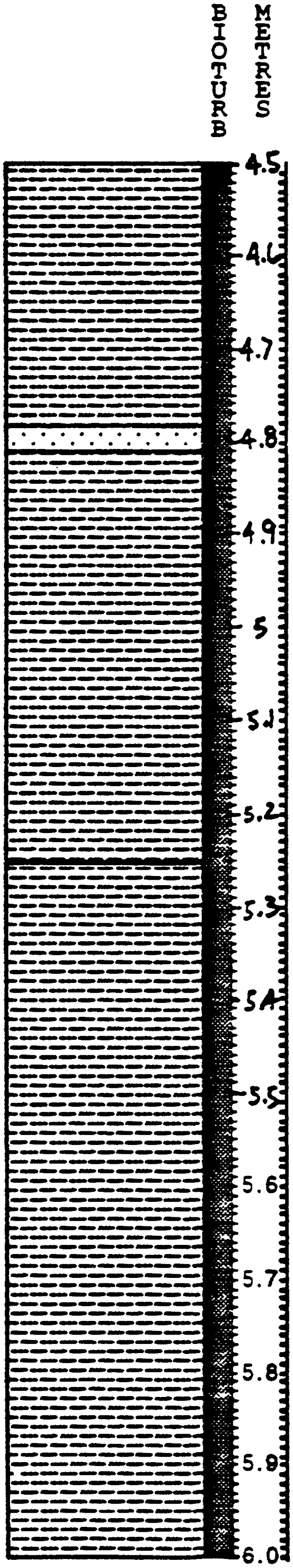


CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; black flecks throughout

F2-92-P47, SECTION 3
35° 41.35' N, 121° 40.75' W, 870 m



F2-92-P47, SECTION 4
35° 41.35' N, 121° 40.75' W, 870 m



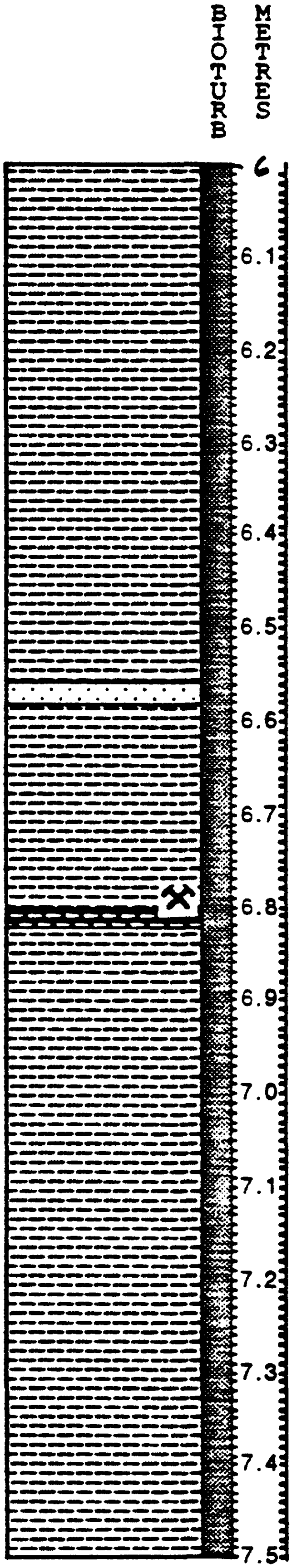
CLAY, grayish olive (10Y4/2); homogeneous; small burrows common throughout; occasional black flecks

Sect. 4A: 450-525 cm
Sect. 4B: 525-600 cm

FINE SAND, dark gray (N3)

525 cm = join, Sect. 4A/B

F2-92-P47, SECTION 5
35° 41.35' N, 121° 40.75' W, 870 m



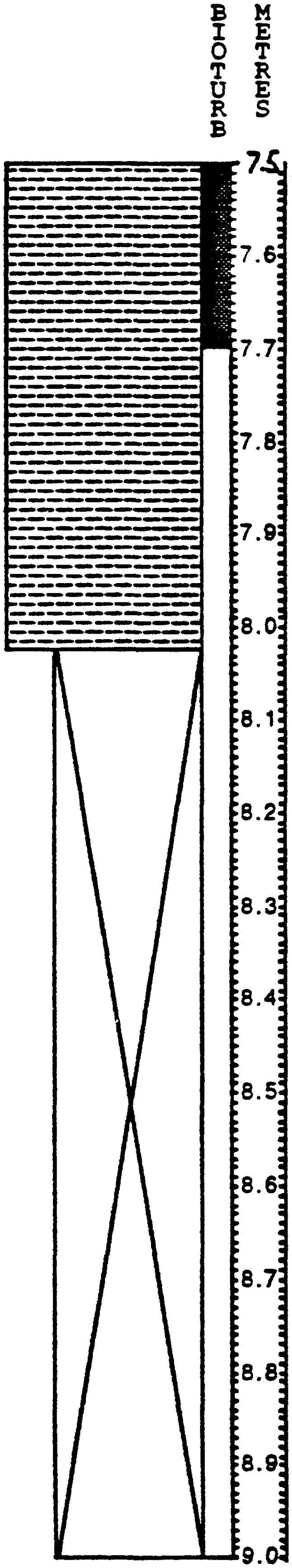
CLAY, grayish olive (10Y4/2); homogeneous; small burrows 600-693 cm

FINE SAND, dark gray (N3)

laminations

Smear slide, 680 cm (base of laminations; mostly biogenic debris): Nannos and Diatoms-A; Forams and Rads - C

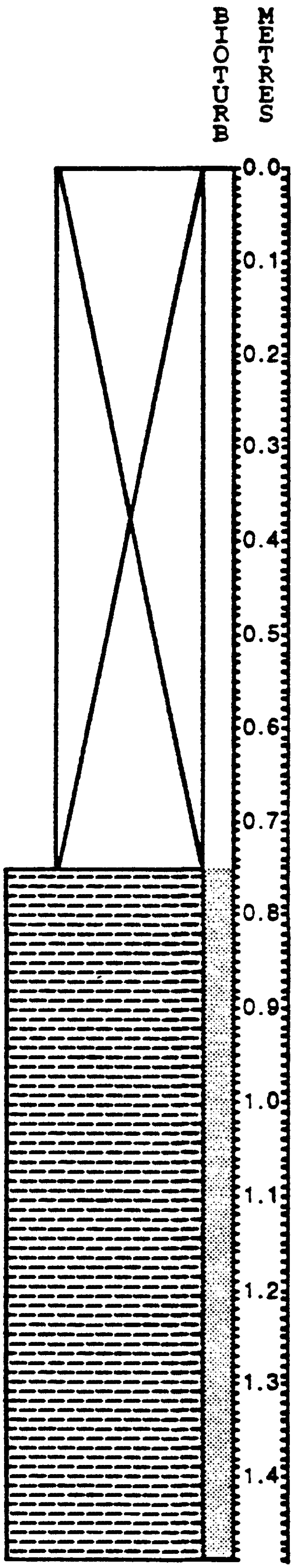
F2-92-P47, SECTION 6
35° 41.35' N, 121° 40.75' W, 870 m



CLAY, grayish olive (10Y4/2); homogeneous; medium-size burrows at top of section, massive at bottom

803 cm = base of core

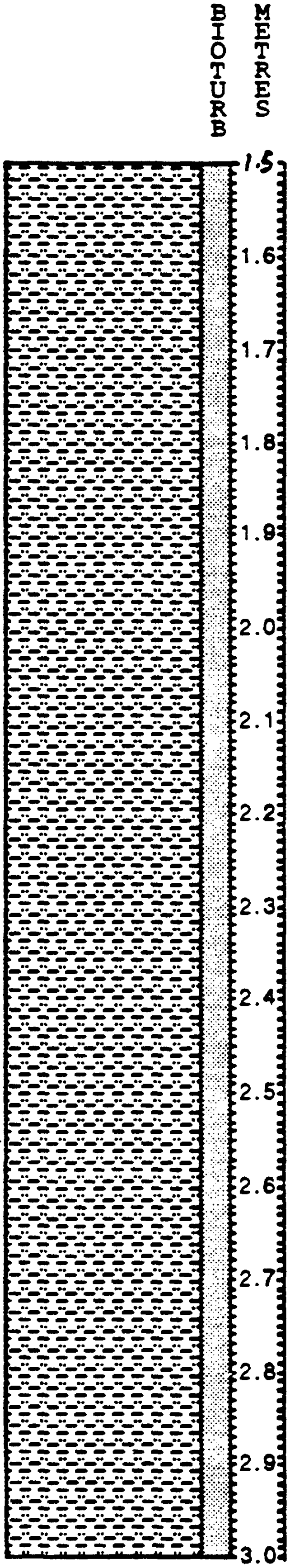
F2-92-P48, SECTION 1
35° 49.31' N, 121° 35.05' W, 624 m



Sect 1A: 0-75 cm; imploded, not opened

Sect 1B, 75-150 cm:
CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare

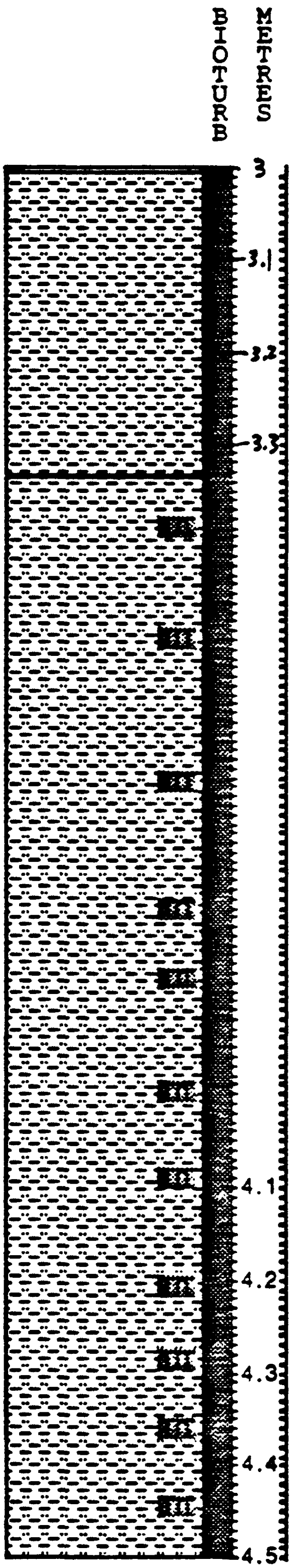
F2-92-P48, SECTION 2
35° 49.31' N, 121° 35.05', 624 m



SILTY CLAY, grayish olive (10Y4/2); homogeneous, bioturbation rare

NOTE: 170-217 cm, core damaged due to implosion of liner

F2-92-P48, SECTION 3
35° 49.31' N, 121° 35.05' W, 624 m

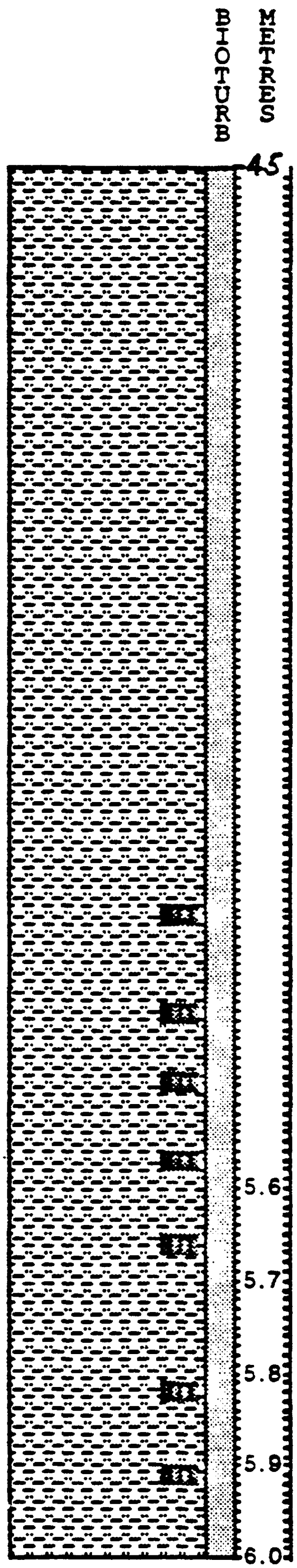


SILTY CLAY, grayish olive (10Y4/2); homogeneous; bioturbation common; gas cracks begin at 339 cm and increase in size and number with depth

Sect. 3A: 300-334 cm
Sect. 3B: 334-450 cm

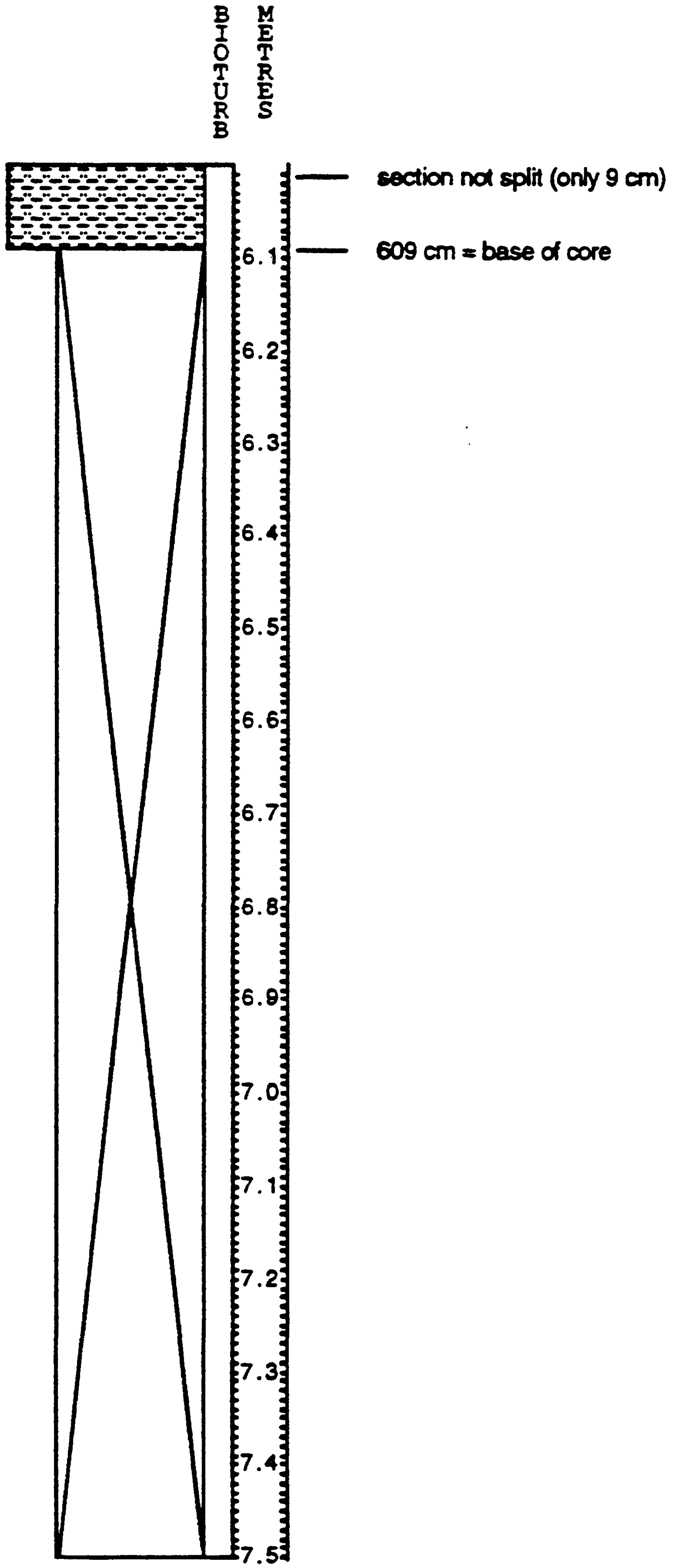
334 cm = join, Sect. 3A/B

F2-92-P48, SECTION 4
35° 49.31' N, 121° 35.05' W, 624 m

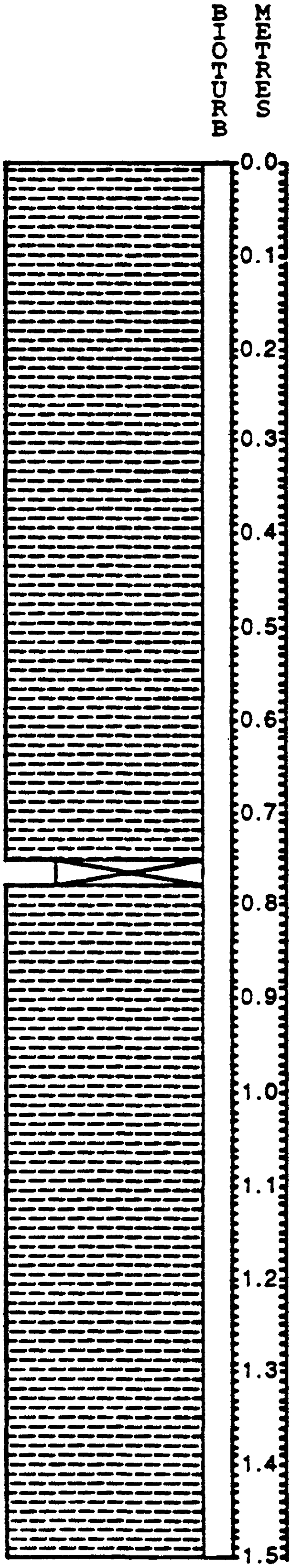


SILTY CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; gas cracks from 530-575 cm

F2-92-P48, SECTION 5
35° 49.31' N, 121° 35.05' W, 624 m



F2-92-P49, SECTION 1
35° 49.55' N, 121° 37.50' W, 720 m

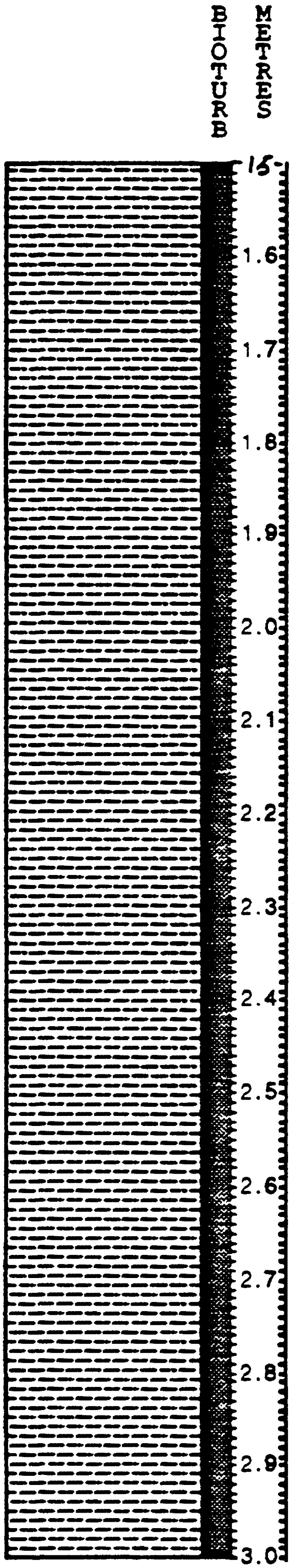


CLAY, dark olive brown (5Y3/4); homogenous

NOTE: top 30 cm soupy; 55-150 cm liner imploded, sediment soupy

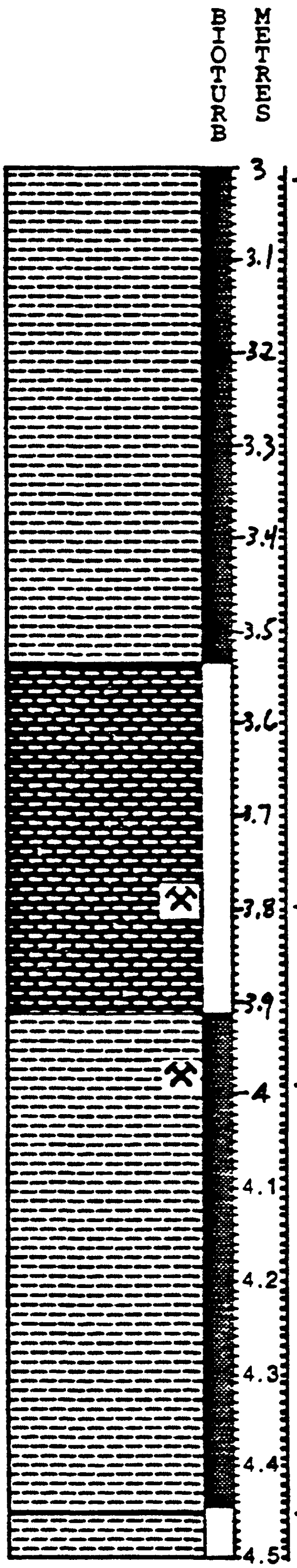
void

F2-92-P49, SECTION 2
35° 49.55' N, 121° 37.50' W, 720 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation common (large burrows 150-230, 230-300 microbioturbated)

F2-92-P49, SECTION 3
35° 49.55' N. 121°37.50' W, 720 m



CLAY, grayish olive (10Y4/2); center of section (354-391 cm) contains distinct, varve-like laminations, rest of core is microbioturbated

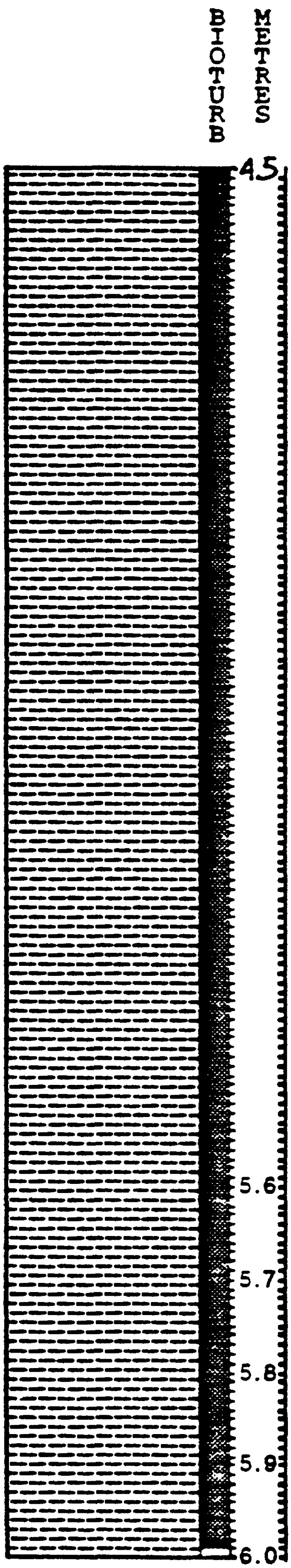
Sect. 3A: 300-445 cm
Sect. 3B: 445-450 cm (not split)

Smear slide, 380 cm:
Clay-A; Diatoms, Fish debris, Carb. fragments, and Siliceous spicules, al
C; Foram and quartz grains R

Smear slide, 399 cm:
Clay-A; Forams, Quartz grains, Siliceous spicules, Fish debris, and carb.
fragments all C; Diatoms and Rads, R

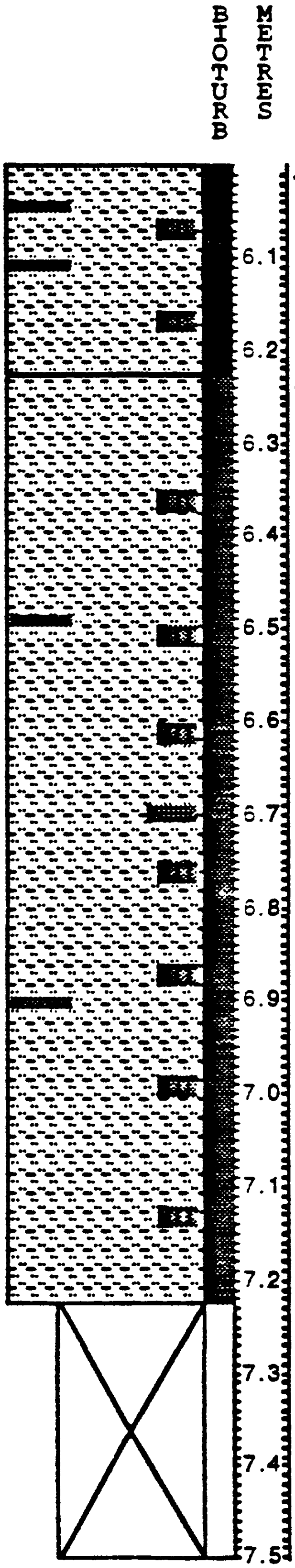
445 cm = join, Sect 3A/B

F2-92-P49, SECTION 4
35° 49.55' N, 121° 37.50' W, 720 m



CLAY, grayish olive (10Y4/2); homogeneous; common microbioturbation; black flecks throughout; gas bubbles start at 530 cm.

F2-92-P49, SECTION 5
35° 49.55' N, 121° 37.50' W, 720 m



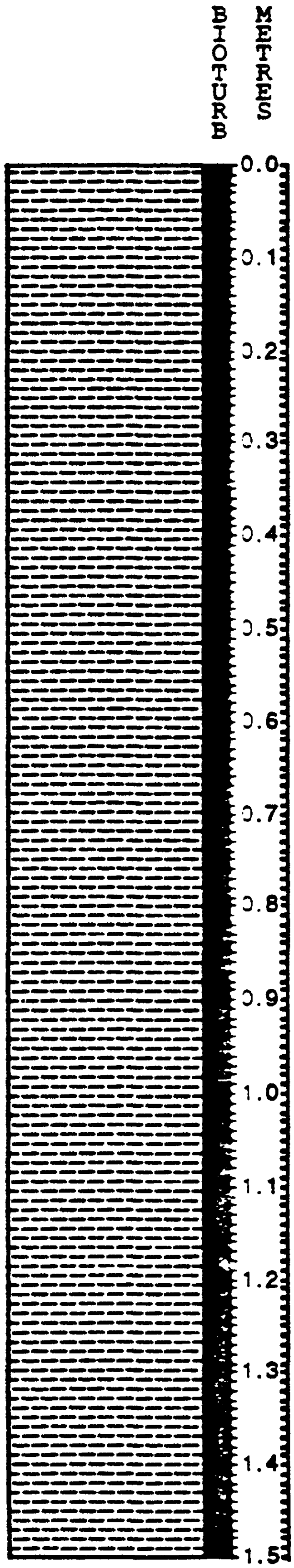
600-623 cm: CLAYEY SILT, moderate olive brown (5Y4/4); abundant bioturbation; sandy stringers between 605-610 cm; sharp lower contact

623-723 cm: CLAYEY SILT, grayish olive (10Y4/2); homogeneous except for zones of sandy stringers (bioturbated turbidites); gas cracks throughout

black streaks (hydrotroilite?)

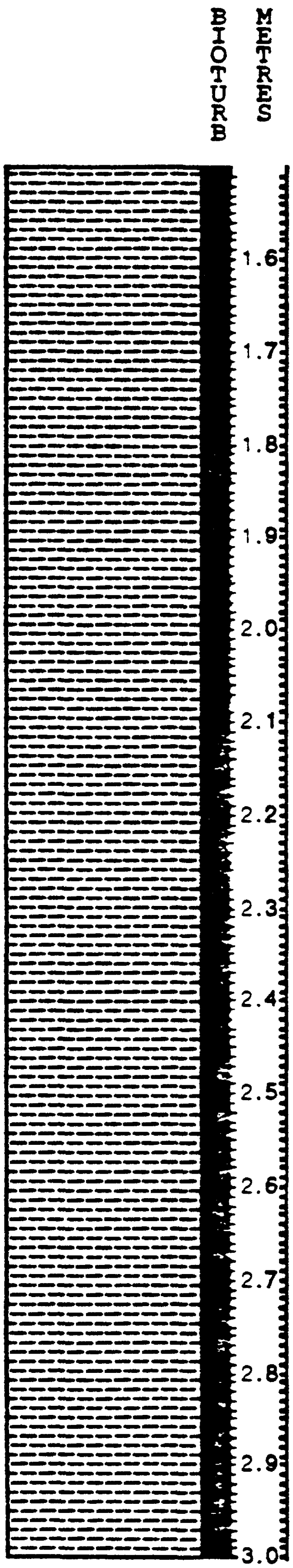
723 cm = base of core

F2-92-P51 Section 1
35° 49.32'N 121° 39.29'W 775m



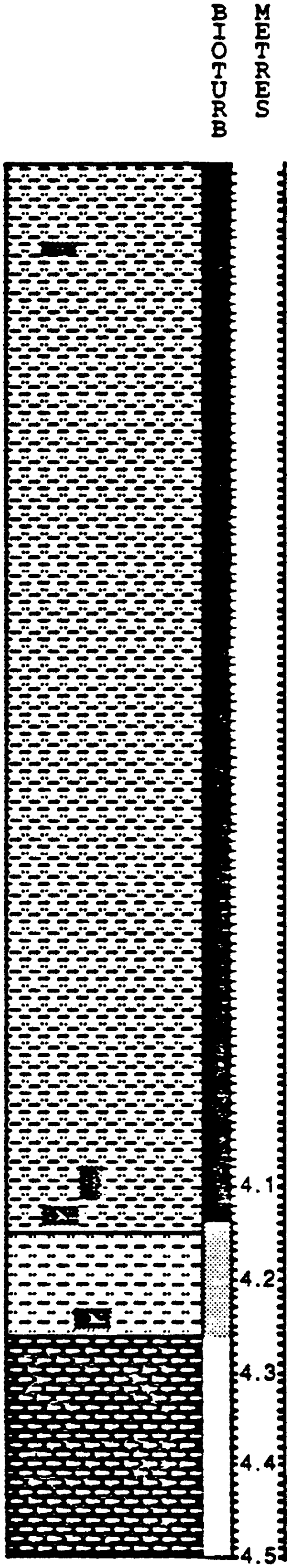
CLAYEY SILT, Grayish olive (10Y 4/2); homogeneous; bioturbation abundant.

F2-92-P51 Section 2
35° 49.32'N 121° 39.29'W 775m



SILTY CLAY, Grayish olive (10Y 4/2); homogeneous; bioturbation abundant.

F2-92-P51 Section 3
35° 49.32'N 121° 39.29'W 775m



SILTY CLAY, Grayish olive (10Y 4/2), homogeneous with abundant bioturbation between 300-410 cm; foram-rich zone @ 410 cm; horizontal Chondrites and faint laminae btw 415-427 cm; distinct varve-like laminae btw 427-450 cm.

large burrow

massive/abundant bioturbation

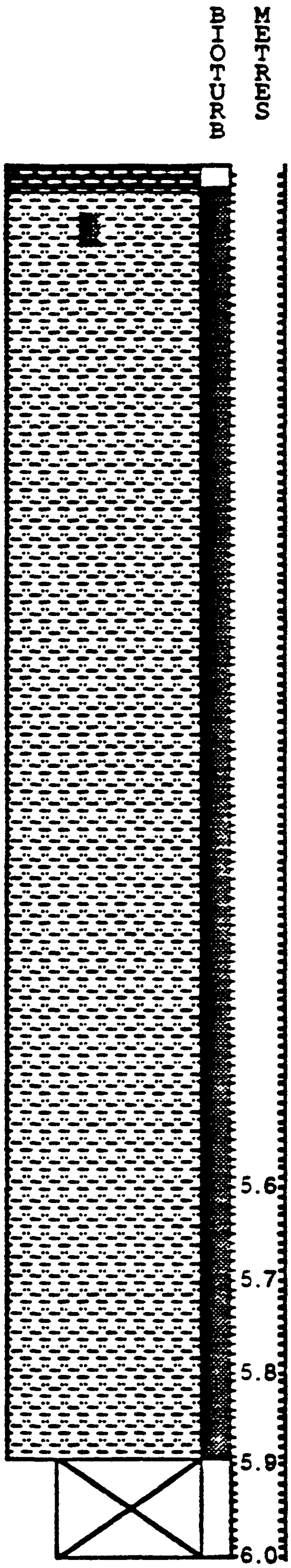
horizontal Chondrites

faint laminae (disturbed by small-scale bioturbation)

horizontal Chondrites

distinct varve-like laminae

F2-92-P54 Section 4
35° 49.32'N 121° 39.29'W 775m



foram-rich zone

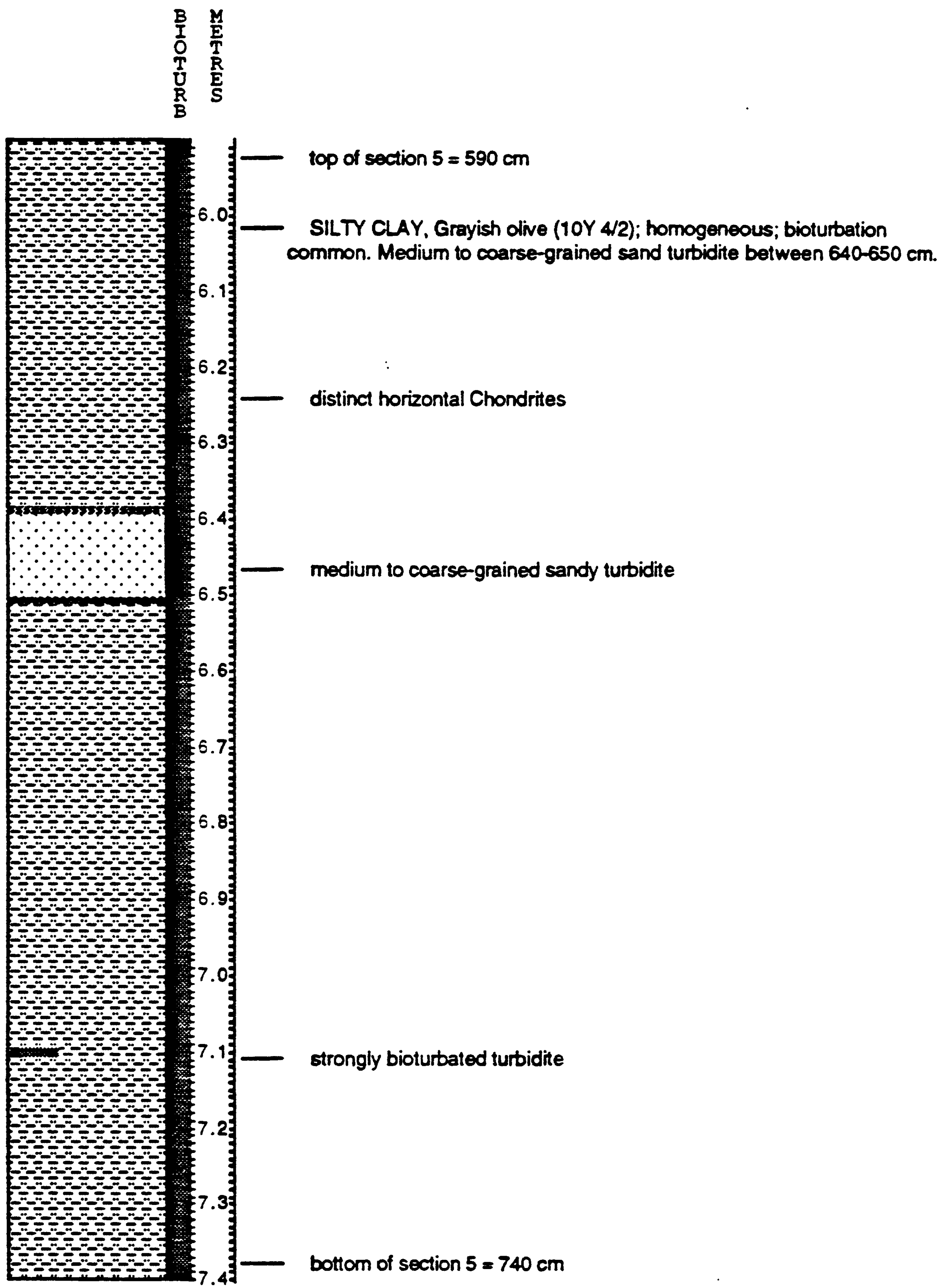
SILTY CLAY, Grayish olive (10Y 4/2). Laminae between 450-453 cm; foram-rich zone below laminae @ 455-457 cm. Massive/bioturbated btw 457-590 cm. Lighter greenish gray color (approximately Dusky yellow green - 5GY 5/2) below strongly bioturbated contact @ 485 cm.

strongly bioturbated contact in sediment between darker green and lighter green sediment

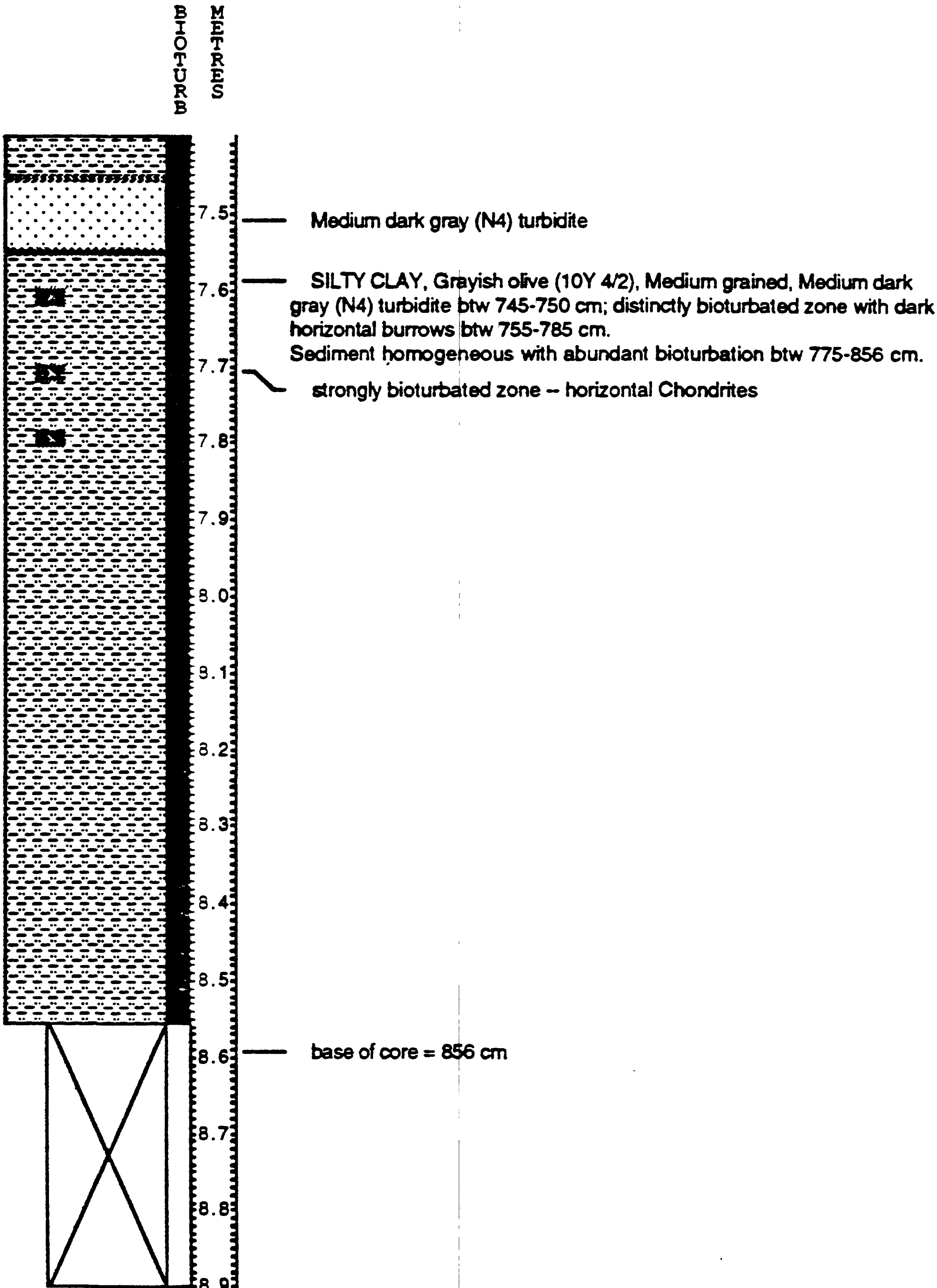
SECTION 4a = 450-580 cm
SECTION 4b = 580-590 cm

bottom of section 4 = 590 cm

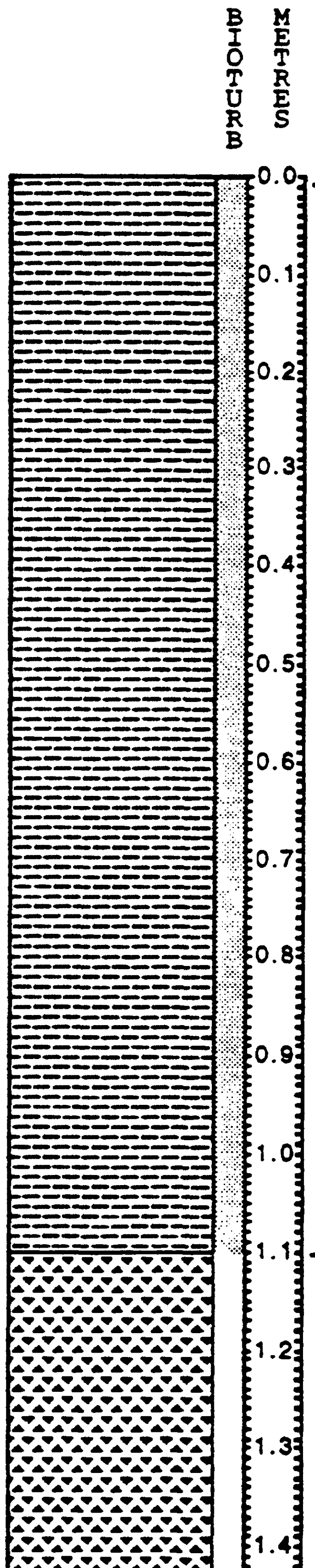
F2-92-P51 Section 5
lat long depth



F2-92-P51 Section 6
35° 49.32'N 121° 39.29'W 775m



F2-92-P52, SECTION 1
35° 49.34' N, 121° 42.00' W, 865 m

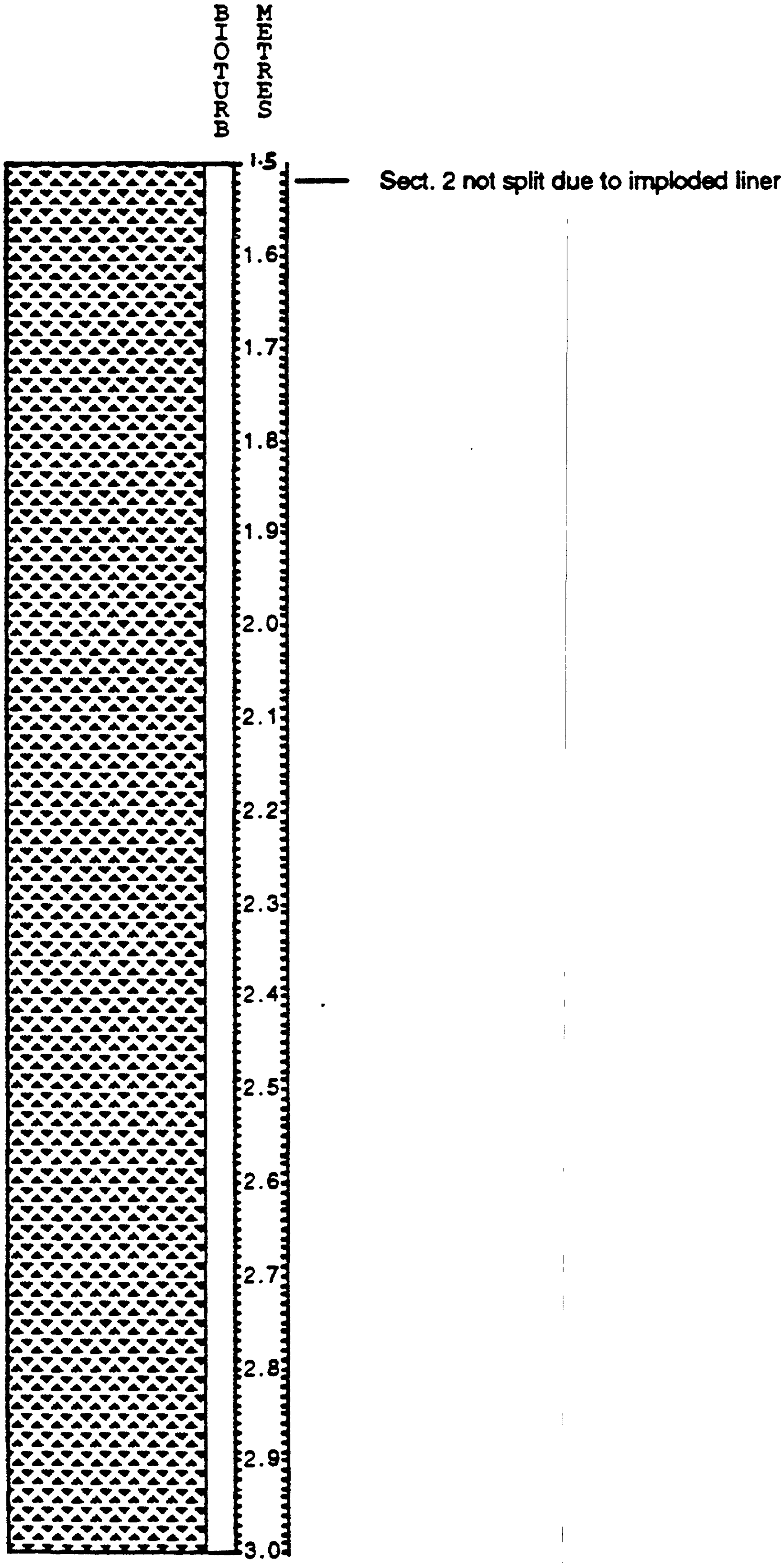


CLAY, dark olive gray (5Y3/1); homogeneous; bioturbation rare

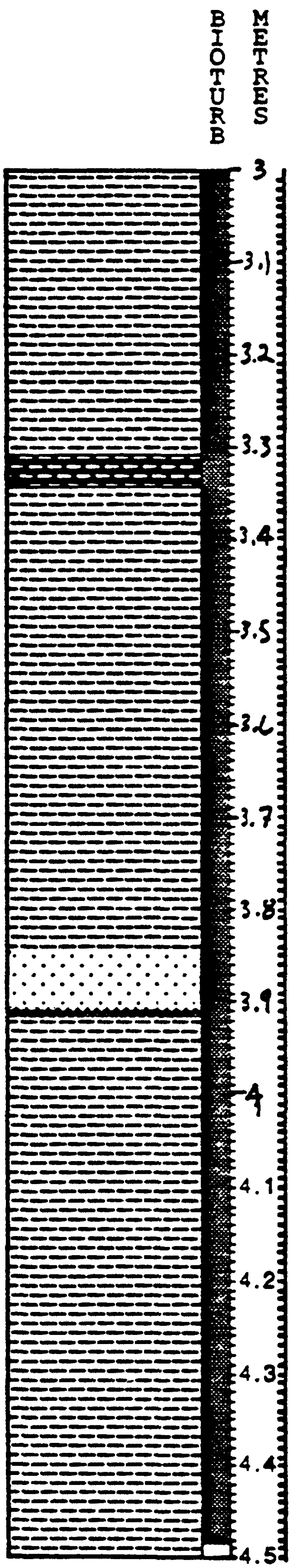
Sect. 1A = 0-110 cm
Sect. 1B = 110-150 cm (not split due to liner implosion)

110 cm = join, Sect. 1A/B

F2-92-P52, SECTION 2
35° 49.34' N, 121° 42.00' W, 865 m



F2-92-P52, SECTION 3
35° 49.34' N, 121° 42.00' W, 865 m

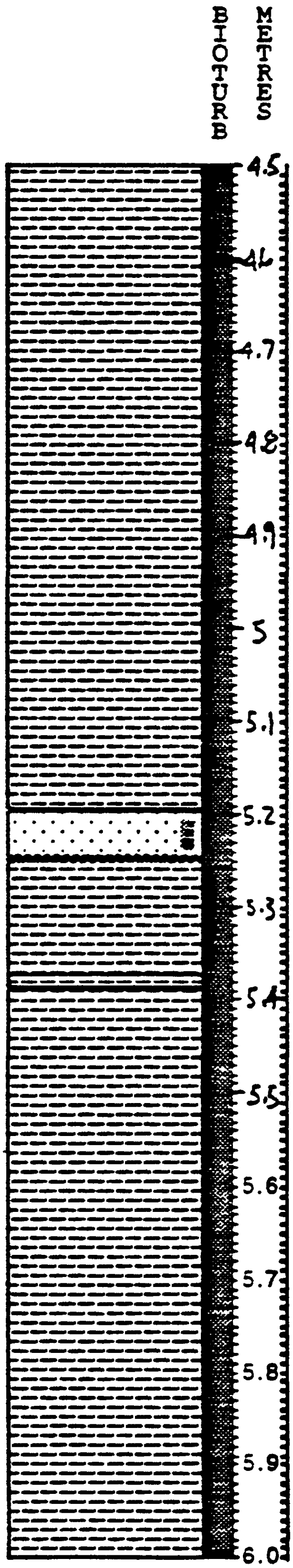


CLAY, grayish olive (10Y4/2); homogeneous; common microbioturbation throughout; black flecks common throughout

laminations

COARSE SAND with shell fragments, dark gray (N3)

F2-92-P52, SECTION 4
35° 49.34' N, 121° 42.00' W, 865 m



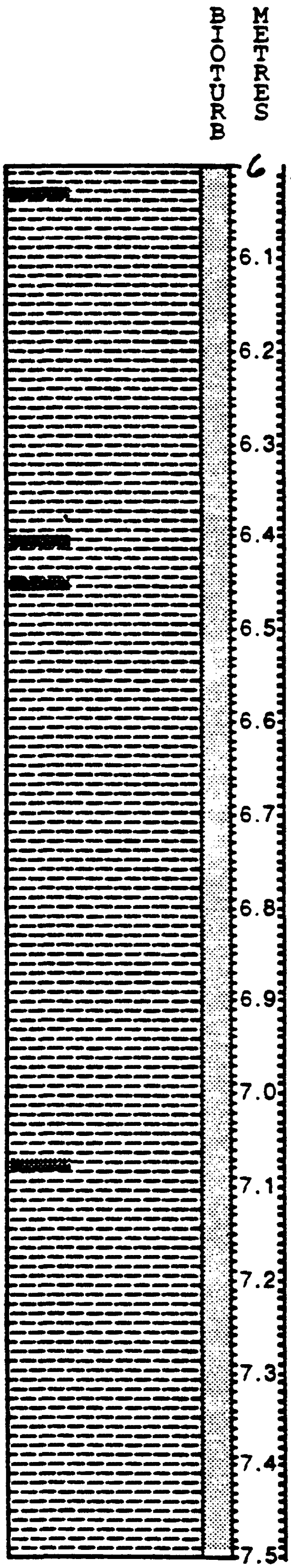
CLAY, grayish olive (10Y4/2); homogeneous; microbioturbated throughout

Sect. 4A = 450-539 cm
Sect. 4B = 539-600 cm

SAND turbidite, grayish black (N2)

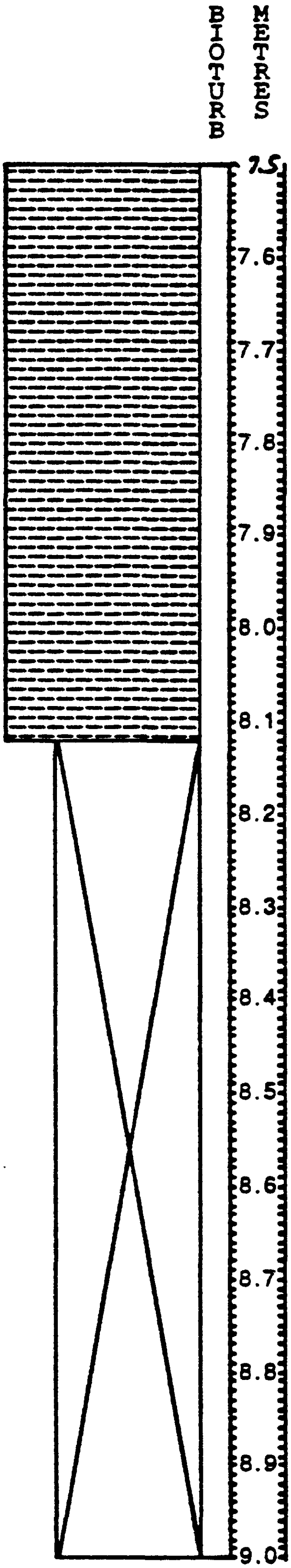
539 = join, Sect. 4A/B

F2-92-P52, SECTION 5
35° 49.34' N, 121° 42.00' W, 865 m



CLAY, grayish olive (10Y4/2); homogeneous; bioturbation rare; black flecks throughout; several SILT layers and pockets, grayish black (N2)

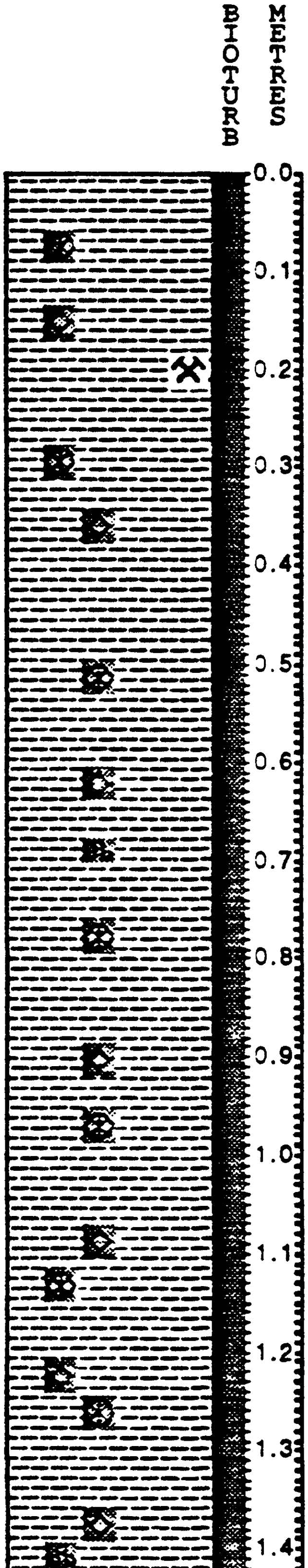
F2-92-P52, SECTION 6
35° 49.34' N, 121° 42.00' W, 865 m



CLAY, grayish olive (10Y4/2); homogeneous; large burrows occasional

813 cm = base of core

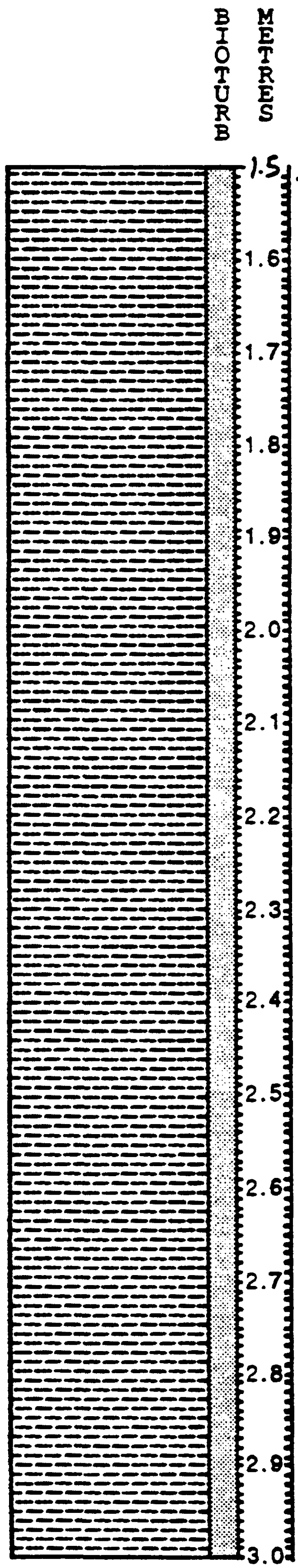
F2-92-P53, SECTION 1
35° 34.30' N, 122° 43.07' W, 3320 m



CLAY, grayish olive (10Y4/2); homogeneous; common bioturbation; 0-29 cm soupy

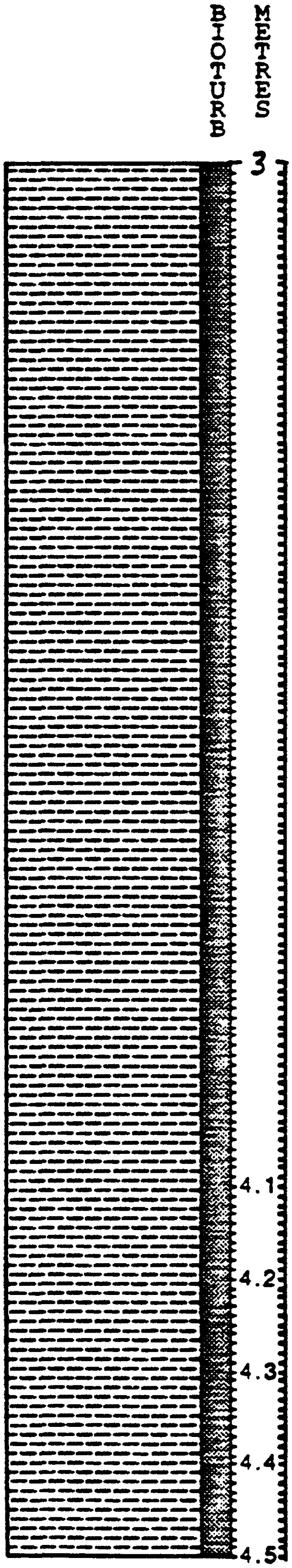
Smear slide, 20 cm:
Clay-A
Diatoms-A
Siliceous spines-C
Nannos-C
Rads-C
Forams-R
little terrigenous material

F2-92-P53, SECTION 2
35°34.30' N, 122°43.07' W, 3320 m



CLAY, grayish olive (10Y4/2); homogeneous; rare bioturbation; rare black flecks

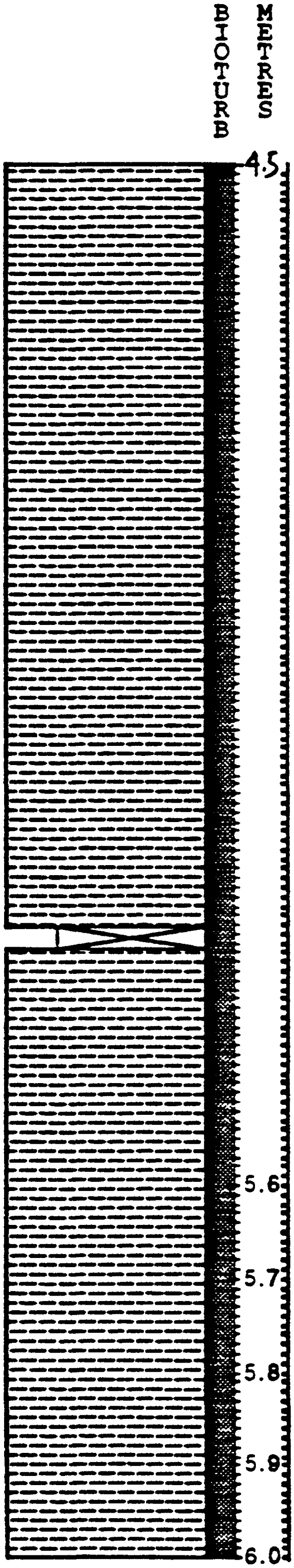
F2-92-P53, SECTION 3
35°34.30' N, 122°43.07' W, 3320 m m



CLAY, grayish olive (10Y4/2); homogeneous; occasional bioturbation; black flecks throughout

F2-92-P53, SECTION 4

35° 34.30' N, 122°43.07' W, 3320 m

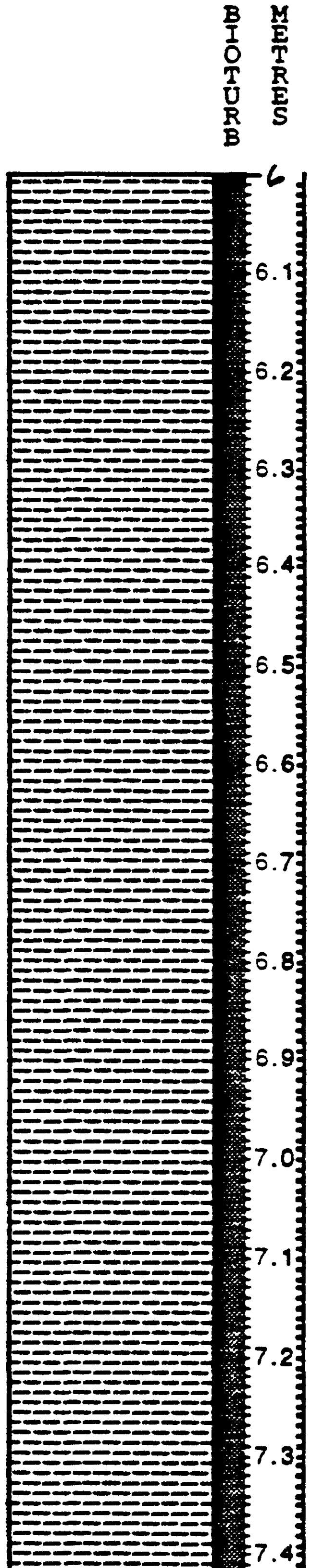


CLAY, grayish olive (10Y4.2); homogeneous; common bioturbation; occasional black flecks

Sect. 4A = 450-532 cm
Sect. 4B = 532-600 cm

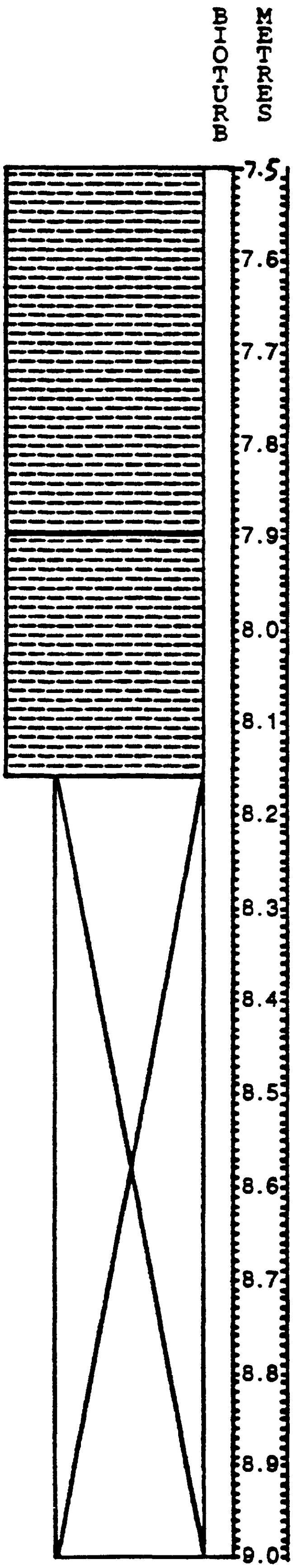
532 cm = join, Sect. 4A/B

F2-92-P53, SECTION 5
35°34.30' N, 122°43.07' W, 3320 m



CLAY, grayish olive (10Y4.2); homogeneous; common bioturbation; common black flecks throughout

F2-92-P53, SECTION 6
35° 34.30' N, 122°43.07' W, 3320 m



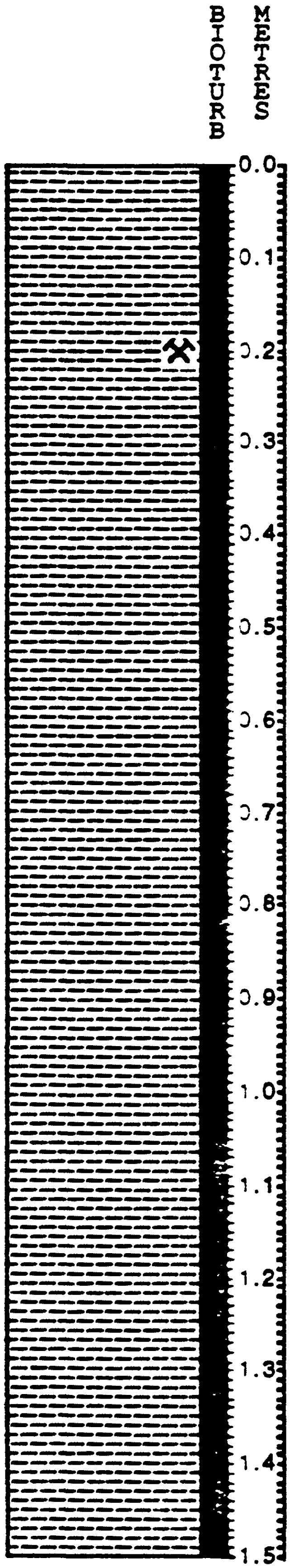
CLAY, grayish olive (10Y4/2) to moderate olive brown (5Y4/4); homogeneous; common bioturbation; occasional black flecks

10Y4/2

5Y4/4

816 cm = base of core

F2-92-P54 Section 1
35° 34.66'N 122° 42.95'W 3305m



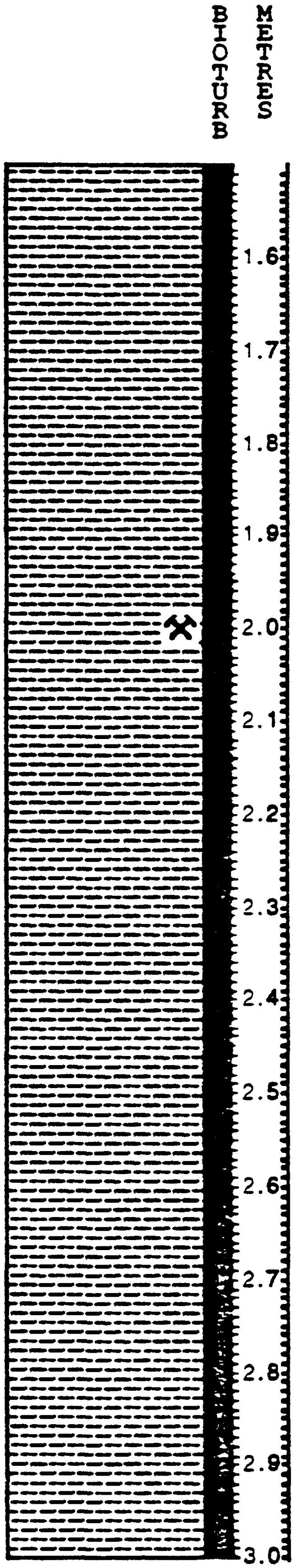
CLAY, Grayish olive (10Y 4/2), homogeneous; abundant bioturbation. Gas cracks scattered throughout.

Sediments not a true 10Y 4/2 -- more "pale."

smear slide (20 cm):
clay - A
rads - A
diatoms - C
nannos - R
spicules - R

F2-92-P54 Section 2

35° 34.66'N 122° 42.95'W 3305

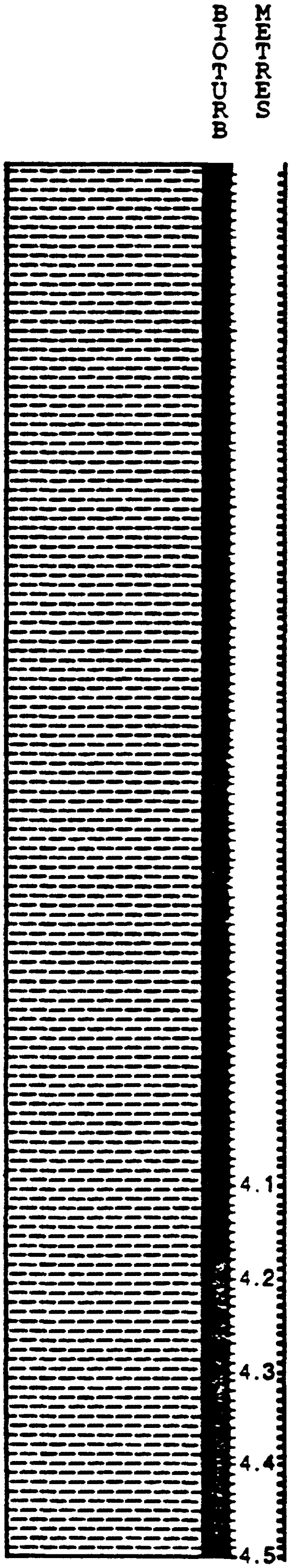


CLAY, pale Grayish olive (10Y 4/2), gas cracks and black (hydrotrolite?) streaks common; sediment homogenous with abundant bioturbation.

smear slide (200 cm):
clay - A
diatoms - C
spicules - R
rads - R
nannos - VR

F2-92-P54 Section 3

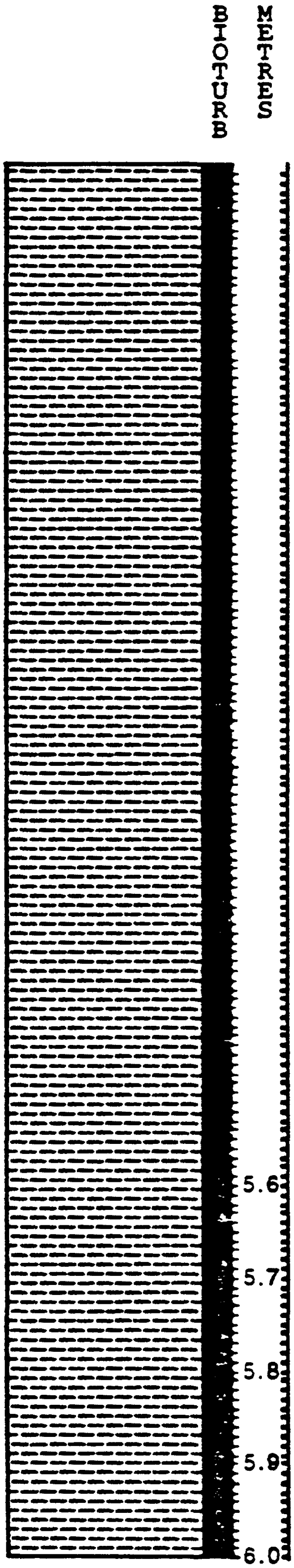
35° 34.66'N 122° 42.95'W 3305m



CLAY, pale Grayish olive (10Y 4/2); homogeneous, scattered gas cracks, abundant bioturbation.

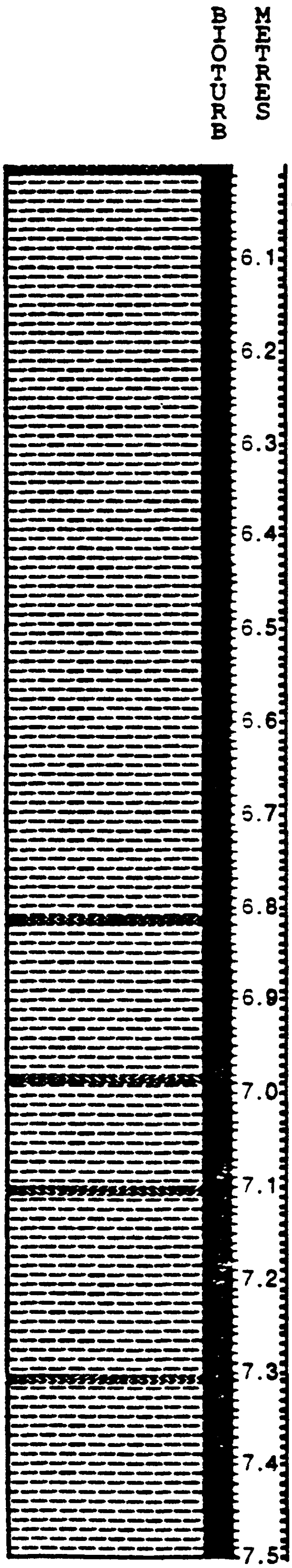
F2-92-P54 Section 4

35° 34.66'N 122° 42.95'W 3305m



CLAY, close to Dark greenish gray (5GY 4/1), but somewhat "paler"; homogeneous; bioturbation abundant Gas pocket at 575 cm (rare compared to higher sections in core).

F2-92-P54 Section 5
35° 34.66'N 122° 42.95'W 3305m



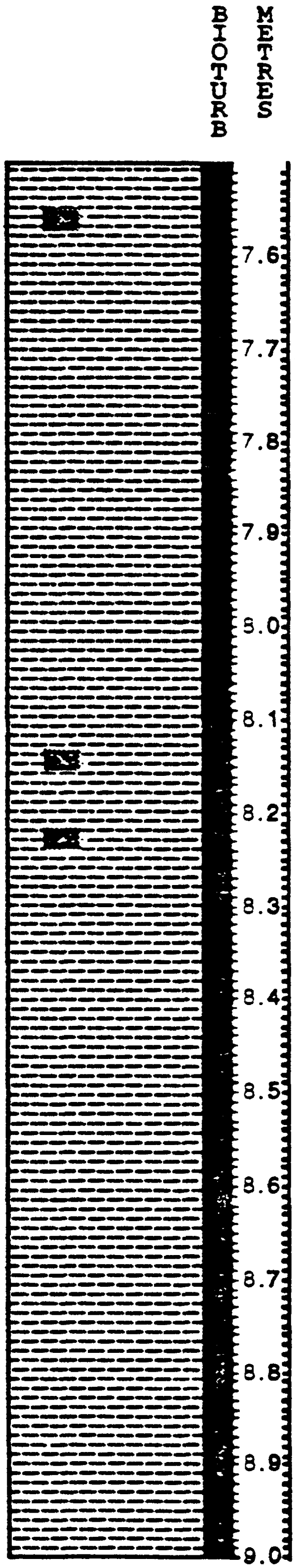
CLAY, Dark greenish gray (5GY 4/1) with bands of Grayish olive (10Y 4/2) sediments between 682-698 cm and 710-730 cm. Bioturbation abundant; all contacts bioturbated.

Grayish olive (10Y 4/2)

Grayish olive (10Y 4/2)

F2-92-P54 Section 6

35° 34.66'N 122° 42.95'W 3305m

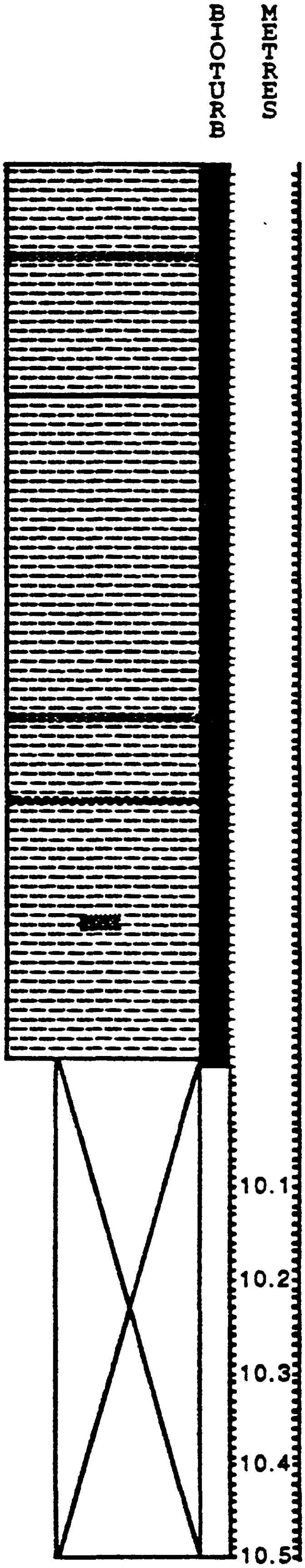


large burrow

CLAY, mottled Grayish olive (10Y 4/2); several large burrows; homogeneous; bioturbation abundant.
Zone of intense bioturbation (horizontal Chondrites) between 815-825 cm.

zone of abundant distinct horizontal Chondrites

2-92-P54 Section 7
35° 34.66'N 122° 42.95'W 3305m



CLAY, alternating zones of lighter and darker sediment, mostly Dark Greenish gray (5GY 4/1) with zones of Grayish olive (10Y 4/2) btw 910-925 cm and 962-970 cm.

Bioturbation abundant.

Grayish olive (10Y 4/2) – dark

Dark greenish gray (5GY 4/1) – light

dark

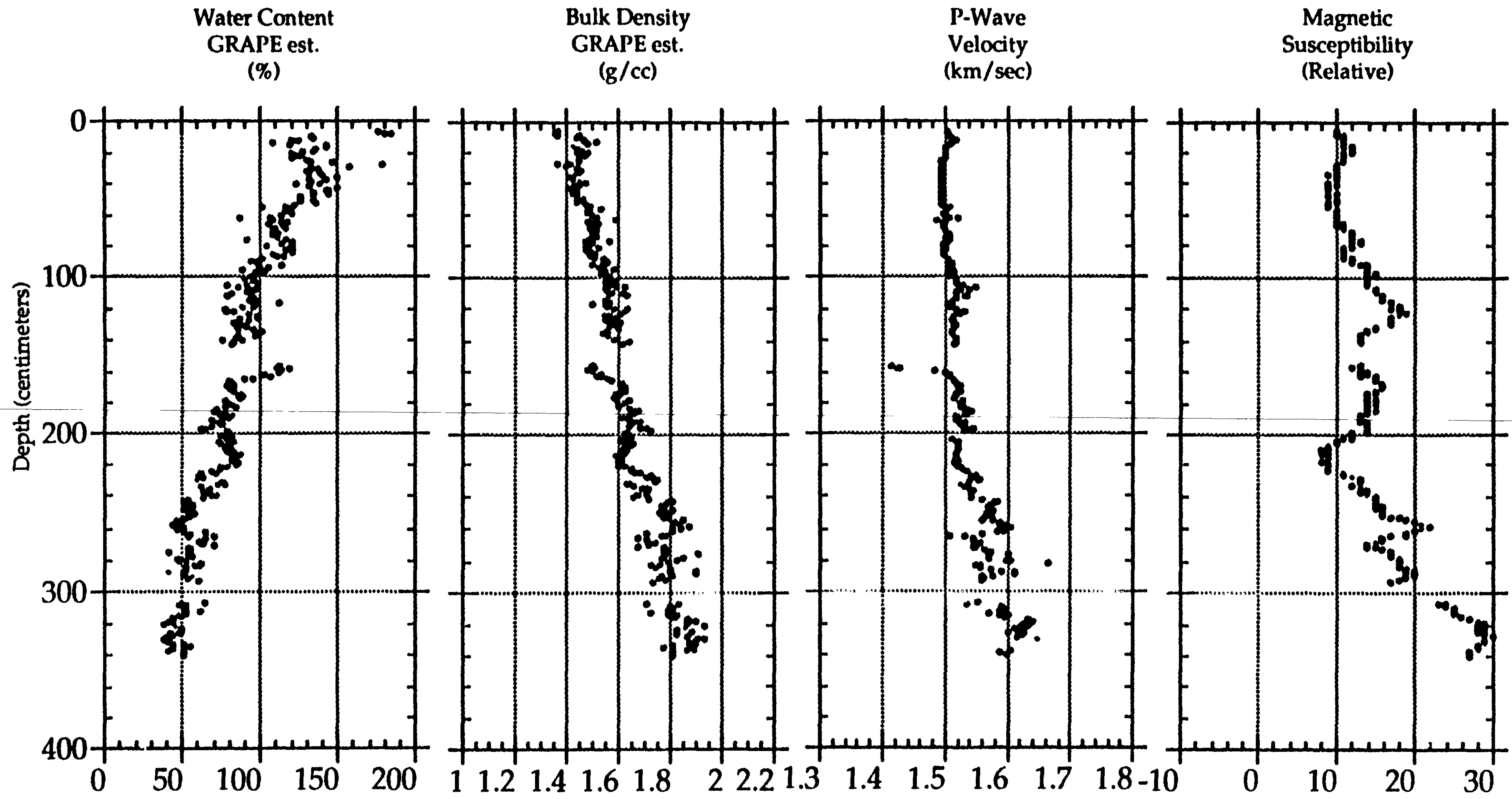
light

zoophycos

base of core = 997 cm

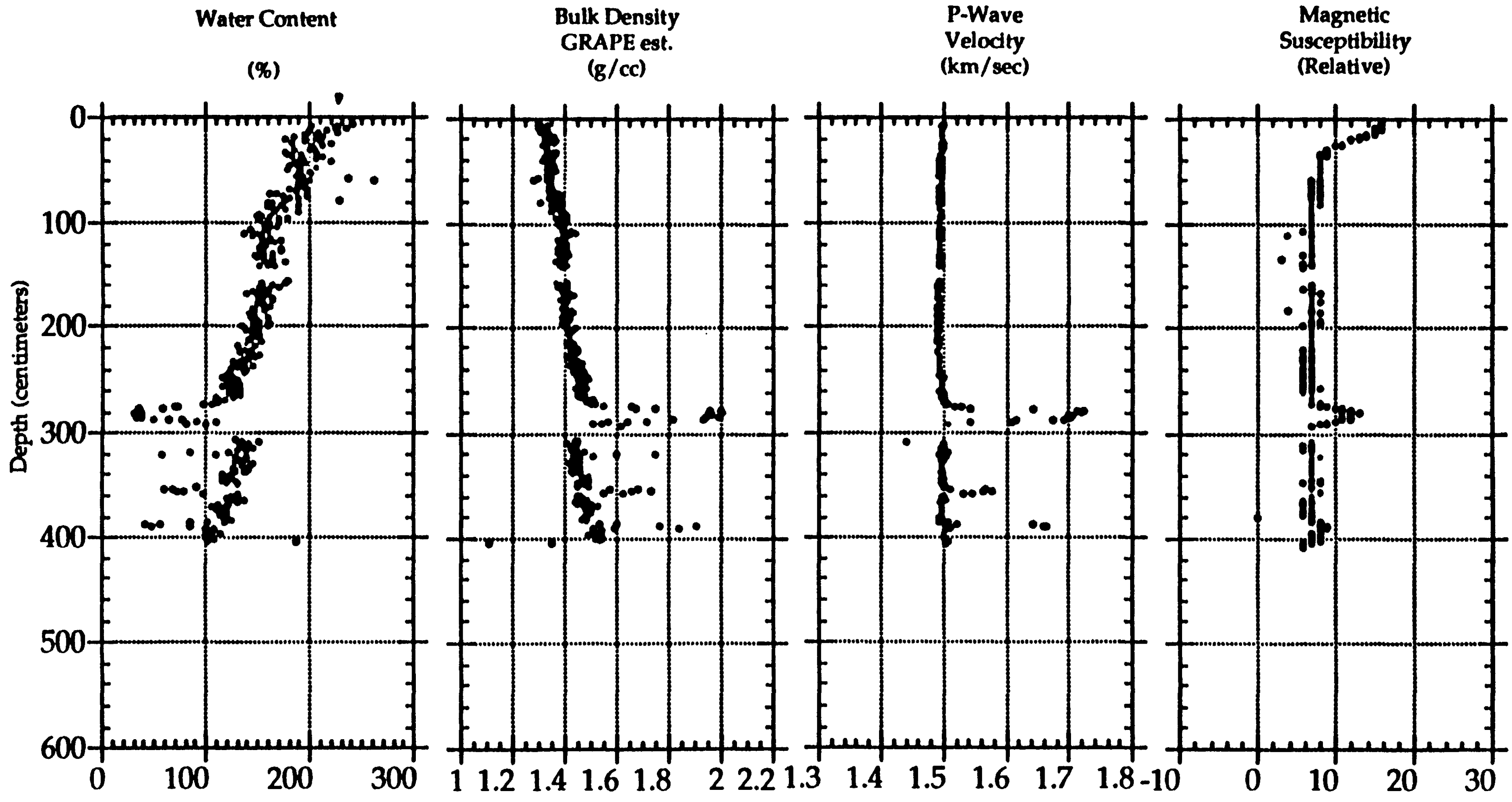
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P1



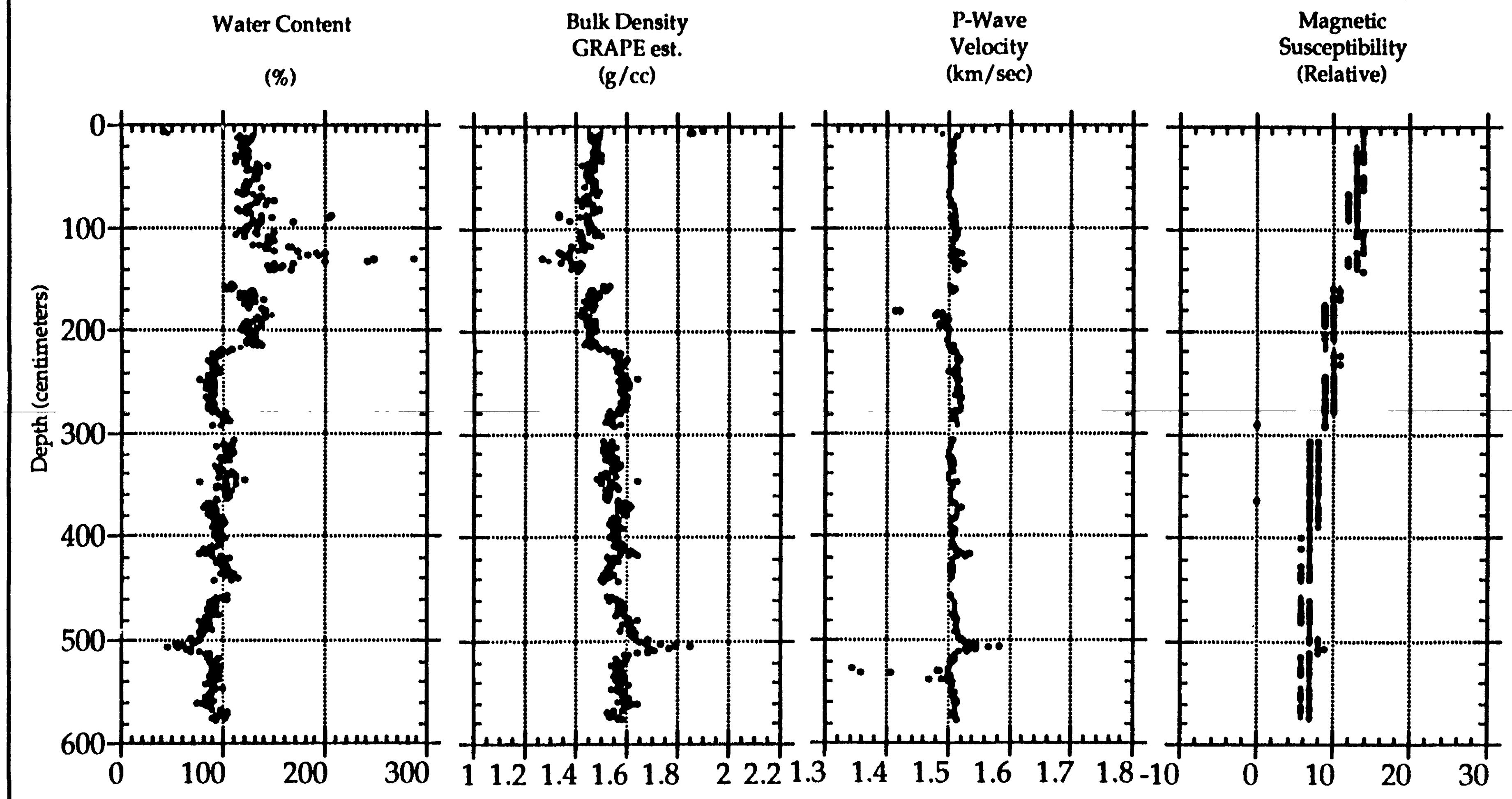
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P2



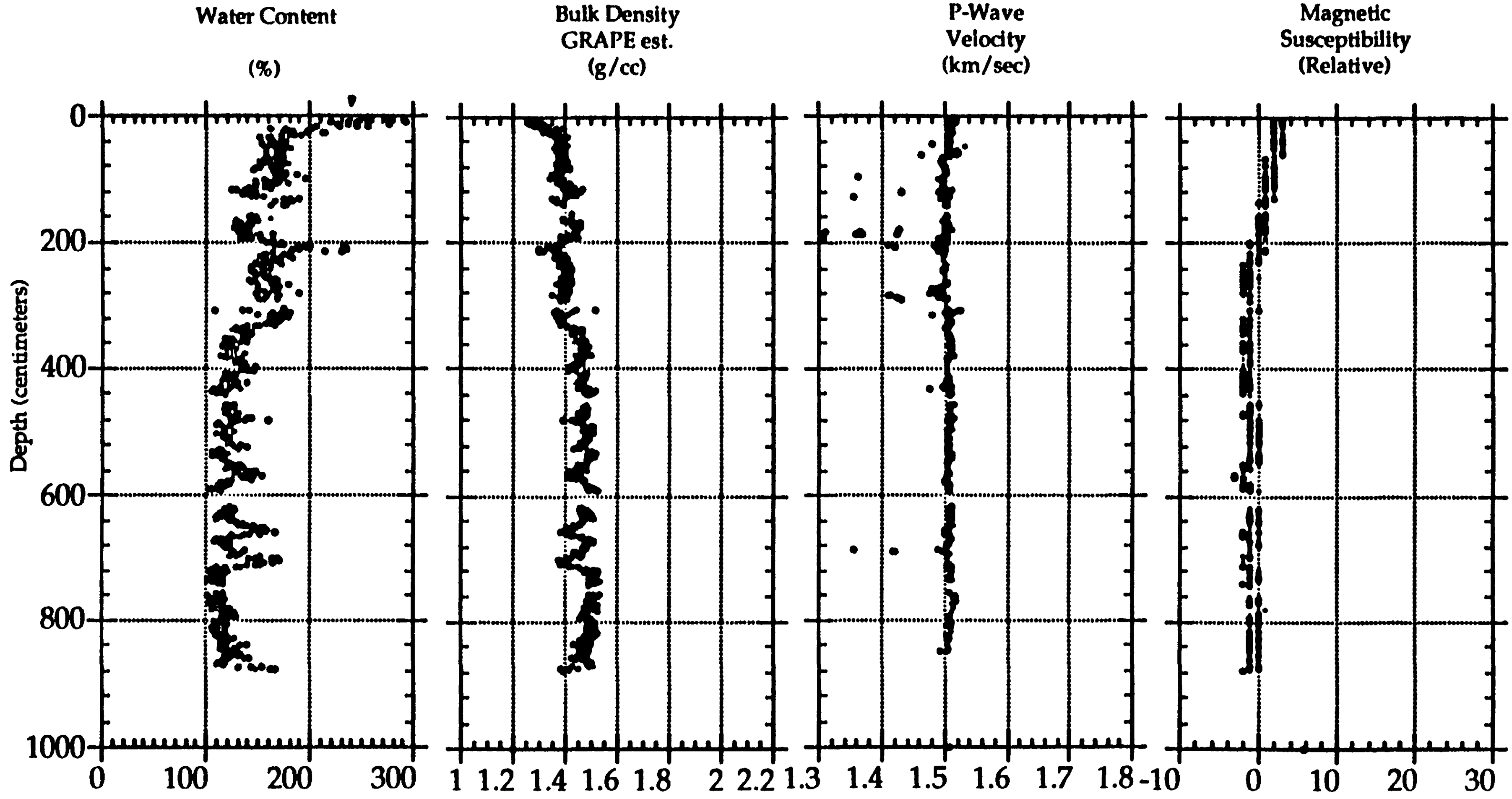
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P3



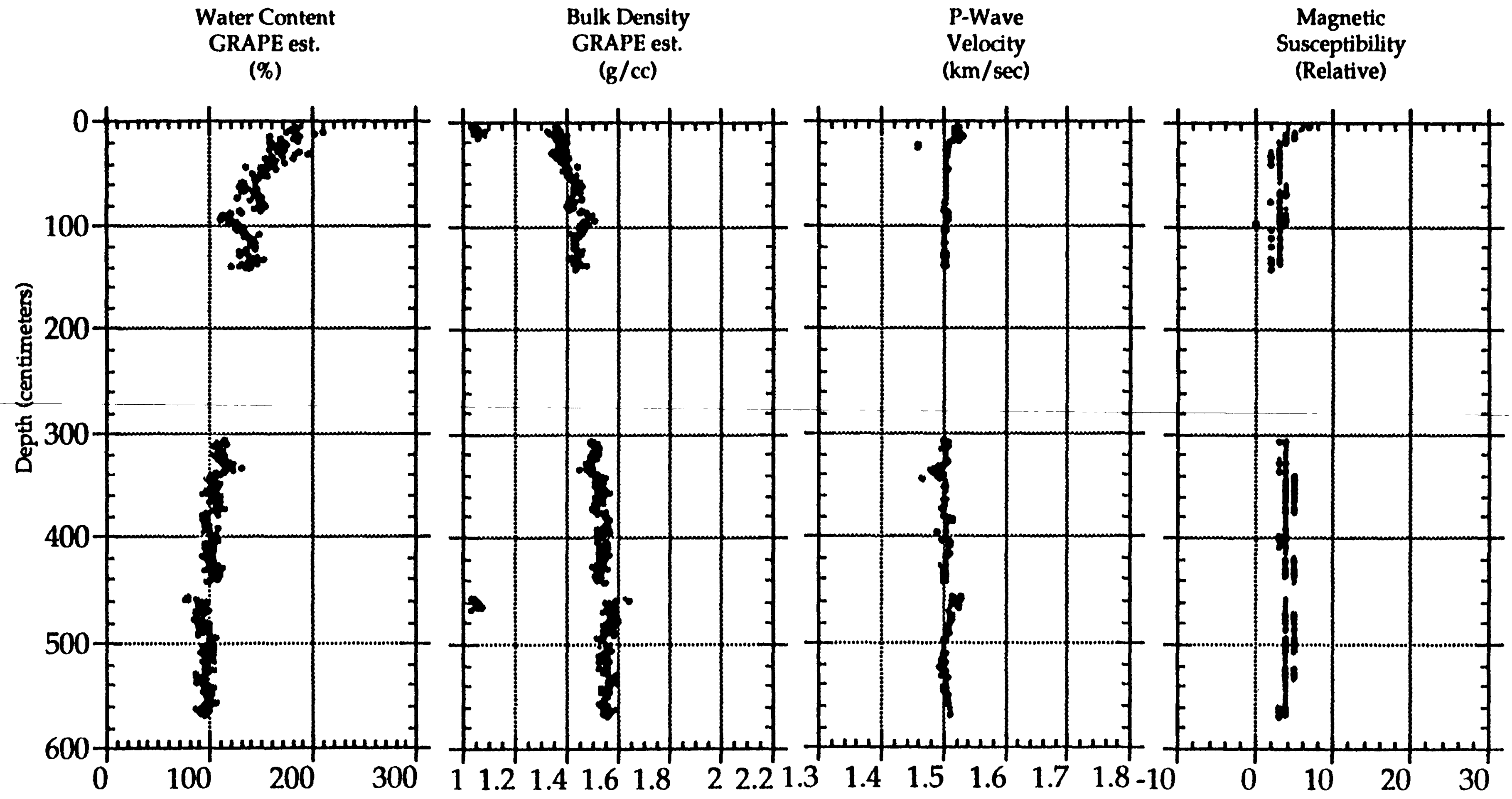
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P4



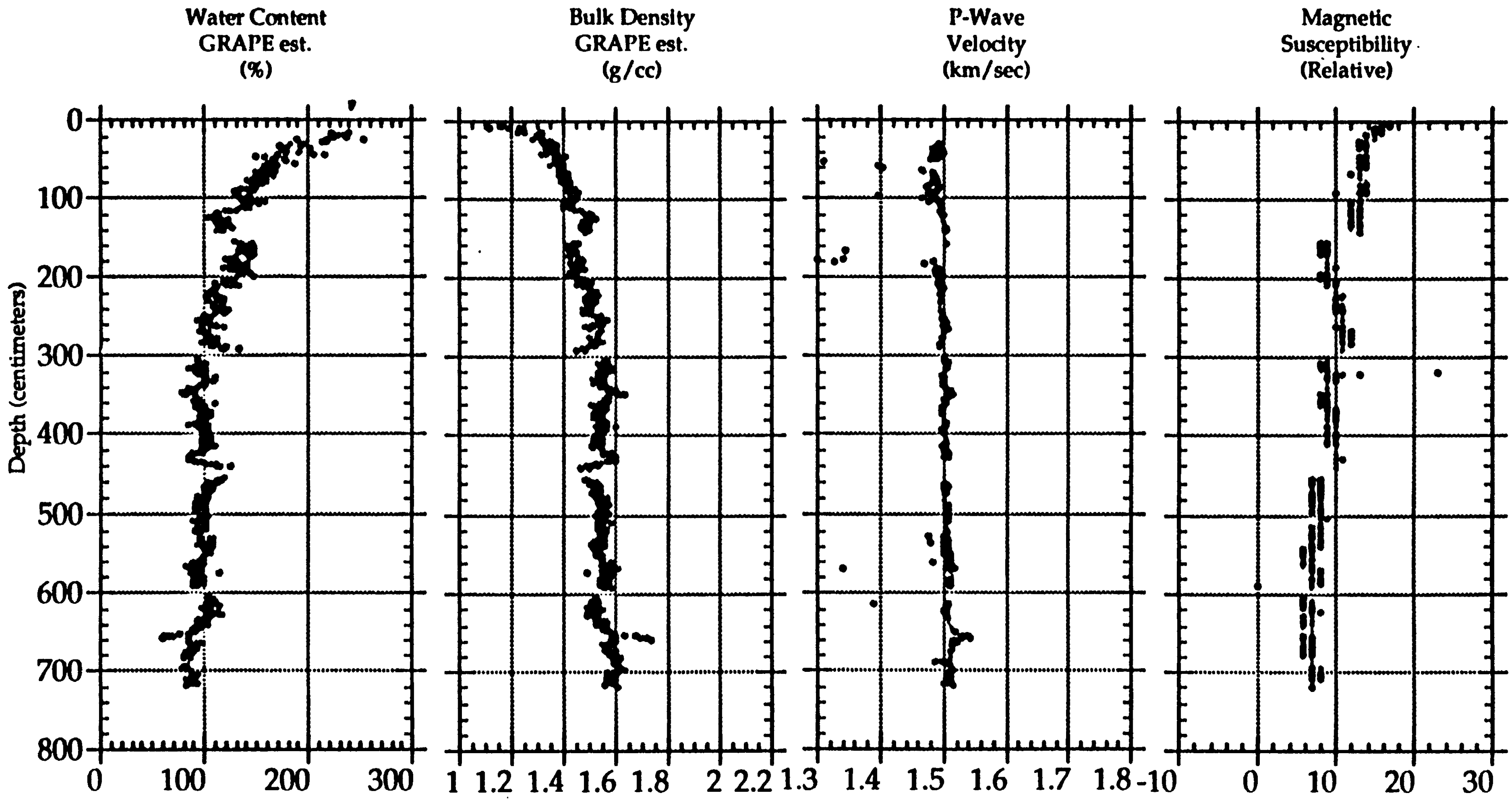
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P5



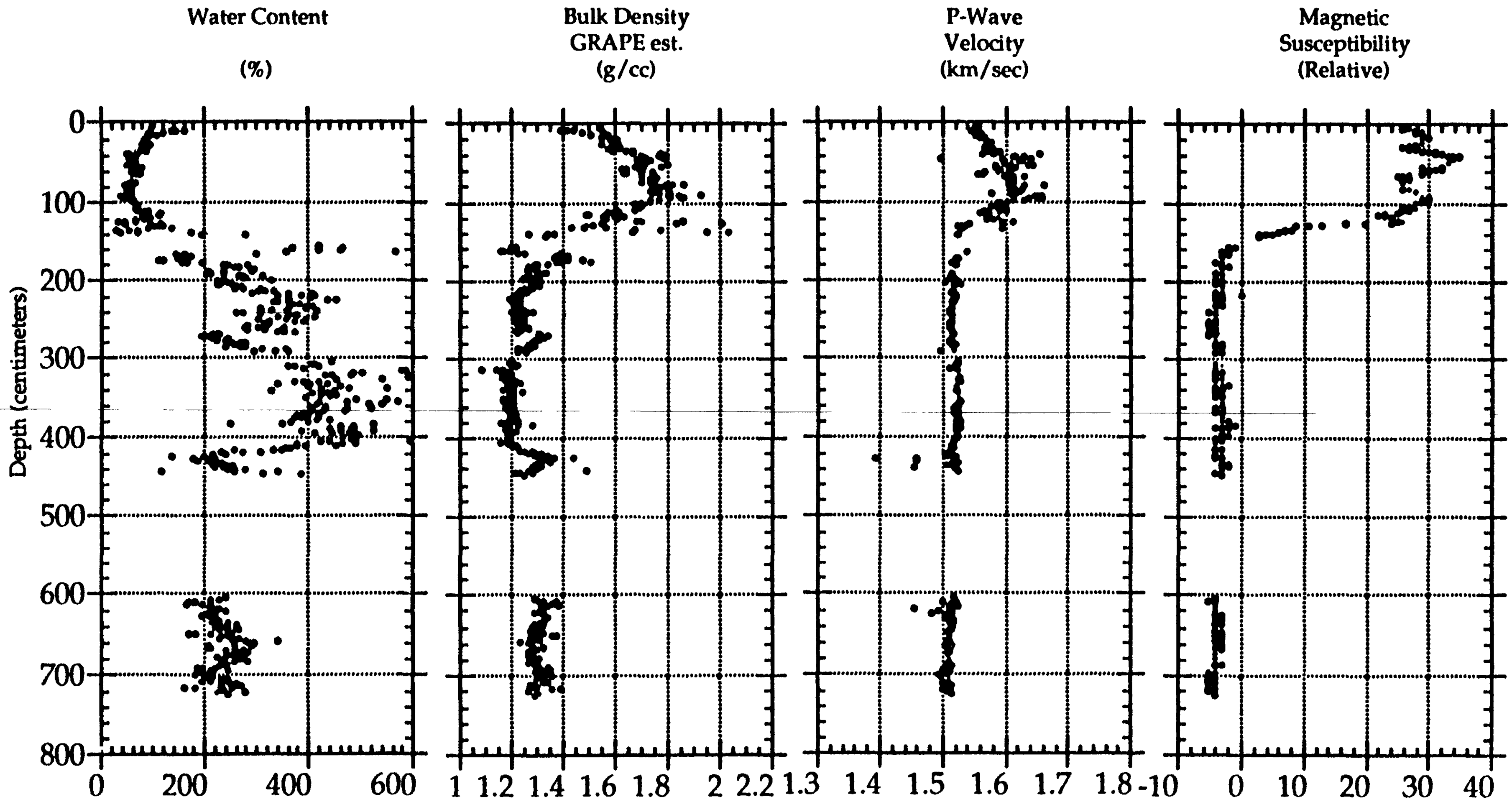
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P6



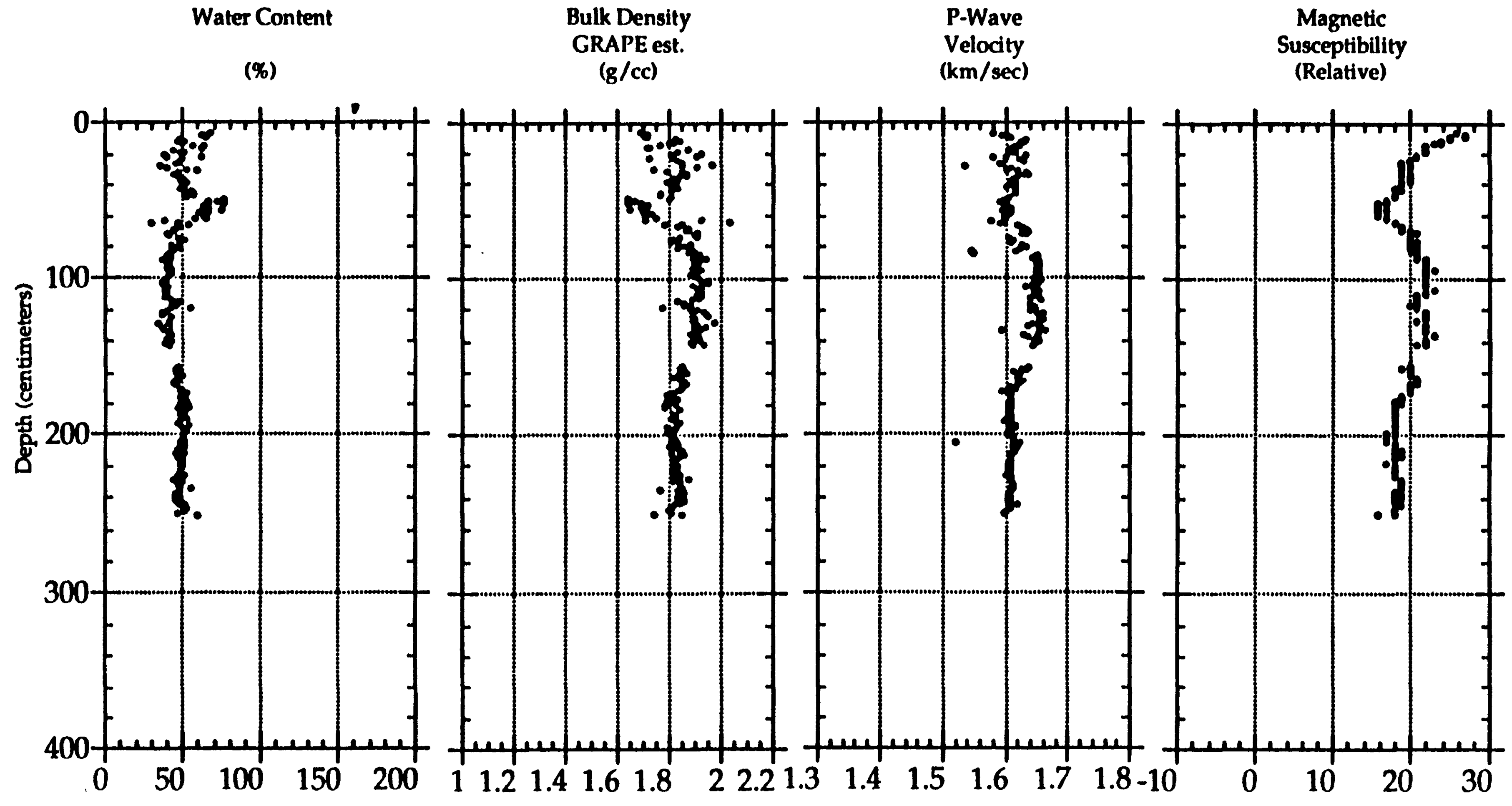
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P7



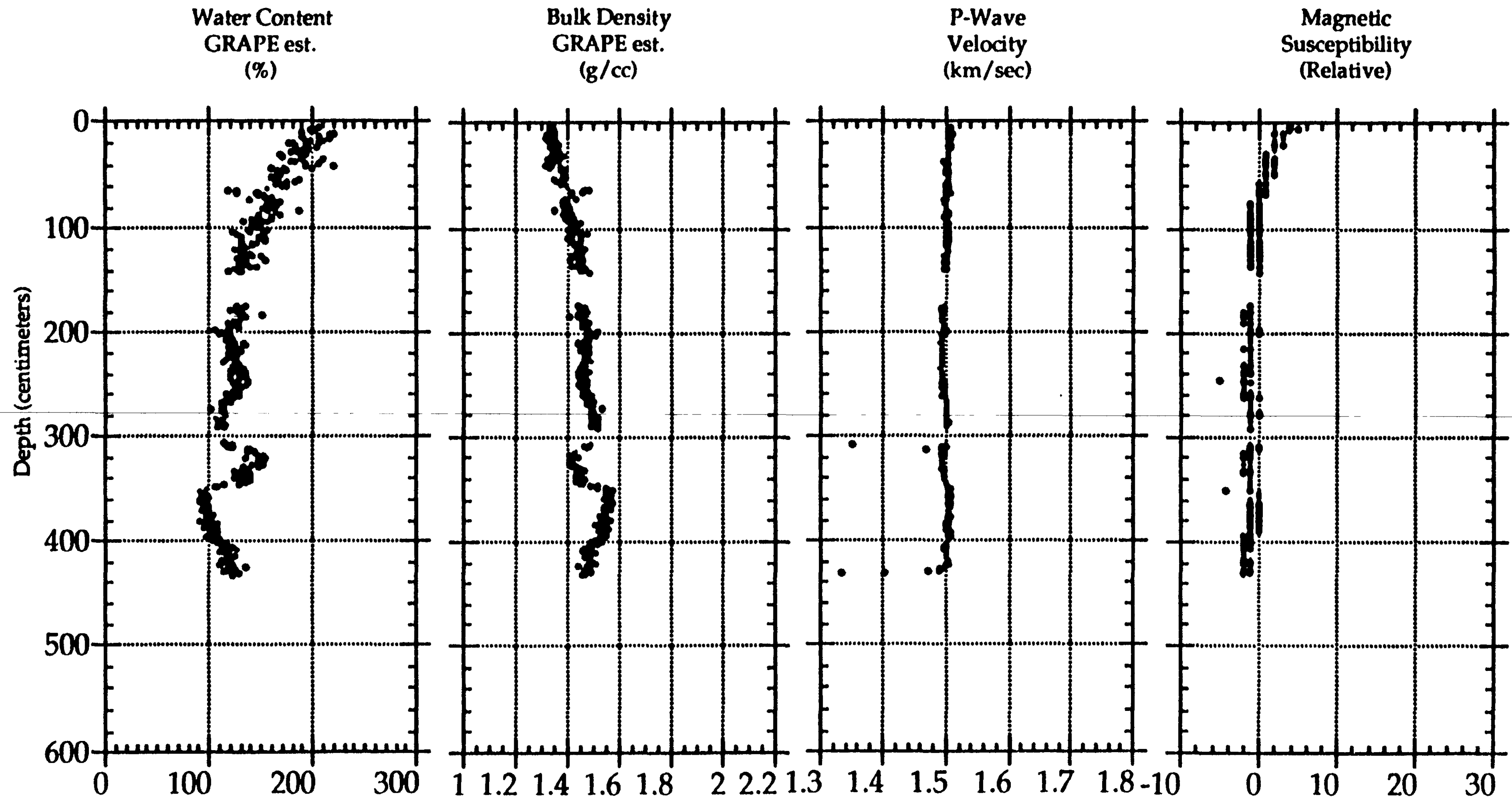
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P8



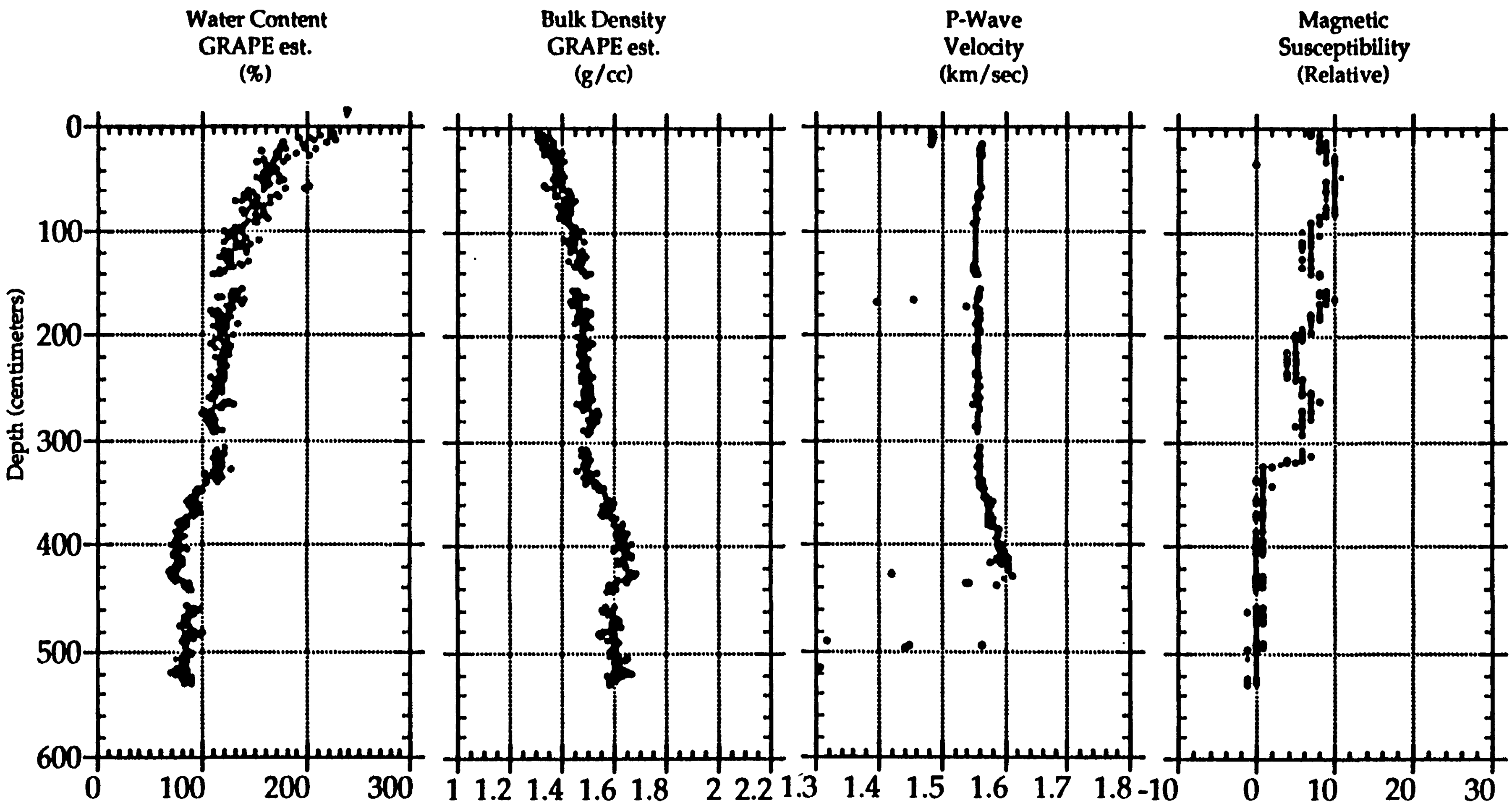
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P9



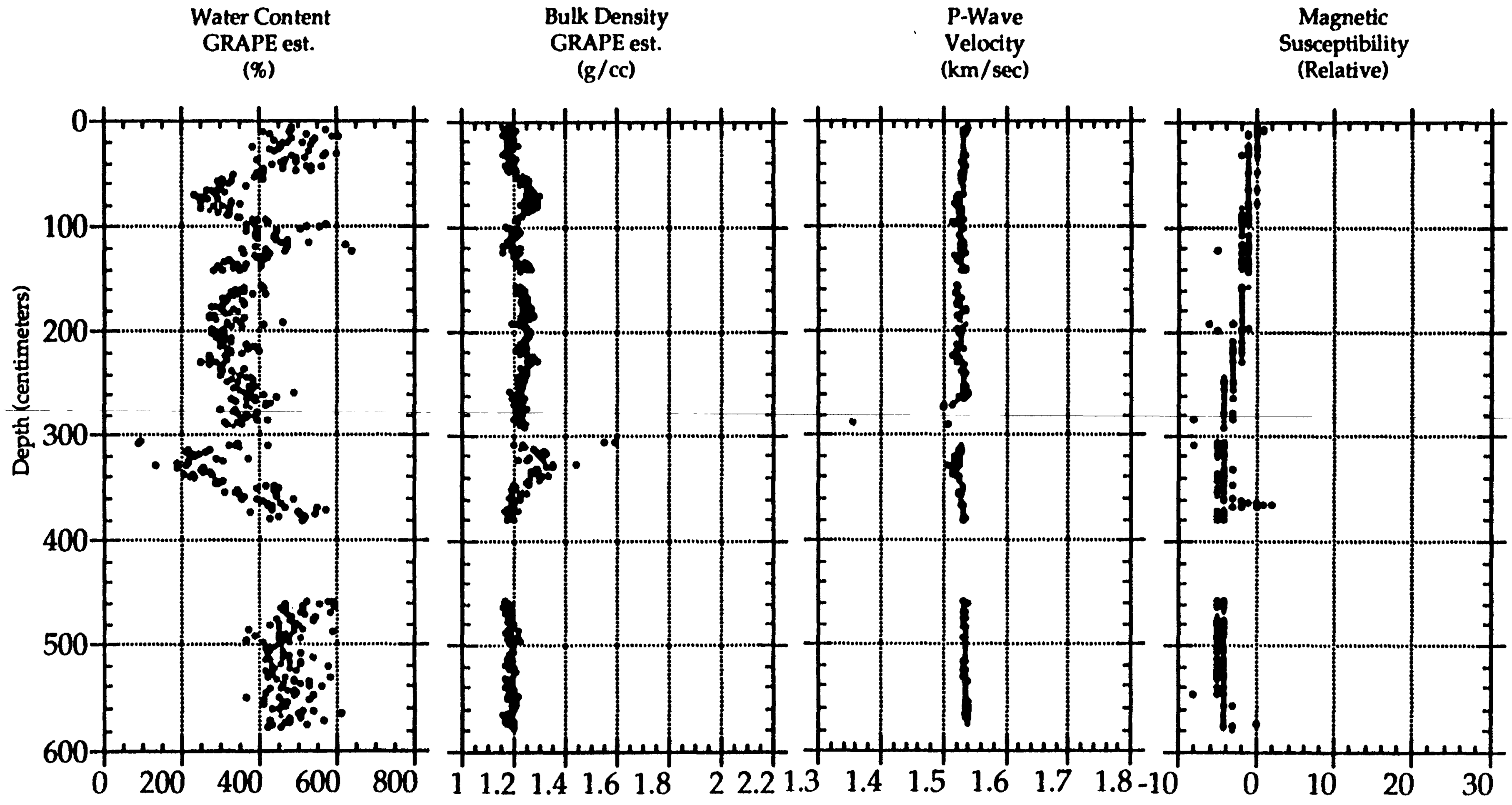
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P10



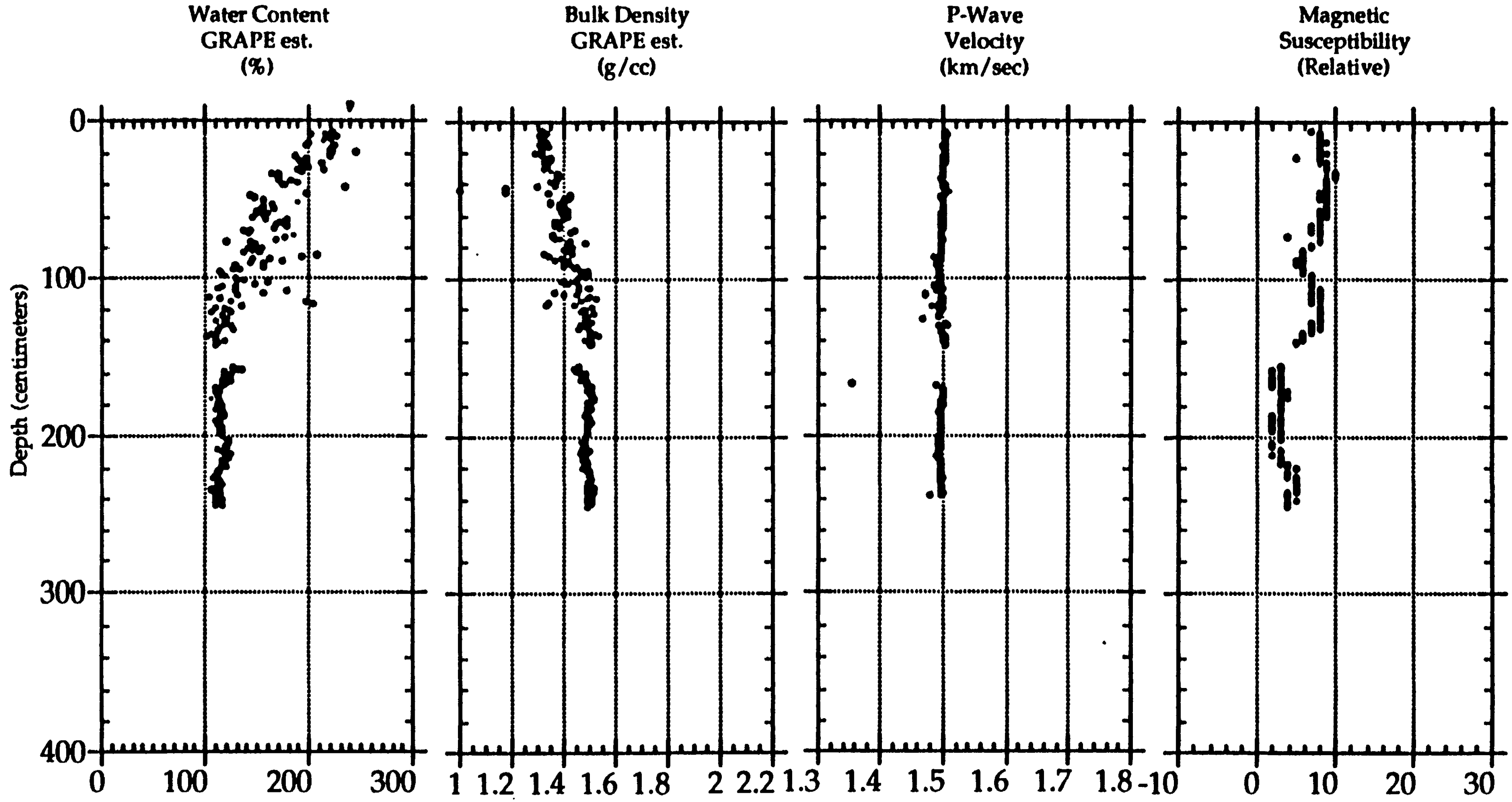
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P11



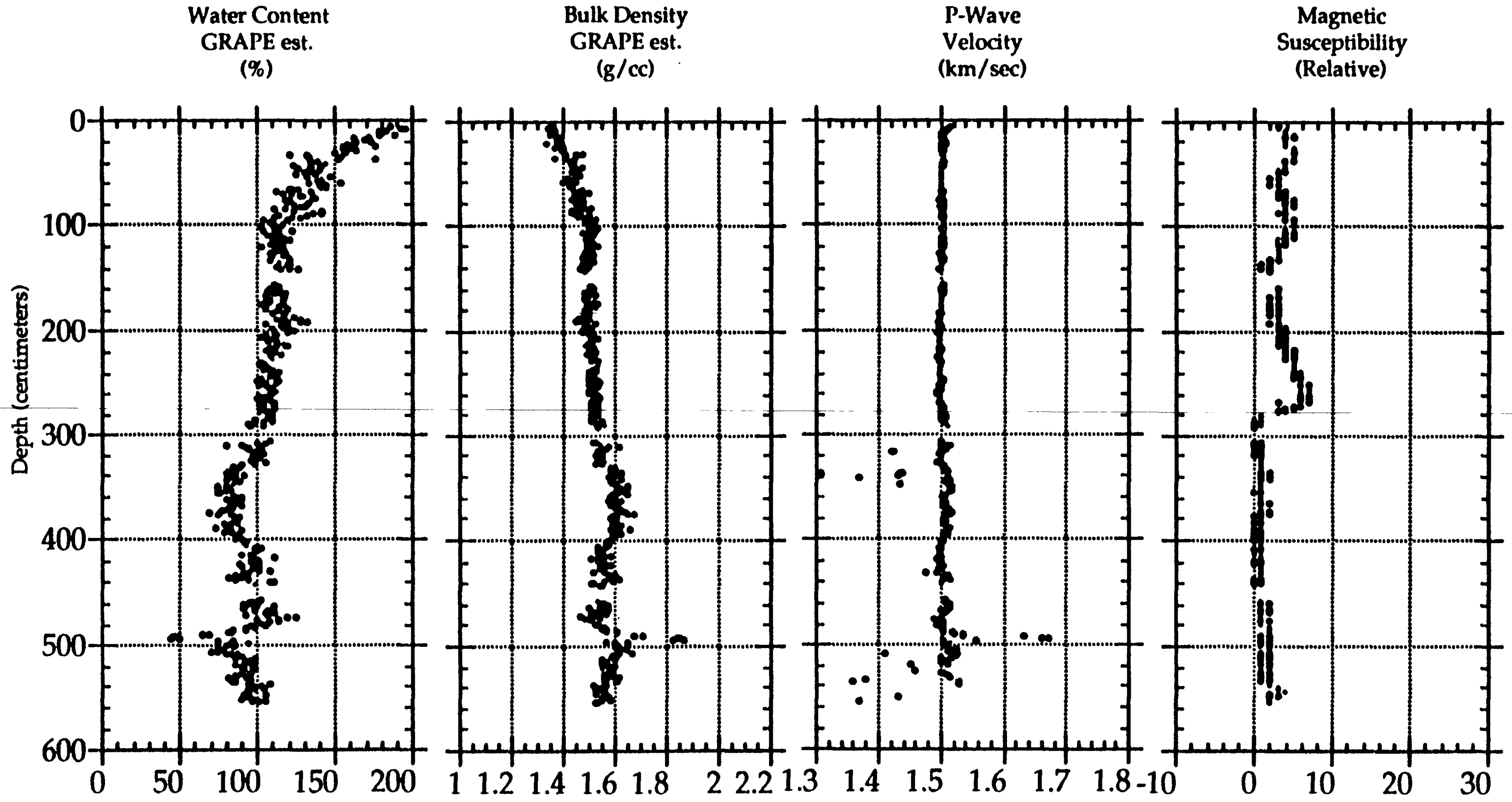
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P12



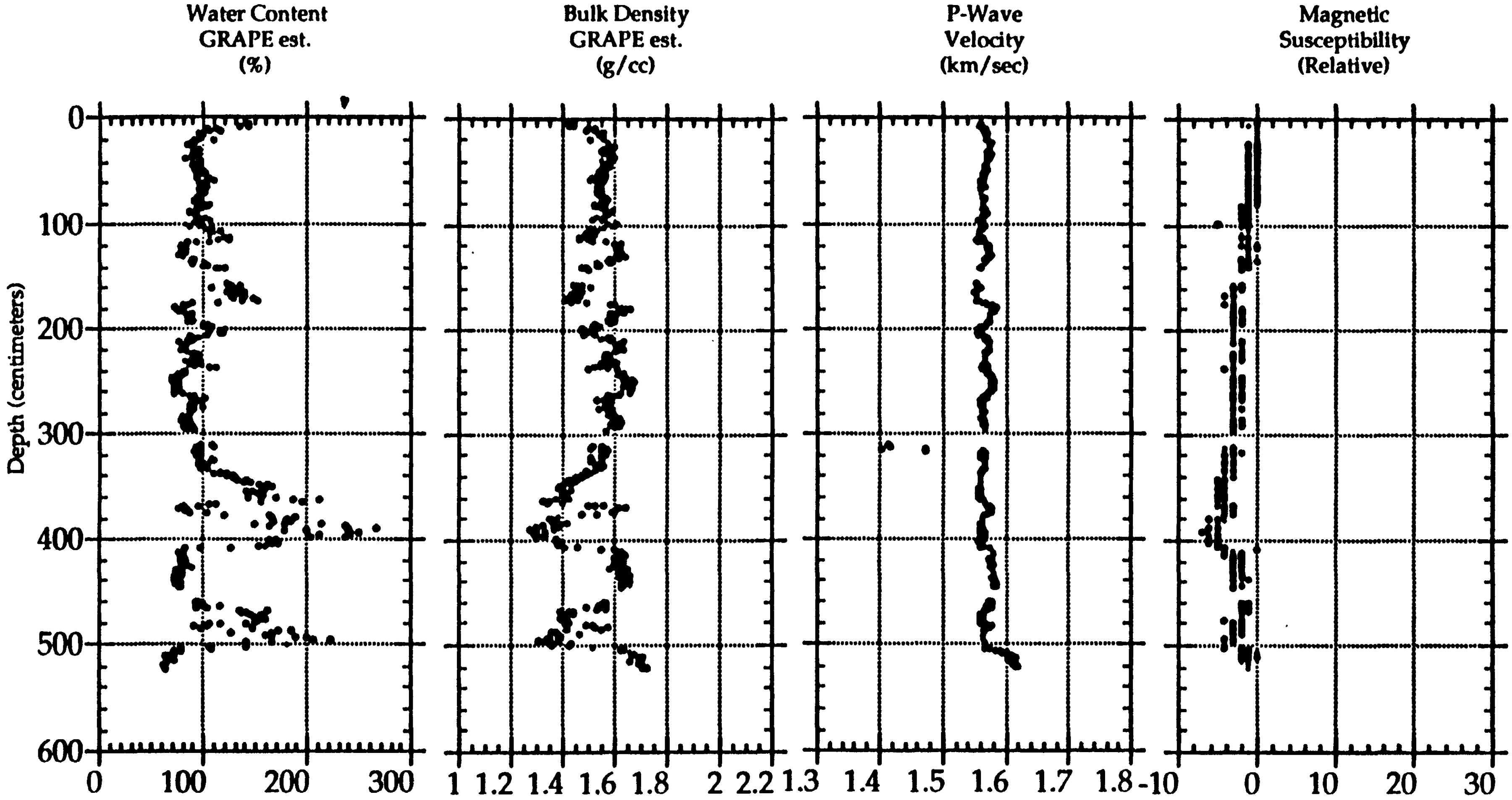
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P13



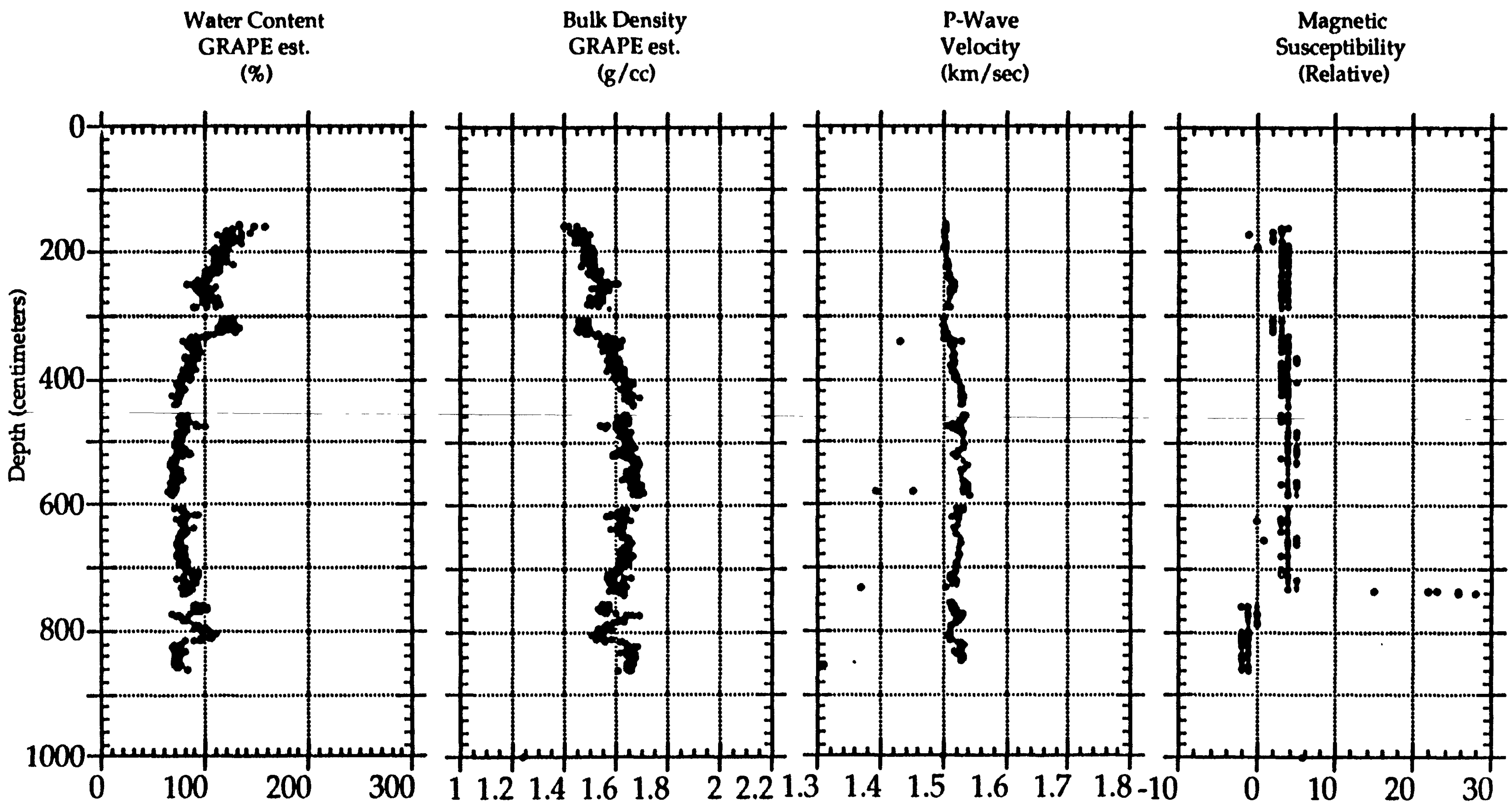
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P14



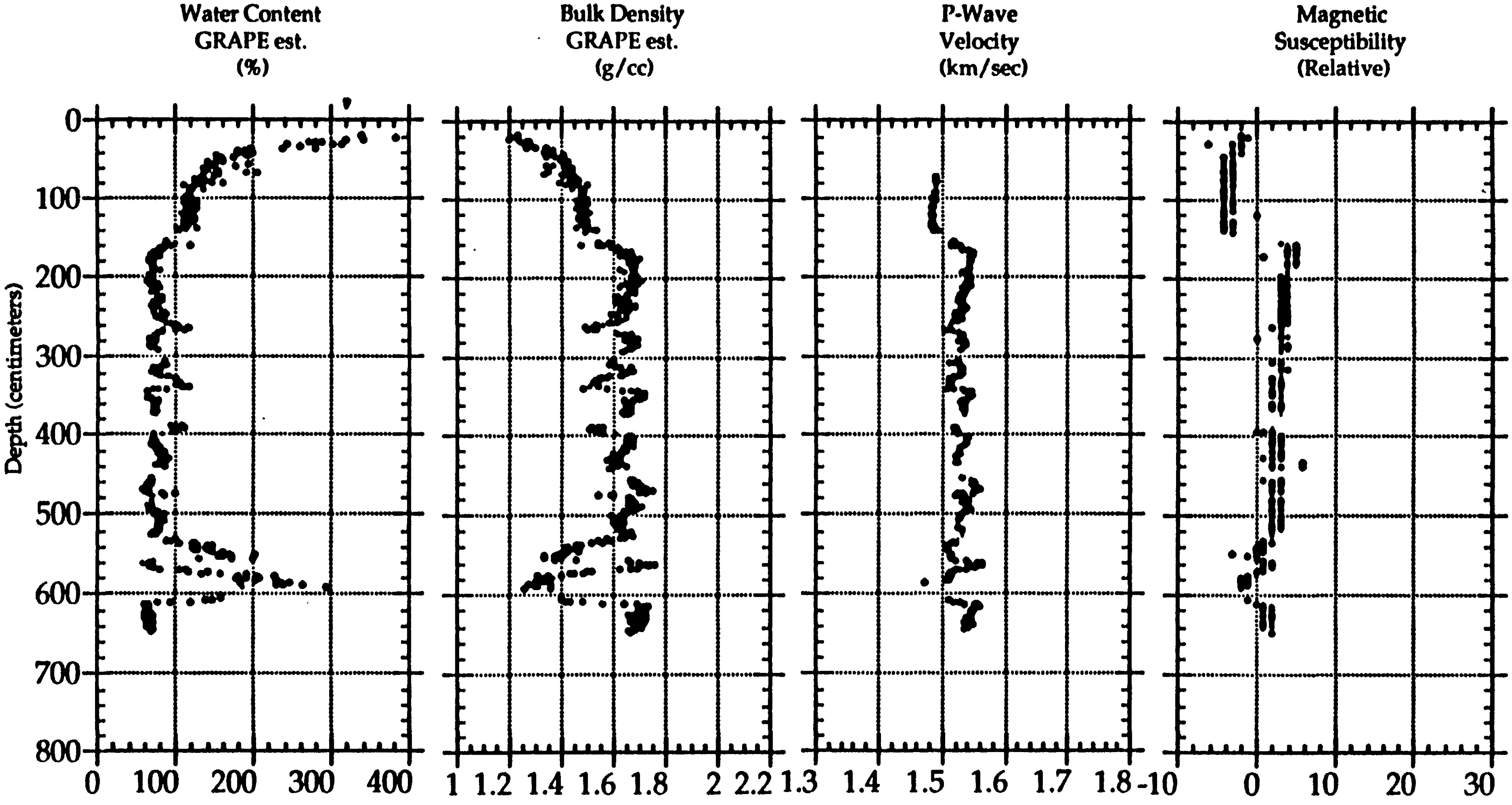
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P15



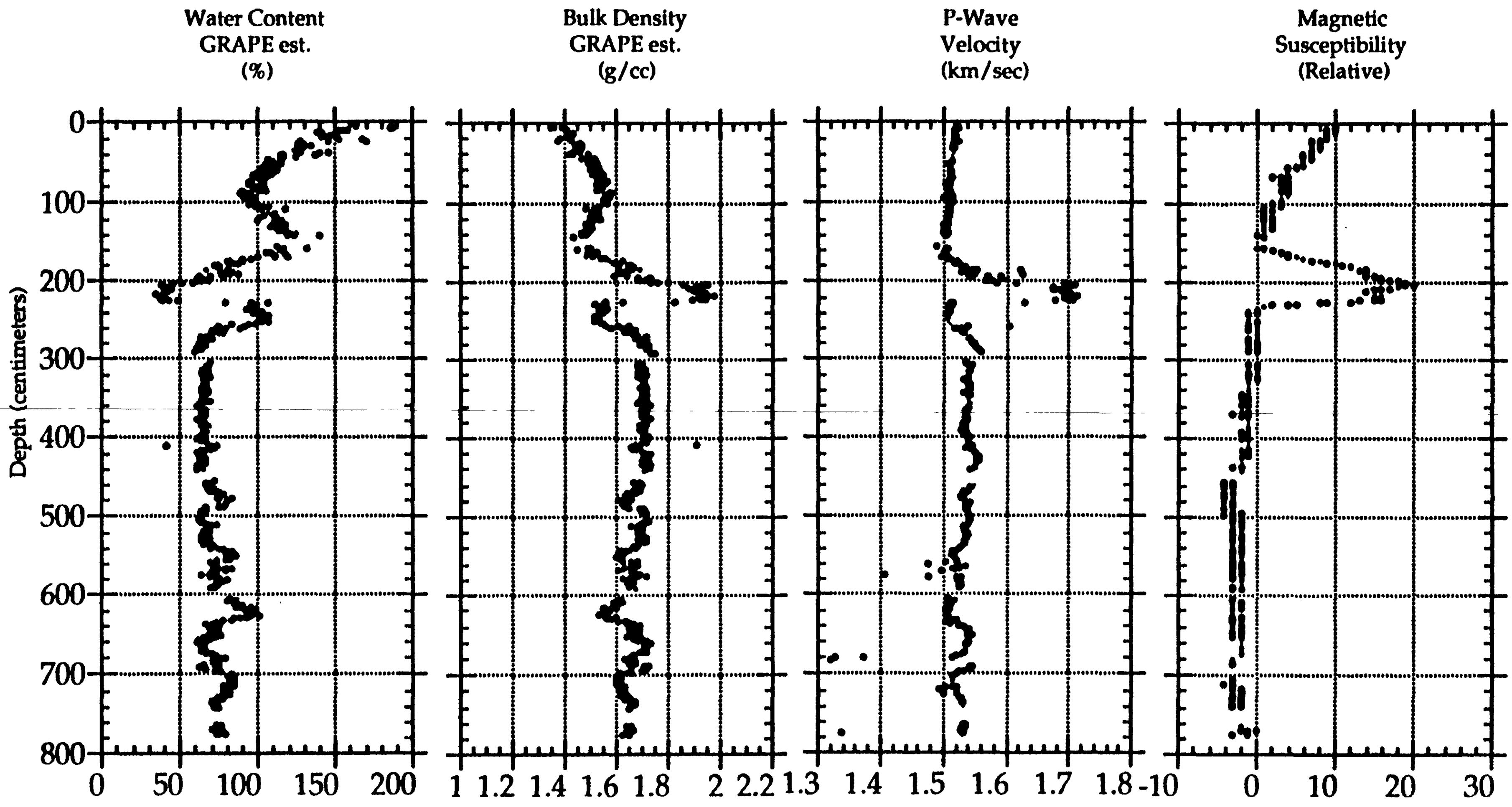
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P16



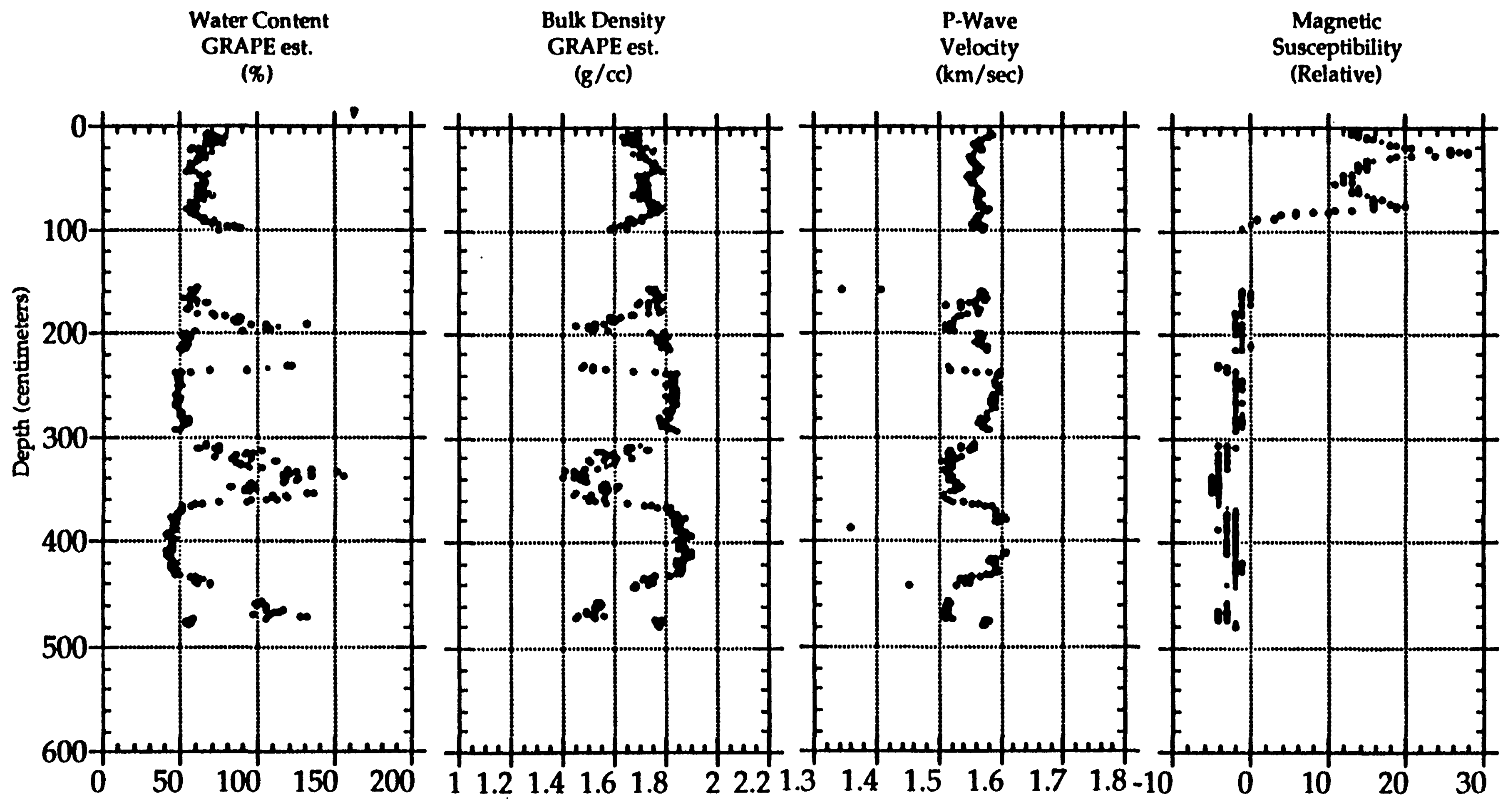
**F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS**

CORE: P17



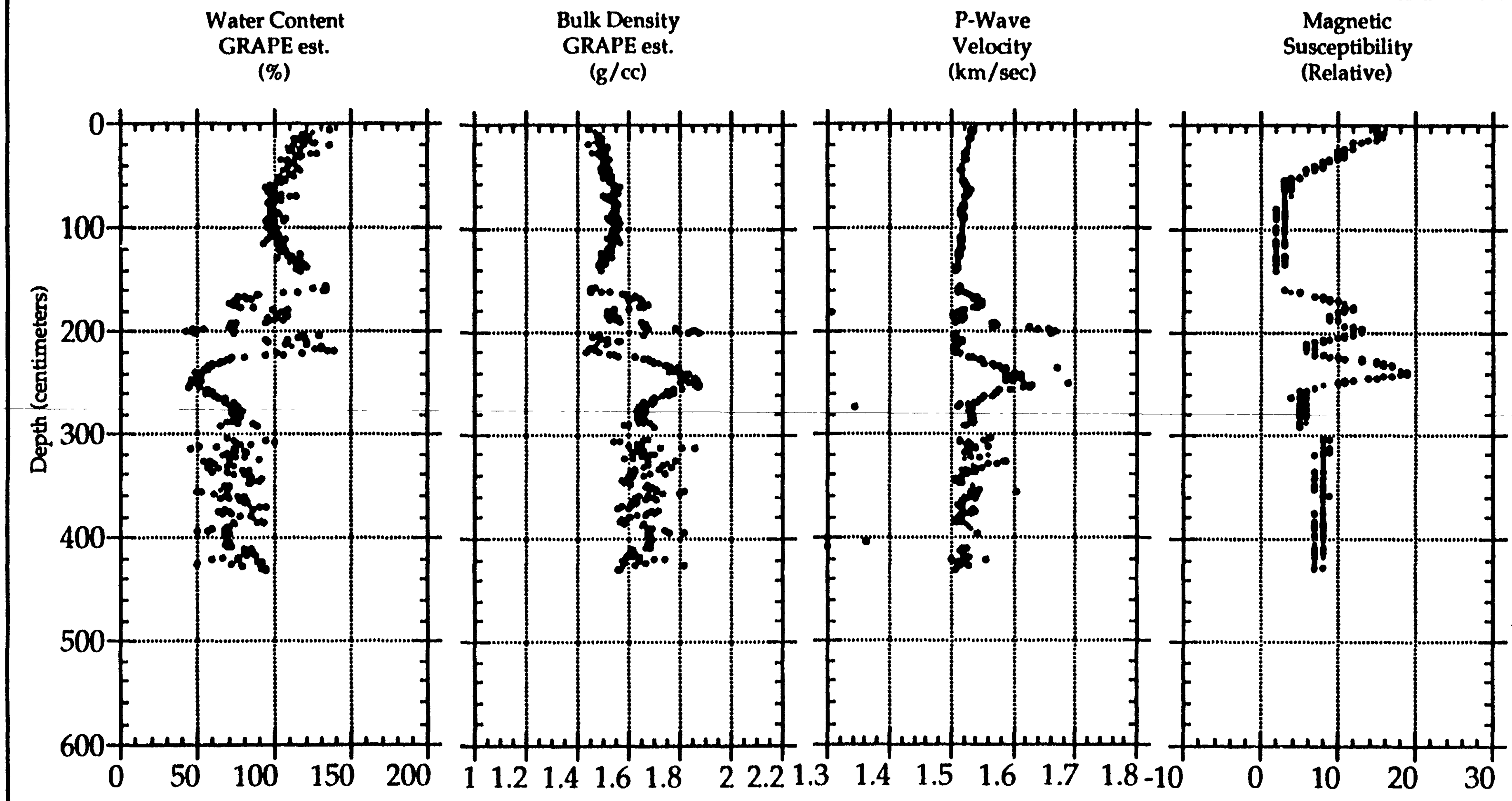
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P18



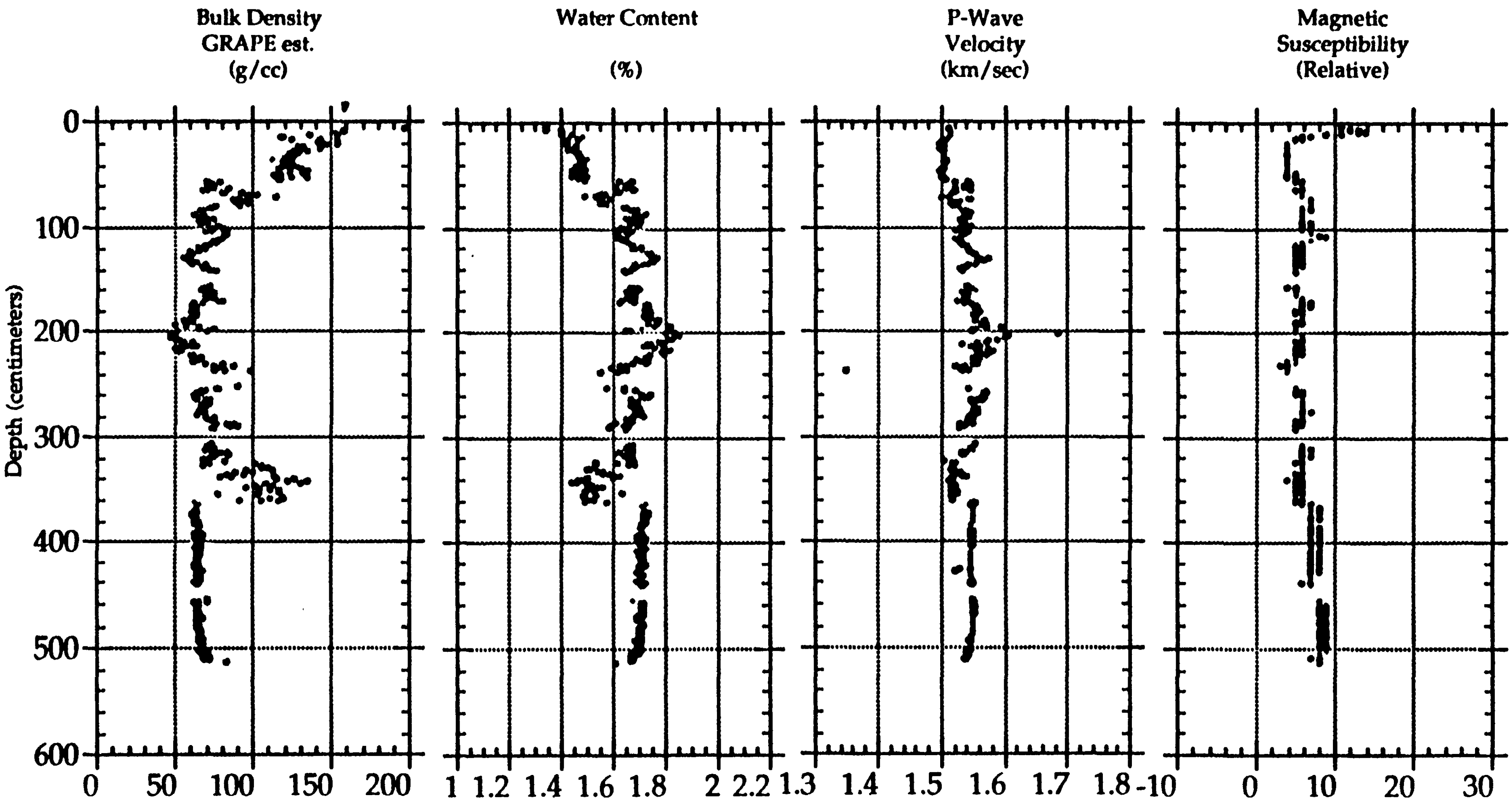
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P19



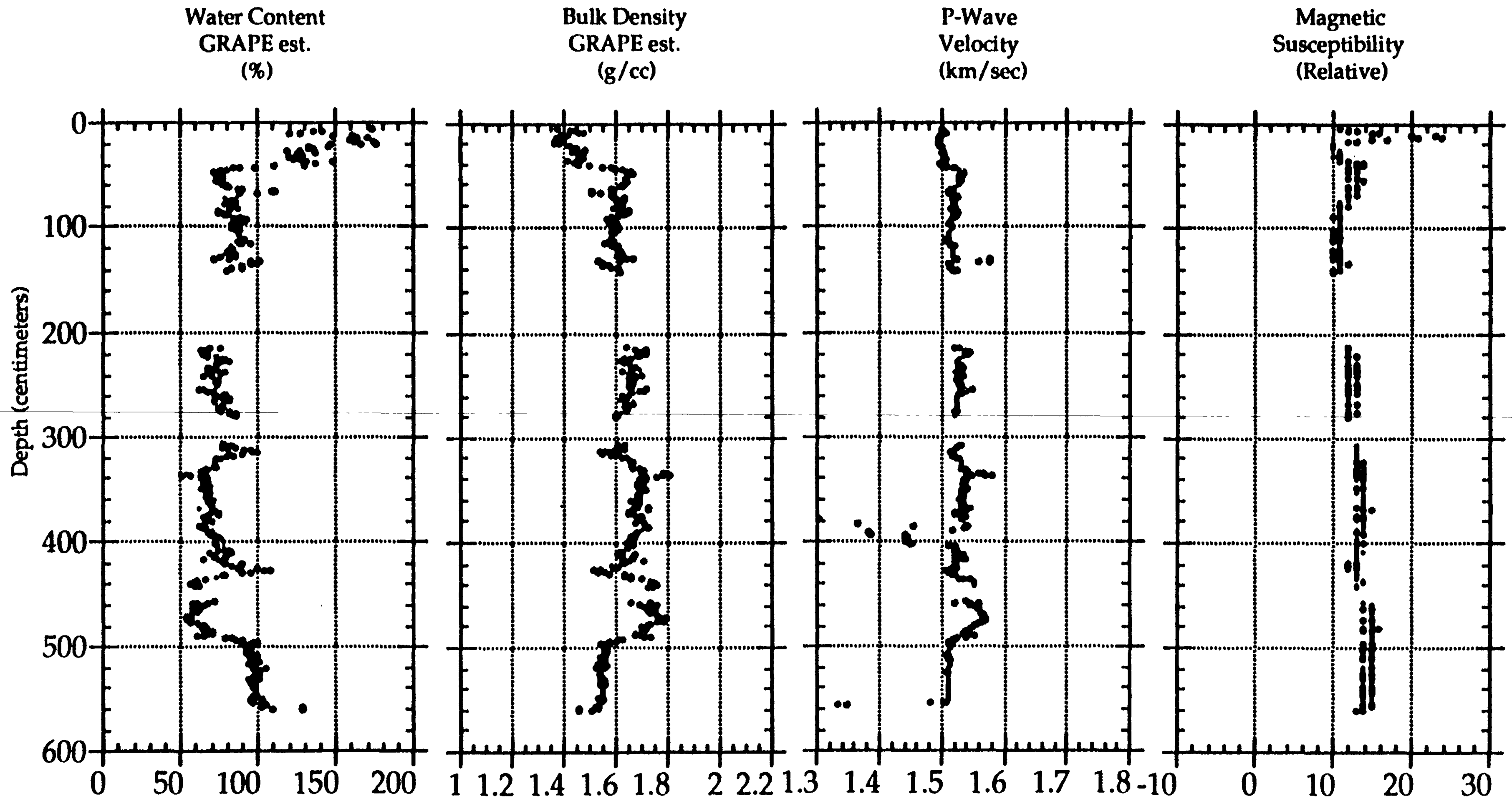
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P20



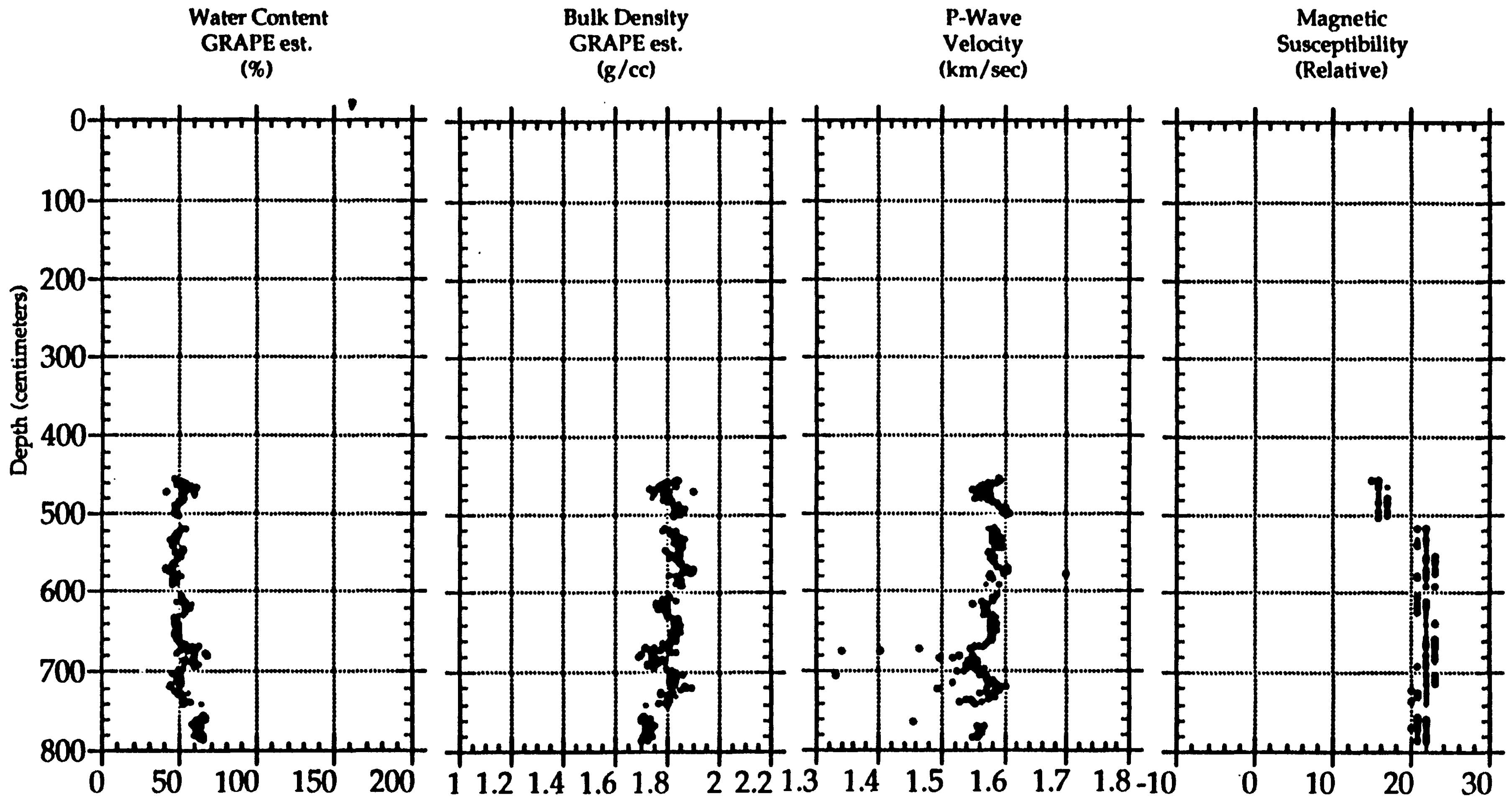
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P21



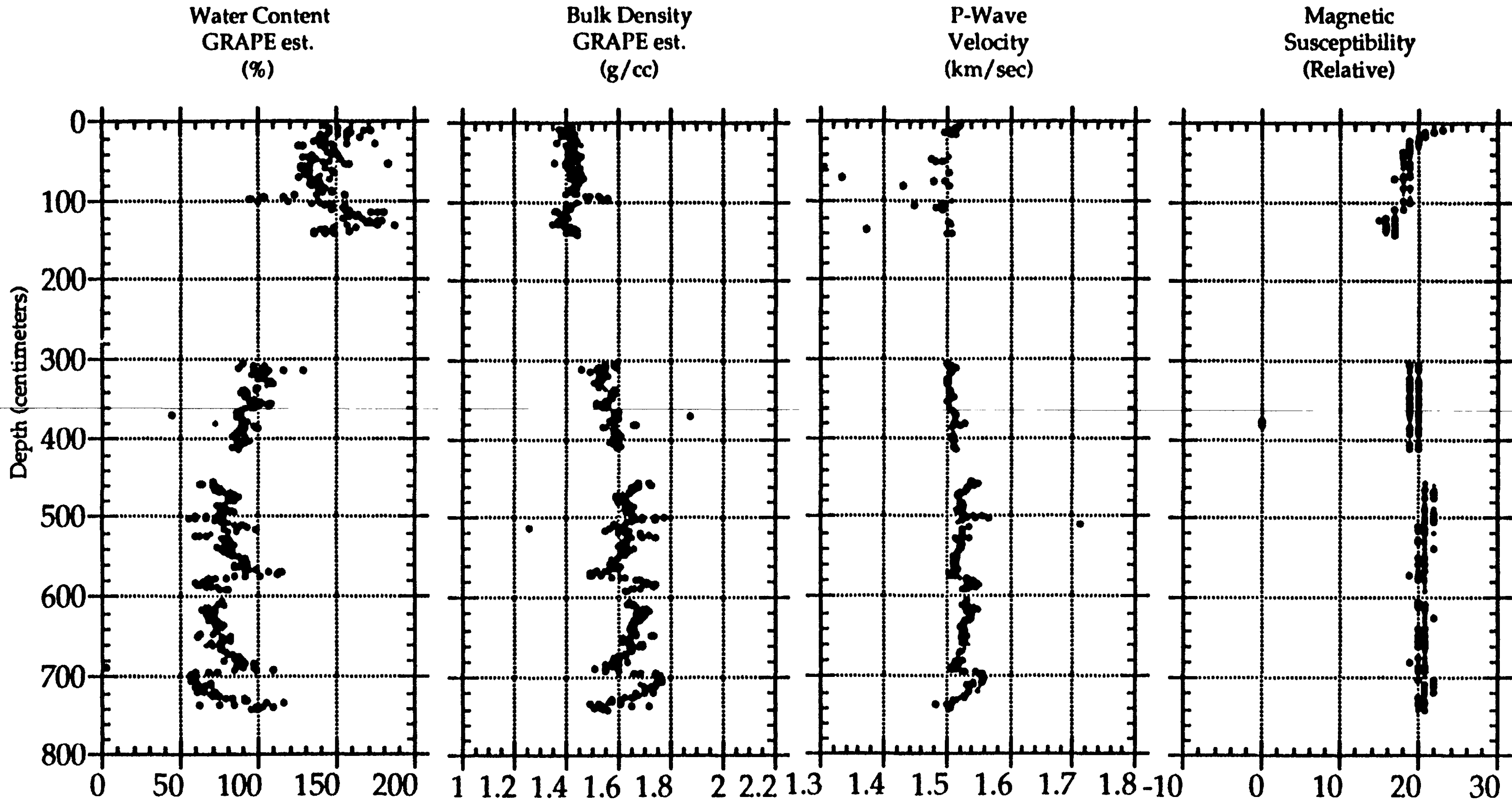
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P22



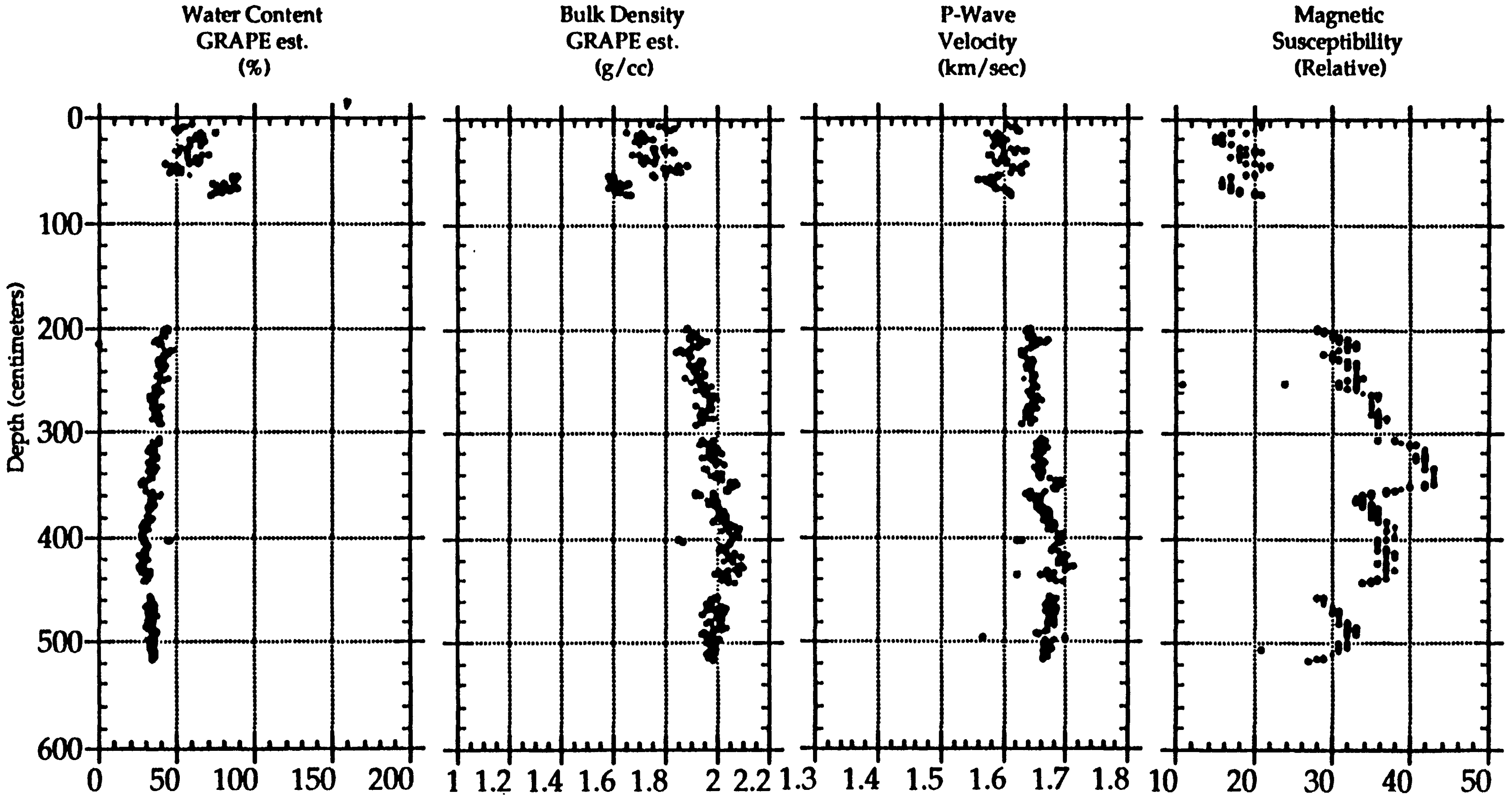
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P23



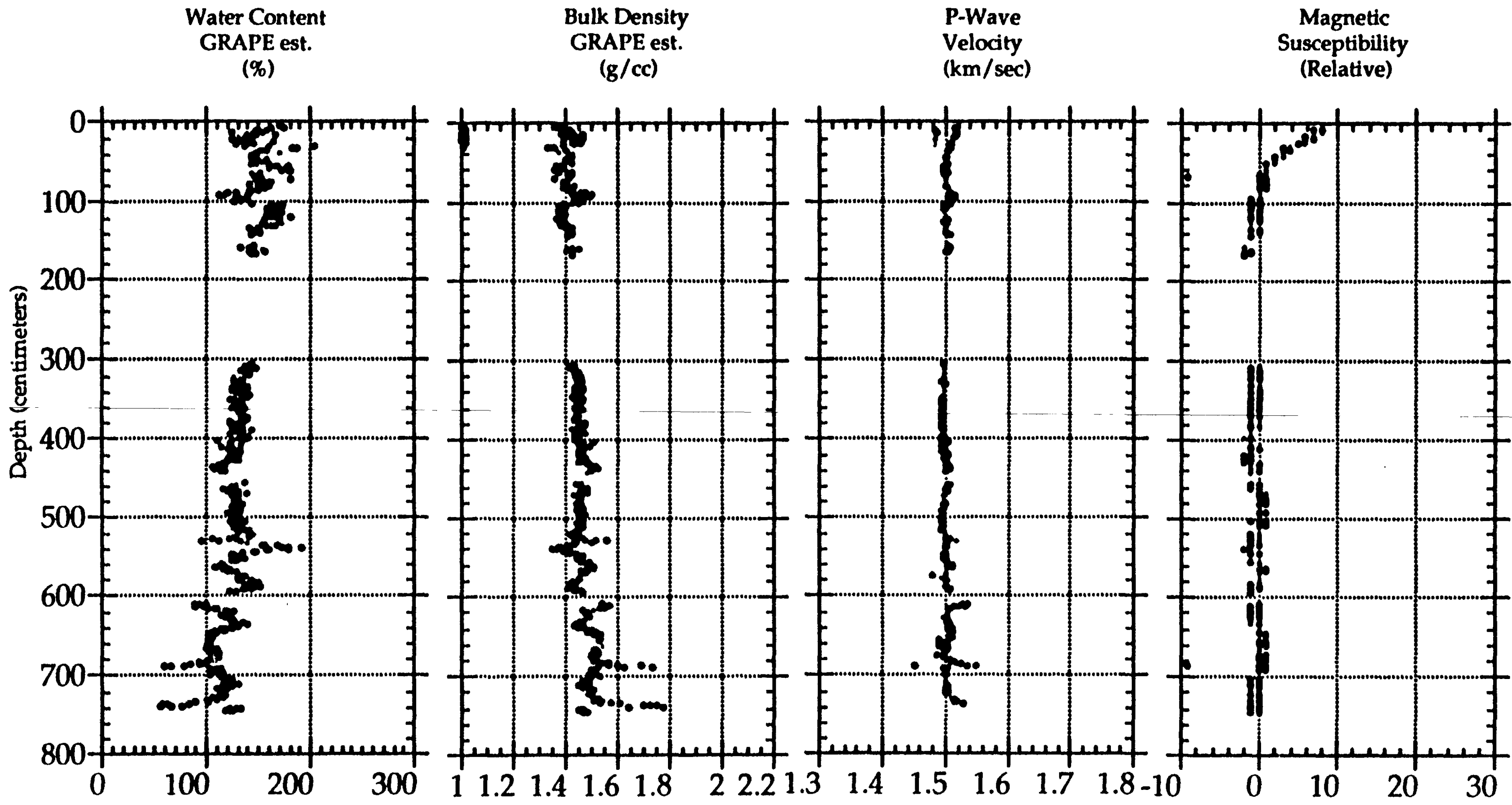
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P24



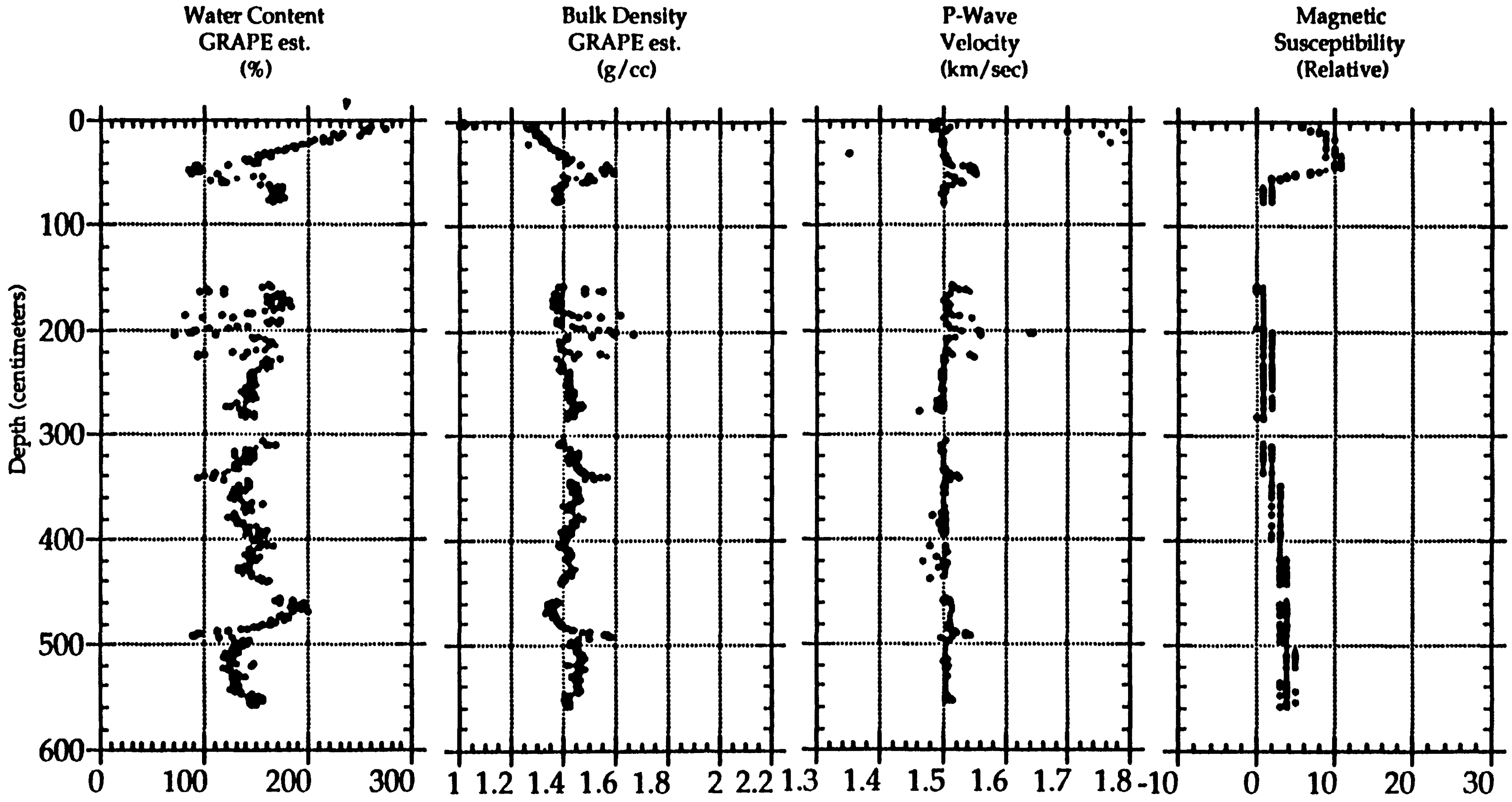
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P25



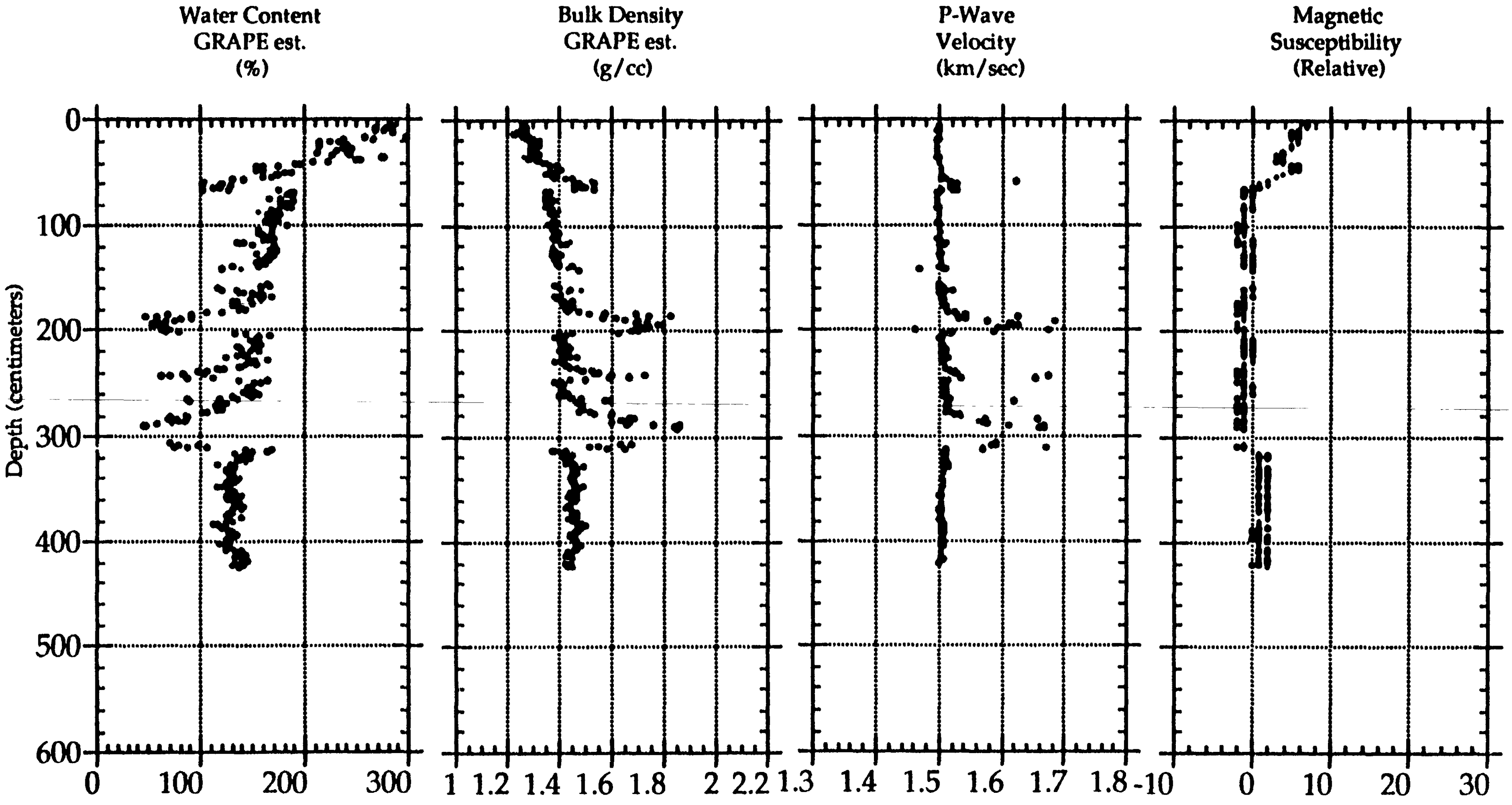
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P26



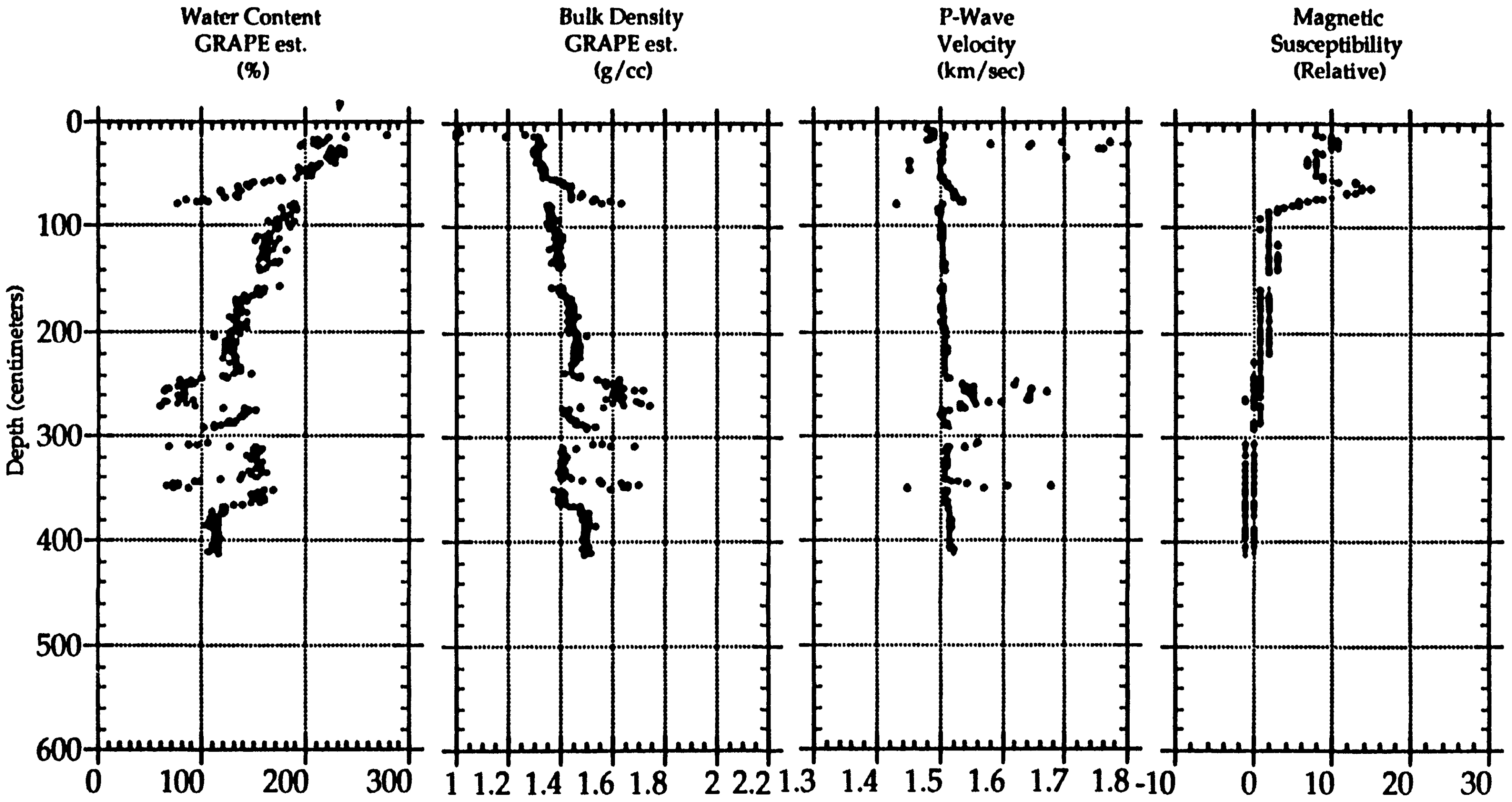
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P27



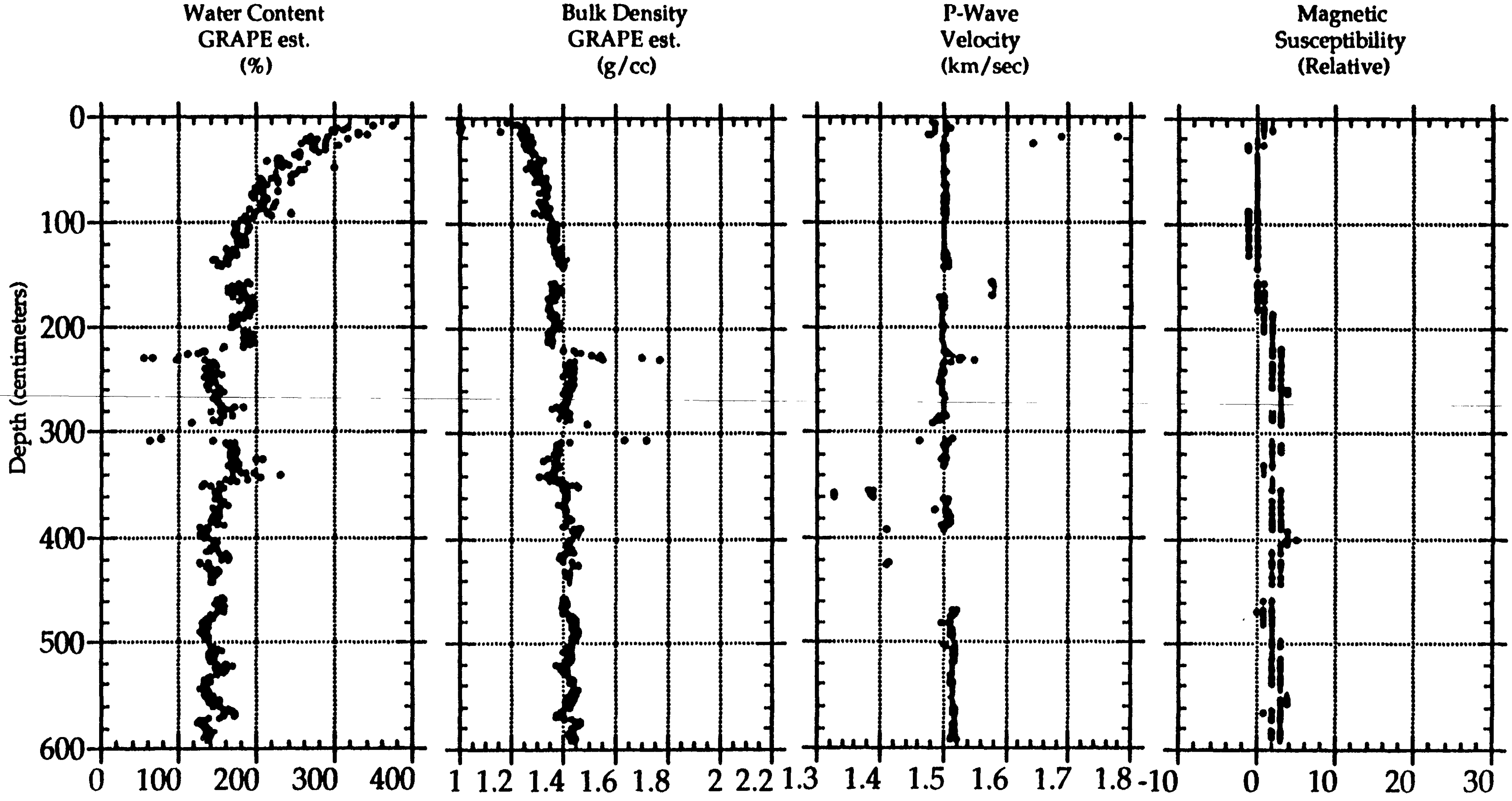
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P28



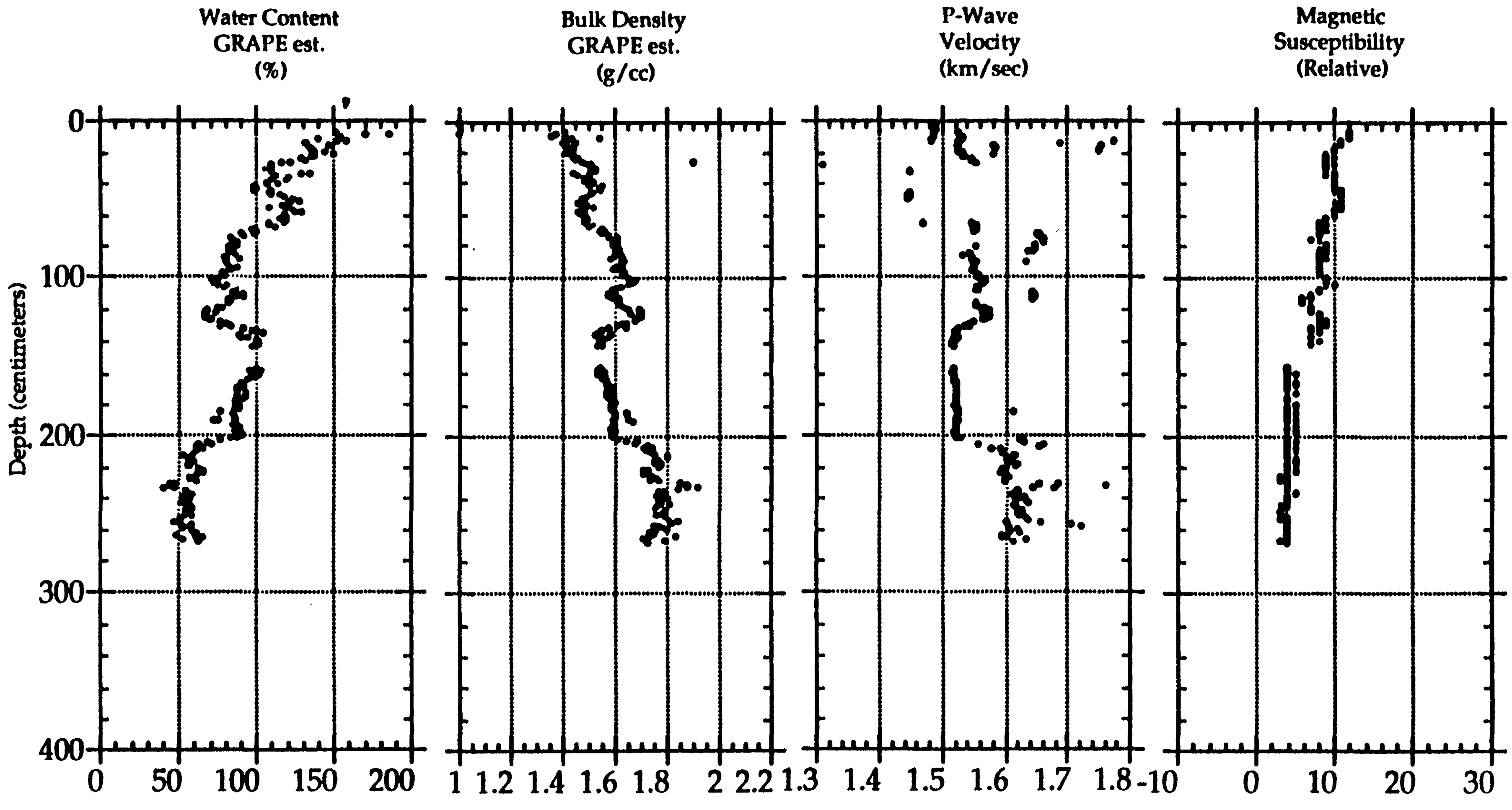
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P29



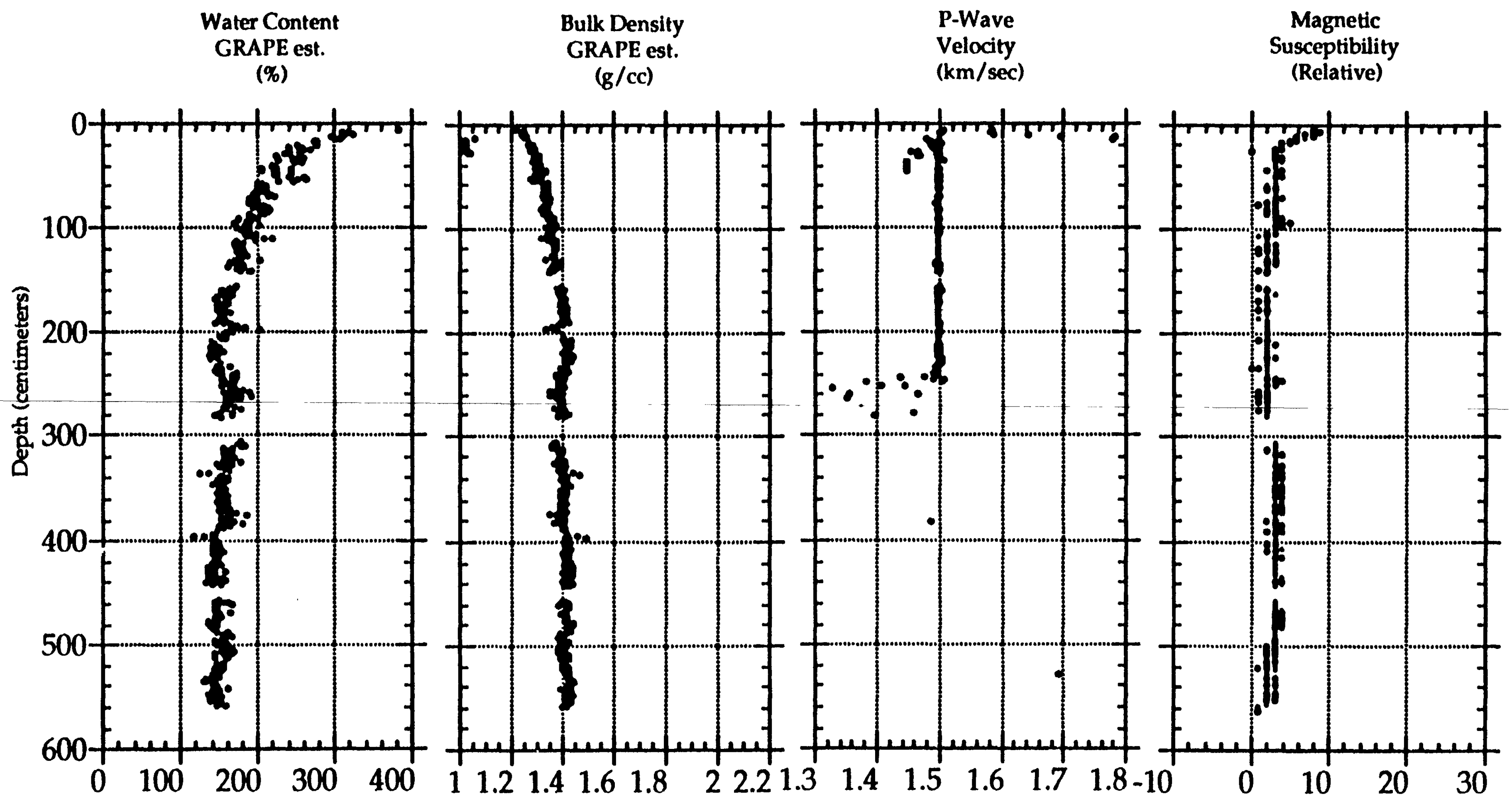
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P30



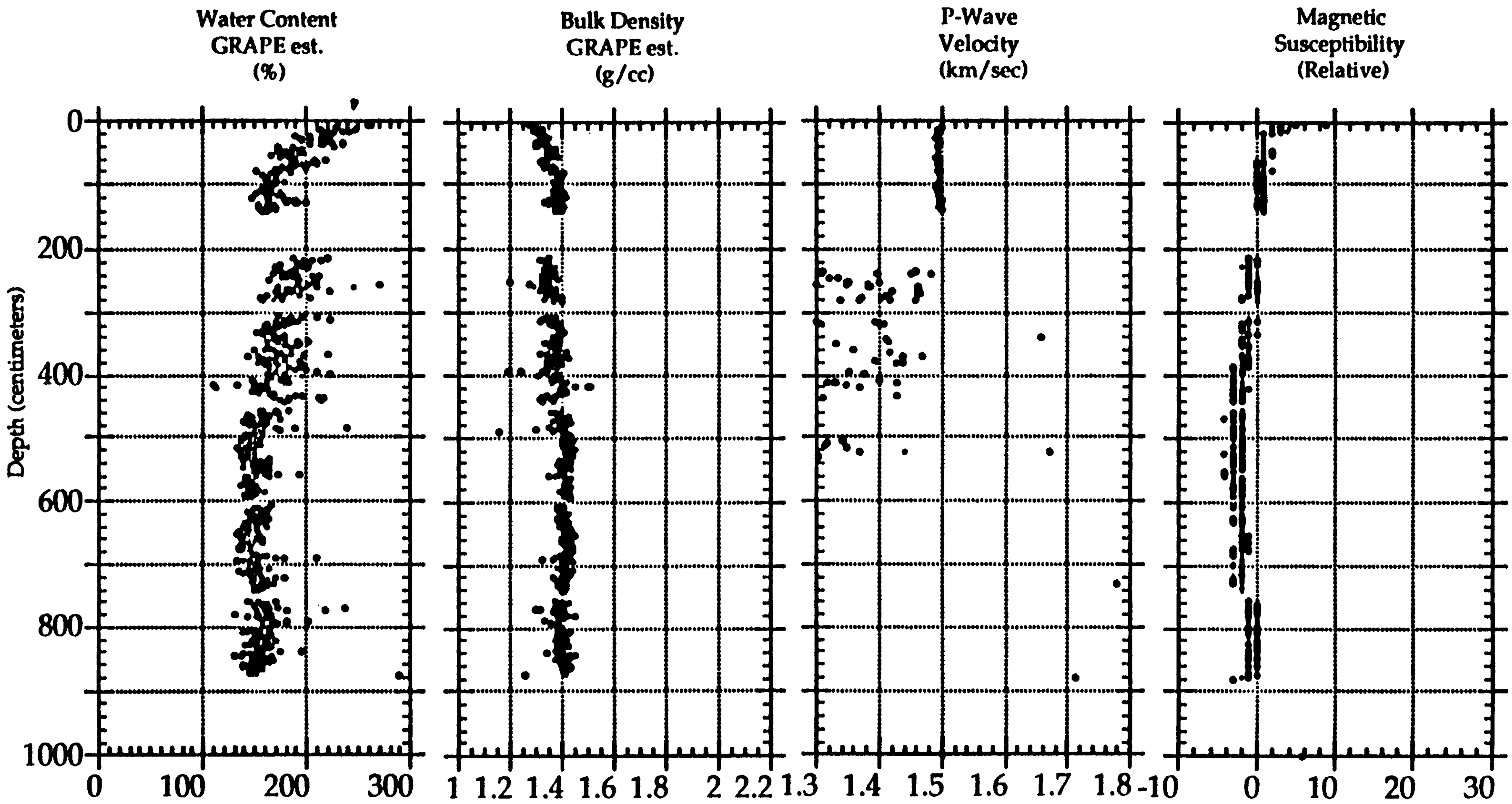
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P31



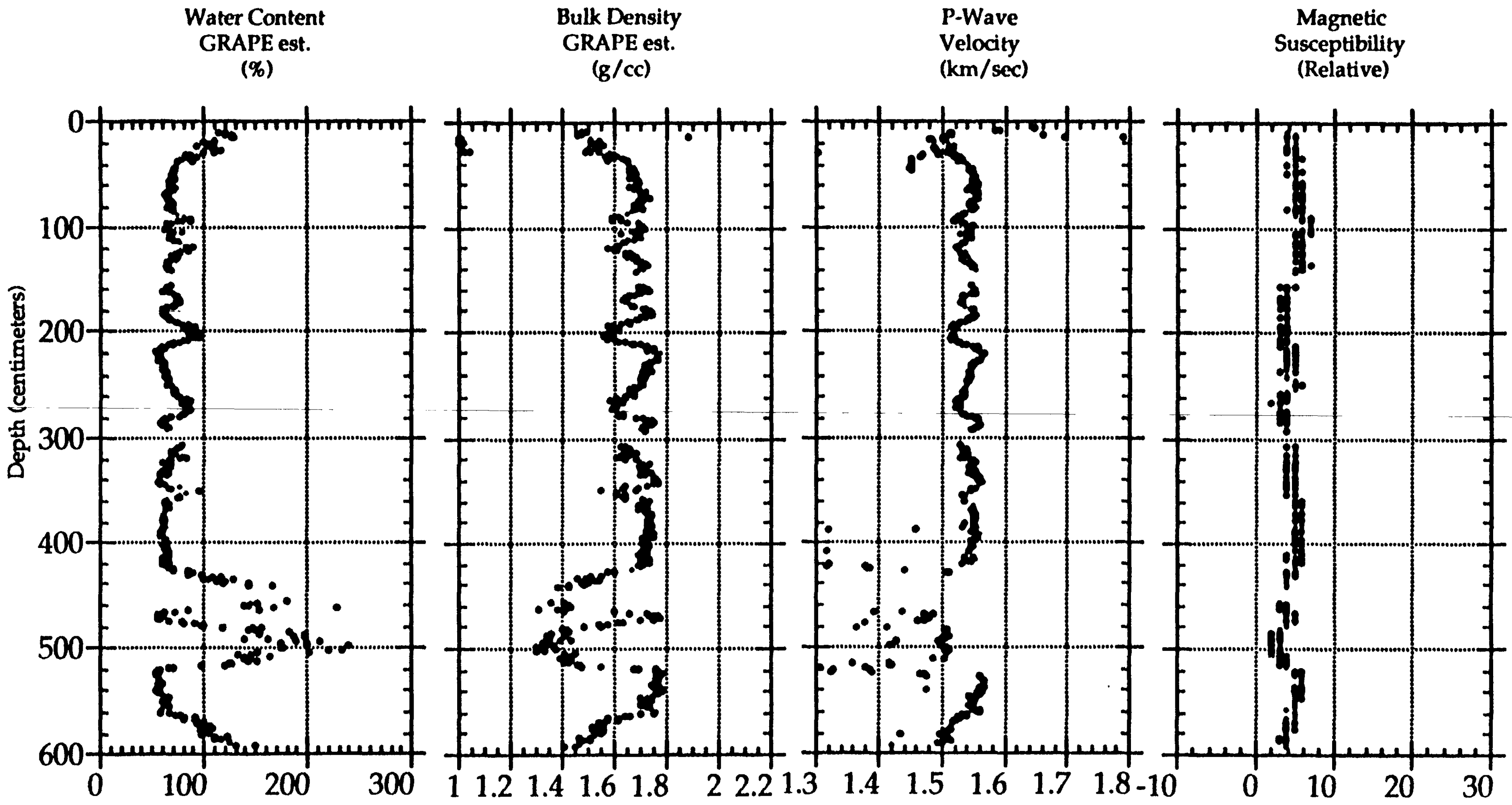
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P32



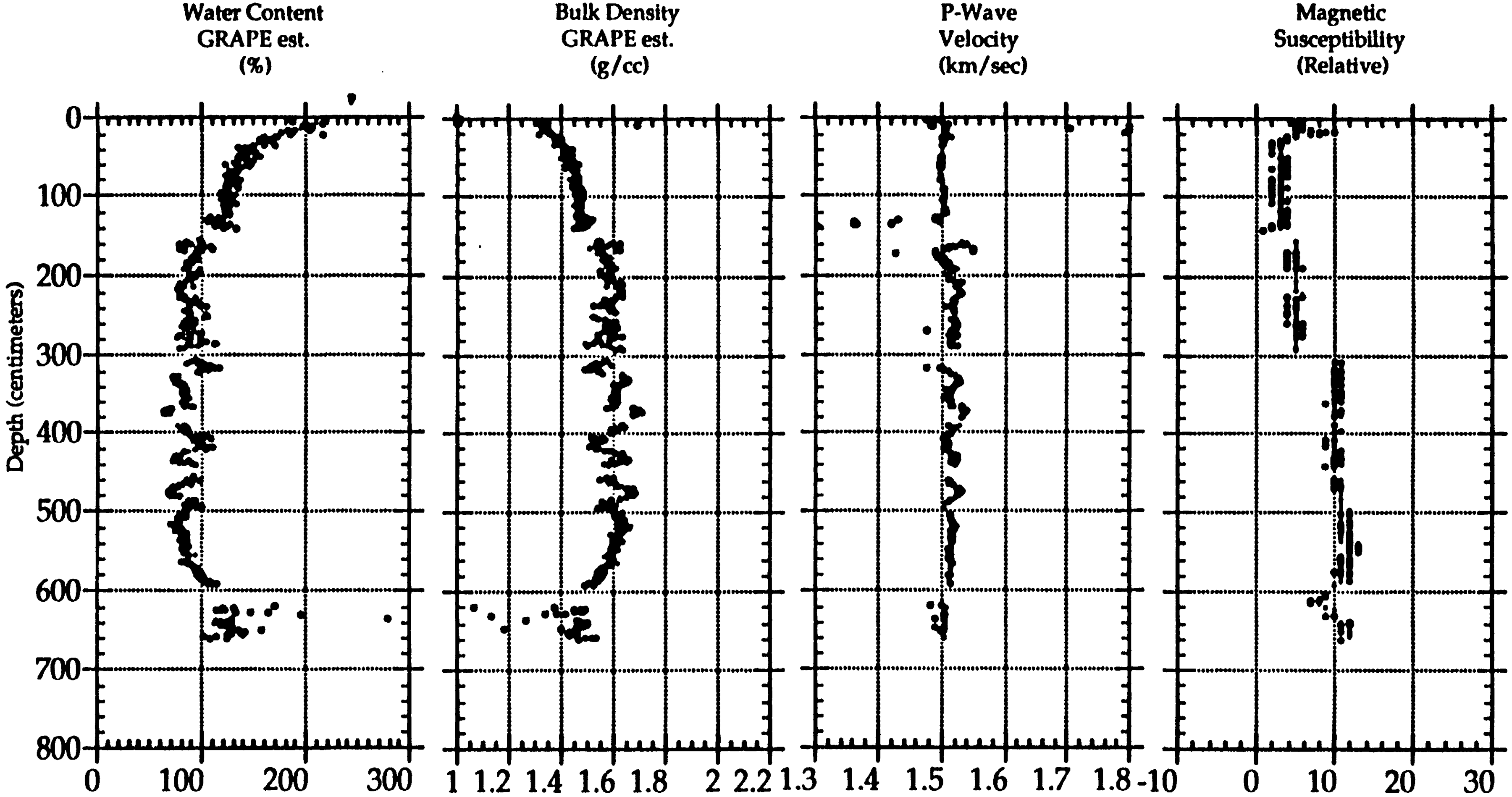
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P33



F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P34



F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

P35

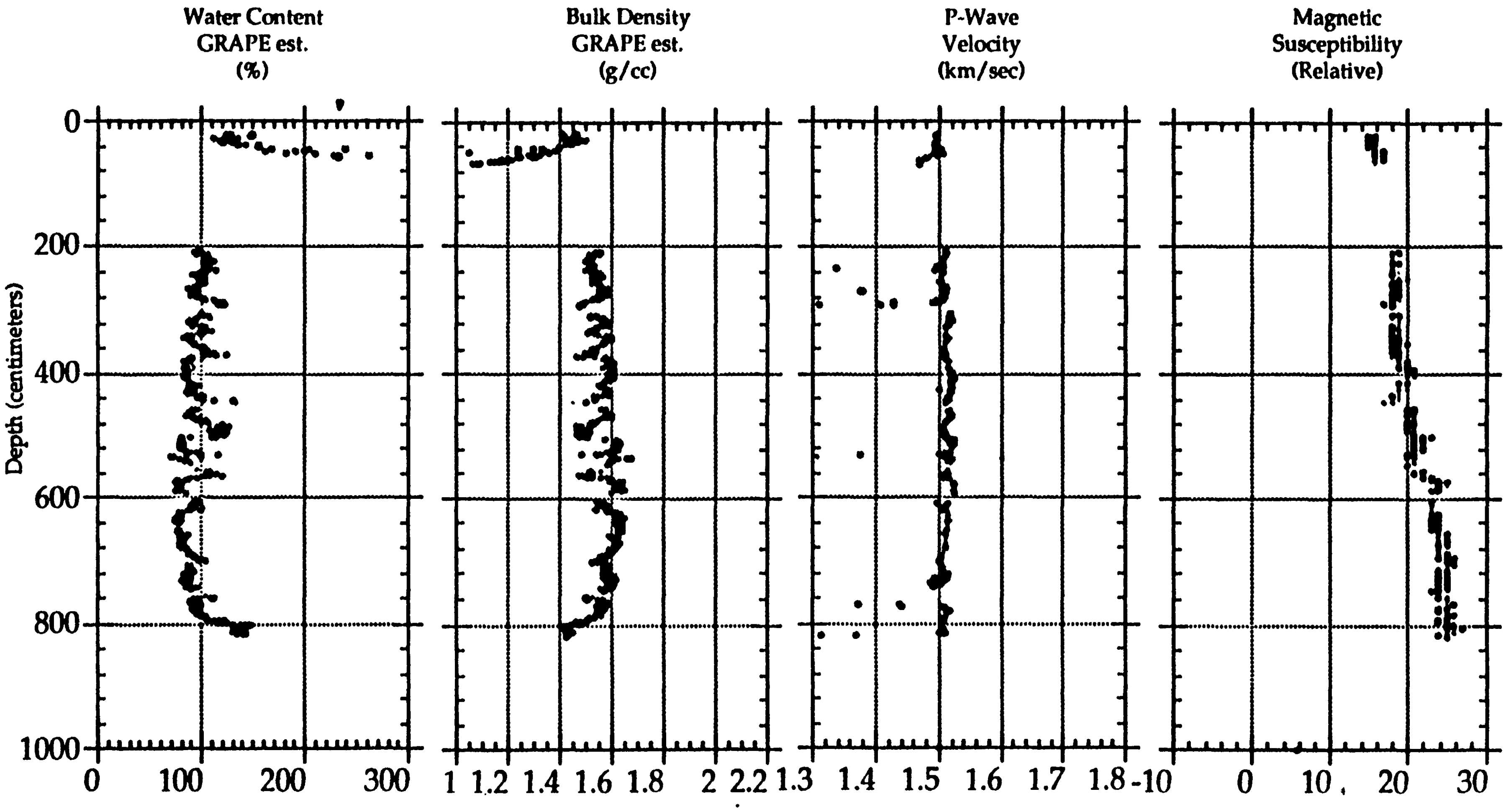
Water Content GRAPE est. (%)	Bulk Density GRAPE est. (g/cc)	P-Wave Velocity (km/sec)	Magnetic Susceptibility (Relative)

Depth (centimeters)

NO TESTS RUN:
LINER WAS 1/2 FILLED WITH SAND SLURRY

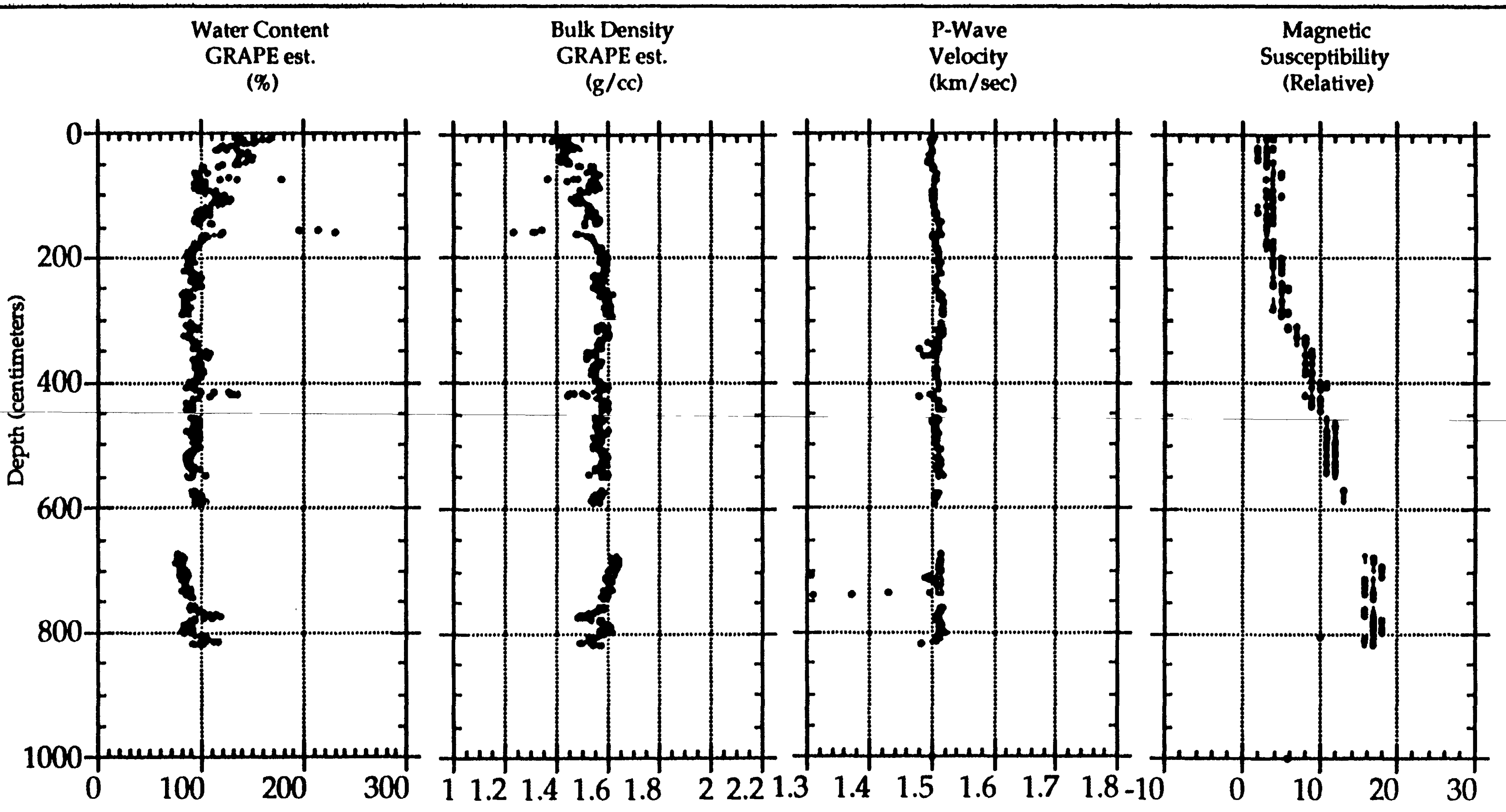
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P36



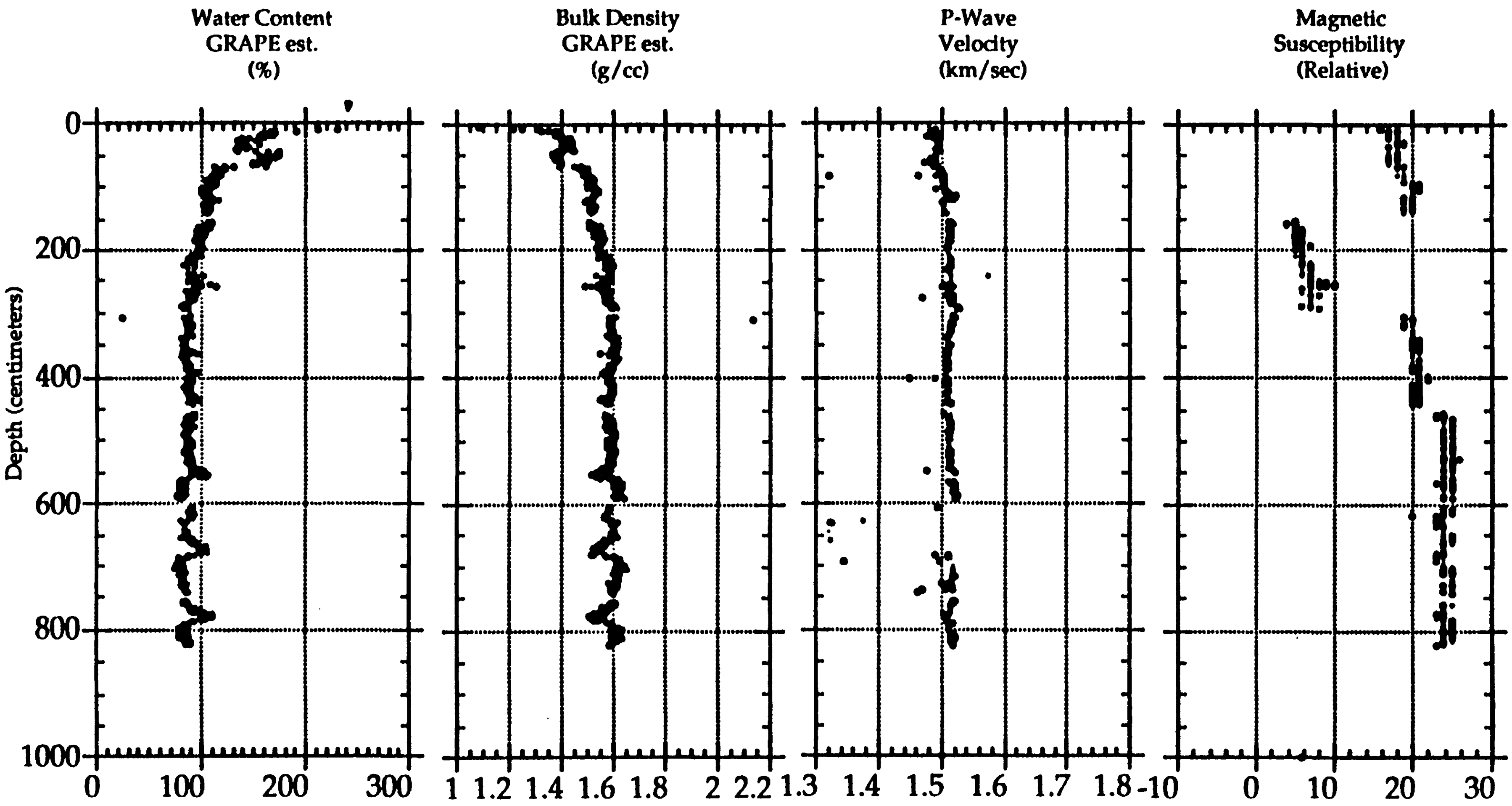
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P37



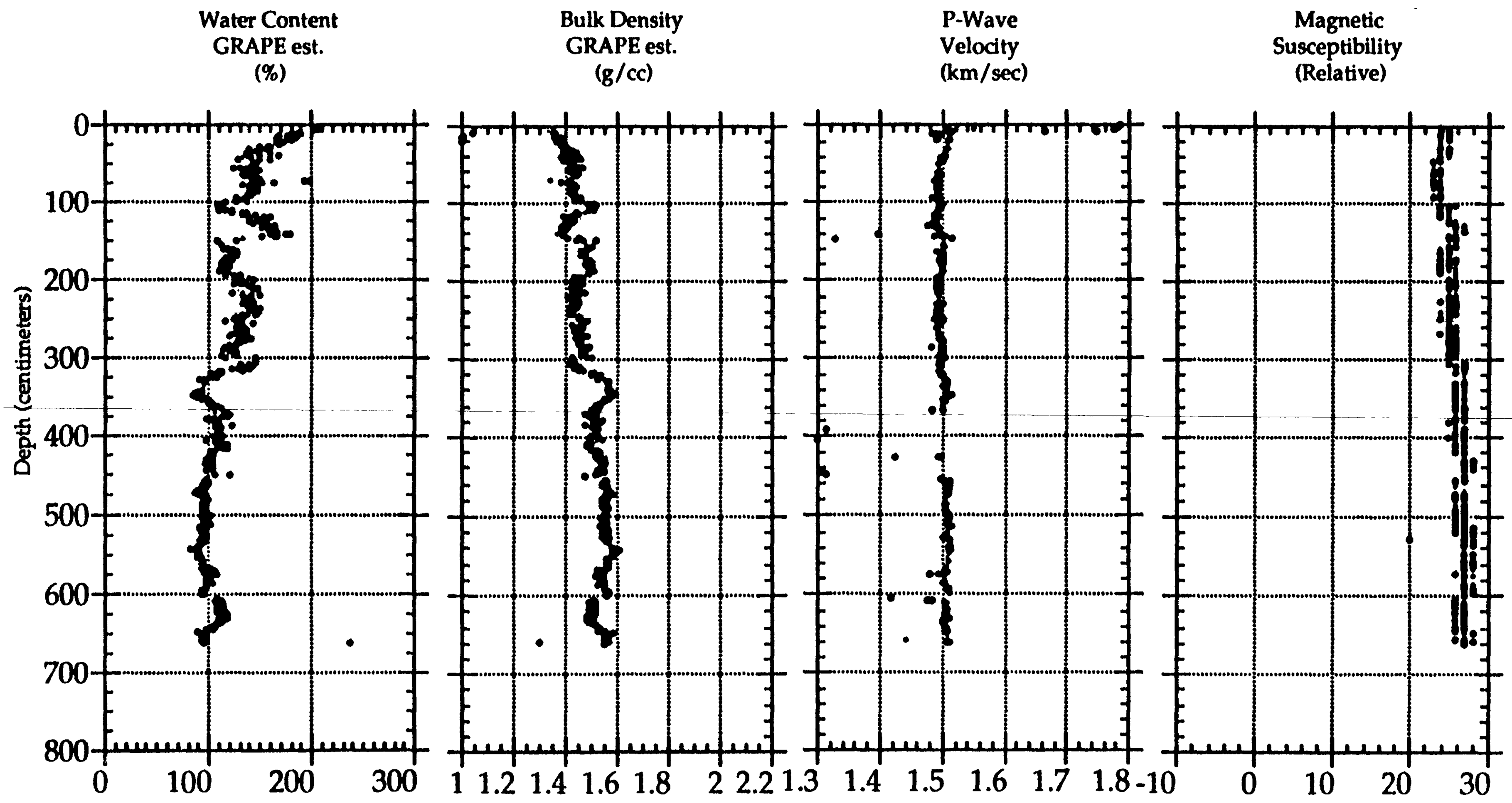
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P38



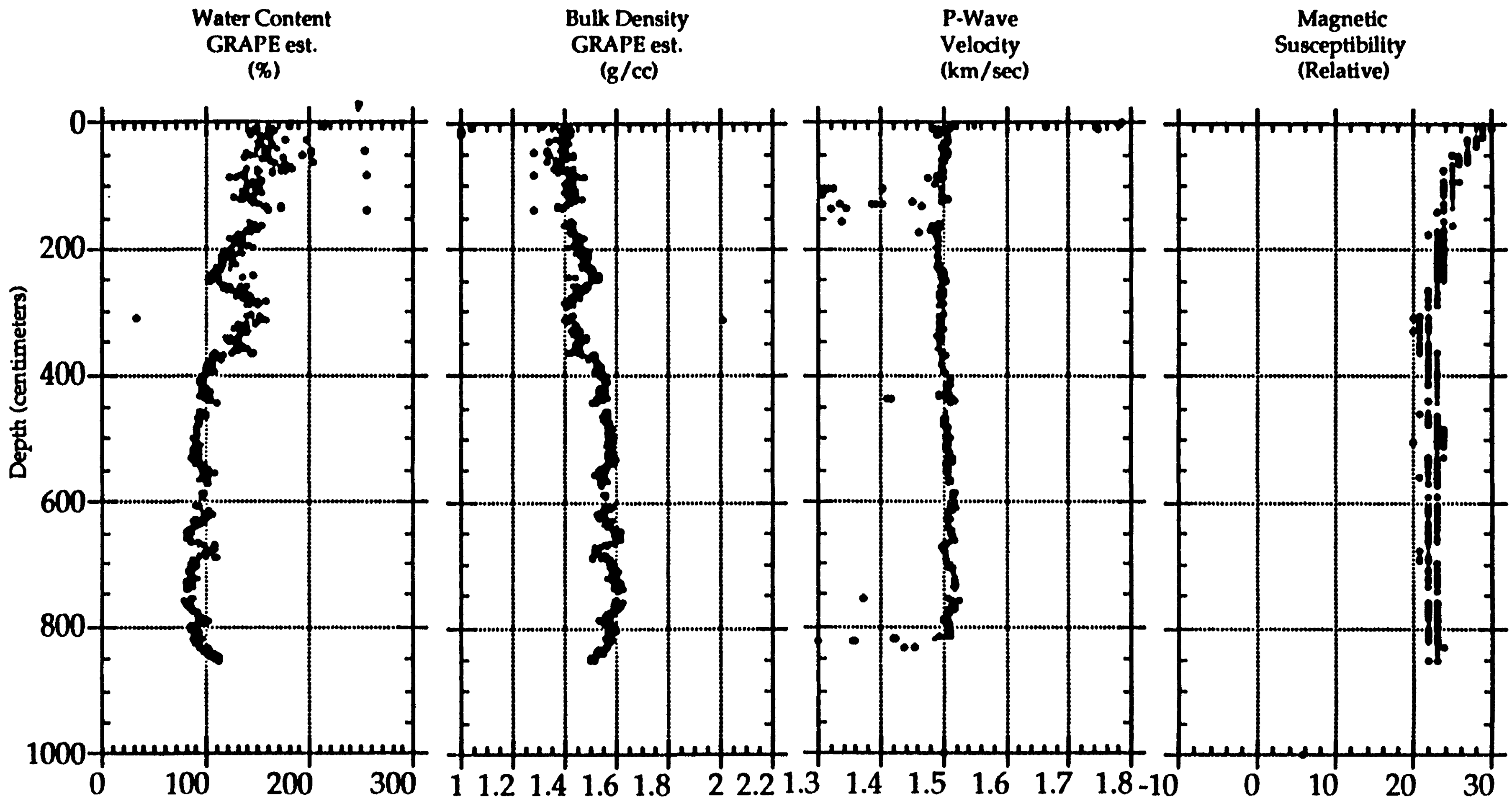
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P39



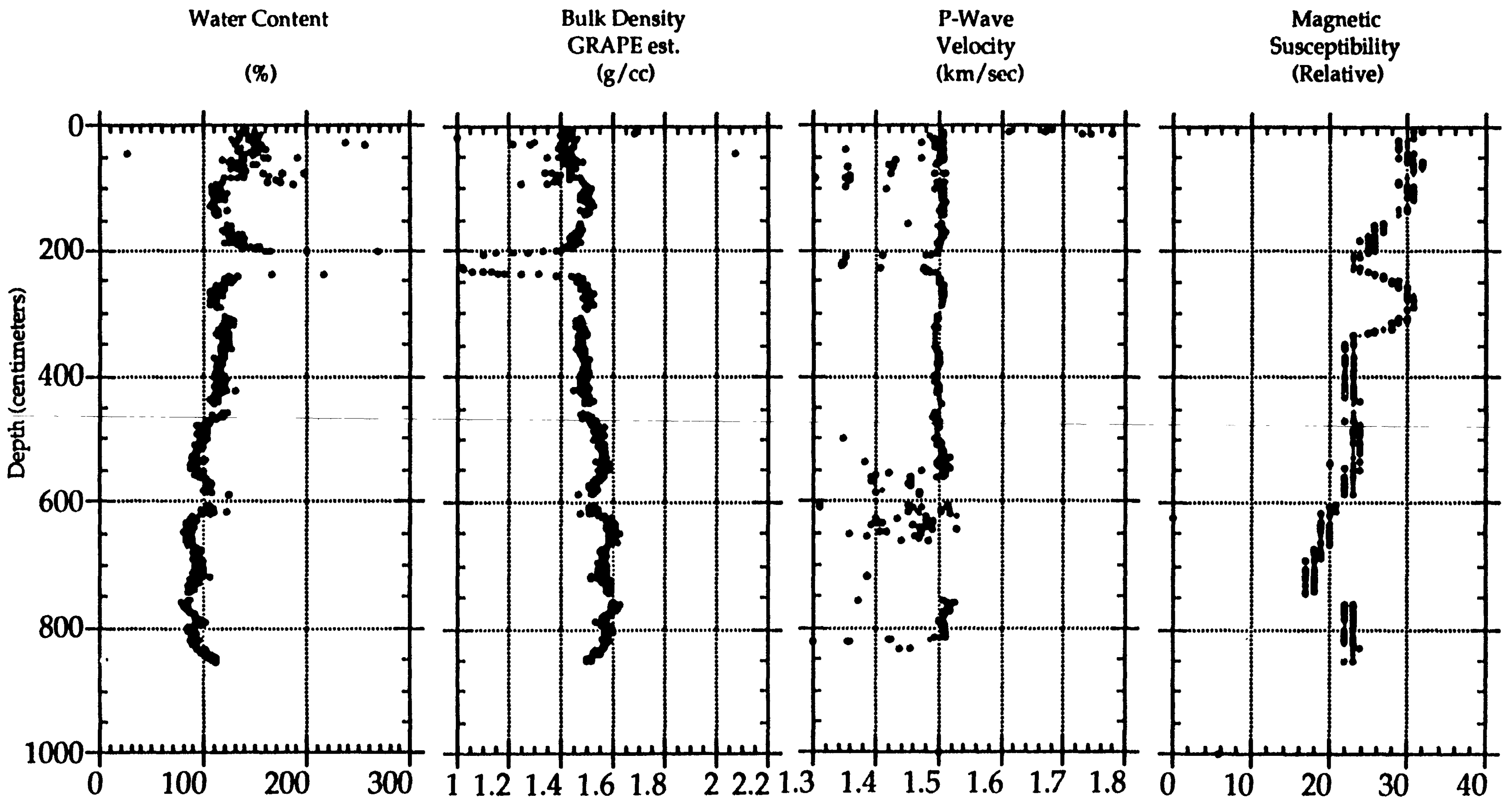
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P40



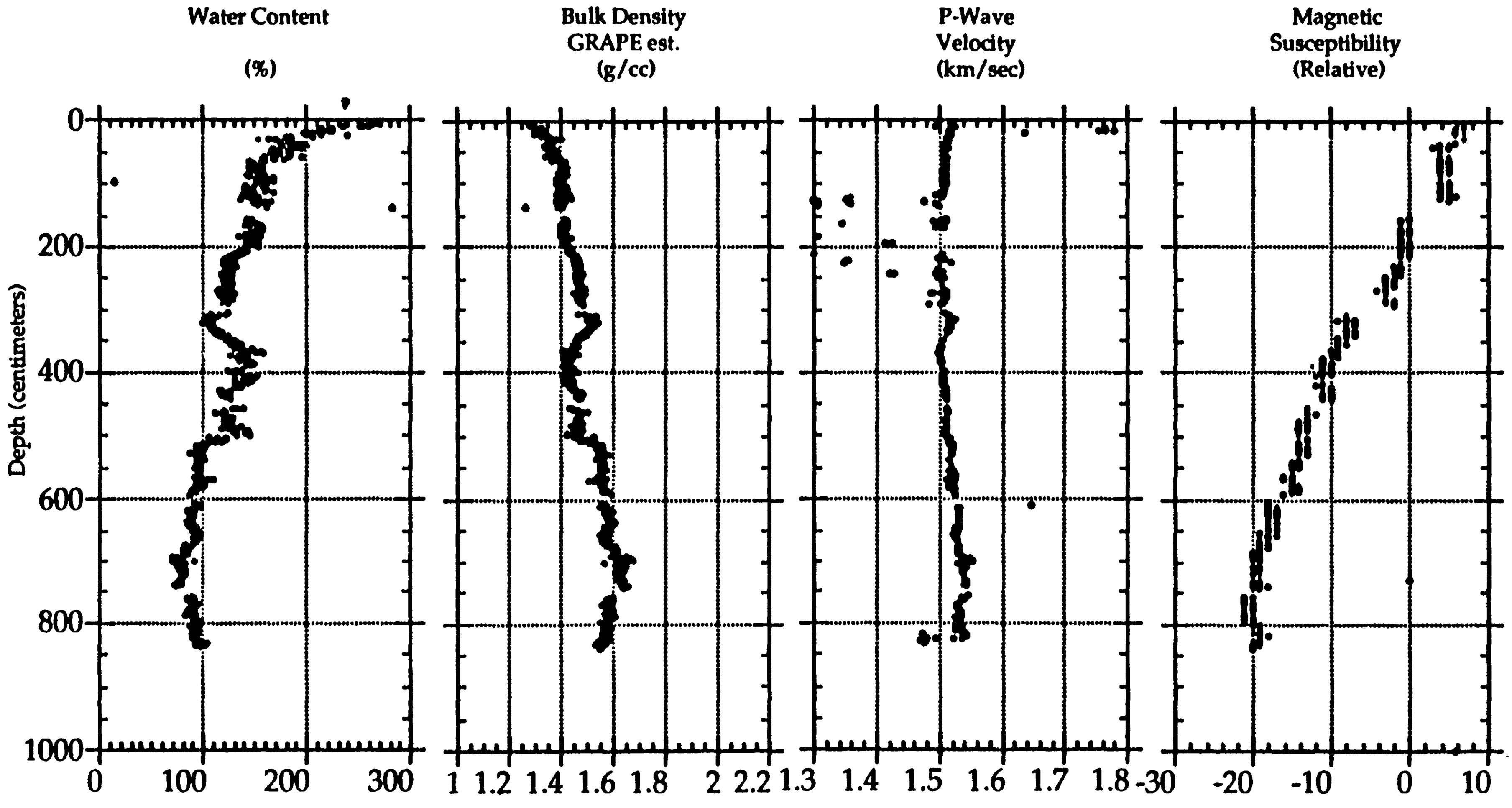
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P41



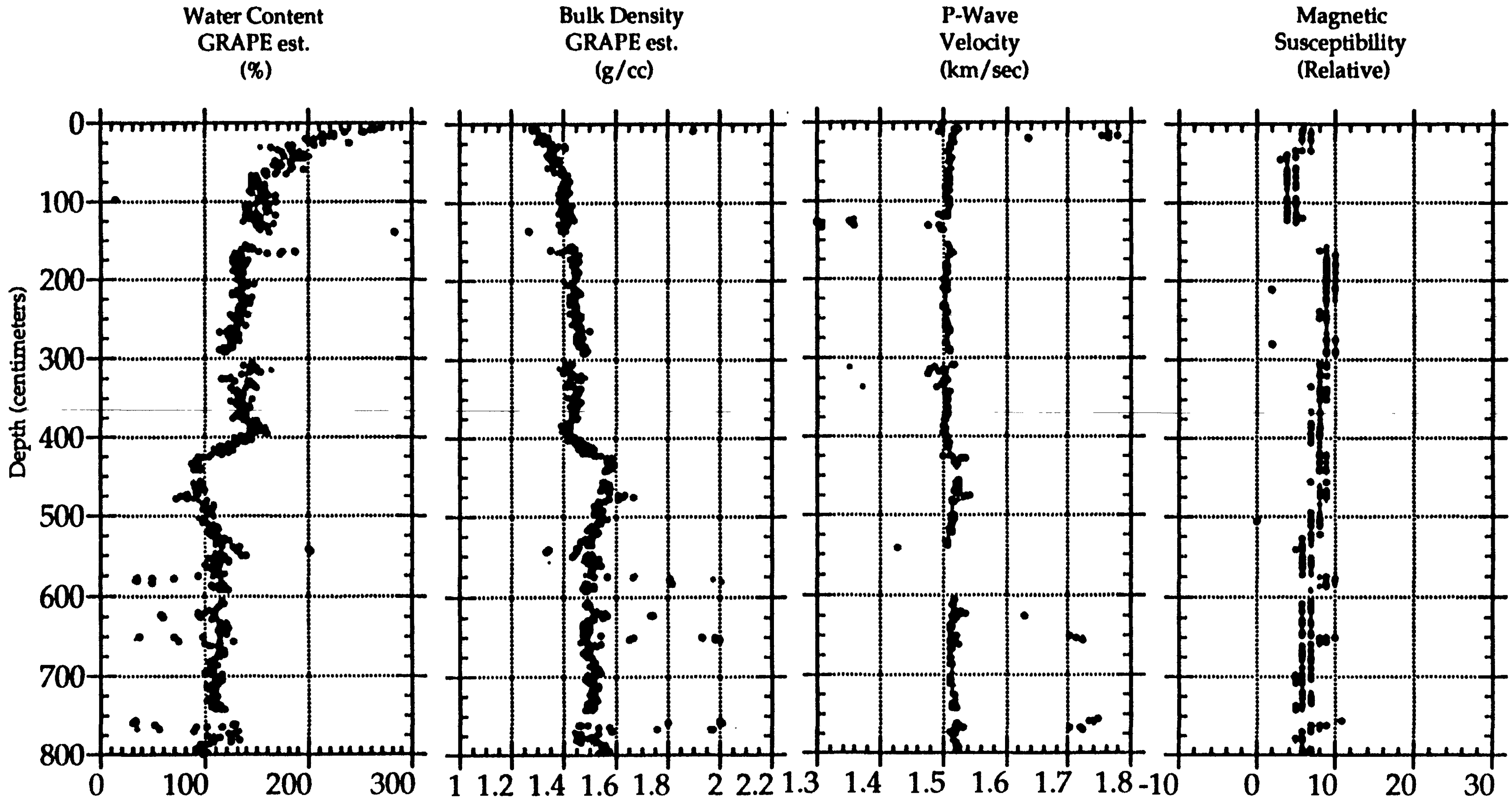
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P42



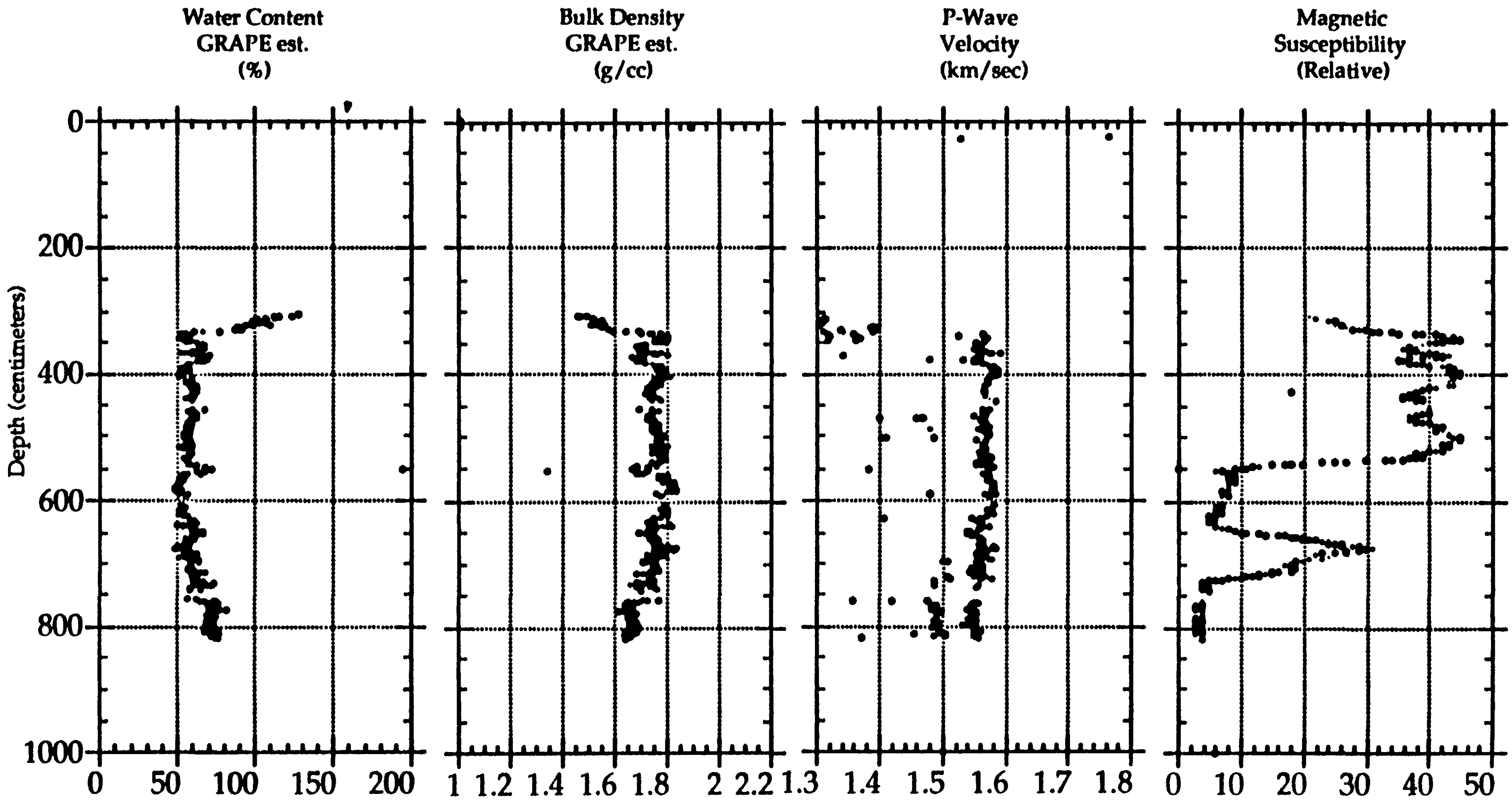
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P43



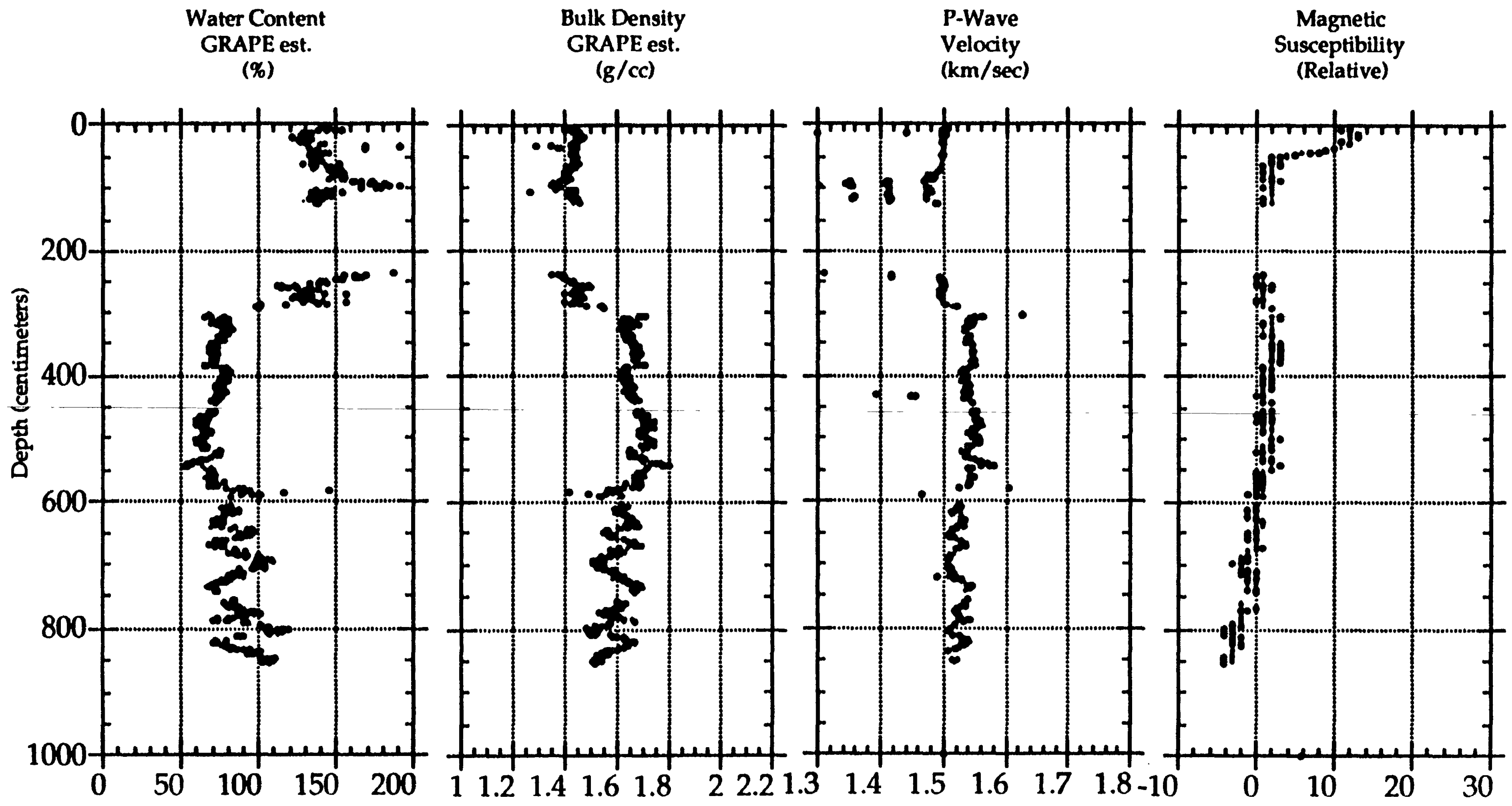
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P44



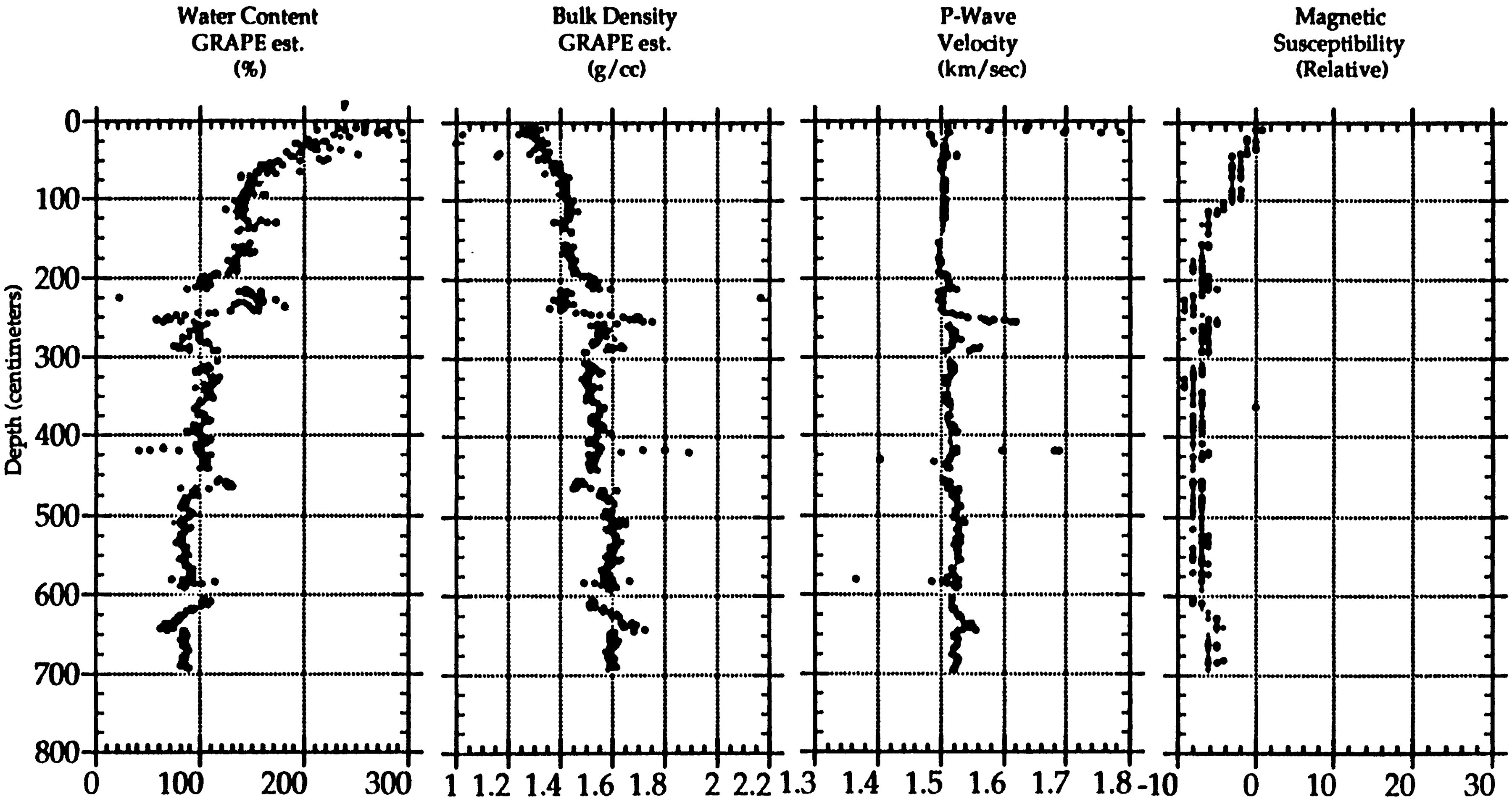
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P45



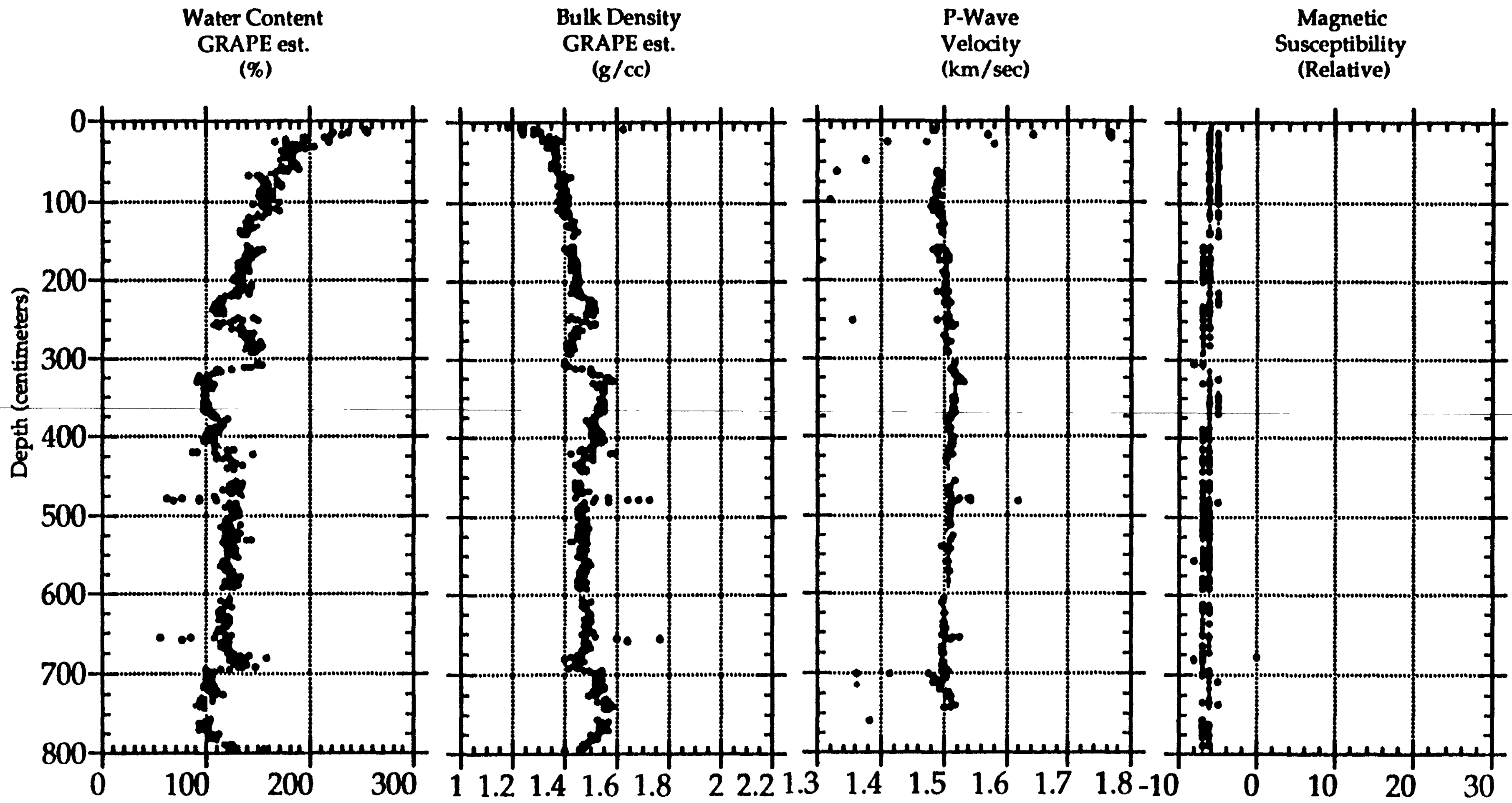
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P46



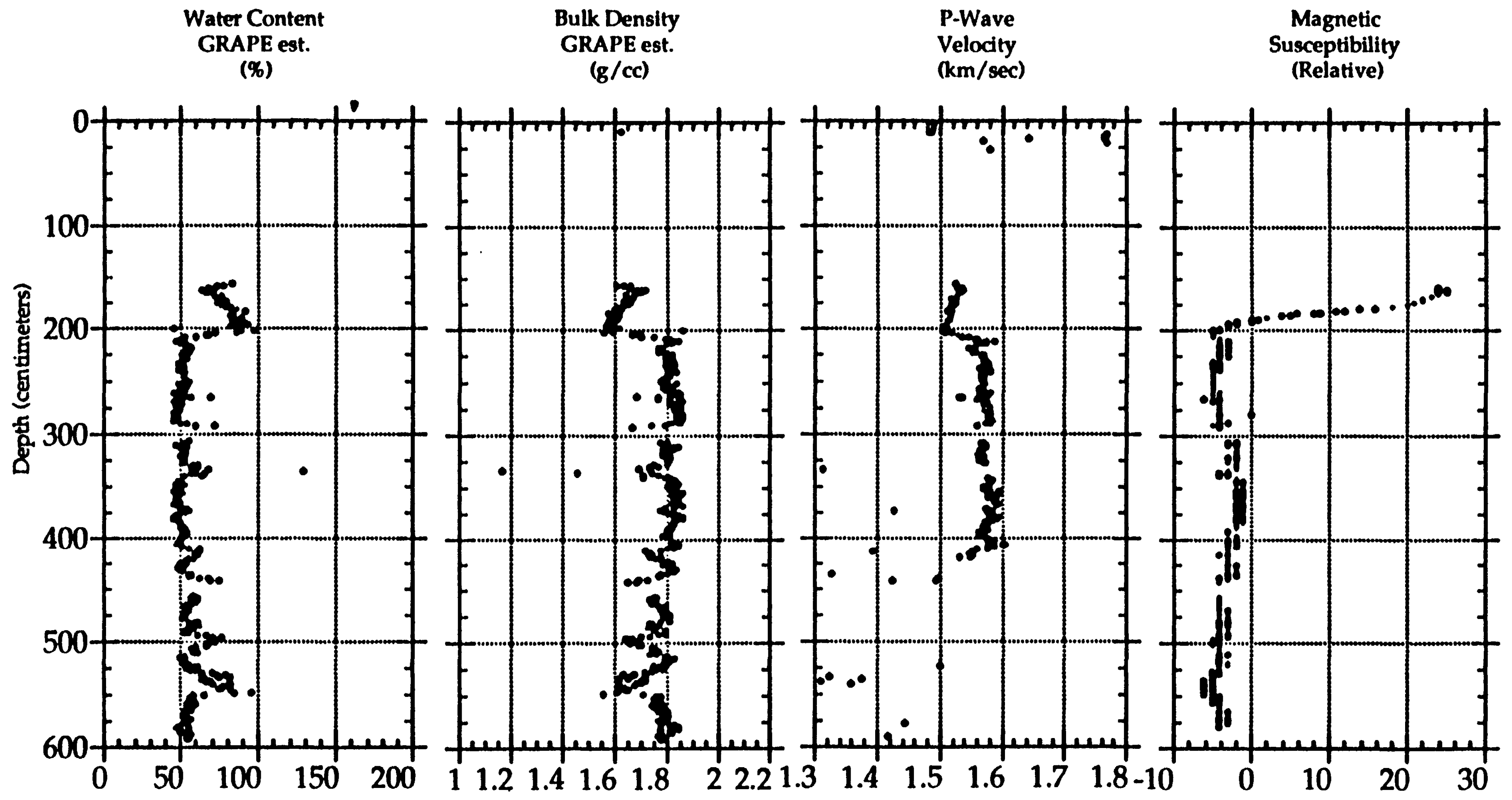
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P47



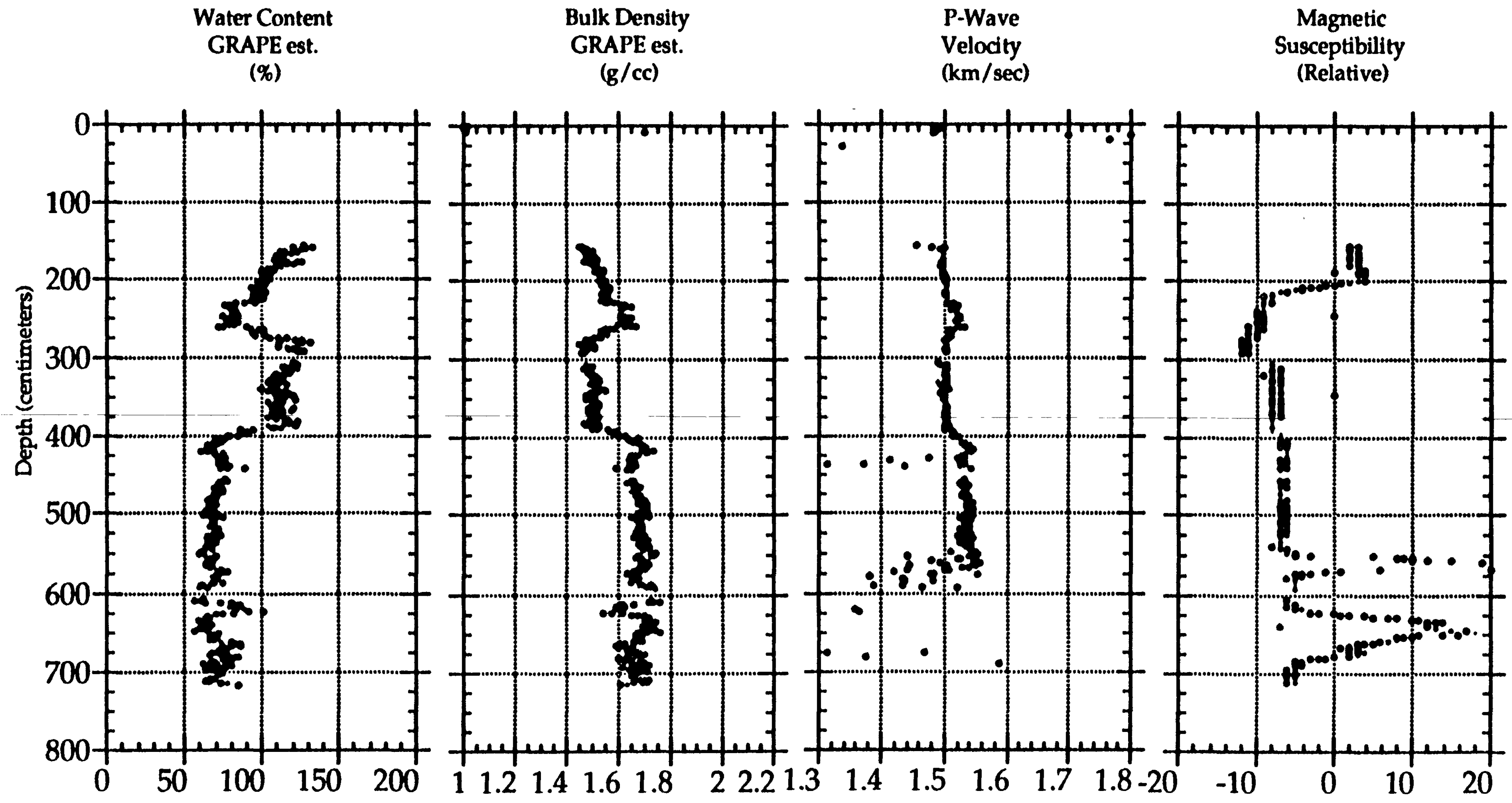
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P48



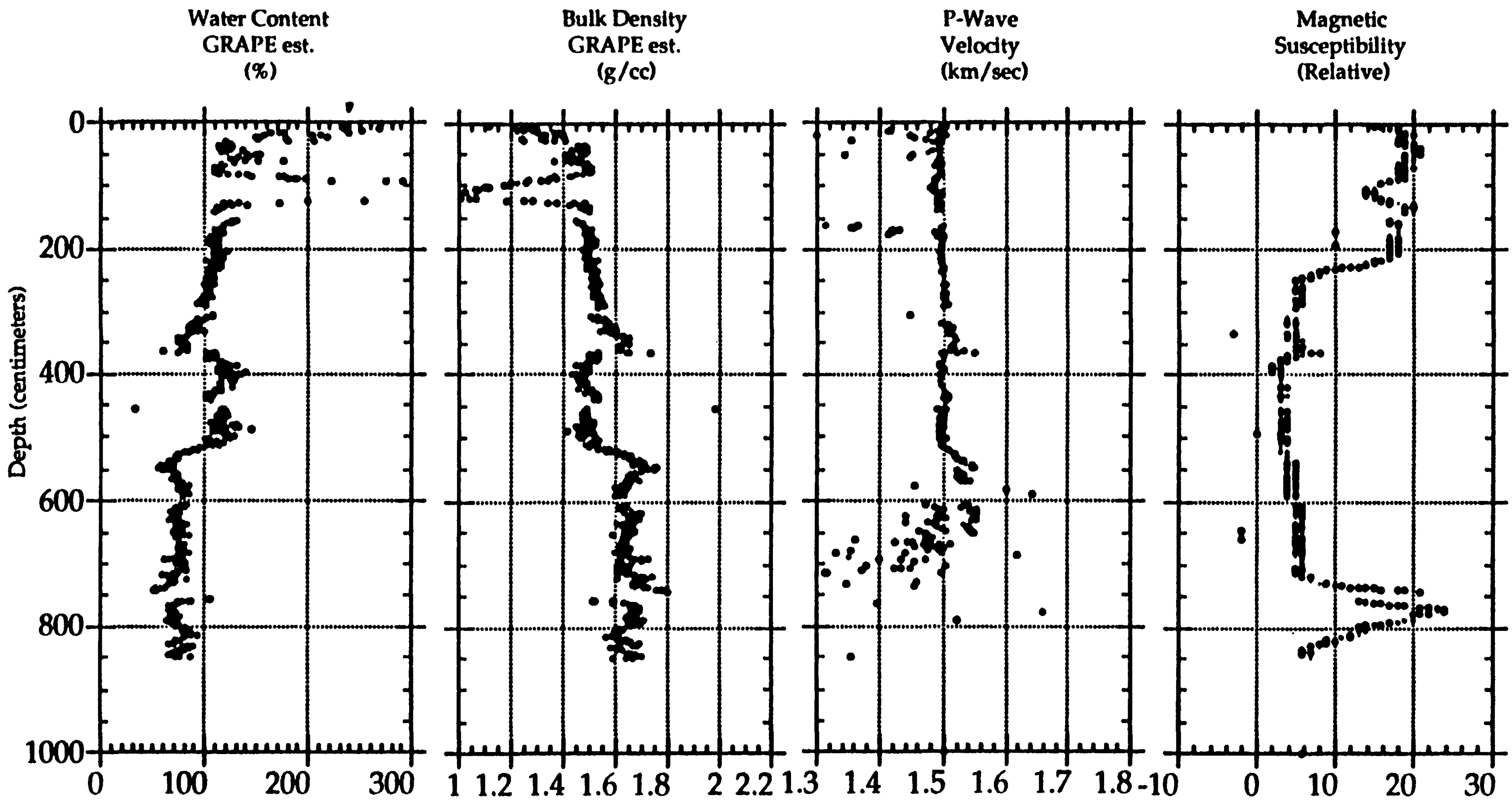
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P49



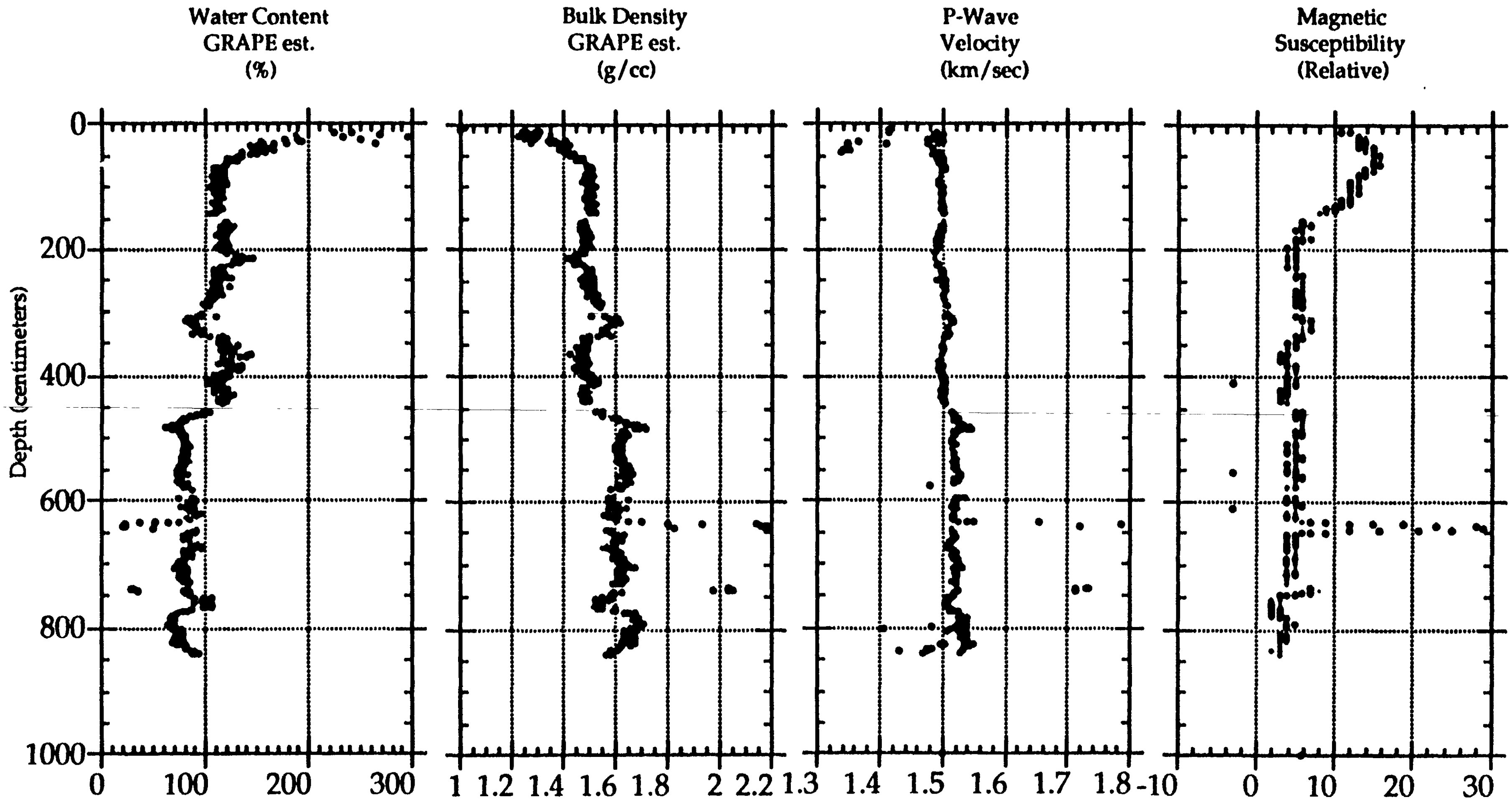
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P50



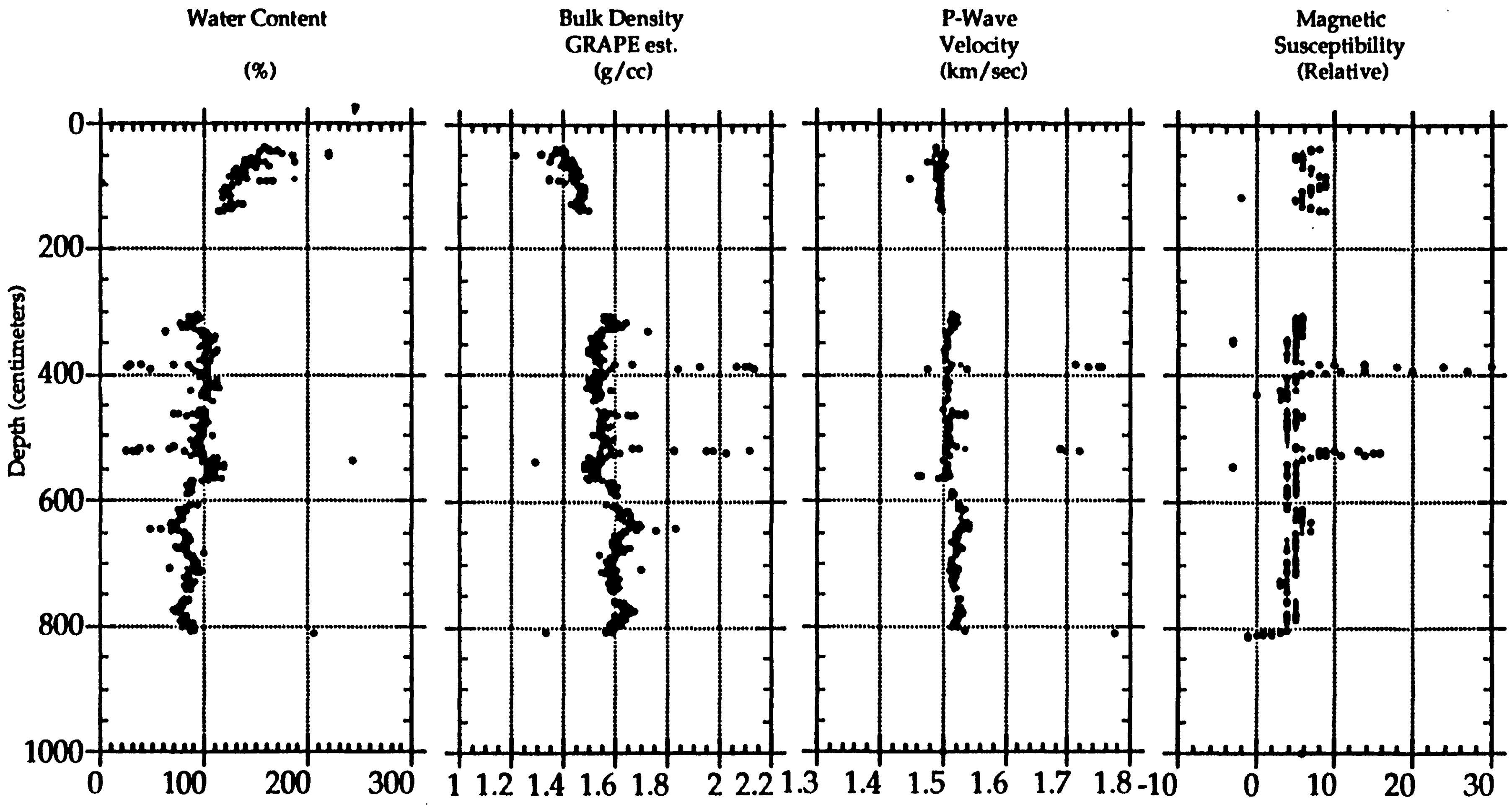
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P51



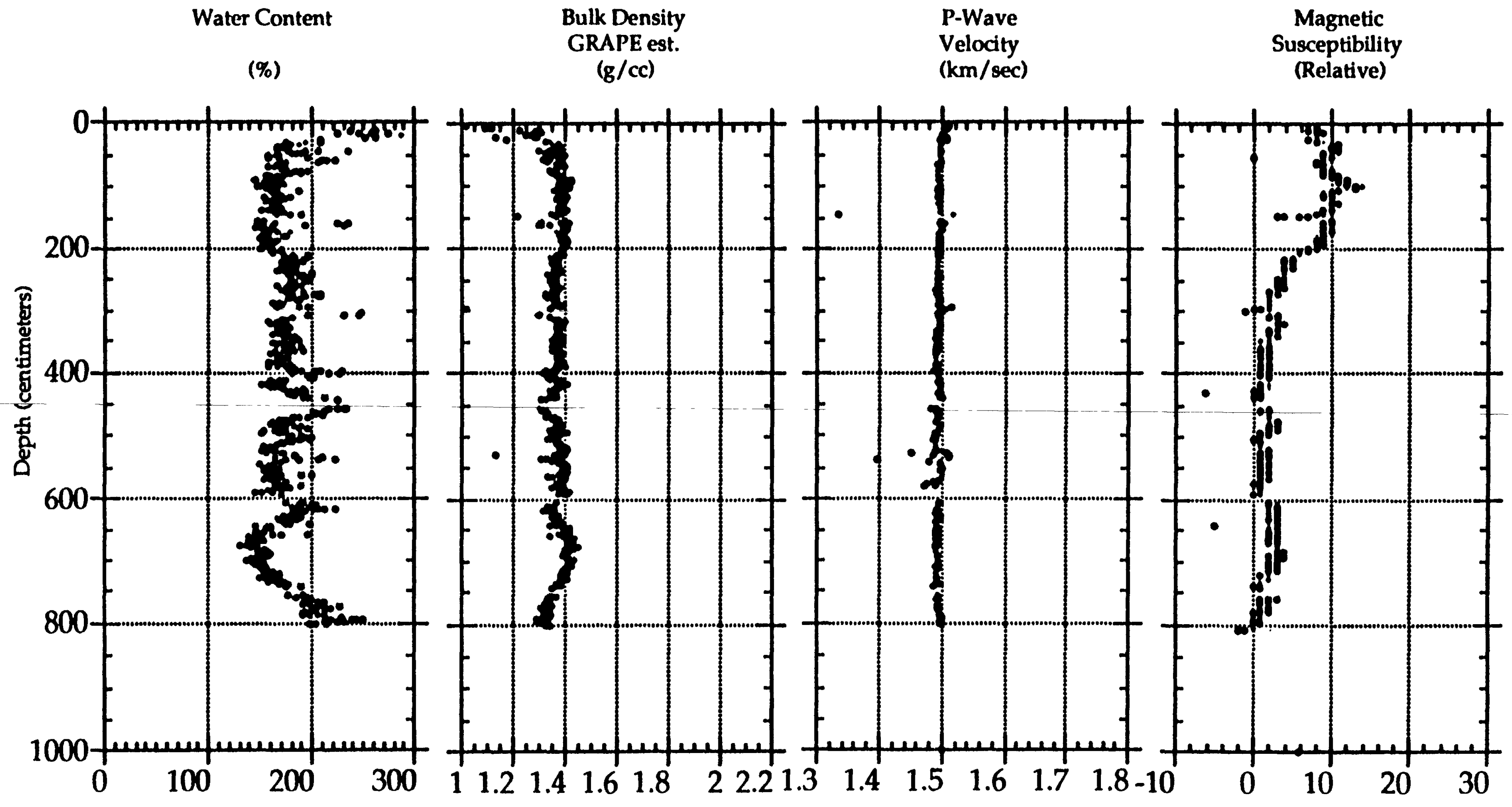
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P52



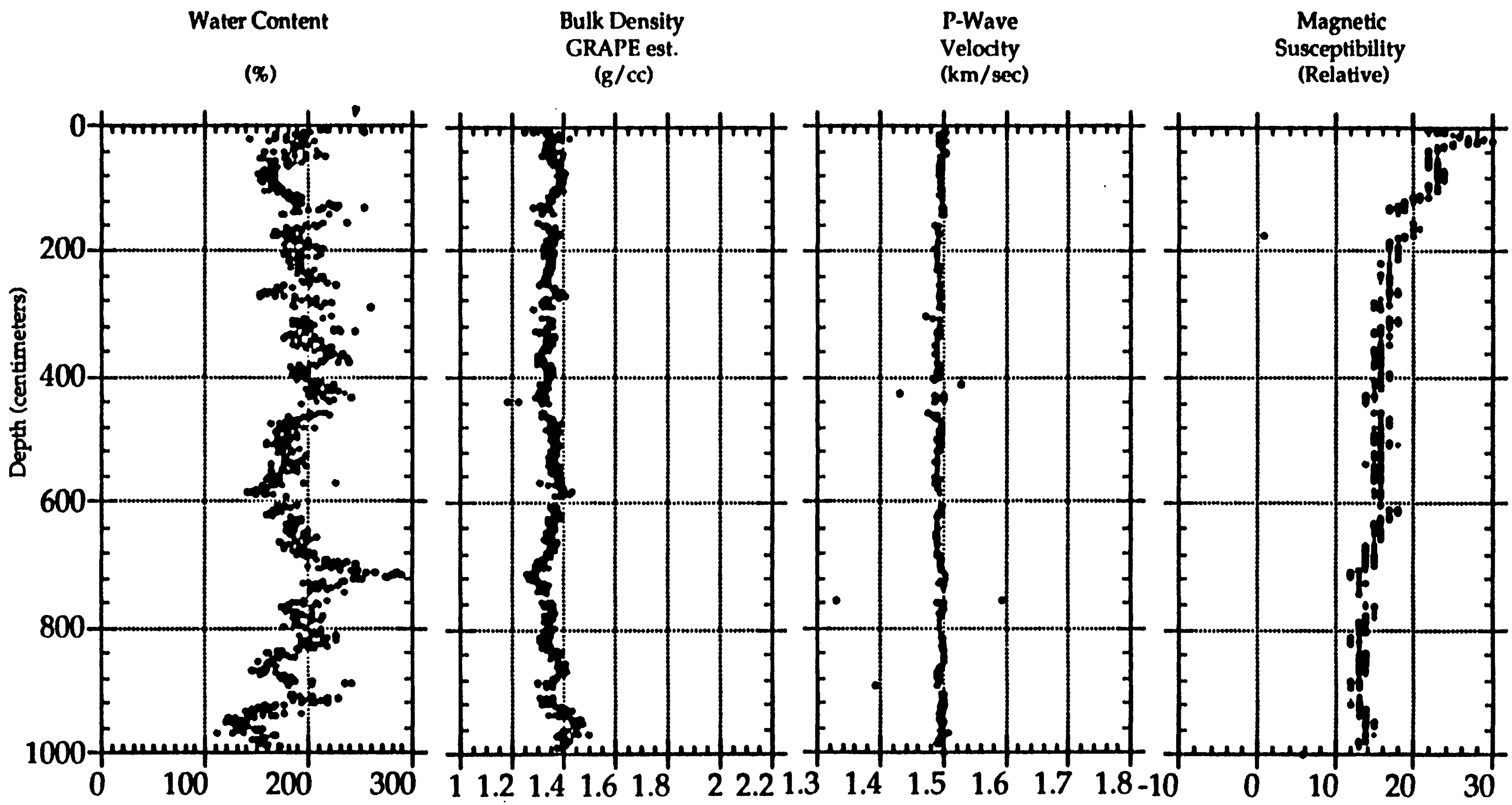
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P53



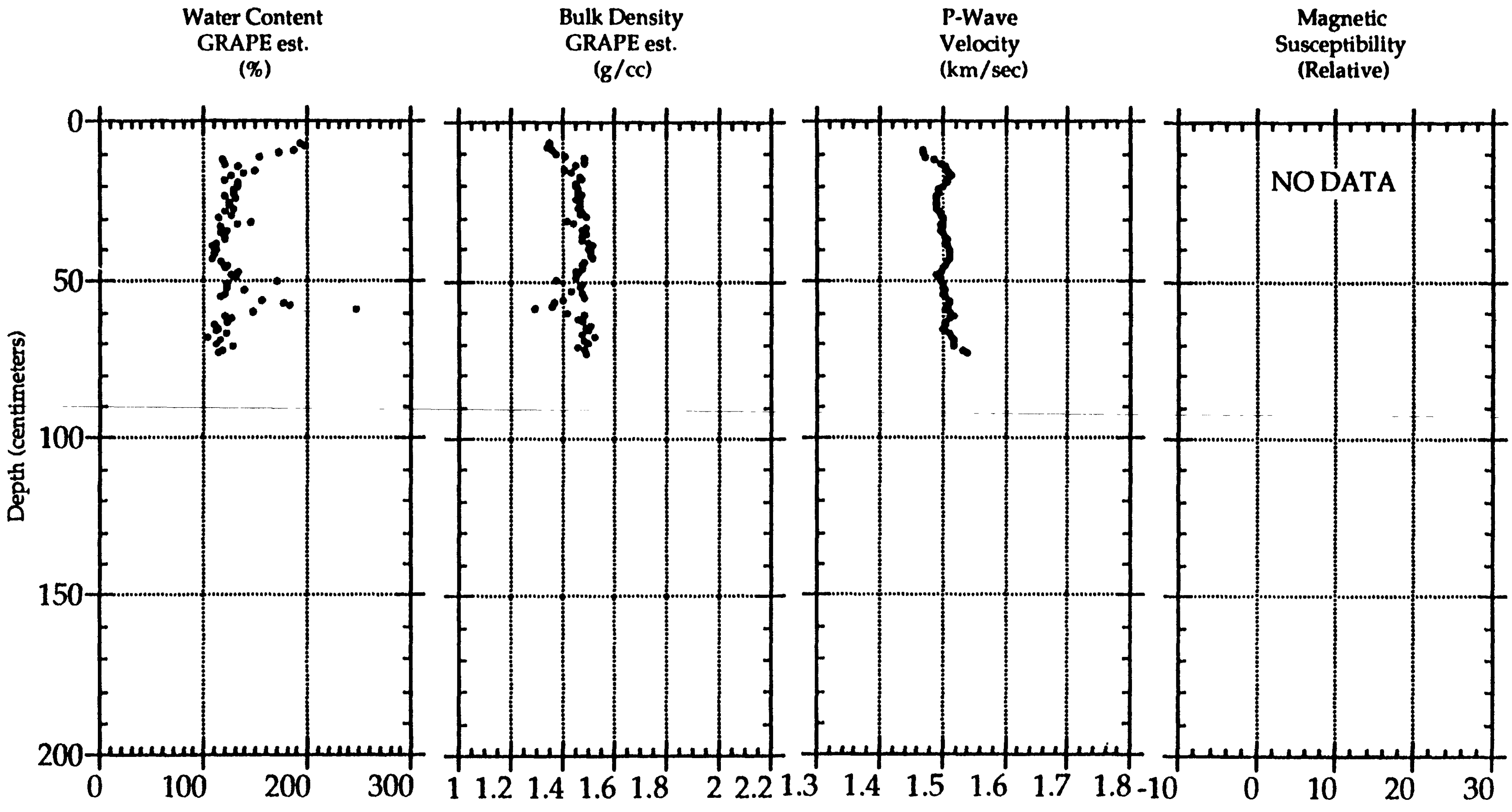
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: P54



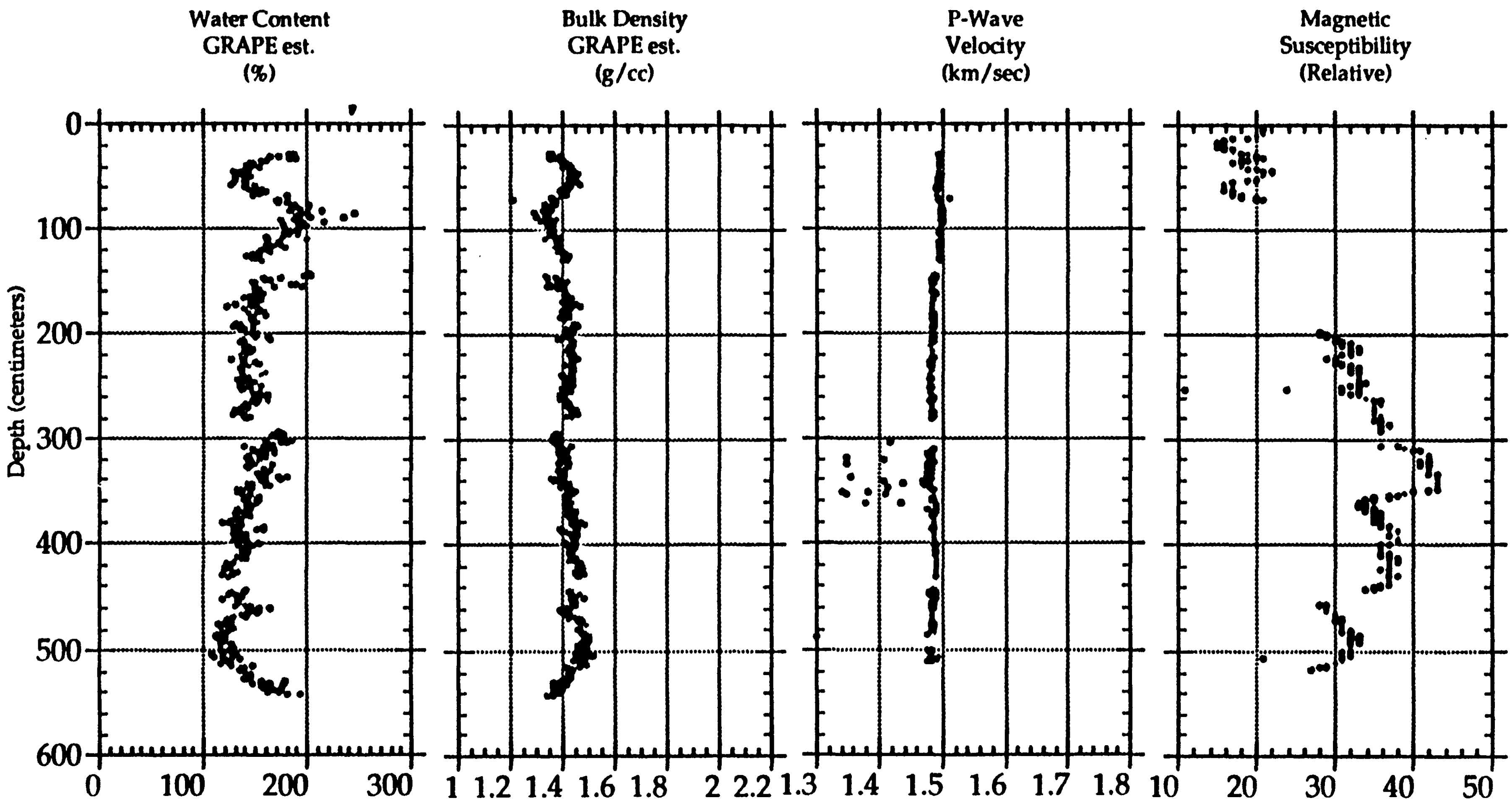
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G1



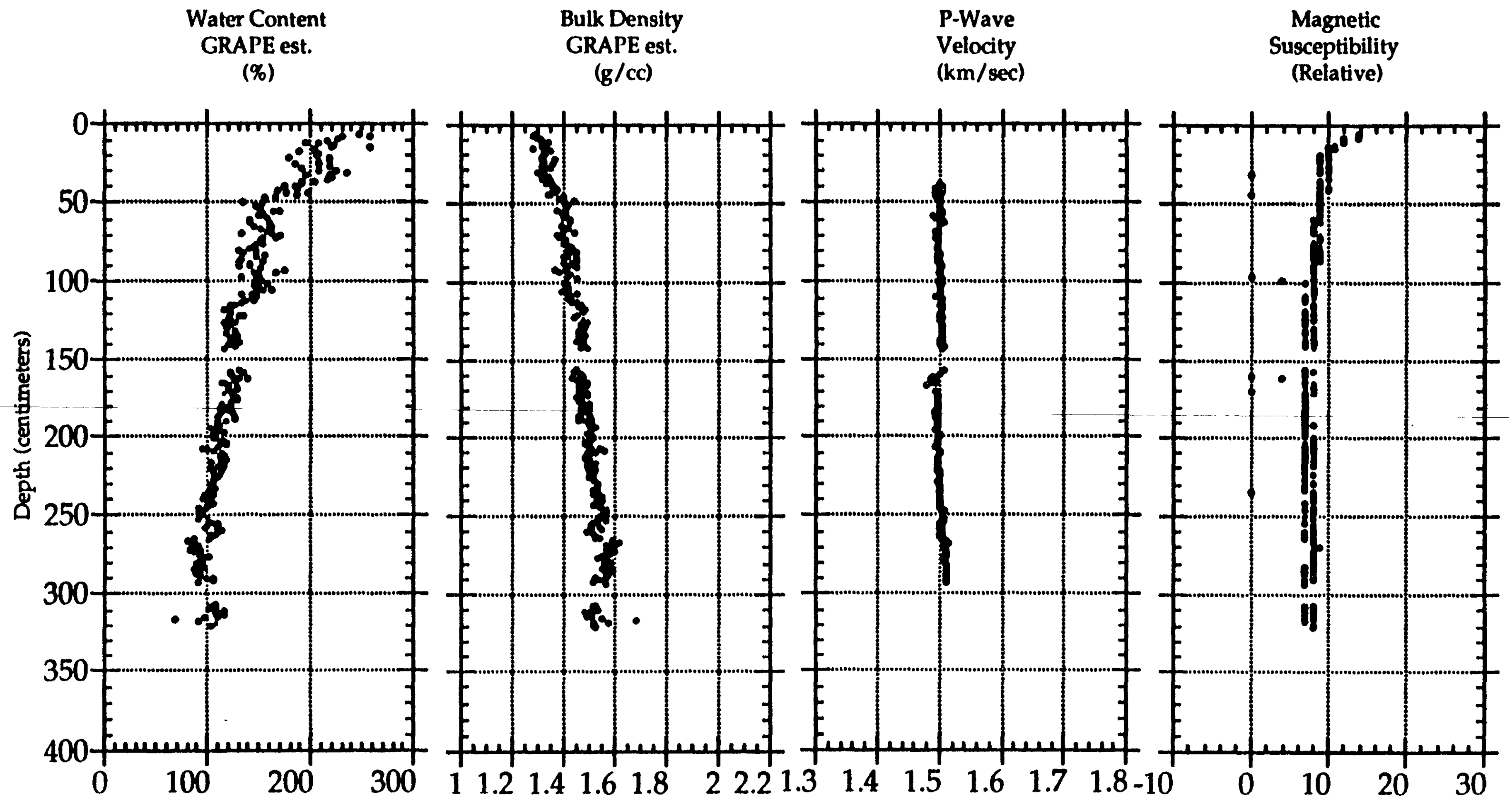
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G2



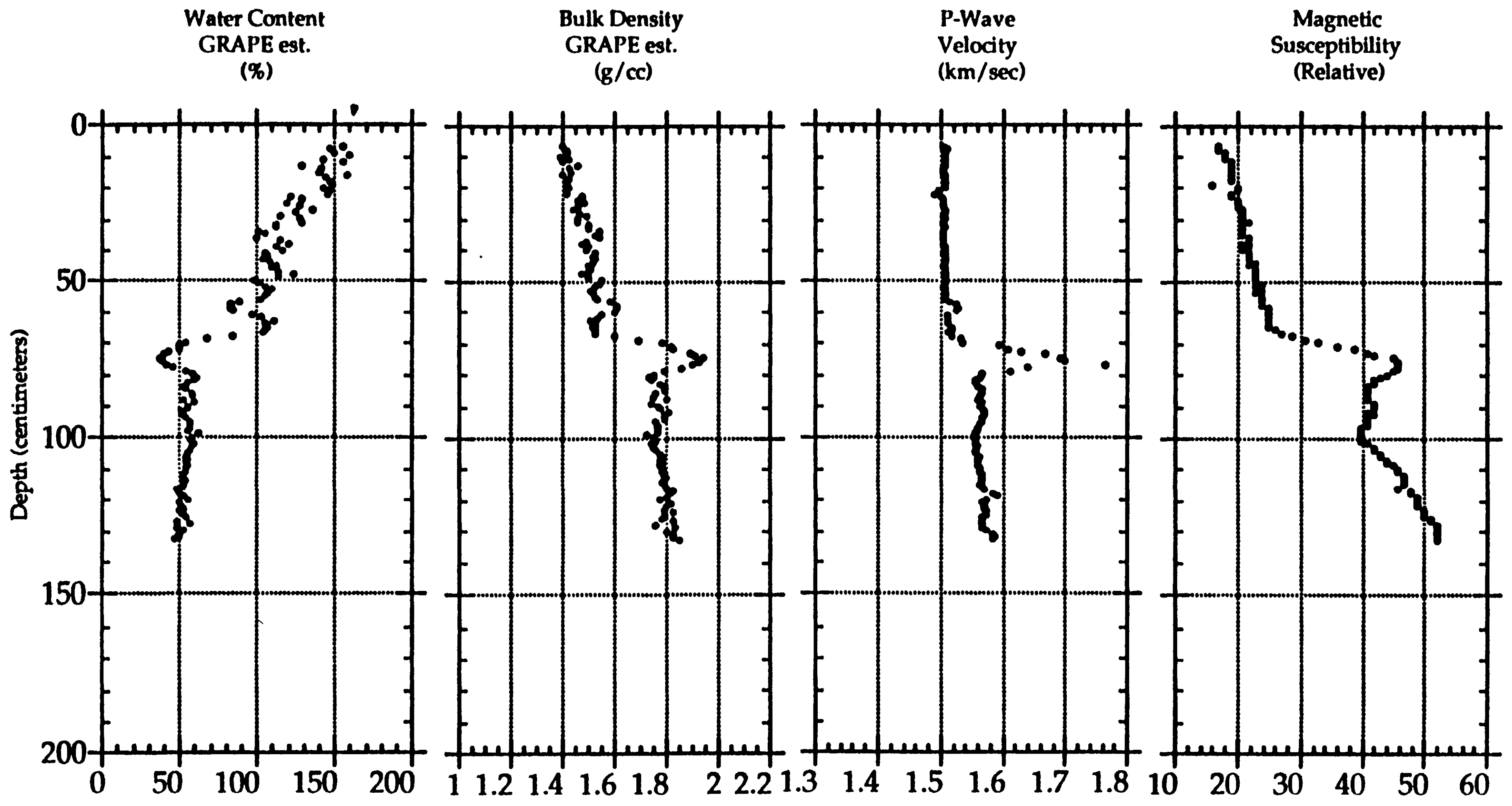
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G3



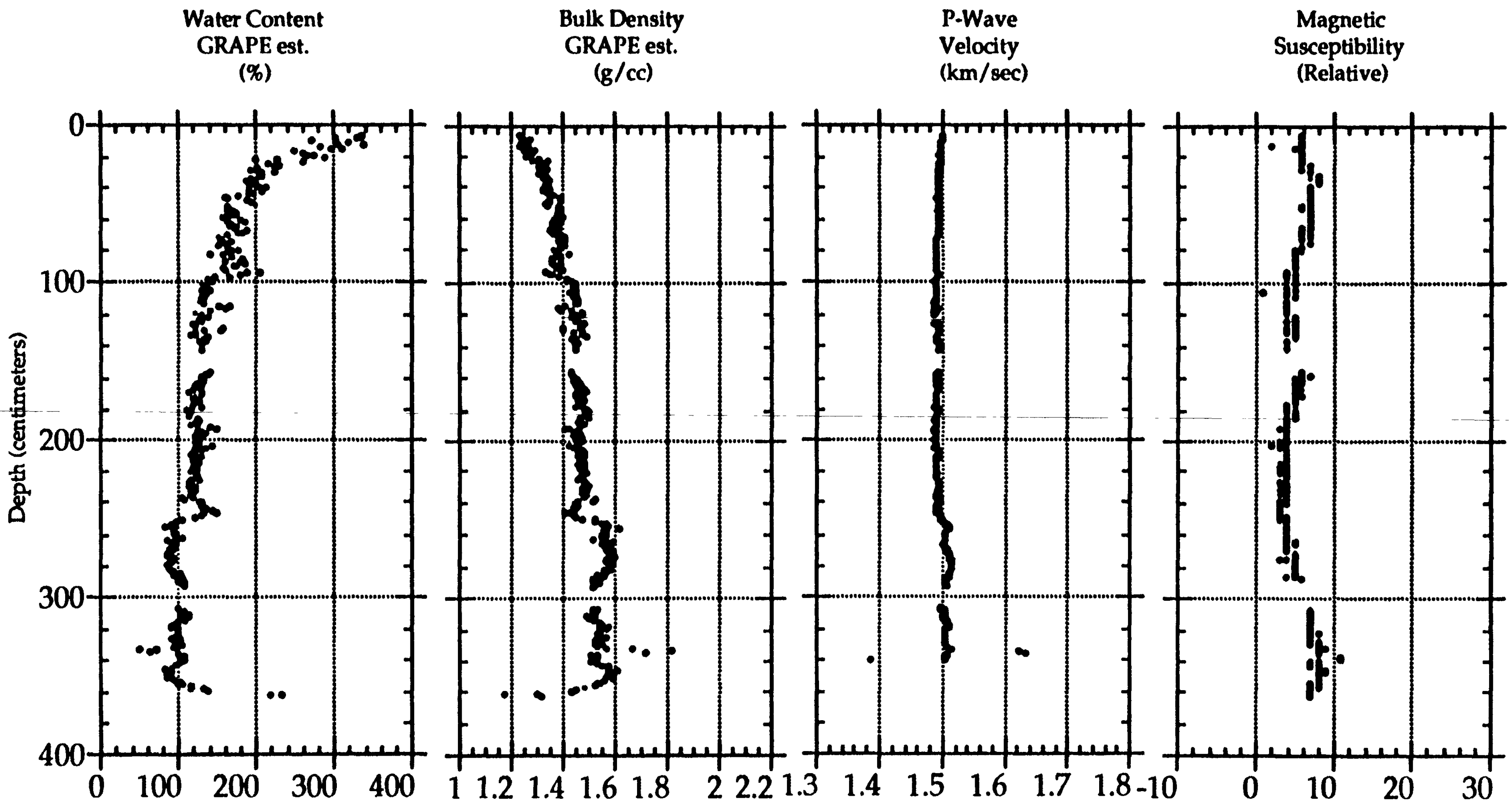
F2-92 CALIFORNIA MARGIN STUDY:
PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G4



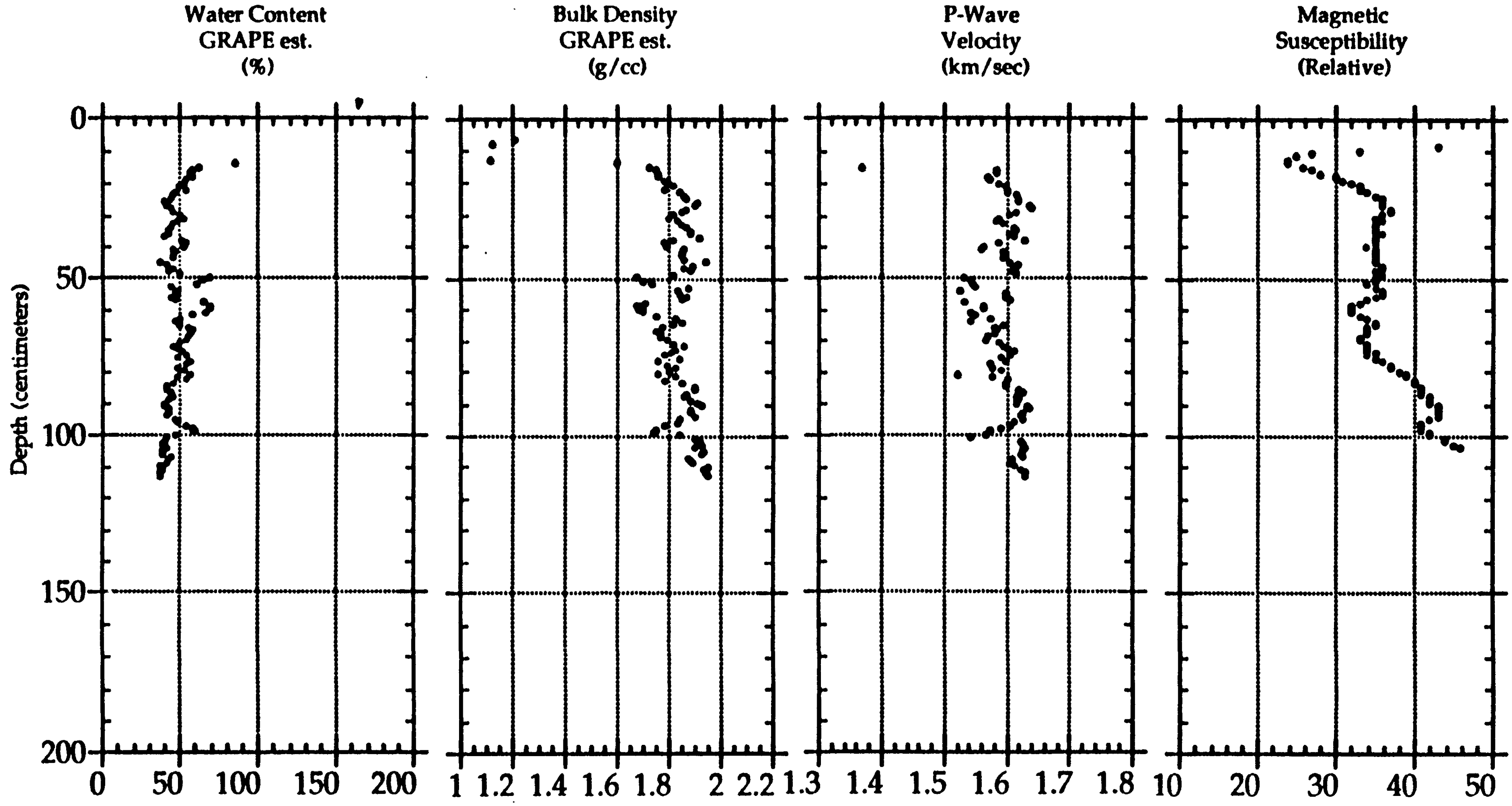
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G5



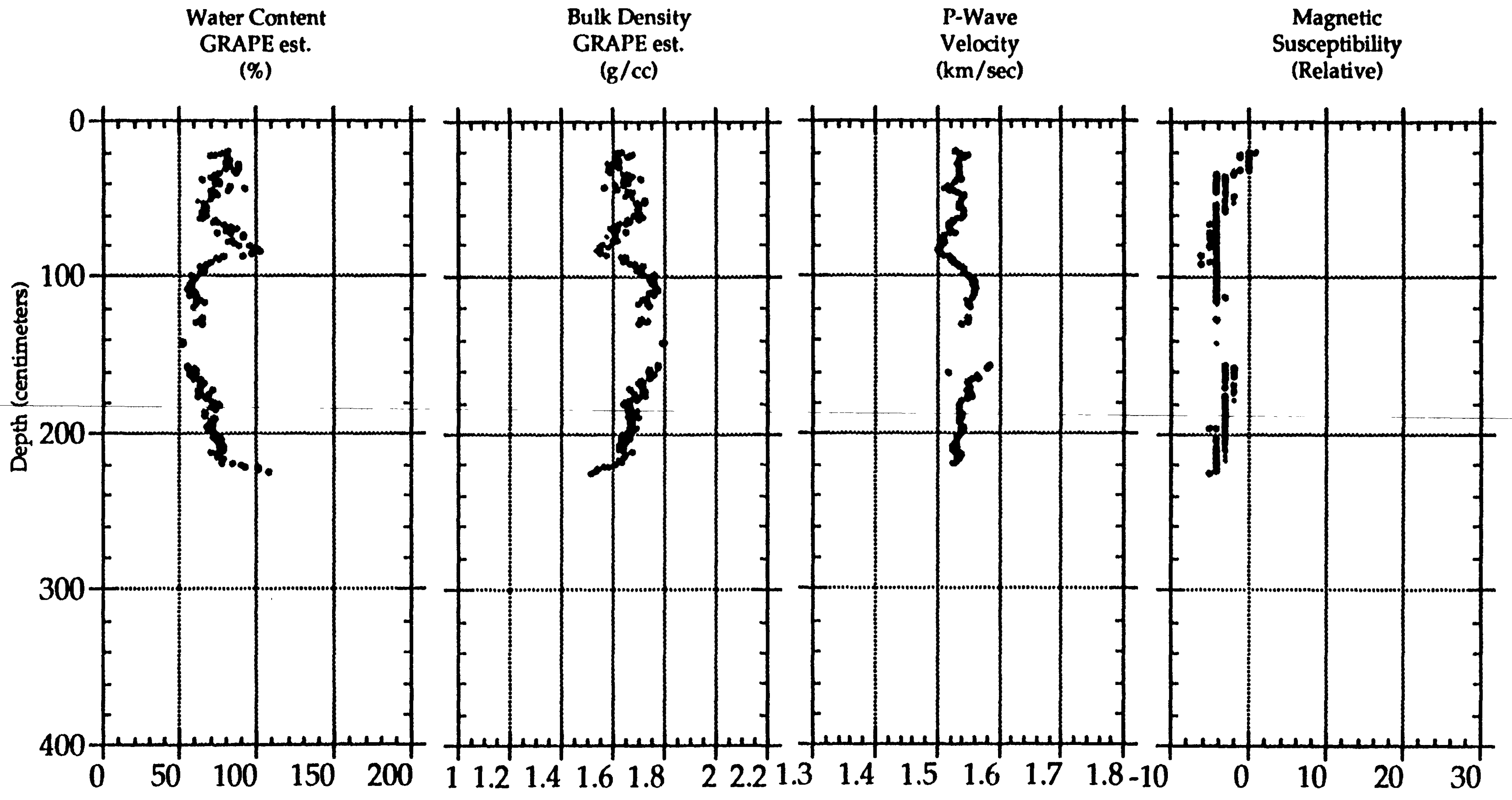
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G6



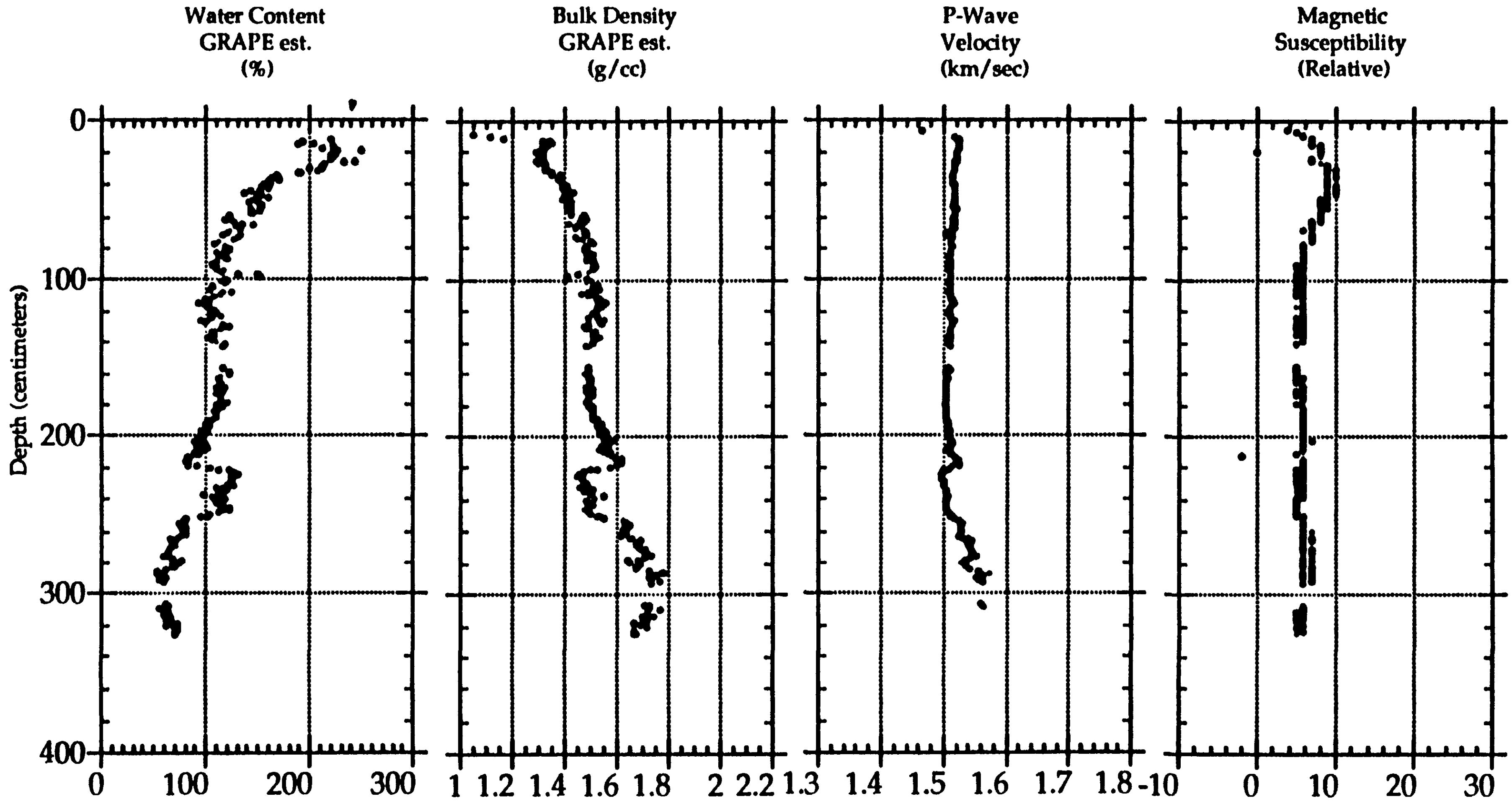
F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G7



F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G8



F2-92 CALIFORNIA MARGIN STUDY: PHYSICAL AND GEOTECHNICAL PROPERTIES LOGS

CORE: G9