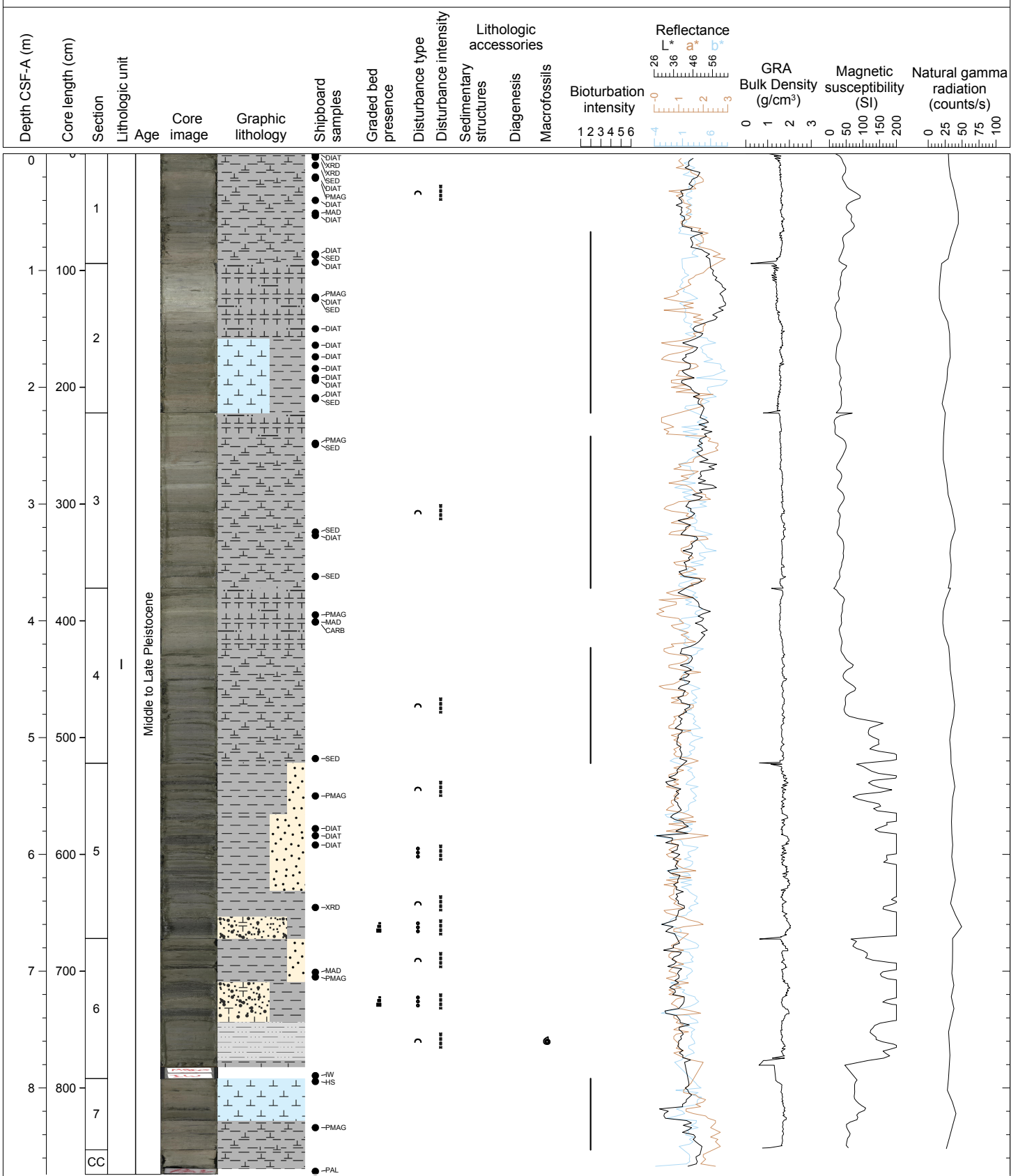


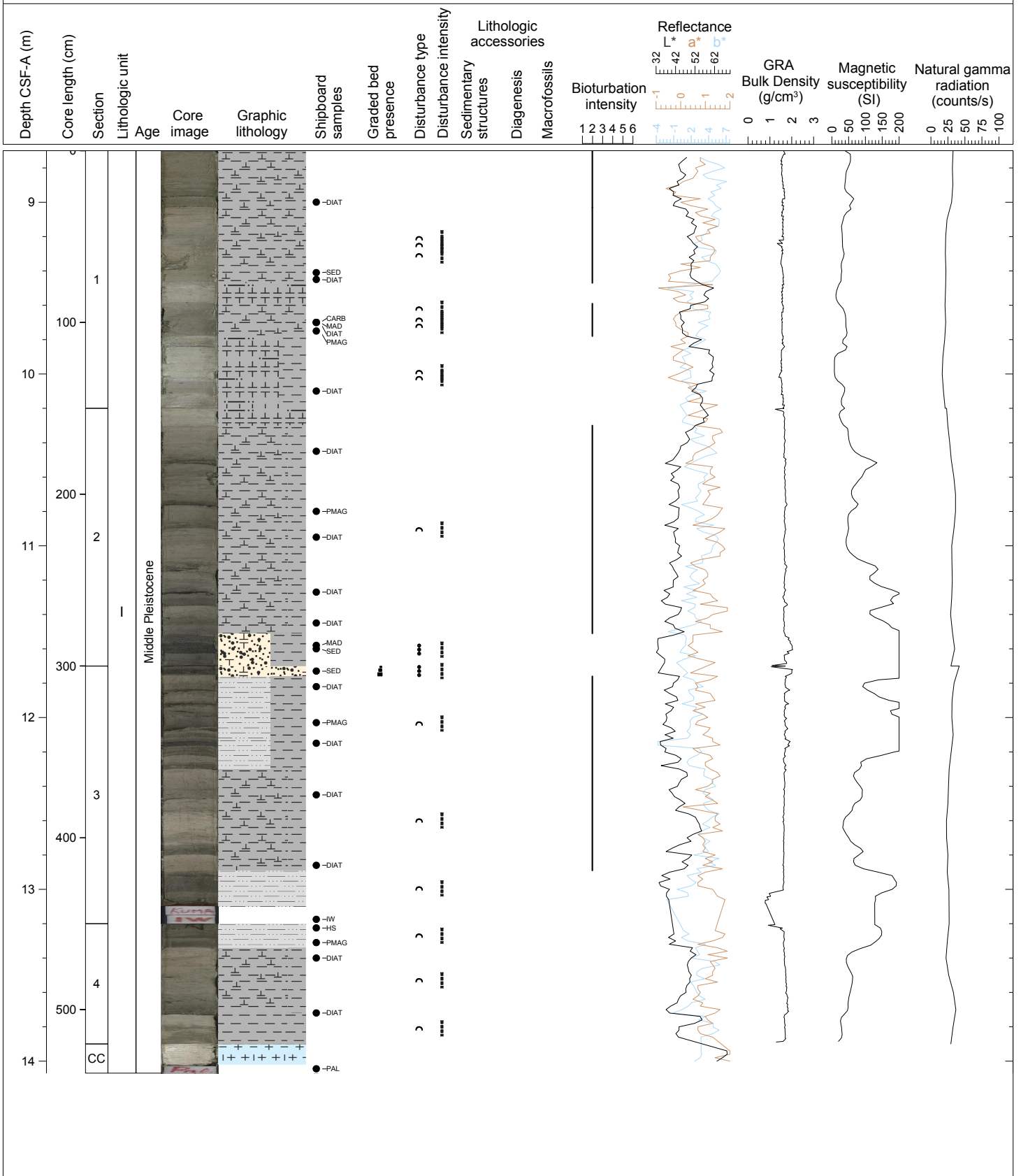
Hole 355-U1457A Core 1H, Interval 0.0-8.74 m (CSF-A)

NANNOFOSSIL-RICH CLAY WITH SILT, CALCAREOUS-RICH CLAY WITH SILT, NANNOFOSSIL OOZE, CLAY WITH NANNOFOSSIL, SILTY SAND WITH NANNOFOSSIL. Light brown to light greenish NANNOFOSSIL OOZE, light gray NANNOFOSSIL RICH CLAY and light white CALCAREOUS RICH CLAY, are the major lithologies. The lithologies are often alternatively interbedded. The blackish SILTY SAND thin layer are often found interbedded as erosive contact boundary in the core. Pyrite black patches are common in brownish NANNOFOSSIL RICH CLAY and CALCAREOUS RICH CLAY.



Hole 355-U1457A Core 2H, Interval 8.7-14.07 m (CSF-A)

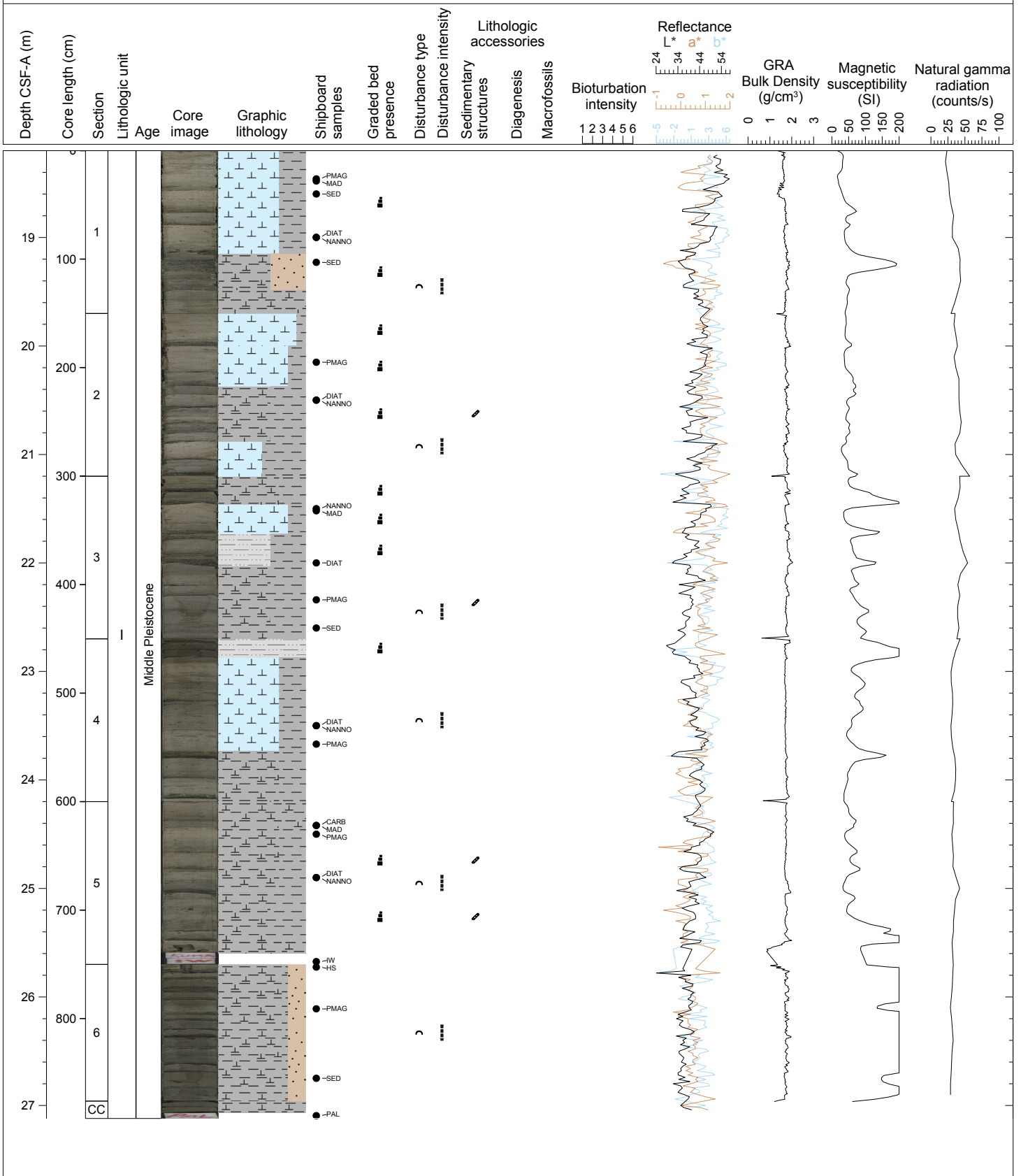
NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAY WITH SILT, CALCAREOUS-RICH CLAY WITH SILT, SILTY SAND, SILTY CLAY WITH NANNOFOSSILS. Light brown NANNOFOSSIL-RICH CLAY WITH SILT, interbedded with greenish NANNOFOSSIL OOZE and light white CALCAREOUS CLAY WITH SILT are the dominant lithologies. Thin (< 1 cm) SILTY SAND layers are found interbedded between layers of clay-rich sediment. Thin layers (< 20 cm) of SILTY SAND and SILTY CLAY are found interbedded from the bottom of Section 2 to top of Section 3. Bioturbation is observed in greenish NANNOFOSSIL OOZE and brownish NANNOFOSSIL-RICH CLAY WITH SILT. Diffuse pyrite patches are common in CALCAREOUS-RICH CLAY WITH SILT and in NANNOFOSSIL-RICH CLAY WITH SILT. Common burrows include Planolites and Chondrites.





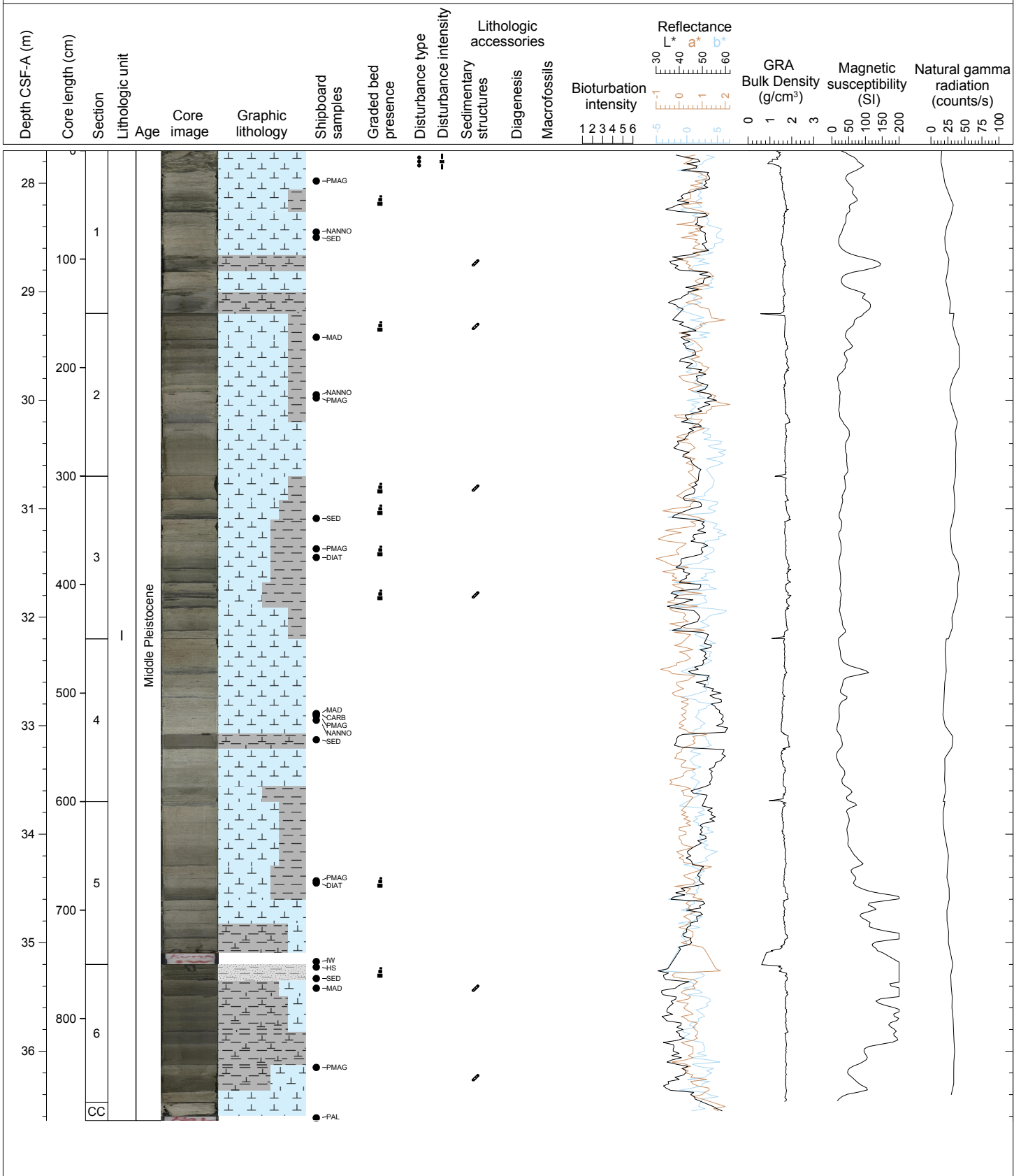
Hole 355-U1457A Core 3H, Interval 18.2-27.12 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAYSTONE WITH SILT, SILTY CLAY WITH NANNOFOSSILS, SANDY SILT, SILTY SAND, CLAYEY SILT. Whitish to light gray NANNOFOSSIL OOZE, and gray NANNOFOSSIL-RICH CLAY WITH SILT are the dominant lithologies. CLAY layers increase in frequency down core. Medium-bedded (15-30 cm) NANNOFOSSIL OOZE or NANNOFOSSIL-RICH CLAY WITH SILT grades down into thin (<5 cm) SILTY CLAY WITH NANNOFOSSILS that overlies an erosive boundary. This cycle occurs repeated throughout the core but is more common in the upper parts. The proportion of clay in the cycle increases down core. Some sections show burrow structures, particularly in NANNOFOSSIL OOZE and NANNOFOSSIL-RICH CLAY.



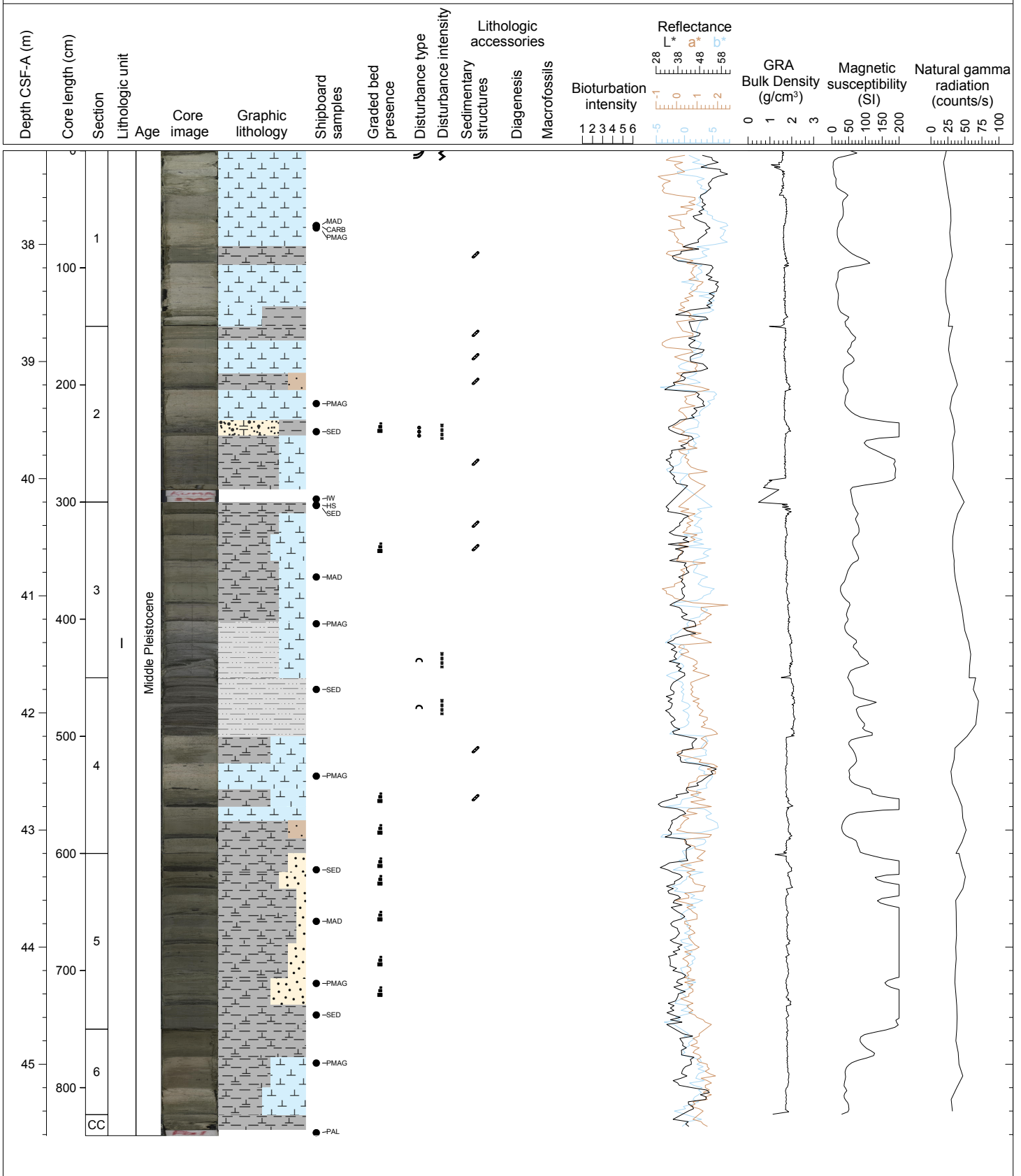
Hole 355-U1457A Core 4H, Interval 27.7-36.64 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAY, SILTY CLAY, SANDY CLAY. Light gray NANNOFOSSIL OOZE and gray NANNOFOSSIL-RICH CLAY are the dominant lithologies. Cycles of NANNOFOSSIL OOZE overlain by NANNOFOSSIL-RICH CLAY are common in the core. The basal clay-rich sediment has an erosive boundary and is sometimes normal grading. The thickness of NANNOFOSSIL OOZE beds is greater than NANNOFOSSIL-RICH CLAY. The thickness of NANNOFOSSIL-RICH CLAY beds increases in the lower part of core (Section 6). A dark gray SANDY SILT is seen at the top of Section 6. Burrows are observed in the NANNOFOSSIL-RICH CLAY.



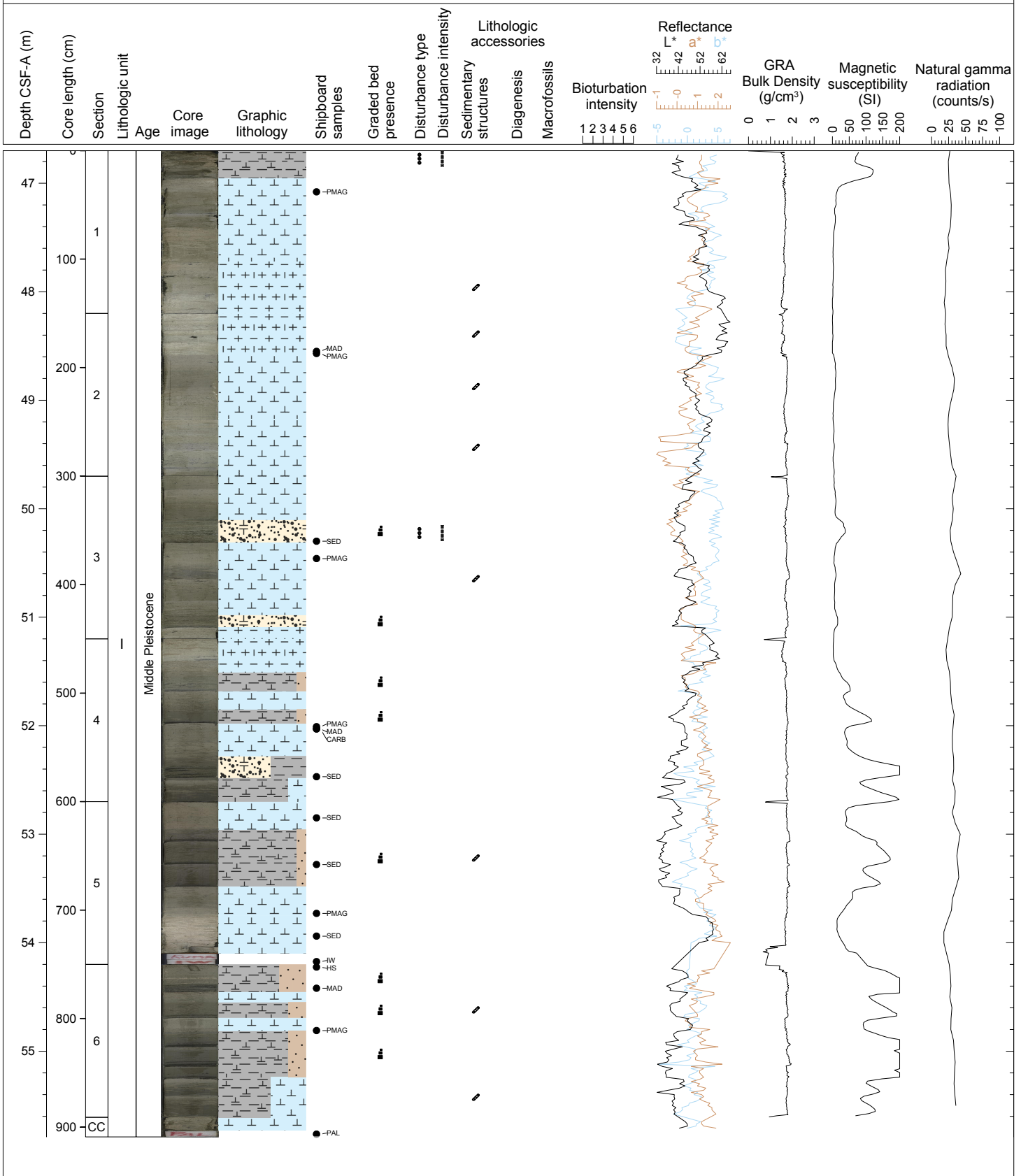
Hole 355-U1457A Core 5H, Interval 37.2-45.61 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAY, NANNOFOSSIL-RICH CLAY WITH SILT, SILTY CLAY, SILTY SAND, CLAYEY SILT, SANDY SILT. Light gray NANNOFOSSIL OOZE and gray NANNOFOSSIL-RICH CLAY are the dominant lithologies. Thick bedded NANNOFOSSIL OOZE is overlain by NANNOFOSSIL-RICH CLAY. NANNOFOSSIL-RICH CLAY WITH SILT is overlain by thin SILTY SAND or SANDY SILT. These latter two lithologies show generally erosive basal boundaries. Normal grading is observed within the thin SILTY SAND or SANDY SILT layers. Burrows are frequently observed.



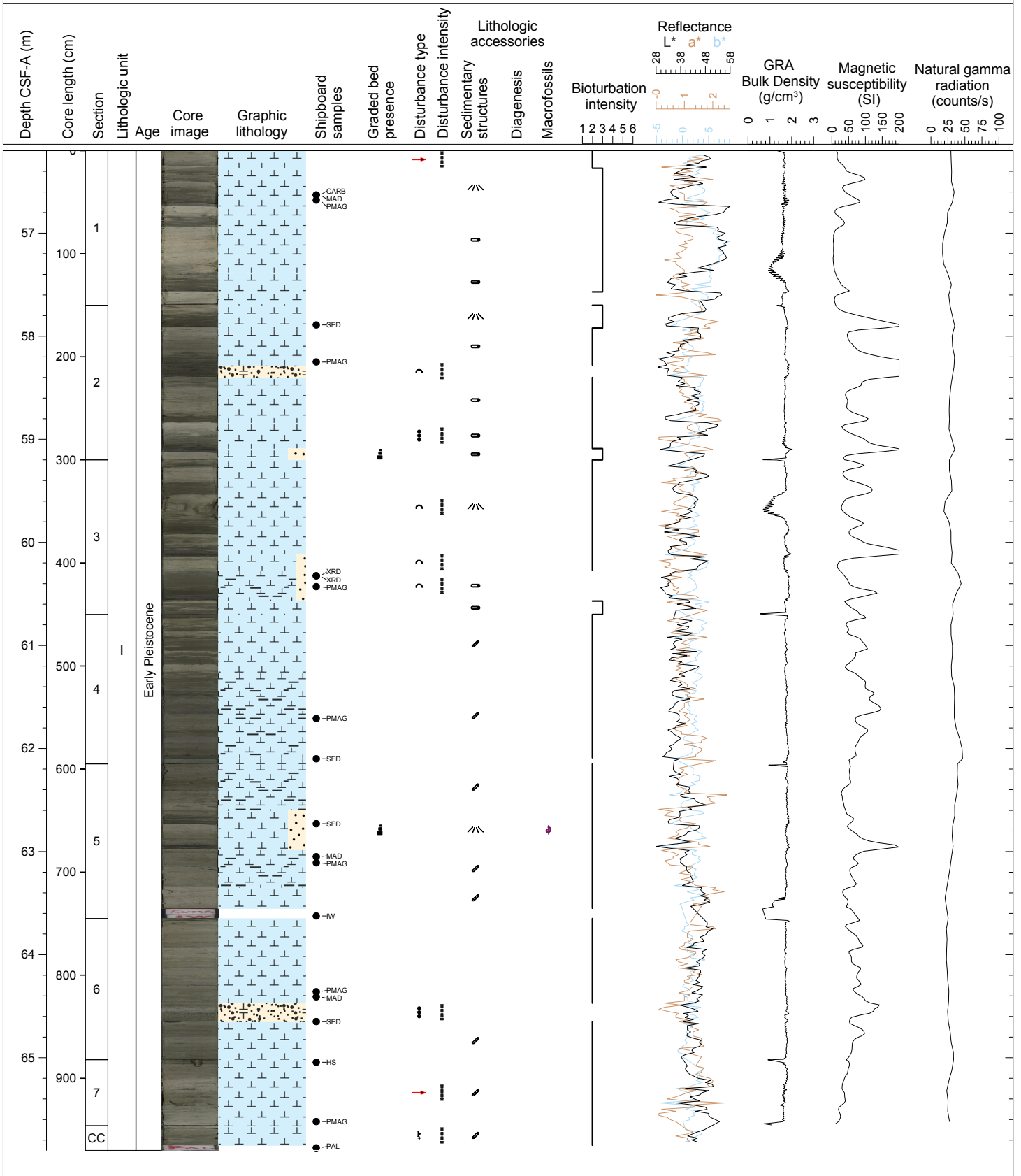
Hole 355-U1457A Core 6H, Interval 46.7-55.79 m (CSF-A)

NANNOFOSSIL OOZE, CALCAREOUS OOZE, NANNOFOSSIL-RICH CLAY. SILTY SAND, SANDY SILT, CLAYEY SILT. Light gray NANNOFOSSIL OOZE and gray NANNOFOSSIL-RICH CLAY with whitish CALCAREOUS OOZE are the dominant lithologies. Dark gray SILTY SAND, SANDY SILT and CLAYEY SILT are present as thin (<10 cm) layers overlying NANNOFOSSIL OOZE and NANNOFOSSIL-RICH CLAY. Boundary overlying NANNOFOSSIL OOZE beds are clearly erosive. Burrowing is intense in NANNOFOSSIL-RICH CLAY and CALCAREOUS OOZE. A medium bedded (ca. 20 cm) SILTY SAND occurs in the middle of Section 3.



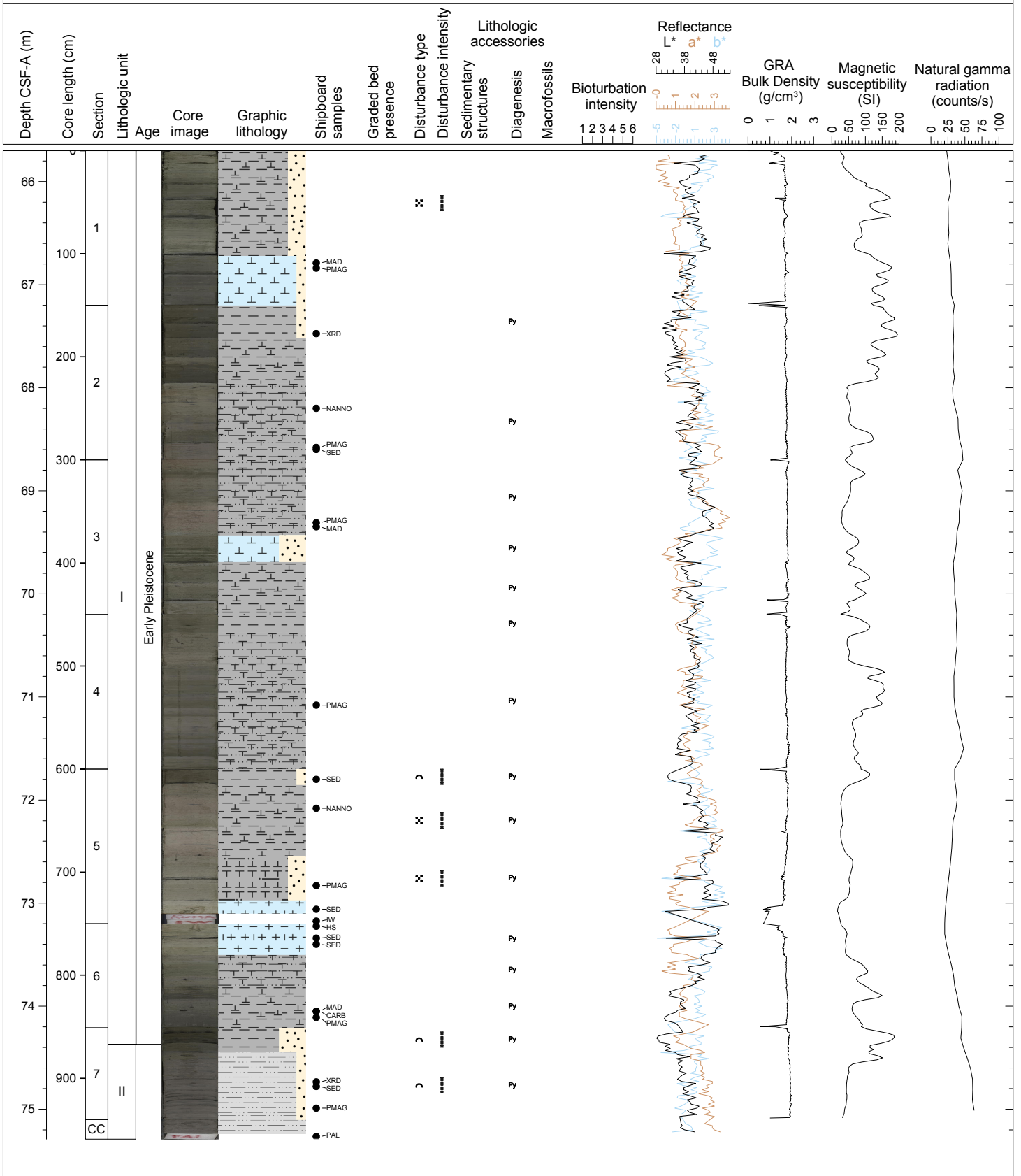
Hole 355-U1457A Core 7H, Interval 56.2-65.9 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAY, SILTY SAND. Light brown to light greenish NANNOFOSSIL OOZE and dark gray NANNOFOSSIL-RICH CLAY are the major lithologies. Greenish and brownish NANNOFOSSIL OOZE beds are often interbedded. Thin blackish SILTY SAND layer, rich in mica, are interbedded with NANNOFOSSIL OOZE and NANNOFOSSIL-RICH CLAY, which they overlie with an erosive boundary. The thickness of the SILTY SAND beds increases towards the bottom of core and the sediment becomes gray to light white and rich in foraminifers. Diffuse black pyrite patches are very common. Bioturbation is common. Greenish NANNOFOSSIL OOZE is dominated by Chondrites, whereas brownish NANNOFOSSIL OOZE is dominated by Planolites and composite burrows.



Hole 355-U1457A Core 8H, Interval 65.7-75.29 m (CSF-A)

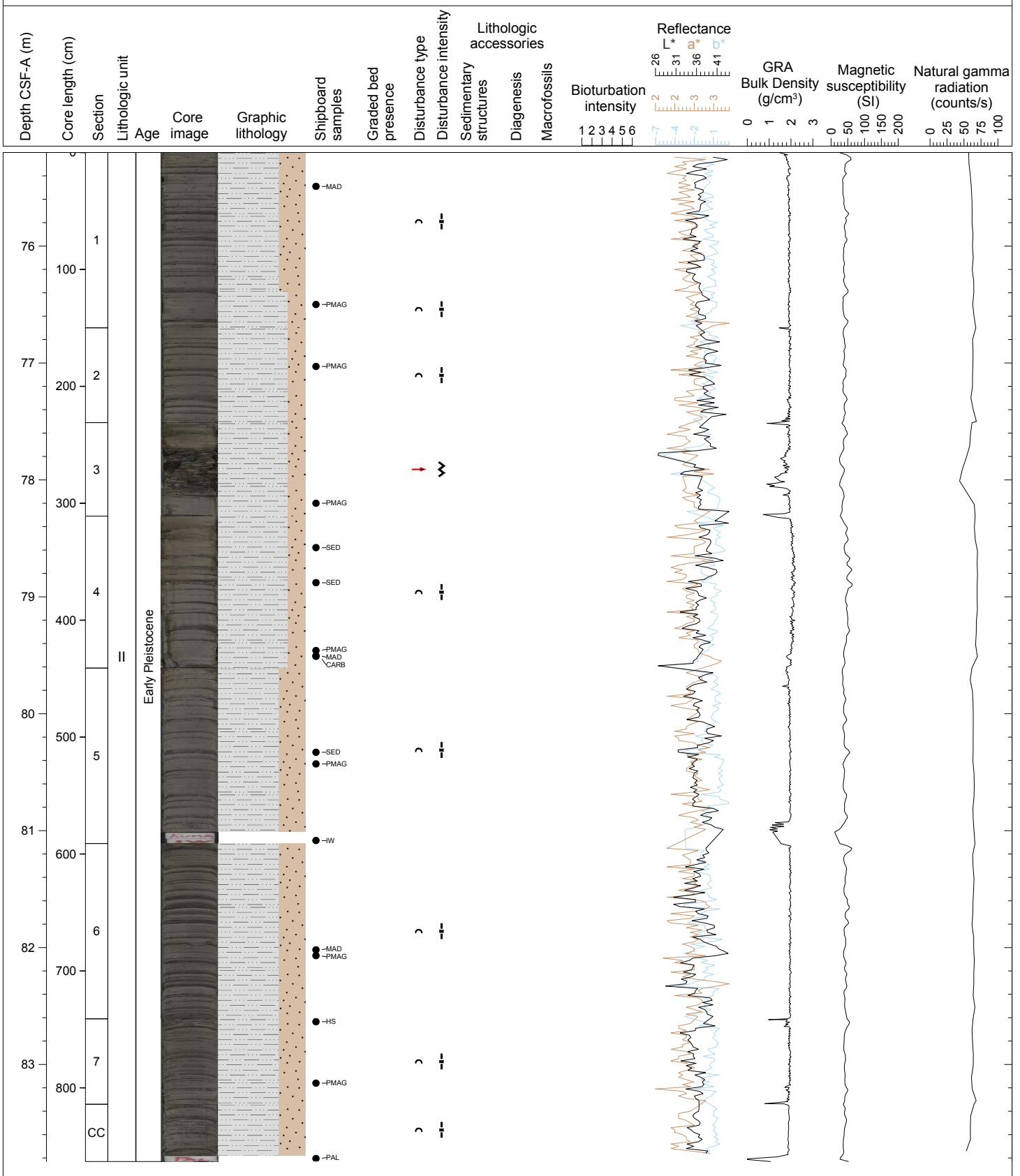
NANNOFOSSIL OOZE WITH CLAY, NANNOFOSSIL-RICH CLAY, FORAMINIFER-RICH CLAY, SILTY CLAY, SILTY SAND, CALCAREOUS RICH CLAY, CALCAREOUS OOZE. Light brownish FORAMINIFER-RICH CLAY, light greenish NANNOFOSSIL OOZE WITH CLAY, light gray to brown gray SILTY CLAY and white CALCAREOUS-RICH CLAY are the major lithologies. The light green thin bedded NANNOFOSSIL OOZE WITH CLAY is repeatedly interbedded with brownish FORAMINIFER-RICH CLAY. Thin layers of blackish SILTY SAND are often observed interbedded in the core with erosive basal contacts. SILTY CLAY is observed at the bottom of the core. Bioturbation and diffused pyritic black patches along with very fine pyrite grains are abundant. Chondrites burrows are common in greenish NANNOFOSSIL OOZE WITH CLAY, while other common burrows are Planolites and composite burrows.





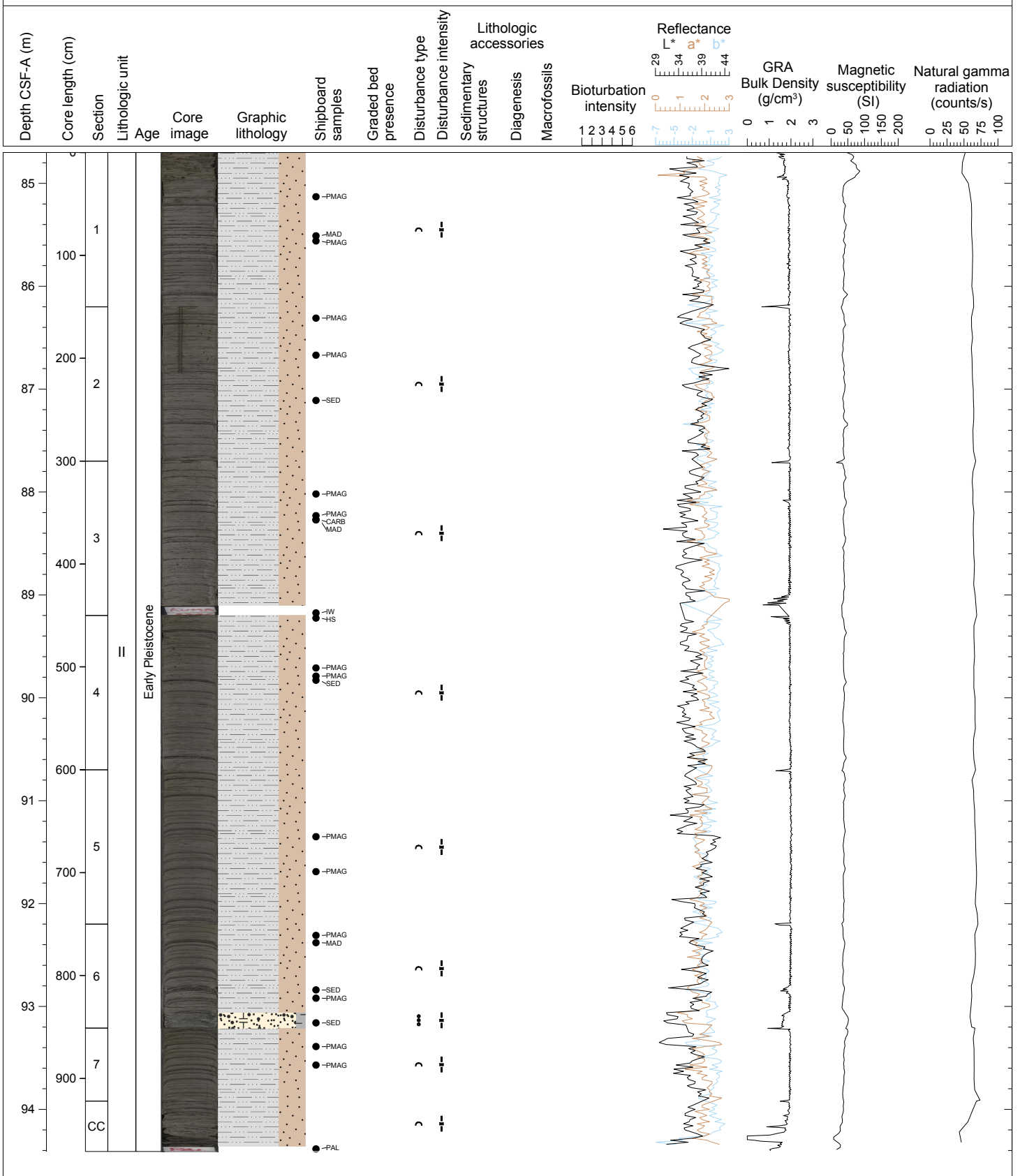
Hole 355-U1457A Core 9H, Interval 75.2-83.83 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish gray SILTY CLAY interbedded with thin SANDY SILT is the major lithology. The thin bedded SANDY SILT (<5 cm) and SILTY CLAY (< 10 cm) are found alternately interbedded through the core. The SILTY CLAY is occasionally found in beds up to 25 cm thick. SANDY SILT interbeds are more frequent towards the bottom of the core. Blackish bands are often observed in the top of the core. The sediment is punctured and destroyed in Section 3, 23-55 cm by drilling.



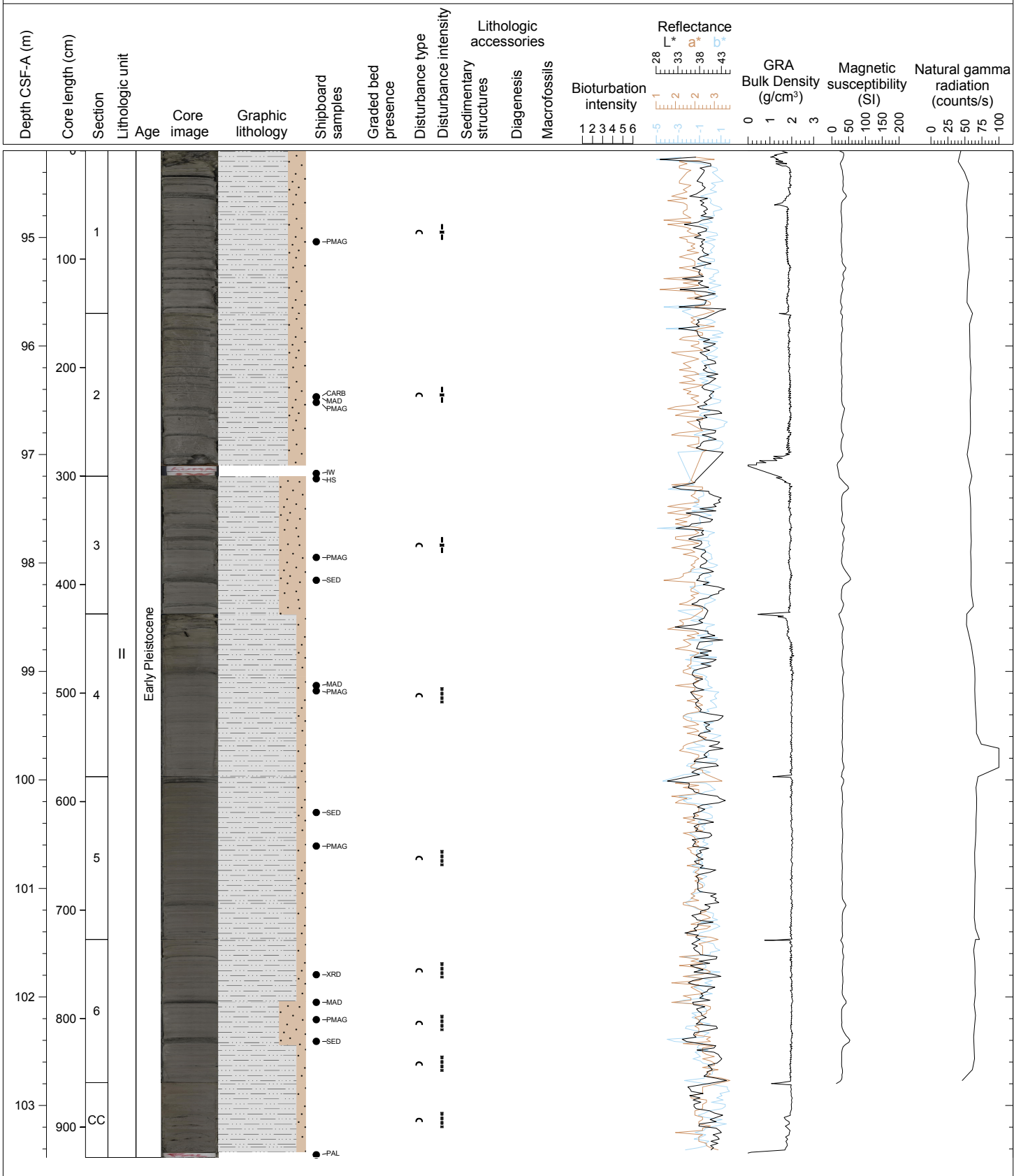
Hole 355-U1457A Core 10H, Interval 84.7-94.41 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish gray SILTY CLAY, interbedded with thin SANDY SILT is the major lithology. Thin bedded SANDY SILTY (<5 cm) and thin bedded SILTY CLAY (< 10 cm) are found interbedded through the core. SILTY CLAY is occasionally found as beds up to 20 cm thick. The SANDY SILT interbeds are more frequent towards the bottom of the core. A single, 25 cm-thick SANDY SILT bed is interbedded with thin SILTY CLAY is found in the bottom of Section 6.



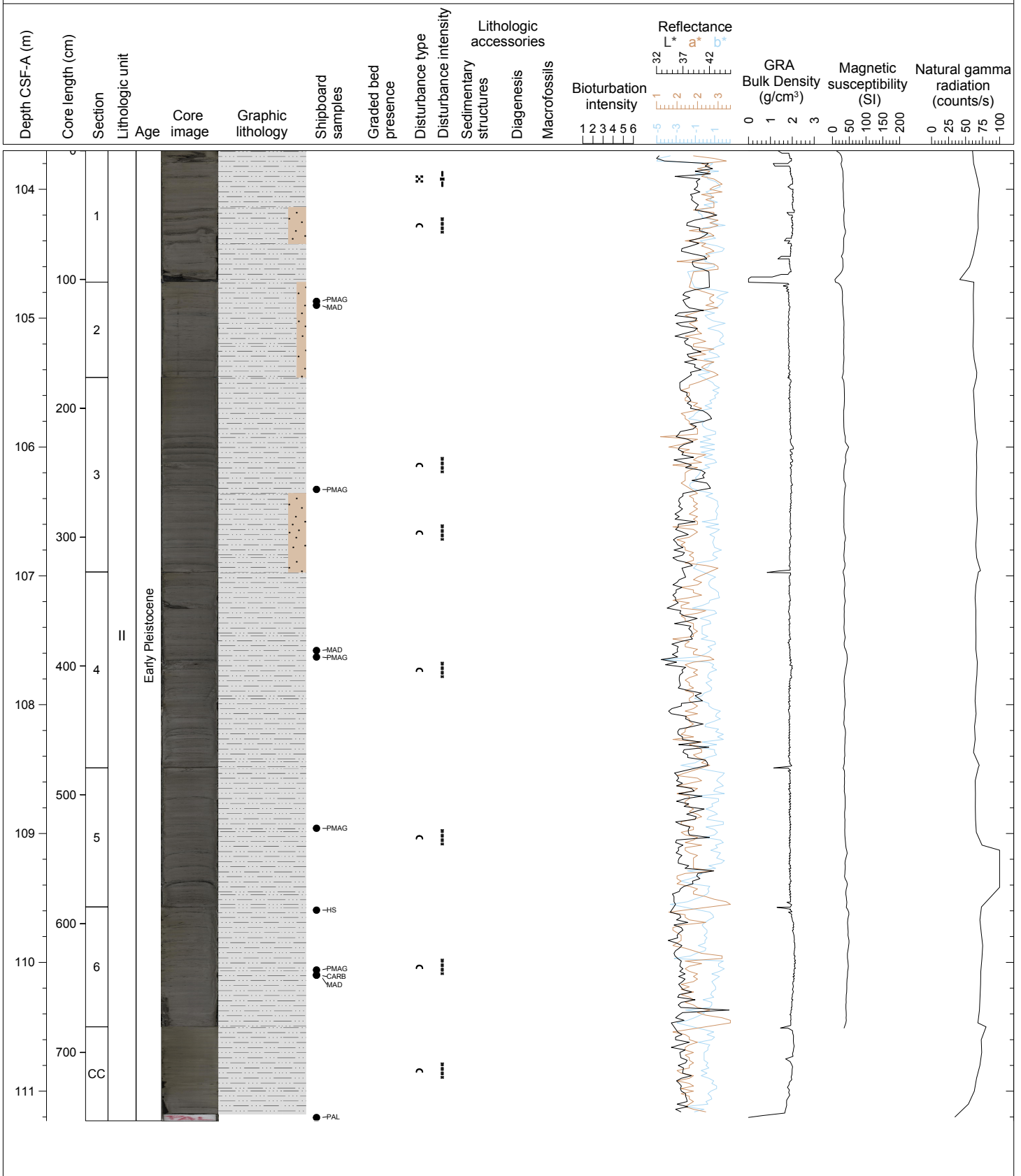
Hole 355-U1457A Core 11H, Interval 94.2-103.48 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish gray SILTY CLAY interbedded with thin-bedded SANDY SILT is the major lithology. Thin bedded, normally graded (<5 cm) SANDY SILT is interbedded with medium to thick bedded SILTY CLAY. The SILTY CLAY is occasionally up to 20 cm thick. The frequency of the SANDY SILT interbeds decreases towards the bottom of the core. The core top shows particularly strong drilling disturbance.



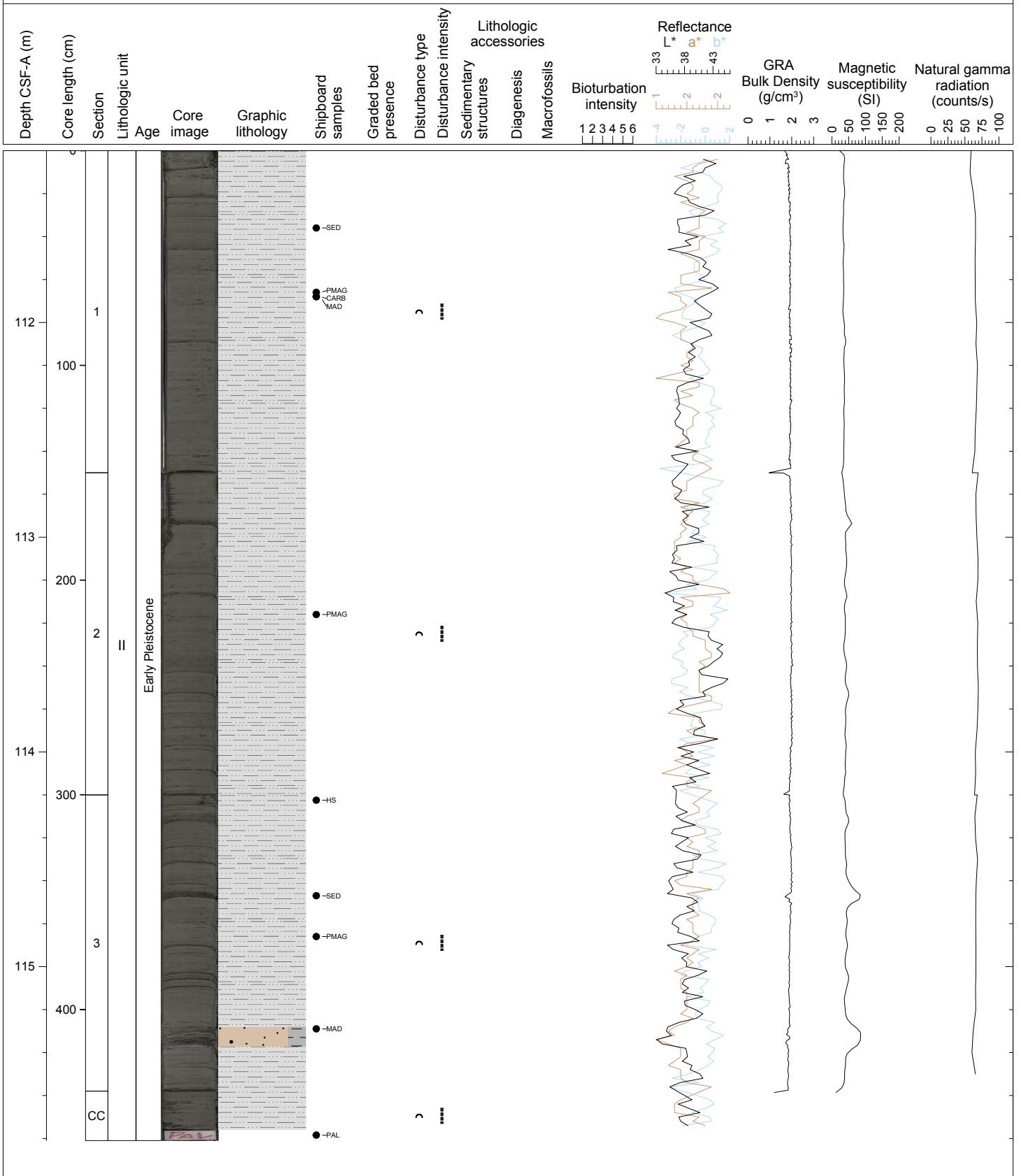
Hole 355-U1457A Core 12H, Interval 103.7-111.23 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish gray SILTY CLAY, interbedded with thin-bedded SANDY SILT, is the major lithology. The thin-bedded SANDY SILT is interbedded with medium to thick bedded SILTY CLAY. The interbeds of SANDY SILT are very thin (<1 cm) and generally infrequent. SANDY SILT interbeds are up to 5 cm thick. Black diffuse pyrite patches are occasionally observed.



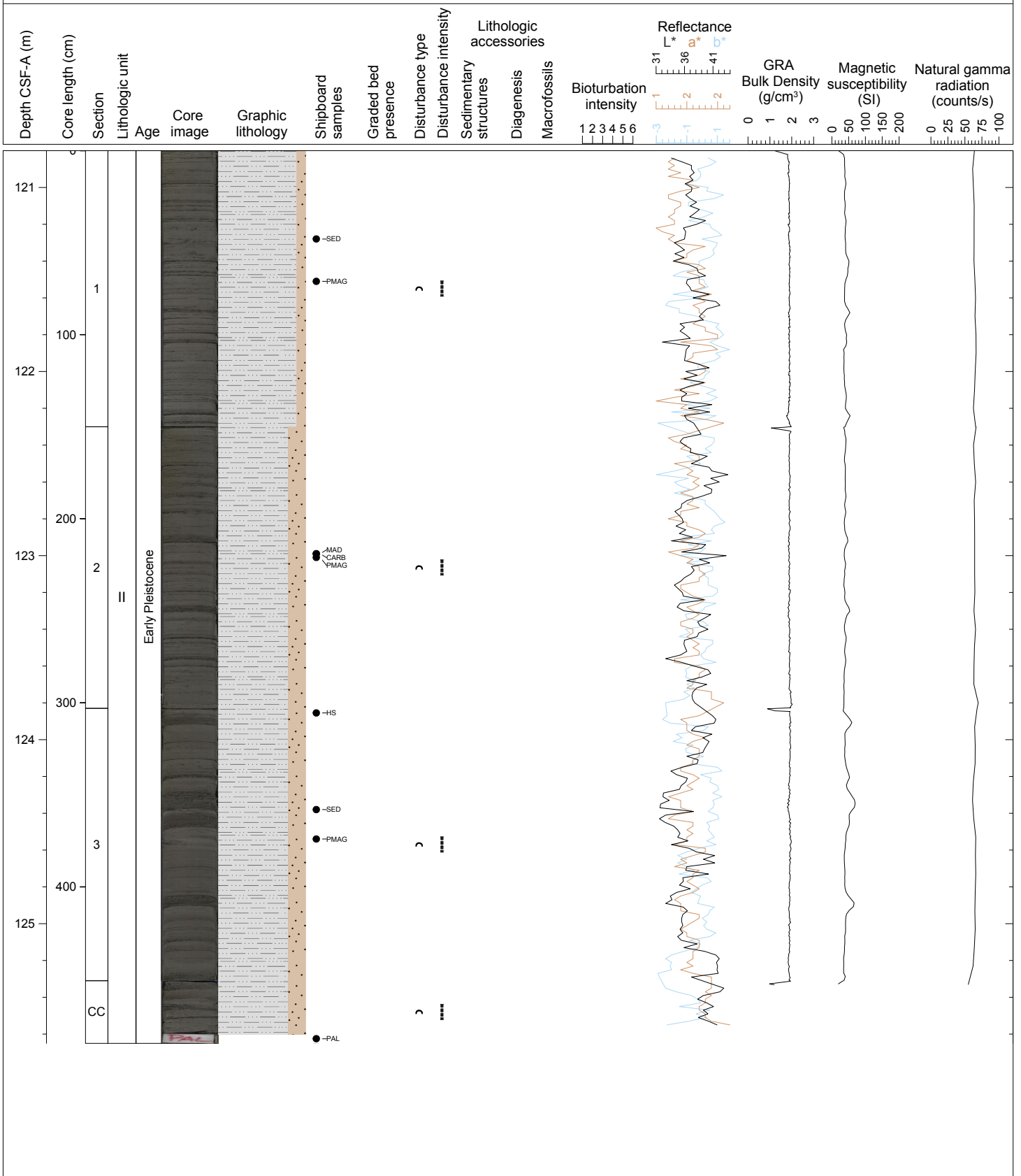
Hole 355-U1457A Core 13F, Interval 111.2-115.81 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish gray, medium to thick-bedded SILTY CLAY, interbedded with thin-bedded SANDY SILT is the major lithology. SANDY SILT beds are typically very thin (<1 cm) but are occasionally up to 3 cm and dominate towards the bottom of the core. The SANDY SILT comprises less than 2% of the core.



Hole 355-U1457A Core 15F, Interval 120.8-125.65 m (CSF-A)

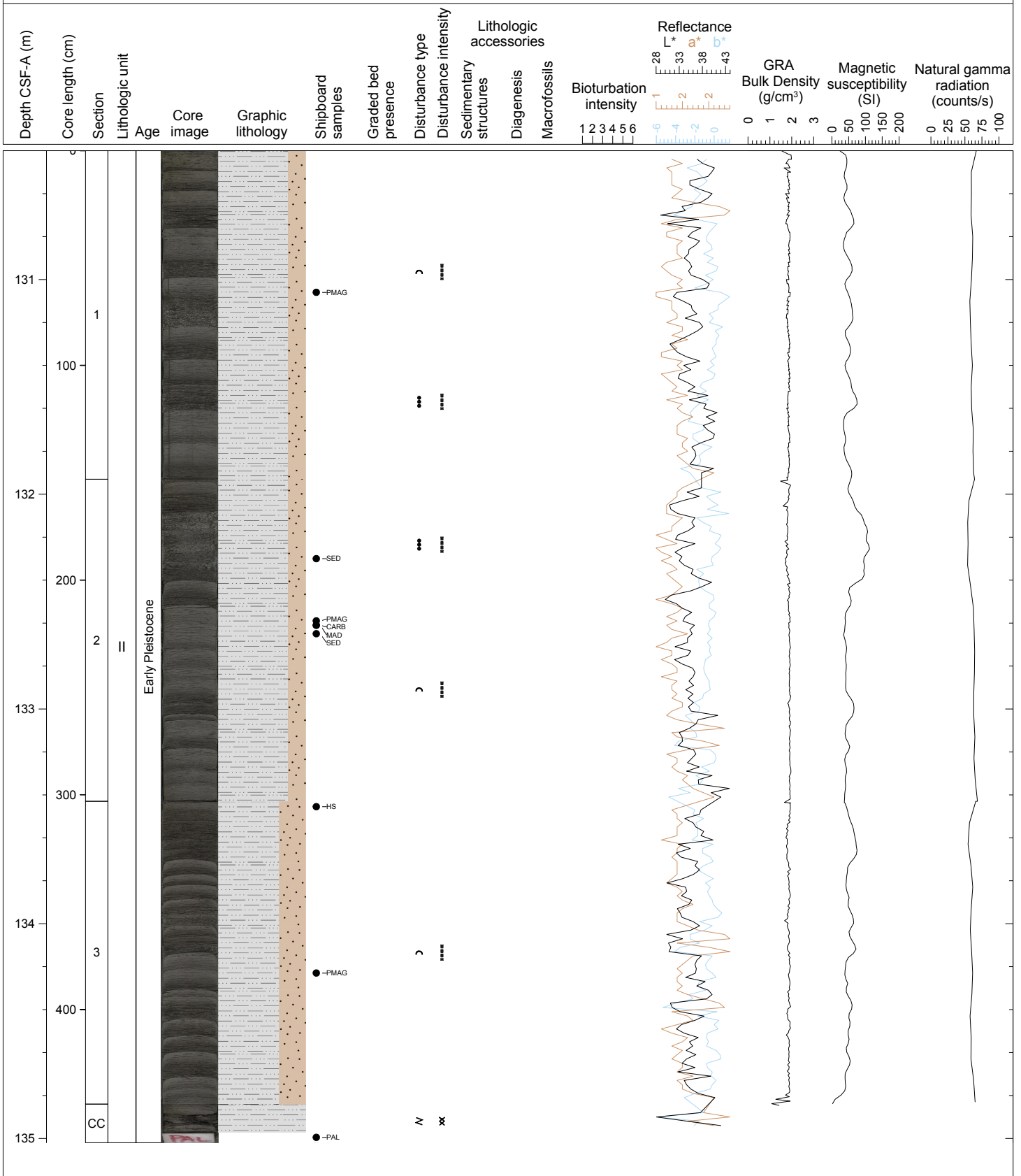
SILTY CLAY, SANDY SILT. Light brownish gray, medium to thickly bedded SILTY CLAY interbedded with thin-bedded SANDY SILT the major lithology. The SANDY SILT is normally graded and has sharp basal boundaries. The SILTY CLAY is typically massive and structureless. SANDY SILT beds are very thin (<1 cm) and occasionally up to 5 cm and dominant towards the bottom of the core.





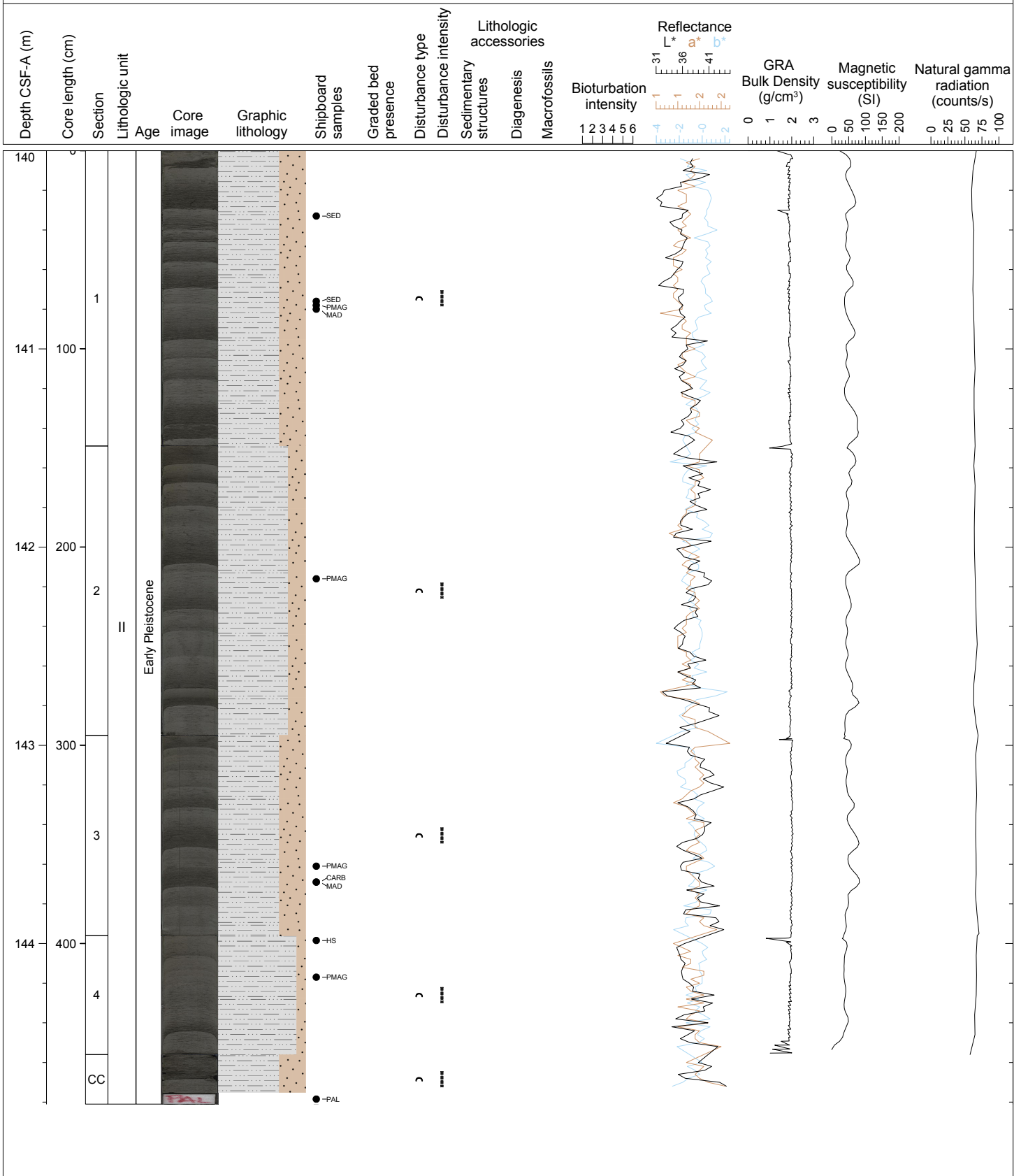
Hole 355-U1457A Core 17F, Interval 130.4-135.02 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish gray SILTY CLAY and dark brownish gray SANDY SILT are the major lithologies. SILTY CLAY is typically overlain by thin-bedded SANDY SILT which is characterized by sharp, erosive bases and normal grading. SILTY CLAY beds are normally thicker than the SANDY SILT beds.



Hole 355-U1457A Core 19F, Interval 140.0-144.81 m (CSF-A)

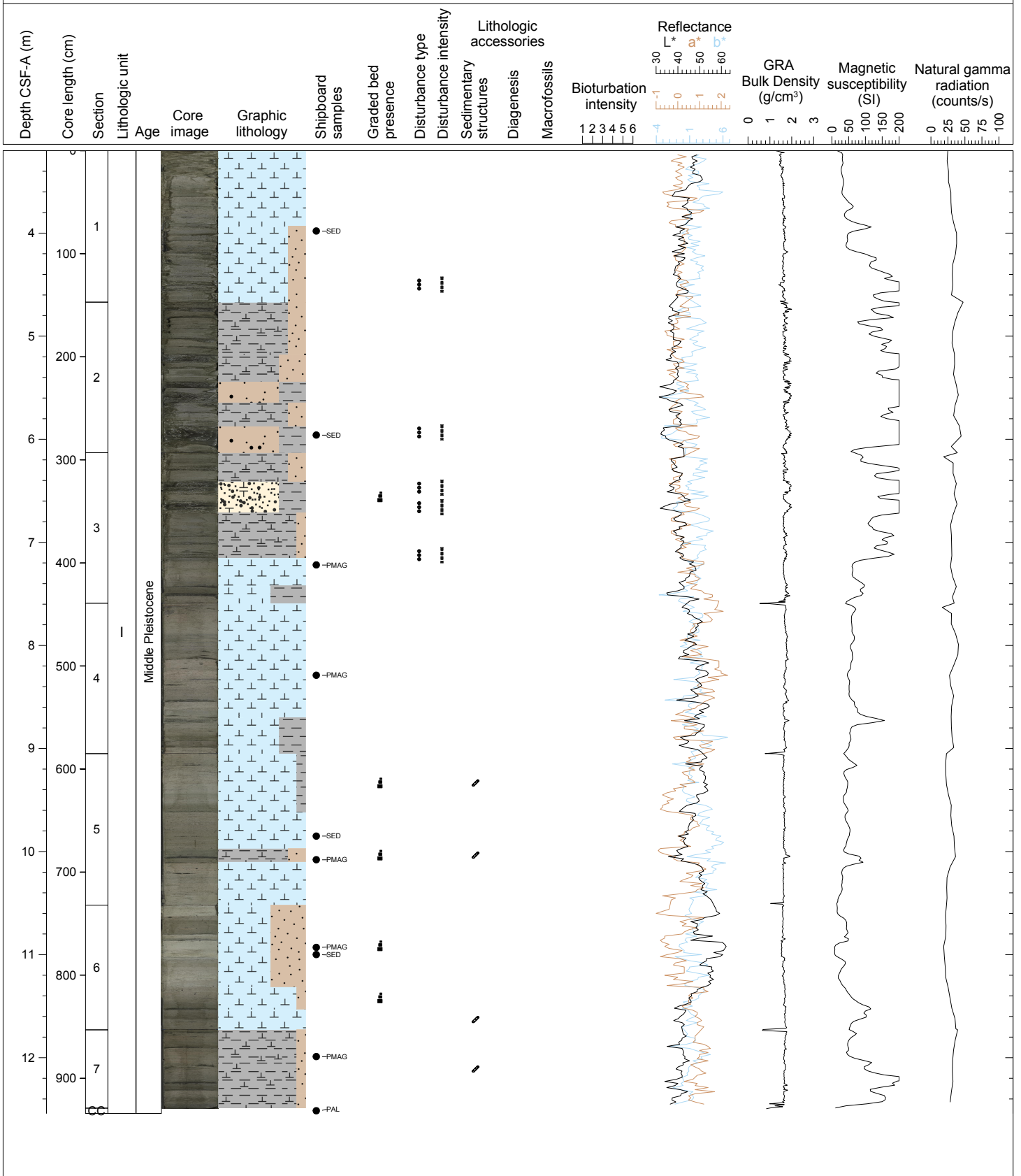
SILTY CLAY, SANDY SILT. Light brownish gray SILTY CLAY and dark brownish gray SANDY SILT are the main lithologies. The very thin bedded SANDY SILT are interbedded with medium bedded SILTY CLAY. The SILTY CLAY and SANDY SILT beds are mostly homogeneous and massive with SANDY SILT graded beds found within the SILTY CLAY which it overlies with an erosive contact. SANDY SILT layers are occasionally observed and are up to 5 cm thick.





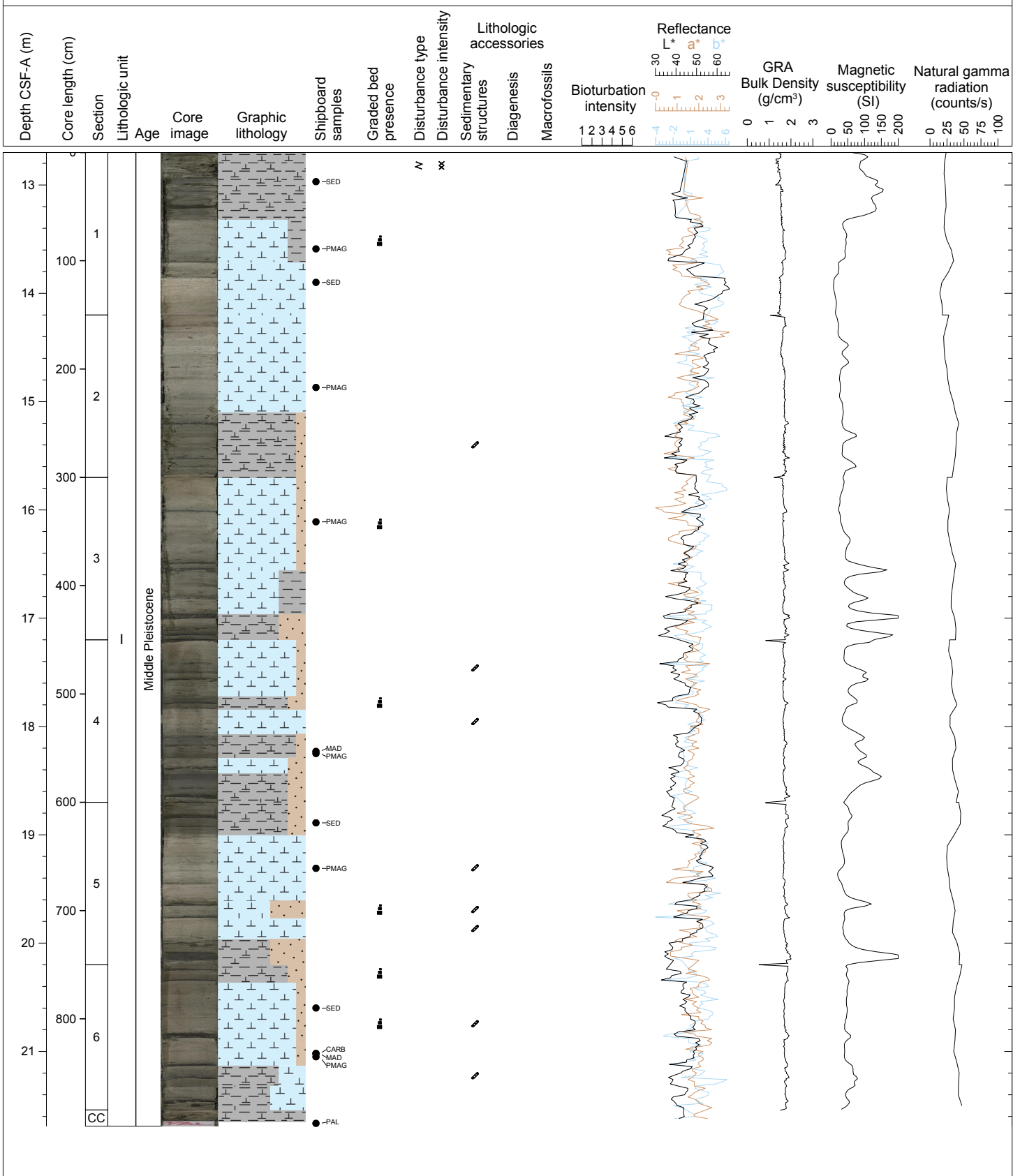
Hole 355-U1457B Core 2H, Interval 3.2-12.54 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAY, SILTY SAND, SANDY SILT, CLAYEY SILT, CLAYEY SILT WITH NANNOFOSSILS. Light greenish gray NANNOFOSSIL OOZE and light green NANNOFOSSIL-RICH CLAY are the dominant lithologies. NANNOFOSSIL OOZE dominates the lower half of the core, whereas NANNOFOSSIL-RICH CLAY dominates the upper half. Dark gray SILTY SAND and SANDY SILT are interbedded with NANNOFOSSIL OOZE and NANNOFOSSIL-RICH CLAY. The top boundaries of NANNOFOSSIL OOZE and NANNOFOSSIL-RICH CLAY beds are normally erosive and scoured where they are overlain by coarser grained material which is normally graded. Burrowing is found mostly in NANNOFOSSIL OOZE layers.



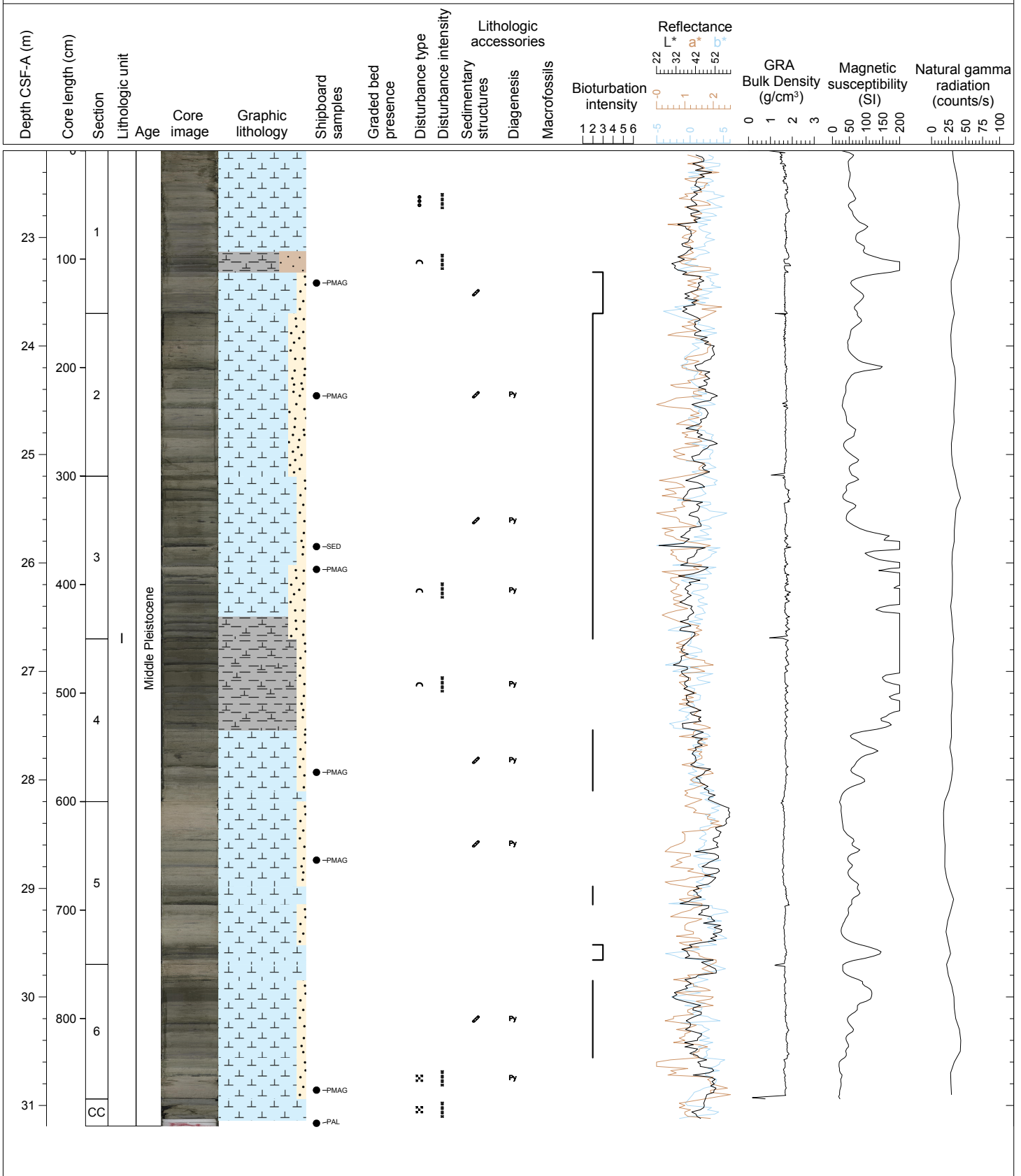
Hole 355-U1457B Core 3H, Interval 12.7-21.69 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL-RICH CLAY, SANDY SILT, SILTY SAND. Light gray NANNOFOSSIL OOZE and greenish gray NANNOFOSSIL-RICH CLAY are the major lithologies. Thin bedded (<10 cm) dark gray SANDY SILT or CLAYEY SILT is interbedded with NANNOFOSSIL OOZE or NANNOFOSSIL-RICH CLAY. Burrowing is widespread. The top boundary of NANNOFOSSIL OOZE or NANNOFOSSIL-RICH CLAY beds is sharply erosive or scoured where it is overlain by coarser grained sediments. Dark spots of pyrites are scattered in NANNOFOSSIL OOZE.



Hole 355-U1457B Core 4H, Interval 22.2-31.19 m (CSF-A)

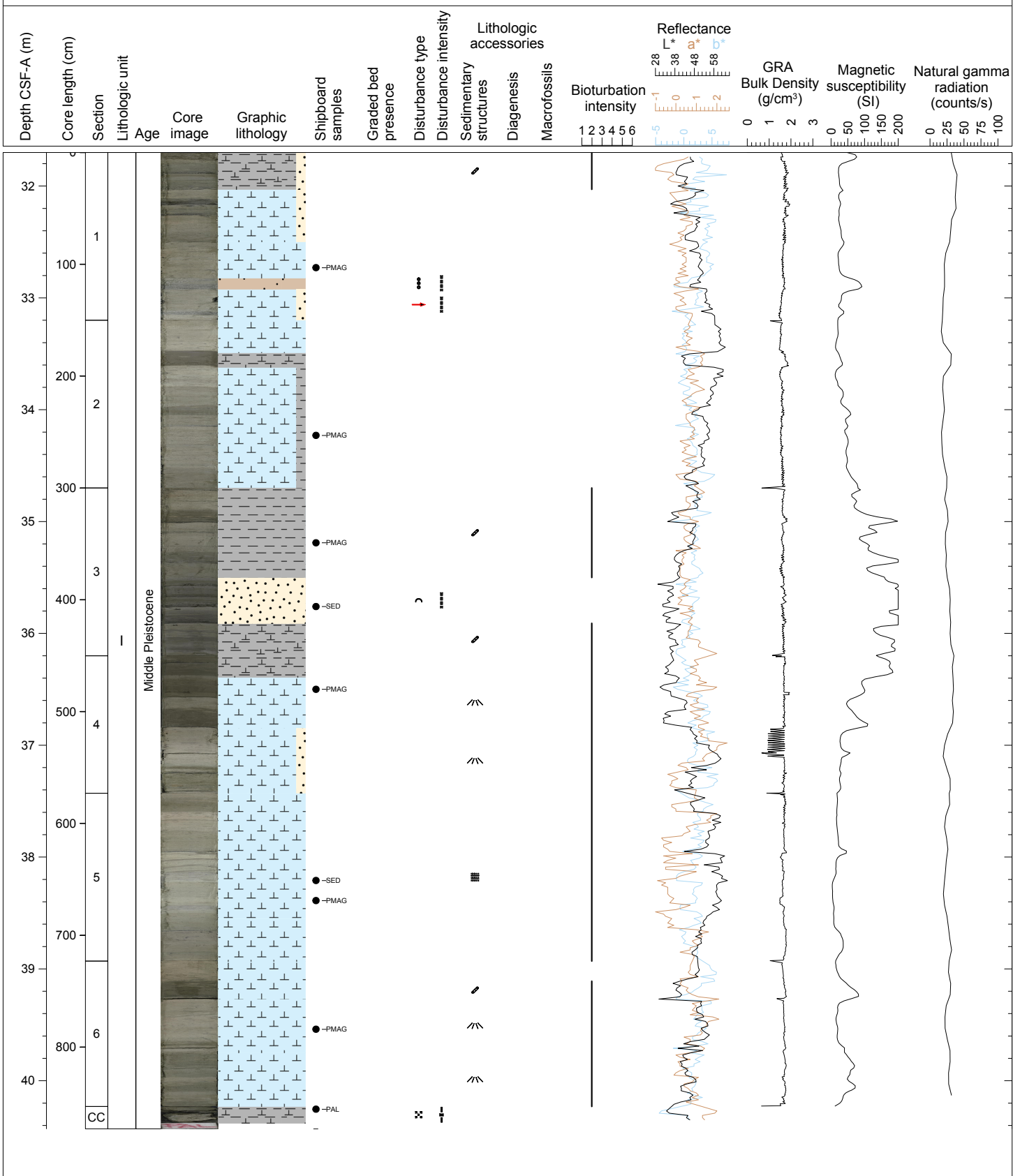
NANNOFOSSIL OOZE, NANNOFOSSIL OOZE WITH CLAY, NANNOFOSSIL-RICH CLAY. Light brownish-light white NANNOFOSSIL OOZE, light greenish brown NANNOFOSSIL OOZE WITH CLAY and light to dark gray NANNOFOSSIL-RICH CLAY are the major lithologies. The thin SILTY SAND are interbedded throughout the core, but are most common in the NANNOFOSSIL-RICH CLAY. The NANNOFOSSIL OOZE and NANNOFOSSIL OOZE WITH CLAY intervals are medium to thickly bedded, while NANNOFOSSIL-RICH CLAY is thinly to medium bedded. The SILTY SAND contains mica grains. Black diffuse pyrites patches are common. The burrowing is common in greenish NANNOFOSSIL OOZE WITH CLAY and is dominated by Chondrites and composite burrows.





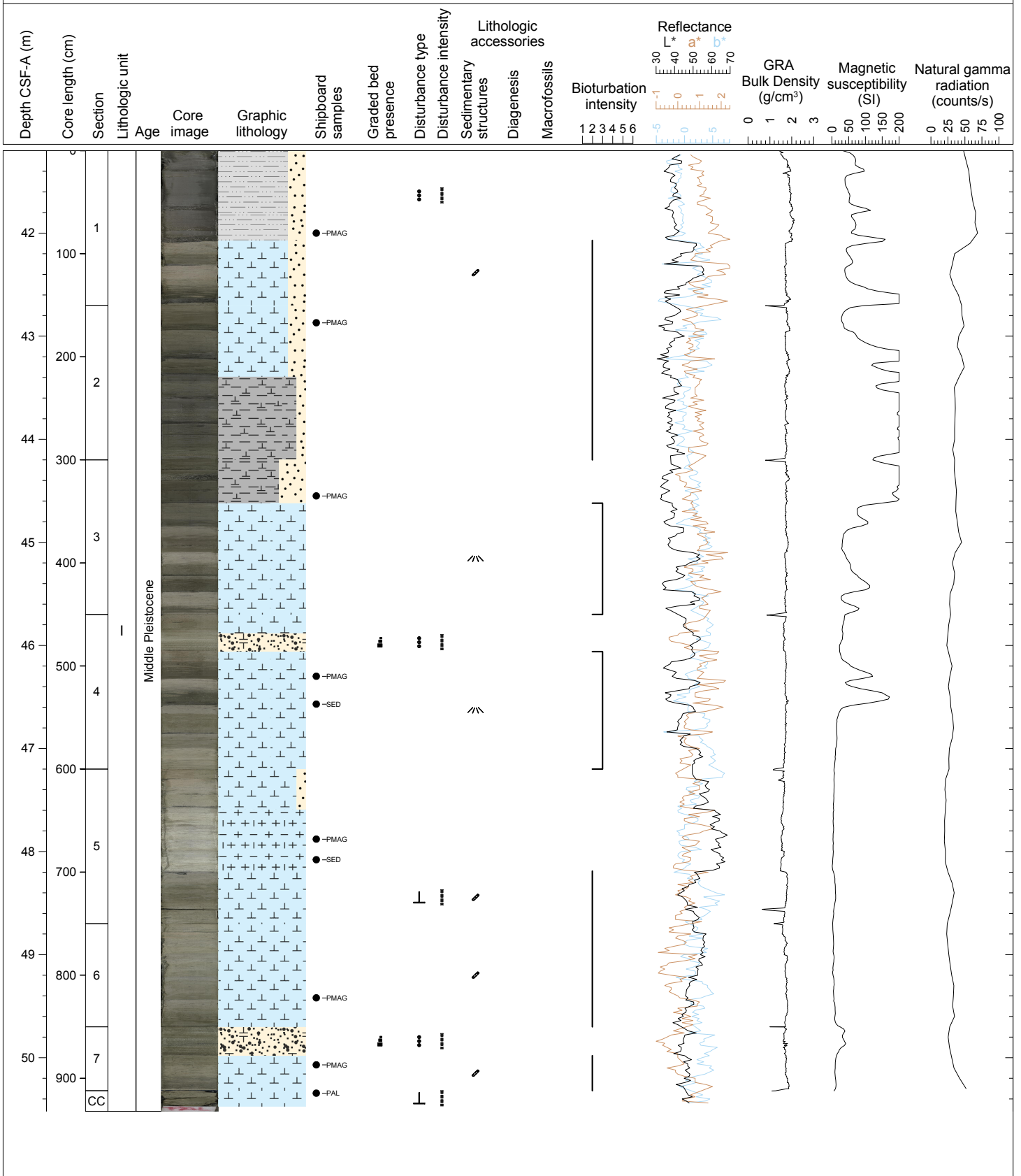
Hole 355-U1457B Core 5H, Interval 31.7-40.43 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL OOZE WITH CLAY, NANNOFOSSIL-RICH SILTY CLAY, SILTY SAND. Light brownish to light brownish white NANNOFOSSIL OOZE, light greenish NANNOFOSSIL OOZE WITH CLAY and gray NANNOFOSSIL-RICH SILTY CLAY are the dominant lithologies. Thin SILTY SAND is mostly interbedded with thin to medium bedded NANNOFOSSIL-RICH SILTY CLAY. Changes in color are mostly gradational and found within NANNOFOSSIL OOZE WITH CLAY. Bioturbation is often observed in light greenish to brownish NANNOFOSSIL OOZE WITH CLAY. Common burrows include Chondrites and composite burrows. Diffuse pyrite black patches are very common within brownish white NANNOFOSSIL OOZE beds.



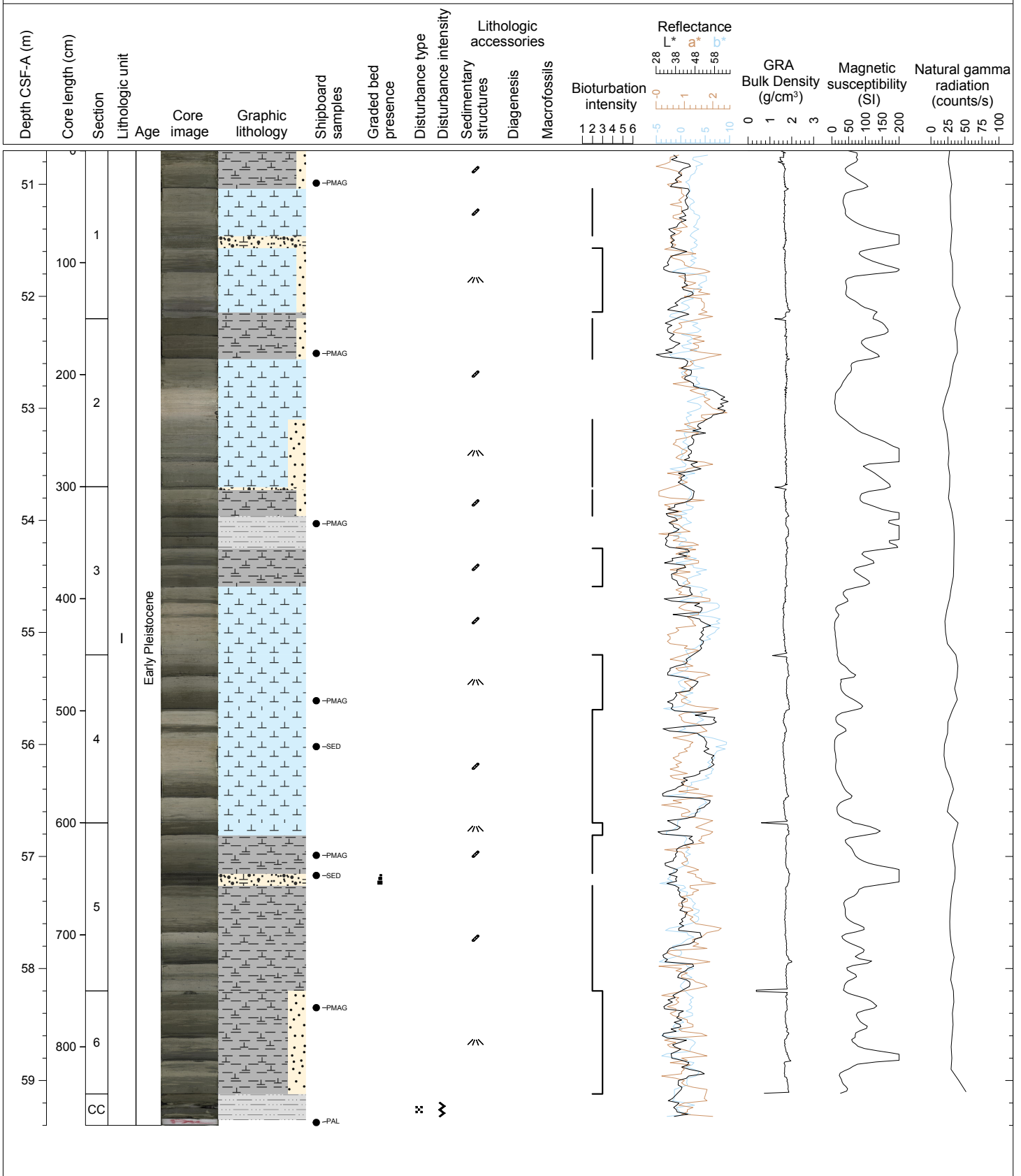
Hole 355-U1457B Core 6H, Interval 41.2-50.52 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL OOZE WITH CLAY, NANNOFOSSIL-RICH CLAY, CALCAREOUS OOZE, SILTY SAND. Gray colored SILTY CLAY and light brownish NANNOFOSSIL OOZE are interbedded with light greenish NANNOFOSSIL OOZE WITH CLAY and these are the dominant lithologies. Thin SILTY SAND beds are found interbedded within NANNOFOSSIL-RICH SILTY CLAY. The SILTY SAND bedding thickness increases towards the core bottom and is accompanied by a change in color from blackish to light white and greenish. The medium bedded NANNOFOSSIL OOZE and NANNOFOSSIL OOZE WITH CLAY are mostly found interbedded with one another. Medium bedded CALCAREOUS OOZE occur in Section 5. Bioturbation is mostly found in brownish to green NANNOFOSSIL OOZE WITH CLAY and is dominated by Chondrites and composite burrows. Diffuse black spots of pyrite are very common.



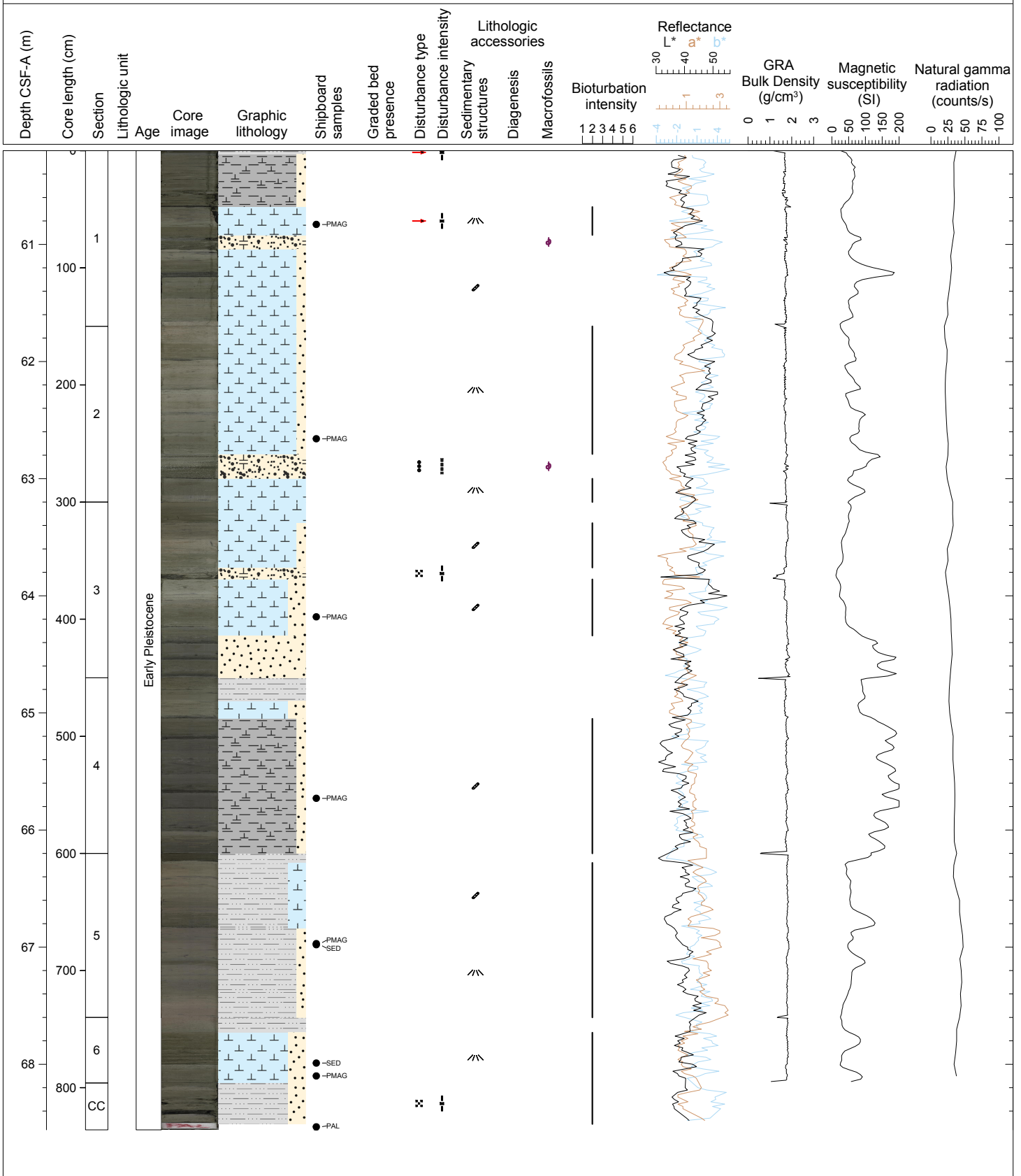
Hole 355-U1457B Core 7H, Interval 50.7-59.4 m (CSF-A)

NANNOFOSSIL OOZE, NANNOFOSSIL OOZE WITH CLAY, NANNOFOSSIL-RICH CLAY, SILTY CLAY, SILTY SAND. Light brownish to greenish white NANNOFOSSIL OOZE, greenish NANNOFOSSIL OOZE WITH CLAY and gray NANNOFOSSIL-RICH CLAY are the dominant lithologies. The NANNOFOSSIL OOZE is often found at the top of beds and grades down into light greenish NANNOFOSSIL OOZE WITH CLAY. The thin normally graded SILTY SAND layers often overlie NANNOFOSSIL-RICH CLAY and SILTY CLAY beds with an erosive contact. The SILTY SAND layer is occasionally up to 10 cm thick. Bioturbation is common within greenish-brownish NANNOFOSSIL OOZE WITH CLAY. Chondrites and composite burrows dominate the assemblage. Diffuse pyrite spots are very common within the brownish-light white NANNOFOSSIL OOZE.



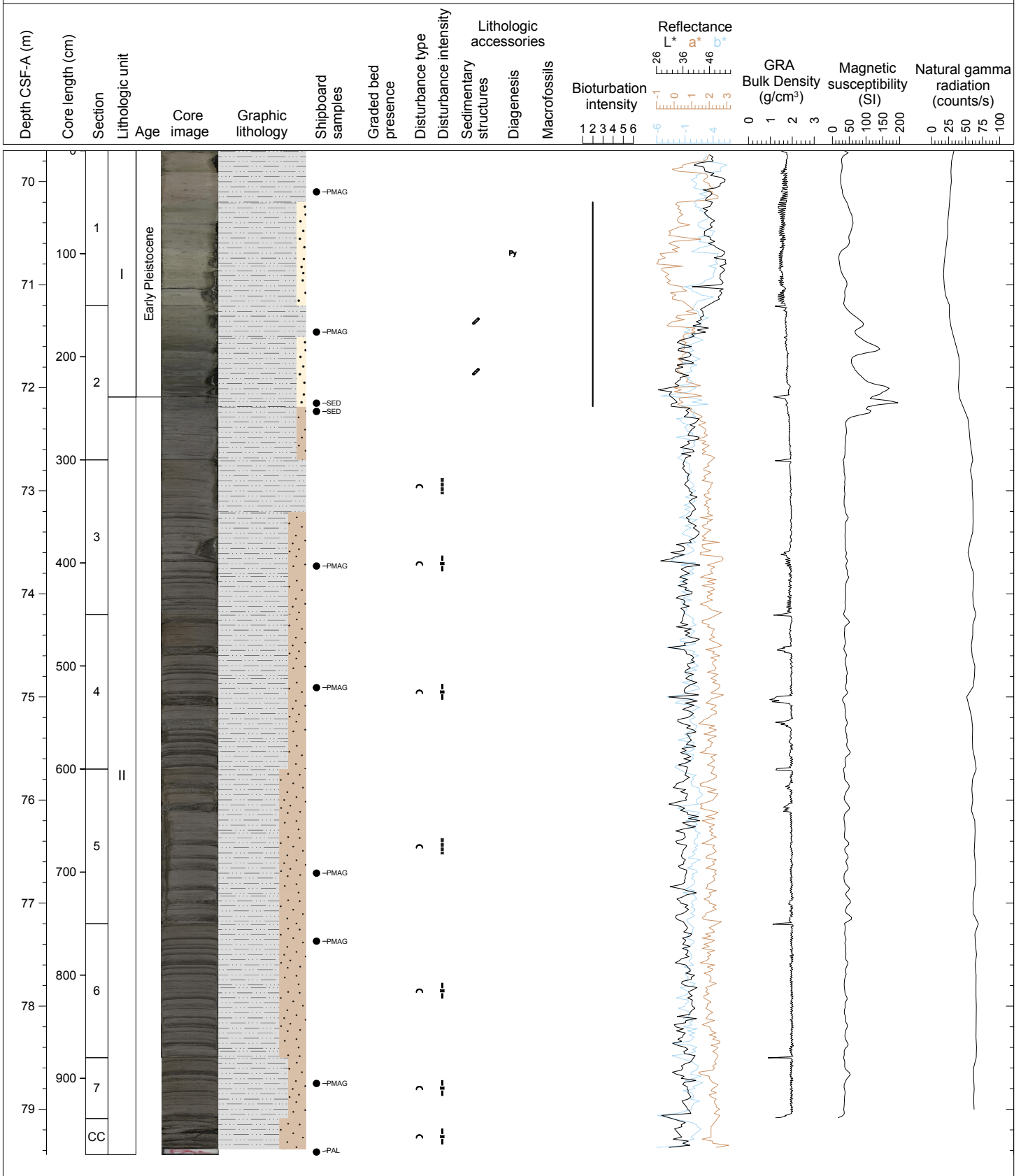
Hole 355-U1457B Core 8H, Interval 60.2-68.56 m (CSF-A)

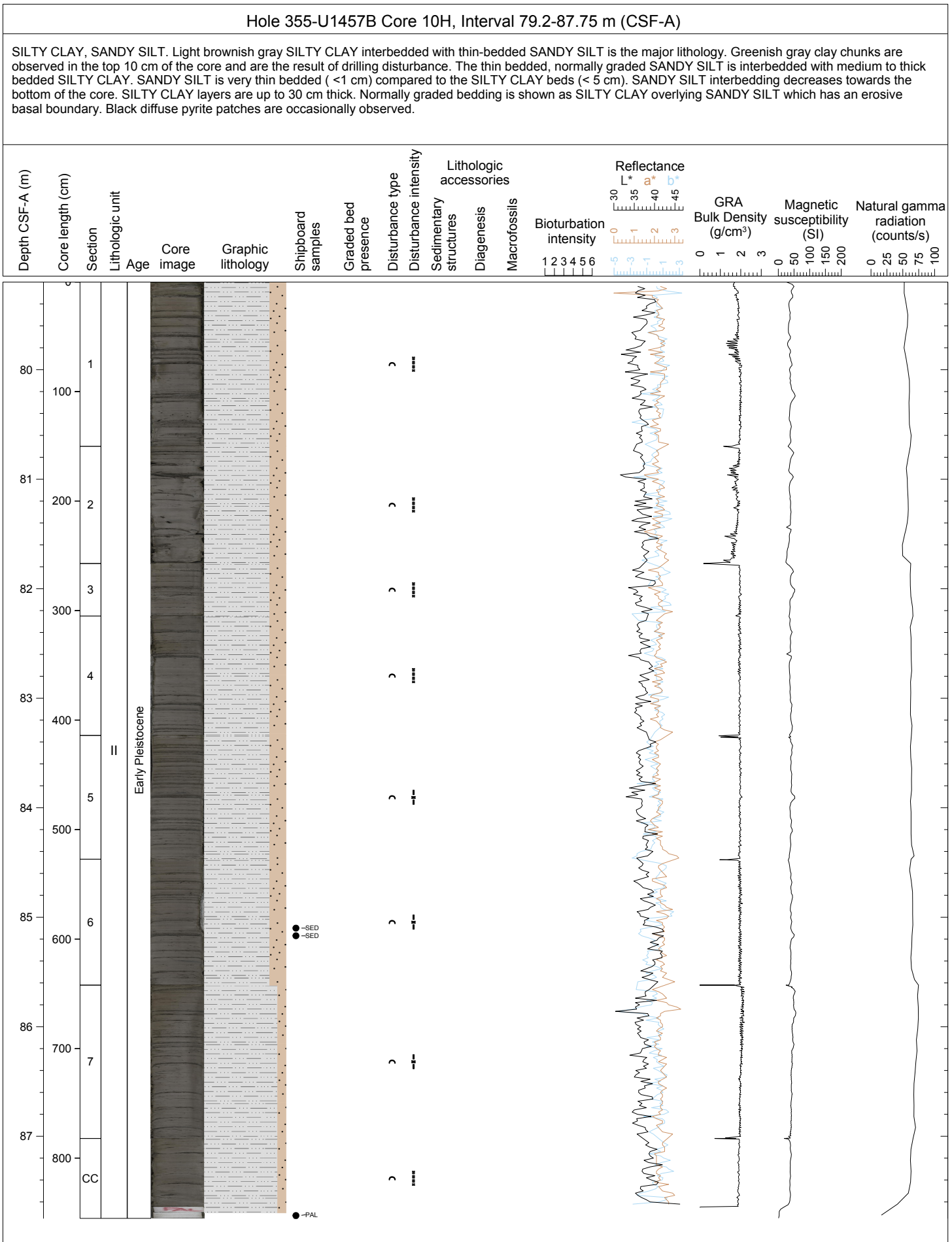
NANNOFOSSIL OOZE WITH CLAY, NANNOFOSSIL OOZE, SILTY CLAY, SILTY CLAY WITH NANNOFOSSILS, NANNOFOSSIL-RICH SILTY CLAY, SILTY SAND. Light gray NANNOFOSSIL-RICH SILTY CLAY, light brownish SILTY CLAY and light brownish to light white NANNOFOSSIL OOZE are the dominant lithologies. NANNOFOSSIL OOZE and NANNOFOSSIL OOZE WITH CLAY are often interbedded and show gradational transitions between the two. Blackish SILTY SAND beds are found as occasional, thin interbeds within the finer lithologies. Medium bedded SILTY SAND layers with shell fragments are observed interbedded in NANNOFOSSIL OOZE in Sections 2 and 3. The greenish NANNOFOSSIL OOZE WITH CLAY is mostly bioturbated with common Chondrites and composite burrows. Light brownish SILTY CLAY is rich in hematite and occurs within and below Section 5.



Hole 355-U1457B Core 9H, Interval 69.7-79.44 m (CSF-A)

SILTY CLAY, SILTY CLAY WITH NANNOFOSSILS, SANDY SILT. Light brownish gray SILTY CLAY and light brownish to light white SILTY CLAY WITH NANNOFOSSILS are the major lithologies. Thin layers of SANDY SILT are interbedded with comparatively thick (>5 cm) SILTY CLAY beds. The SILTY CLAY is occasionally thick-bedded and found in layers up to 20 cm thick. Black pyrite patches are common. The SILTY CLAY and SANDY SILT interbeds comprise as much as 80% of the core.

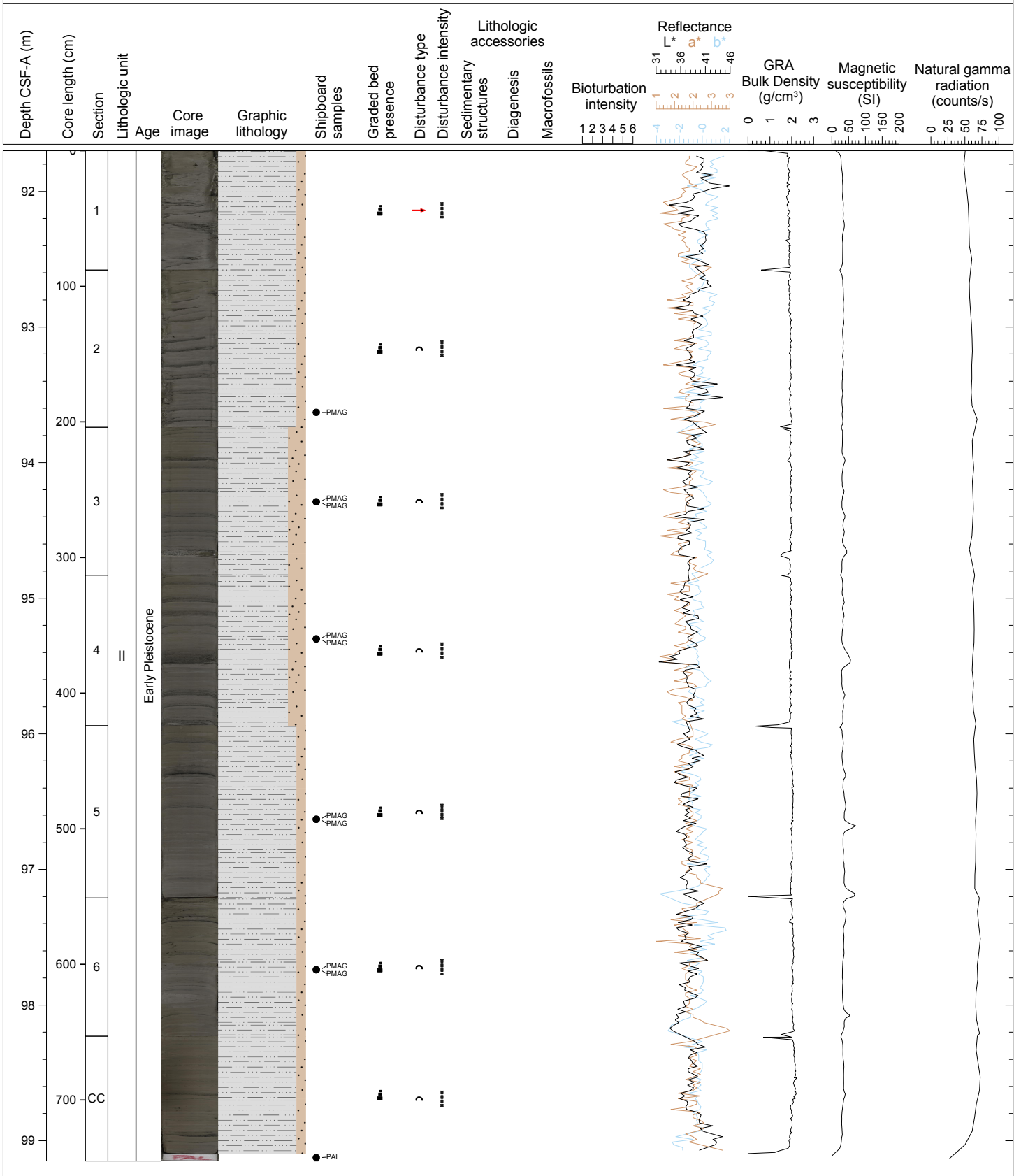






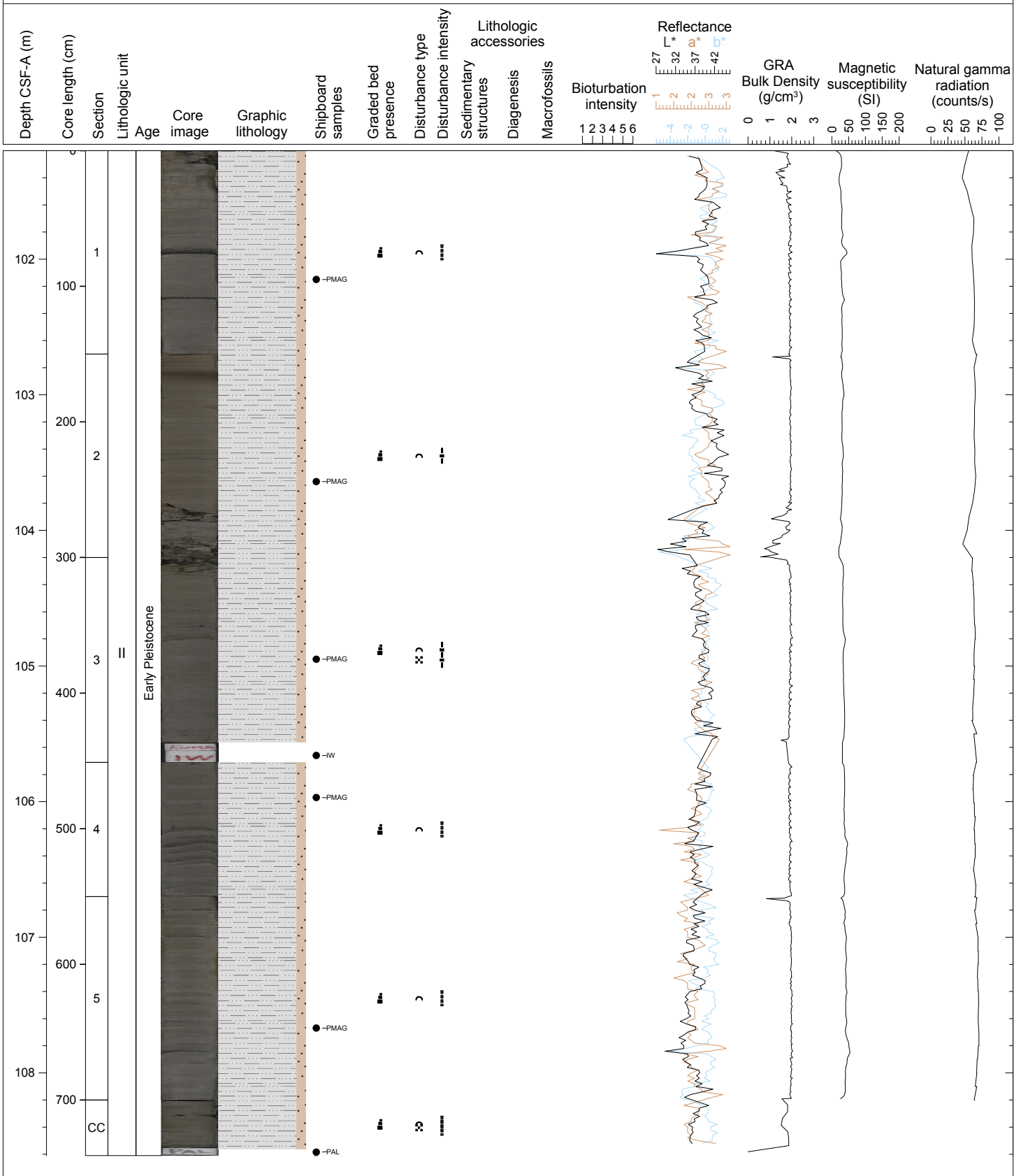
Hole 355-U1457B Core 12H, Interval 91.7-99.15 m (CSF-A)

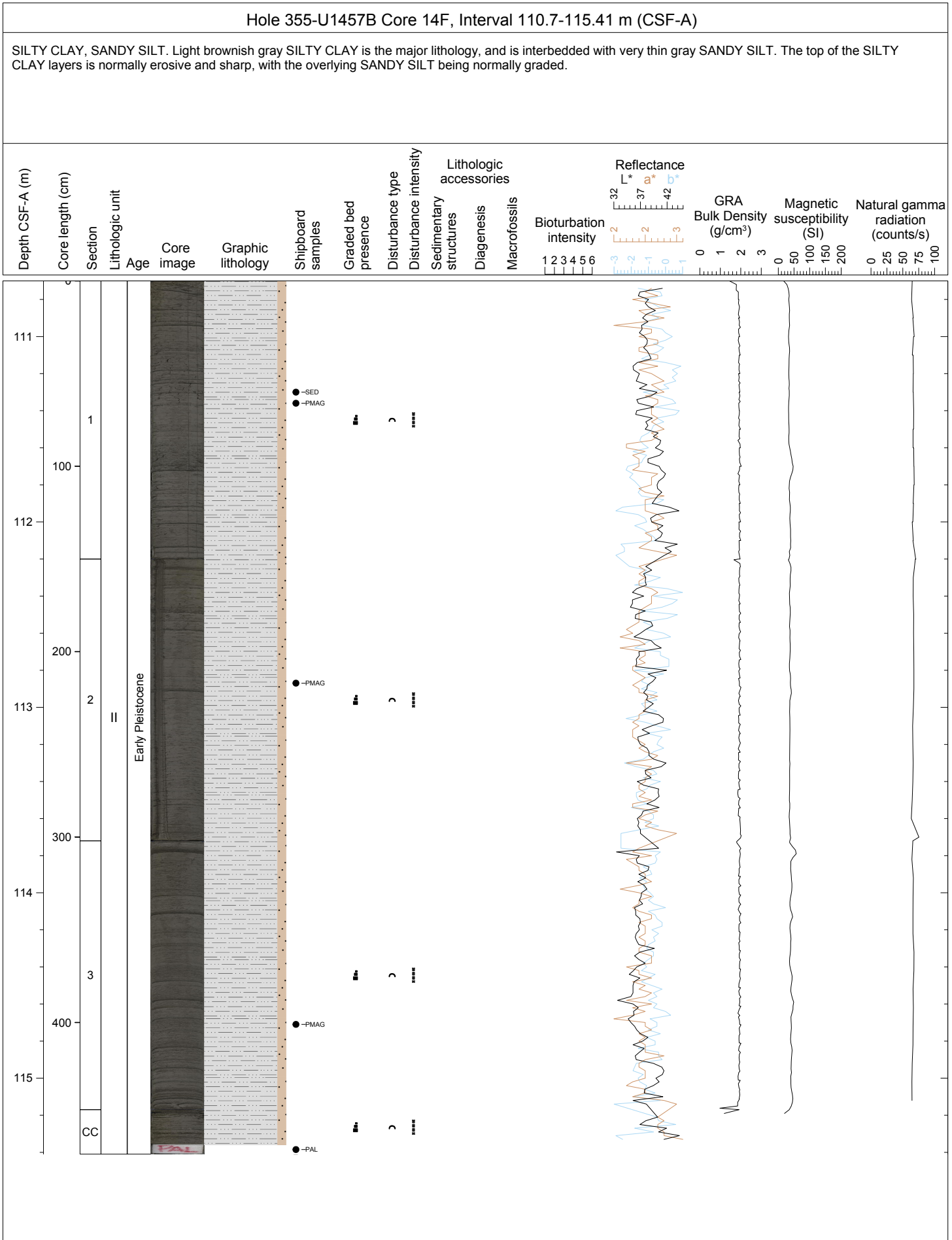
SILTY CLAY, SANDY SILT. Light brownish gray, medium to thick bedded SILTY CLAY interbedded with thin beds of SANDY SILT is the major lithology. The SANDY SILT beds are very thin (<1 cm) but occasionally up to 5 cm thick. The SILTY CLAY and SANDY SILT show graded bedding with SILTY CLAY at the top and SANDY SILT on the bottom. Black diffuse pyrite patches are occasionally observed.



Hole 355-U1457B Core 13H, Interval 101.2-108.61 m (CSF-A)

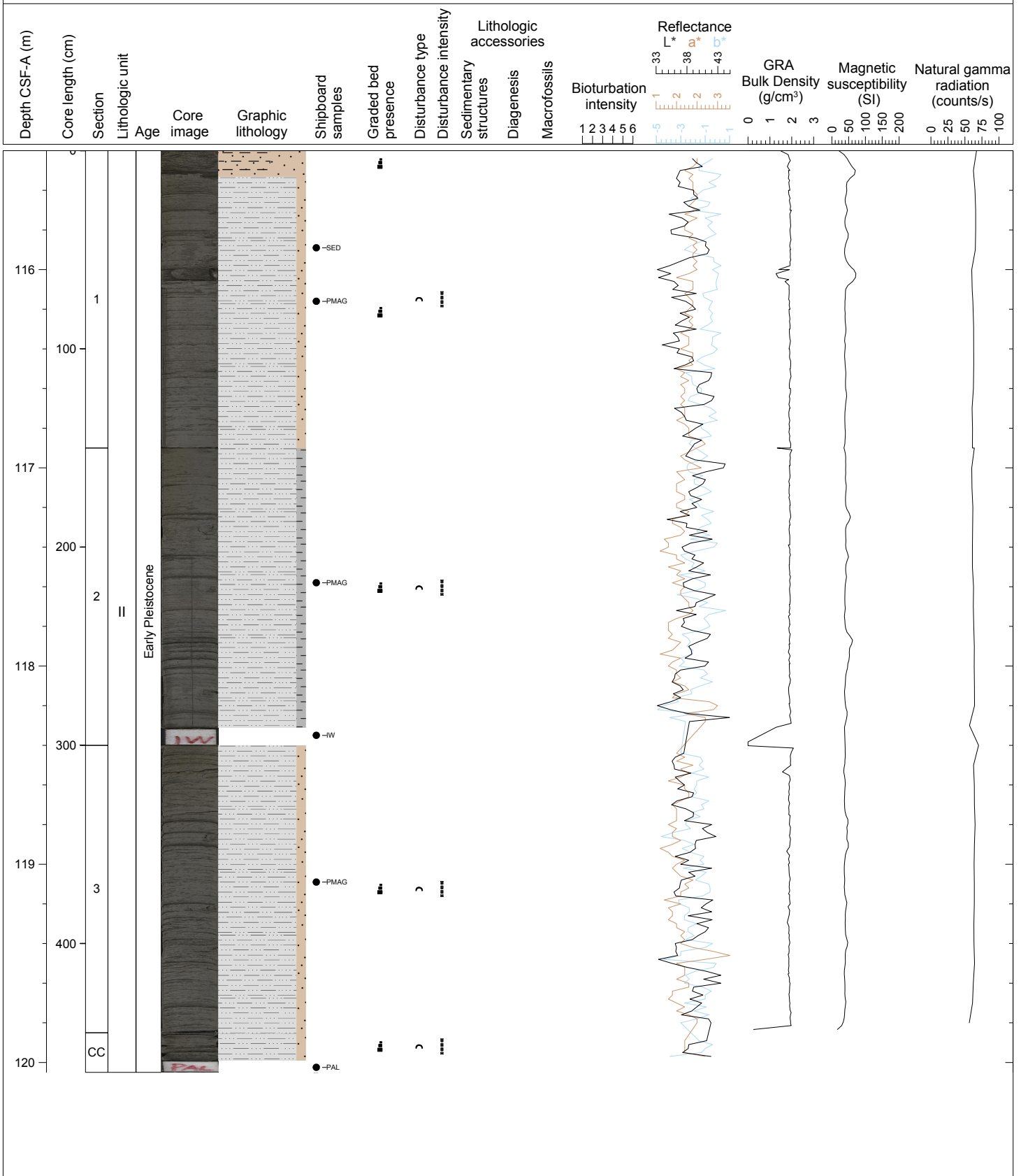
SILTY CLAY, SANDY SILT. Light brownish gray, medium to thickly bedded SILTY CLAY is the major lithology. Very thin to thin bedded SANDY SILT is typically found overlying SILTY CLAY intervals with sharp, erosive bases. The SANDY SILT interbeds are occasionally up to 5 cm thick, but comprise less than 10% of the core. The core is disturbed and shows void-type drilling induced disturbances. Black pyrite patches are often observed.





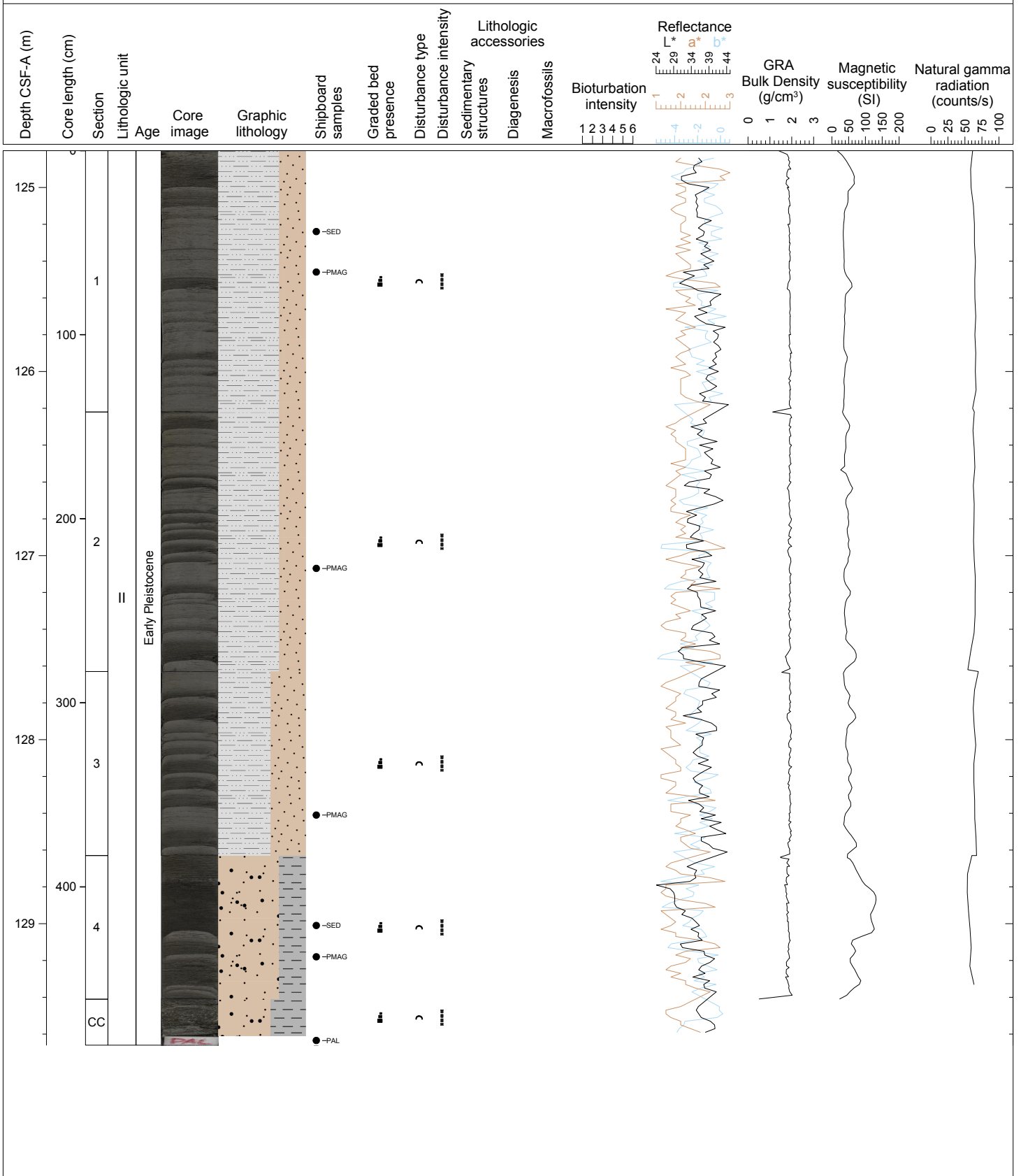
Hole 355-U1457B Core 15F, Interval 115.4-120.05 m (CSF-A)

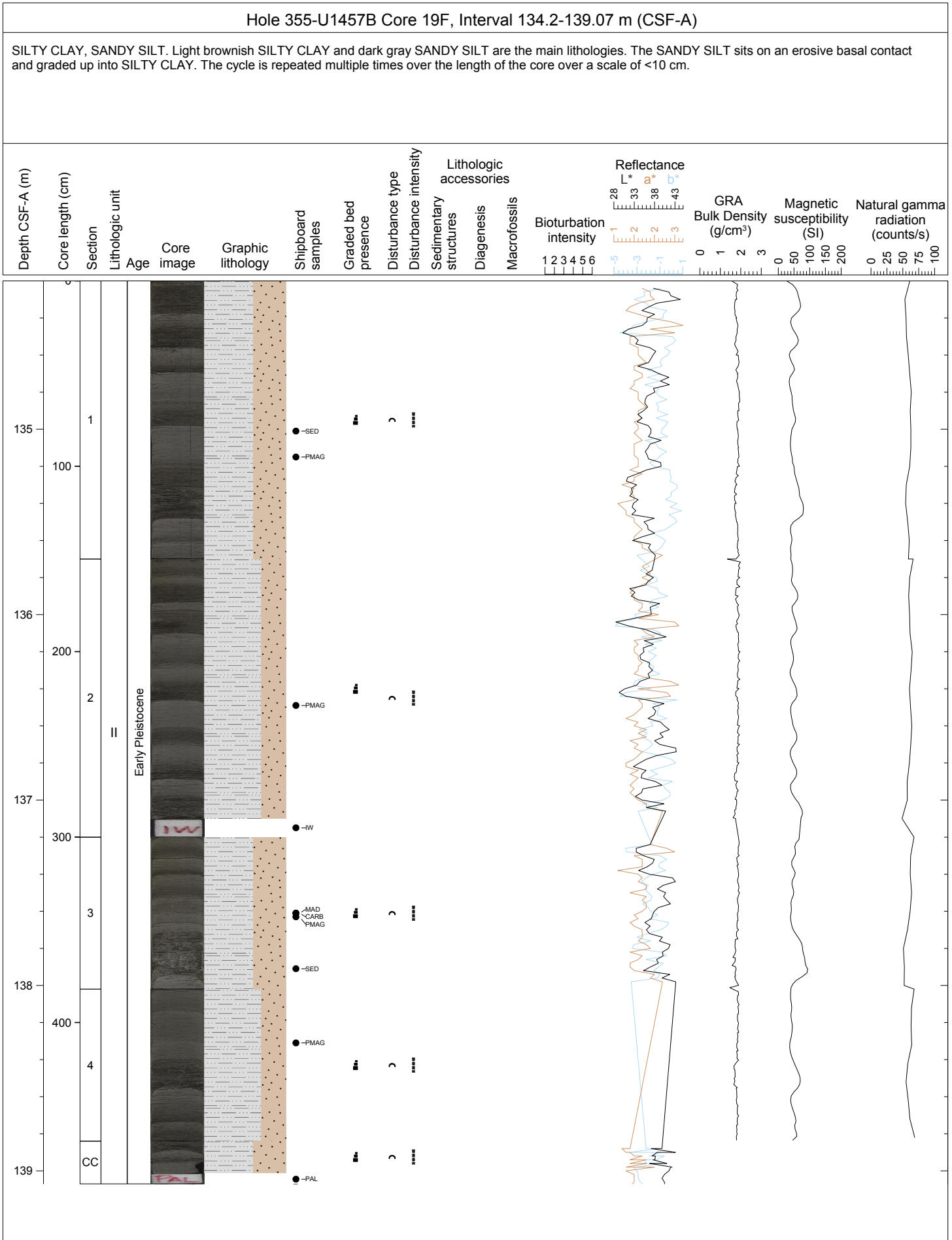
SILTY CLAY, SANDY SILT, CLAYEY SILT. Light brownish gray SILTY CLAY is the main lithology and is interbedded with thin-bedded SANDY SILT, which forms a set of beds at the top of the core. The top of SILTY CLAY shows an erosive boundary where it is overlain by coarser sediment.



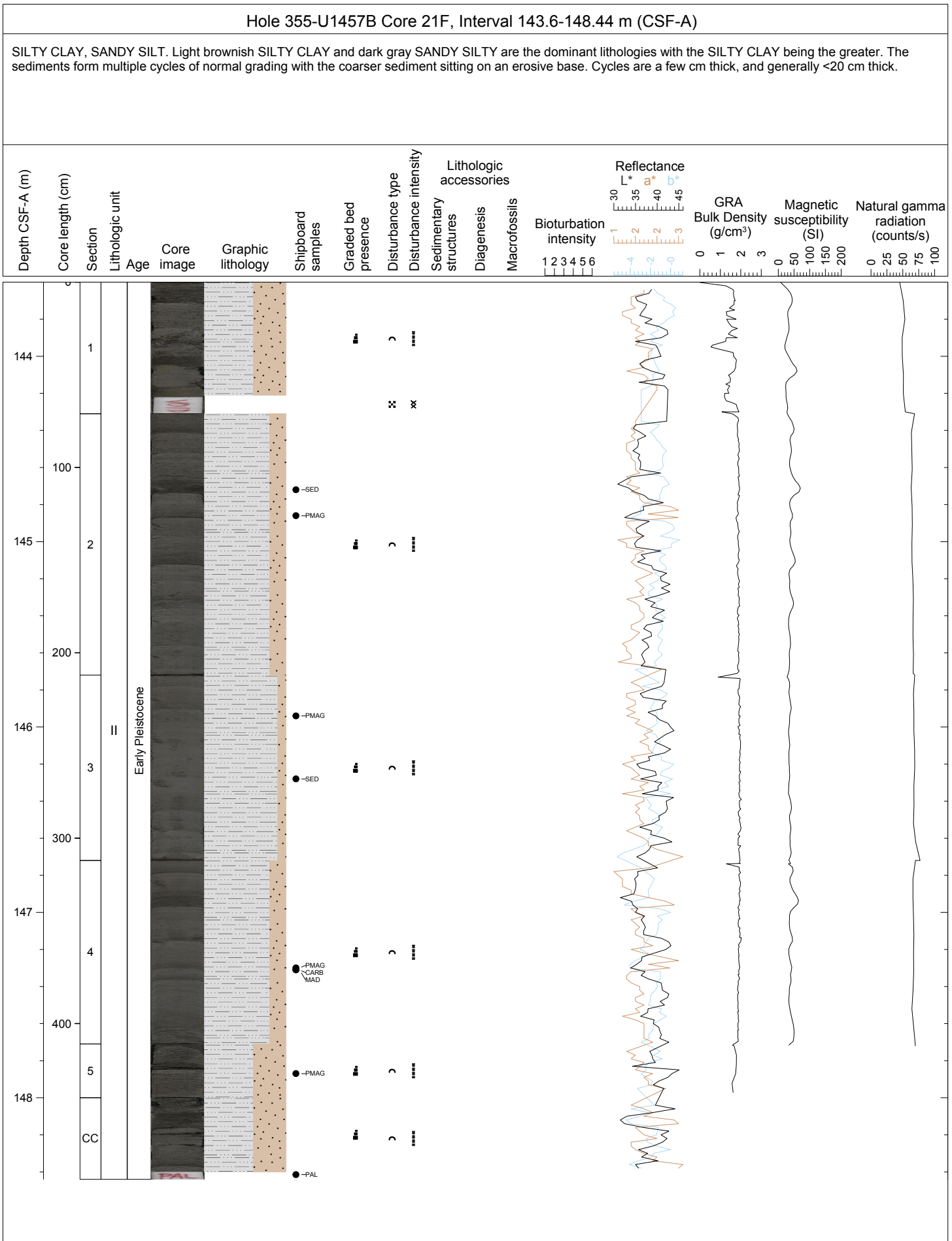
Hole 355-U1457B Core 17F, Interval 124.8-129.66 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish SILTY CLAY and dark gray SANDY SILT are dominant lithologies. In general, these two lithologies are coupled, SILTY CLAY at the top and SANDY SILT at the bottom. Top boundary is usually erosive. Thickness is normally larger in the top layer, but sometimes the lower layer is thicker. Slight uparching is found.



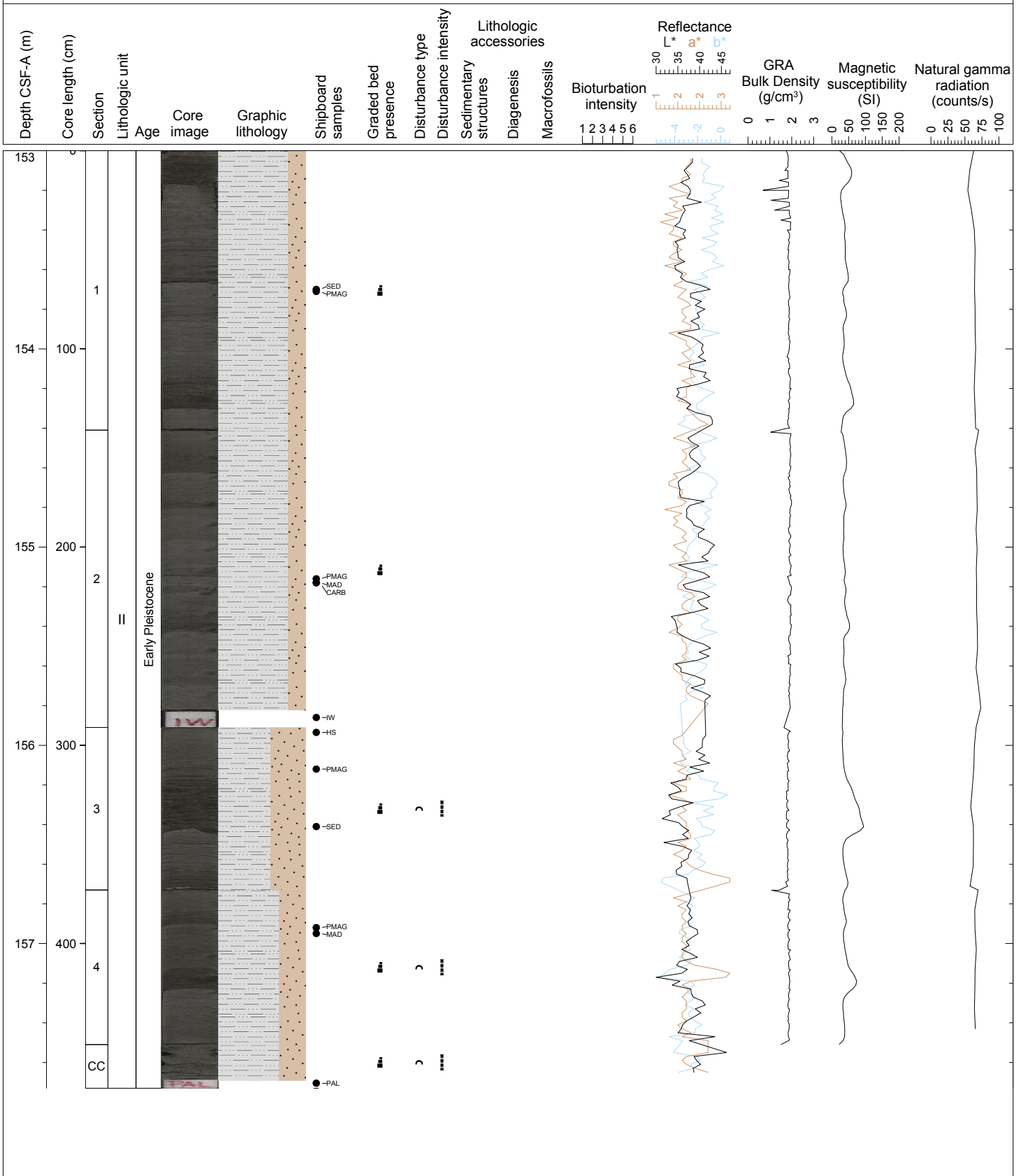






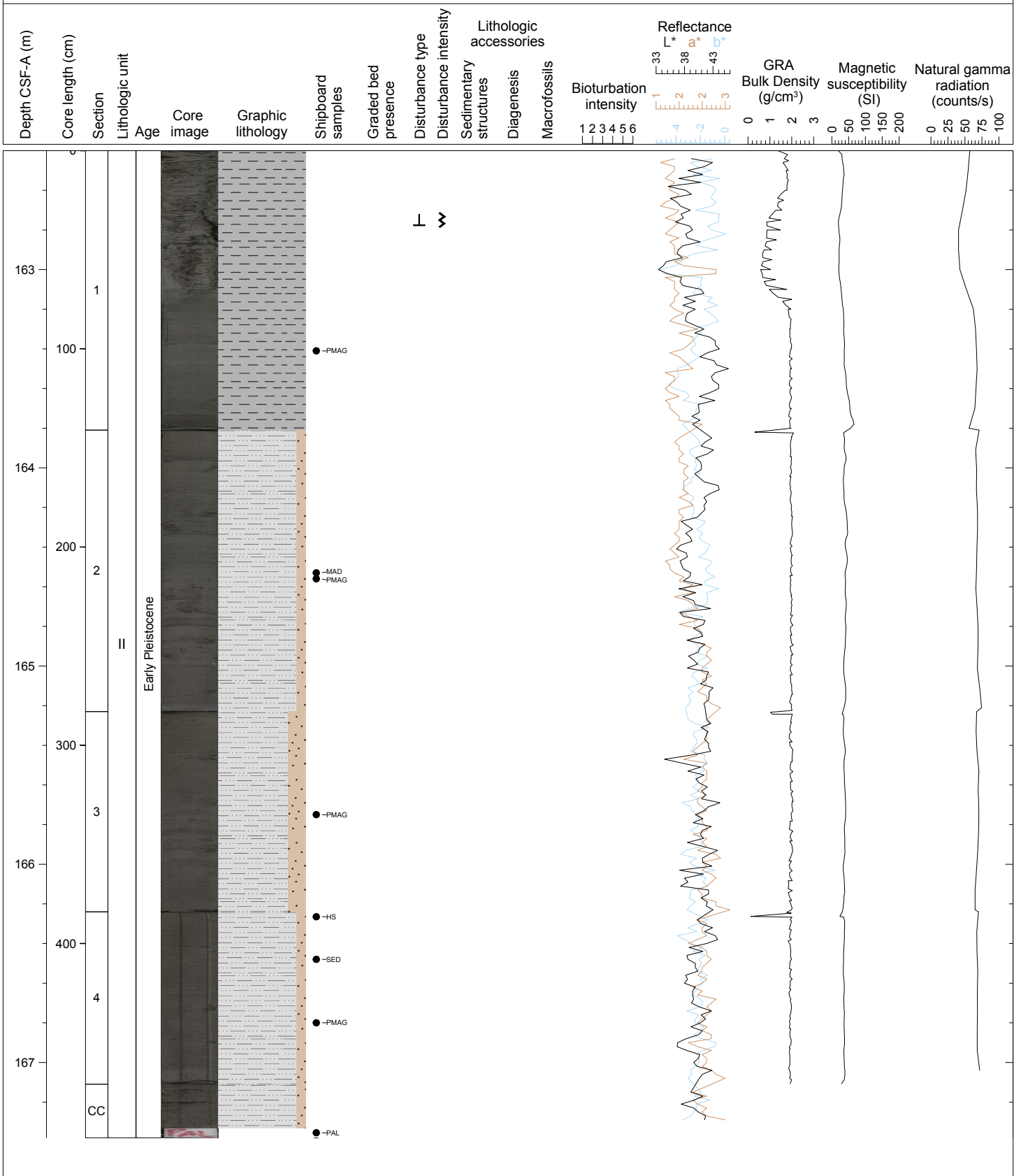
Hole 355-U1457B Core 23F, Interval 153.0-157.73 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish SILTY CLAY and dark gray SANDY SILT are the major lithologies. SANDY SILT shows normal grading up into SILTY CLAY, which in turn is sharply overlain across an erosive contact with the next SANDY SILT. Sediment is otherwise massive and is stacked in cycles <50 cm thick.



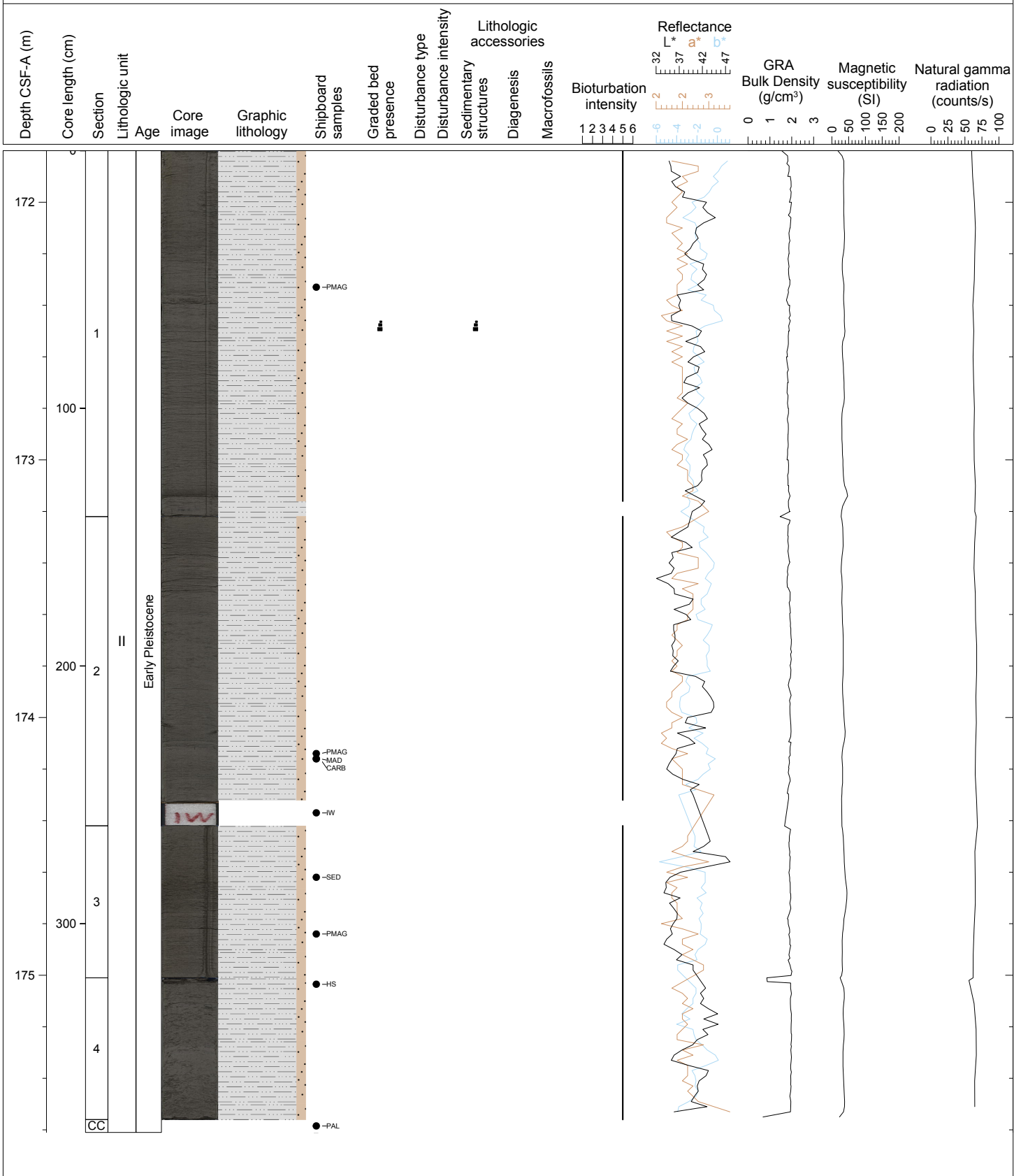
Hole 355-U1457B Core 25F, Interval 162.4-167.38 m (CSF-A)

CLAY, SILTY CLAY, SANDY SILT. Dark gray and brownish CLAY and dark gray SILTY CLAY are dominant. Color changes in the middle of Section 1, separating an upper and lower CLAY, which are otherwise massive. Below this the core is dominated by SILTY CLAY with thin graded interbeds of SANDY SILT which is volumetrically very minor. The silty sediment sits on sharp basal boundaries, although these are not clearly erosive.



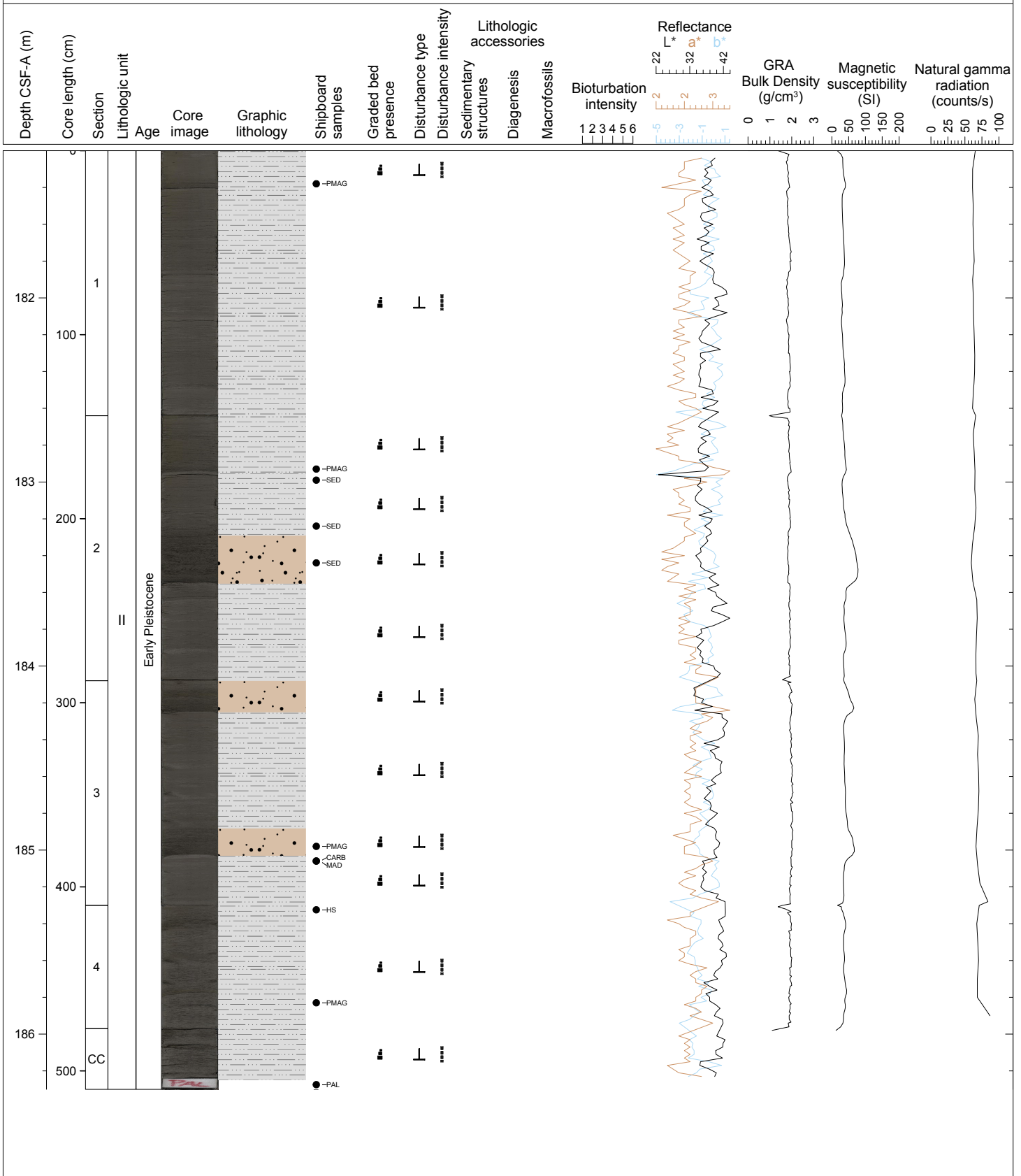
Hole 355-U1457B Core 27F, Interval 171.8-175.61 m (CSF-A)

SILTY CLAY, SANDY SILT. Brownish SILTY CLAY is the main lithology. Dark gray SANDY SILT is minor and is present as occasional sharp-based, graded beds within the massive SILTY CLAY background. The SILTY CLAY is massive, but mottled by strong bioturbation.



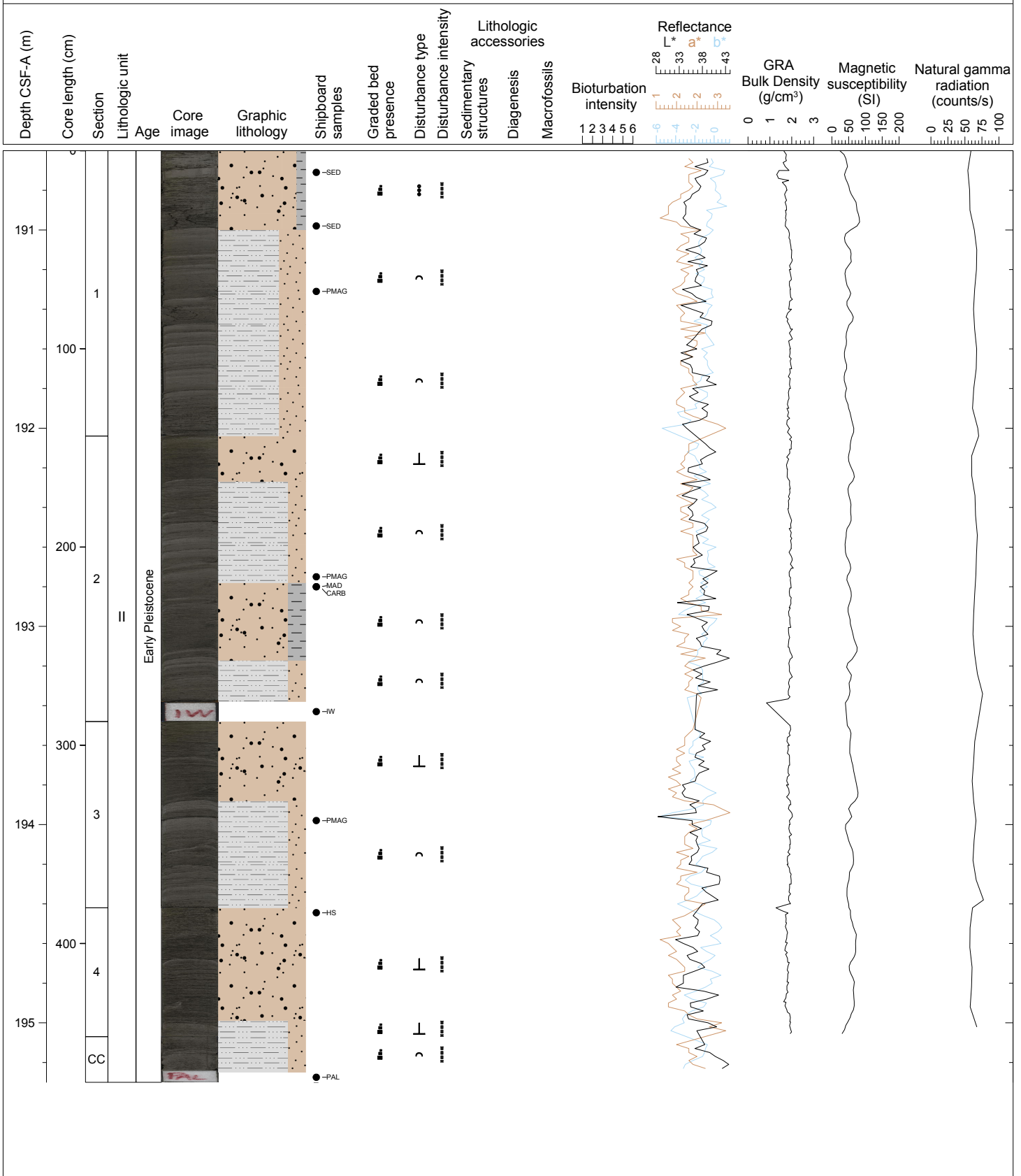
Hole 355-U1457B Core 29F, Interval 181.2-186.3 m (CSF-A)

SILTY CLAY, SANDY SILT. Light brownish SILTY CLAY and SANDY SILT are the major lithologies. The massive SILTY CLAY overlies medium-bedded SANDY SILT, and shows normal graded bedding. The SANDY SILT beds have erosive contacts with the underlying SILTY CLAY, whereas SILTY CLAY shows gradational transitions with the underlying SANDY SILT. The SANDY SILT comprises <10 % of the core. The SILTY CLAY is massive and mottled indicating bioturbation.



Hole 355-U1457B Core 31F, Interval 190.6-195.3 m (CSF-A)

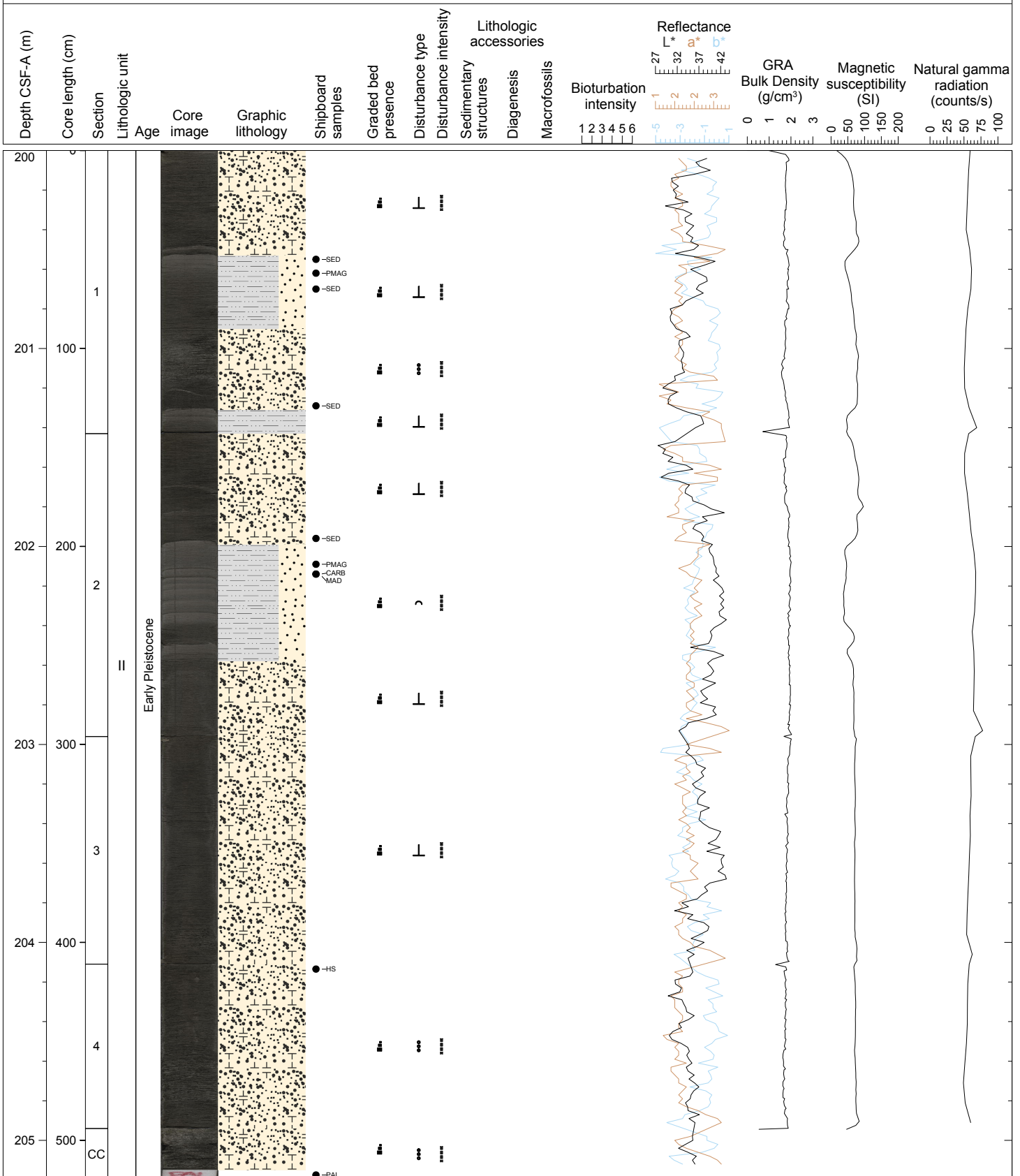
SILTY CLAY, SANDY SILT. Light brownish SILTY CLAY and SANDY SILT are the major lithologies. The medium to thick SANDY SILT shows erosive contact with underlying SILTY CLAY and in turn grades up into more massive SILTY CLAY. The SILTY CLAY is mostly as in thin beds within thin bedded layers of SANDY SILT. The SANDY SILT comprises ca. 70 % of the core.





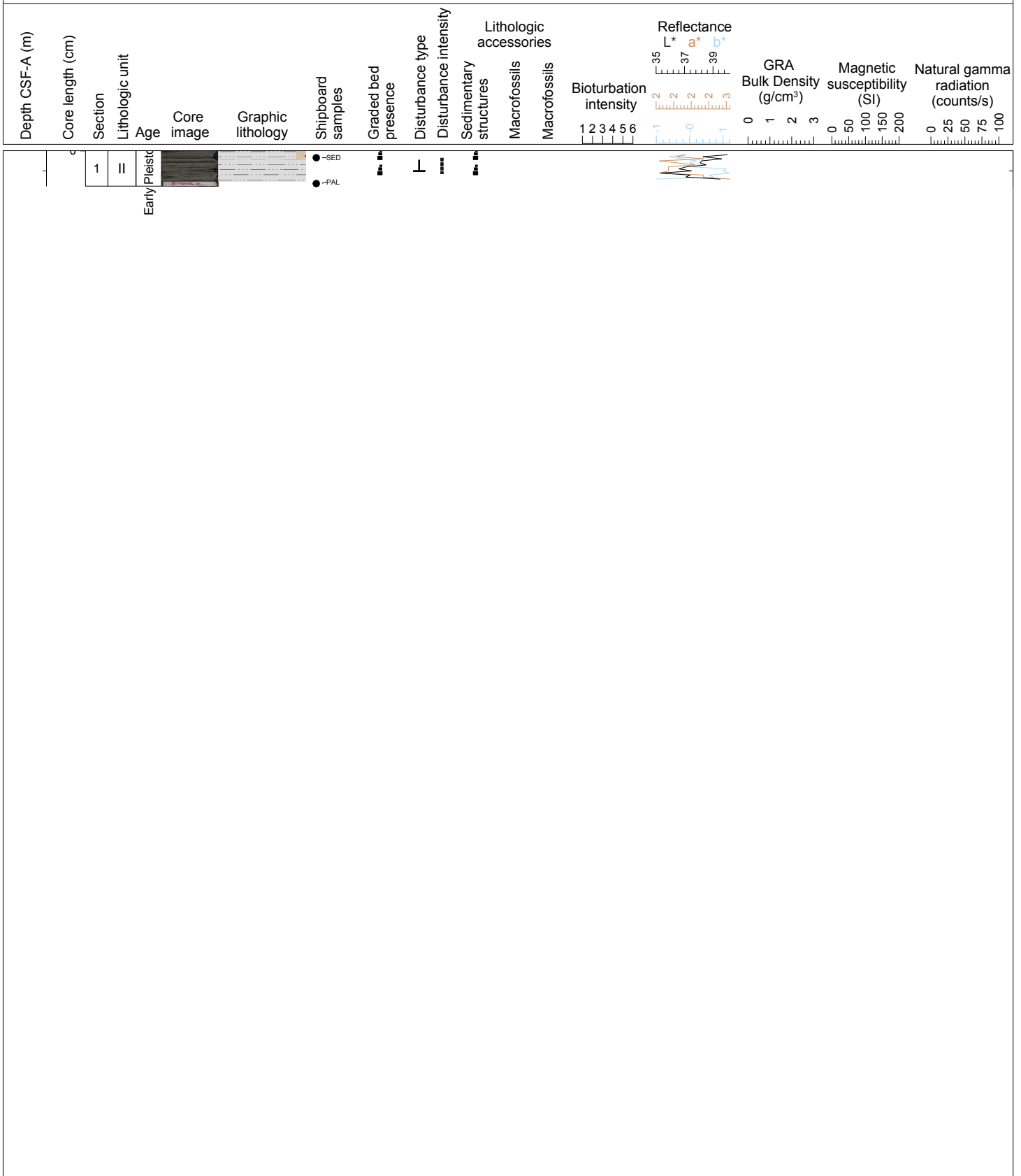
Hole 355-U1457B Core 33F, Interval 200.0-205.2 m (CSF-A)

SILTY CLAY, SILTY SAND. Light brownish gray SILTY SAND is the major lithology. The thin bedded SILTY CLAY is interbedded with thin-bedded SILTY SAND. The SILTY CLAY and SILTY SAND shows normally graded cycles. The massive SILTY SAND has an erosive contact with underlying SILTY CLAY and in turn grades up into the SILTY CLAY. SILTY SANDY comprises <90 % of the core.



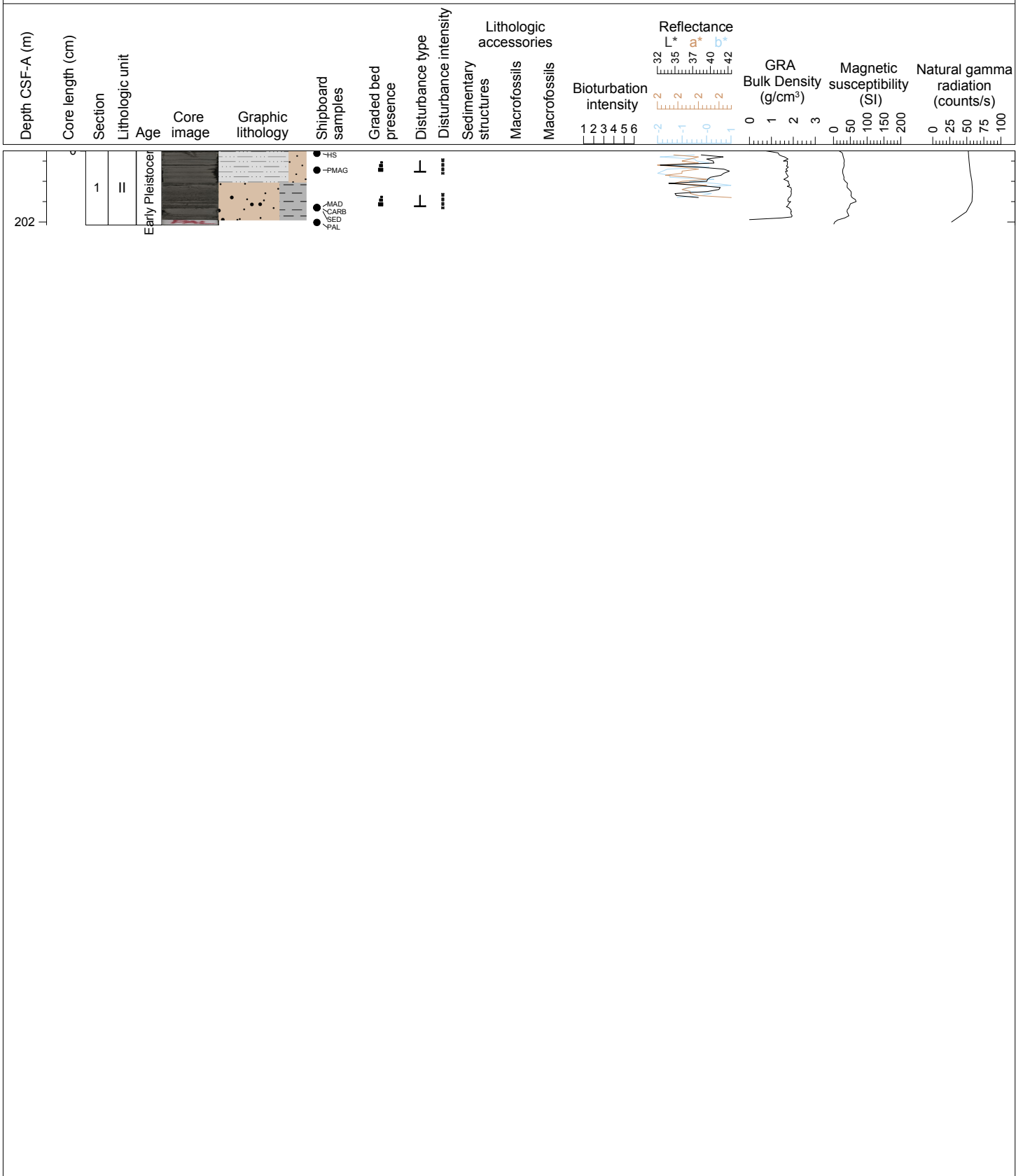
Hole 355-U1457C Core 2R, Interval 191.6-191.95 m (CSF-A)

SILTY CLAY, CLAYEY SILT. Dark gray massive SILTY CLAY dominates but forms a series of normally graded cycles with the minor CLAYEY SILT that have sharp bases and are as much as 3 cm thick.



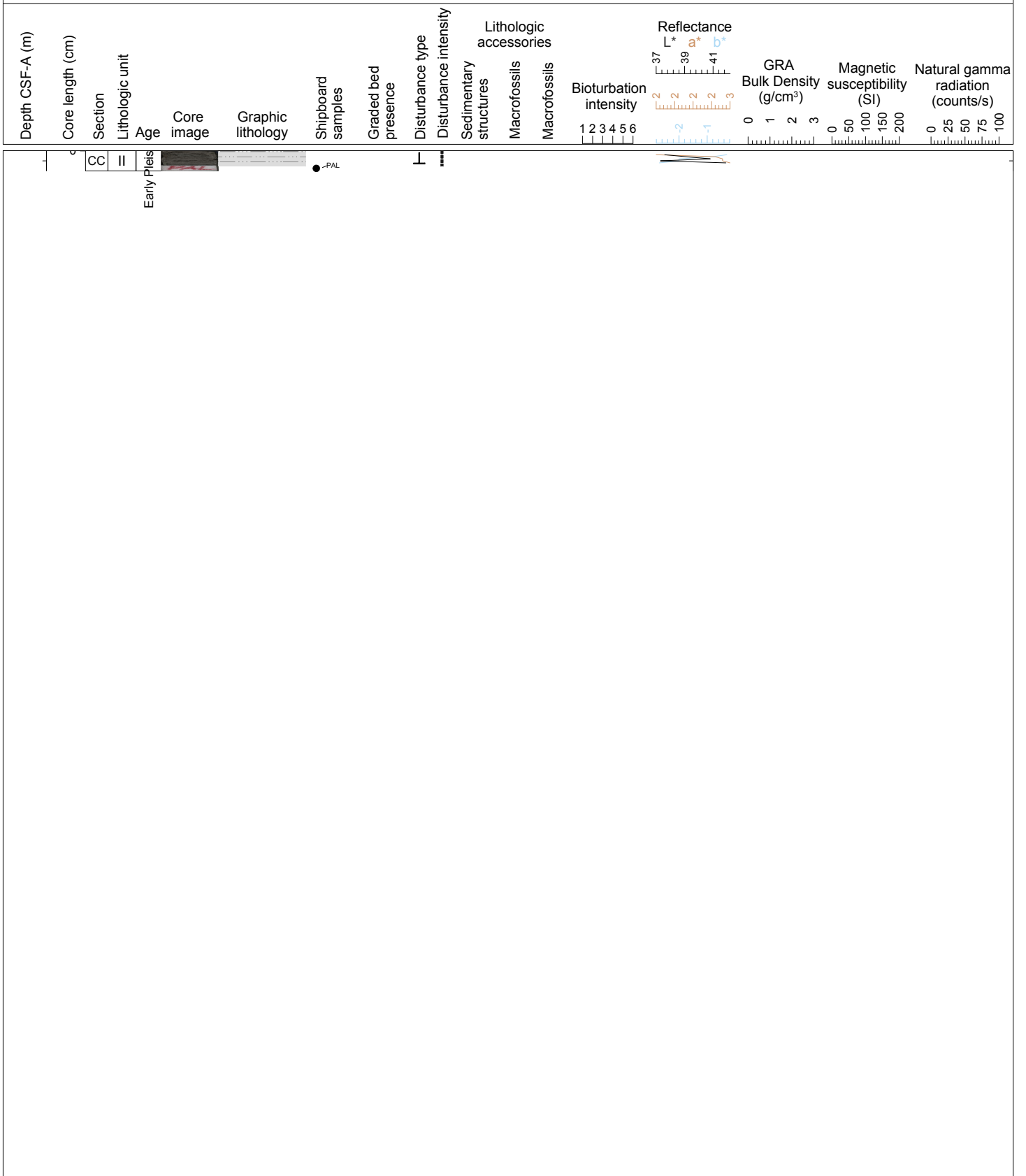
Hole 355-U1457C Core 3R, Interval 201.3-202.03 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark to brownish gray SILTY CLAY and SANDY SILT dominate the core. The SILTY CLAY and SANDY SILT are interbedded and observed as cycles of normally graded beds. SANDY SILT is found with an erosive contact boundary with the underlying SILTY CLAY, and grades up in massive SILTY CLAY.



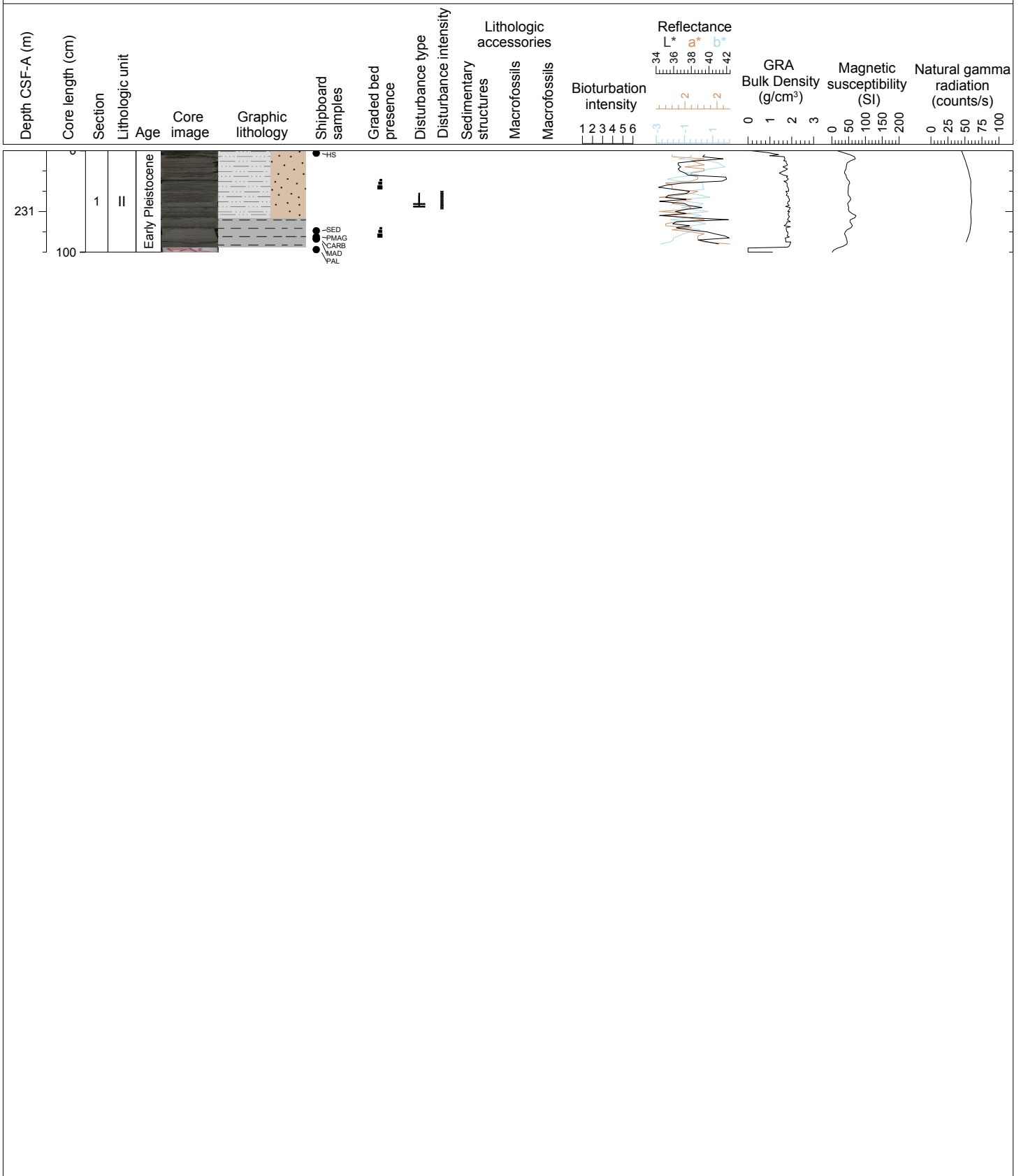
Hole 355-U1457C Core 5R, Interval 220.7-220.9 m (CSF-A)

SILTY CLAY, SANDY SILT. This short core is generally massive but observed to be mottled locally, where drilling disturbance is less intense. Mica grains are seen on the cut core face.



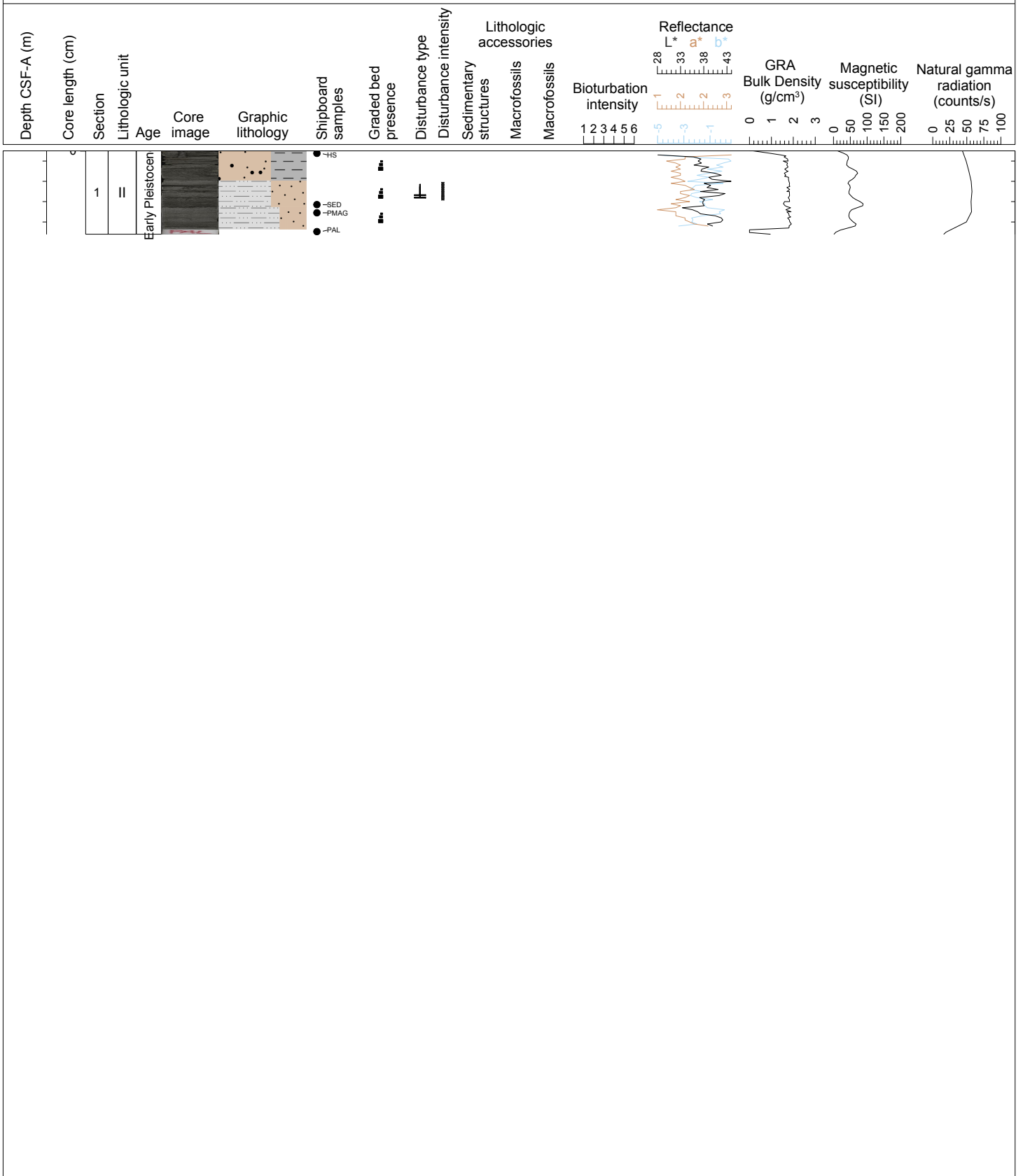
Hole 355-U1457C Core 6R, Interval 230.4-231.4 m (CSF-A)

SILTY CLAY, CLAY, SANDY SILT. Massive dark gray CLAY at the base of the core is overlain by SANDY SILT which has a sharp erosive basal contact and which fines up into SILTY CLAY. Several of these normally graded cycles are found and range in thickness from 5 to ca. 20 cm thick. In places thin (ca. 1 cm thick) graded SANDY SILT beds are found stacked on top of one another. Clay-rich units are mottled or massive, indicative of strong bioturbation.



Hole 355-U1457C Core 7R, Interval 240.1-240.92 m (CSF-A)

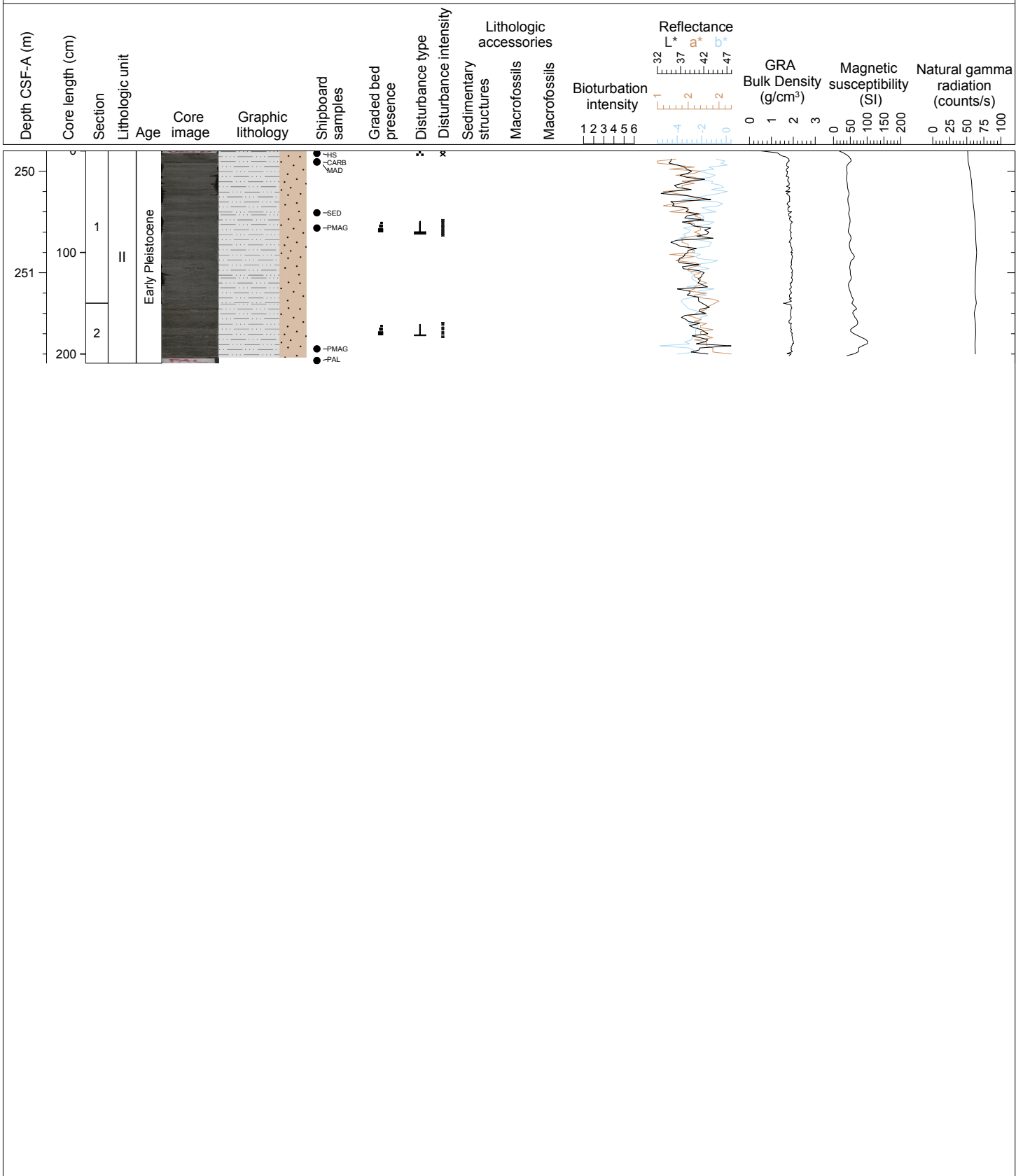
SILTY CLAY, SANDY SILT. The core is dominated by fining-upward cycles. SANDY SILT fines up into massive dark gray SILTY CLAY. Each cycle has a sharp, erosive base and range up to 22 cm thick. Towards the core top the cycles become thinner and are only 2-3 cm thick near the top. SILTY CLAY dominates and is strongly bioturbated.





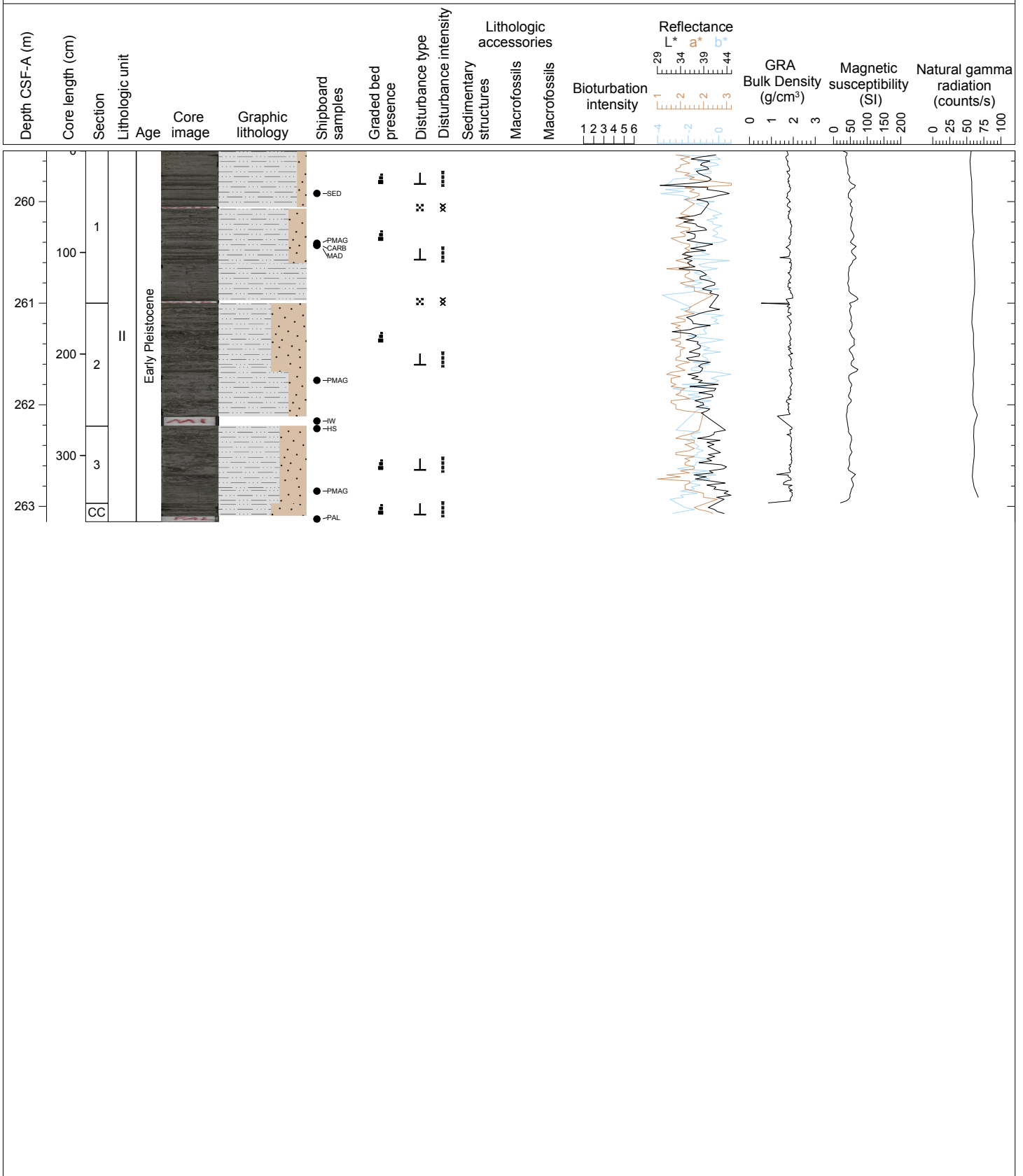
Hole 355-U1457C Core 8R, Interval 249.8-251.89 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark gray SILTY CLAY dominates this core and is generally found in massive, thick beds with rare interbeds of SANDY SILT that are a few cm thick. These show gradational boundaries with the background lithology above and below. Massive structure suggests pervasive bioturbation.



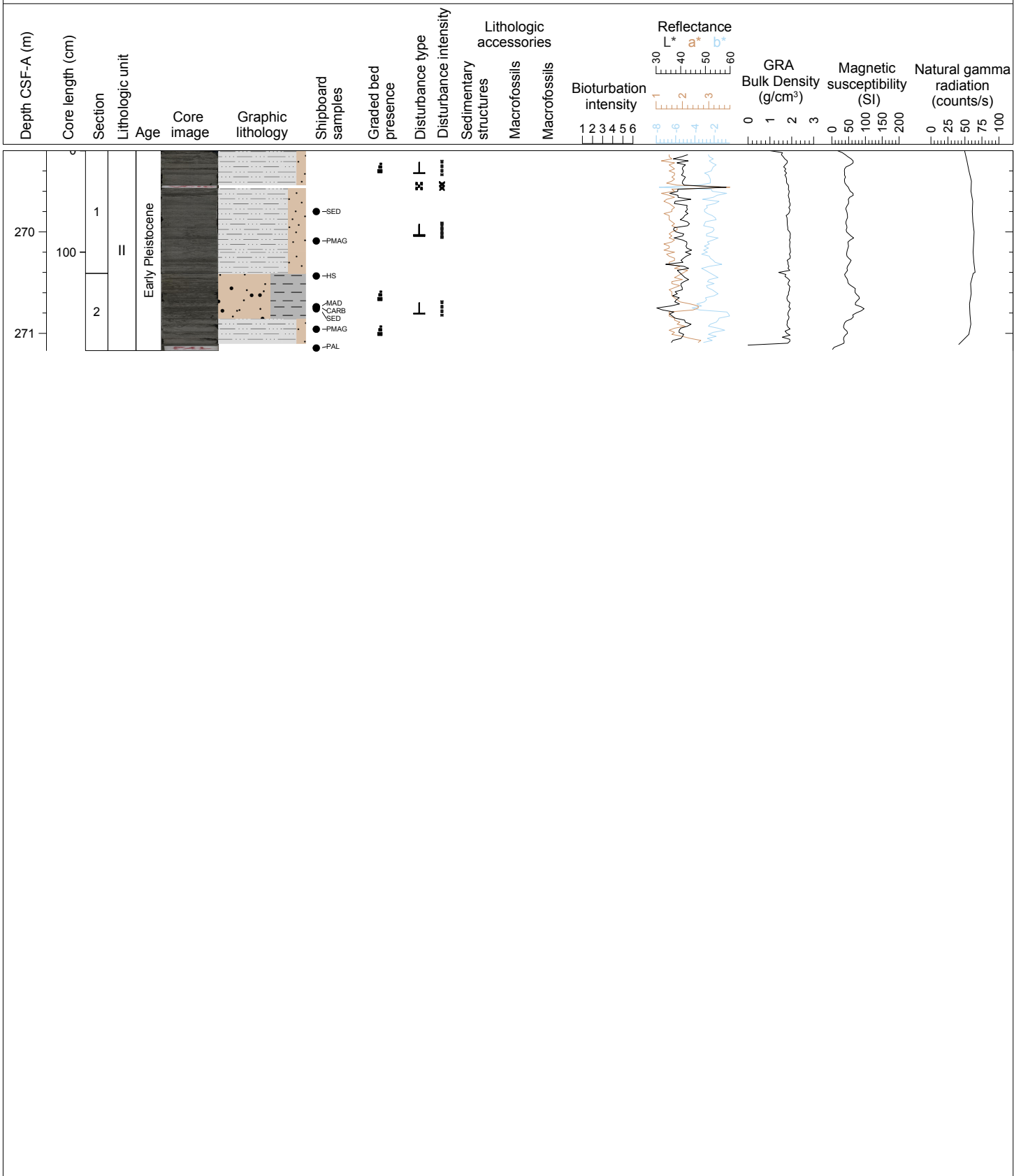
Hole 355-U1457C Core 9R, Interval 259.5-263.15 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark gray SILTY CLAY and SANDY SILT are dominant in this core. SILTY CLAY and SANDY SILT form sharp-based fining upward cycles, usually with thicker, massive fine grained tops. Graded beds mostly range from 5 to 15 cm thickness. Thin beds are successively stacked in the middle of Section 1, where the cycles are <2 cm thick. Massive SILTY CLAY shows burrow infilled by more silty sediment, with burrows ca. 5 mm across.



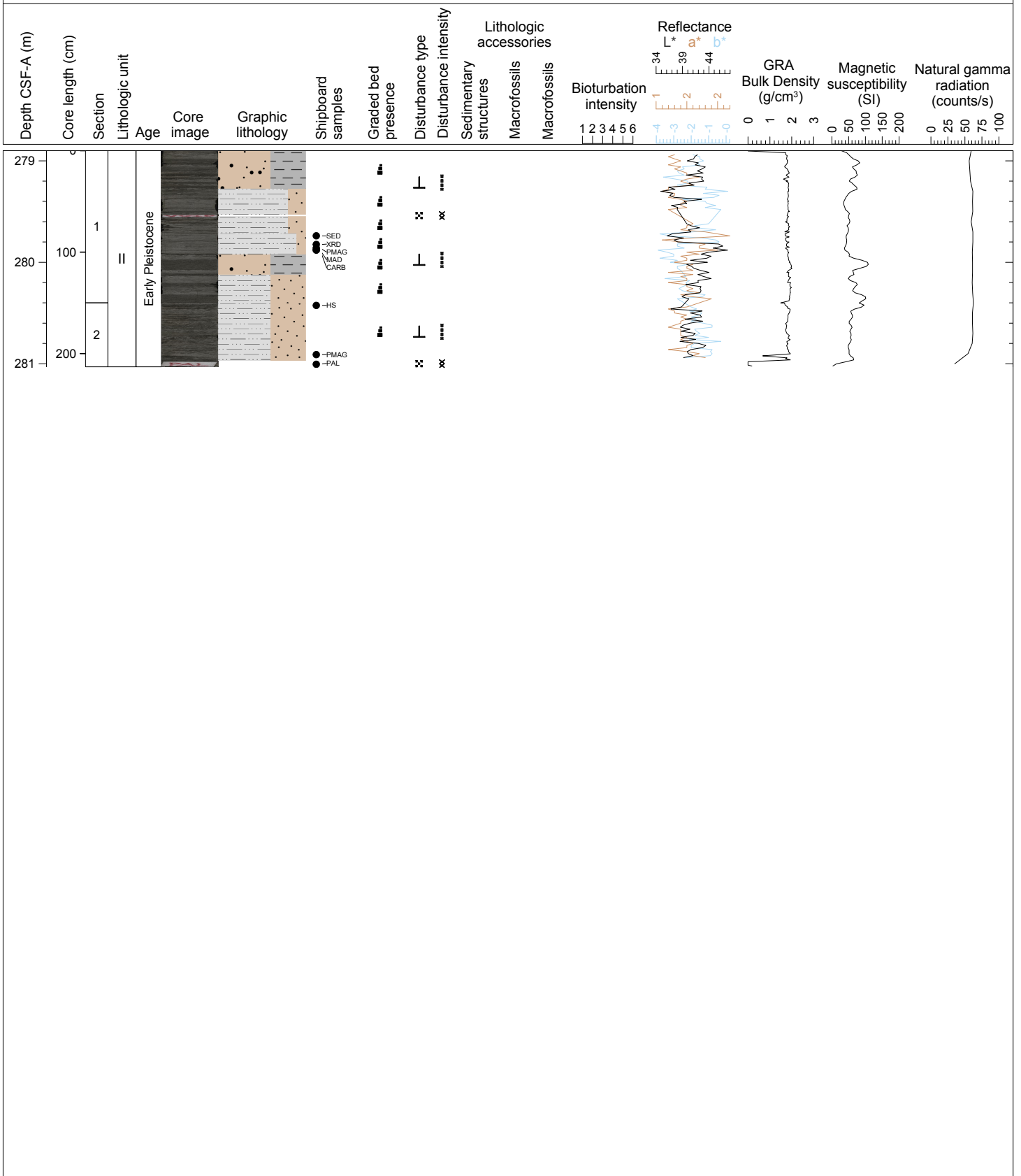
Hole 355-U1457C Core 10R, Interval 269.2-271.17 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark gray SILTY CLAY and SANDY SILT are the main lithologies and form clear, sharp-based fining upwards cycles with erosive bases. Clay-rich tops of these beds are much greater volume than the silty bases which are up to 4 cm thick within individual graded beds that are up to 43 cm thick in total. The SILTY CLAY is color banded over its thicker sections and is massive or mottled by bioturbation.



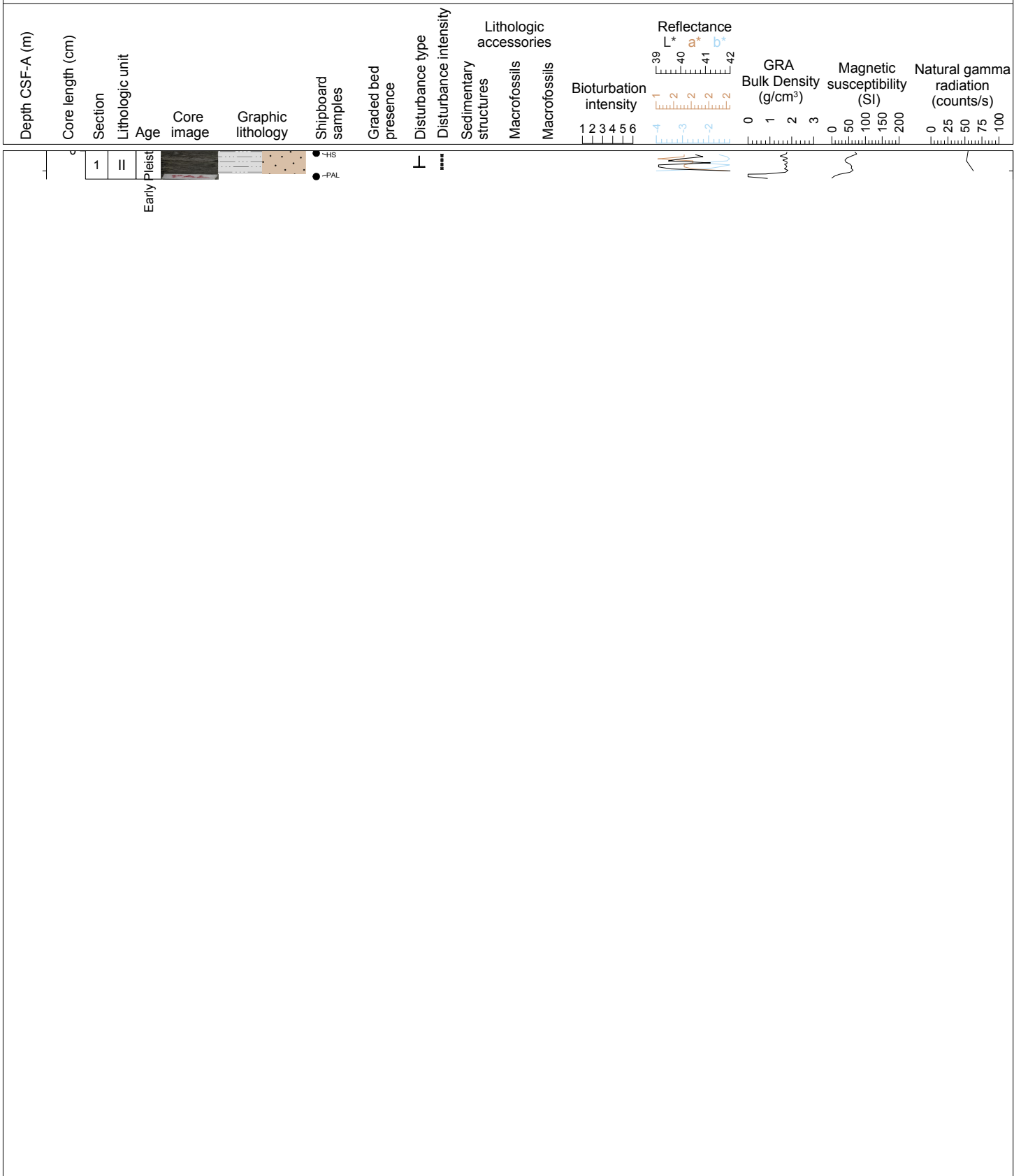
Hole 355-U1457C Core 11R, Interval 278.9-281.03 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark gray SILTY CLAY and SANDY SILT are the main lithologies and form normally graded beds with sharp erosive bases. SILTY CLAY is volumetrically more importantly than the SANDY SILT in total but parts of the core are silt dominated. SANDY SILT shows mica grains on the cut surface of larger beds that are up to 11 cm thick. The SILTY CLAY is generally massive but contains burrows filled by silty sediment.



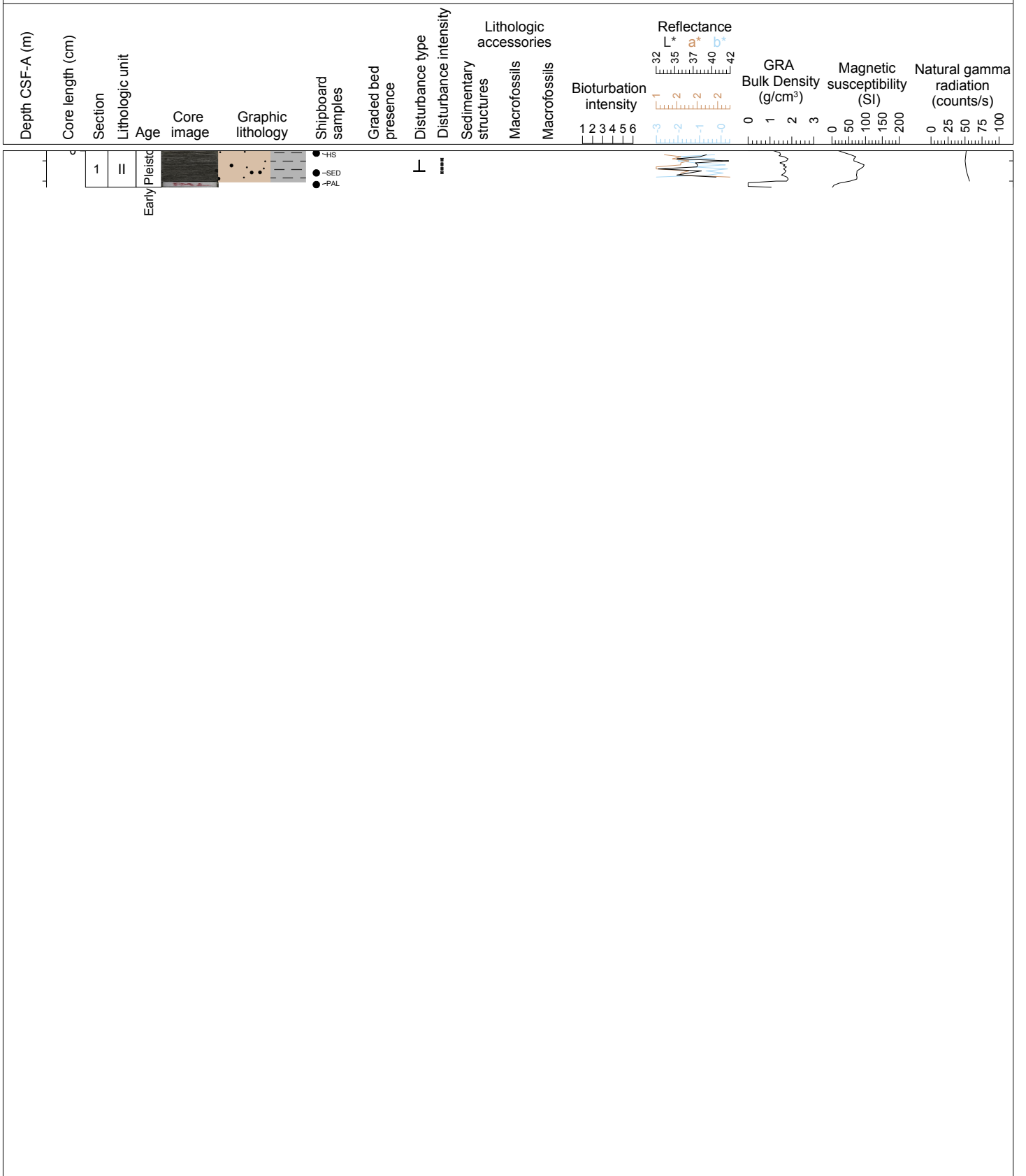
Hole 355-U1457C Core 12R, Interval 288.6-288.88 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark gray SILTY CLAY and SANDY SILT form three fining upward cycles with one clear sharp, erosive base. Muscovite mica grains are seen on cut surfaces of the massive SANDY SILT. The SILTY CLAY is massive and mottled by burrowing, some of which is seen to be horizontally oriented and stained greenish gray.



Hole 355-U1457C Core 13R, Interval 298.3-298.66 m (CSF-A)

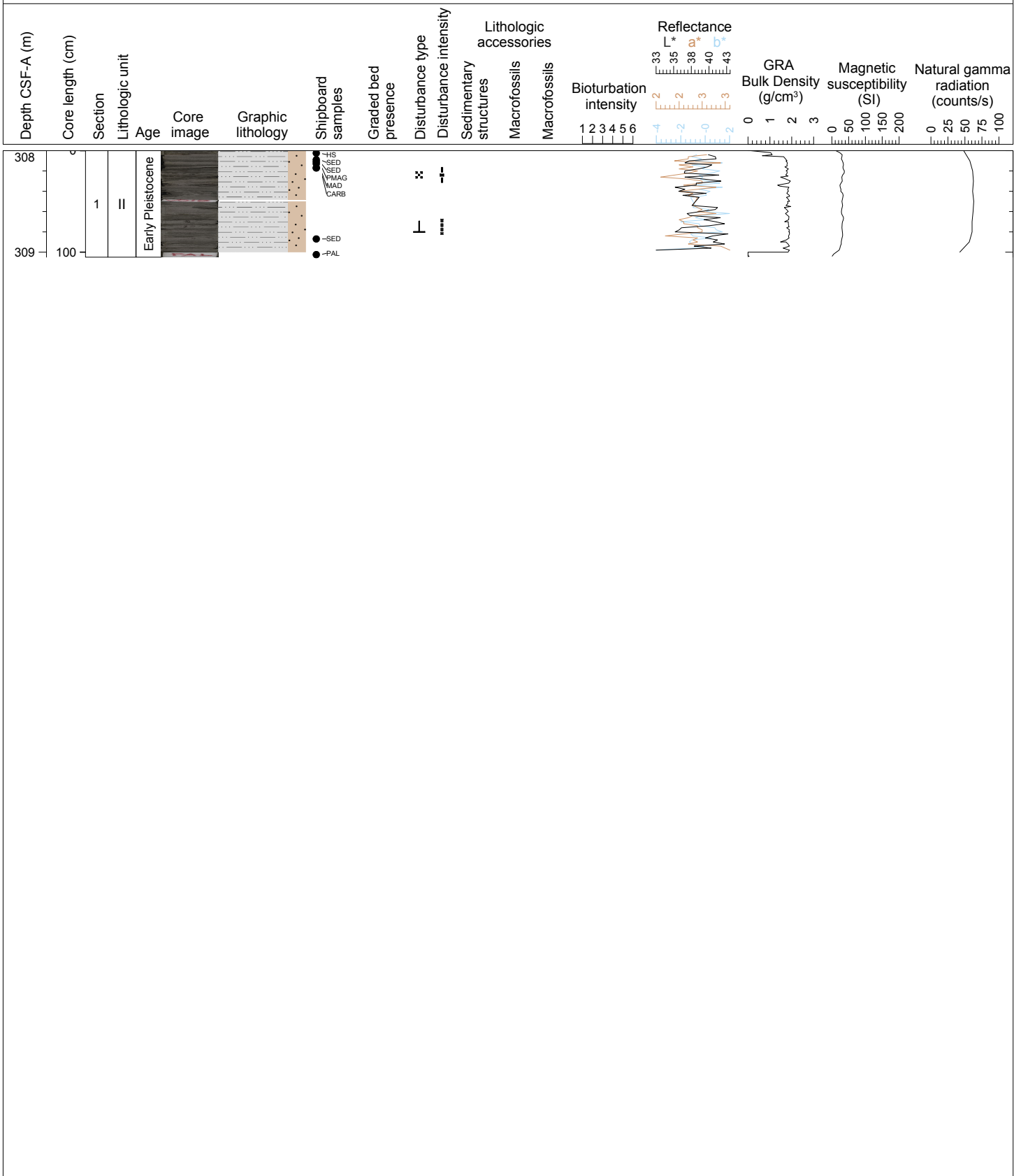
SILTY CLAY, SANDY SILT. Dark gray SILTY CLAY and SANDY SILT form a series of normally graded, fining upward cycles with clear sharp, erosive basal contacts. Individual cycles are up to 8 cm thick. SANDY SILT is rich in mica grains.





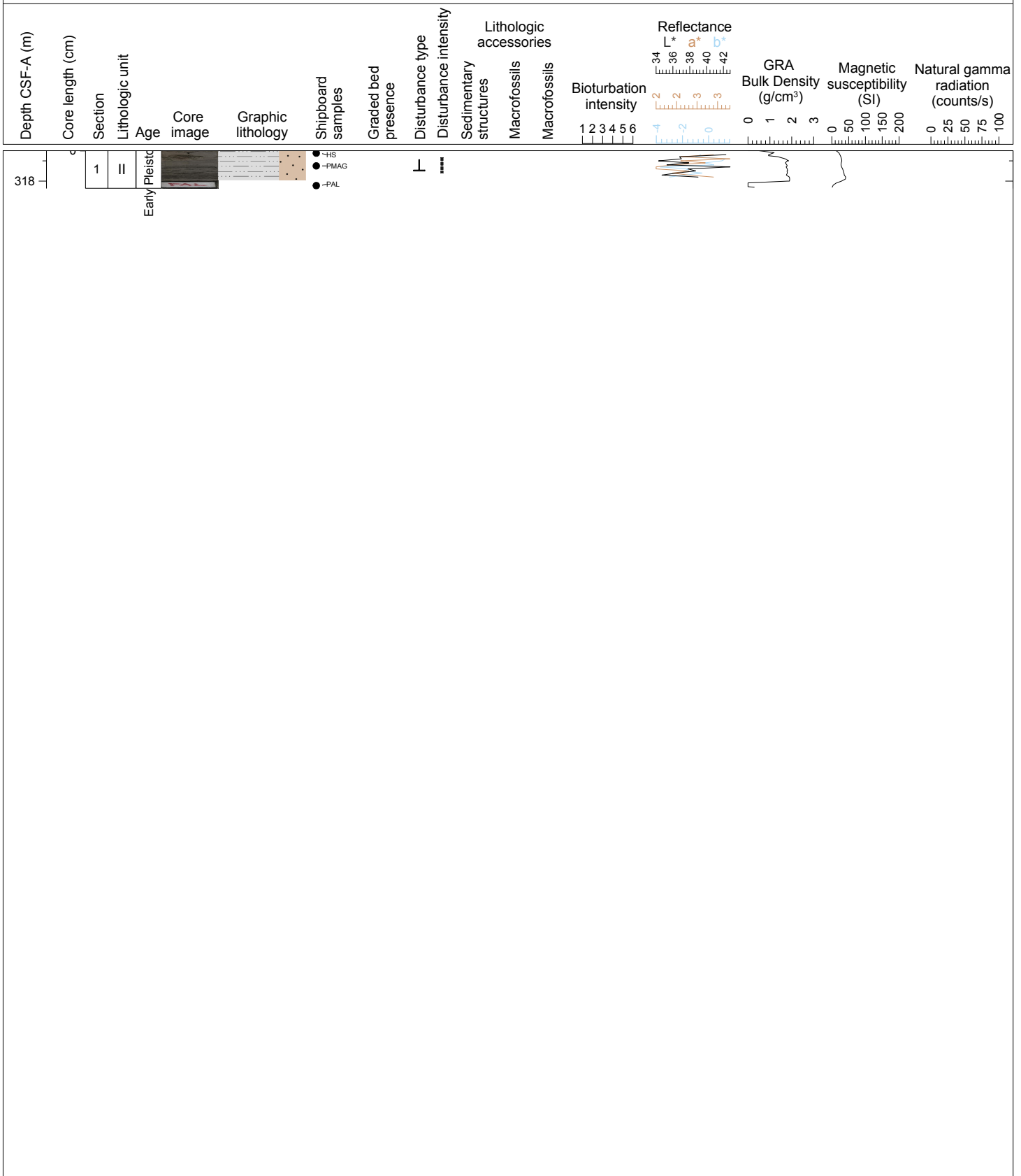
Hole 355-U1457C Core 14R, Interval 308.0-309.05 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark to brownish gray SILTY CLAY dominates and is interbedded with thin SANDY SILT beds, typically <1 cm thick, but ranging up to 4 cm thick. The SILTY CLAY and SANDY SILT form cycles of graded bedding. The bases of the SANDY SILT beds show erosive bases, overlying massive SILTY CLAY of the previous cycle. Some of the graded beds have irregular bases and uneven thicknesses of the silt-rich sediment.



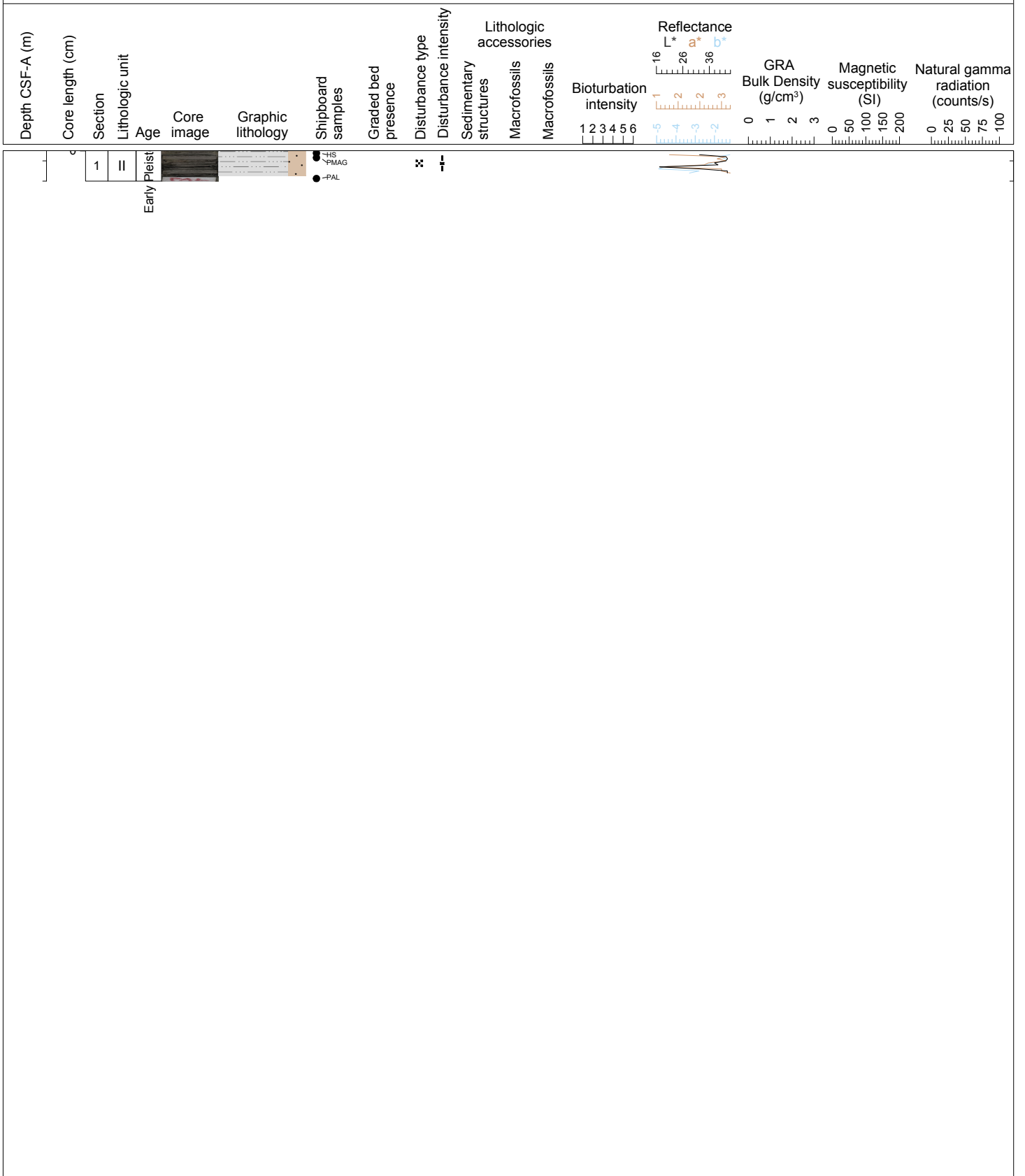
Hole 355-U1457C Core 15R, Interval 317.7-318.07 m (CSF-A)

SILTY CLAY, SANDY SILT. Brownish gray SILTY CLAY dominates and forms fining upward cycles with thin (<5 cm) SANDY SILT beds that have clear, sharp, erosive bases. The entire cycles are 10 and 17 cm thick. The dominant clay-rich tops show faint color banding and sub-horizontal burrows filled with silty sediment. Otherwise the SILTY CLAY is massive.



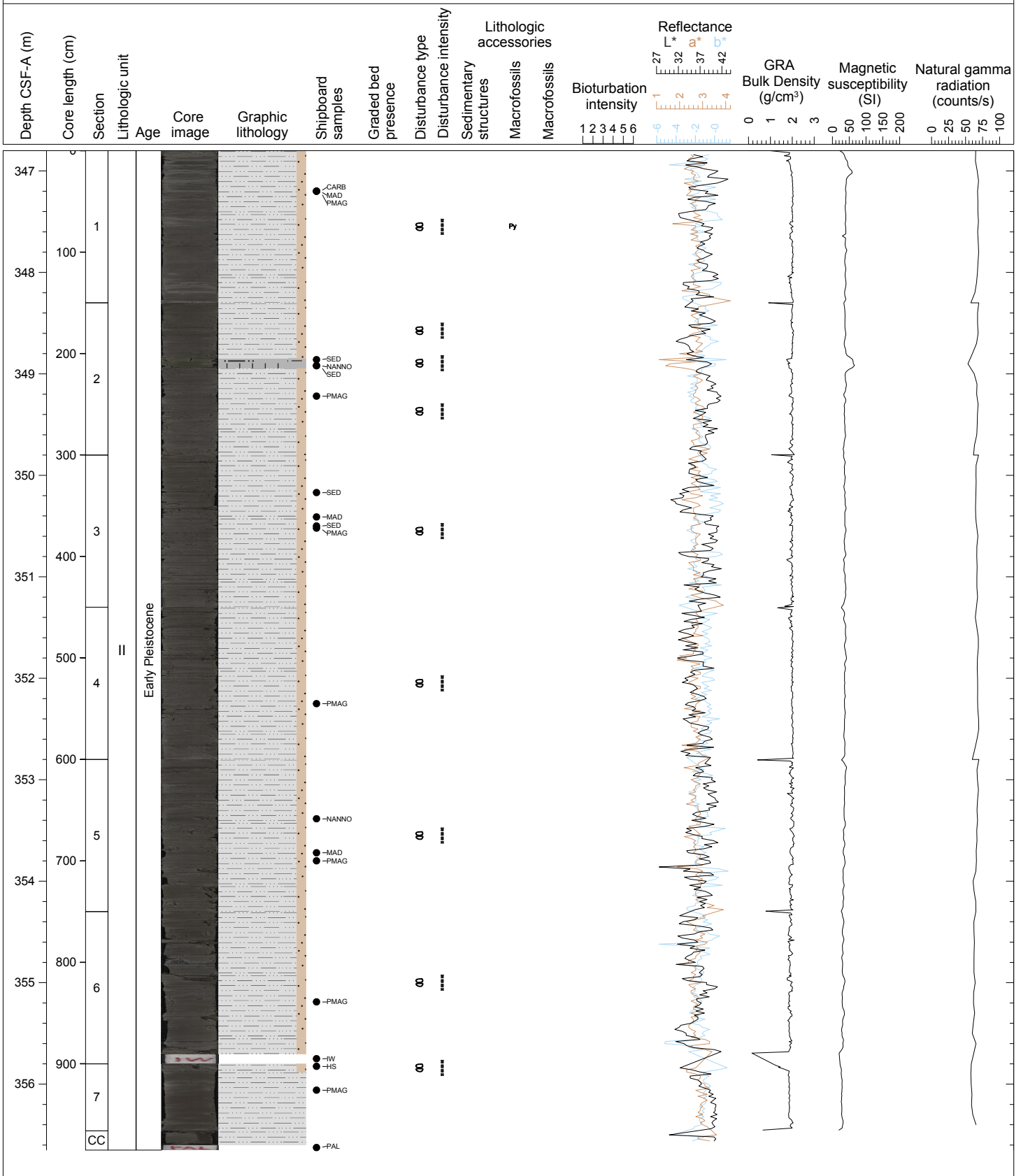
Hole 355-U1457C Core 17R, Interval 337.1-337.4 m (CSF-A)

SILTY CLAY, SANDY SILT. Dark to brownish gray SILTY CLAY is interbedded with thin (<2 cm) SANDY SILT intervals in fining upward cycles. The cycles have sharp bases and graded rapidly up into massive SILTY CLAY. Some of the SANDY SILT appears to be present as a pod but this may reflect disruption during coring. Faint pyrite blebs are seen in the clay-rich layers.



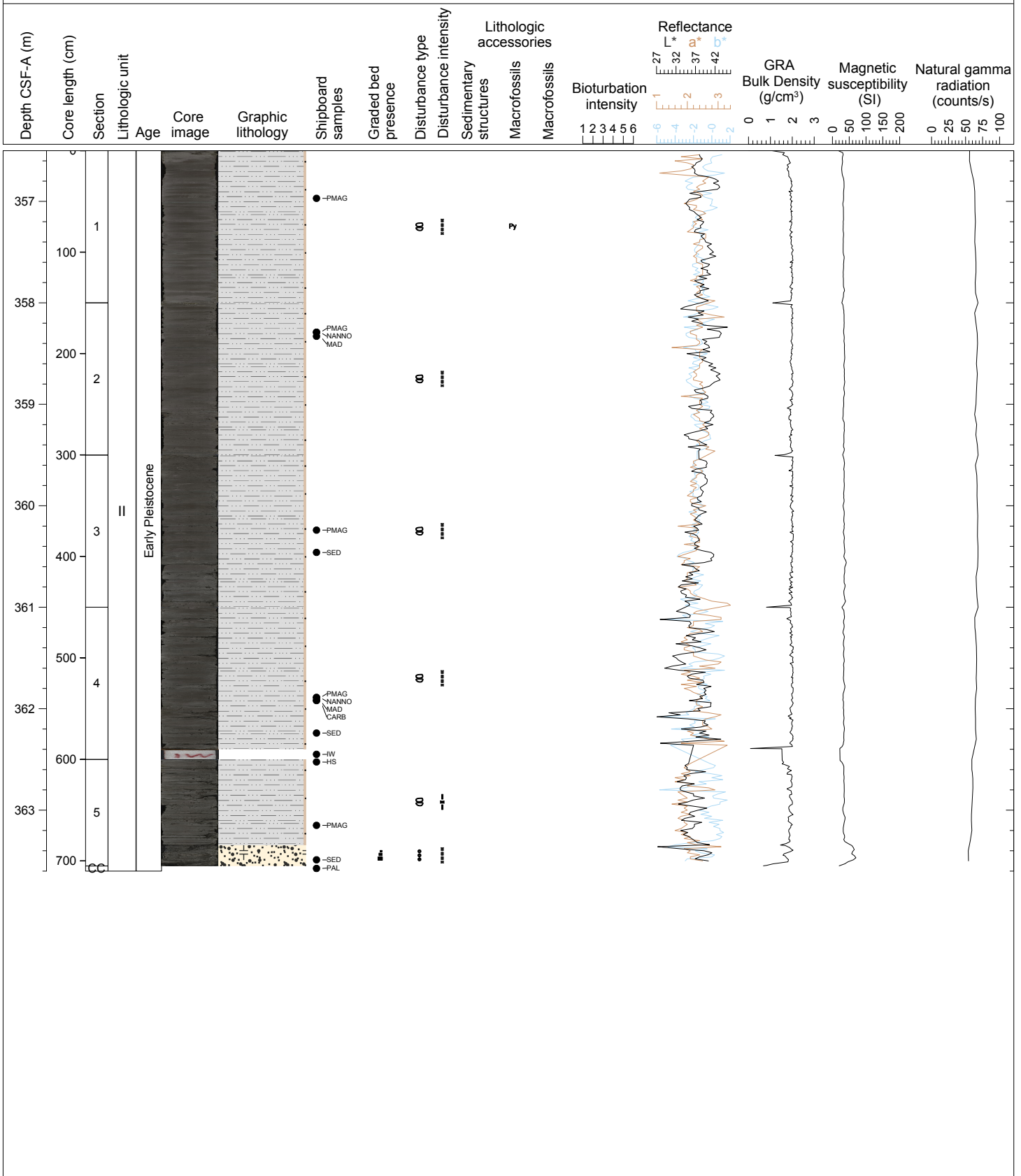
Hole 355-U1457C Core 18R, Interval 346.8-356.65 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE, CALCAREOUS-RICH CLAYSTONE. Light brownish, massive SILTY CLAYSTONE is the major lithology. The sediment are semi indurated. Thin bedded SILTY CLAYSTONE is interbedded with very thin (<1 cm) CLAYEY SILTSTONE. The interbeds form cycles ~5 cm thick. Black-colored horizontal layers are often observed in the core. Two beds of thin-bedded greenish CALCAREOUS-RICH CLAYSTONE are found in Section 2 (55-64 cm).



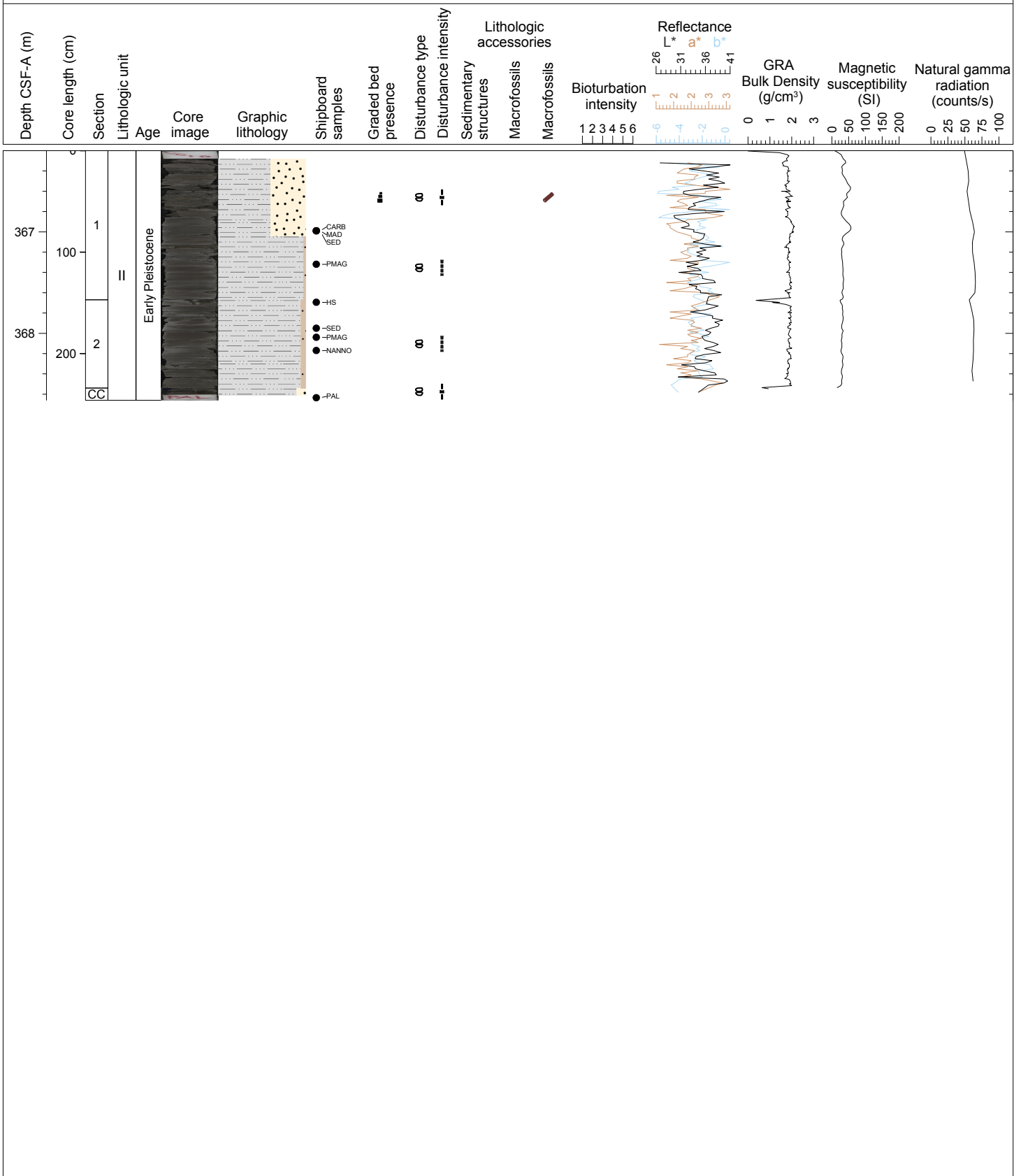
Hole 355-U1457C Core 19R, Interval 356.5-363.6 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE, SILTY SAND. Light brown SILTY CLAYSTONE interbedded with very thin (<1 cm) CLAYEY SILTYSTONE is the major lithology. Medium bedded SILTY SAND with clay chunks and containing mica grains is found at the bottom of the core. The SILTY CLAYSTONE and CLAYEY SILTYSTONE interbedded cycles are ca. 5 cm thick and normally graded. The basal boundaries of the basal CLAYEY SILTYSTONE are sharp and erosive. Dispersed pyrite grains are often observed. CLAYEY SILTYSTONE comprises <2% of the core. Biscuit type drilling induced disturbance is more frequent towards the bottom of the core.



Hole 355-U1457C Core 20R, Interval 366.2-368.66 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE, SILTY SANDSTONE. Light brown SILTY CLAYSTONE, interbedded with very thin (<1 cm) CLAYEY SILTYSTONE and dark gray SILTY SANDSTONE are the major lithologies. Medium-bedded SILTY SANDSTONE with clay chunks, and containing mica grains is common in the upper part of the core. The SILTY CLAYSTONE and CLAYEY SILTSTONE interbedded cycles are normally graded and ca. 5 cm thick. Black color banding are occasionally found in the core. Thin pieces of wood ca. 2 cm long are found in the core (at Section 1, 35-37 cm and 82-84 cm). The basal boundaries of the SILTY CLAYSTONE beds are sharp and erosive and showing fining. SILTY SANDSTONE comprises <30% of the core. The top of the core is destroyed by drilling.



Hole 355-U1457C Core 21R, Interval 375.9-376.08 m (CSF-A)

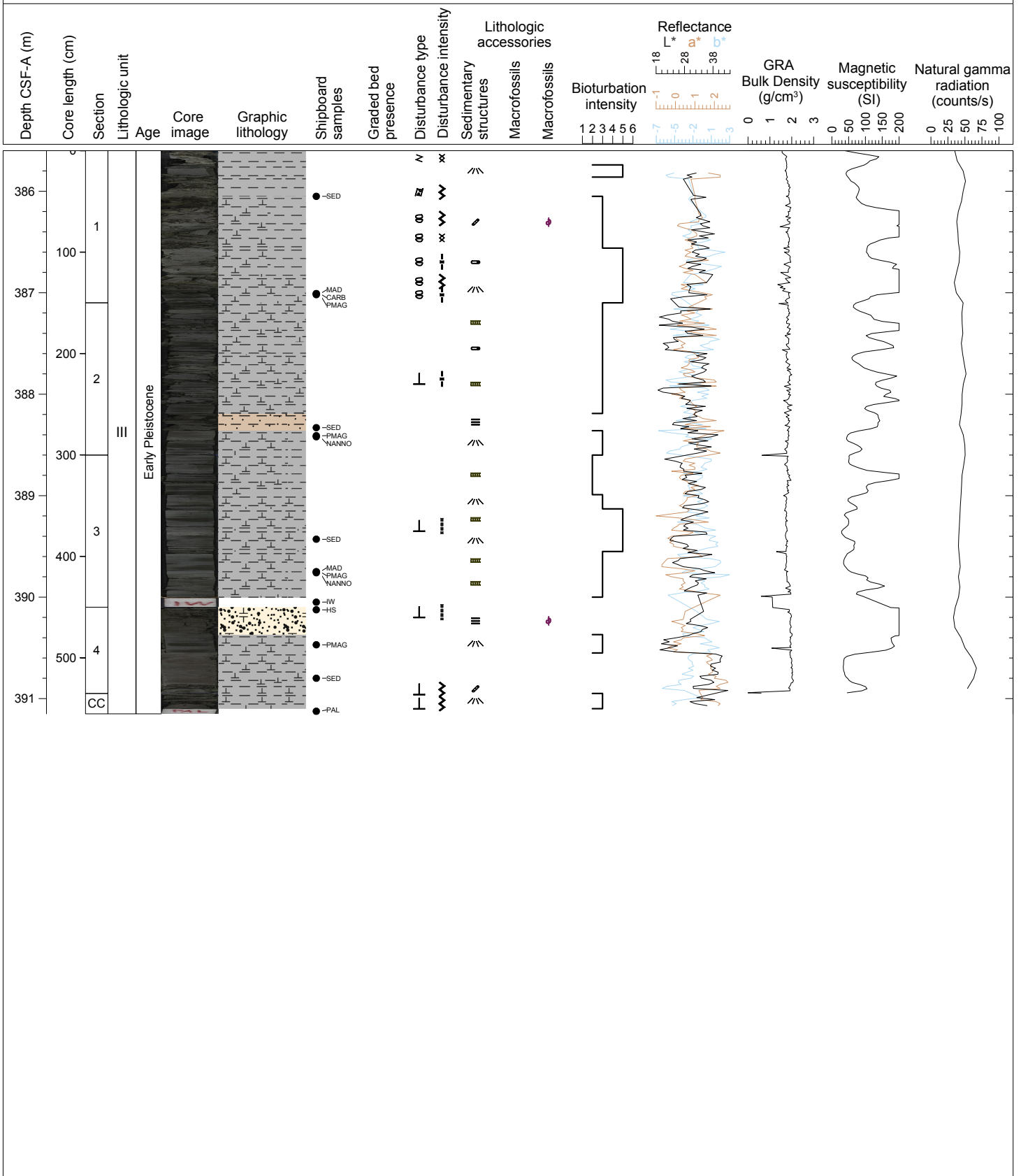
SILTY CLAYSTONE, CLAYEY SILTSTONE, SILTY SAND. Light brown SILTY CLAYSTONE is interbedded with very thin-bedded (<1 cm) CLAYEY SILTSTONE and SILTY SANDSTONE and the major lithology. All three lithologies are disrupted and mixed in the core. The lithological characteristics seem to be similar to previous core and show graded bedding in places.





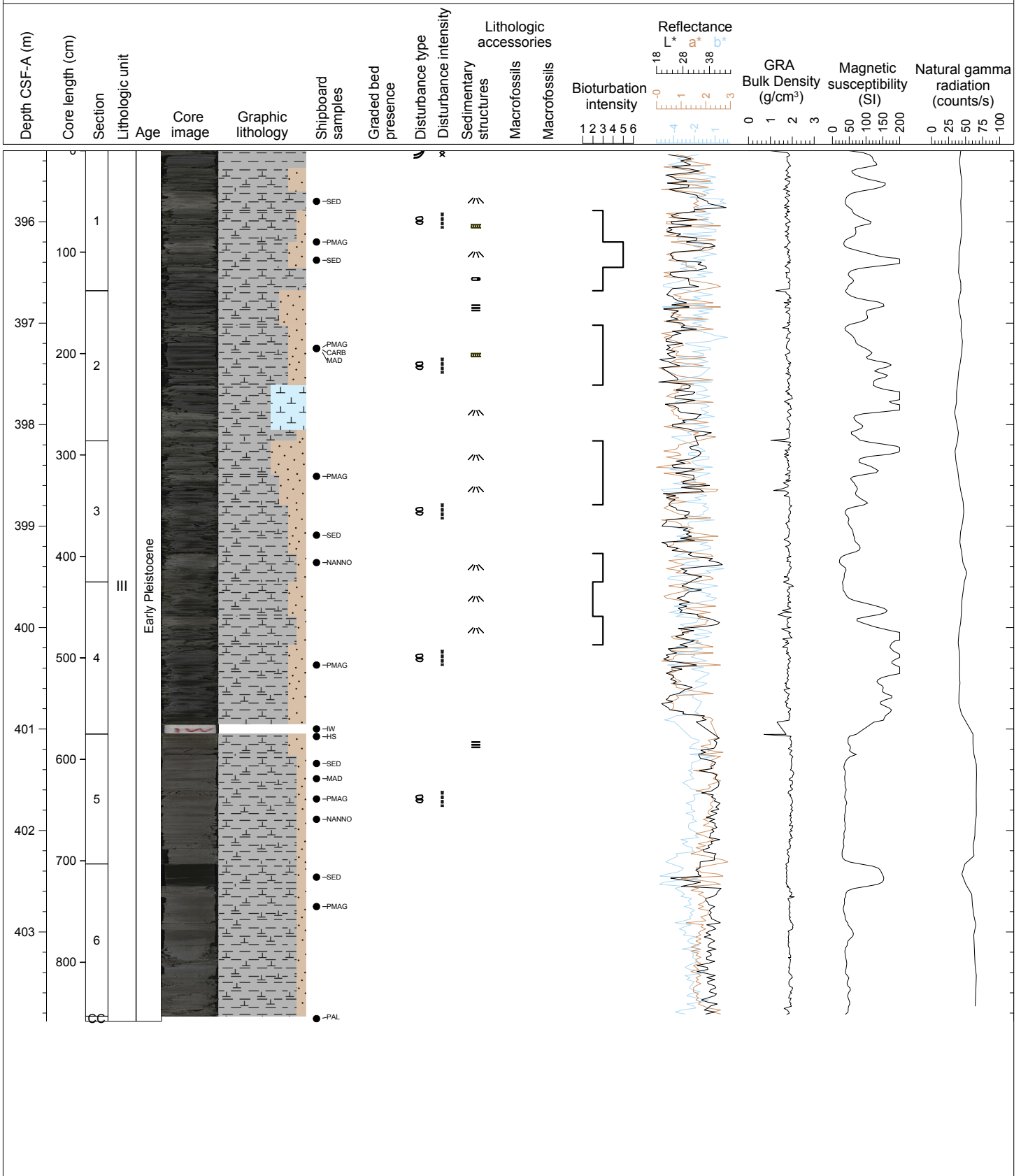
Hole 355-U1457C Core 22R, Interval 385.6-391.15 m (CSF-A)

CLAYSTONE, NANNOFOSSIL-RICH CLAYSTONE, CLAYEY SILTSTONE, SILTY SANDSTONE, SILTY CLAYSTONE. Light and dark greenish NANNOFOSSIL-RICH CLAYSTONE is the main lithology. Diverse burrow types including Zoophycos, Chondrites, and Planolites was seen within NANNOFOSSIL-RICH CLAYSTONE. Most burrows are <1 cm across. Very thin (a few mm) parallel laminations were found in dark green CLAYSTONE. A thick (~30 cm) gray NANNOFOSSIL-RICH CLAYSTONE in Section 4 is massive. Gray SILTY SANDSTONE, showing thin parallel laminations, is overlain by NANNOFOSSIL-RICH CLAYSTONE in a fining upward cycle.



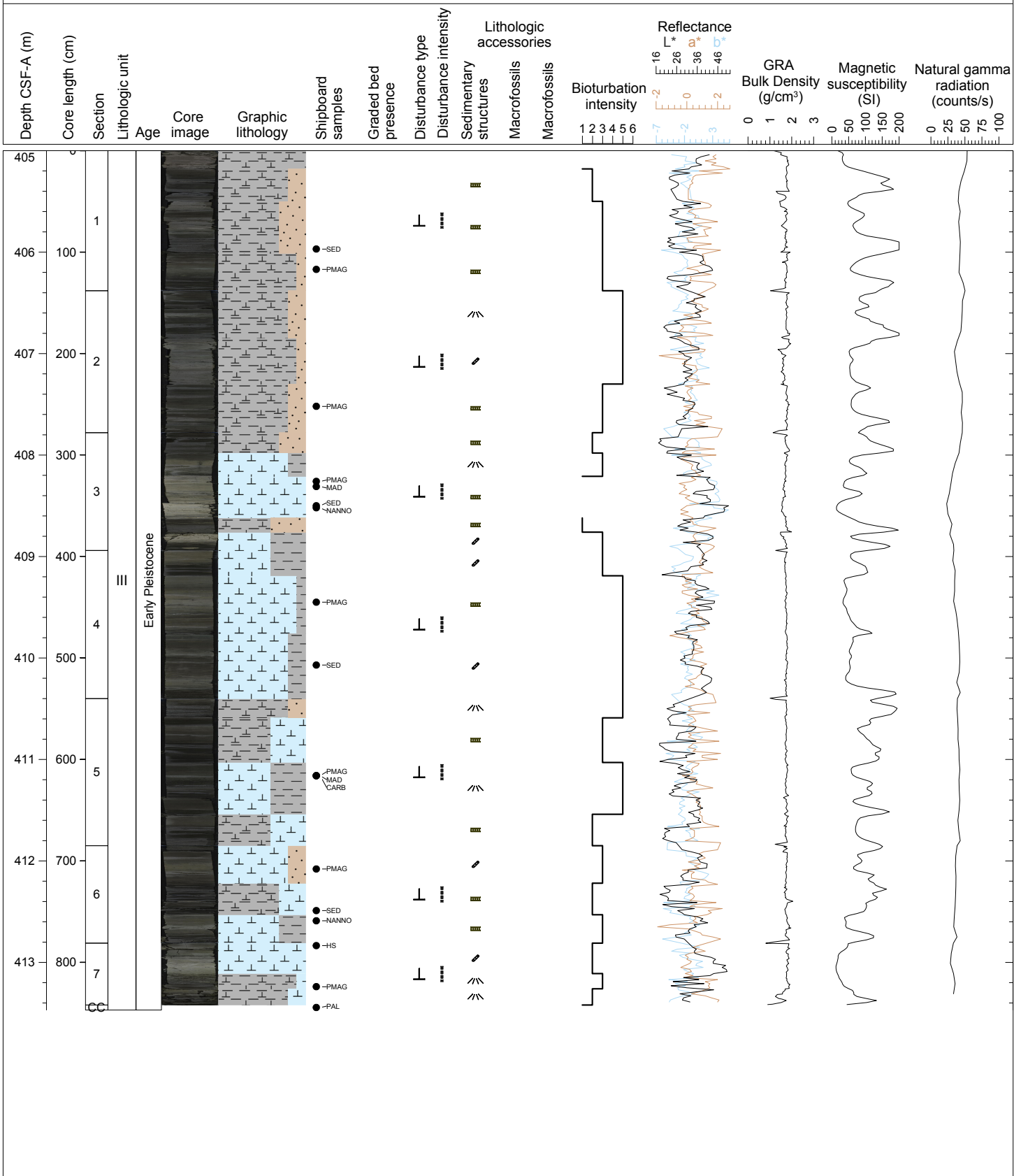
Hole 355-U1457C Core 23R, Interval 395.3-403.88 m (CSF-A)

NANNOFOSSIL-RICH CLAYSTONE, CLAYEY SILTSTONE. Dark gray and light gray NANNOFOSSIL-RICH CLAYSTONE is dominant. Thin (5-15 cm thick) light gray CLAYEY SILTSTONE is overlain by thick (>10 cm) dark gray NANNOFOSSIL-RICH CLAYSTONE beds in a series of fining upward cycles. The clay-rich sediment is characterized by strong burrow structures (Zoophycos, Chondrites, and Planolites). Top boundary of the NANNOFOSSIL-RICH CLAYSTONE is normally erosive and sharp where it is overlain by SILTSTONE. A tiny (ca. 2 mm) pyrite micronodule was found at Section 1, 105 cm. Sections 5 and 6 consist of light gray CLAYEY SILTSTONE interbedded with very dark gray NANNOFOSSIL-RICH CLAYSTONE. A bed of CLAYEY SILTSTONE at 20 cm of Section 5 contains wood fragments and is laminated.



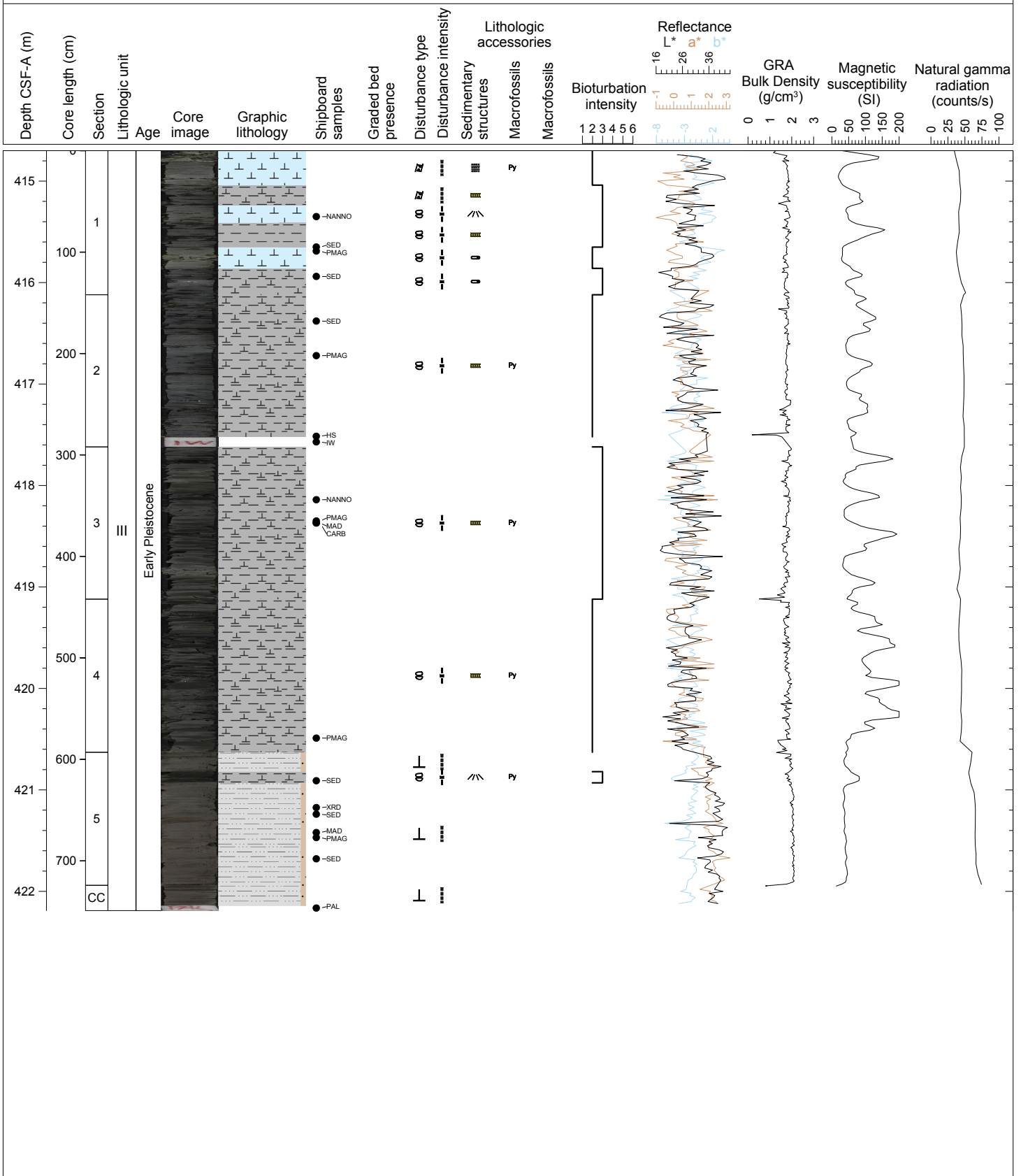
Hole 355-U1457C Core 24R, Interval 405.0-413.47 m (CSF-A)

NANNOFOSSIL-RICH CLAYSTONE, NANNOFOSSIL CHALK. CLAYEY SILTSTONE, SANDY SILTSTONE. Dark gray, pale gray and light gray NANNOFOSSIL-RICH CLAYSTONE and whitish gray NANNOFOSSIL CHALK are the dominant lithologies. Burrowing is intense in NANNOFOSSIL-RICH CLAYSTONE and NANNOFOSSIL CHALK, showing Zoophycos and Chondrites. NANNOFOSSIL CHALK is overlain by pale gray NANNOFOSSIL-RICH CLAYSTONE. These two lithologies are repeated in normally graded cycles, showing sharp erosive boundary at the base of the NANNOFOSSIL-RICH CLAYSTONE. Thin (<5 cm) dark gray SANDY SILTSTONE is interbedded with NANNOFOSSIL-RICH CLAYSTONE and shows very thin parallel laminations. Tiny pyrites are seen throughout the core.



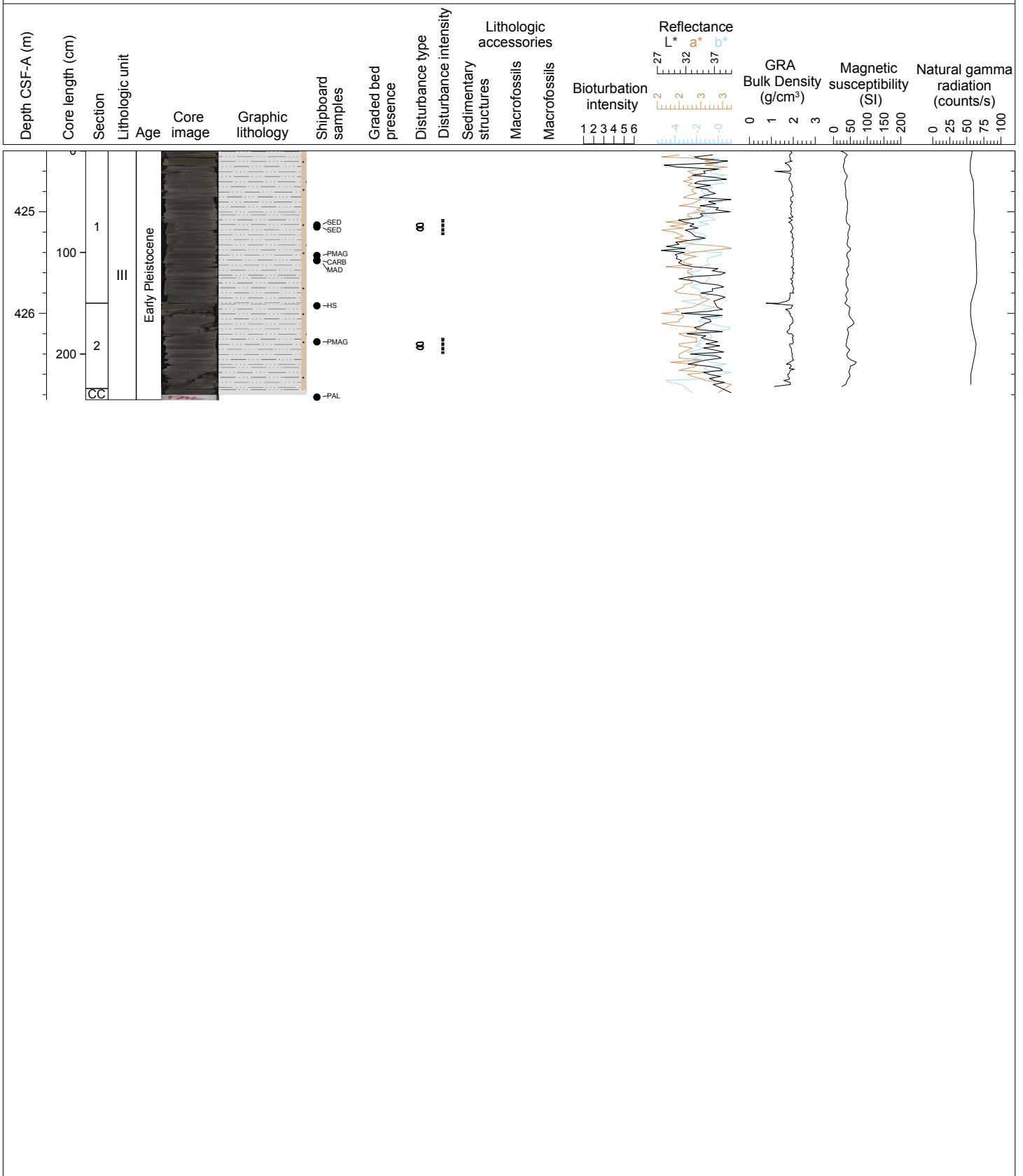
Hole 355-U1457C Core 25R, Interval 414.7-422.19 m (CSF-A)

NANNOFOSSIL-RICH CLAYSTONE, NANNOFOSSIL CHALK, CLAYEY SILTSTONE, SILTY CLAYSTONE, CLAYSTONE WITH FORAMINIFERS. The core is dominated by dark gray NANNOFOSSIL RICH CLAYSTONE, and interbeds of whitish gray NANNOFOSSIL CHALK. Light brownish SILTY CLAYSTONE is also found interbedded with thin (<1 cm) CLAYEY SILTSTONE. The medium bedded organic-rich CLAYSTONE WITH FORAMINIFERS is observed at Section 1, 71-95 cm. Dark NANNOFOSSIL-RICH CLAYSTONE is intensely bioturbated, whereas NANNOFOSSIL CHALK has greenish color banding. The lower part of the core is dominated by semi-consolidated light brownish SILTY CLAYSTONE, interbedded with CLAYEY SILTSTONE. These show normally graded cycles of about 5 cm thickness. The dominant burrows are Zoophycos, Chondrites, Planolites and some composite burrows. Tiny pyrites are seen throughout the core.



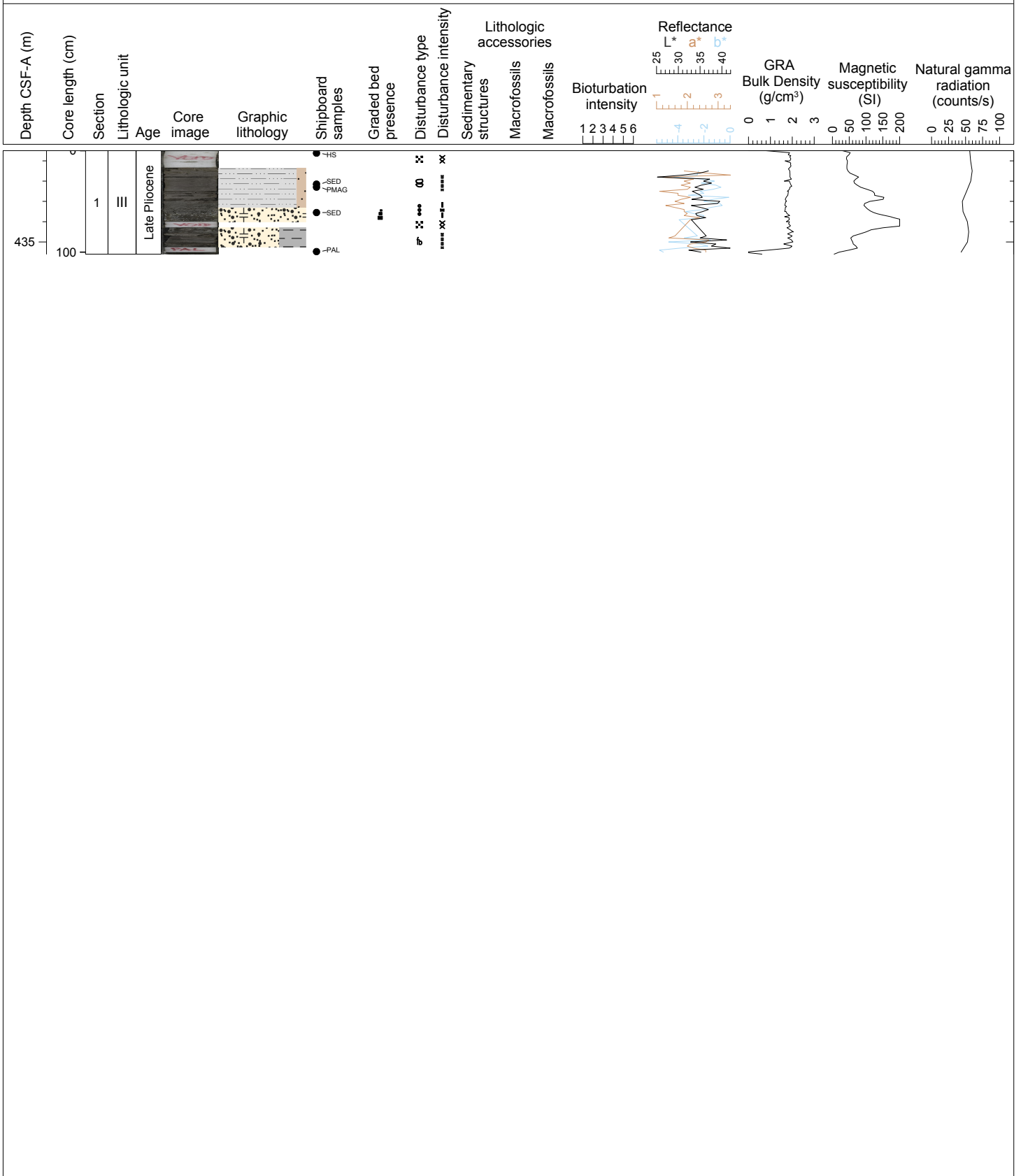
Hole 355-U1457C Core 26R, Interval 424.4-426.85 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE. Light brownish gray SILTY CLAYSTONE interbedded with very thin (<1 cm) beds of CLAYEY SILTSTONE is dominant. These sediments are interbedded in normally graded cycles of about 3-5 cm thickness. The CLAYEY SILTSTONE layers often contain organic matter in the lower part of the core. Tiny pyrite patches are seen throughout the core.



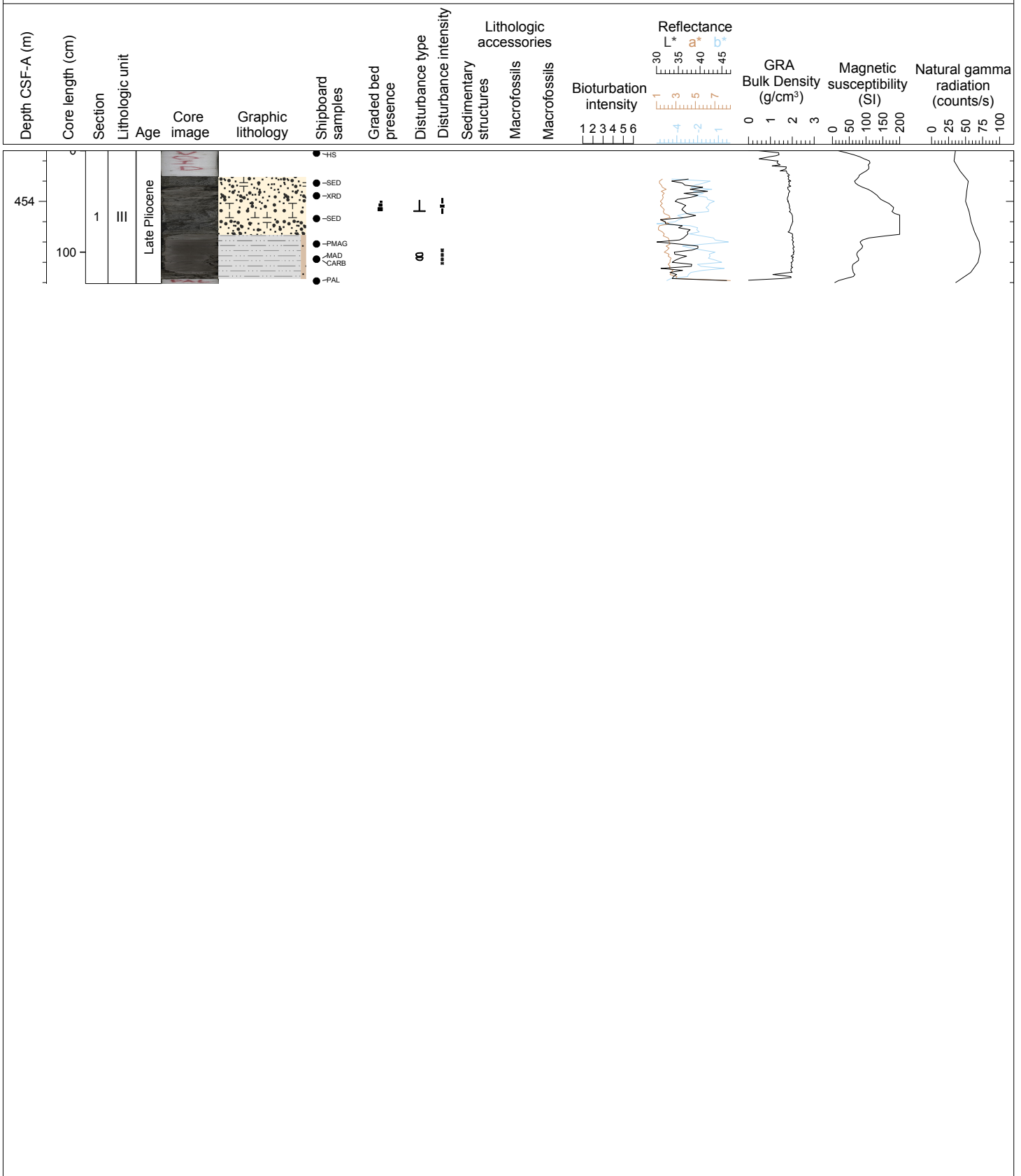
Hole 355-U1457C Core 27R, Interval 434.1-435.12 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE, SILTY SAND. The dominant light brownish SILTY CLAYSTONE is interbedded with very thin (<1 cm) beds of CLAYEY SILTSTONE and brownish gray beds of SILTY SAND. The SILTY CLAYSTONE and CLAYEY SILTSTONE are interbedded in normally graded cycles of about 5 cm thickness. SILTY SAND is observed in the lower part of the core and grades up into SILTY CLAYSTONE. The SILTY SAND comprises <30 % of the core. The core is often disrupted and shows void drilling induced disturbances.



Hole 355-U1457C Core 29R, Interval 453.5-454.81 m (CSF-A)

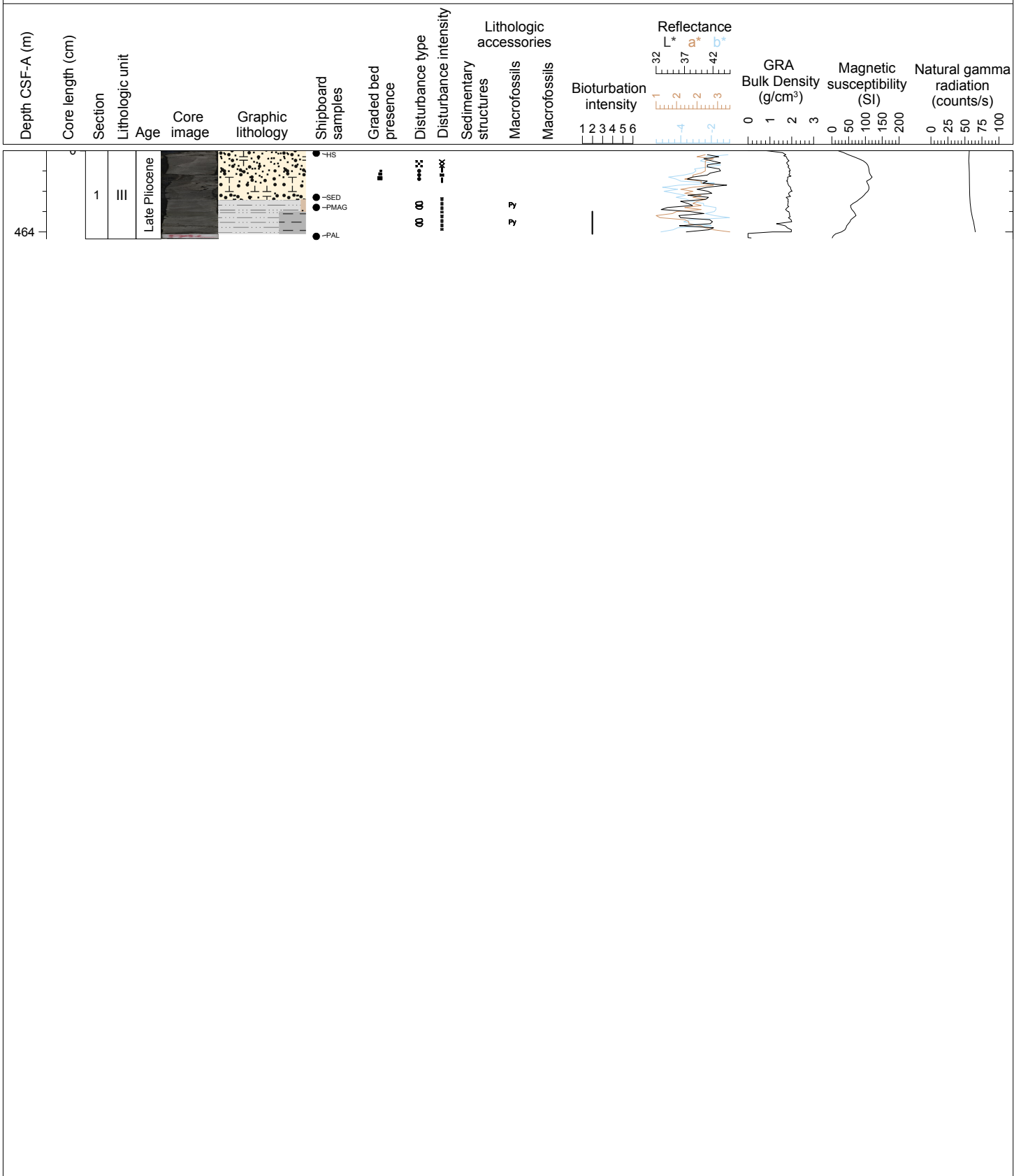
SILTY SAND WITH CLAY, SILTY CLAYSTONE, CLAYEY SILTSTONE. Gray SILTY SAND and light brown SILTY CLAYSTONE are the major lithologies. The thickly bedded SILTY SANDSTONE dominates in upper part of the core and is rich in mica and with CLAYSTONE chunks. The SILTY SAND shows sharp erosive contact with underlying SILTY CLAYSTONE. The SILTY CLAYSTONE dominates in the lower part of the core and is interbedded with very thin (<1 cm) CLAYEY SILTSTONE beds. The SILTY SANDSTONE comprises <50 % of the core.





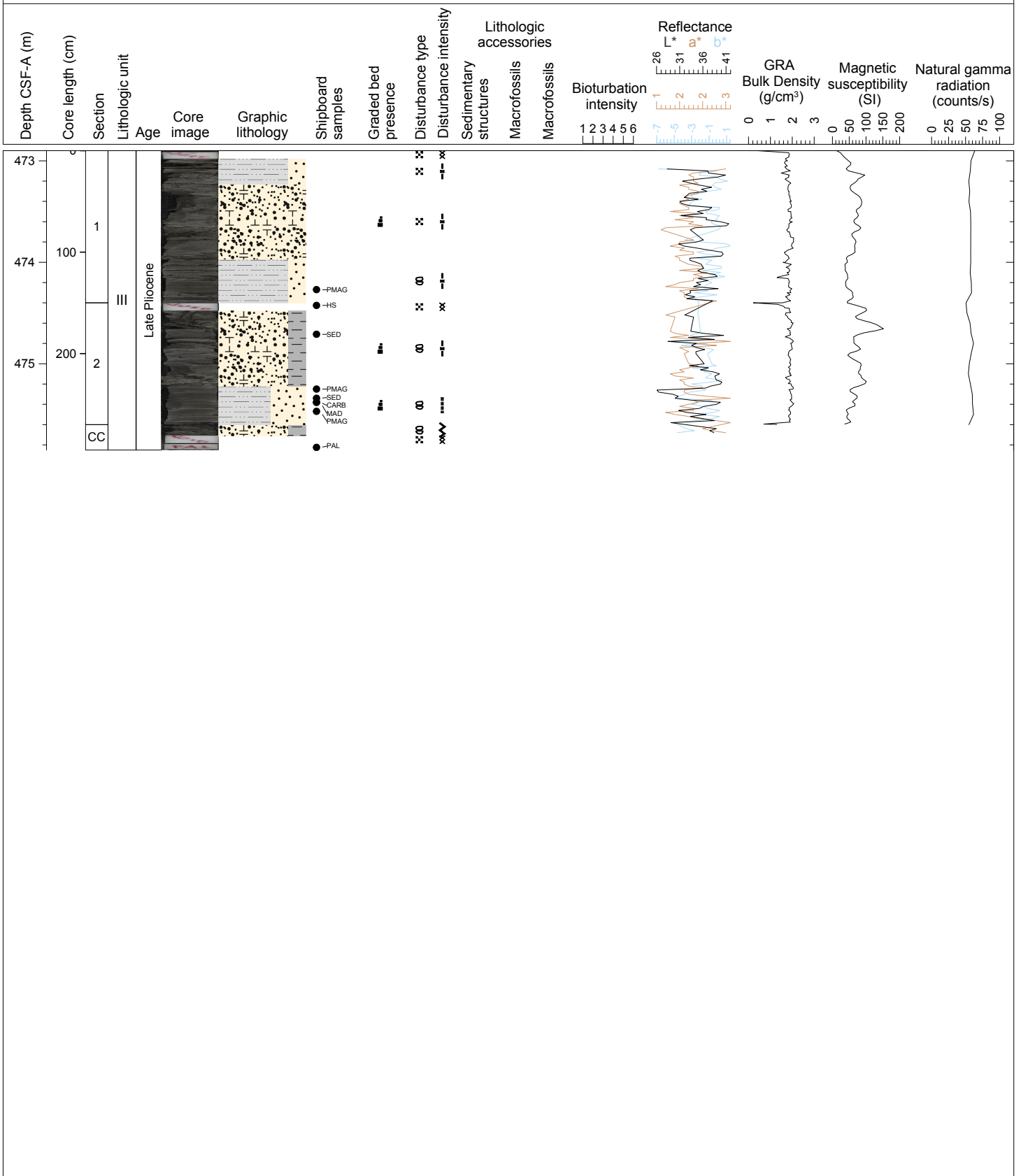
Hole 355-U1457C Core 30R, Interval 463.2-464.07 m (CSF-A)

SILTY SANDSTONE WITH CLAY, SILTY CLAYSTONE, CLAYSTONE WITH NANNOFOSSILS. Gray SILTY SANDSTONE and light brown SILTY CLAYSTONE are the major lithologies. The thickly bedded SILTY SANDSTONE dominates the upper part of the core and is rich in mica and CLAYSTONE clasts. SILTY CLAYSTONE dominates the lower part of the core, interbedded with very thin (<1 cm) beds of CLAYEY SILTSTONE. The thin bedded (<5 cm) CLAYSTONE WITH NANNOFOSSILS is slightly bioturbated. Tiny dispersed pyrite grains are often found in the core. SILTY SANDSTONE comprises <50 % of the core.



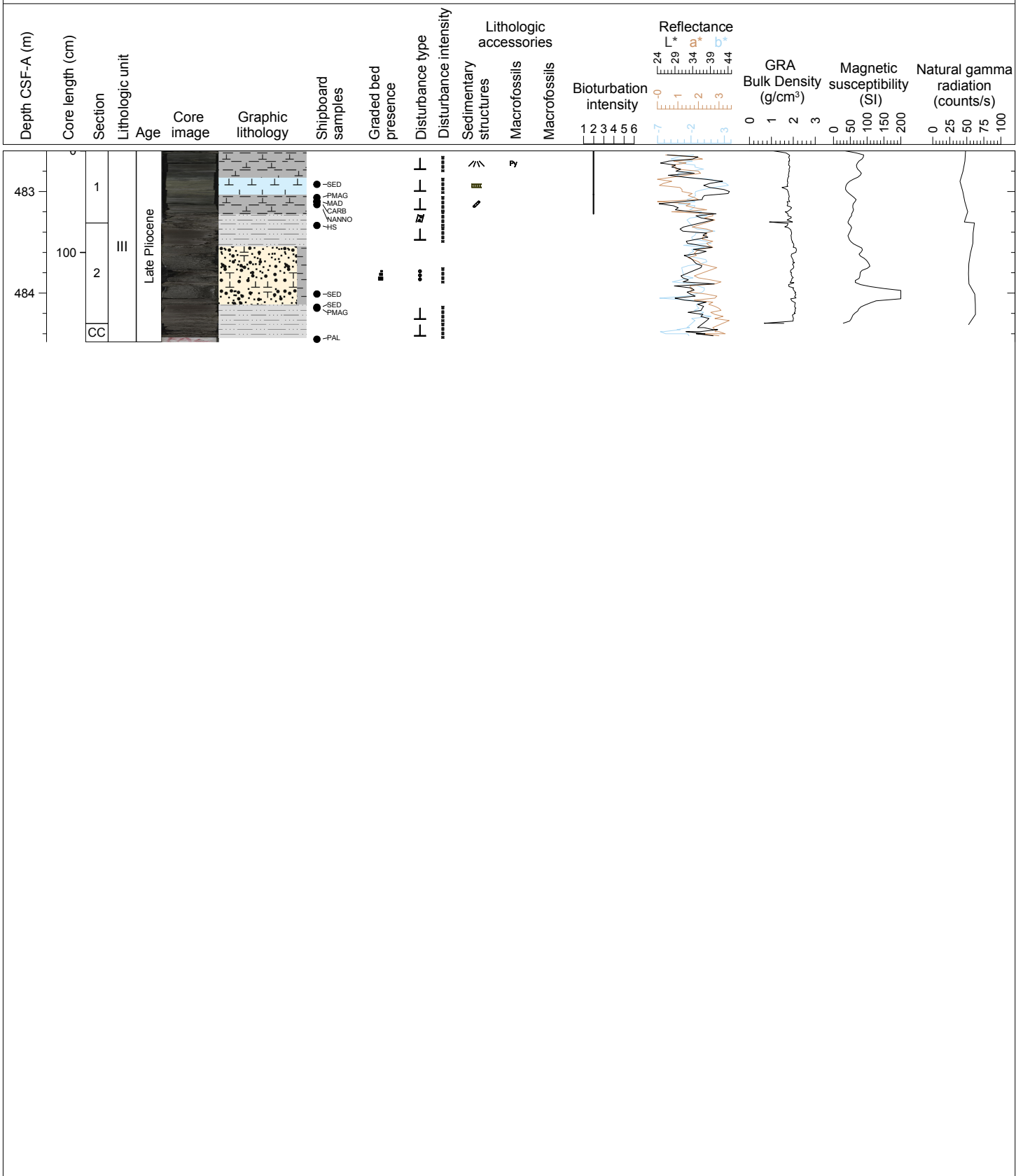
Hole 355-U1457C Core 31R, Interval 472.9-475.85 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE, SILTY SANDSTONE. Light brownish gray SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. The SILTY CLAYSTONE is interbedded with thin (<1 cm) CLAYEY SILTSTONE intervals. In the lower part of the core, SILTY CLAYSTONE is interbedded with thicker (<3 cm) SILTY SANDSTONE intervals. SILTY SANDSTONE contains clay clasts and is interbedded with thin SILTY CLAYSTONE beds. SILTY SANDSTONE contains mica grains and shows erosive contact with the underlying SILTY CLAYSTONE. The SILTY SANDSTONE beds are semi-consolidated and comprise <50 % of the core.



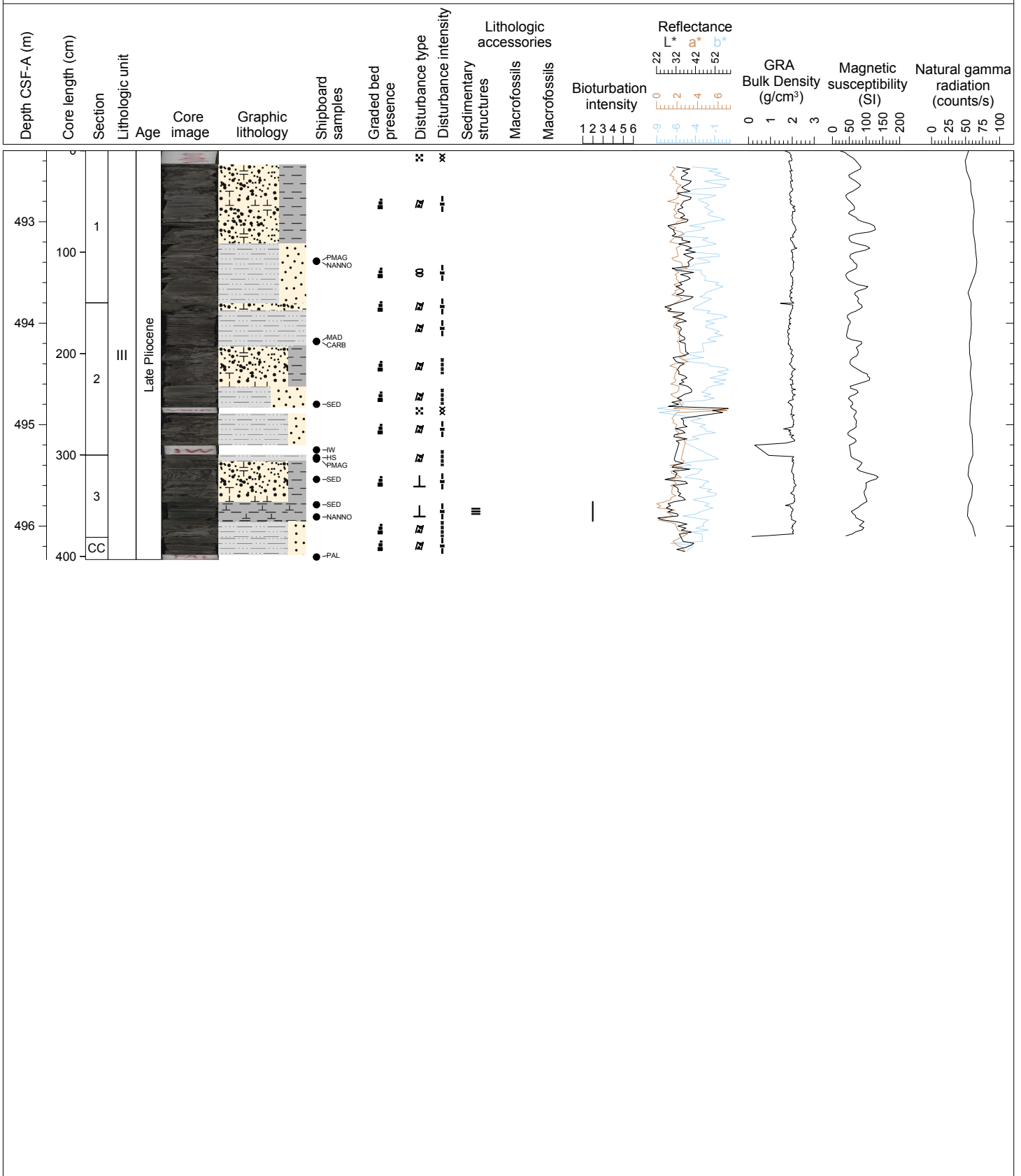
Hole 355-U1457C Core 32R, Interval 482.6-484.48 m (CSF-A)

NANNOFOSSIL-RICH CLAYSTONE, NANNOFOSSIL CHALK, SILTY CLAYSTONE, SILTY SANDSTONE. The light greenish to light brownish NANNOFOSSIL-RICH CLAYSTONE, brownish SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. The medium bedded NANNOFOSSIL CHALK is interbedded with medium bedded NANNOFOSSIL-RICH CLAYSTONE in the upper part of the core. Greenish color banding is found in NANNOFOSSIL-RICH CLAYSTONE. Bioturbation is common in NANNOFOSSIL CHALK and NANNOFOSSIL-RICH CLAYSTONE and is dominated by burrows of Zoophycos, Chondrites and Planolites. SILTY SANDSTONE, rich in mica grains, is interbedded with thin SILTY CLAYSTONE beds. SILTY SANDSTONE has erosive basal contacts with underlying SILTY CLAYSTONE. An elongated pyrite nodule ca. 1 cm across is observed in NANNOFOSSIL-RICH CLAYSTONE .



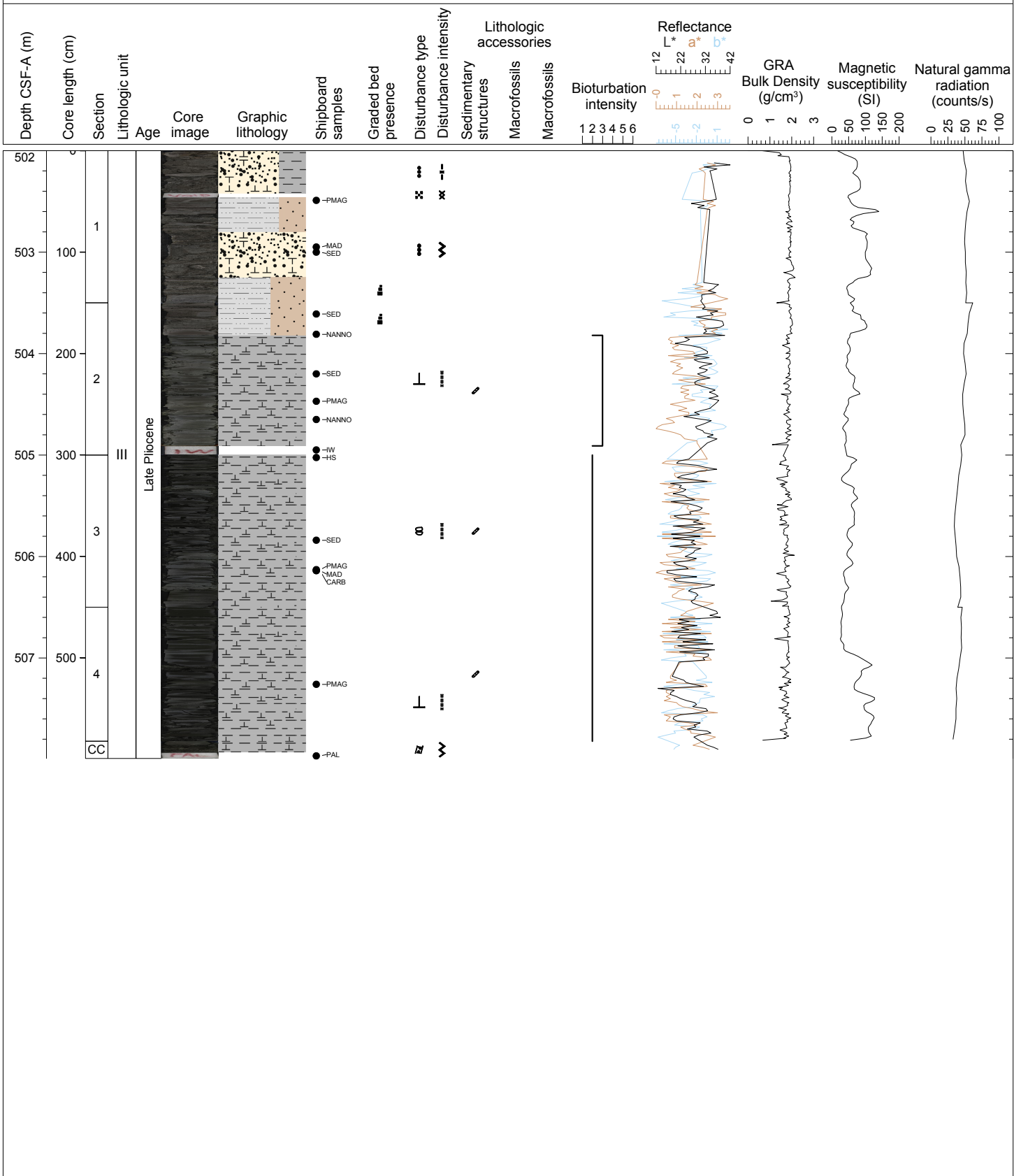
Hole 355-U1457C Core 33R, Interval 492.3-496.33 m (CSF-A)

SILTY SANDSTONE, SILTY CLAYSTONE, NANNOFOSSIL-RICH CLAYSTONE. Light brownish SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the dominant lithologies. The medium bedded SILTY CLAYSTONE is interbedded with thin to medium bedded SILTY SANDSTONE. The SILTY SANDSTONE contains mica grains and is often interbedded with very thin intervals of SILTY CLAYSTONE and NANNOFOSSIL-RICH CLAYSTONE. SILTY SANDSTONE erosively overlies SILTY CLAYSTONE. Medium bedded NANNOFOSSIL-RICH CLAYSTONE contains tiny pyrite grains in Section 3. The SILTY SANDSTONE comprises <20% of the core.



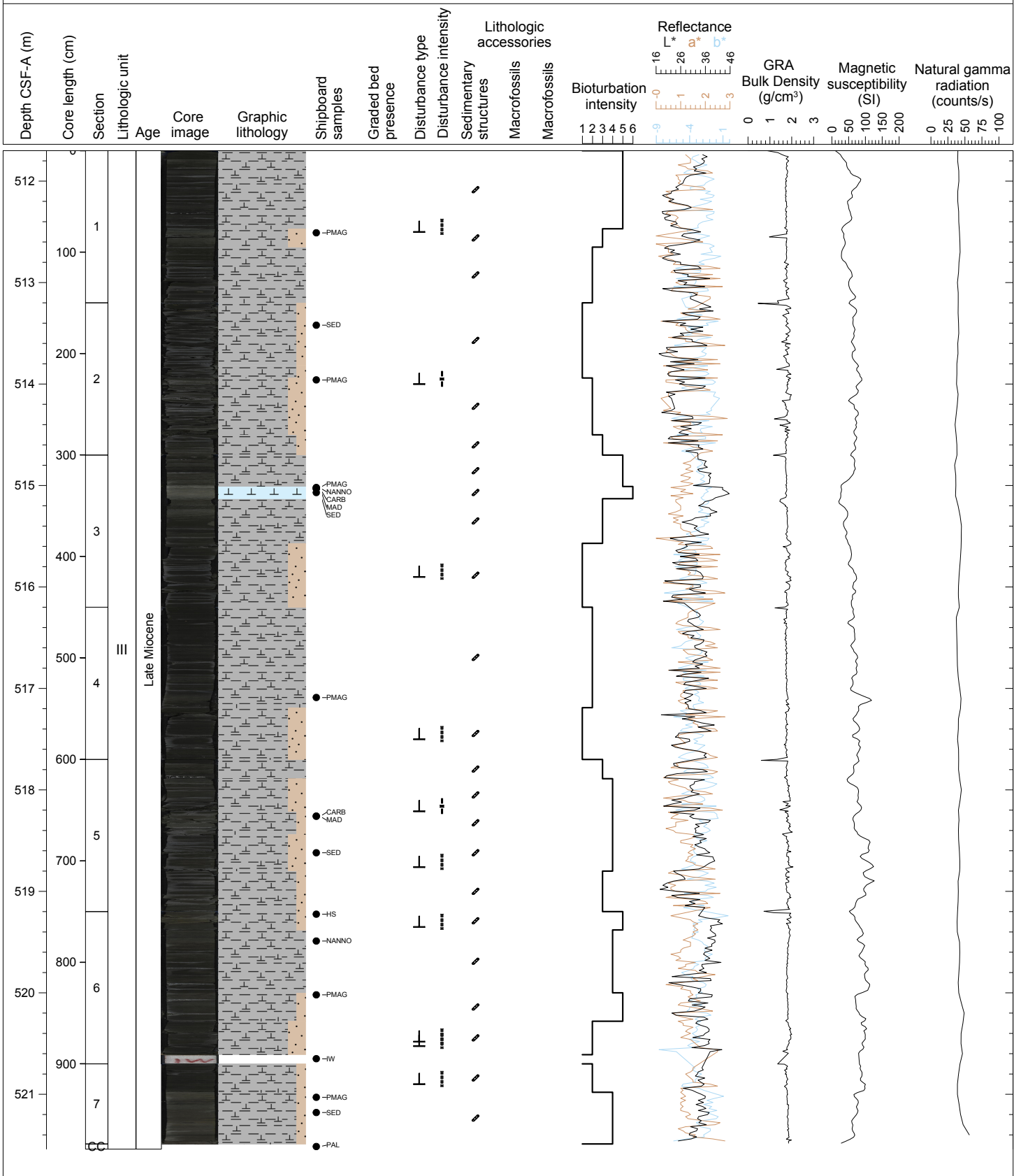
Hole 355-U1457C Core 34R, Interval 502.0-507.99 m (CSF-A)

SILTY SANDSTONE, CLAYEY SILTSTONE, NANNOFOSSIL-RICH CLAYSTONE. Gray massive SILTY SANDSTONE and dark greenish gray NANNOFOSSIL-RICH CLAYSTONE are dominant. Thin (~1 cm) or thick (<15 cm) bedded SILTY CLAYSTONE is overlain by thick (5-45 cm) SILTY SANDSTONE intervals, showing normal grading. Sandy beds show erosive sharp bases. Very thin (<1 cm) dark gray CLAYEY SILTSTONE is also rarely interbedded with SILTY SANDSTONE. NANNOFOSSIL-RICH CLAYSTONE is divided into two colors (gray and dark greenish gray). Burrows (Zoophycos, Nereites, Chondrites) are intense in massive NANNOFOSSIL-RICH CLAYSTONE, but Zoophycos is dominant.



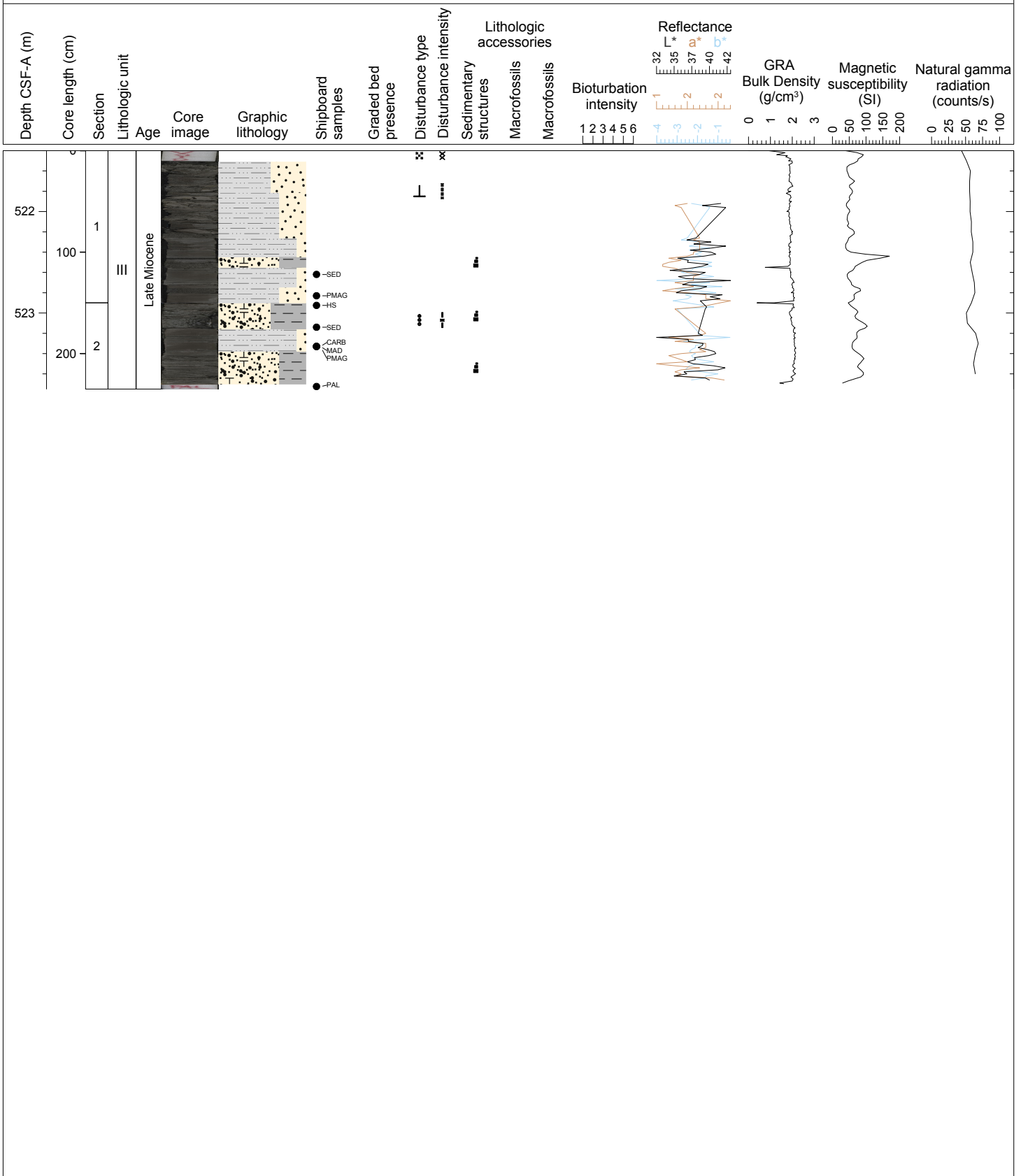
Hole 355-U1457C Core 35R, Interval 511.7-521.54 m (CSF-A)

CLAYEY SILTSTONE, SANDY SILTSTONE, NANNOFOSSIL-RICH CLAYSTONE, NANNOFOSSIL CHALK. Dark greenish gray, dark gray, and gray NANNOFOSSIL-RICH CLAYSTONE is the dominant lithology. 10 cm thick light gray NANNOFOSSIL CHALK beds are interleaved with dark gray NANNOFOSSIL-RICH CLAYSTONE in Section 3. Thin (<1 cm) dark gray CLAYEY SILTSTONE and SANDY SILTSTONE beds are interbedded with dark greenish gray almost massive NANNOFOSSIL-RICH CLAYSTONE. Burrows (Zoophycos, Nereites, Chondrites) are intense, especially in gray NANNOFOSSIL-RICH CLAYSTONE. Zoophycos is particularly found in dark greenish gray NANNOFOSSIL-RICH CLAYSTONE. Pyrites (micro-concretions, ~1 cm across) are frequently observed.



Hole 355-U1457C Core 36R, Interval 521.4-523.75 m (CSF-A)

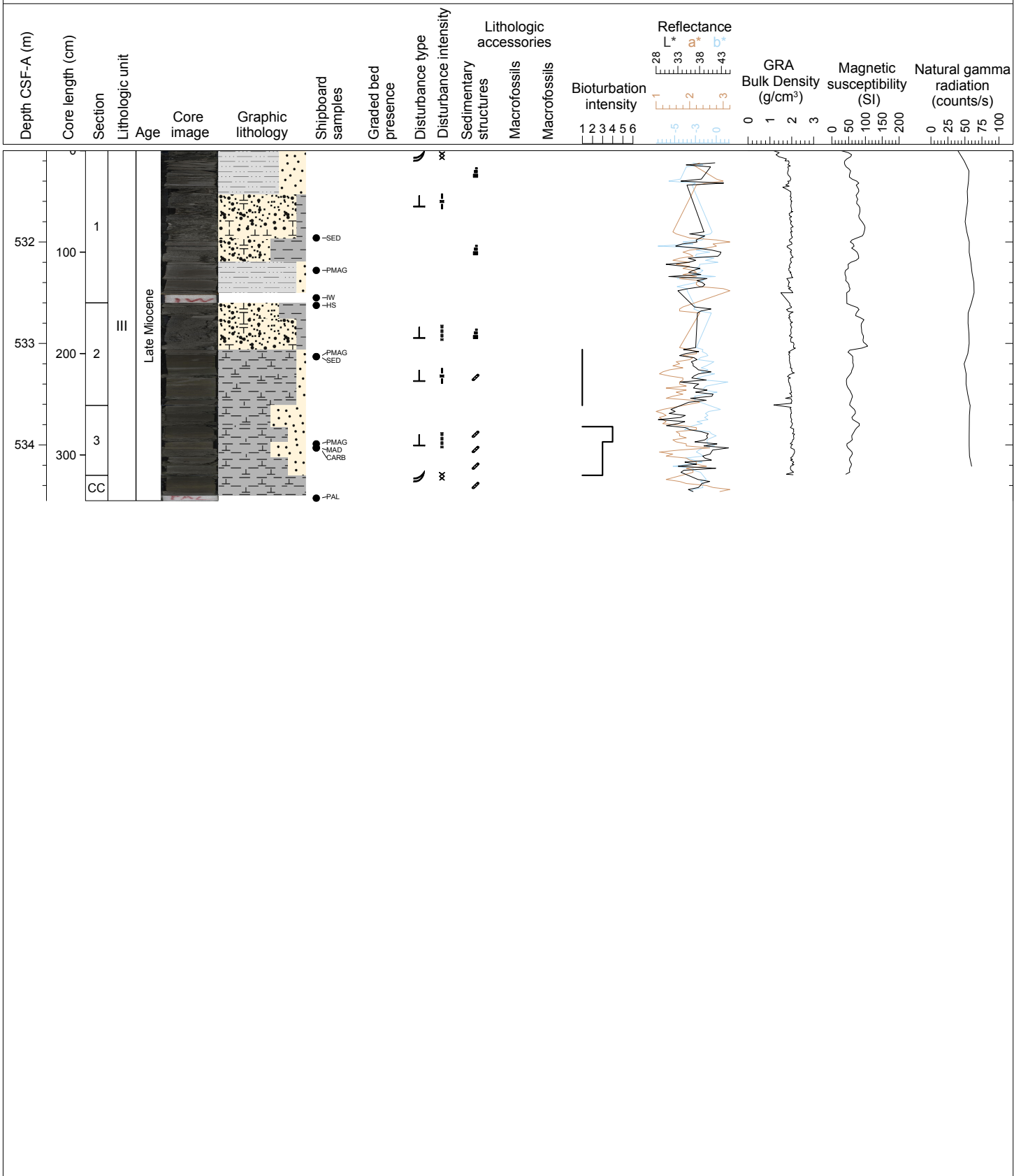
SILTY CLAYSTONE, SILTY SANDSTONE. Brownish gray massive SILTY CLAYSTONE is the dominant lithology. Very thin (<1 cm) or thick (3-15 cm) dark brownish gray SILTY SANDSTONE intervals are interbedded with SILTY CLAYSTONE in fining upwards cycles with sharp erosive bases. SANDSTONE beds also include tiny pieces of rip-up clasts. SILTY SANDSTONE is very fine to fine grained. Mica grains are common in sands. A 1-cm-thick wood layer was seen at 105 cm in Section 1. Some thin SILTY CLAYSTONE layers contain very tiny fibrous wood particles.





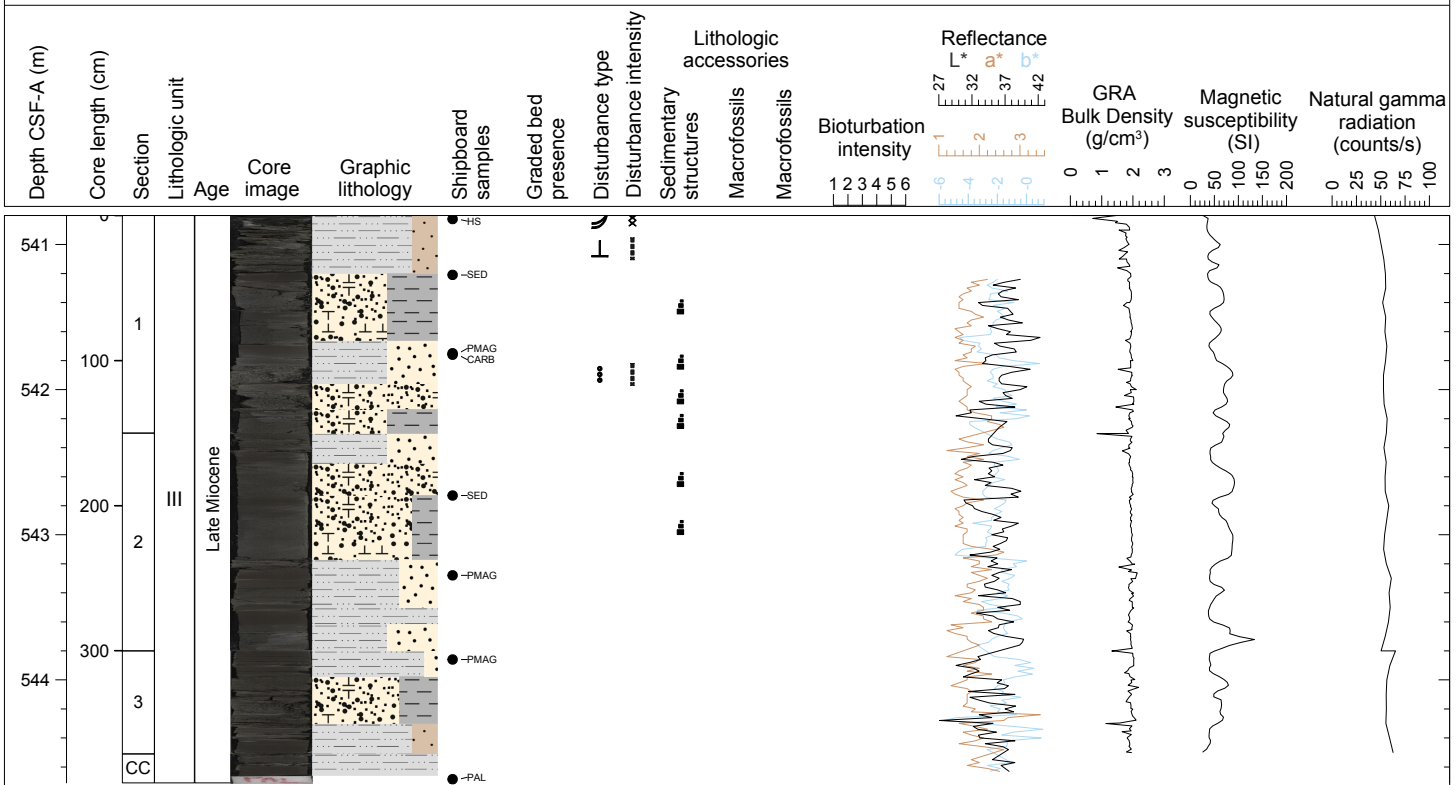
Hole 355-U1457C Core 37R, Interval 531.1-534.55 m (CSF-A)

SILTY SANDSTONE, SILTY CLAYSTONE, NANNOFOSSIL-RICH CLAYSTONE. Dark greenish gray NANNOFOSSIL-RICH CLAYSTONE is dominant, with secondary dark gray SILTY SANDSTONE. Thick (>20 cm) SILTY SANDSTONE sharply and erosively overlies thin (<3 cm) SILTY CLAYSTONE beds and is normally graded. Cycles of thin (<1 cm) SILTY SANDSTONE interbedded with SILTY CLAYSTONE are found in the lower part of Section 1. Some of these thin SANDSTONE beds contain tiny fibrous wood particles. A thick (>1 m) greenish gray NANNOFOSSIL-RICH CLAYSTONE is found in the lower part of core. It is characterized by moderate burrowing and is interbedded with thin (<1 cm) to thick (~3 cm) graded SILTY SANDSTONE beds.



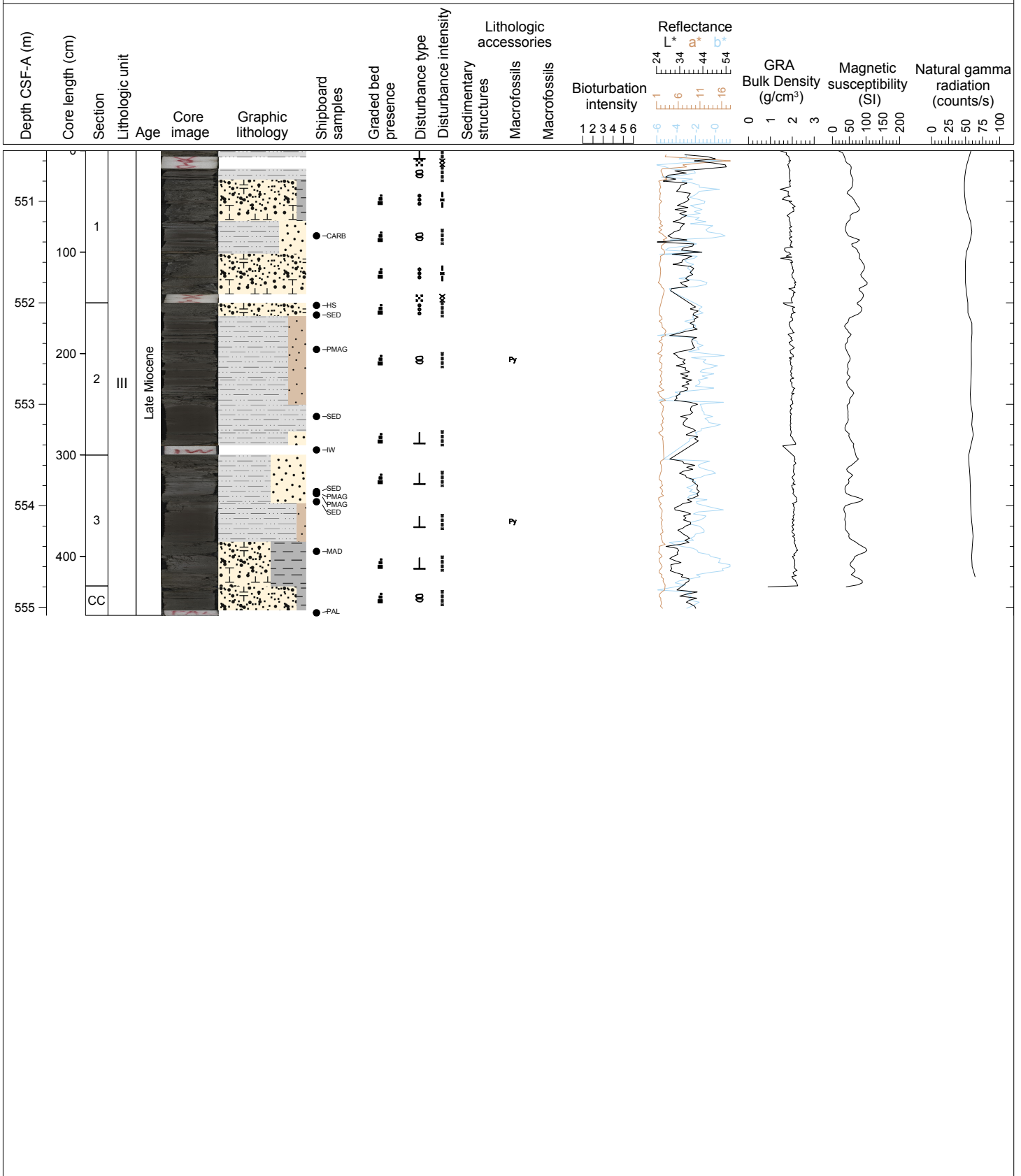
Hole 355-U1457C Core 38R, Interval 540.8-544.71 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, CLAYEY SILTSTONE. Brownish gray massive SILTY CLAYSTONE and dark gray SILTY SANDSTONE are dominant. SILTY SANDSTONE beds are normally thick (5-20 cm), and overlie thin (~5 cm) SILTY CLAYSTONE, sometimes showing the normal grading and erosive base. Sand grains are fine to medium, including large mica and biotite grains. Very thin (<1 cm) SANDSTONE laminae are interbedded with thin (2-3 cm) CLAYSTONE beds. Some boundaries from SANDSTONE up into CLAYSTONE are not gradational, but sharp. A 1 cm thick CLAYEY SILTSTONE is interbedded within CLAYSTONE, and contains dark tiny wood particles. CLAYSTONE is massive without distinct burrows being visible.



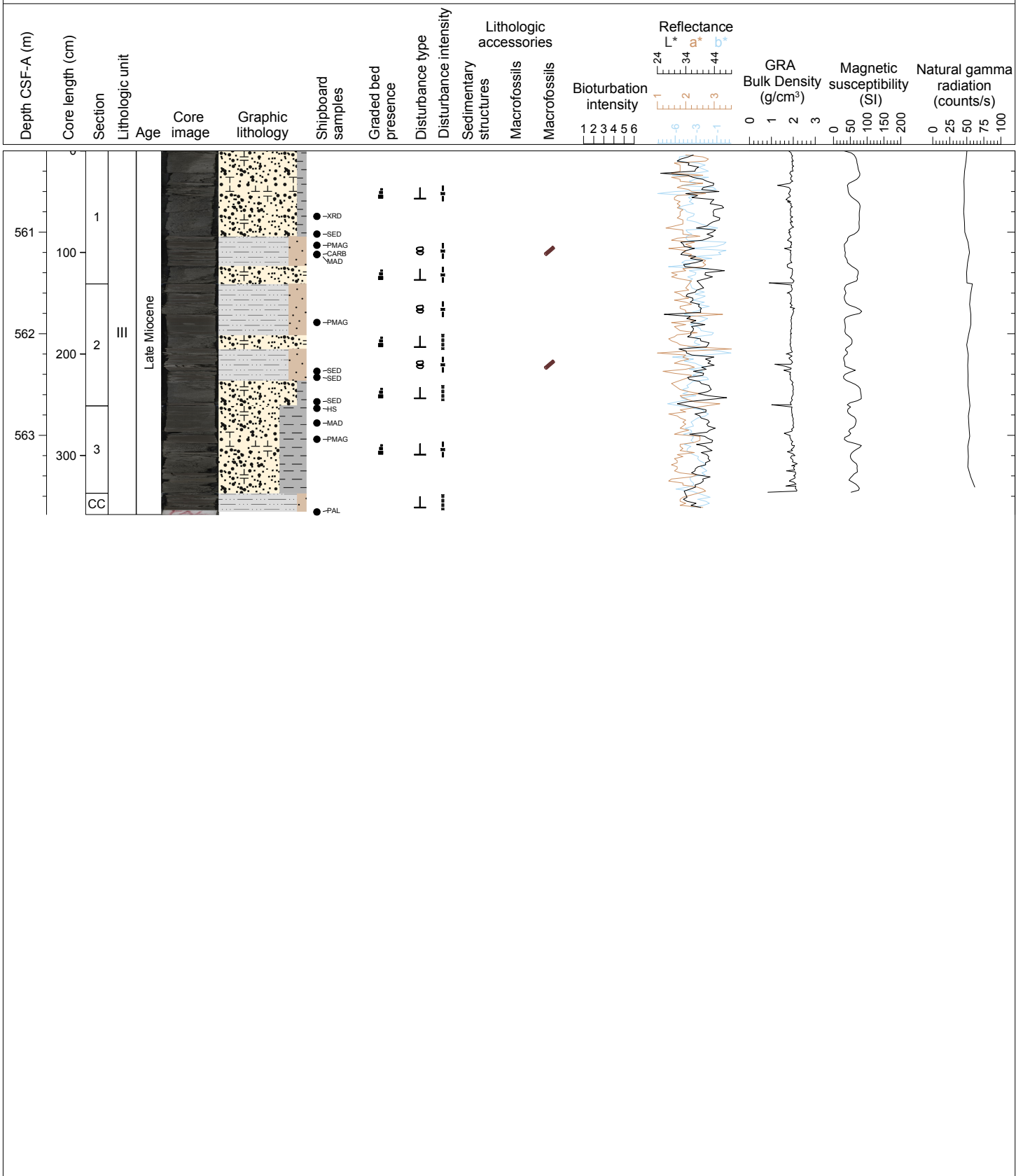
Hole 355-U1457C Core 39R, Interval 550.5-555.08 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE, CLAYEY SILTSTONE. Light brown SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. Thin bedded SILTY CLAYSTONE is mostly found interbedded with thin CLAYEY SILTSTONE, occasionally with SANDY SILTSTONE and SILTY SANDSTONE in normally graded cycles. The SILTY SANDSTONE is interbedded with thin-bedded SILTY CLAYSTONE. SILTY SANDSTONE shows erosive basal contact with underlying SILTY CLAYSTONE. Black horizontal layers and tiny pyrite grains are often observed in SILTY CLAYSTONE, while SILTY SANDSTONE are rich in medium to coarse grained mica. SILTY SANDSTONE comprises <40% of core.



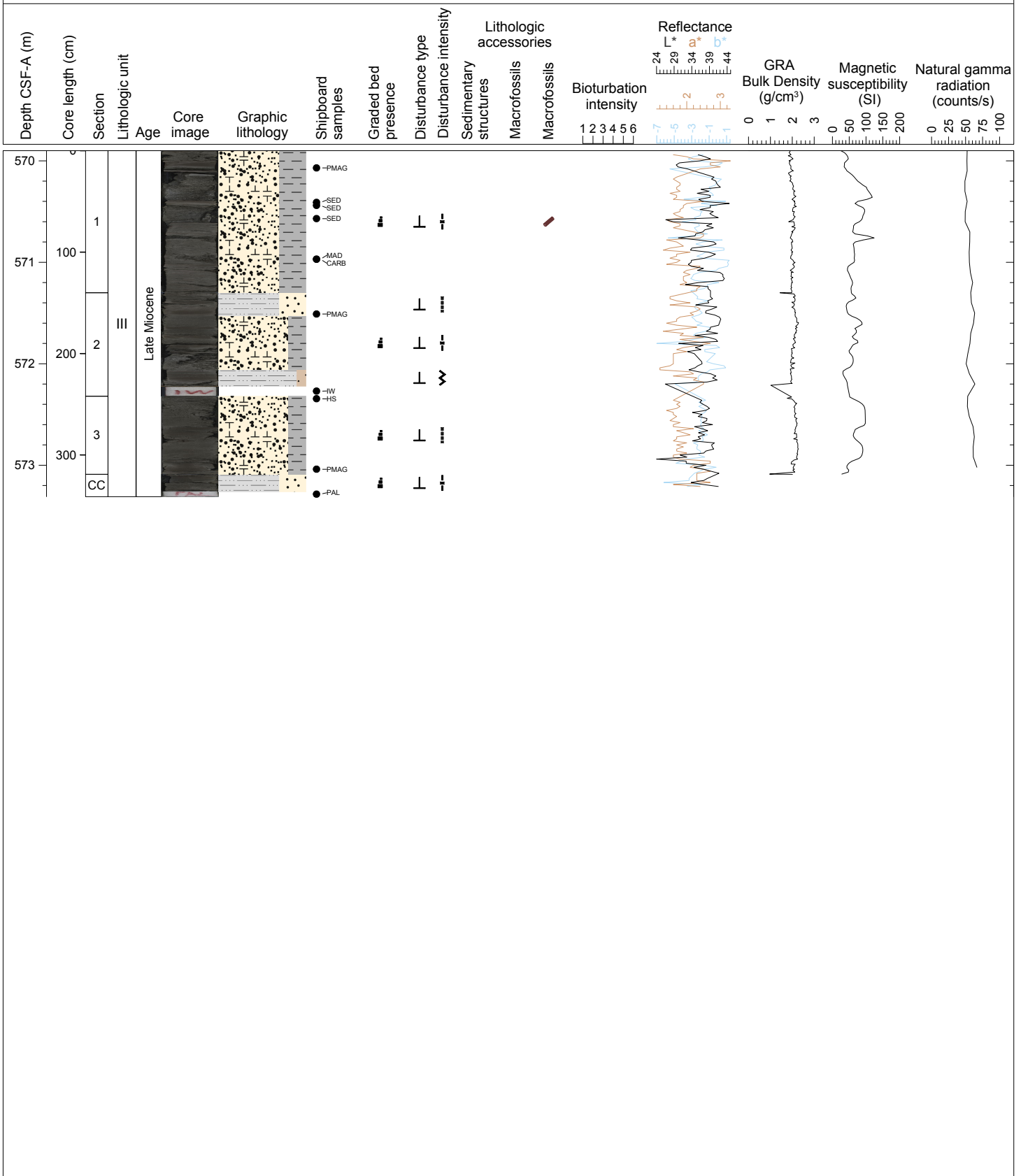
Hole 355-U1457C Core 40R, Interval 560.2-563.78 m (CSF-A)

SILTY SANDSTONE, SILTY CLAYSTONE, SANDY SILTSTONE. Dark gray SILTY SANDSTONE and light brownish SILTY CLAYSTONE are the major lithologies. SILTY SANDSTONE is medium to thickly bedded, rich in mica, and with sharp erosive bottom contacts. Sandy sediment is interbedded with thin SILTY CLAYSTONE. Brownish, thin-bedded SILTY CLAYSTONE is interbedded with very thin (<2 cm) beds of SANDY SILTSTONE, SILTY CLAYSTONE and SILTY SANDSTONE form normally graded cycles. Dark thin layers (<1 cm) rich in wood fragments are also observed in Sections 1 and 2. The SILTY SANDSTONE comprises >50% of the core.



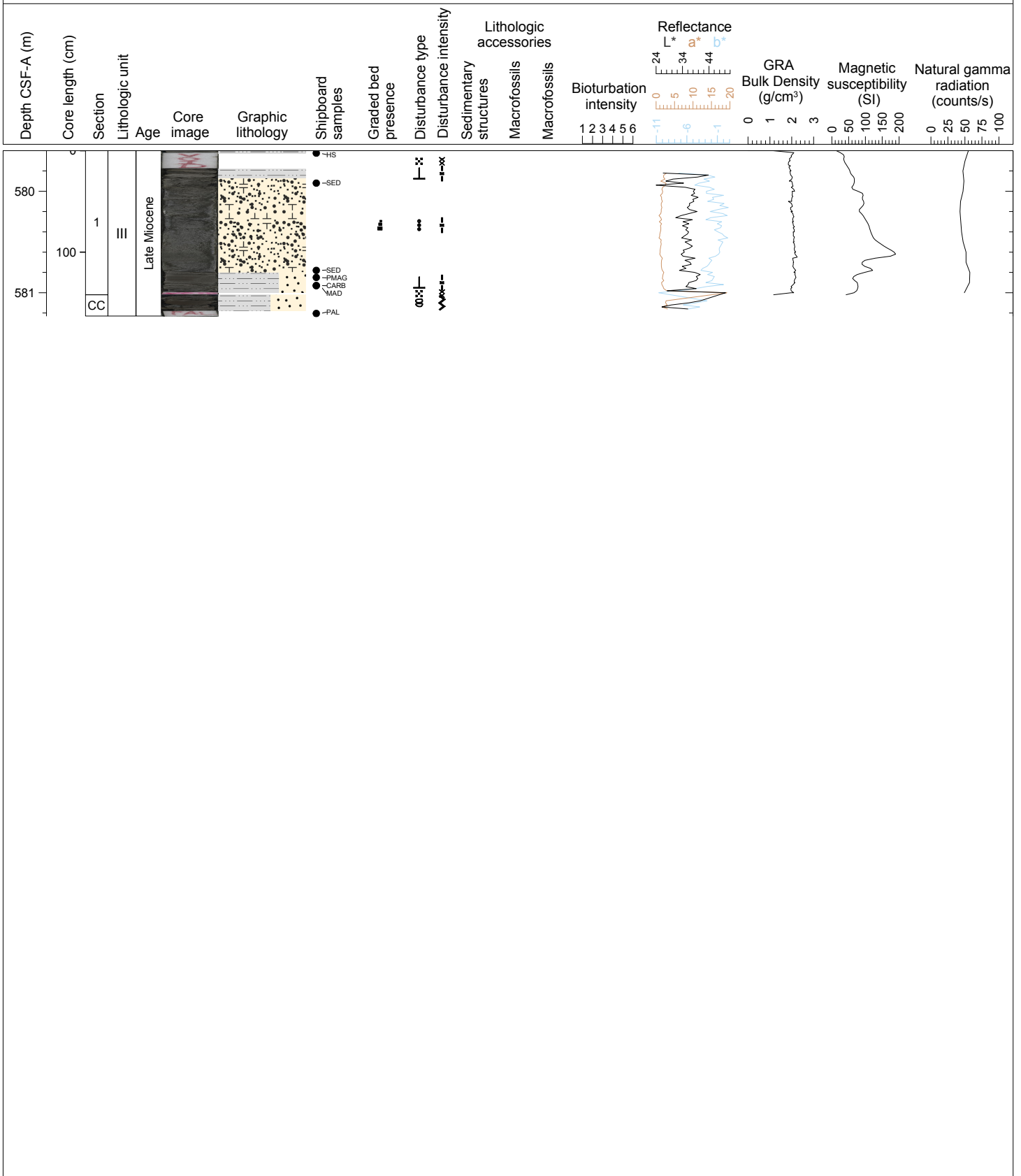
Hole 355-U1457C Core 41R, Interval 569.9-573.31 m (CSF-A)

SILTY SANDSTONE, SILTY CLAYSTONE. Dark gray medium to thickly bedded SILTY SANDSTONE, rich in medium to coarse mica flakes, is interbedded with thin to medium bedded brownish SILTY CLAYSTONE. The SILTY SANDSTONE is normally graded and shows erosive bottom contacts and gradational upper transitions. Blackish horizontal layers are occasionally observed in SILTY CLAYSTONE. Thin layers of wood fragments (~2 cm) is also observed in Section 1, 85-87 cm. SILTY SANDSTONE comprises >70% of the core.



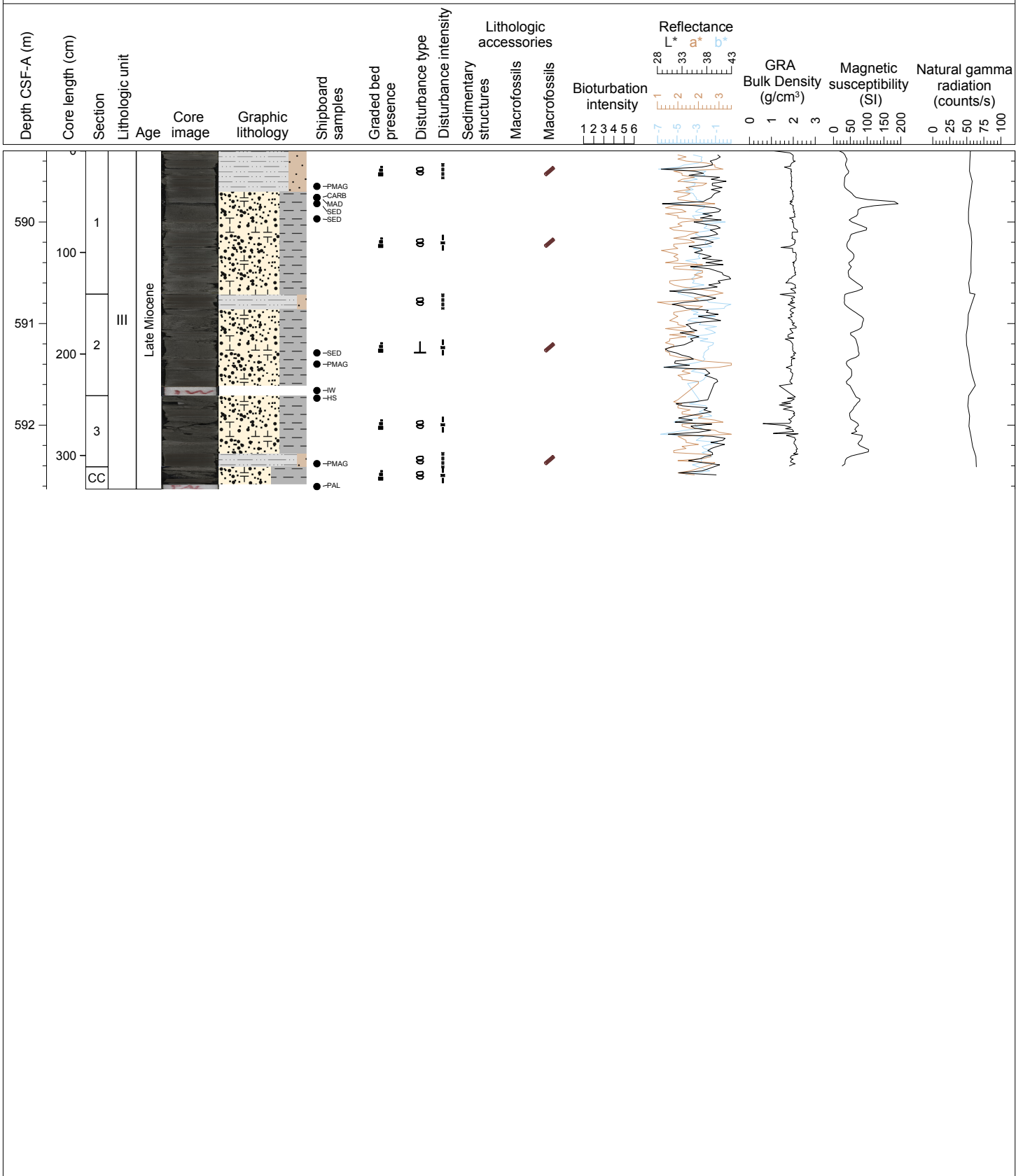
Hole 355-U1457C Core 42R, Interval 579.6-581.23 m (CSF-A)

SILTY CLAYSTONE, SILTY SAND, SILTY SANDSTONE. Dark gray SILTY SAND is the dominant lithology. The SILTY SAND top is mixed with SILTY CLAYSTONE and it is poorly consolidated. SILTY SAND, rich in mica, normally graded, shows a gradational contact with overlying SILTY CLAYSTONE, but a sharp erosive contact with underlying SILTY CLAYSTONE. Light brownish thin-bedded SILTY CLAYSTONE is interbedded with SILTY SANDSTONE in the top and bottom of the core. SILTY SAND comprises <80% of the core.



Hole 355-U1457C Core 43R, Interval 589.3-592.63 m (CSF-A)

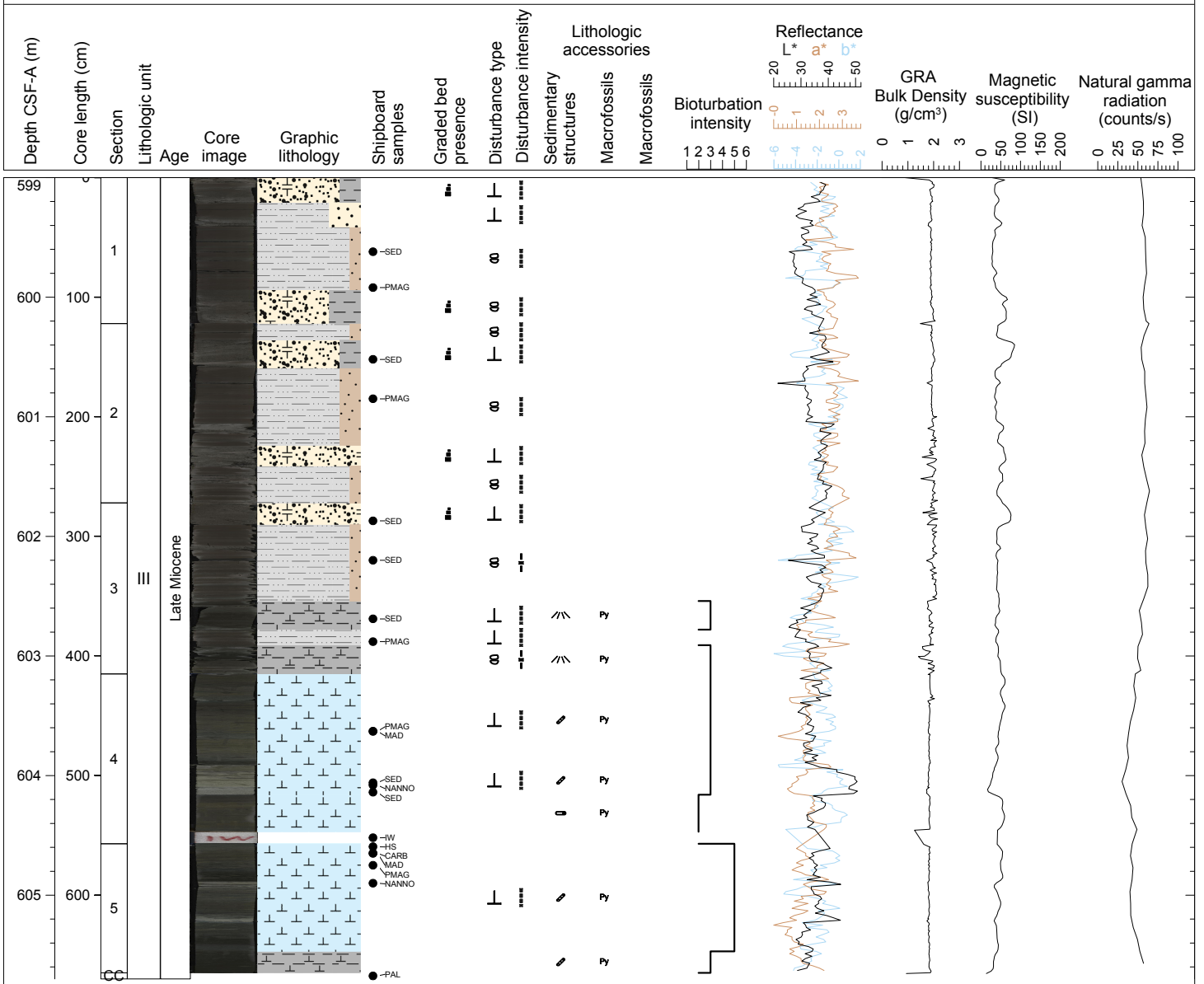
SILTY CLAYSTONE, SILTY SANDSTONE. Dark gray, medium-bedded SILTSTONE and brownish SILTY CLAYSTONE are the major lithologies. The medium bedded SILTY SANDSTONE is interbedded with thinly bedded SILTY CLAYSTONE. SILTY SANDSTONE is normally graded, rich in mica, and shows erosive basal contacts and gradational top contacts with SILTY CLAYSTONE. The SILTY CLAYSTONE is thinly bedded and often observed with thin interbedded layers of SILTY SANDSTONE. Thin wood-rich layers are also observed. The SILTY SANDSTONE comprises <70% of the core





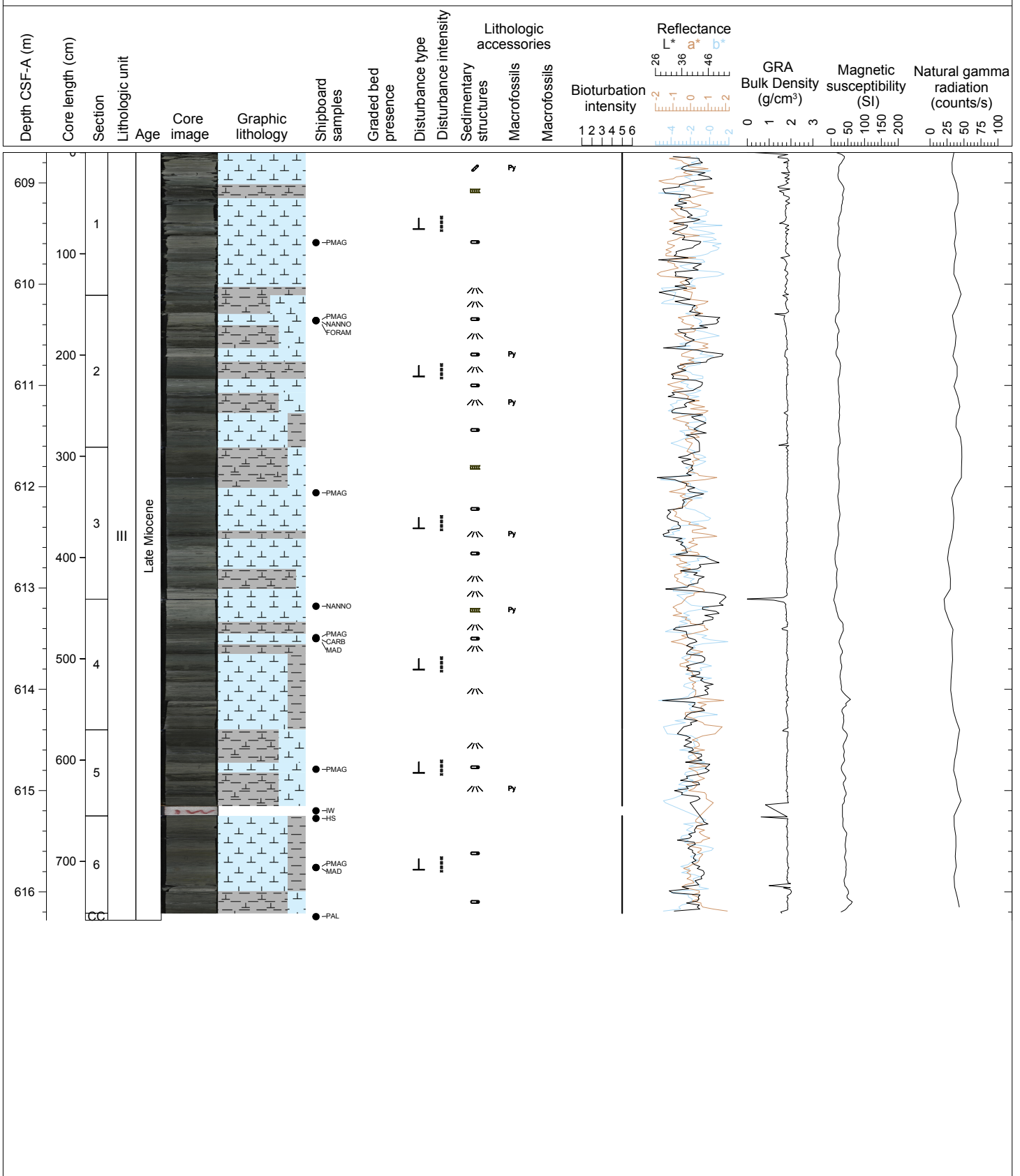
Hole 355-U1457C Core 44R, Interval 599.0-605.7 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE, NANNOFOSSIL-RICH CLAYSTONE, NANNOFOSSIL CHALK, Brownish SILTY CLAYSTONE and greenish to light brownish gray NANNOFOSSIL CHALK are the dominant lithologies. Medium bedded SILTY CLAYSTONE, interbedded with very thin SANDY SILTSTONE in the upper half of the core, often shows blackish horizontal layers. The dark gray, medium-bedded SILTY SANDSTONE is interbedded with SILTY CLAYSTONE. NANNOFOSSIL-RICH CLAYSTONE and NANNOFOSSIL CHALK are highly bioturbated, with dominant Zoophycos, Chondrite and composite burrows. Skolithos was observed in NANNOFOSSIL RICH CLAYSTONE. Tiny pyrite grains are observed in NANNOFOSSIL-RICH CLAYSTONE and NANNOFOSSIL CHALK. SILTY CLAYSTONE comprises <60 % of the core.



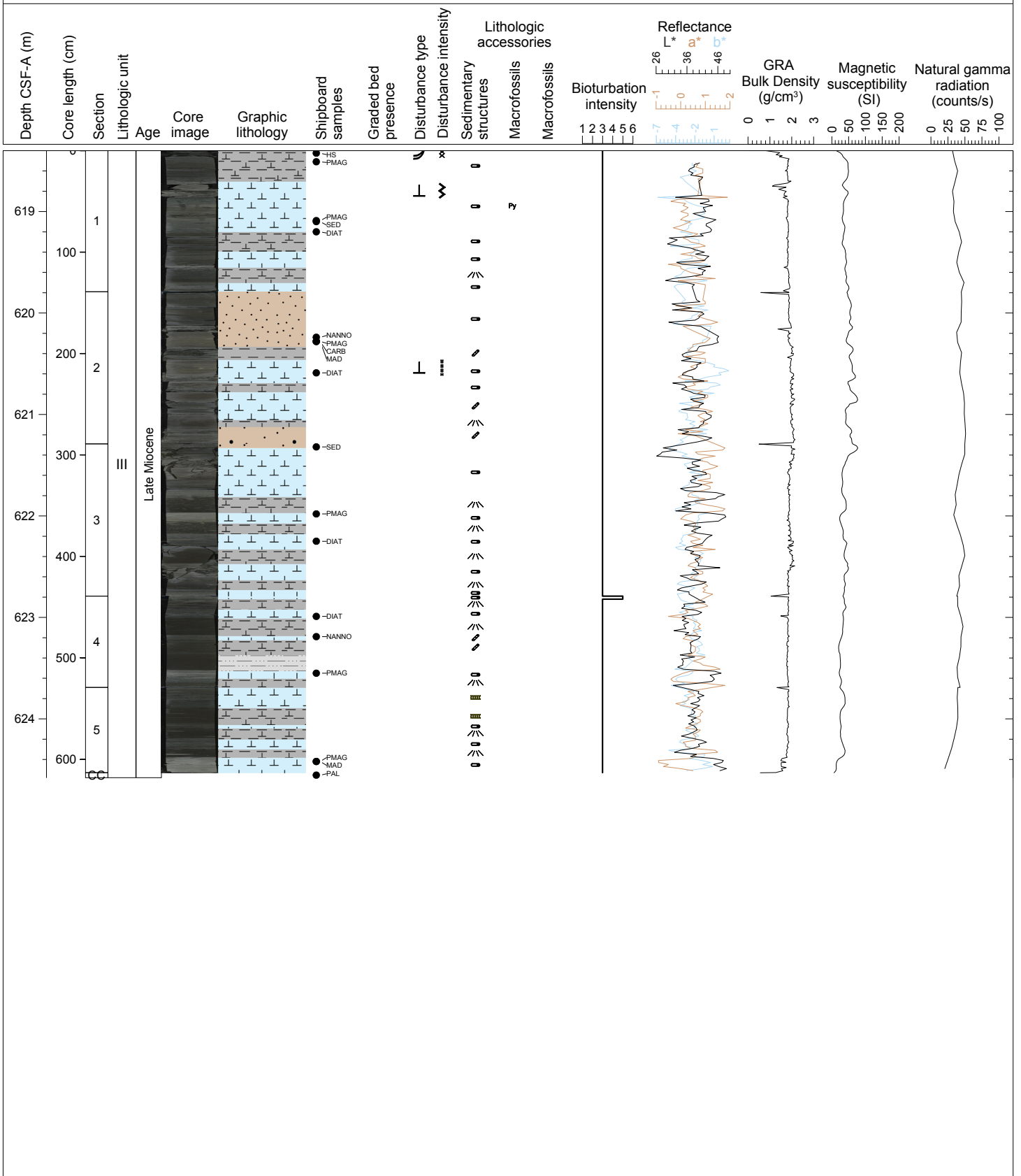
Hole 355-U1457C Core 45R, Interval 608.7-616.28 m (CSF-A)

NANNOFOSIIL CHALK , NANNOFOSSIL-RICH CLAYSTONE. White NANNOFOSSIL CHALK and light greenish NANNOFOSSIL-RICH CLAYSTONE are the major lithologies and are interbedded in graded cycles in which color shows the sharp base of the clay-rich layer grading up into the carbonate-rich sediment. The whole core is highly bioturbated, The NANNOFOSSIL-RICH CLAYSTONE is dominated by Chondrites, whereas NANNOFOSSIL CHALK is dominated with Planolites, Zoophycos and composite burrows. Dispersed pyrite graind are common. ~ 1 cm pyrite nodule is observed at Section 3, 20-21 cm.



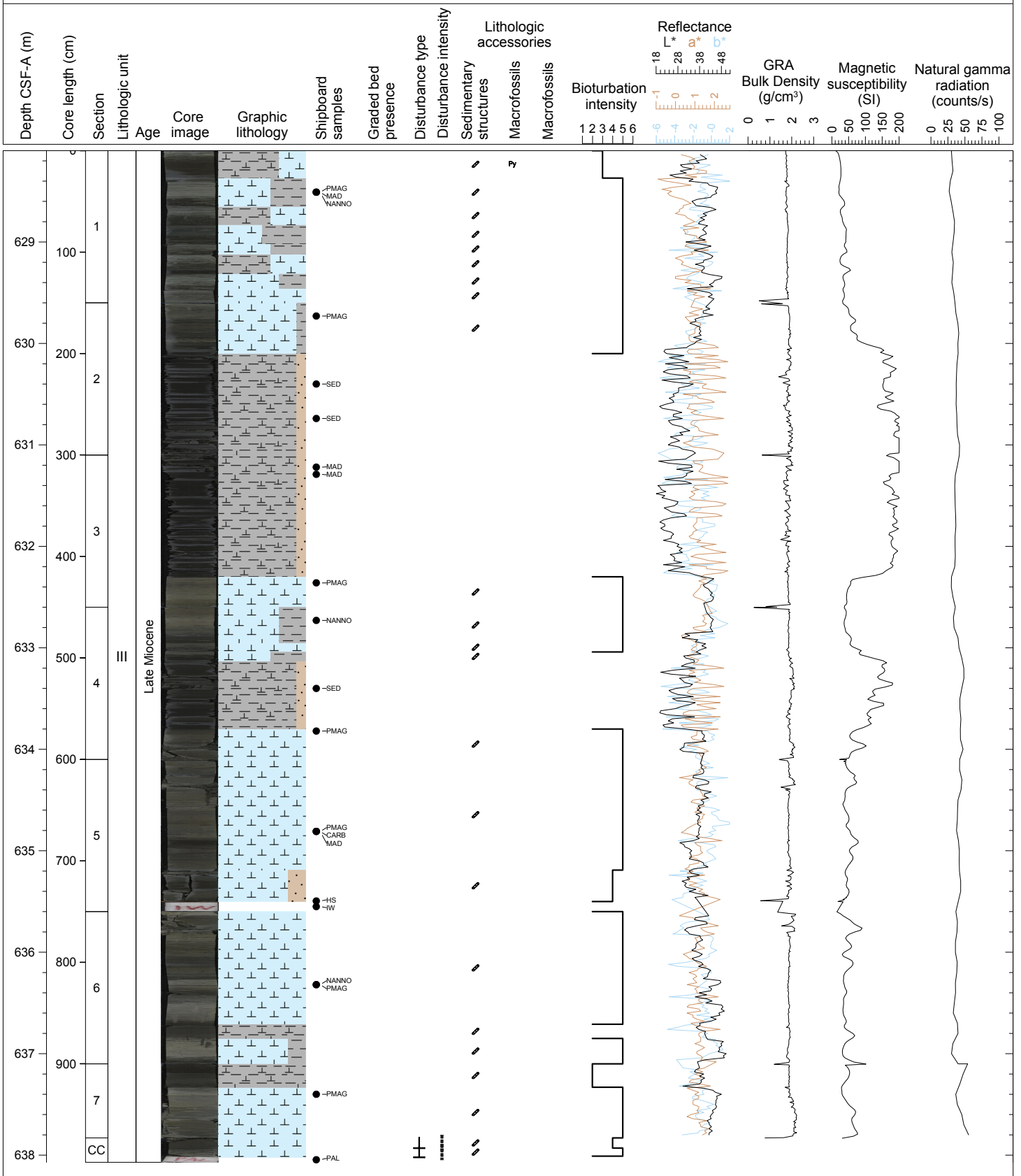
Hole 355-U1457C Core 46R, Interval 618.4-624.58 m (CSF-A)

NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE, SANDY SILTSTONE, SILTY CLAYSTONE. White NANNOFOSSIL CHALK, light greenish NANNOFOSSIL-RICH CLAYSTONE and brownish SILTY CLAYSTONE are the major lithologies. NANNOFOSSIL CHALK and NANNOFOSSIL-RICH CLAYSTONE are highly bioturbated, with common Planolites, Chondrites and Zoophycos. The NANNOFOSSIL CHALK shows gradational contact with the underlying NANNOFOSSIL-RICH CLAYSTONE, which has a sharp basal contact with underlying carbonate-rich top of the previous graded cycle.



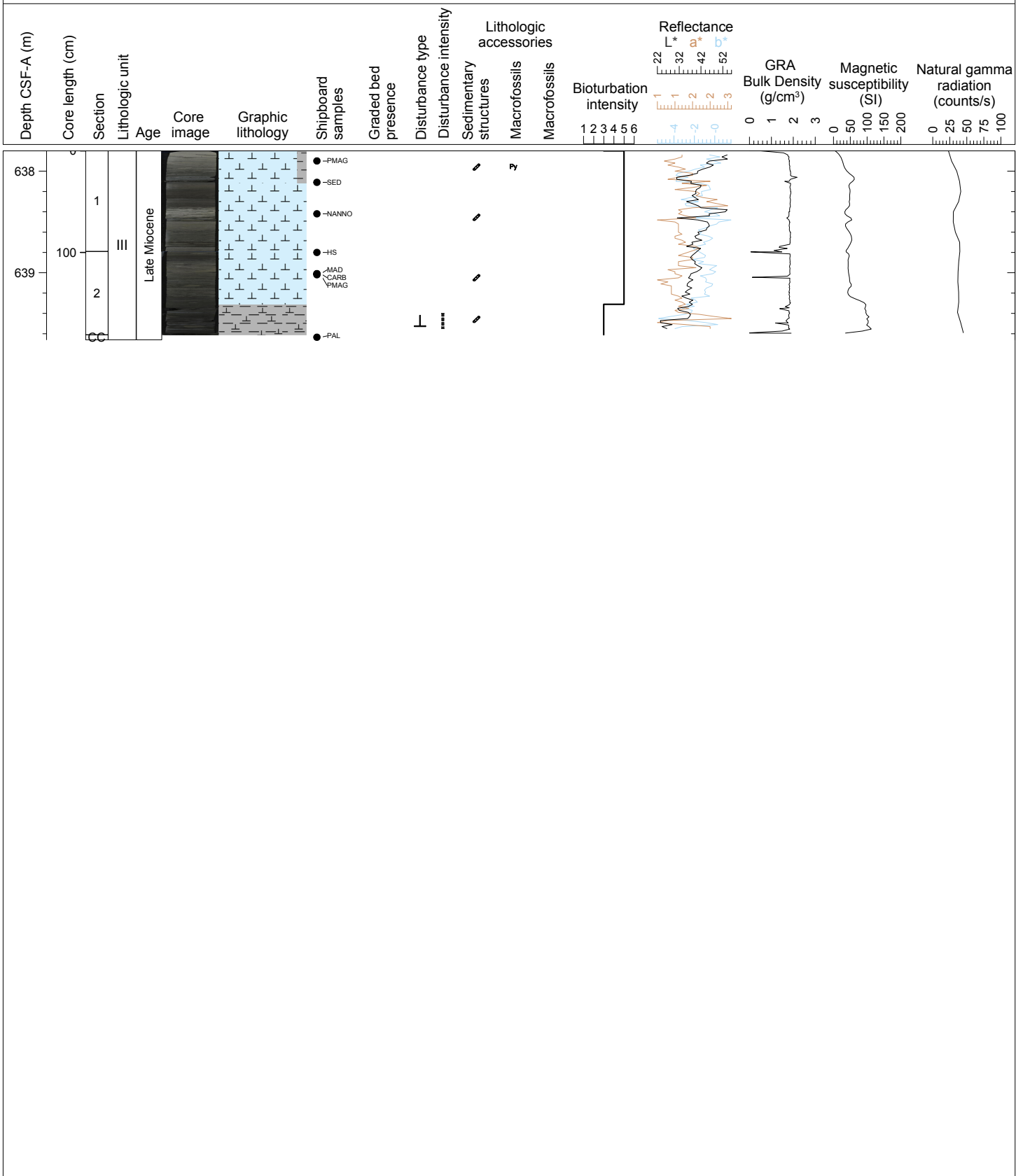
Hole 355-U1457C Core 47R, Interval 628.1-638.07 m (CSF-A)

NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE, SILTSTONE. Light gray, highly bioturbated NANNOFOSSIL CHALK is dominant. NANNOFOSSIL CHALK is sharply and erosively overlain by bioturbated or massive NANNOFOSSIL-RICH CLAYSTONE. A thick (~2 m) layer is marked by interbeds of dark gray NANNOFOSSIL-RICH CLAYSTONE and SILTSTONE within NANNOFOSSIL CHALK. NANNOFOSSIL CLAYSTONE layers are 2-5 cm thick and are overlain by ~1 cm SILTSTONE beds. Thin SILTSTONE beds preserve very thin parallel laminations. Burrows include Skolithos, Nereites, Zoophycos, and Chondrites. Pyrite is seen at Section 1, 35 cm and Section 3, 64 cm.



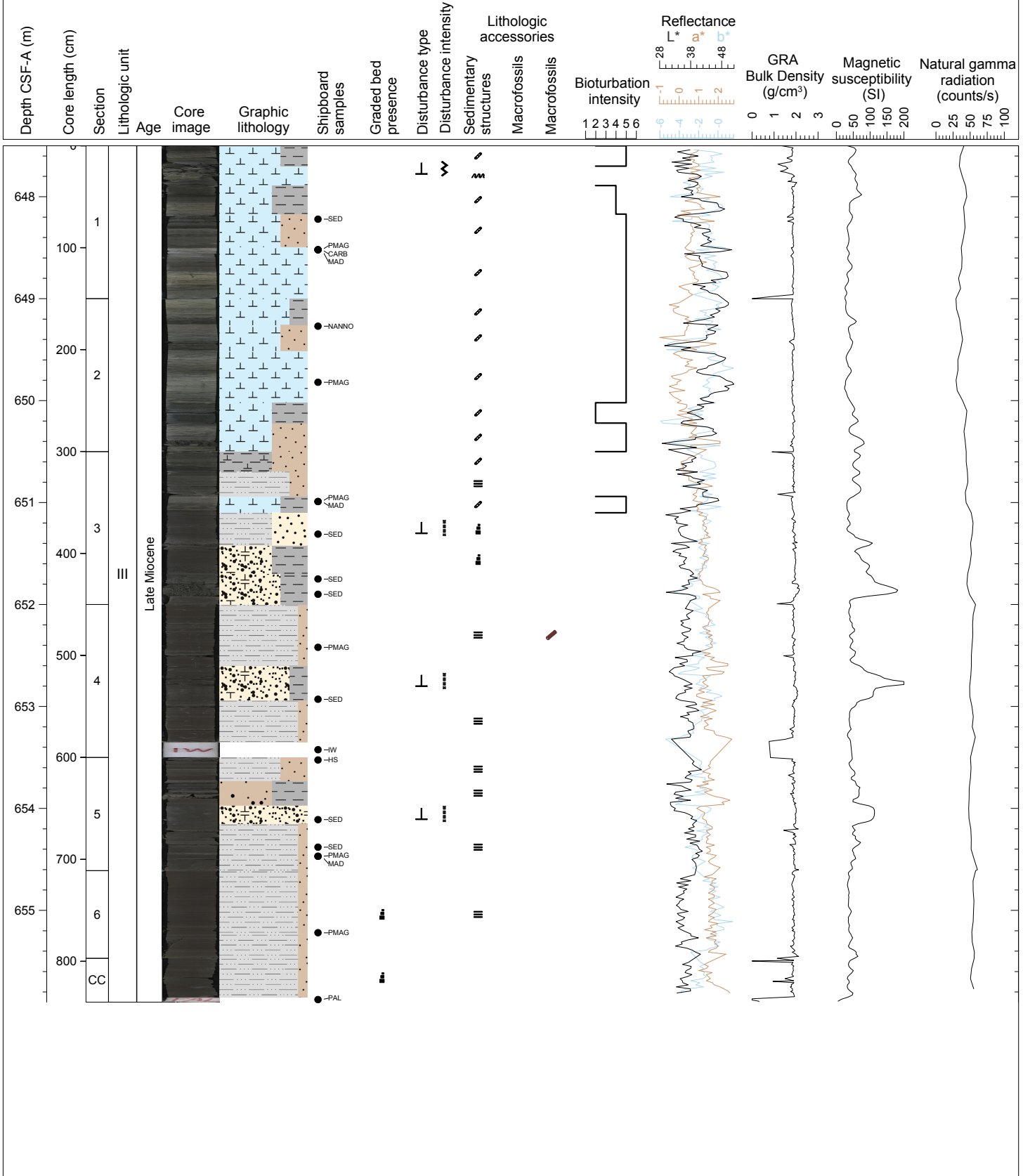
Hole 355-U1457C Core 48R, Interval 637.8-639.66 m (CSF-A)

NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE. Light gray or greenish gray NANNOFOSSIL CHALK is dominant and interbedded with more clay-rich intervals with gradational boundaries. Bioturbation is strong and burrows are diverse and include Zoophycos, Chondrites and Nereites. A 1 cm thick gray NANNOFOSSIL-RICH CLAYSTONE is interbedded with NANNOFOSSIL CHALK, showing an erosive boundary at the base of the clay-rich layer. Pyrite micro-nodules are seen at Section 1, 26 cm.



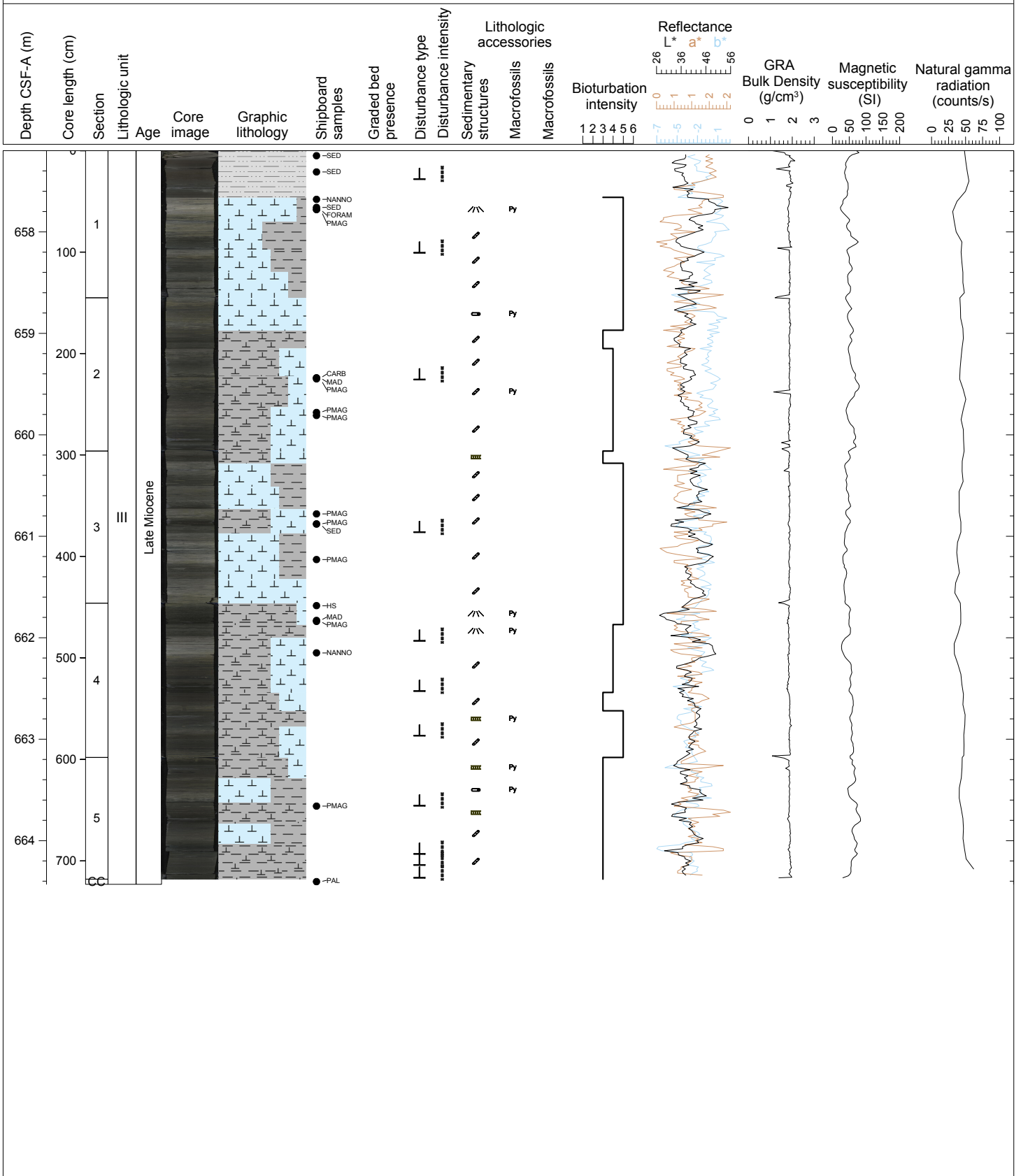
Hole 355-U1457C Core 49R, Interval 647.5-655.9 m (CSF-A)

NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE, SILTSTONE, SILTY CLAYSTONE, SILTY SANDSTONE. Light gray, highly bioturbated NANNOFOSSIL CHALK, dark gray, less bioturbated NANNOFOSSIL-RICH CLAYSTONE, and brown, massive SILTY CLAYSTONE are the main lithologies. Dark gray NANNOFOSSIL-RICH CLAYSTONE is interbedded with light gray NANNOFOSSIL CHALK in a series of graded cycles. Burrows include Zoophycos, Skolithos, and Chondrites, Dark brown thick (~ 20 cm) massive SILTY SANDSTONE is interbedded with brownish gray SILTY CLAYSTONE. This thick SANDSTONE contains clay rip-ups in its upper parts. A very thin (<1 cm) SILTSTONE is also interbedded with SILTY CLAYSTONE. Thin, normally graded SILTSTONE layers with erosive bases show very thin (~1 mm) parallel laminated laminae and contain tiny wood fragment particles. A larger wood fragment is seen at Section 4, 50 cm.



Hole 355-U1457C Core 50R, Interval 657.2-664.43 m (CSF-A)

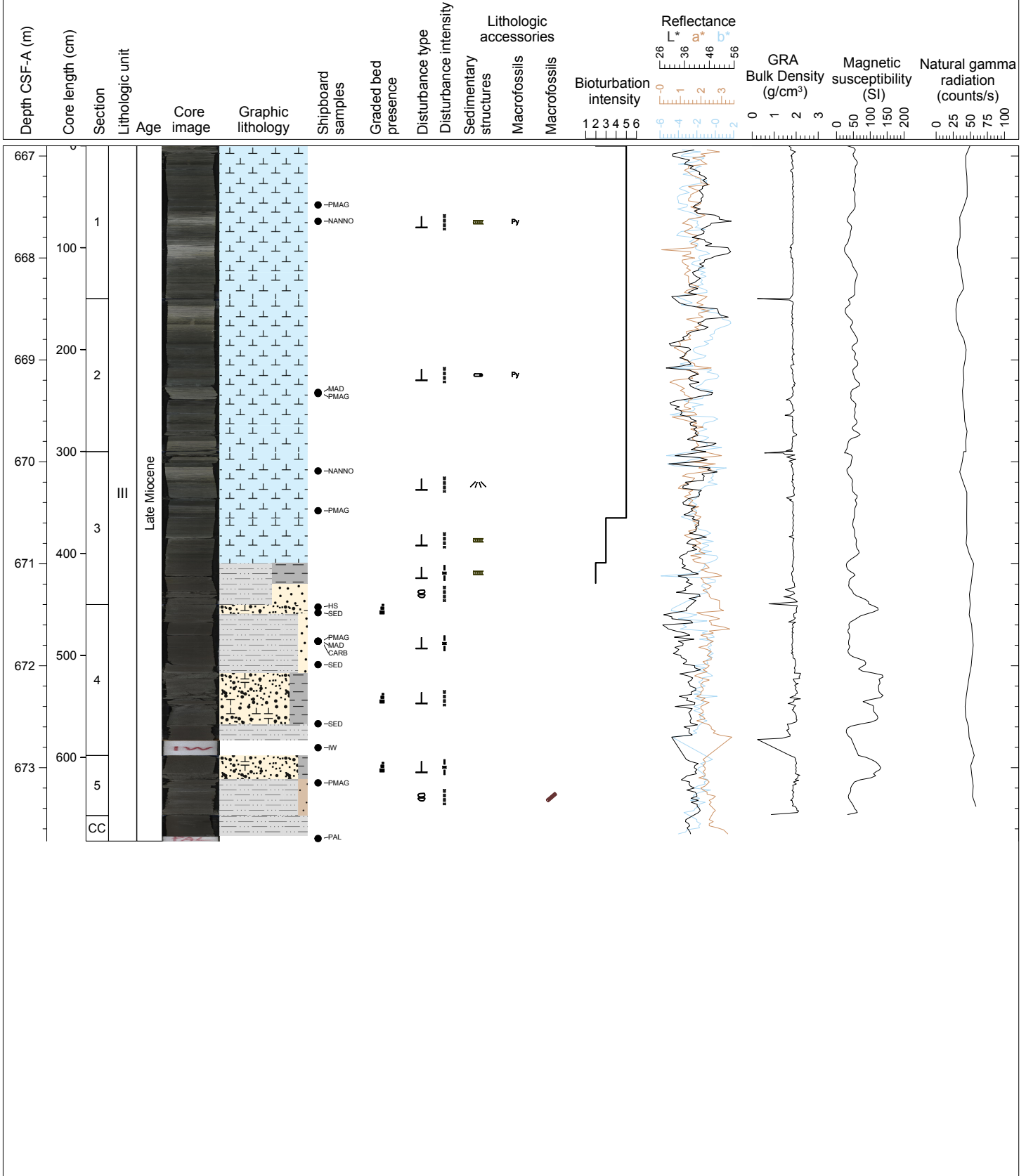
NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE. SILTY CLAYSTONE. Light gray, highly bioturbated NANNOFOSSIL CHALK and dark greenish gray, less bioturbated NANNOFOSSIL-RICH CLAYSTONE are dominant. These two lithologies overlies a 45 cm thick massive, gray SILTY CLAYSTONE. The contact between the SILTY CLAYSTONE and NANNOFOSSIL CHALK is sharply erosive. NANNOFOSSIL CHALK is overlain by NANNOFOSSIL-RICH CLAYSTONE. These interbeds are repeated in cycles with different thicknesses (30-70 cm). The basal contact of each cycle is normally planar and sharp. NANNOFOSSIL CHALK is dominated by Chondrites and Zoophycos burrows, while Planolites and composite burrows are dominated by white NANNOFOSSIL CHALK. Skolithos is also observed. <2 cm pyrite nodules are common.





Hole 355-U1457C Core 51R, Interval 666.9-673.72 m (CSF-A)

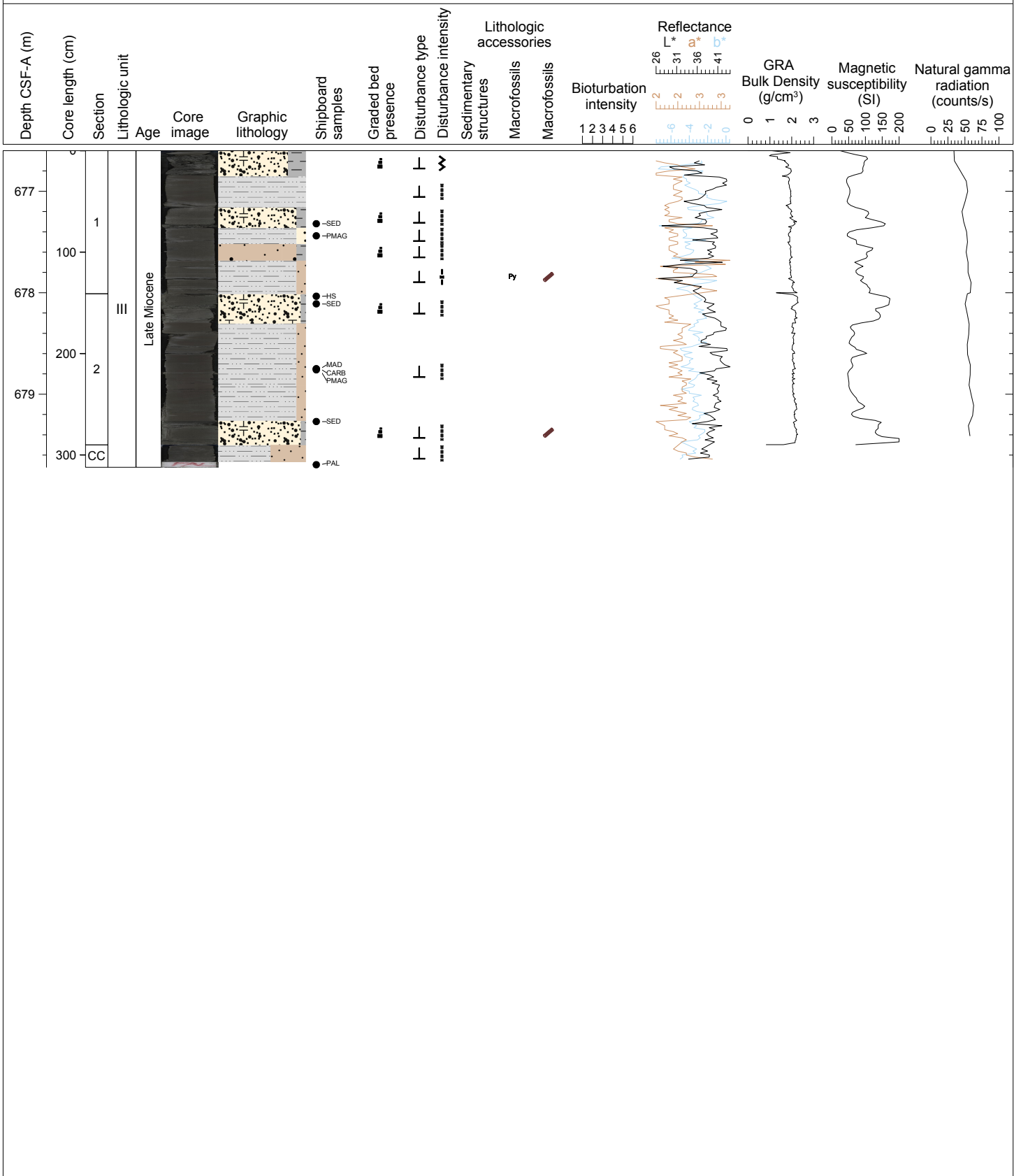
NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE, SILTY CLAYSTONE, SILTY SANDSTONE. Greenish to light brownish and white NANNOFOSSIL CHALK, light brownish SILTY CLAYSTONE and gray SILTY SANDSTONE are the major lithologies. Greenish, thin-bedded NANNOFOSSIL CHALK WITH CLAY shows sharp basal boundaries overlying NANNOFOSSIL CHALK. Thin-bedded NANNOFOSSIL CHALK is rich in foraminifers in Section 2 (98-100 cm). Thin bedded brownish SILTY CLAYSTONE is interbedded with thin-bedded SILTY SANDSTONE in the lower part of the core in normally graded cycles. Bioturbation is intense within NANNOFOSSIL CHALK, whereas green NANNOFOSSIL CHALK WITH CLAY is dominated by Chondrites. Common burrows include Zoophycos, Chondrites, Planolites and composite burrows. Vertical Skolithos forms are also observed. SILTY CLAYSTONE and SILTY SANDSTONE together comprises <50 % of the core.





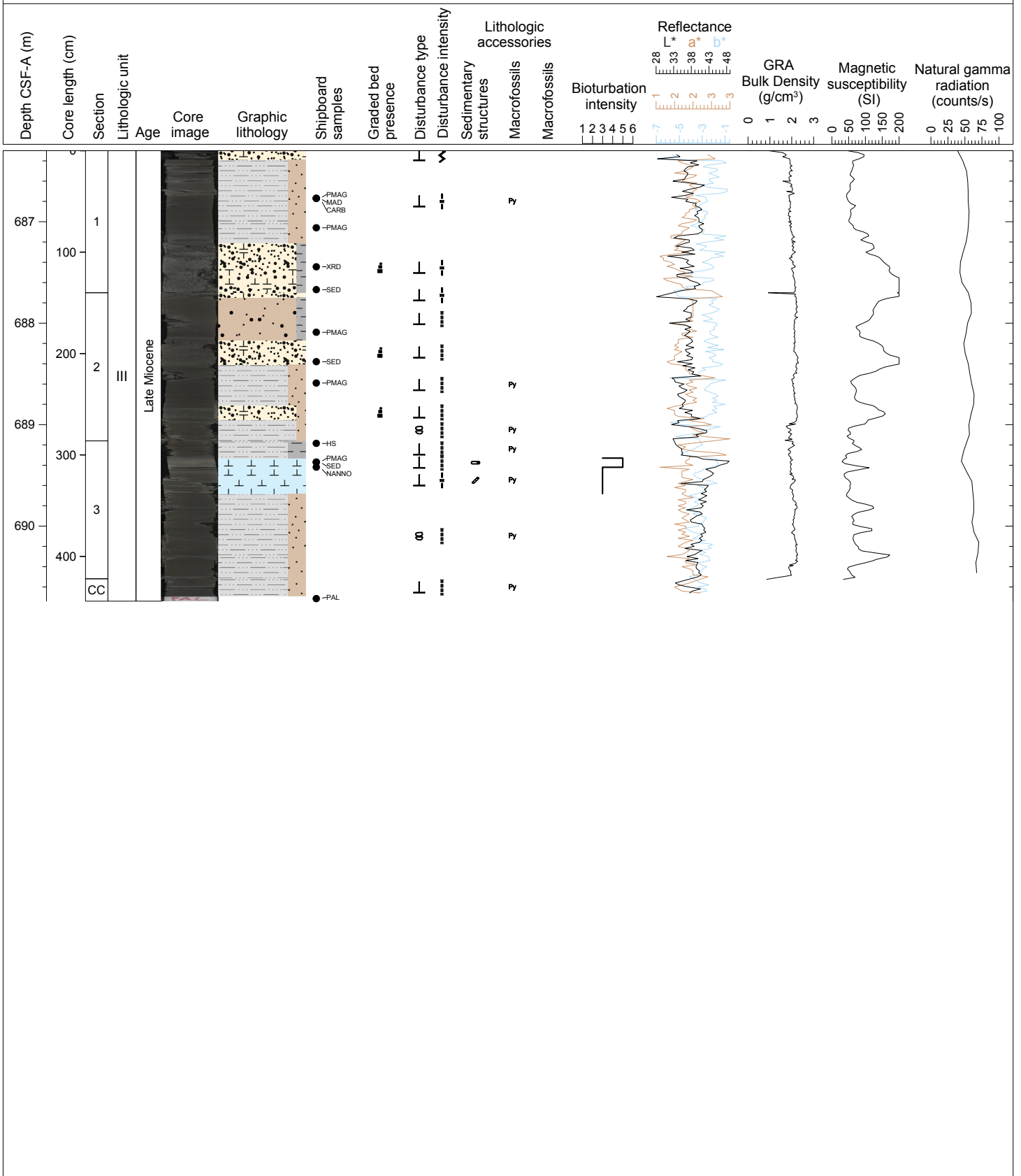
Hole 355-U1457C Core 52R, Interval 676.6-679.72 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE. Light brownish gray, medium-bedded SILTY CLAYSTONE, interbedded with thin SANDY SILTSTONE and dark gray SILTY SANDSTONE are the dominant lithologies. Thin to medium bedded SILTY SANDSTONE is interleaved with thin SILTY CLAYSTONE layers and contains clay rip-ups. SILTY SANDSTONE and SANDY SILTSTONE both normally graded and are found with erosive, sharp basal boundaries. SILTY CLAYSTONE occasionally shows gradation changes with underlying SANDY SILTSTONE. Black horizontal lines and black spots of pyrite are found in SILTY CLAYSTONE. Layers and patches of wood fragments are also observed in the core. SILTY SANDSTONE comprise <40% of the core.



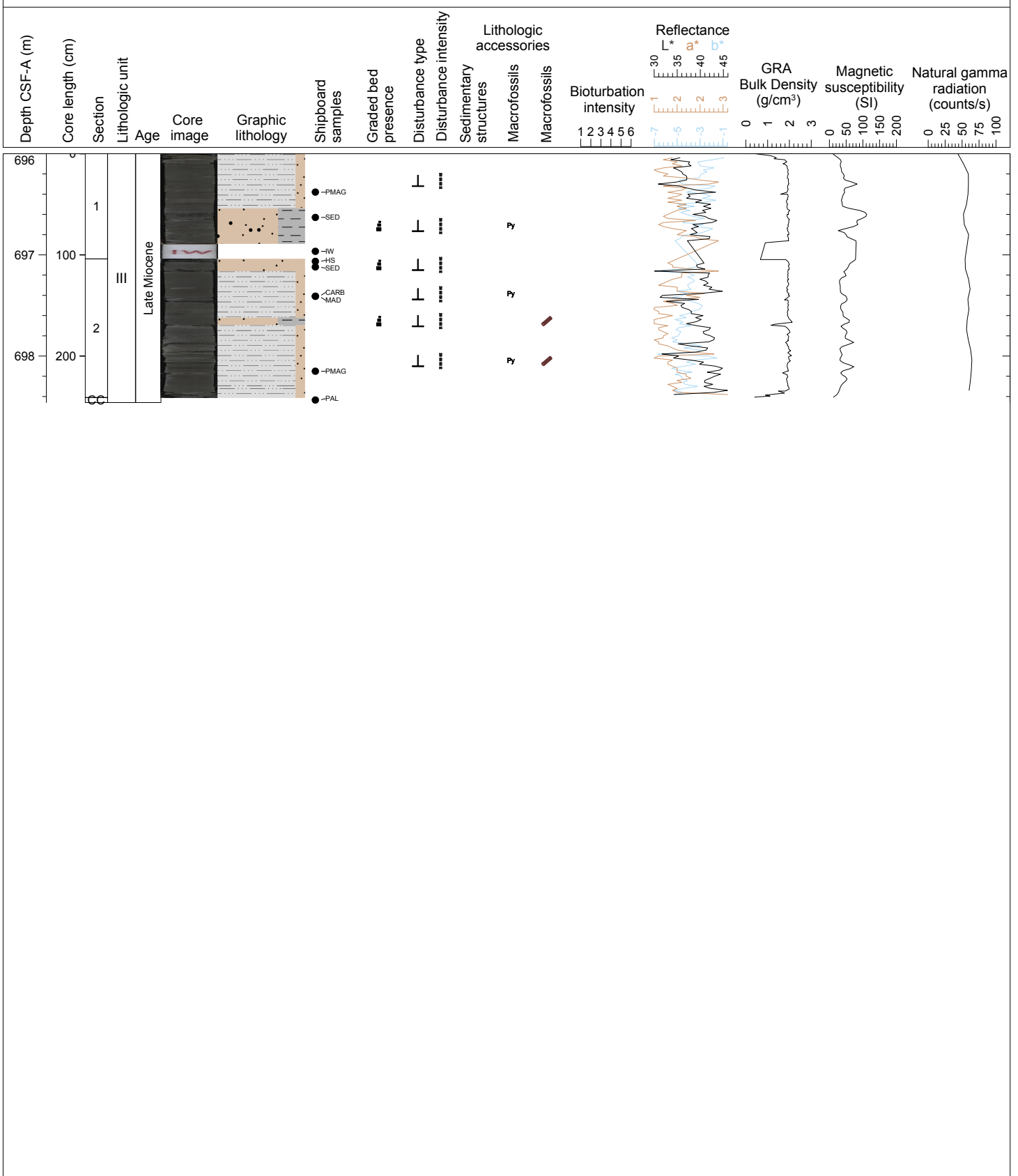
Hole 355-U1457C Core 53R, Interval 686.3-690.74 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE, NANNOFOSSIL CHALK, NANNOFOSSIL CHALK WITH CLAY. Light greenish gray SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. Light white NANNOFOSSIL CHALK and brownish white NANNOFOSSIL CHALK WITH CLAY occur in Section 3 and are highly bioturbated with dominant Planolites and composite burrows. Dark gray, medium to thickly bedded SILTY SANDSTONE is often interbedded with thin SILTY CLAYSTONE. The SILTY CLAYSTONE is often found with interbeds of SANDY SILTSTONE. The SILTY CLAYSTONE and SILTY SANDSTONE basal boundaries are sharp and erosive, but grade up into SILTY CLAYSTONE and SANDY SILTSTONE. Horizontal black lines and spots of pyrite are found in SILTY CLAYSTONE. SILTY SANDSTONE comprises <40% of the core



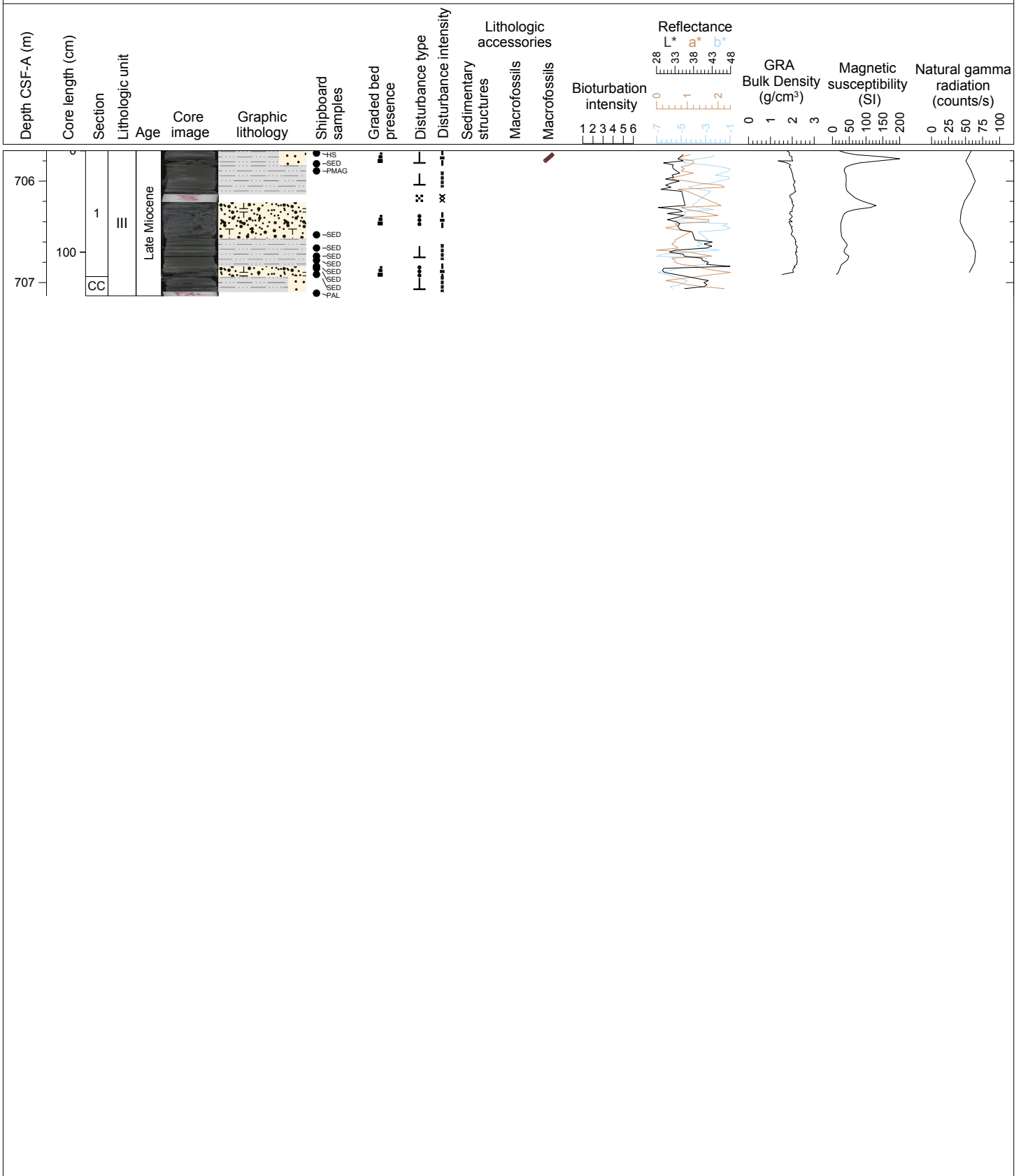
Hole 355-U1457C Core 54R, Interval 696.0-698.46 m (CSF-A)

SILTY CLAYSTONE, SANDY SILTSTONE. Light brownish to greenish gray, thin to medium bedded SILTY CLAYSTONE interbedded with very thin bedded SANDY SILTSTONE is the major lithology. The dark gray SANDY SILTSTONE is normally graded often above a sharp erosive contact with underlying SILTY CLAYSTONE. Black horizontal lines and spots of pyrite are common. Blackish organic-rich (wood fragments) layer is observed in Section 2. SILTY CLAYSTONE comprises >80% of the core.



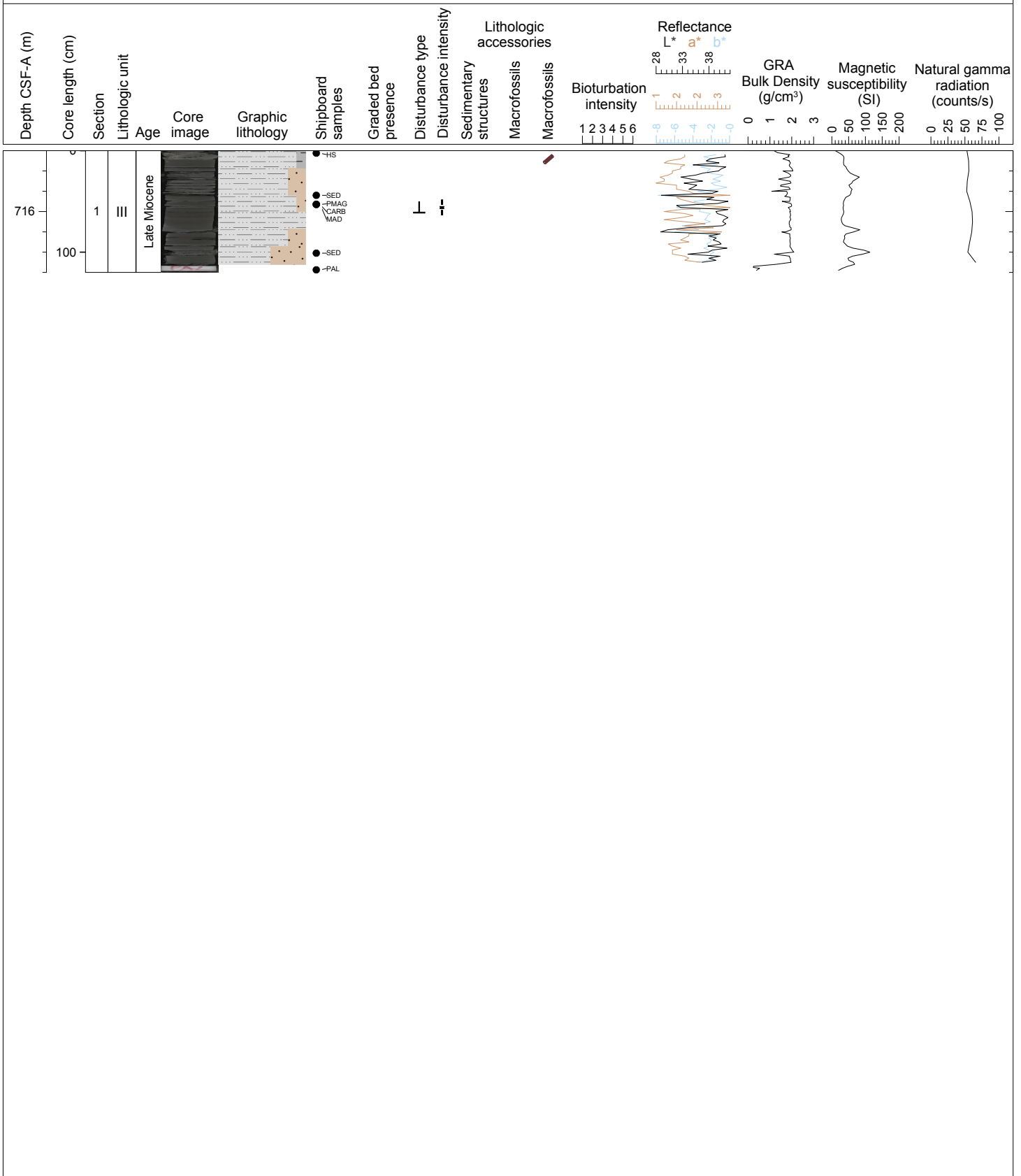
Hole 355-U1457C Core 55R, Interval 705.7-707.13 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE. Light brownish gray, thin to medium bedded SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. The SILTY SANDSTONE is thin to thickly bedded, semi-consolidated, normally graded, and observed with sharp erosive bottom contacts with the underlying SILTY CLAYSTONE. SILTY SANDSTONE grades up into the overlying SILTY CLAYSTONE. Thin layers, rich in wood fragments are observed in the upper part of the core. Black thin lines (<1 cm thick) are observed in SILTY CLAYSTONE, presumed to be pyrite. The SILTY SANDSTONE comprises <50% of the core.



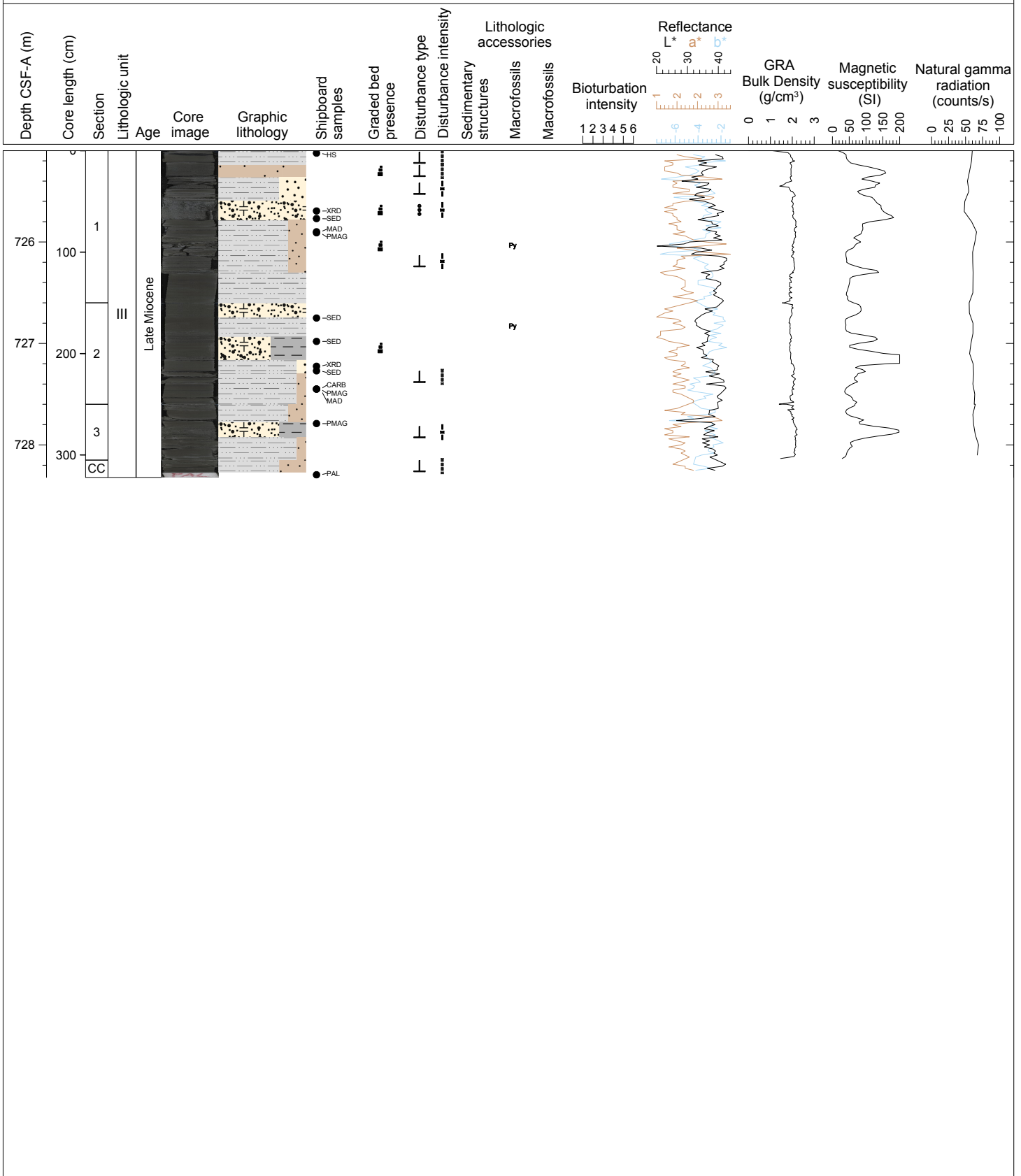
Hole 355-U1457C Core 56R, Interval 715.4-716.6 m (CSF-A)

SILTY CLAYSTONE, SANDY SILTSTONE. Light brownish gray SILTY CLAYSTONE is the major lithology. Thin bedded SILTY CLAYSTONE is repeatedly interbedded with thin beds (<1 cm) of SANDY SILTSTONE. The SANDY SILTSTONE beds have sharp erosive basal contacts with underlying SILTY CLAYSTONE, which is clearly visible in the lower part of the core. SANDY SILTSTONE beds are comparatively thick, up to 5 cm. Thin blackish layers rich in wood fragments are observed. Black spots, presumed to be pyrite are also observed in SILTY CLAYSTONE. The SILTY SANDSTONE comprises <20% of core.



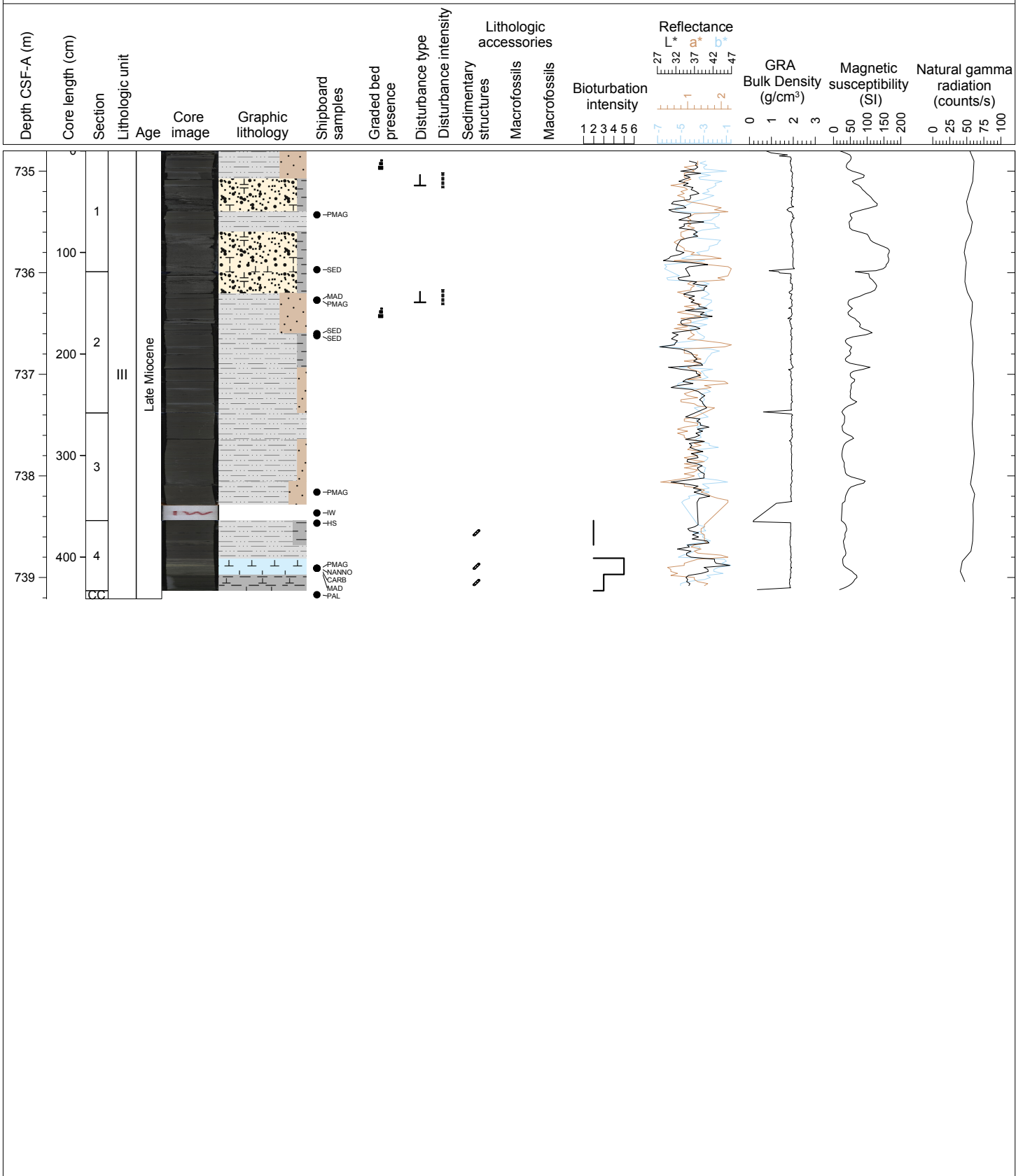
Hole 355-U1457C Core 57R, Interval 725.1-728.32 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE. Brownish gray, massive SILTY SANDSTONE and brownish dark gray, massive SILTY SANDSTONE are dominant. SILTY SANDSTONE beds are 5-20 cm thick, and have erosive boundaries at their basal contact with CLAYSTONE. SANDSTONE is very fine to medium grained, containing small common mica grains and very tiny wood particles. Some layers also contain small clay rip-up clasts. CLAYSTONE is normally massive, but repeatedly interbedded with very thin (<1 cm) SANDY SILTSTONE beds showing very thin parallel laminations. Black staining is seen in CLAYSTONE at the top of Section 1. and between 95 and 120 cm of Section 1. Two very dark greenish black layers were interbedded with CLAYSTONE between Section 2, 56 and 68 cm.



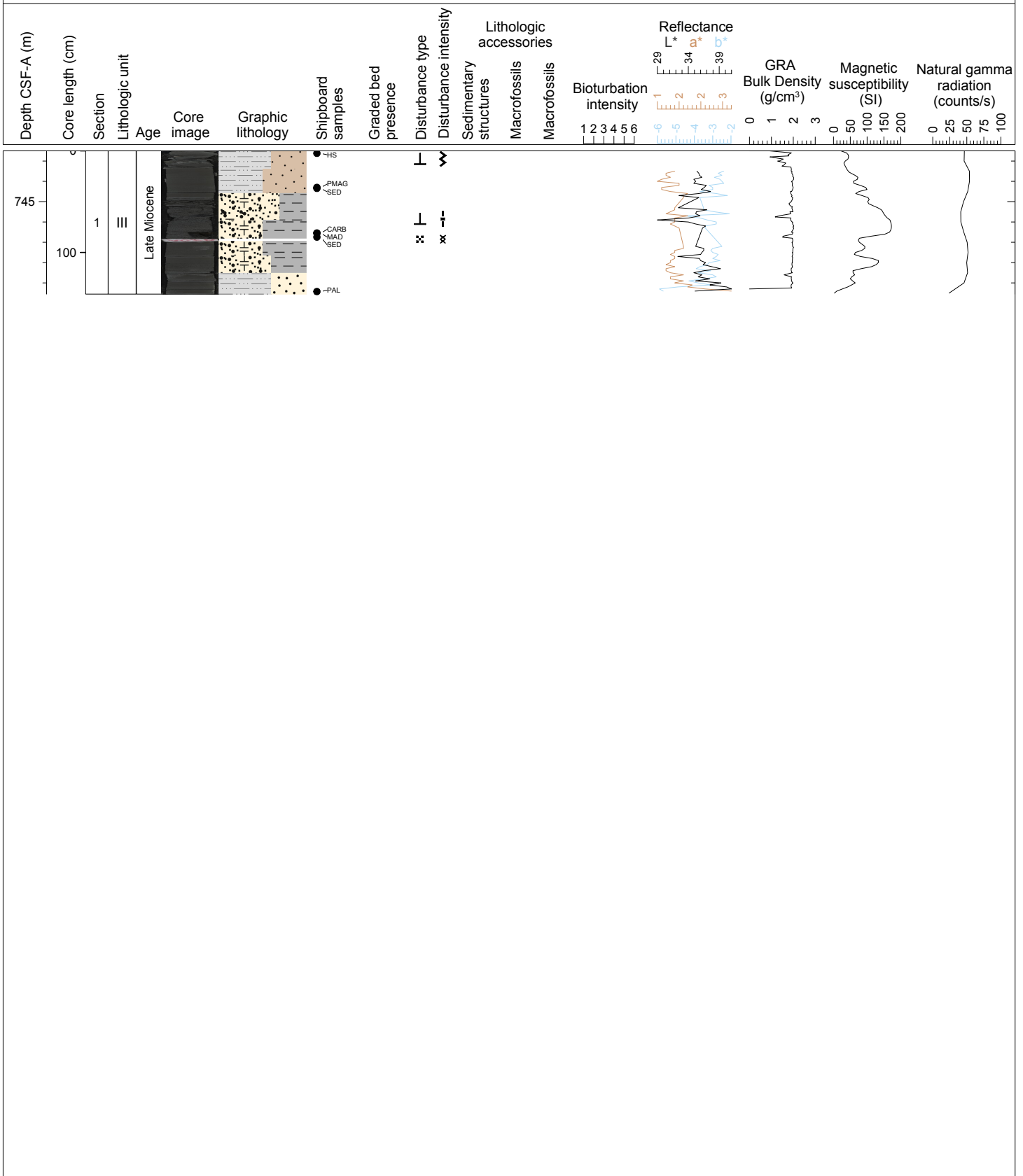
Hole 355-U1457C Core 58R, Interval 734.8-739.21 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, NANNOFOSSIL-RICH CLAYSTONE, NANNOFOSSIL CHALK. Dark brownish gray, massive SILTY CLAYSTONE is dominant. Thick (~20 to 30 cm), dark gray, massive SILTY SANDSTONE is interbedded with CLAYSTONE and shows sharp, erosive boundaries overlying CLAYSTONE. Some deformed clay rip-ups clasts are seen in the upper part of the fine to medium SANDSTONE. Thin (<1 cm), dark gray SILTY SANDSTONE is also repeatedly interbedded with thin (~3 to 5 cm) CLAYSTONE, showing very thin parallel lamination and plenty of tiny wood particle as well as black stained structures. Two black wood fragment (?) layers were seen at 94 cm, Section 2 and 26 cm of Section 3. Light gray NANNOFOSSIL CHALK overlain by dark greenish gray NANNOFOSSIL-RICH CLAYSTONE shows intense bioturbation in Section 4.



Hole 355-U1457C Core 59R, Interval 744.5-745.91 m (CSF-A)

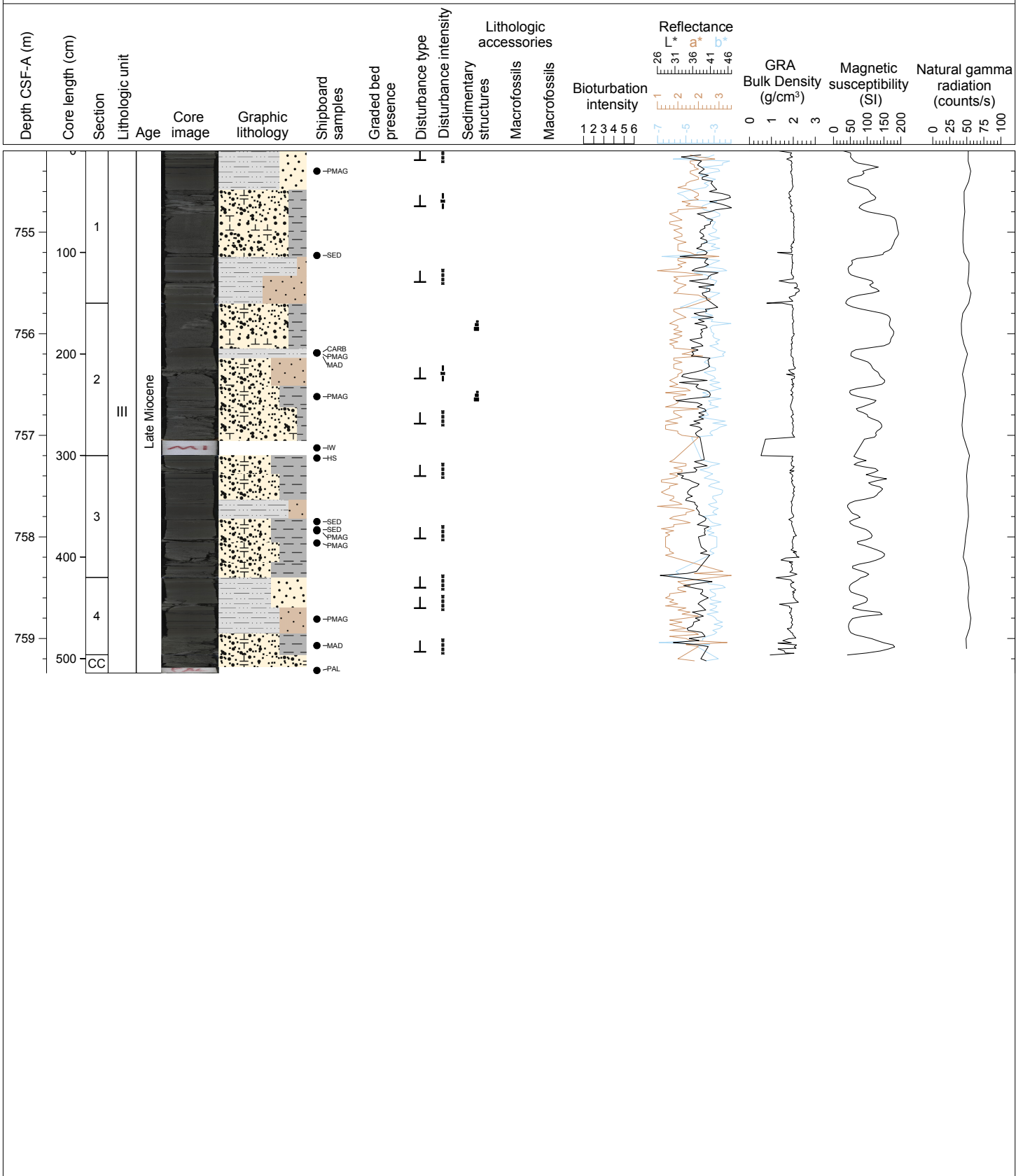
SILTY CLAYSTONE, SILTY SANDSTONE. SANDY SILTSTONE. Dark brownish, massive SILTY CLAYSTONE, dark gray SANDY SILTSTONE, and dark gray, massive SILTY SANDSTONE are dominant lithologies. Thin (3-5 cm) SANDY SILTSTONE and SILTY CLAYSTONE interbeds show faint planar boundaries. Some thin SANDY SILTSTONE layers contain many tiny wood particles and have sharp, erosive bases. A 40 cm thick SILTY SANDSTONE is interbedded with CLAYSTONE, and large clay rip-up clasts are present in the upper part of this SANDSTONE. Sand is fine to medium grained, and include mica with wood particles.





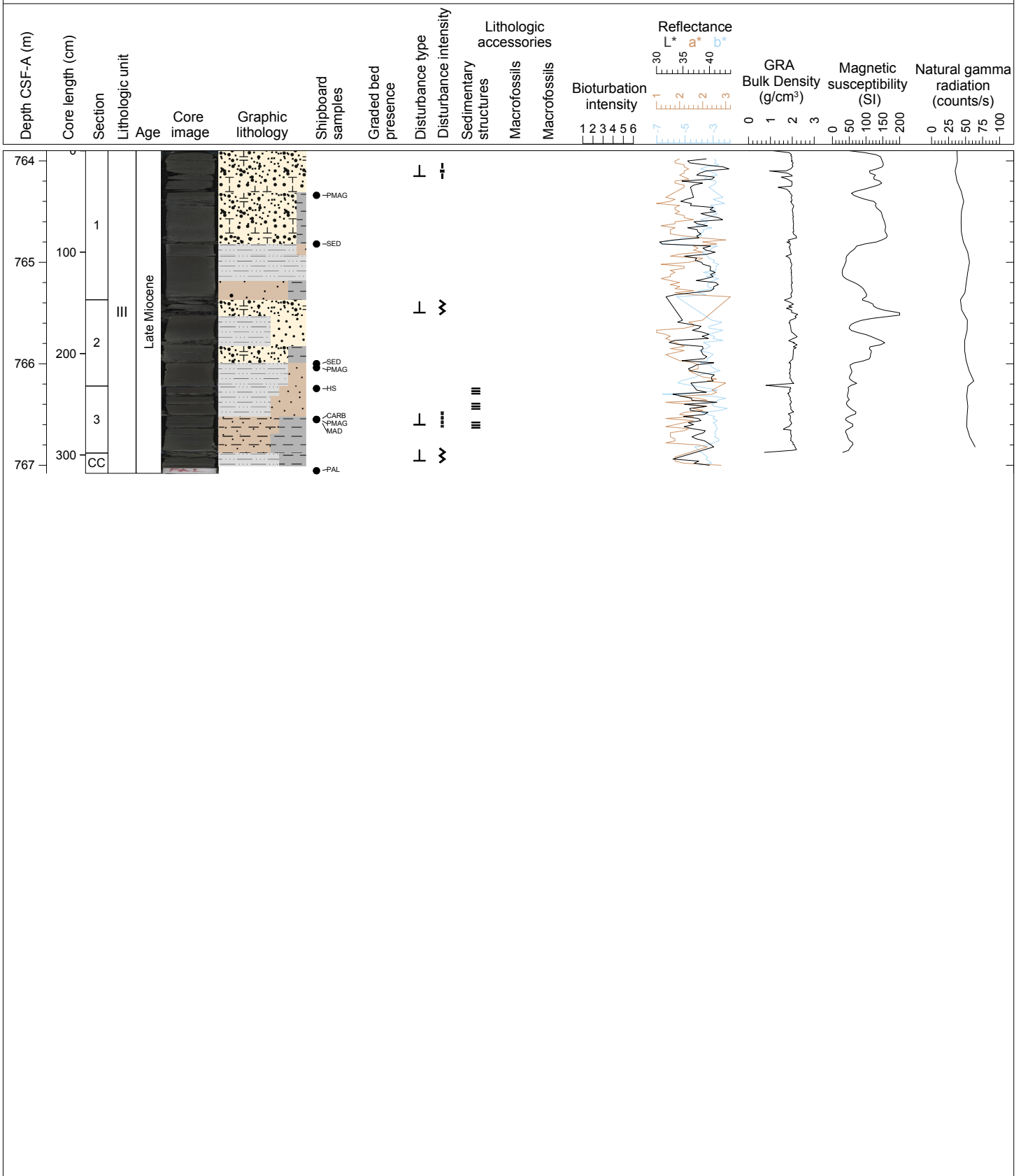
Hole 355-U1457C Core 60R, Interval 754.2-759.34 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE. Dark gray, massive, thick (30-40 cm) SILTY SANDSTONE is dominant. Brownish dark gray, massive SILTY CLAYSTONE and thin (a few mm to cm) SANDY SILTSTONE beds are in the minority. SILTY SANDSTONE overlies CLAYSTONE with a sharp erosive contact. Thin SANDY SILTSTONE beds contain tiny wood particles and sometime show a dark stain. Variably sized (few mm to 3 cm) clay clasts are seen in the upper part of the SANDSTONE. Some SANDSTONE beds show normal grading up into SANDY SILTSTONE. SANDSTONE also contains wood particles.



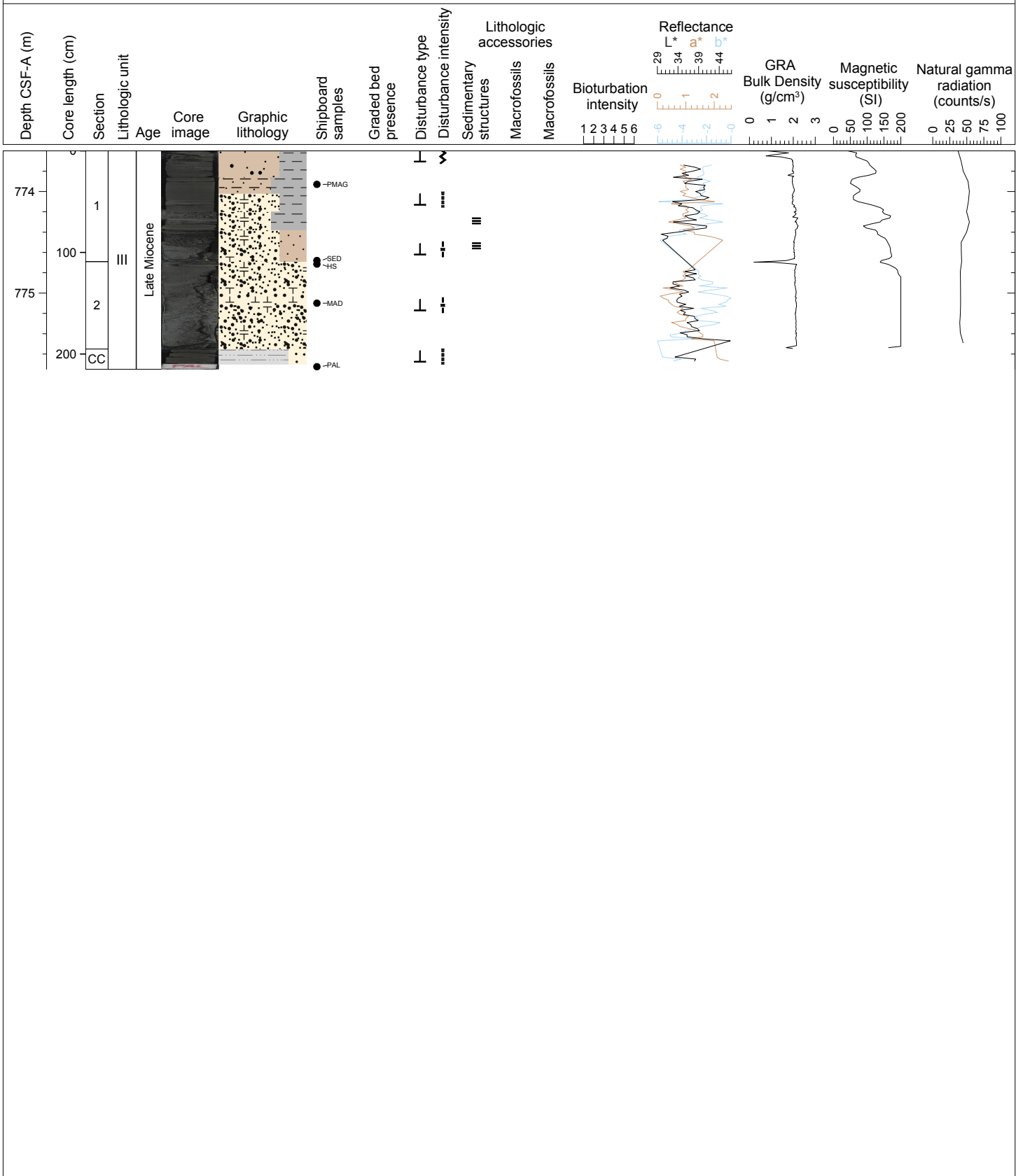
Hole 355-U1457C Core 61R, Interval 763.9-767.08 m (CSF-A)

SILTY SANDSTONE, SILTY CLAYSTONE, CLAYEY SILTSTONE, SANDY SILTSTONE. Dark gray, massive, and thick-bedded (>40 cm) SILTY SANDSTONE and brownish dark gray, thick-bedded (15 to 30 cm), massive SILTY CLAYSTONE are dominant lithologies. SILTY SANDSTONE is fine to medium grained, containing black tiny wood particles and have erosive bases. The upper part of SANDSTONE beds includes deformed clay clasts. Thin (1-3 cm), dark gray SANDY SILTSTONE is interbedded with thin intervals of SILTY CLAYSTONE with planar contacts. Dark gray CLAYEY SILTSTONE show very thin (<1 mm) parallel laminations. SILTSTONE also contains black wood particles. Black stains are seen in Section 3.



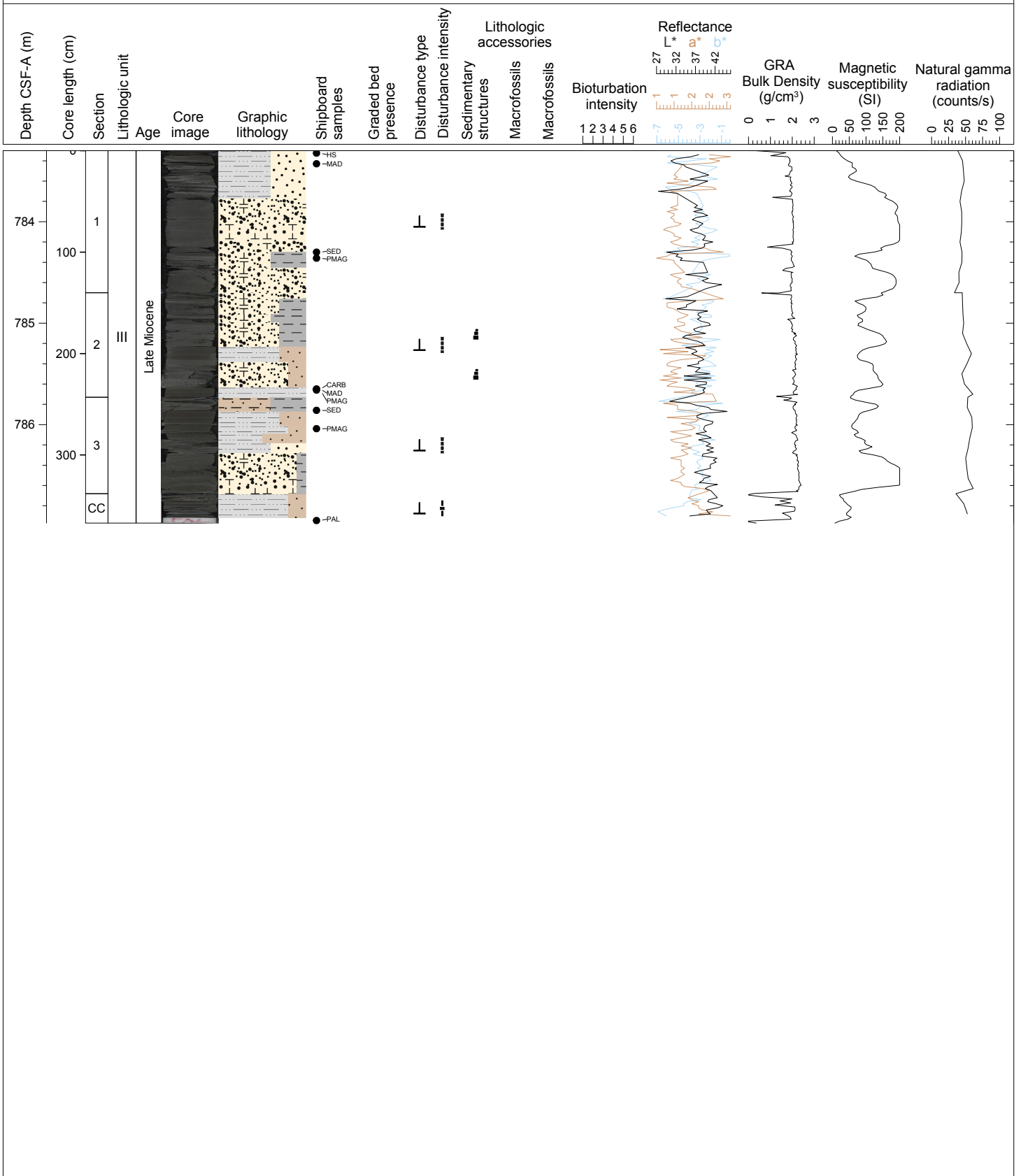
Hole 355-U1457C Core 62R, Interval 773.6-775.75 m (CSF-A)

SILTY SANDSTONE, SILTY CLAYSTONE, CLAYEY SILTSTONE, SANDY SILTSTONE. A thick (~1 m), massive, dark gray SILTY SANDSTONE is the main lithology. Sand is fine to medium grained. The SANDSTONE is overlain by dark gray CLAYEY SILTSTONE with a series of thin (a few mm) laminations, containing abundant tiny black wood particles. Dark gray SANDY SILTSTONE beds containing tiny wood particles are repeatedly interbedded with thin SILTY CLAYSTONE in sharp-based, normally graded cycles. Some pieces of clay (rip-up) are found within the SANDSTONE.



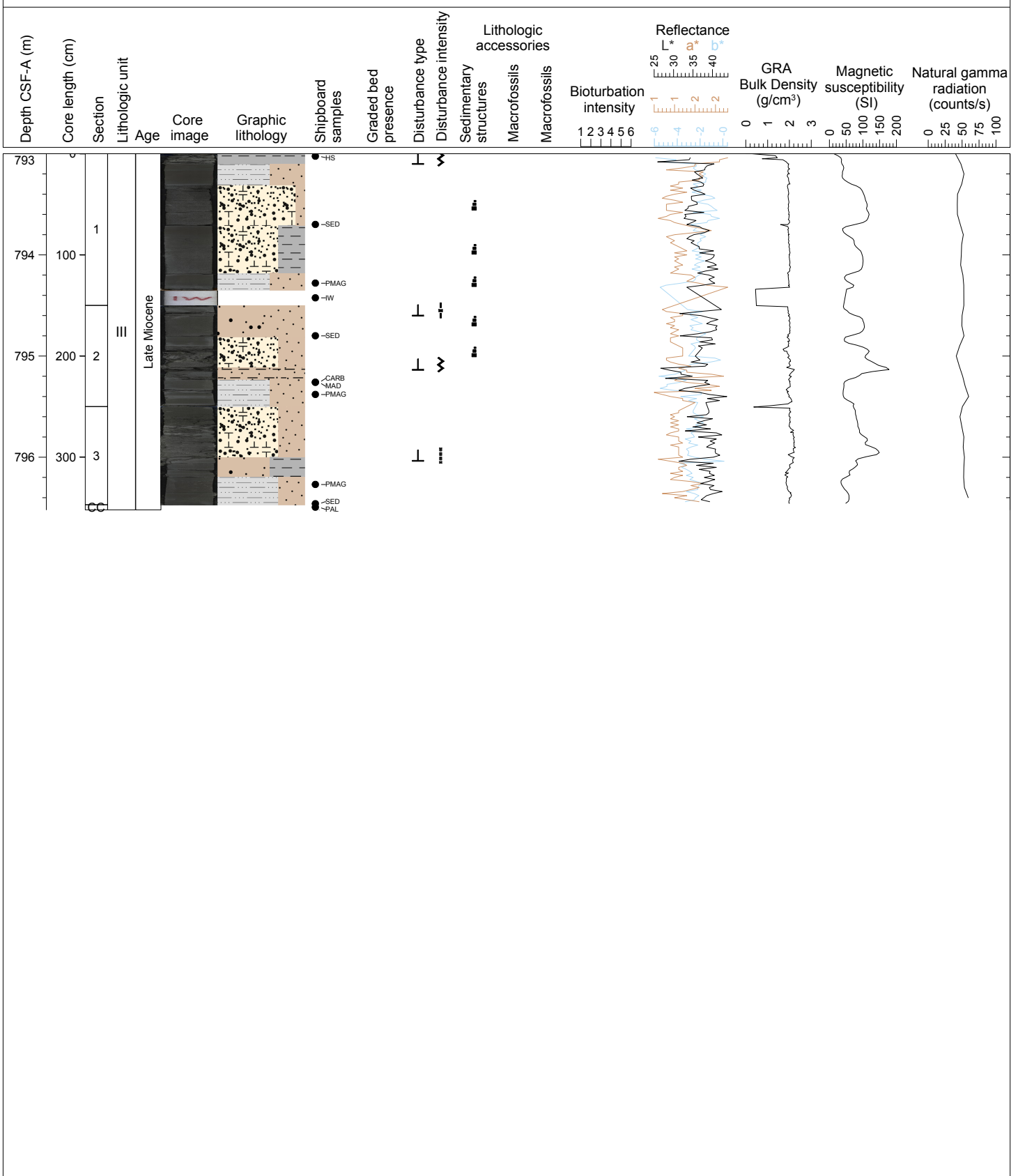
Hole 355-U1457C Core 63R, Interval 783.3-786.97 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, CLAYEY SILTSTONE, SILTY CLAYSTONE, SANDY SILTSTONE. Thick (30-50 cm), dark gray, massive SILTY SANDSTONE and brownish dark gray, massive, thin (<10 cm) SILTY CLAYSTONE beds are dominant. SILTY SANDSTONE contains deformed clay rip-up clasts in the upper part. Sand grains are fine to medium. Some SANDSTONE shows normal grading into dark gray SANDY SILTSTONE. Thin (<1 cm), dark gray, sharp-based CLAYEY SILTSTONE beds are interbedded or overlie graded SILTY CLAYSTONE intervals. These thin SILTSTONE beds contain tiny black wood particles with dark staining.



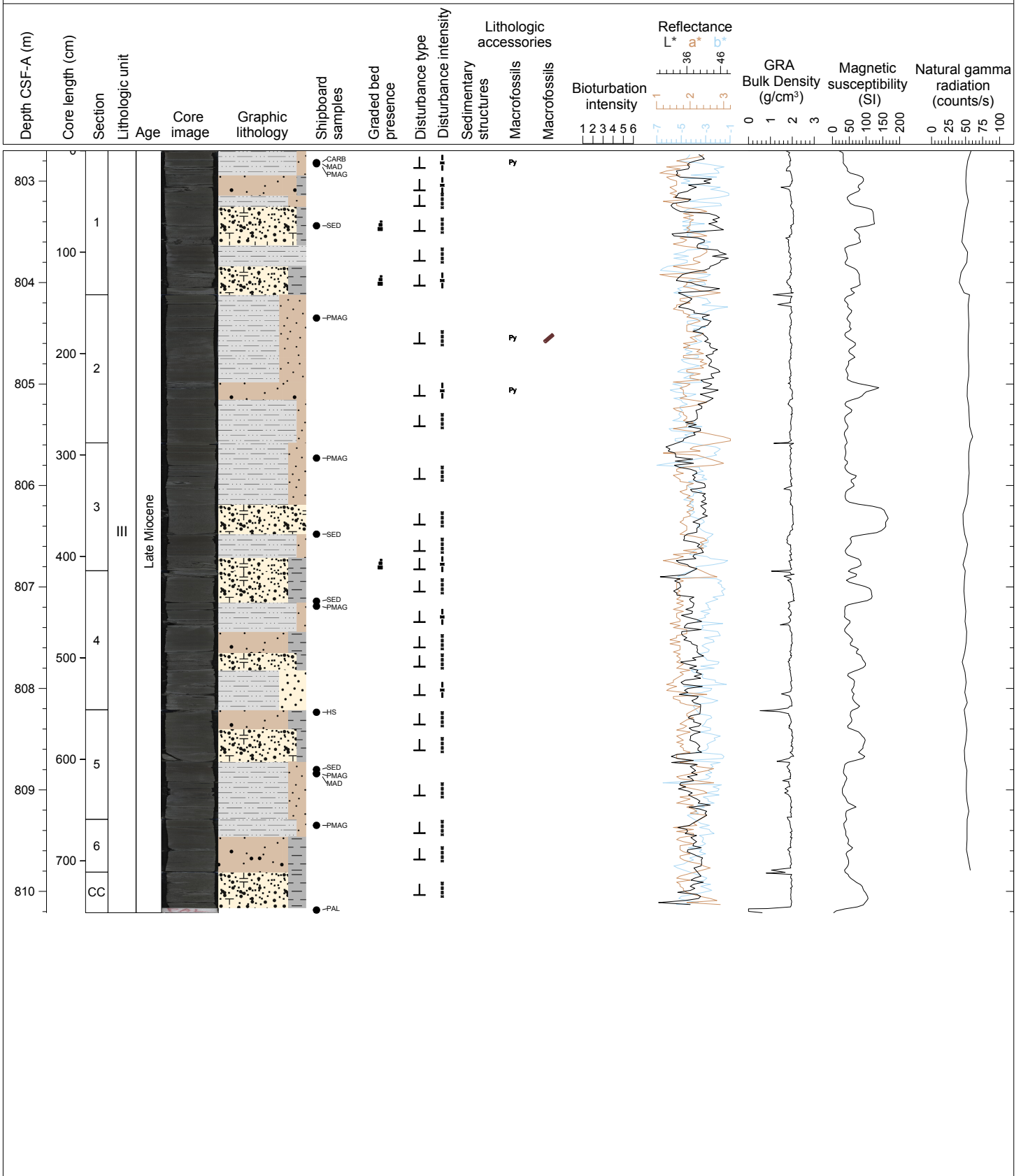
Hole 355-U1457C Core 64R, Interval 793.0-796.52 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE, CLAYEY SILTSTONE. Dark gray SILTY SANDSTONE and brownish dark gray SILTY CLAYSTONE are dominant. CLAYSTONE is normally overlain by an erosive or scoured contact by coarser grained sediments. Thick (>20 cm) SANDSTONE grades upward into SILTY CLAYSTONE or SANDY SILTSTONE. Sand and silt-rich sediments contain dark tiny wood particles. Thin (<2 cm) layers of dark gray CLAYEY SILTSTONE are repeatedly interbedded with CLAYSTONE. Some SANDSTONE contains deformed clay rip-up clasts.



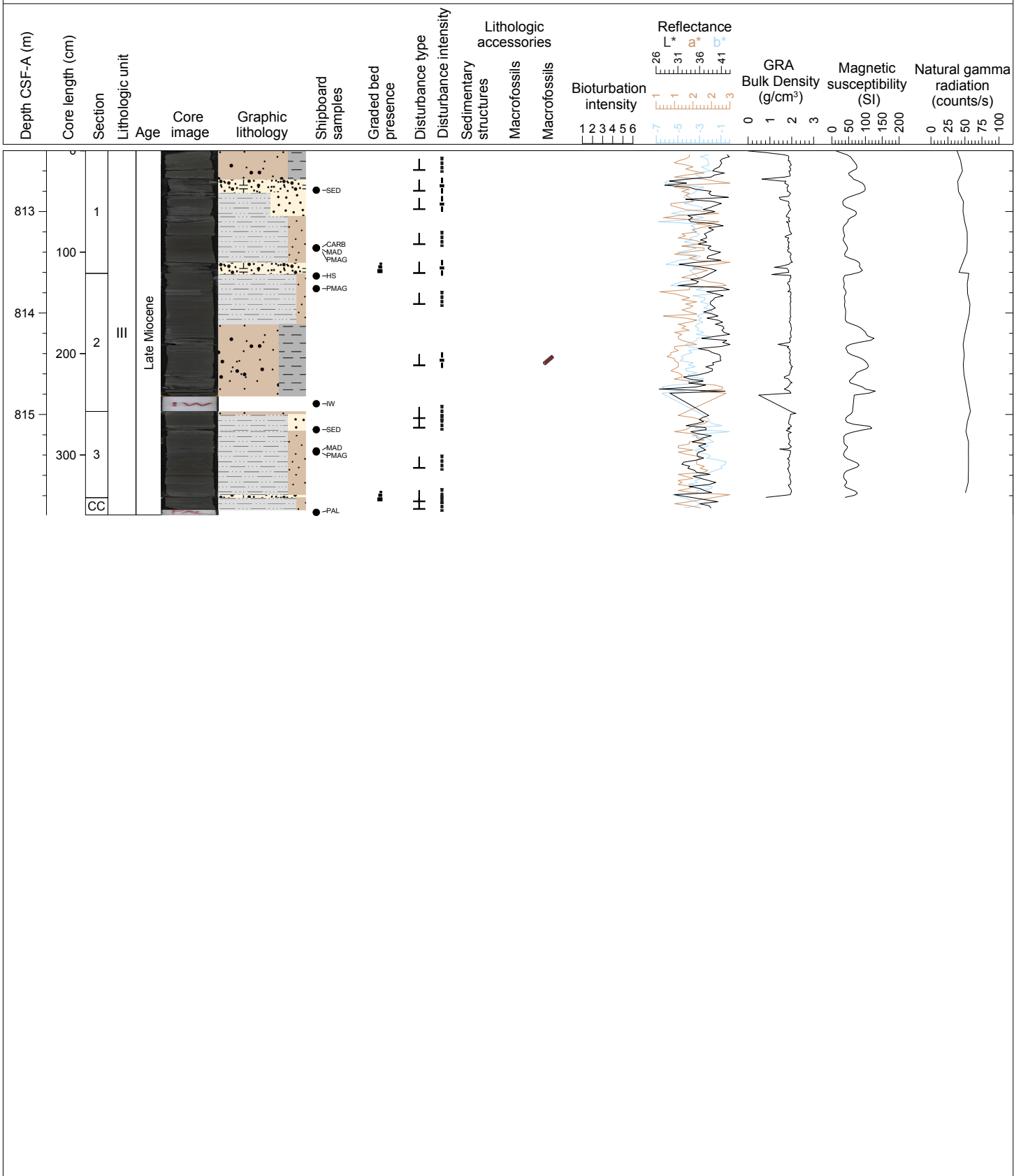
Hole 355-U1457C Core 65R, Interval 802.7-810.21 m (CSF-A)

SILTY CLAYSTONE, CLAYEY SILTSTONE, SANDY SILTSTONE, SILTY SANDSTONE. Light brownish to greenish SILTY CLAYSTONE is interbedded with SANDY SILTSTONE and dark gray SILTY SANDSTONE which together are the major lithologies. The thin bedded SILTY CLAYSTONE and SANDY SILTSTONE are repeatedly interbedded. The thin to medium bedded SILTY SANDSTONE are often observed containing clasts of thin beds of SILTY CLAYSTONE. The SILTY SANDSTONE and SILTY CLAYSTONE both show sharp, erosive bottom contact boundaries, whereas their top boundaries are gradational. The SILTY SANDSTONE and SANDY SILTSTONE show normal grading. Black horizontal lines and patches are common in SILTY CLAYSTONE and may be pyrite. SILTY SANDSTONE comprises of <50 % of the core.



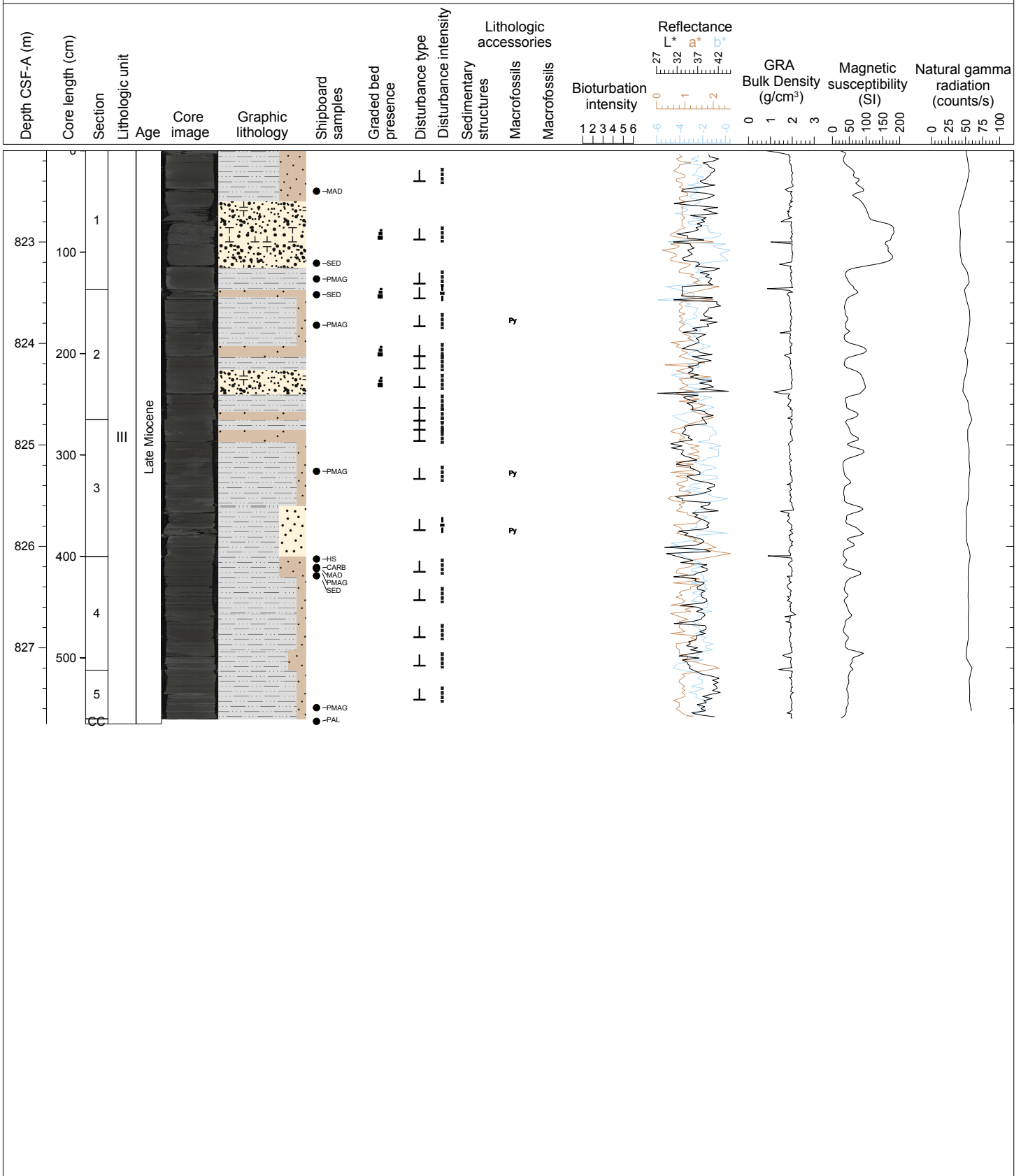
Hole 355-U1457C Core 66R, Interval 812.4-815.99 m (CSF-A)

SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE. Light brownish gray SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. Thin to medium bedded SILTY CLAYSTONE layers are often found interbedded with SANDY SILTSTONE. The SILTY SANDSTONE and SANDY SILTSTONE are normally graded, contain mica grains and show sharp erosive basal contacts with underlying SILTY CLAYSTONE. The SANDY SILTSTONE is often observed with SILTY CLAYSTONE clasts, probably rip-ups. A thin wood fragment-rich layer is observed in Section 2, 65 cm. Black horizontal layers are observed in the lower part of the core. SILTY SANDSTONE comprises <20% of the core.



Hole 355-U1457C Core 67R, Interval 822.1-827.75 m (CSF-A)

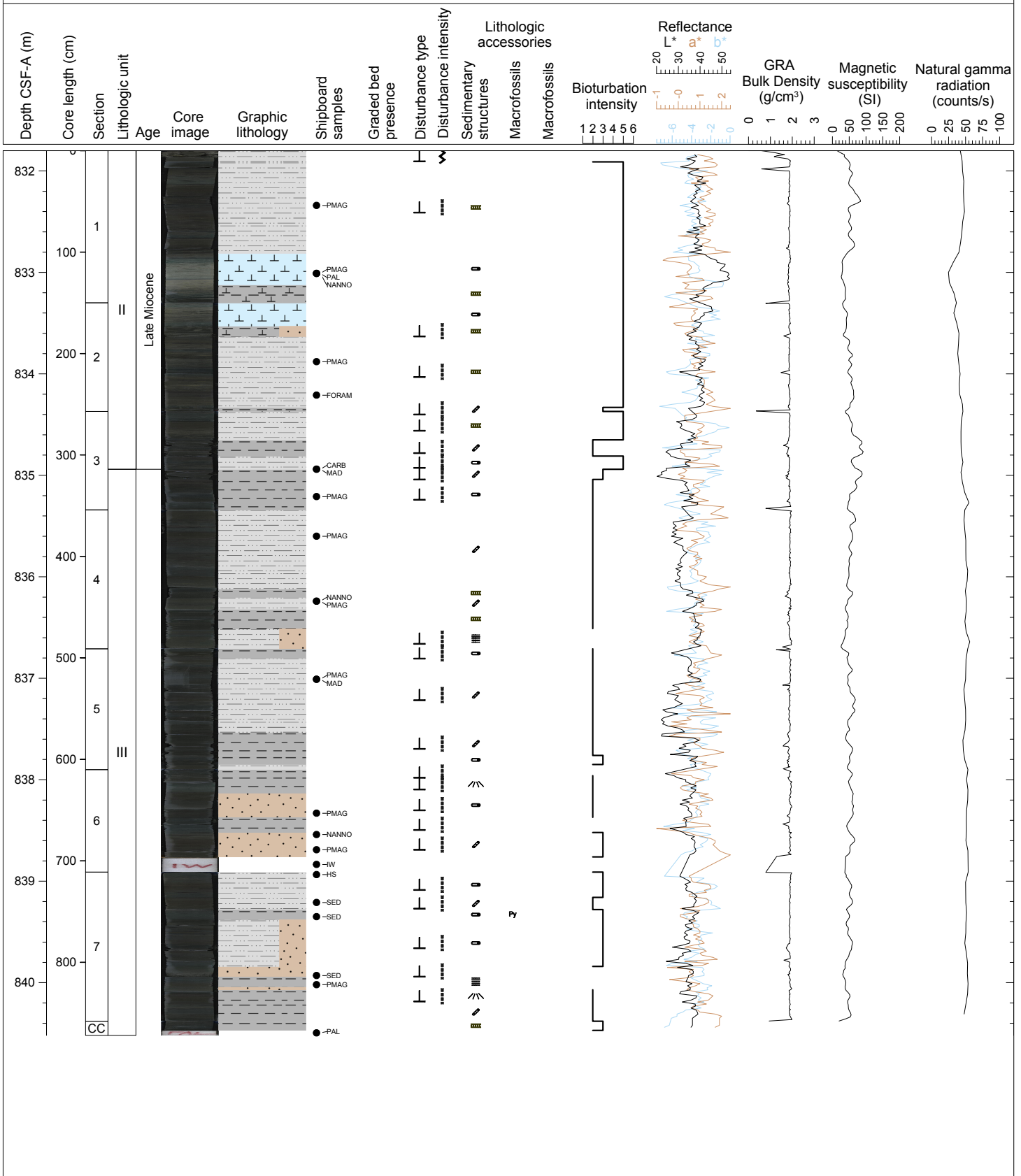
SILTY CLAYSTONE, SILTY SANDSTONE, SANDY SILTSTONE. Light greenish to light brownish gray SILTY CLAYSTONE and dark gray SILTY SANDSTONE are the major lithologies. Thin to thickly bedded SILTY SANDSTONE occurs in the upper part of the core and is less abundant in the lower part. Thin bedded SILTY CLAYSTONE is often observed repeatedly interbedded with thin SANDY SILTSTONE. SANDY SILTSTONE and SILTY SANDSTONE are normally graded, with sharp erosive basal contacts with underlying SILTY CLAYSTONE and fine upwards into overlying SILTY CLAYSTONE. Black horizontal lines are very common in SILTY CLAYSTONE. SILTY SANDSTONE comprises <20% of the core.





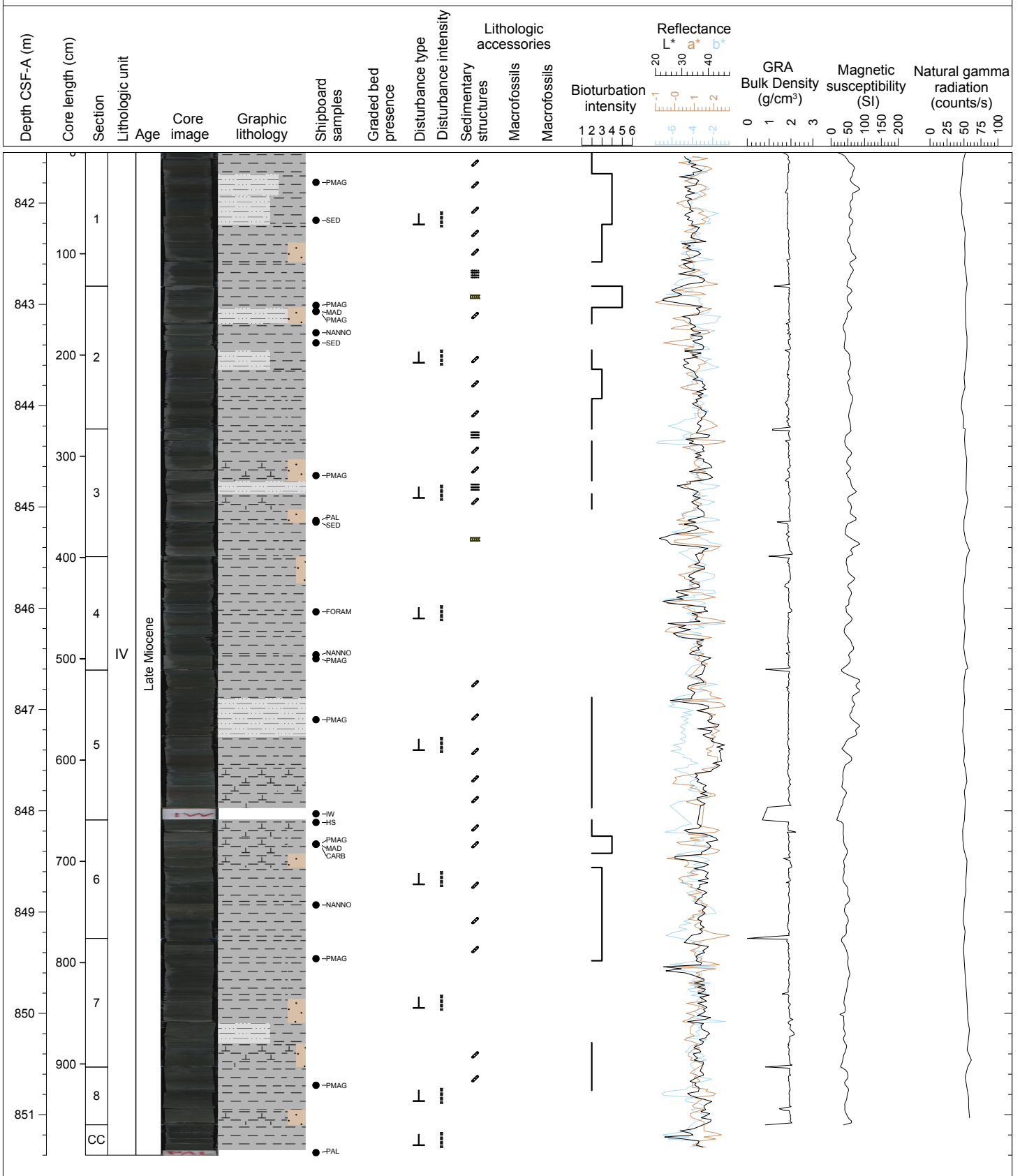
Hole 355-U1457C Core 68R, Interval 831.8-840.52 m (CSF-A)

NANNOFOSSIL CHALK, NANNOFOSSIL-RICH CLAYSTONE, SILTY CLAYSTONE, CLAYSTONE, CLAYSTONE WITH NANNOFOSSILS, SILTSTONE. Light brownish to light greenish SILTY CLAYSTONE and CLAYSTONE WITH NANNOFOSSILS are the dominant lithologies. The upper part of the core is dominated by nannofossil-rich sediment, such as medium bedded white NANNOFOSSIL CHALK and thinly bedded NANNOFOSSIL-RICH CLAYSTONE. The lower part of the core is dominated by SILTY CLAYSTONE and SILTSTONE. Thin bedded SANDY SILTSTONE is also observed in the lower part of the core. Color variations between lithologies are mostly gradational. The core is bioturbated with Zoophycos, Planolites and composite burrows and are particularly common in nannofossil-rich lithologies. Pyrite nodules and black patches are observed in the core.



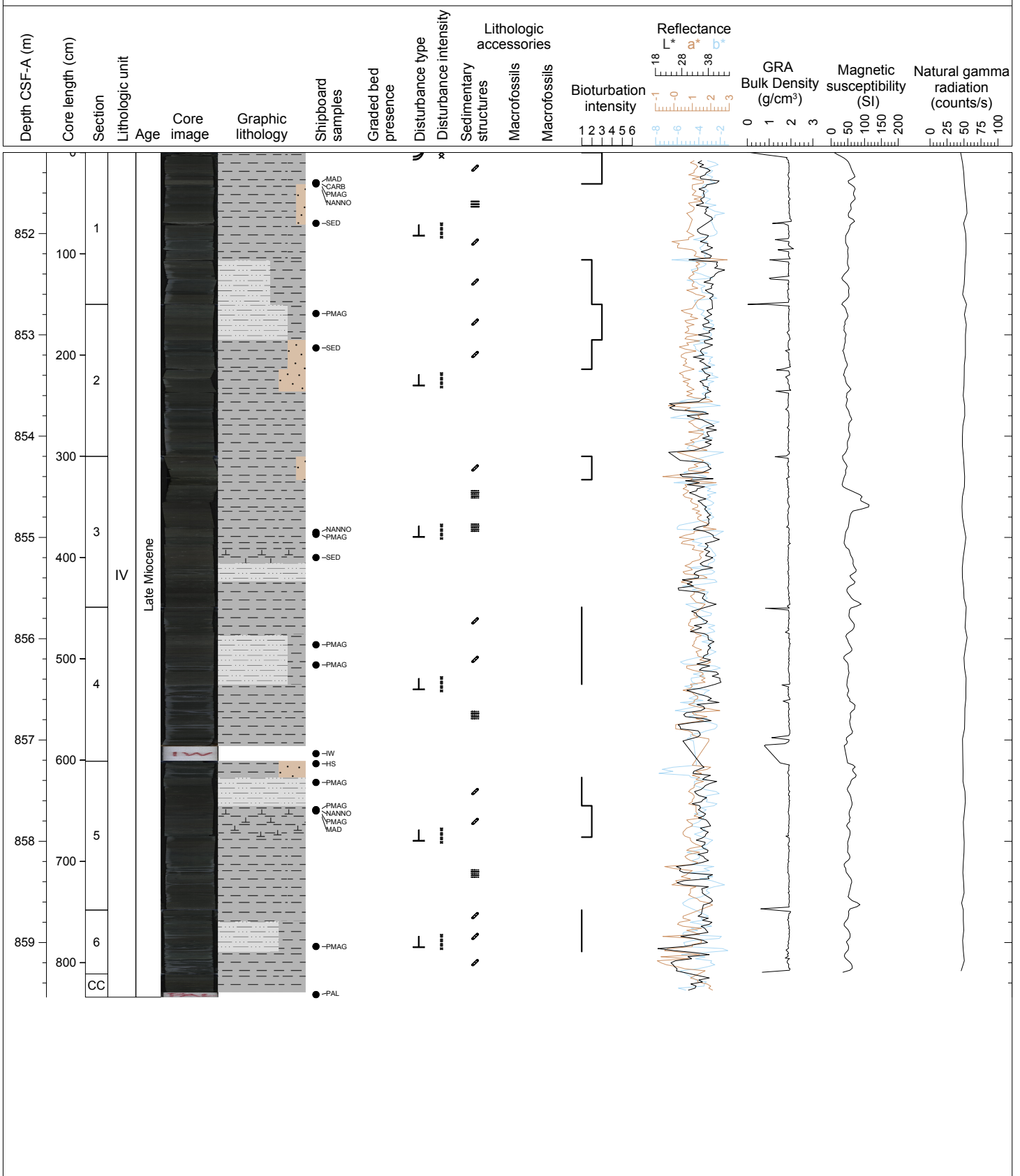
Hole 355-U1457C Core 69R, Interval 841.5-851.4 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, NANNOFOSSIL-RICH CLAYSTONE, CLAYEY SILTSTONE, SILTSTONE. Dark green, dark greenish green CLAYSTONE and dark gray SILTY CLAYSTONE are the dominant lithologies. The thickness of these interbedded lithologies is variable, but mostly 5-10 cm. Some layers are moderately bioturbated. Thin bedded (1-3 cm) CLAYEY SILTSTONE and SILTSTONE beds overlie CLAYSTONE and show very thin parallel laminations and erosive basal contacts. Dark grayish green NANNOFOSSIL-RICH CLAYSTONE beds with moderate bioturbation are also interleaved in the section.



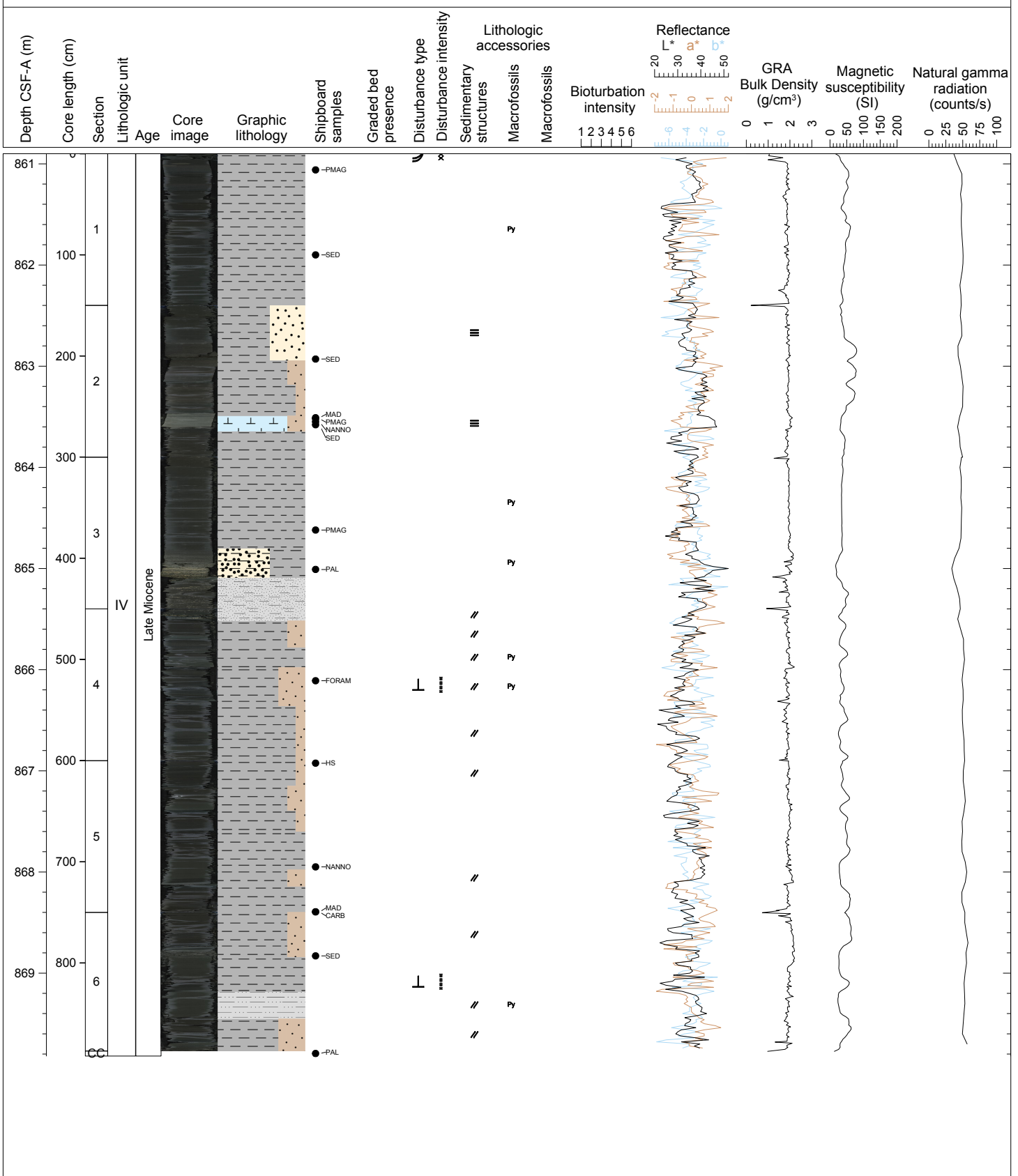
Hole 355-U1457C Core 70R, Interval 851.2-859.54 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, NANNOFOSSIL-RICH CLAYSTONE, CLAYEY SILTSTONE, SANDY SILTSTONE. Dark greenish gray CLAYSTONE and SILTY CLAYSTONE are the dominant lithologies. They are interbedded with gradational boundaries highlighted by color banding and both show sparse bioturbation. Thin (2-5 cm), dark gray CLAYEY SILTYSTONE or SANDY SILTSTONE beds overlie CLAYSTONE with sharp, erosional boundaries. Light dark gray NANNOFOSSIL-RICH CLAYSTONE is also interbedded with CLAYSTONE and shows moderate bioturbation.



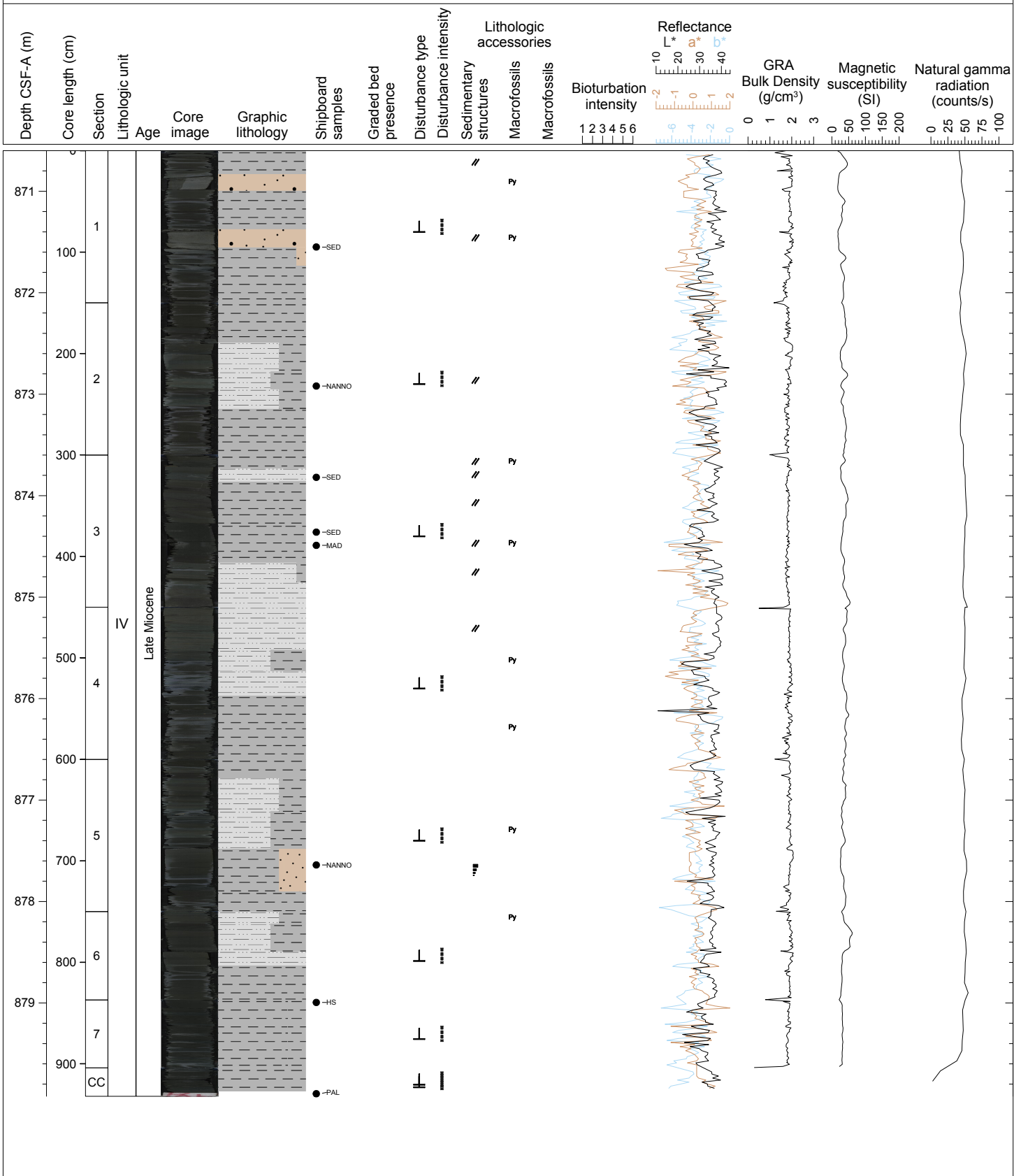
Hole 355-U1457C Core 71R, Interval 860.9-869.82 m (CSF-A)

CLAYSTONE, CLAYEY SANDSTONE, SANDY CLAYSTONE, SILTY CLAYSTONE, SANDY SILTSTONE. Dark greenish gray, massive, thick-bedded (>30 cm) CLAYSTONE is the dominant lithology. Thin (1-5 cm) bedded, dark gray SANDY SILTSTONE is interbedded with CLAYSTONE. SANDY SILTSTONE beds, ca. 15 cm thick and with thin parallel laminations overlie CLAYSTONE intervals with erosive scoured basal contacts. A 30 cm thick CLAYEY SANDSTONE and SANDY CLAYSTONE bed includes large-sized foraminifer shells. Below this SANDSTONE, tilted bedding is frequently observed. Light gray NANNOFOSSIL CHALK is interbedded with CLAYSTONE. Pyrite is seen throughout the core.



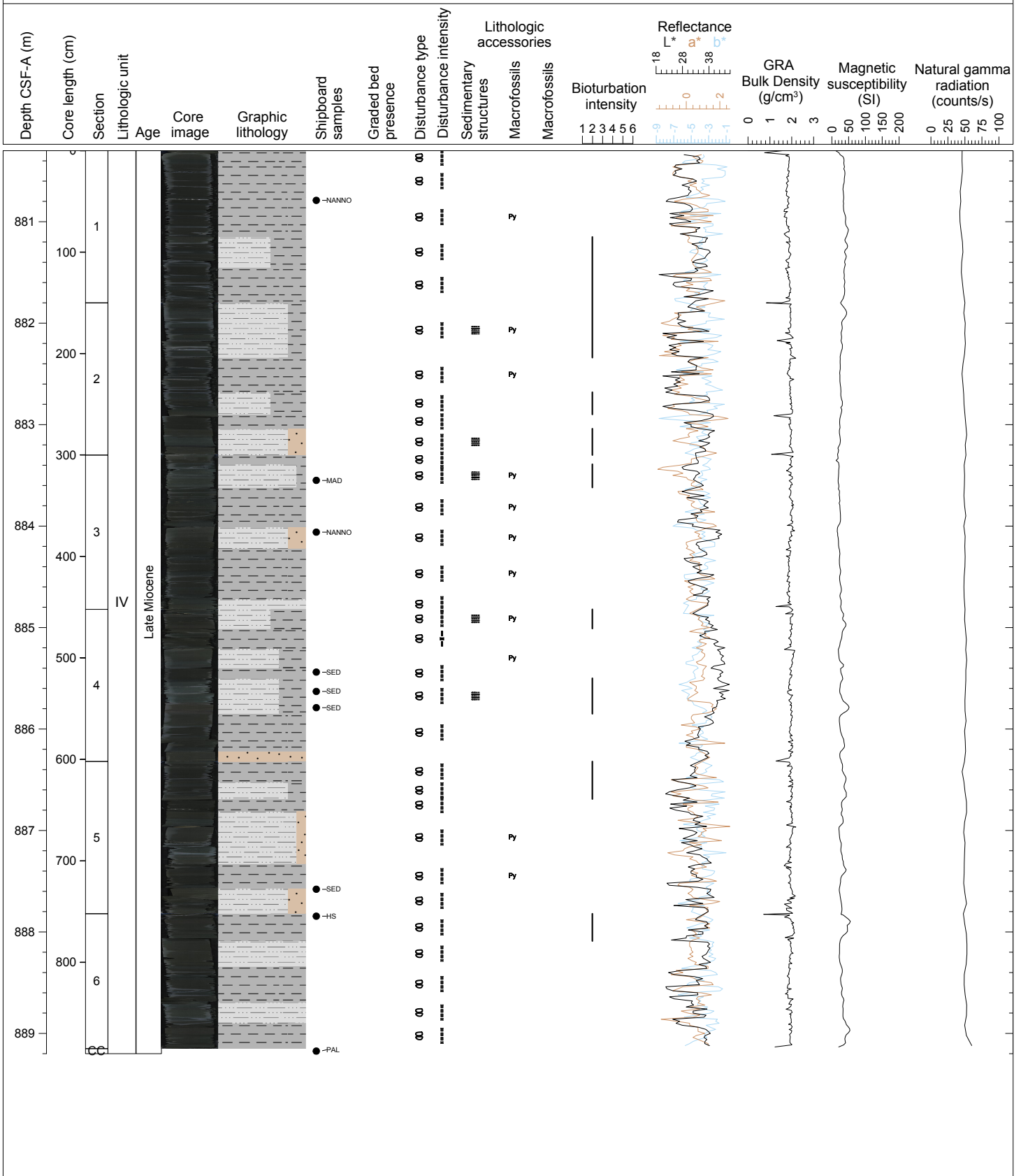
Hole 355-U1457C Core 72R, Interval 870.6-879.92 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SANDY SILTSTONE. Dark greenish gray, massive CLAYSTONE and dark gray, massive SILTY CLAYSTONE are the dominant lithologies. These lithologies are interbedded and show clear color changes across sharp planar or tilted boundaries. Tilted bedding structures are widespread. Pyrite is also seen throughout the core. NANNOFOSSIL-RICH CLAYSTONE and SANDY SILTSTONE are interbedded with CLAYSTONE. SANDY SILTSTONE has erosive and scoured boundaries with the underlying SILTY CLAYSTONE (Section 1) but is also found with a gradational boundary with SILTY CLAYSTONE, where it shows reverse grading (Section 5, 95 cm).



Hole 355-U1457C Core 73R, Interval 880.3-889.2 m (CSF-A)

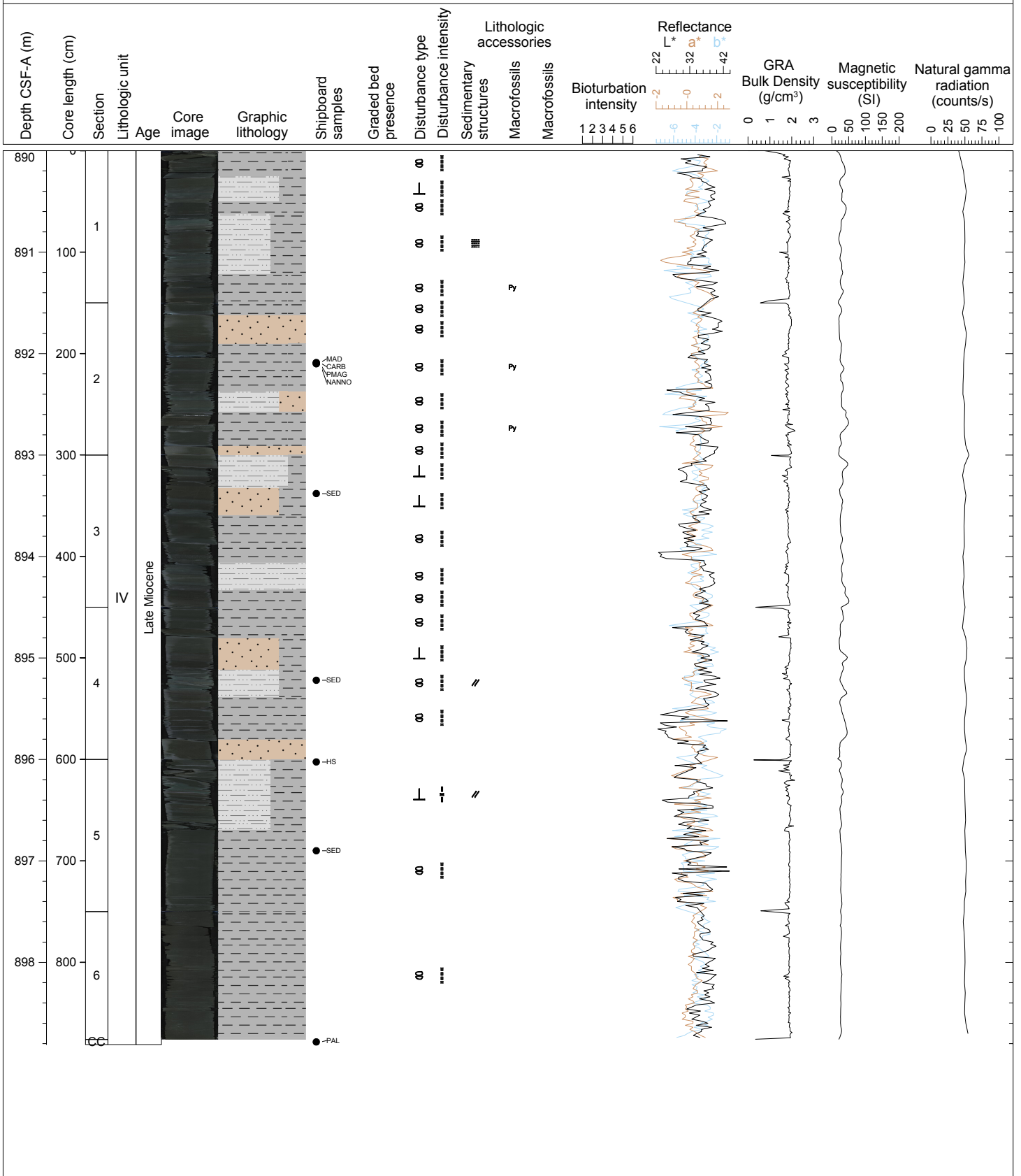
CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, SILTSTONE. Light greenish gray to dark gray CLAYSTONE and light bluish SILTY CLAYSTONE are the dominant lithologies. Thin to medium bedded CLAYSTONE is repeatedly interbedded with thin (<3 cm) bluish SILTY CLAYSTONE. Bluish SILTY CLAYSTONE intervals are occasionally thick, slightly bioturbated and observed with color banding. In the lower part of the core thin bedded SILTY CLAYSTONE is observed repeatedly interbedded with medium bedded SILTSTONE. Slickensides are also observed in the lower part of the core, especially in CLAYSTONE and SILTSTONE. The bedding is mostly inclined, with big pyrite nodules up to 5 cm being very common.





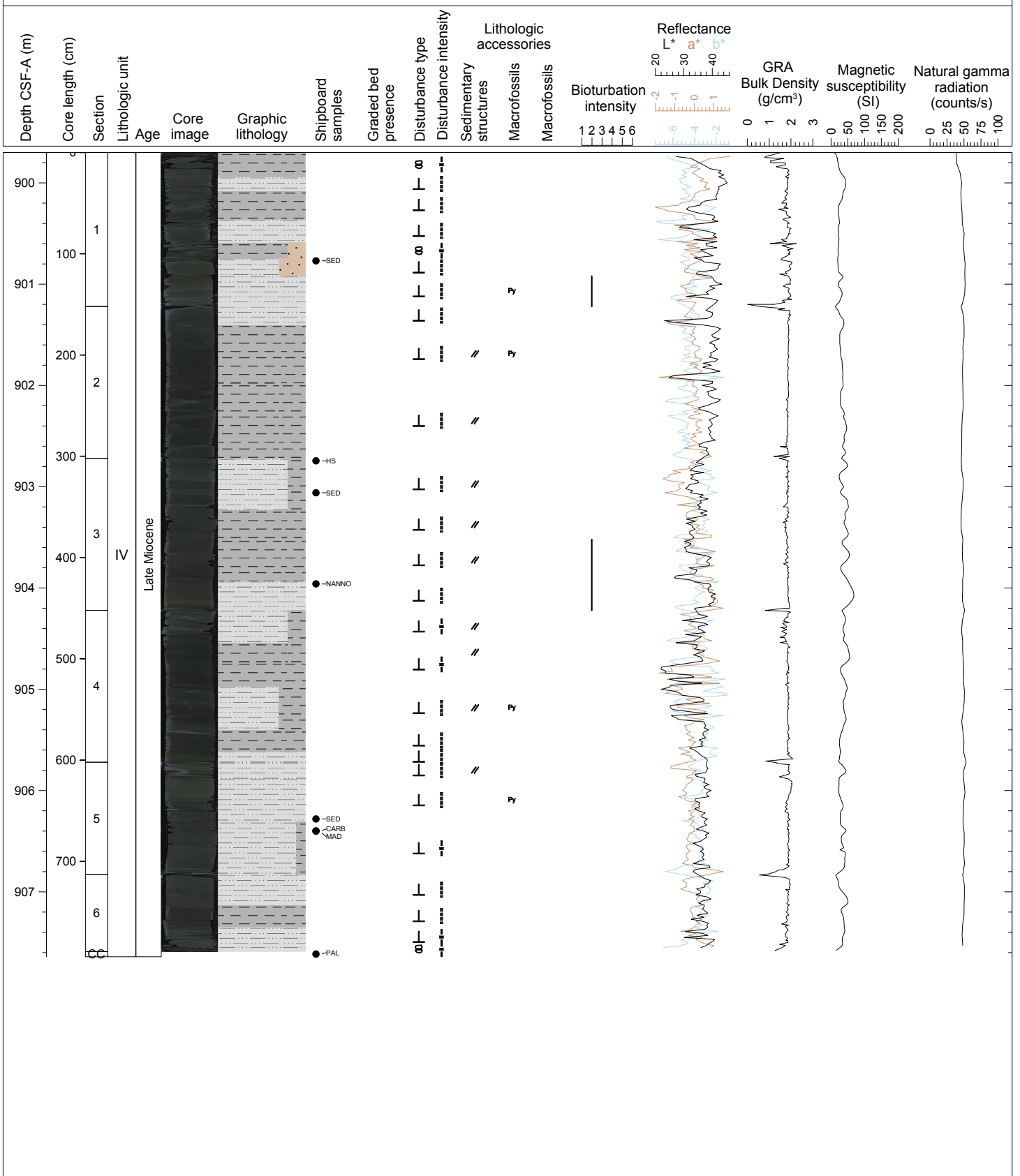
Hole 355-U1457C Core 74R, Interval 890.0-898.81 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, SILTSTONE. Light greenish gray and light bluish SILTY CLAYSTONE are the dominant lithologies. CLAYSTONE is often found repeatedly interbedded with thin bedded SILTY CLAYSTONE. Bluish SILTY CLAYSTONE contains rare nannofossils. Greenish, medium to thickly bedded SILTYSTONE is also observed interbedded with thin SILTY CLAYSTONE intervals in the upper part of the core. Tilted bedding is common and folds are found in Section 5. Slickensides are observed in Section 2, 100-125 cm. Bluish SILTY CLAYSTONE grades up into CLAYSTONE but sharply overlies CLAYSTONE and SILTSTONE. No deformation is observed below Section 5, 69 cm where the core is composed of massive greenish CLAYSTONE. Pyrite nodules are commonly found in the core. CLAYSTONE comprises <70% of the core.



Hole 355-U1457C Core 75R, Interval 899.7-907.64 m (CSF-A)

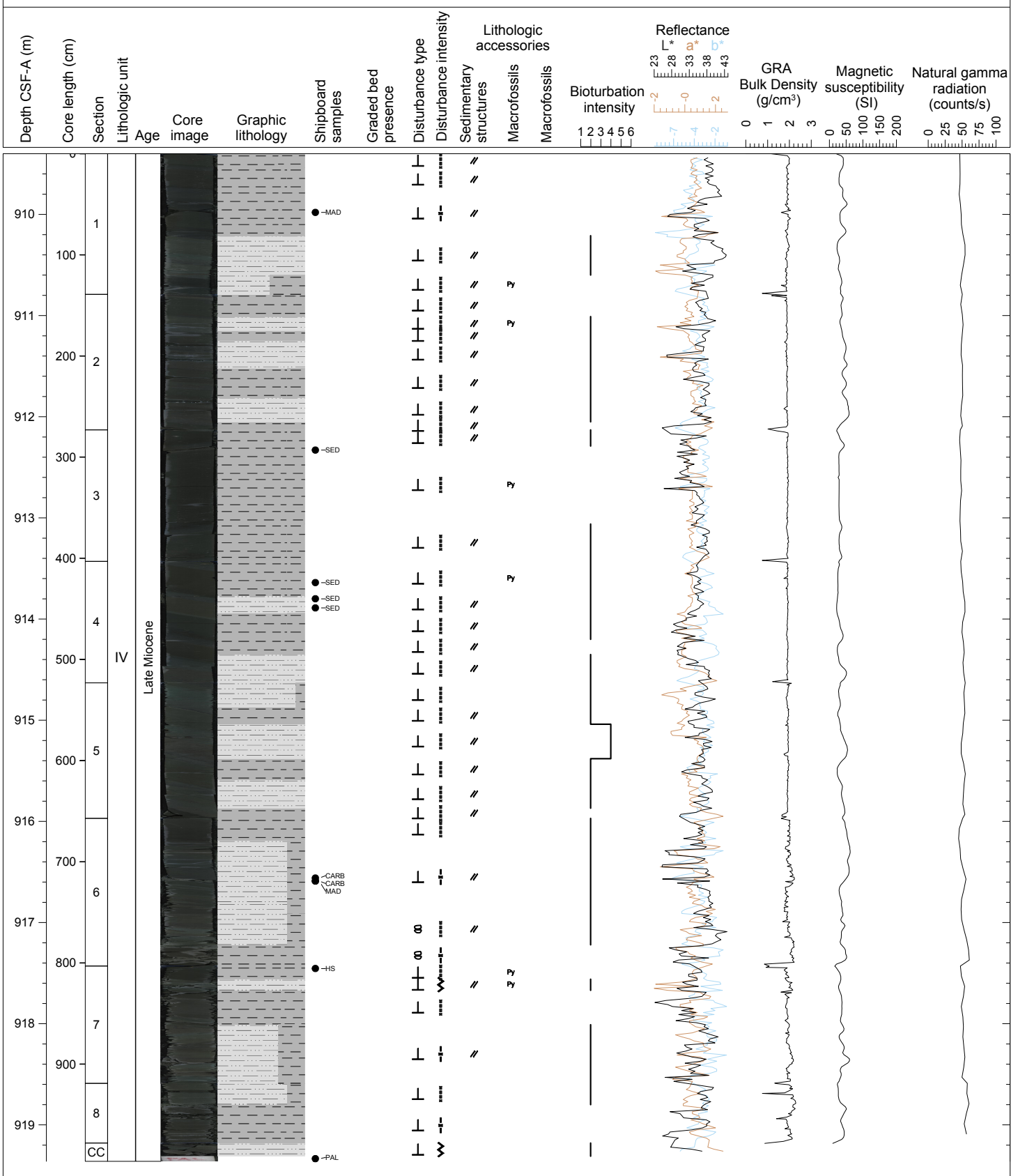
CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, SILTSTONE. Greenish gray CLAYSTONE and light bluish to brownish SILTY CLAYSTONE are the major lithologies. Medium bedded CLAYSTONE is repeatedly interbedded with thin bedded SILTY CLAYSTONE. Thin bedded (<20 cm) SILTSTONE is also interbedded with CLAYSTONE in the upper part of the core. Bedding is mostly inclined and highlighted by coarse grained layers. Bedding dip direction reverses from Section 3. Slickensides are associated with CLAYSTONE in the upper part of the core. Pyrite granules are often observed. CLAYSTONE comprises >70% of the core.





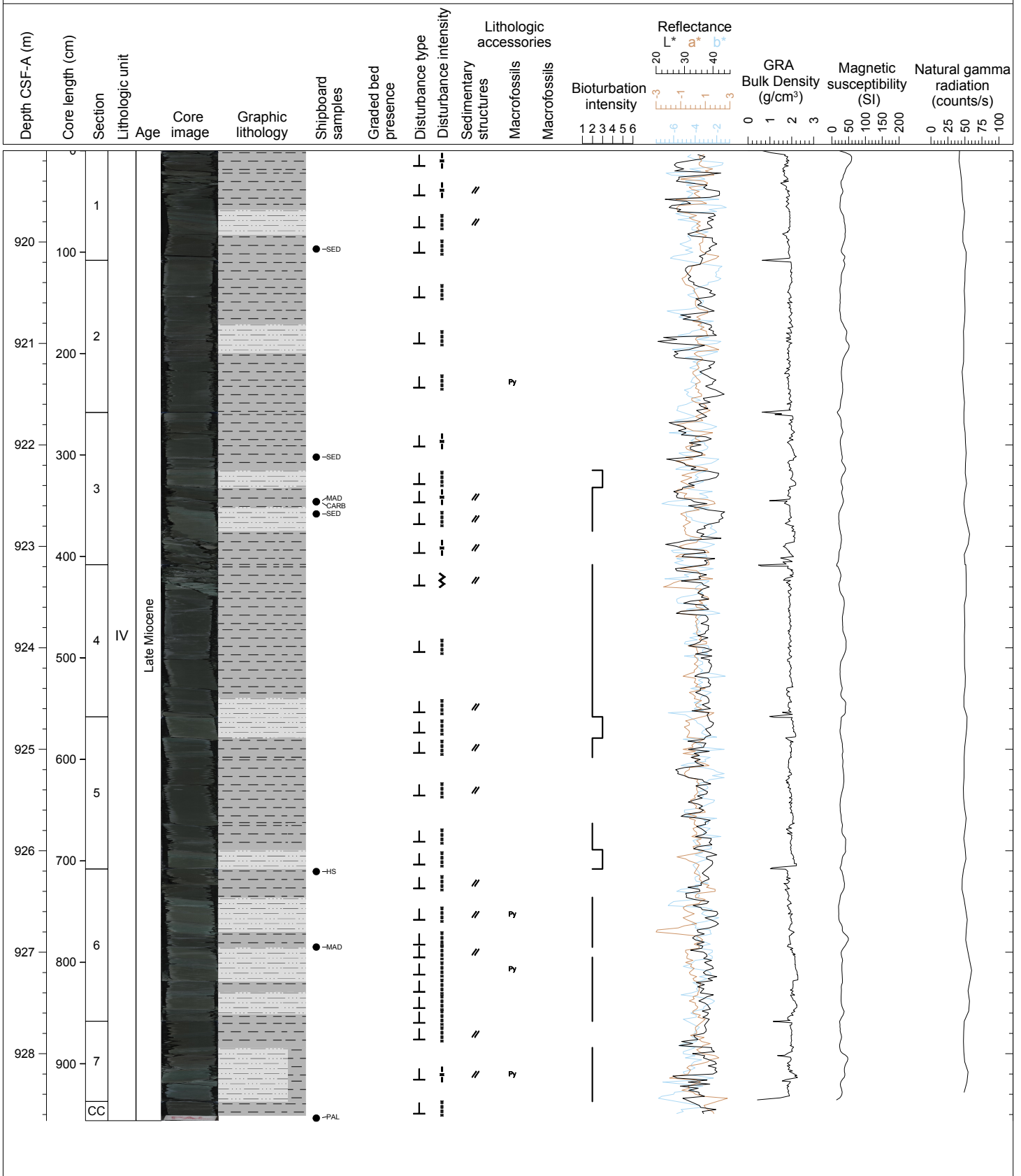
Hole 355-U1457C Core 76R, Interval 909.4-919.36 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS. Dark greenish CLAYSTONE, light greenish SILTY CLAYSTONE and light bluish SILTY CLAYSTONE WITH NANNOFOSSILS are the major lithologies. Bluish SILTY CLAYSTONE WITH NANNOFOSSILS and light greenish SILTY CLAYSTONE are often interbedded. Medium bedded CLAYSTONE is repeatedly interbedded with SILTY CLAYSTONE WITH NANNOFOSSILS and SILTY CLAYSTONE. Bedding is sharp, tilted and most clearly observed when the sediment is coarse grained. Bedding dip direction reverses in Sections 3 and 7. Pyrite grains and black patches are observed. CLAYSTONE comprises >80% of core.



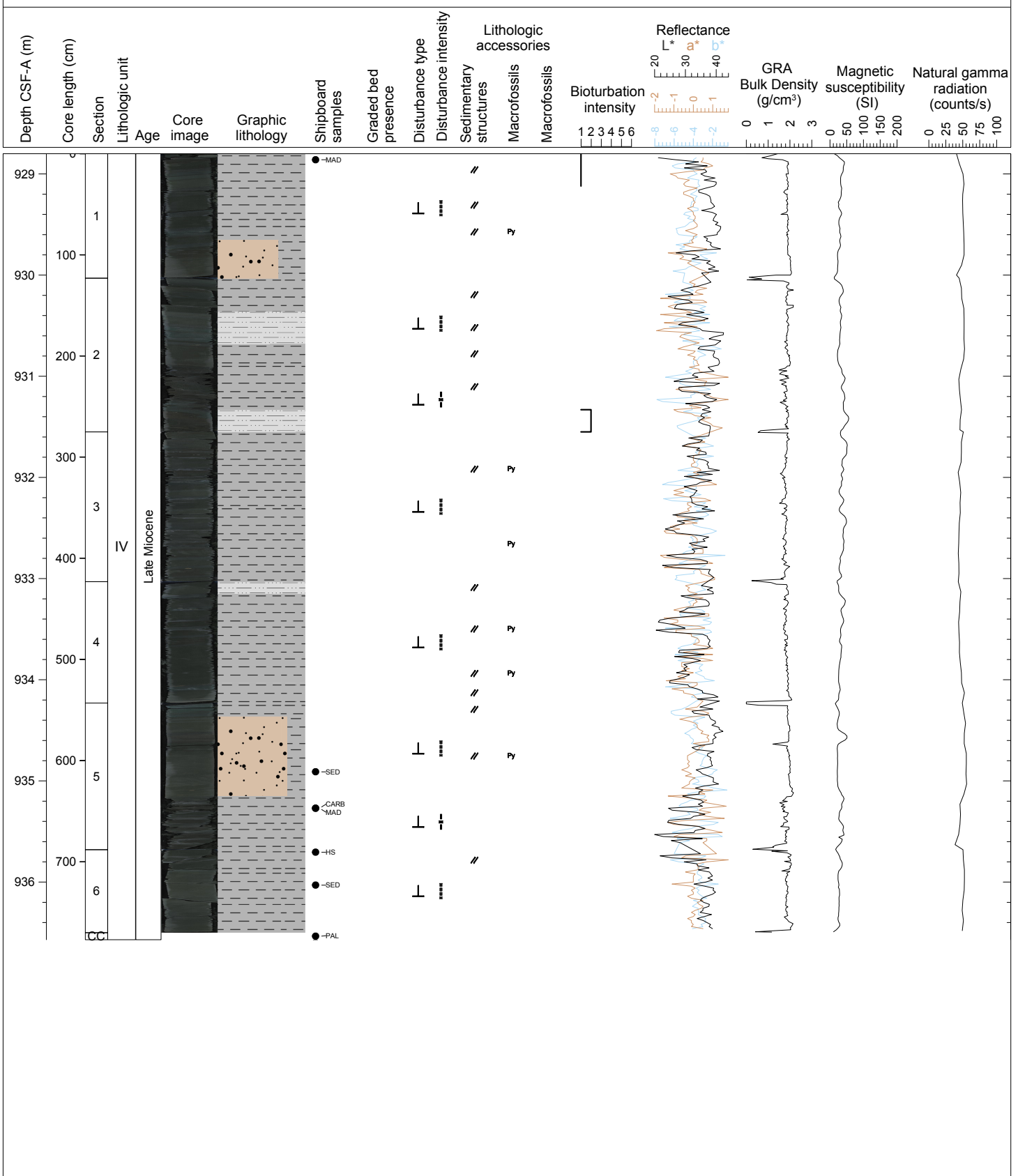
Hole 355-U1457C Core 77R, Interval 919.1-928.66 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS. Dark greenish gray CLAYSTONE, light brownish to light greenish SILTY CLAYSTONE and bluish SILTY CLAYSTONE WITH NANNOFOSSILS are the major lithologies. Medium to thickly bedded CLAYSTONE is often found interbedded with intervals of SILTY CLAYSTONE and/or SILTY CLAYSTONE WITH NANNOFOSSILS. Bedding tilted to nearly vertical, and sharply defined at the base of coarser grained beds. Folds are often observed. Dispersed pyrite is found through the core, as are layers of thin pyrite grains. Larger pyrite nodules and black patches are also observed. CLAYSTONE comprises >80% of core.



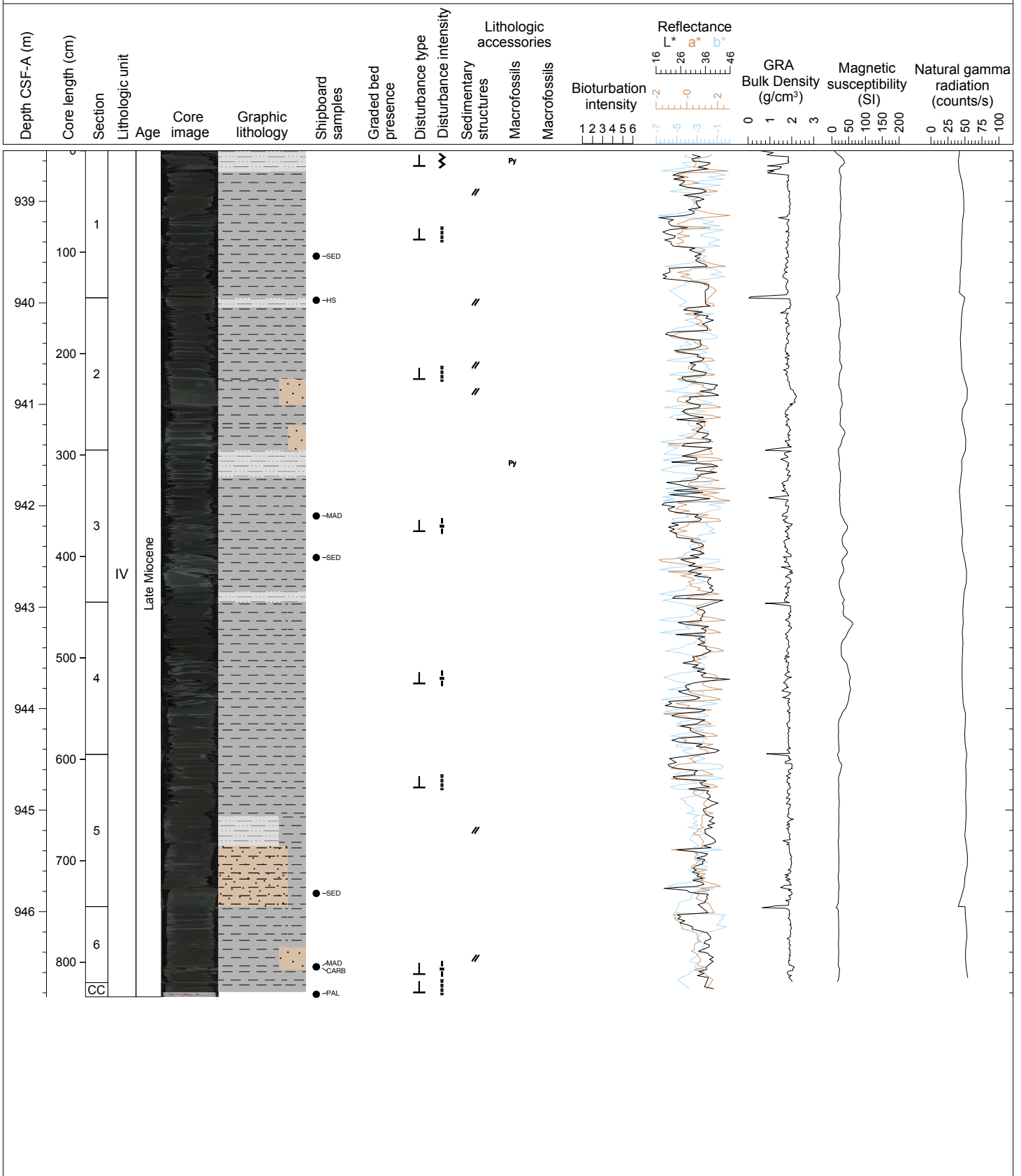
Hole 355-U1457C Core 78R, Interval 928.8-936.57 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SANDY SILTSTONE, FORAMINIFER-RICH CLAYSTONE, NANNOFOSSIL-RICH CLAYSTONE. Dark greenish gray, thick-bedded (30-70 cm), massive CLAYSTONE and light greenish gray, thick (>50 cm) SANDY SILTSTONE are the dominant lithologies. Dark greenish gray, thin (<10 cm), massive SILTY CLAYSTONE is interbedded with CLAYSTONE. Thin-bedded (<1 cm) FORAMINIFER-RICH CLAYSTONE is also interbedded with CLAYSTONE or SANDY SILTSTONE. Thin-bedded (~1 cm) NANNOFOSSIL-RICH CLAYSTONE intervals are also interleaved within CLAYSTONE in Section 4. Tilted bedding (~45 degree) is prevalent. Pyrite patches and layers are also frequent.



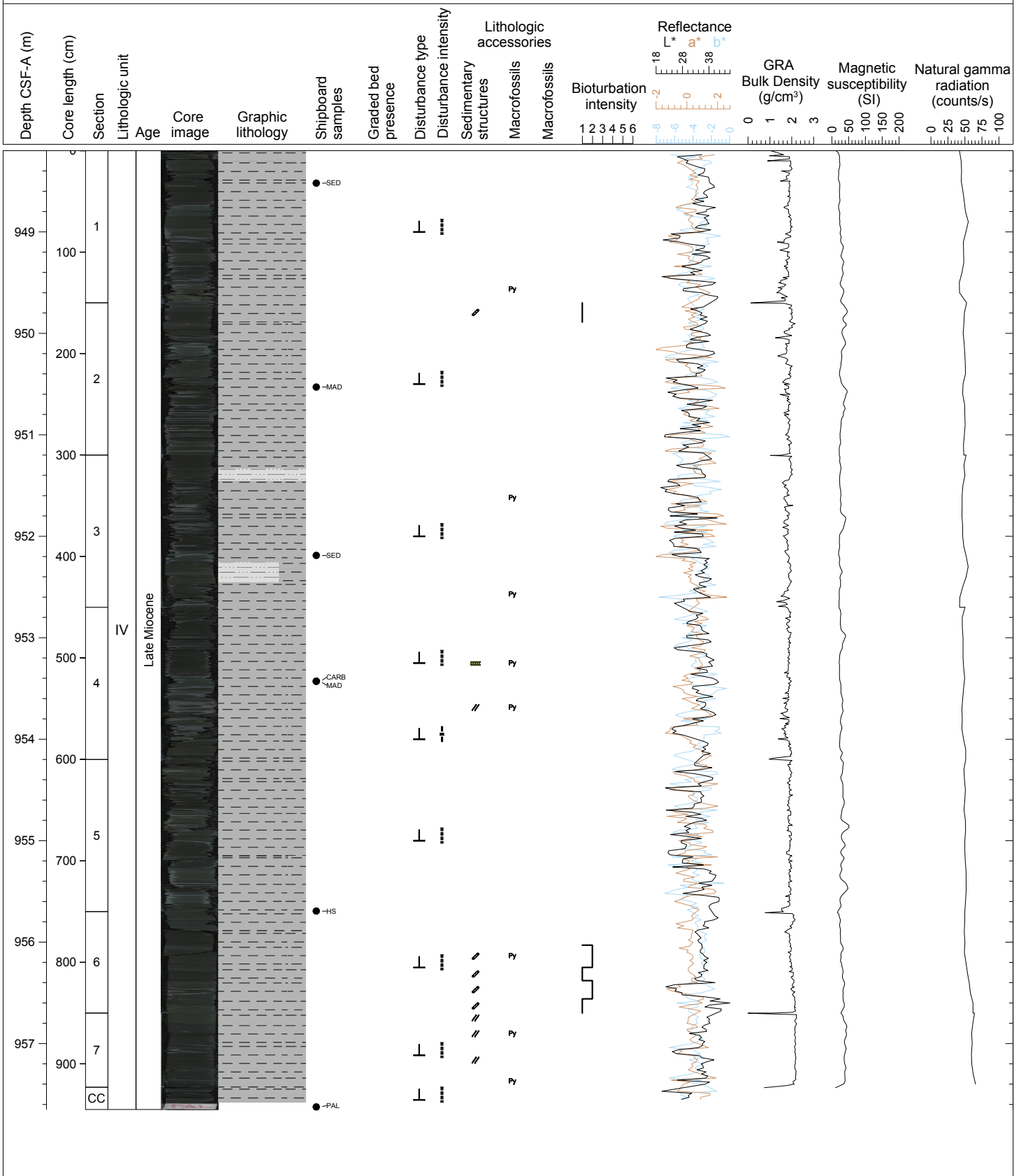
Hole 355-U1457C Core 79R, Interval 938.5-946.84 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, CLAYEY SILTSTONE, CLAYSTONE WITH NANNOFOSSILS, SILTY CLAYSTONE WITH NANNOFOSSILS. Dark greenish gray, thick, massive CLAYSTONE and greenish gray, thin SILTY CLAYSTONE are the dominant lithologies. CLAYSTONE and SILTY CLAYSTONE are differentiated from CLAYSTONE WITH NANNOFOSSILS and SILTY CLAYSTONE WITH NANNOFOSSILS, which are thickly bedded in Section 5 and 6. Nannofossils occur as spotty inclusions within CLAYSTONE. A thin (<1 cm) SILTY CLAYSTONE is also interbedded with the CLAYSTONE and show a sharp, erosive boundary at the bottom. Most of bedding planes are tilted (10-40 degrees). Minor faults and folds are also seen. Pyrite is developed throughout.



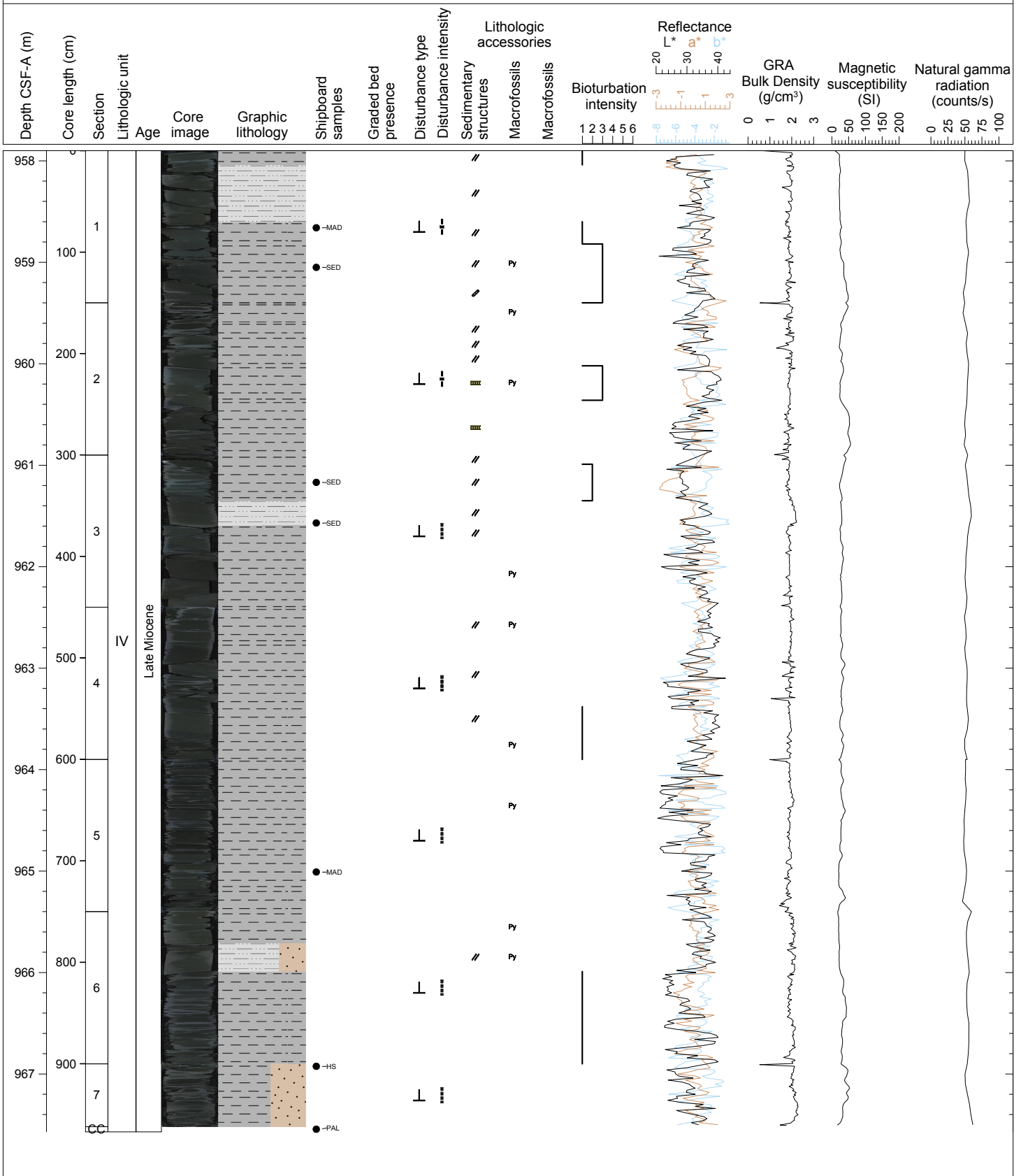
Hole 355-U1457C Core 80R, Interval 948.2-957.65 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE. Dark greenish gray or dark bluish gray, thick-bedded (10-70 cm), massive CLAYSTONE is dominant. Two differently colored type of CLAYSTONE are interbedded and show gradual transitions between them. CLAYSTONE has sparse to slight bioturbation locally. Thin bedded (~1 cm), dark gray, SILTY CLAYSTONE is interbedded with CLAYSTONE. Pyrite is observed throughout. Tilted bedding (10-20 degree) is clearly observed in Section 7.



Hole 355-U1457C Core 81R, Interval 957.9-967.57 m (CSF-A)

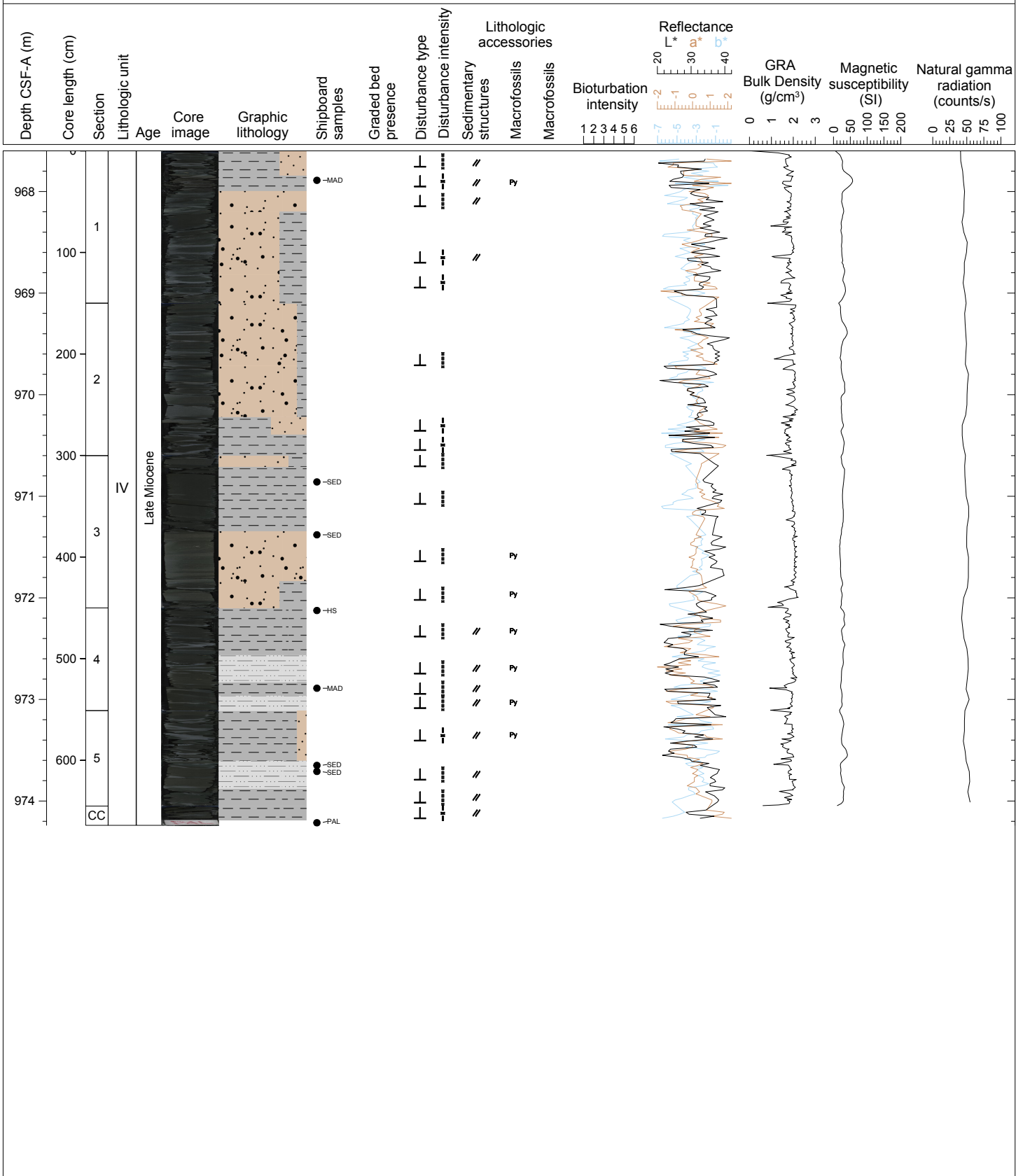
CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, CLAYEY SILTSTONE. CLAYSTONE is the dominant lithology dominant. CLAYSTONE is present as both dark bluish, thick-bedded (20-70 cm) massive or bioturbated intervals and as dark greenish gray thick (10 to 40 cm), massive intervals. These two types of CLAYSTONE are interbedded. Bedding is tilted to a high-angle (>45 degree). Dip directions may reverse to the opposite direction within a single section. Dark bluish gray CLAYSTONE shows more bioturbation including Zoophycos, together with pyrite inclusions. Thick-bedded (~15-25 cm) dark gray SILTY CLAYSTONE WITH NANNOFOSSILS is interbedded with CLAYSTONE, and shows erosive boundaries at the top of the CLAYSTONE intervals. Thin (<1 cm to 4 cm) bluish CLAYSTONE is interbedded with very thin dark gray CLAYEY SILTSTONE and these intervals are highly deformed.





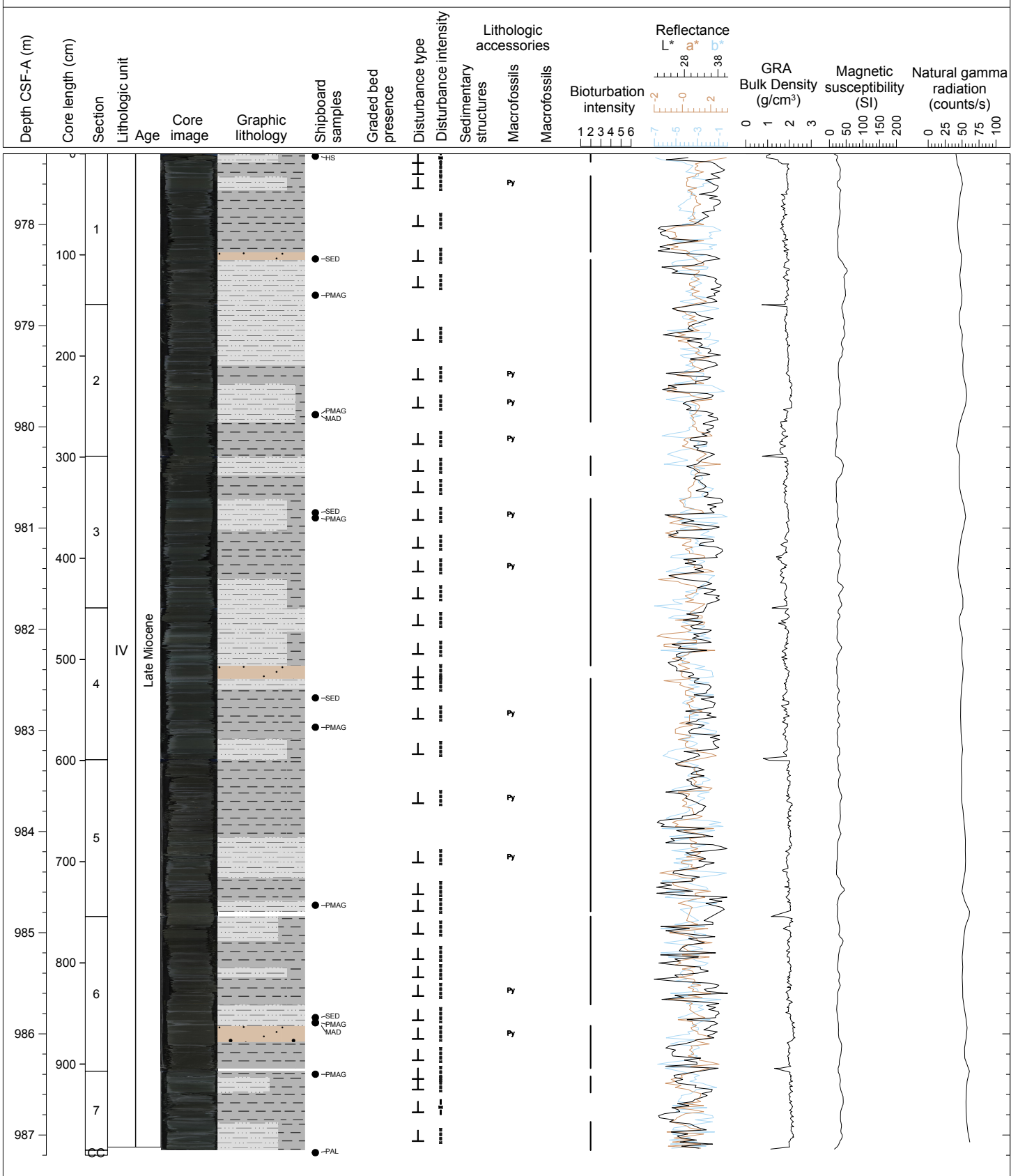
Hole 355-U1457C Core 82R, Interval 967.6-974.24 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, SANDY SILTSTONE. Dark greenish gray CLAYSTONE interbedded with bluish SILTY CLAYSTONE and gray SILTY CLAYSTONE WITH NANNOFOSSILS are the major lithologies. Thinly bedded SILTY CLAYSTONE is mostly found interbedded with CLAYSTONE and often associated with thin-bedded light color layers of normally graded SANDY SILTSTONE. These cycles of sediment are often deformed. SANDY SILTSTONE contains calcite crystals. Interbedded CLAYSTONE, SILTY CLAYSTONE, SANDY SILTSTONE are chaotically mixed and deformed together in the upper part of the core. Tilted bedding, folding and slickensides are common in the upper part of the core. Pyrite nodules are often observed. CLAYSTONE comprises <60 % of core.



Hole 355-U1457C Core 83R, Interval 977.3-987.2 m (CSF-A)

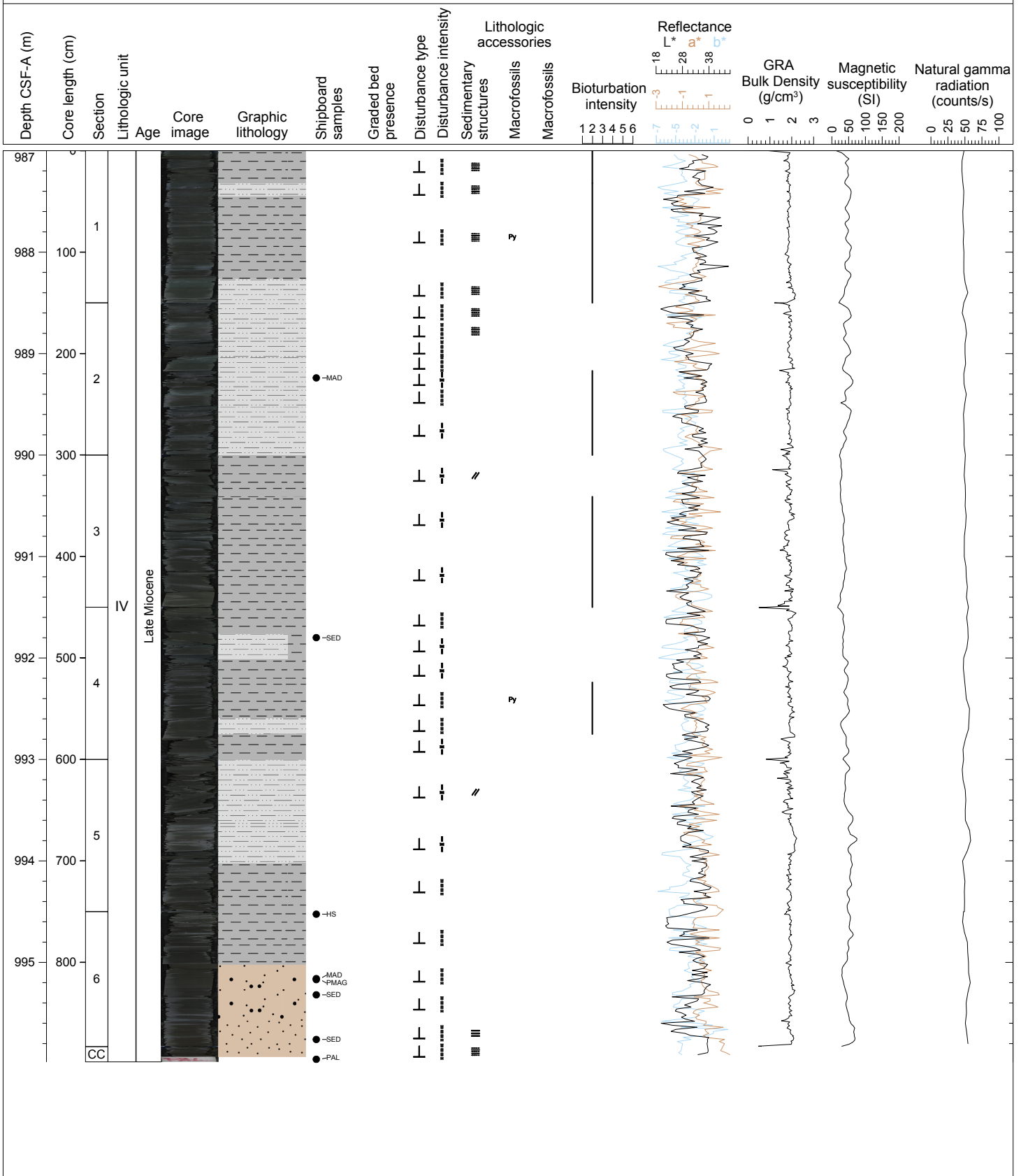
CLAYSTONE, SILTY CLAYSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, SANDY SILTSTONE. Dark greenish to blackish, medium bedded CLAYSTONE is the dominant lithology. Thin-bedded bluish SILTY CLAYSTONE WITH NANNOFOSSILS and greenish SILTY CLAYSTONE are associated and often found interbedded within CLAYSTONE intervals. The bedding is mostly sharp, sub-horizontal to horizontal and most clearly observed at the base of graded coarser beds. Tiny pyrite grains with some pyrite nodules are dispersed throughout the core. SANDY SILTSTONE is thin to medium bedded and contains microscopic crystalline calcite in the lower part of the core. SILTY CLAYSTONE WITH NANNOFOSSILS comprises <20% of the core.





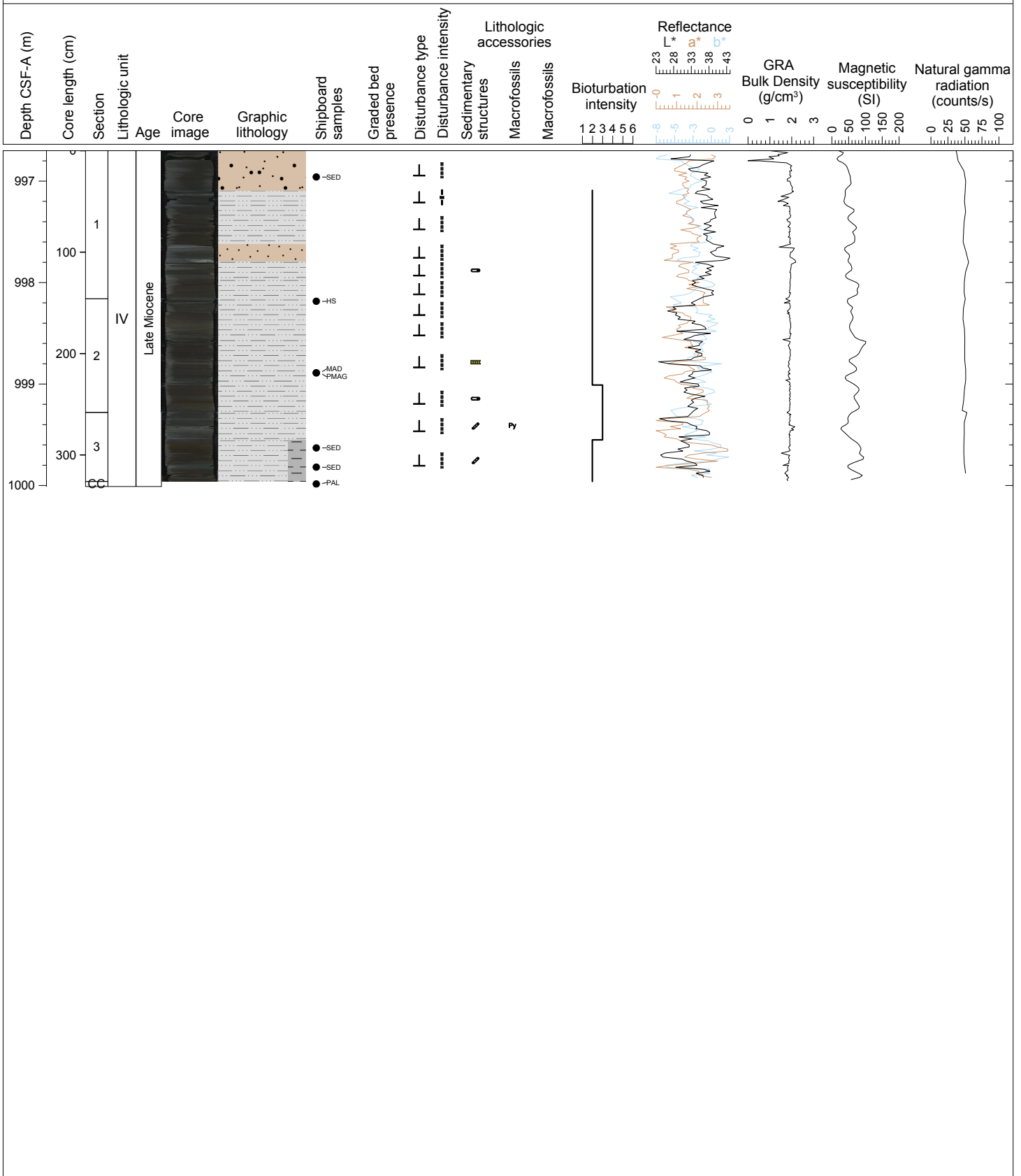
Hole 355-U1457C Core 84R, Interval 987.0-995.98 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, SILTSTONE, SANDY SILTSTONE WITH CALCITE, SILTY CLAYSTONE WITH NANNOFOSSILS, Dark to light greenish gray CLAYSTONE interbedded with bluish to light brownish SILTY CLAYSTONE is the dominant lithology. Bluish SILTY CLAYSTONE WITH NANNOFOSSILS and brownish SILTY CLAYSTONE are often associated and interbedded together within CLAYSTONE. Bioturbation is limited to bluish SILTY CLAYSTONE. Planolites is the most common burrow type. Nearly vertical bedding and slickensides are very common. Microscopic calcite crystallization is observed in Section 6 within beds of SANDY SILTSTONE WITH CALCITE. Brownish-bluish color banding is observed in the bottom part of the core, together with parallel lamination. CLAYSTONE comprises <70% of the core.



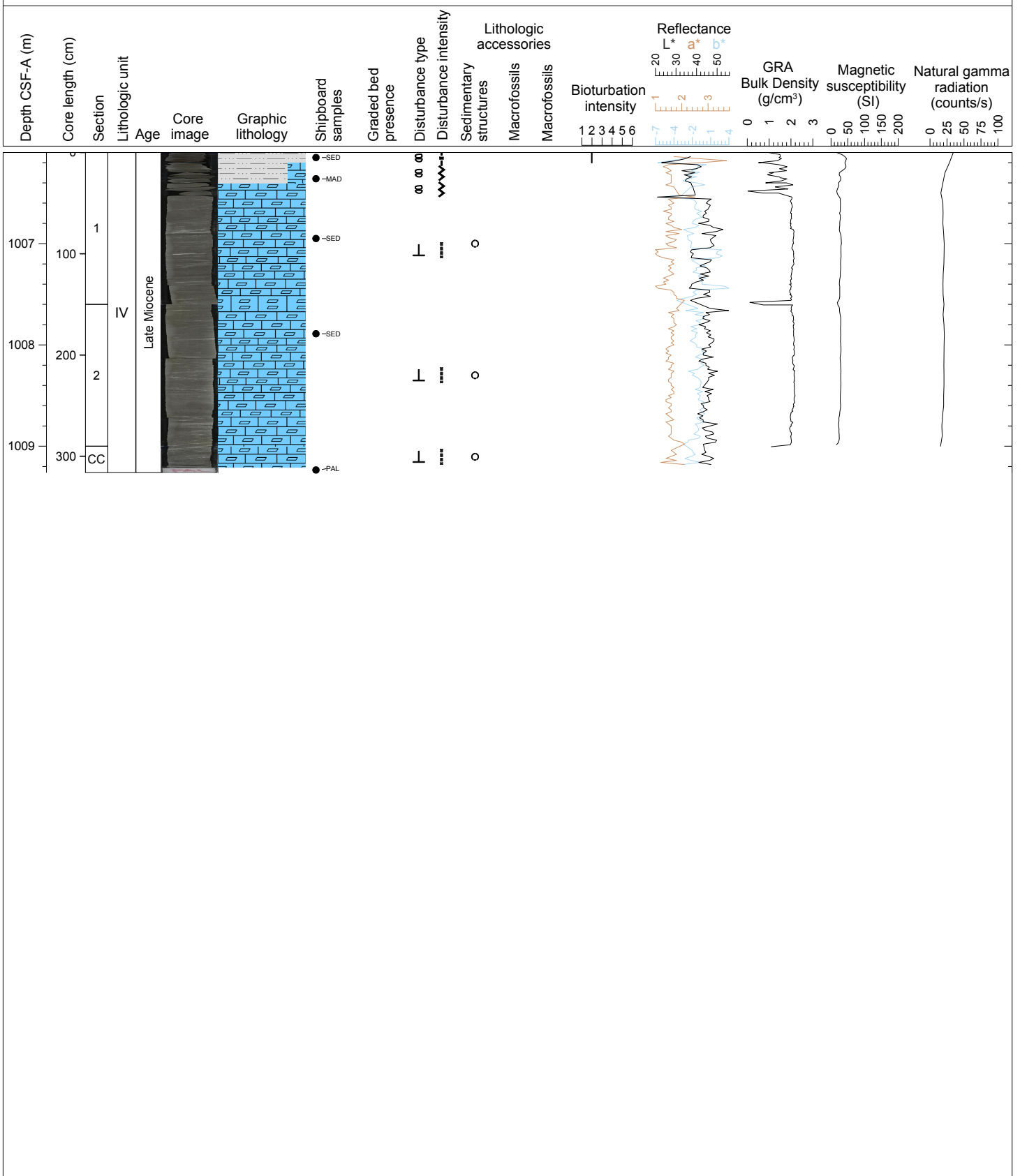
Hole 355-U1457C Core 85R, Interval 996.7-1000.01 m (CSF-A)

SANDY SILTSTONE, SILTY CLAYSTONE WITH NANNOFOSSILS, SILTY CLAYSTONE, SILTSTONE WITH CALCITE. Light brownish SILTY CLAYSTONE and SILTY CLAYSTONE WITH NANNOFOSSILS are the dominant lithologies. Microscopic calcite crystals are seen locally in the core. Medium bedded SANDY SILTSTONE WITH CALCITE and SILTSTONE WITH CALCITE are observed in Section 1. Very thin layers of SILTY CLAYSTONE are found interbedded in SANDY SILTSTONE WITH CALCITE. Bioturbation is limited to SILTY CLAYSTONE and SILTY CLAYSTONE WITH NANNOFOSSILS. Burrow types include Planolites and vertical Skolithos-type burrows. Color variations are observed in SILTY CLAYSTONE. Bedding is horizontal to sub-horizontal (<20 degrees). Large pyrite nodules are also observed in the core.



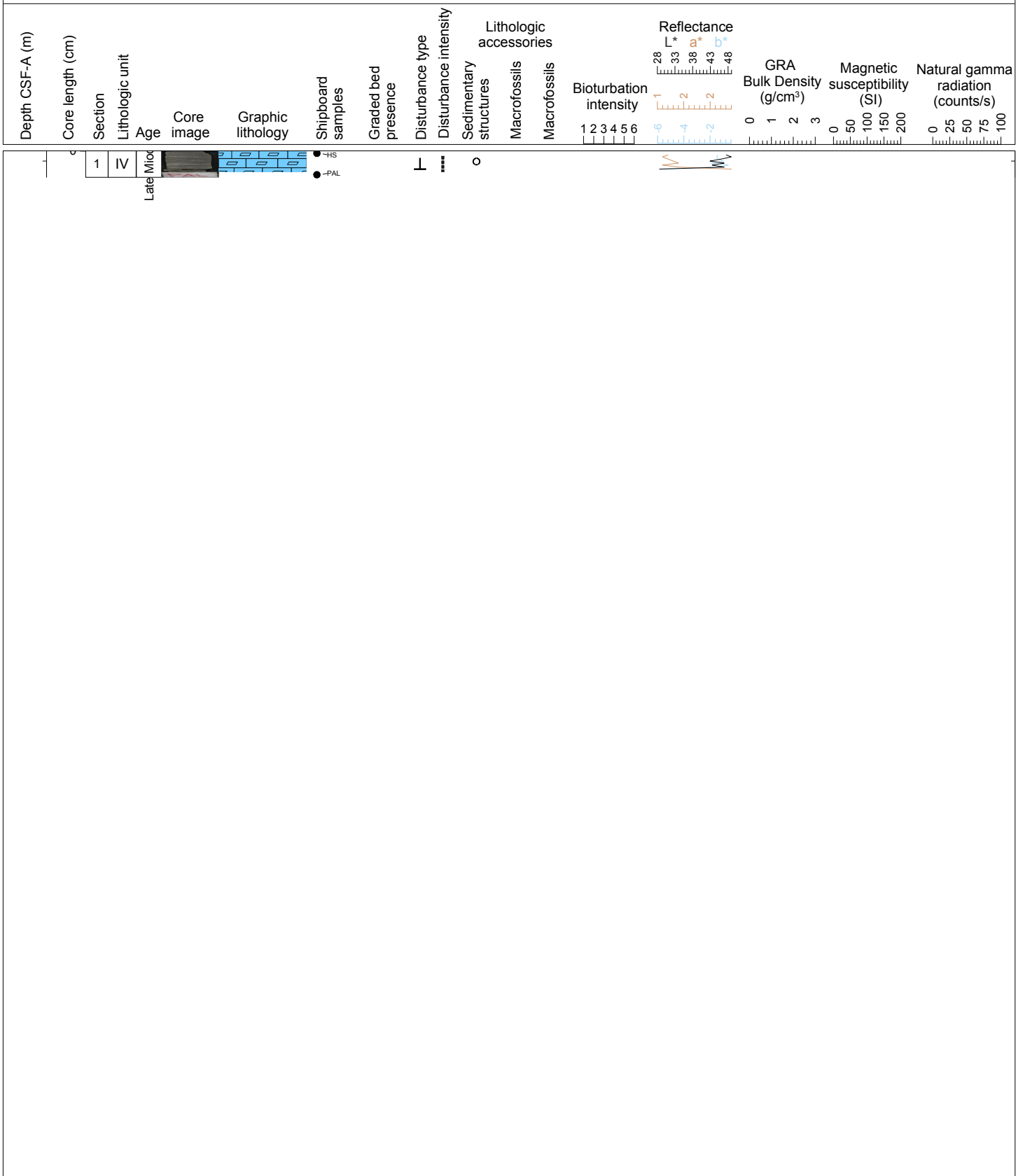
Hole 355-U1457C Core 86R, Interval 1006.1-1009.26 m (CSF-A)

SILTY CLAYSTONE, CALCILUTITE. Gray massive CALCILUTITE is the dominant lithology. SILTY CLAYSTONE occurs only at the top of the core. Fine-grained CALCILUTITE is observed with lens and pod-shaped patches of coarser grained calcite. Lamination with the CALCILUTITE is gently inclined (ca. 30 degrees) and is picked out by lighter carbonate rich layers. Soft-sediment folding at the cm and sub-cm scale is observed. CALCILUTITE is very indurated and comprises >90% of the core.



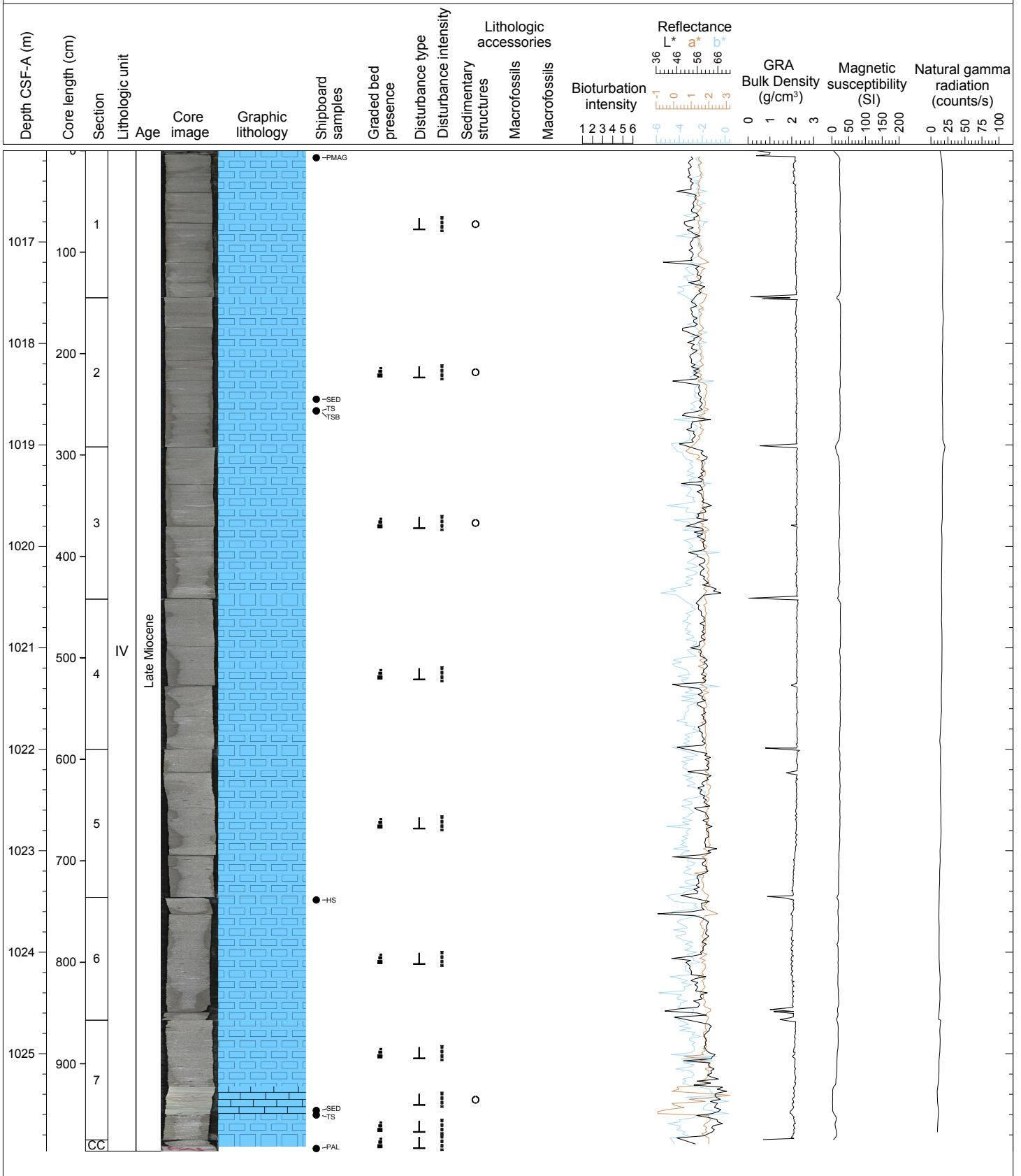
Hole 355-U1457C Core 87R, Interval 1011.1-1011.36 m (CSF-A)

CALCILUTITE. Gray color CALCILUTITE is the dominant lithology. The fine grained CALCILUTITE is observed to have thin white colored layers enriched calcite fragments of sandy grain size. Dark-light color banding is irregular and anastomosing, suggestive of soft-sediment deformation and shearing.



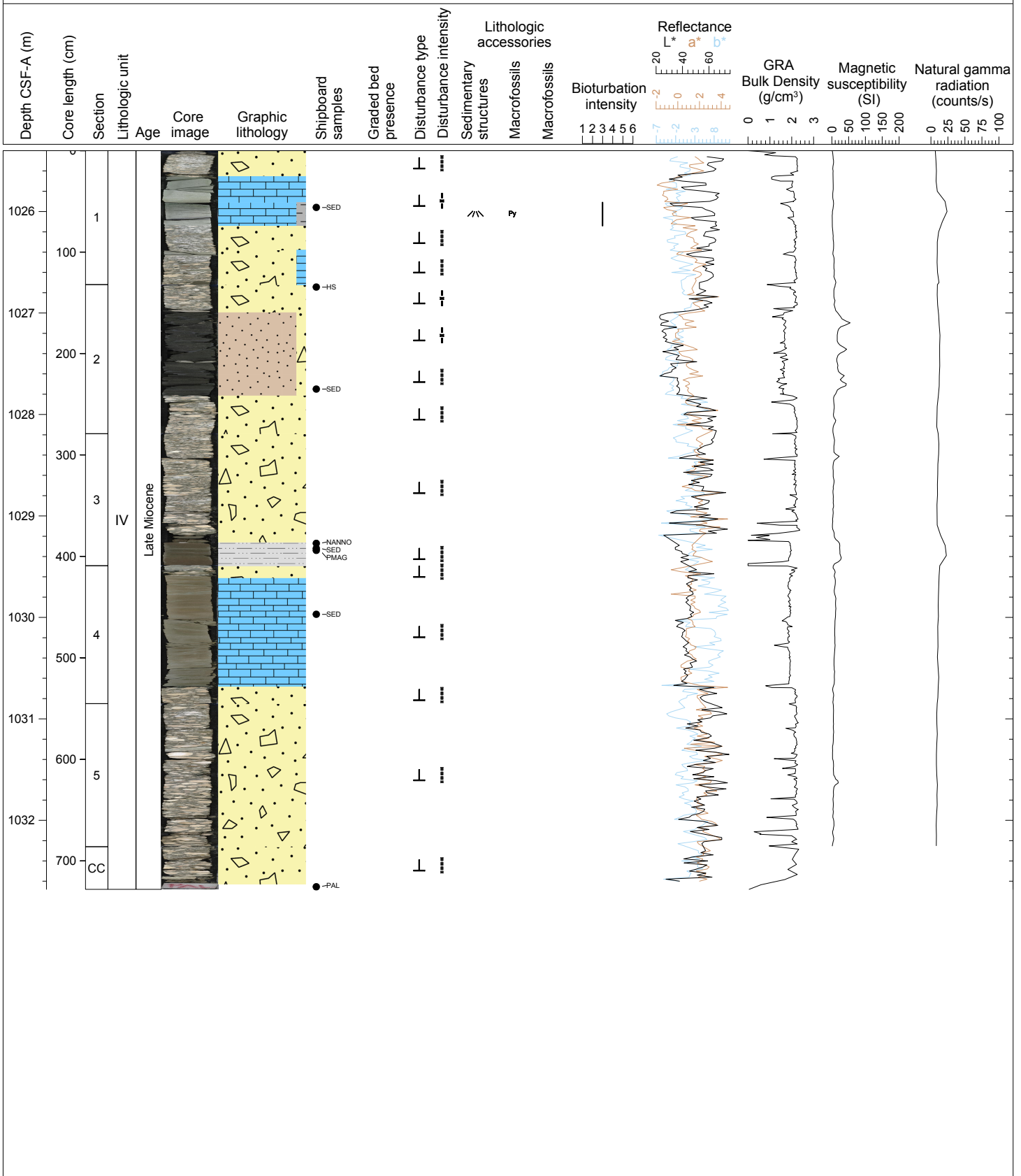
Hole 355-U1457C Core 88R, Interval 1016.1-1025.96 m (CSF-A)

CALCARENITE, LIMESTONE. Gray, very thickly bedded and normal graded CALCARENITE is the major lithology. Lensoid and pod-like clasts or color patches are very common. The clast size increases downcore. In the lower four sections granules of calcite, claystone, and green altered volcanic clasts are observed and grain size increases to a very coarse sand (>1 cm), with poor sorting. The fabric is matrix supported. Medium bedded limestone in Section 7 has cracks >1 cm across and infilled with the surrounding sediment. The sediment coarsens upward under the limestone bed, suggesting that it is a raft within the CALCARENITE and not in place.



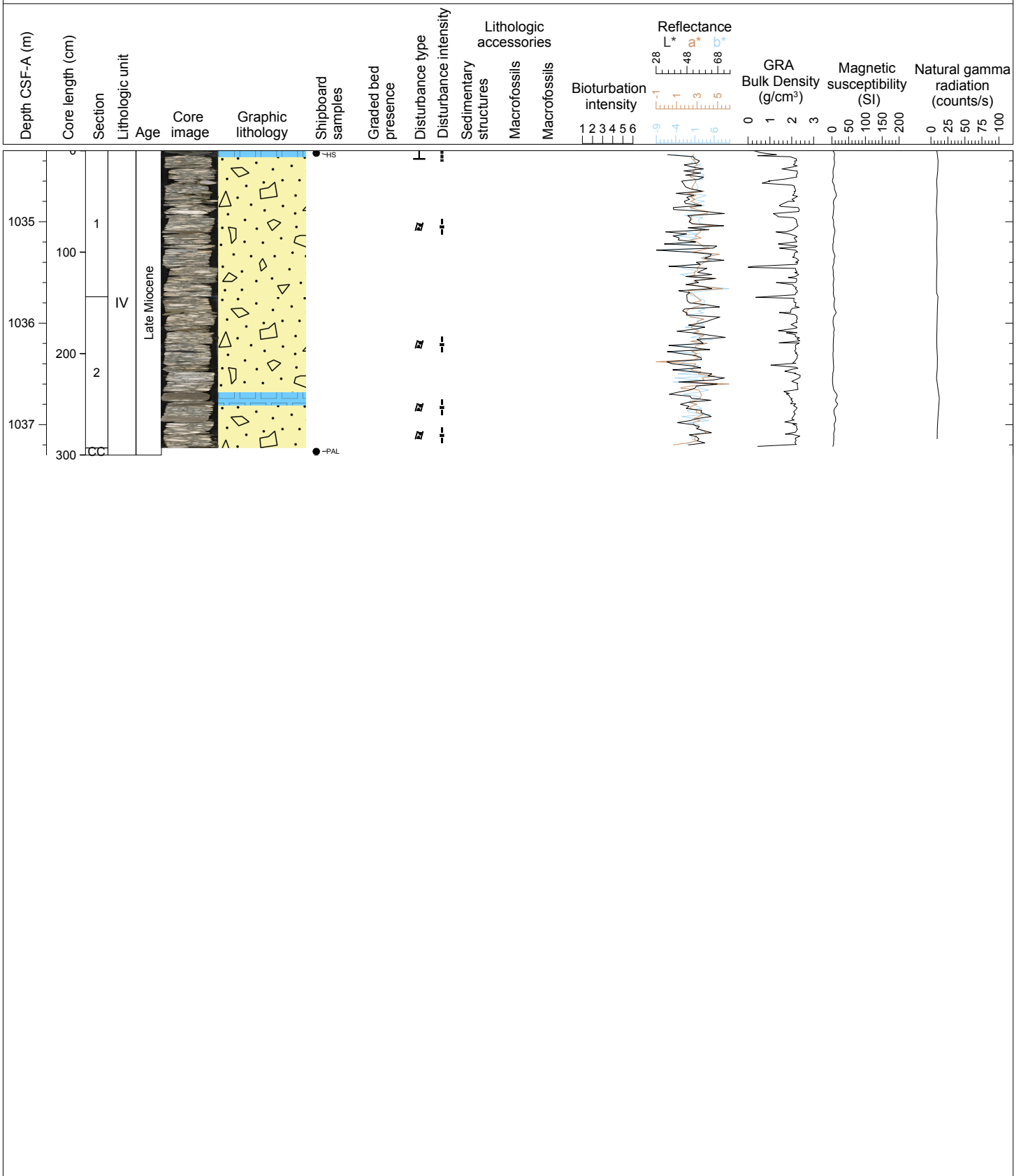
Hole 355-U1457C Core 89R, Interval 1025.4-1032.68 m (CSF-A)

BRECCIA, LIMESTONE, SILTSTONE WITH CALCITE, SILTY CLAYSTONE. Blackish SILTSTONE WITH CALCITE, Greenish brown LIMESTONE and carbonate BRECCIA are the dominant lithologies. The BRECCIA clasts are dominantly whitish or pinkish limestone with lesser amounts of claystone, calcite, volcanic fragments. The breccia clasts are angular to sub-angular, poorly sorted, and suspended in a clay and carbonate matrix. The clast size increases downcore, and varies from granules to pebbles (<7 cm). Limestone clasts are found indenting one another. Blackish SILTSTONE WITH CALCITE shows microscopic calcite crystals on the cut core surface in Section 2. Thickly bedded LIMESTONE with white patches of coarser material is observed in Sections 3 and 4 and shows an inclined fabric. The LIMESTONE and SILTSTONE WITH CALCITE intervals may be rafts of sedimentary rocks within a coarse BRECCIA.



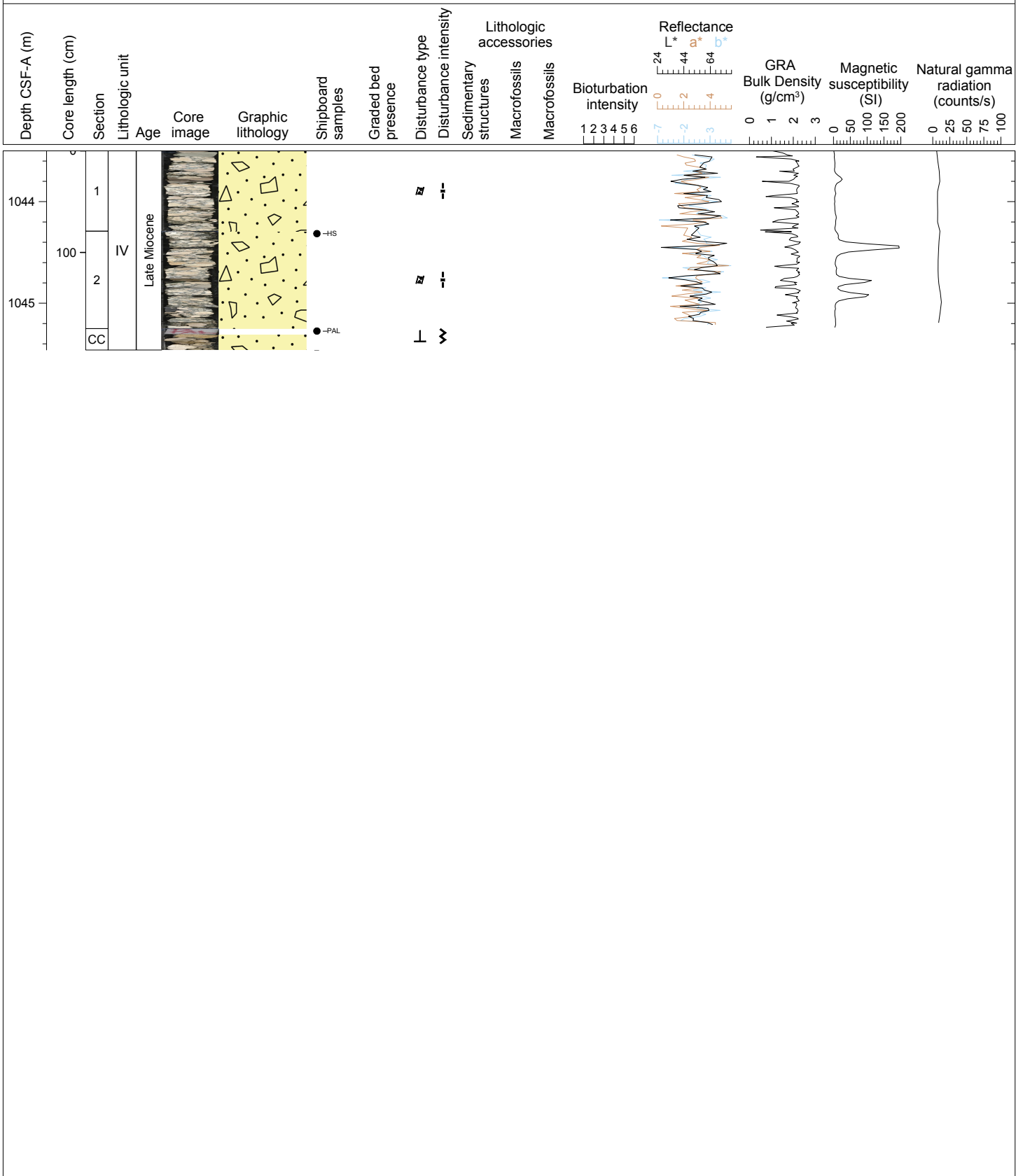
Hole 355-U1457C Core 90R, Interval 1034.3-1037.3 m (CSF-A)

CALCARENITE, BRECCIA. The core is dominated by BRECCIA. A short interval of CALCARENITE is observed at the top of the core and in Section 2, 94-107 cm. BRECCIA clasts are dominant by pebble-sized, sub-angular limestone clasts, with other clasts of brown and blackish claystone, volcanic rocks and occasional other lithologies suspended in a clay and carbonate mixed matrix. Limestone clasts comprise ~90% of the total. Clasts are up to 8 cm across. No clear grading is noted and the sorting is very poor. The BRECCIA is matrix supported and not well cemented. Locally, limestone clasts are seen to indent one another due to pressure solution.



Hole 355-U1457C Core 91R, Interval 1043.5-1045.46 m (CSF-A)

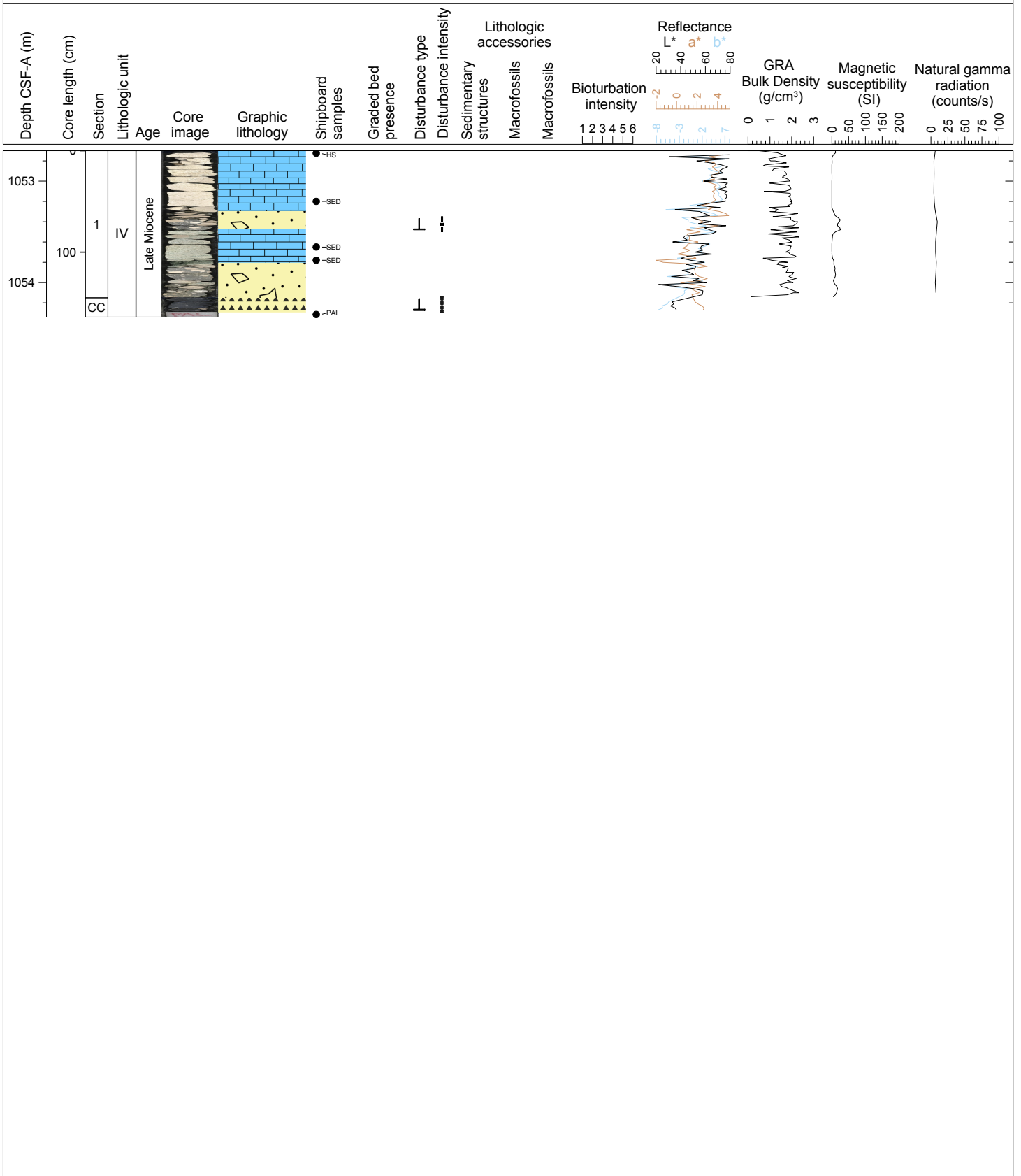
BRECCIA. The core is dominated by BRECCIA. BRECCIA clasts are dominated by pebble-sized (<5 cm), sub-angular limestone clasts, with other small clasts of brown and blackish claystone, volcanic rocks and occasional other lithologies. There is a minor clay and carbonate mixed matrix. Limestone clasts comprise ~90% of the total. No clear grading is noted and the sorting is very poor. Locally, limestone clasts are seen to indent one another due to pressure solution.





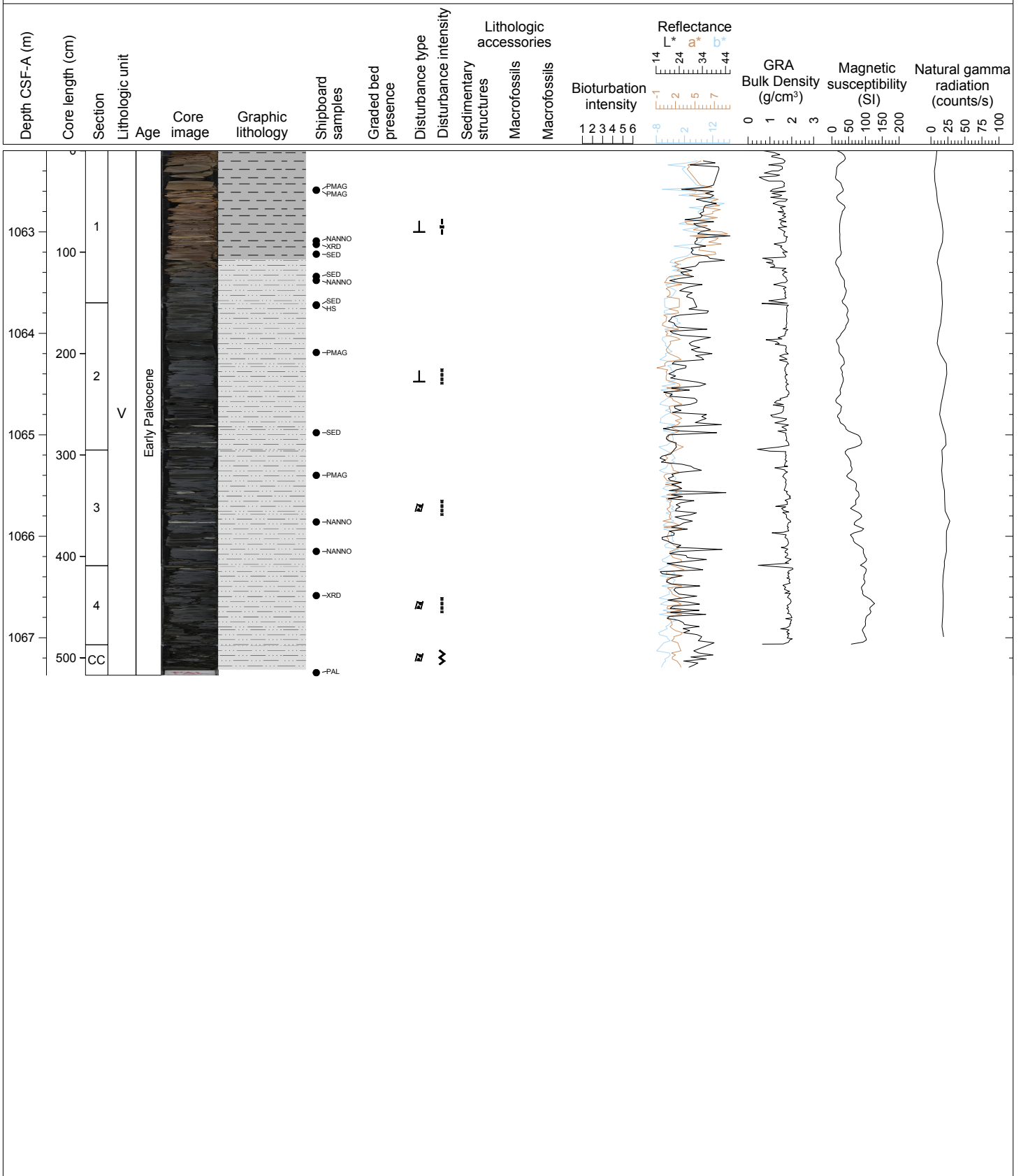
Hole 355-U1457C Core 92R, Interval 1052.7-1054.34 m (CSF-A)

LIMESTONE, BRECCIA. LIMESTONE and BRECCIA are the dominant lithologies, and are interbedded in Section 1. Pale tan-colored LIMESTONE consists of granule-sized grains and is porous. The LIMESTONE may be carbonate composed of algae-precipitated material. Another interval of light gray porous LIMESTONE from 78 to 108 cm, Section 1, consists of granule to pebble sized clasts with minor detrital particles. Two short intervals of BRECCIA show that BRECCIA clasts are dominant by pebble-sized, sub-angular limestone clasts. Limestone clasts comprise ~90% of the total and are up to 8 cm across, suspended in a muddy matrix. No clear grading is noted and the sorting is very poor. The core catcher consists of dark gray CHERT with cryptocrystalline crystals.



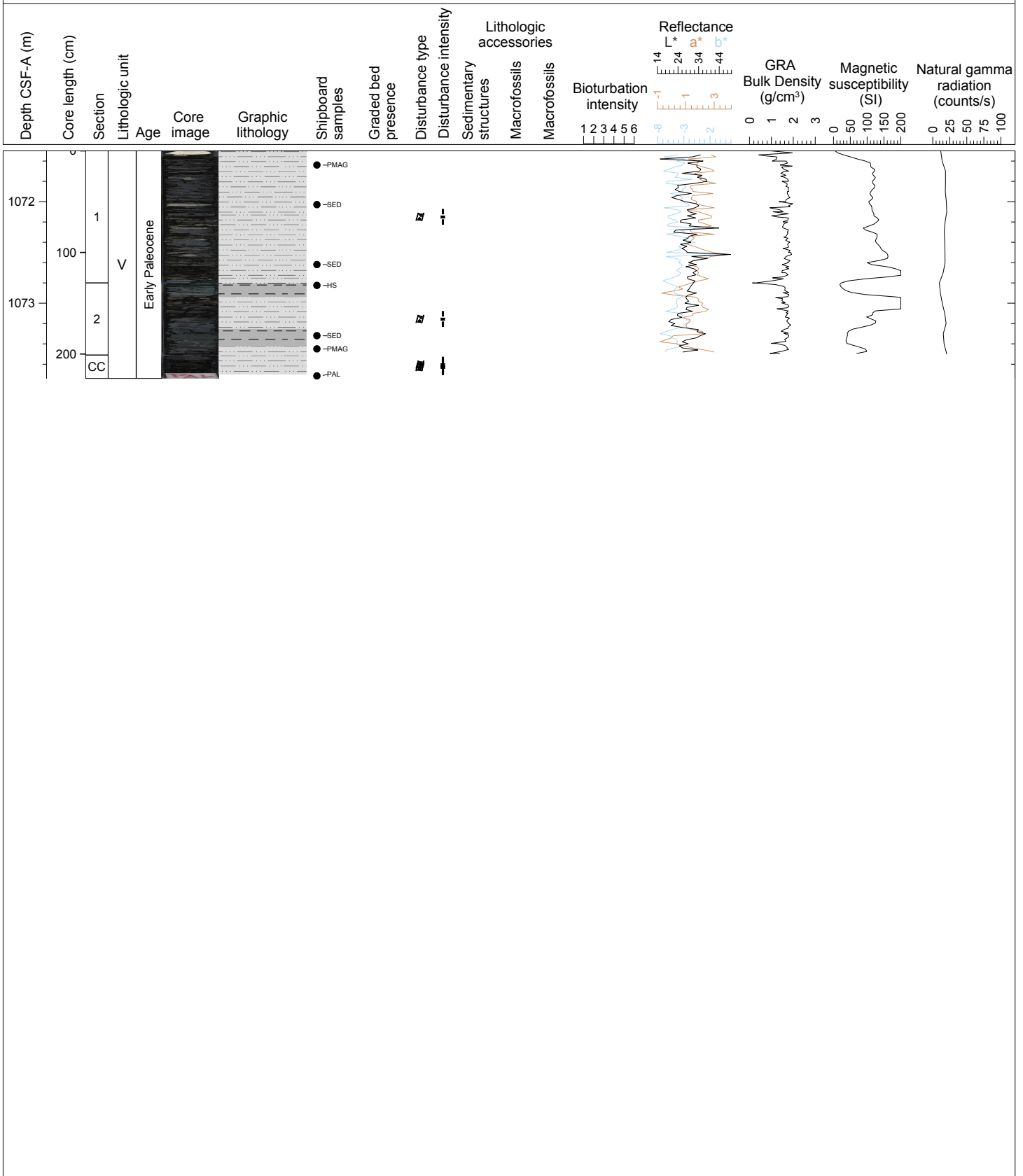
Hole 355-U1457C Core 93R, Interval 1062.2-1067.37 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE. Dark brown massive CLAYSTONE and dark greenish gray SILTY CLAYSTONE dominate this core. CLAYSTONE is overlain by SILTY CLAYSTONE. Dark brown CLAYSTONE shows a very amount of interbedded dark greenish gray SILTY CLAYSTONE. The CLAYSTONE contains black Mn discontinuous layers and nodules, a few mm thick as well as sub-horizontal layers which are faded to a light tan color. Dark greenish gray SILTY CLAYSTONE shows small (1 to 3 cm) gray inclusions that are identified as carbonate-cemented nodules and rare parallel bands.



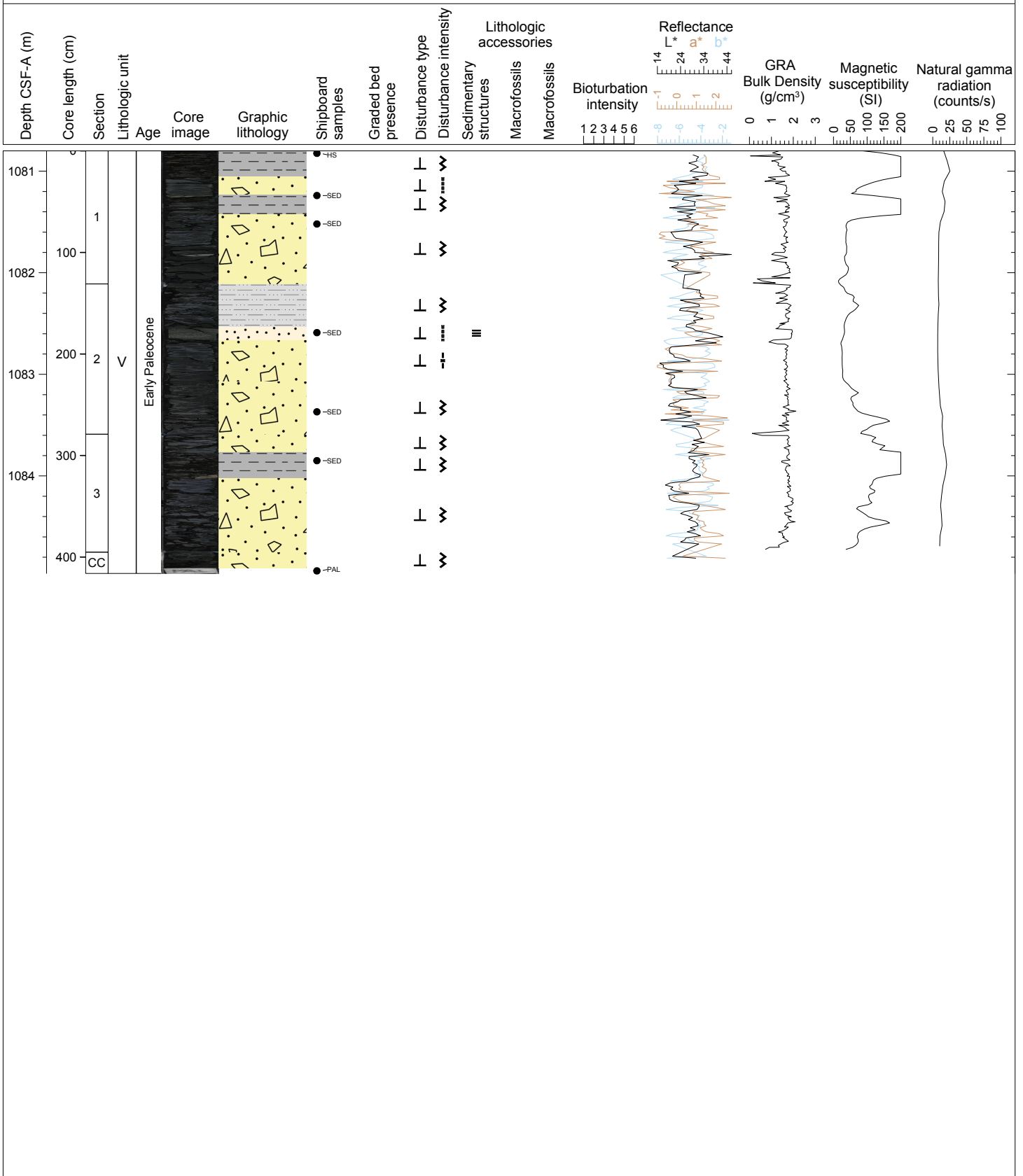
Hole 355-U1457C Core 94R, Interval 1071.5-1073.74 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE. Dark greenish gray, massive SILTY CLAYSTONE with gray sandy calcareous interbeds and pods dominates Section 1. Section 2 consists of an alternating interbeds of bluish green CLAYSTONE and dark greenish gray SILTY CLAYSTONE. Core is heavily fractured by drilling so that it is difficult to observe sedimentary structures. The top of the core is marked by a clast of limestone that has fallen into the core from shallower levels.



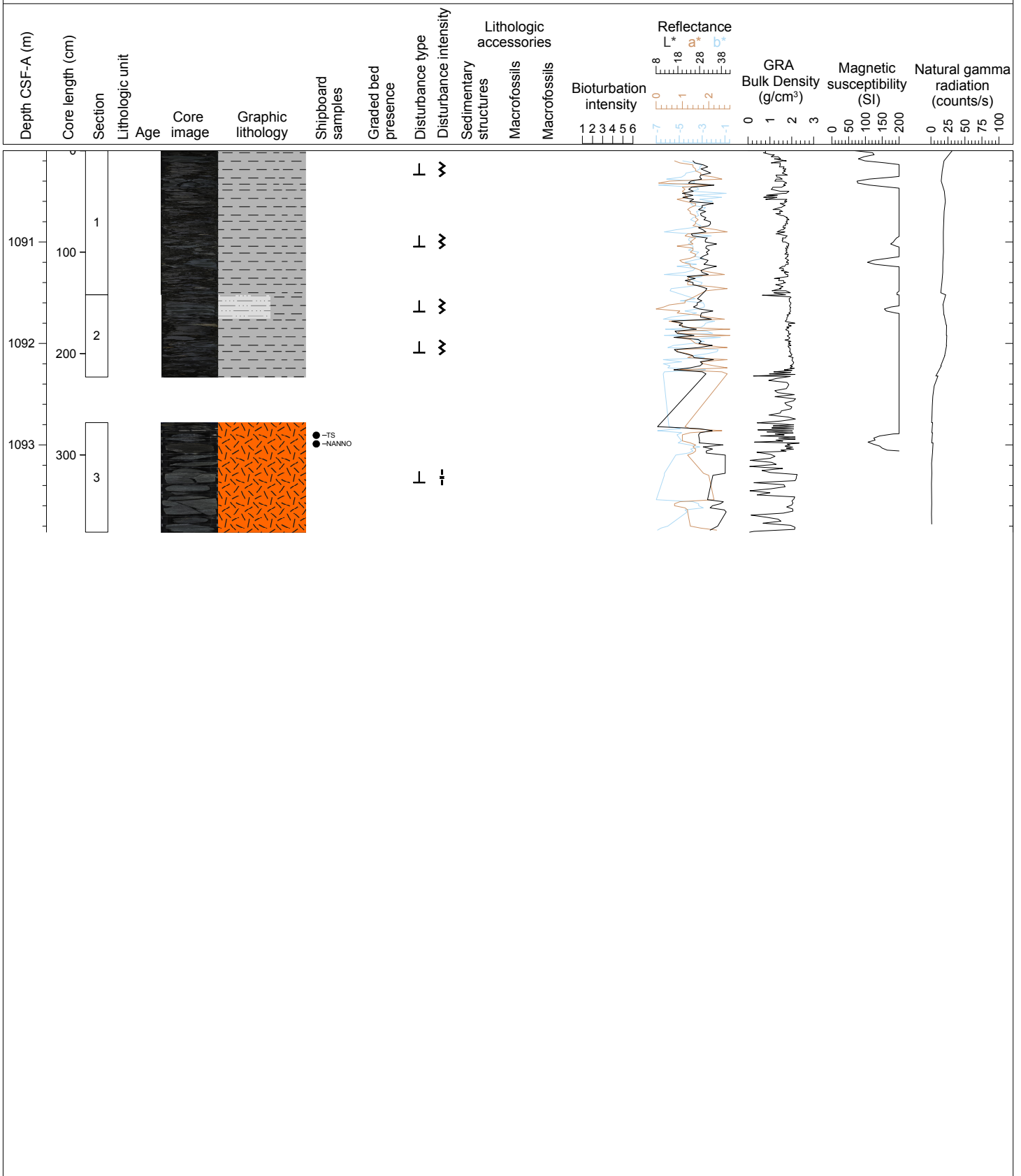
Hole 355-U1457C Core 95R, Interval 1080.8-1084.96 m (CSF-A)

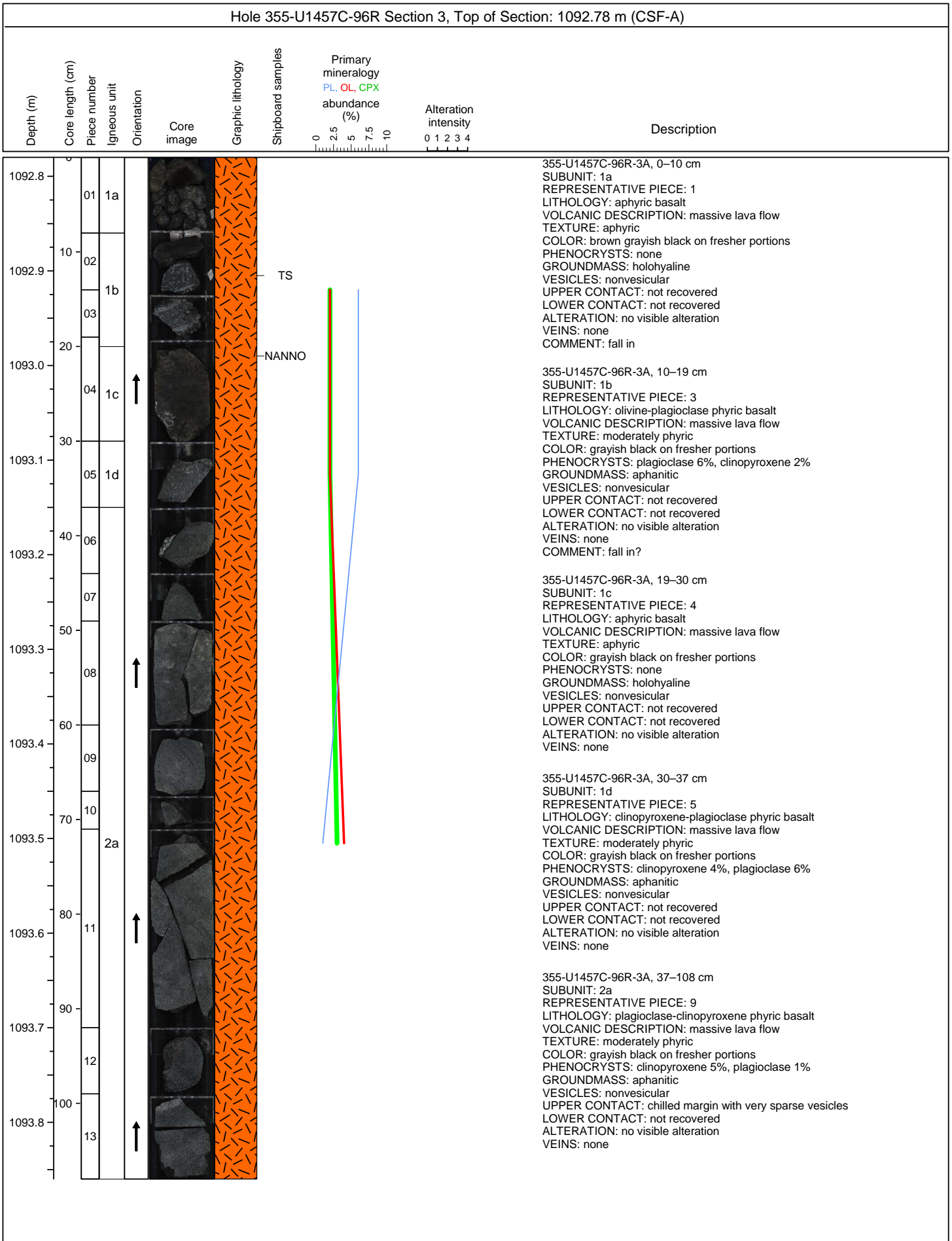
BRECCIA, SANDSTONE WITH CALCITE, CLAYSTONE, SILTY CLAYSTONE. Core is dominated by massive, dark gray to black volcaniclastic sediments. BRECCIA and CLAYSTONE are the dominant lithologies. There are mostly massive but display a general fining upward pattern. BRECCIA and SANDSTONE have sharp, erosive bases. The SANDSTONE WITH CALCITE has well defined parallel laminations but only represents a 12-cm-thick bed within a overall fining cycle. Calcite mineralized layers, up to 2 cm thick with a light brown color are found with the CLAYSTONE. One of the calcite layers also includes sphalerite crystals. Sediment structures are difficult to see because of the strong drilling brecciation.

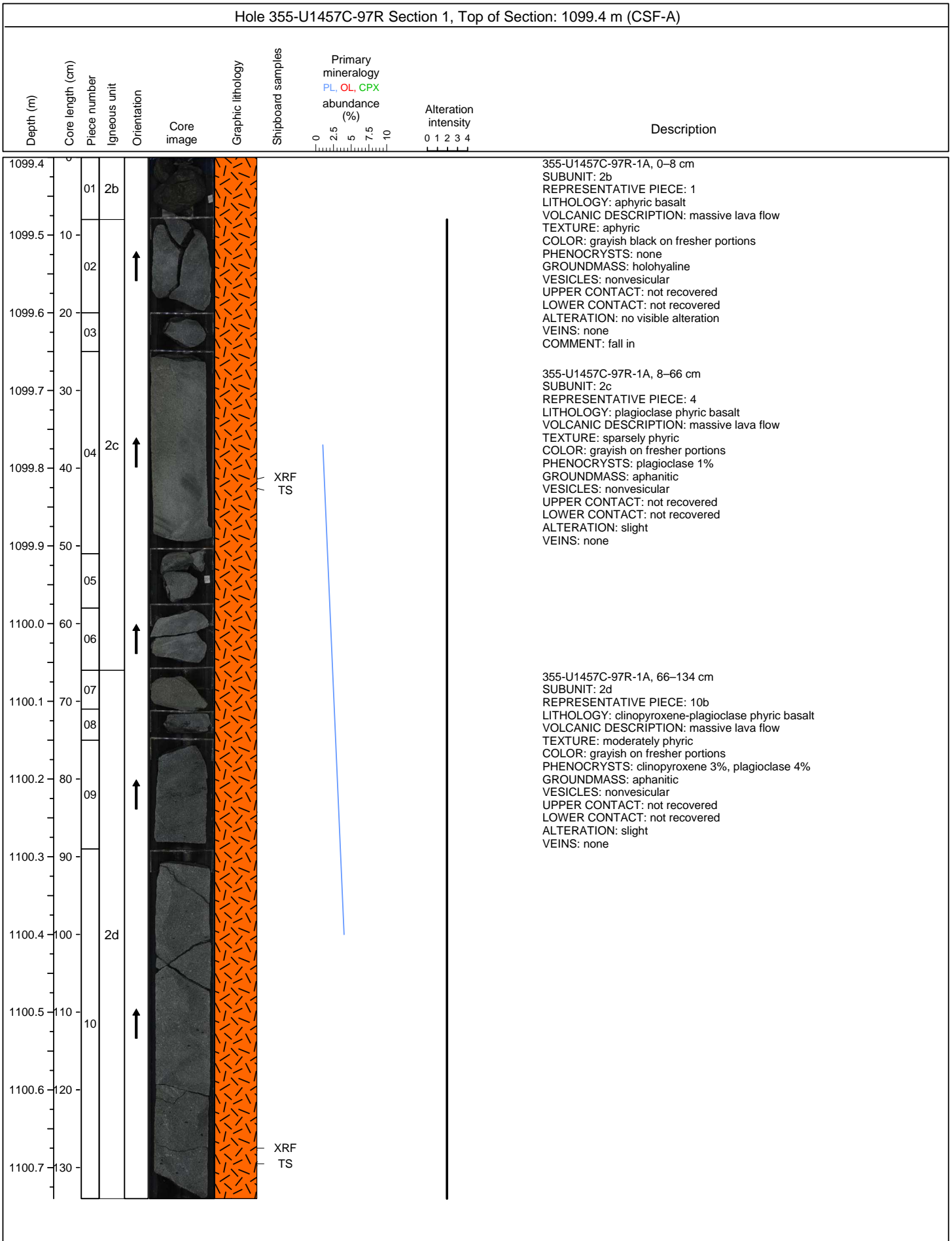


Hole 355-U1457C Core 96R, Interval 1090.1-1093.86 m (CSF-A)

CLAYSTONE, SILTY CLAYSTONE, BASALT. Core is dominated by greenish black and dark brown mostly massive volcanoclastic CLAYSTONE. Heavy drilled related fracturing makes sediment structures hard to observe. Locally light colored layers define bedding and are volcanoclastic SILTY CLAYSTONE. Small (<3 mm) light colored layers and blebs indicate zones of carbonate cementation. Sediment lie directly over massive BASALT at the base of Section 2.





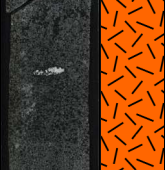









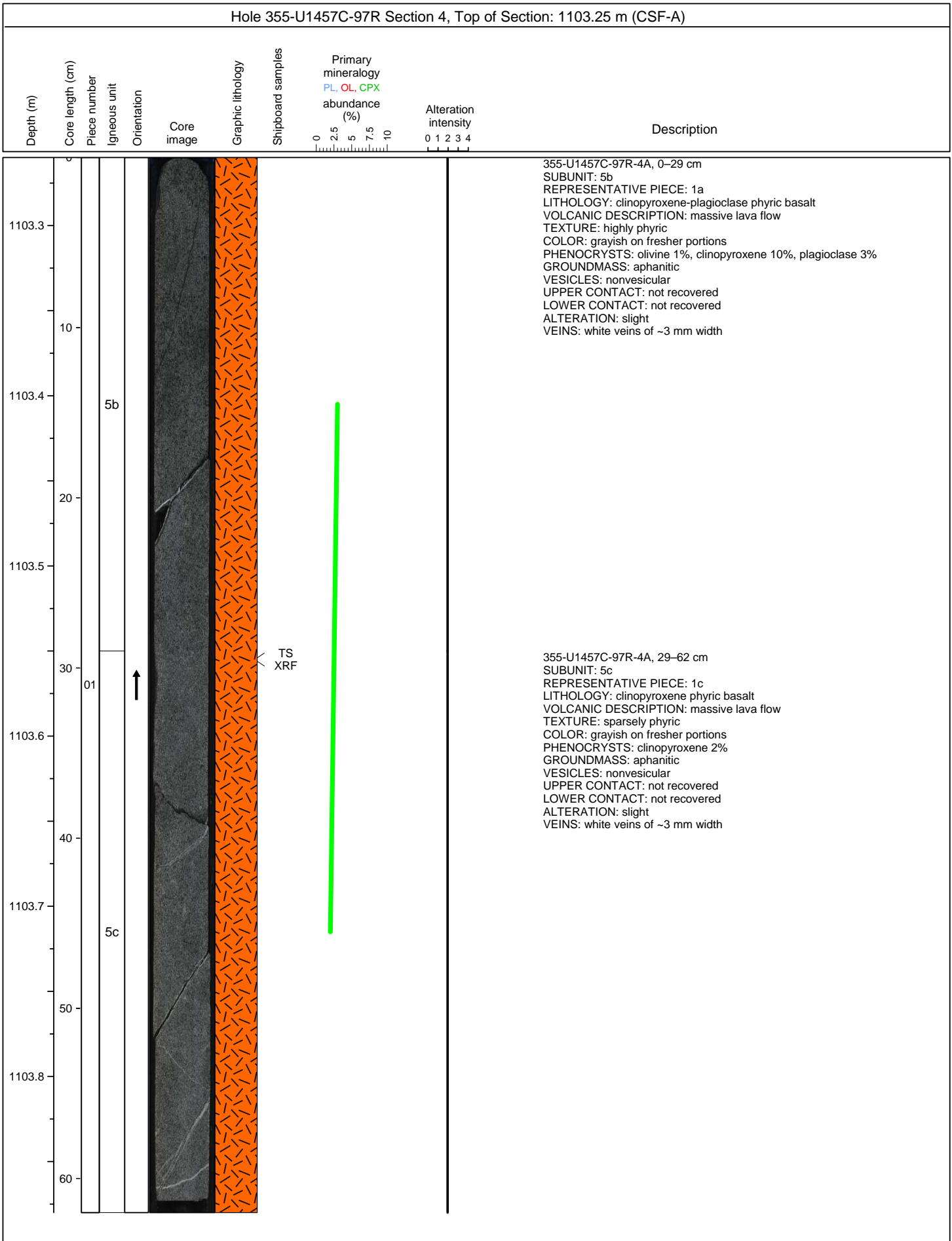




Hole 355-U1457C-97R Section 2, Top of Section: 1100.74 m (CSF-A)										
Depth (m)	Core length (cm)	Piece number	Igneous unit	Orientation	Core image	Graphic lithology	Shipboard samples	Primary mineralogy PL, OL, CPX abundance (%)	Alteration intensity	Description
								0 2.5 5 7.5 10	0 1 2 3 4	
1100.8	01									355-U1457C-97R-2A, 0-41 cm UNIT: 3 REPRESENTATIVE PIECE: 2 LITHOLOGY: aphyric basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: aphyric COLOR: grayish black on fresher portions PHENOCRYSTS: none GROUNDMASS: holohyaline VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: no visible alteration VEINS: none
1100.8	10									
1100.9	20	02	3	↑						
1101.0	30	03								XRF TS
1101.1	40	04		↑						
1101.2	50	05								
1101.3	60	06	4	↑						
1101.4	70	07								
1101.5	80	08		↑						XRF TS
1101.6	90									
1101.7	100	5a								
1101.8	110	09		↑						
1101.9	120									
1102.0	130	5b								TS XRF



Hole 355-U1457C-97R Section 3, Top of Section: 1102.09 m (CSF-A)										
Depth (m)	Core length (cm)	Piece number	Igneous unit	Orientation	Core image	Graphic lithology	Shipboard samples	Primary mineralogy PL, OL, CPX abundance (%)	Alteration intensity	Description
								0 2.5 5 7.5 10	0 1 2 3 4	
1102.1	0									355-U1457C-97R-3A, 0-116 cm SUBUNIT: 5b REPRESENTATIVE PIECE: 1b LITHOLOGY: plagioclase-clinopyroxene phyric basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: highly phyric COLOR: grayish on fresher portions PHENOCRYSTS: olivine 1%, clinopyroxene 10%, plagioclase 3% GROUNDMASS: aphanitic VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: slight VEINS: white microveins
1102.2	10									
1102.3	20									
1102.4	30									
1102.5	40	01		↑						
1102.6	50									
1102.7	60									
1102.8	70									
1102.9	80	02		↑						
1103.0	90									
1103.1	100	03		↑						
1103.2	110	04		↑						



Hole 355-U1457C-98R Section 1, Top of Section: 1104.0 m (CSF-A)										
Depth (m)	Core length (cm)	Piece number	Igneous unit	Orientation	Core image	Graphic lithology	Shipboard samples	Primary mineralogy PL, OL, CPX abundance (%)	Alteration intensity	Description
								0 2.5 5 7.5 10	0 1 2 3 4	
1104.0	0									355-U1457C-98R-1A, 0–20 cm SUBUNIT: 5d REPRESENTATIVE PIECE: 1 LITHOLOGY: aphyric basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: aphyric COLOR: grayish black on fresher portions PHENOCRYSTS: none GROUNDMASS: holohyaline VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: no visible alteration VEINS: none COMMENT: fall in
1104.1	10	01								
1104.2	20									355-U1457C-98R-1A, 20–142 cm SUBUNIT: 5e REPRESENTATIVE PIECE: 4a LITHOLOGY: clinopyroxene-plagioclase phyrlic basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: sparsely phyrlic COLOR: grayish on fresher portions PHENOCRYSTS: clinopyroxene 1%, plagioclase 3% GROUNDMASS: aphanitic VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: slight VEINS: white veins up to ~3 mm width
1104.3	30	02		↑						Continued in Sections 98R-2, 98R-3, and 98R-4
1104.4	40									
1104.5	50	03								
1104.6	60									
1104.7	70						TS XRF			
1104.8	80	04		↑						
1104.9	90									
1105.0	100									
1105.1	110									
1105.2	120									
1105.3	130	05								
1105.4	140	06								
		07		↑						

Hole 355-U1457C-98R Section 2, Top of Section: 1105.42 m (CSF-A)										
Depth (m)	Core length (cm)	Piece number	Igneous unit	Orientation	Core image	Graphic lithology	Shipboard samples	Primary mineralogy PL, OL, CPX abundance (%)	Alteration intensity	Description
								0 2.5 5 7.5 10	0 1 2 3 4	
1105.5	01			↑						355-U1457C-98R-2A, 0-108 cm SUBUNIT: 5e REPRESENTATIVE PIECE: 3 LITHOLOGY: clinopyroxene-plagioclase phyric basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: sparsely phyric COLOR: grayish on fresher portions PHENOCRYSTS: clinopyroxene 1%, plagioclase 3% GROUNDMASS: aphanitic VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: slight VEINS: white veins up to ~3 mm width
1105.6	02			↑						Continued in Sections 98R-3 and 98R-4
1105.6										
1105.7	03			↑						
1105.8										
1105.9	5e									
1106.0										
1106.1										
1106.2	04			↑						
1106.3										
1106.4										

Hole 355-U1457C-98R Section 3, Top of Section: 1106.5 m (CSF-A)										
Depth (m)	Core length (cm)	Piece number	Igneous unit	Orientation	Core image	Graphic lithology	Shipboard samples	Primary mineralogy PL, OL, CPX abundance (%)	Alteration intensity	Description
								0 2.5 5 7.5 10	0 1 2 3 4	
1106.5	0									355-U1457C-98R-3A, 0-131 cm SUBUNIT: 5e REPRESENTATIVE PIECE: 2 LITHOLOGY: clinopyroxene-plagioclase phyric basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: sparsely phyric COLOR: grayish on fresher portions PHENOCRYSTS: clinopyroxene 1%, plagioclase 3% GROUNDMASS: aphanitic VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: slight VEINS: white veins up to ~3 mm width  Continued in Section 98R-4
1106.6	10	01		↑						
1106.7	20									
1106.8	30									
1106.9	40	02		↑						
1107.0	50									
1107.1	60									
1107.2	70	03	5e	↑						
1107.3	80									
1107.4	90									
1107.5	100						XRF TS			
1107.6	110	04		↑						
1107.7	120									
1107.8	130	05		↑						

Hole 355-U1457C-98R Section 4, Top of Section: 1107.81 m (CSF-A)										
Depth (m)	Core length (cm)	Piece number	Igneous unit	Orientation	Core image	Graphic lithology	Shipboard samples	Primary mineralogy PL, OL, CPX abundance (%)	Alteration intensity	Description
1107.9	10	01		↑				0 2.5 5 7.5 10	0 1 2 3 4	355-U1457C-98R-4A, 0-110 cm SUBUNIT: 5e REPRESENTATIVE PIECE: 2b LITHOLOGY: clinopyroxene-plagioclase phyric basalt VOLCANIC DESCRIPTION: massive lava flow TEXTURE: sparsely phyric COLOR: grayish on fresher portions PHENOCRYSTS: clinopyroxene 1%, plagioclase 3% GROUNDMASS: aphanitic VESICLES: nonvesicular UPPER CONTACT: not recovered LOWER CONTACT: not recovered ALTERATION: slight VEINS: white veins up to ~3 mm width COMMENT: Below 95 cm, phenocryst abundance gradually decreases
1108.0										
1108.1										
1108.1										
1108.2										
1108.2										
1108.3										
1108.3										
1108.4										
1108.4										
1108.5										
1108.5										
1108.6										
1108.6										
1108.7										
1108.7										
1108.8										
1108.8										
1108.9										
1108.9										
1109.0										
1109.0										











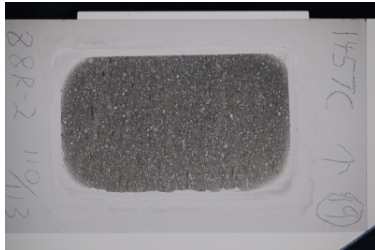






THIN SECTION LABEL ID **355-U1457C-88R-2-W 110/113-TSB-TS\_09** Thin section no.: 9  
 Unit/Subunit: Observer: Ando  
 Thin section summary: Calcarenite with foraminifers. Medium coarse calcarenite with calcilutitic matrix. Rare detrital minerals and rock fragments. Trace of authigenic crustals of calcite.

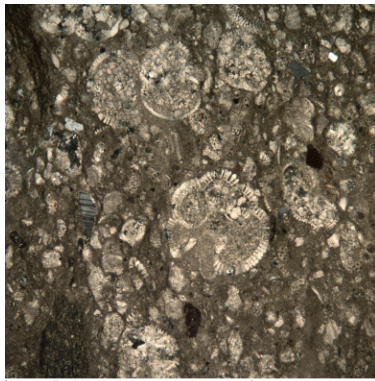
Plane-polarized:



Cross-polarized:



Representative photomicrograph



**SEDIMENT/SEDIMENTARY ROCK**

Lithology: calcarenite with foraminifers

Texture	Sand	Silt	Clay
Percent (%)	80	15	5

Constituent	Siliciclastic	Ash	Detrital carbonate	Biogenic carbonate	Biogenic silica
Percent (%)	10		60	40	0

**Mineral abundance names and grain features**

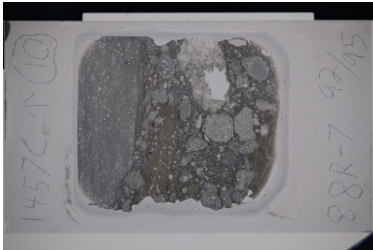
Volcanic glass	Lithic grains	Quartz	Feldspar	Micas	Clay minerals	Heavy minerals	Calcite, authigenic	Sulfides, authigenic
	R	R	Tr	Tr	Tr	Tr	Tr	Tr

Mineral grain MAX size (mm)	Mineral grain roundness	Mineral grain corrosion feature comment
100	very angular	Incipient corrosion features in some detrital feldspars

Fossil abundance and details		
Foraminifers	Calcareous nannofossils	Calcareous bioclasts
A		C
Biogenic grain MAX size (mm)	Biogenic grain roundness	Biogenic grain corrosion feature comment
350	sub-rounded	Slight corrosion features

THIN SECTION LABEL ID **355-U1457C-88R-7-W 92/95-TSB-TS\_10** Thin section no.: 10  
 Unit/Subunit: Observer: Ando  
 Thin section summary: Breccia with foraminifers. Fine breccia with calcilutite matrix. Very rare detrital minerals and rock fragments. Authigenic calcite is rare.

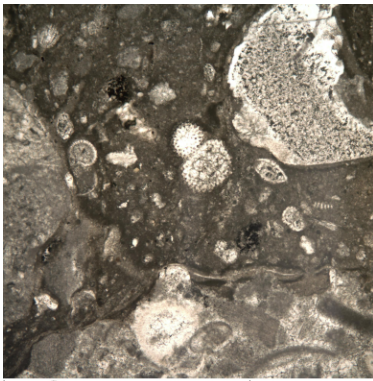
Plane-polarized:



Cross-polarized:



Representative photomicrograph



**SEDIMENT/SEDIMENTARY ROCK**

Lithology: calcareous rich breccia with foraminifers

Texture	Sand	Silt	Clay
Percent (%)	30	15	5

Constituent	Siliciclastic	Ash	Detrital carbonate	Biogenic carbonate	Biogenic silica
Percent (%)	5		80	20	0

**Mineral abundance names and grain features**

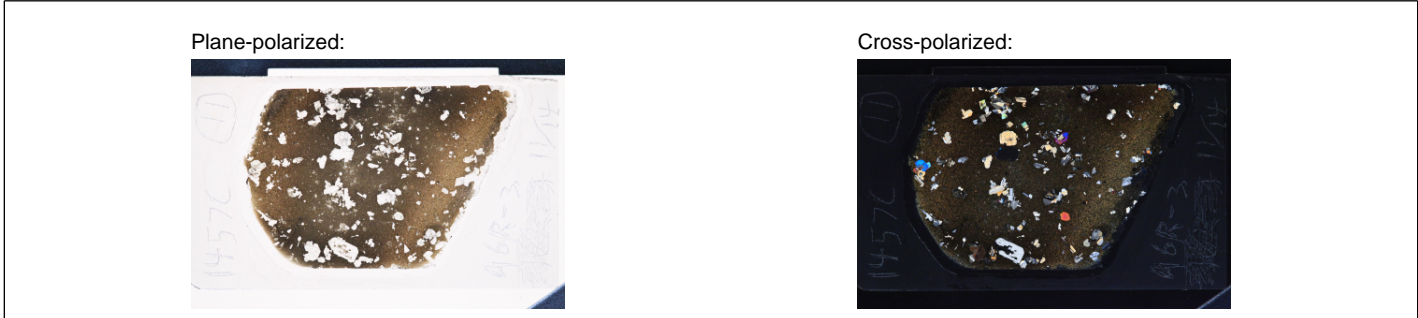
Volcanic glass	Lithic grains	Quartz	Feldspar	Micas	Clay minerals	Heavy minerals	Calcite, authigenic	Sulfides, authigenic
A	Tr	Tr	Tr		Tr		R	Tr

Mineral grain MAX size (mm)	Mineral grain roundness	Mineral grain corrosion feature comment
300	very angular	absent

Fossil abundance and details		
Foraminifers	Calcareous nannofossils	Calcareous bioclasts
C		C
Biogenic grain MAX size (mm)	Biogenic grain roundness	Biogenic grain corrosion feature comment
1000	subangular	Slight corrosion features

THIN SECTION LABEL ID **355-U1457C-96R-3-W 11/14-TSB-TS\_11** Thin section no.: 11  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is olivine plagioclase phyric basalt. Clinopyroxene is rarely seen as phenocryst phase. Other than phenocrysts, the section contains glassy groundmass. The glass may have some alteration to brownish groundmass. Texture is described as holohyaline. Plagioclase phenocrysts are generally fresh. Olivine appear to have serpentinised occasionally. Fe-Ti oxides are seen as accessory phase. Vesicles are rare and the rock is described as non-vesicular.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: olivine-plagioclase phyric basalt

Texture 1:	holohyaline / glassy	Domain relative abundance:	100
Avg. grain size:	cryptocrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	3	2	1	0.2	1.5	0.3	subhedral	equent to prismatic	
Plagioclase	7	7	0	0.1	3	0.4	euhedral	tabular	
Clinopyroxene	<1	<1	0	0.2	0.3		subhedral	Elongate	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
<1 (Non vesicular)							

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

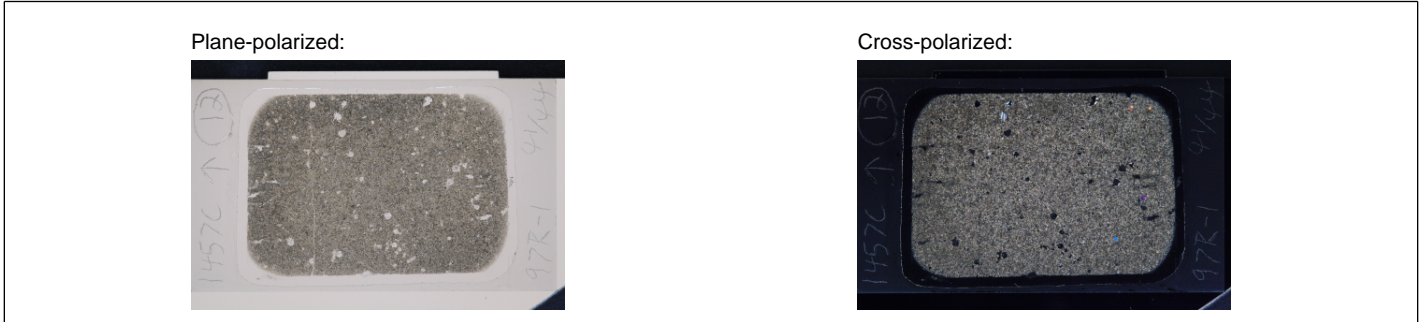
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	3		<1	7
Total present [%]	2		<1	7
Total replaced [%]	1		0	0



GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Mesostasis	88								

THIN SECTION LABEL ID <b>355-U1457C-97R-1-W 41/44-TSB-TS_12</b>	Thin section no.: 12
Unit/Subunit:	Observer: Radhakrishna
<p>Thin section summary: The rock is plagioclase phyric basalt. Plagioclase phenocrysts are about 1%. Subequant clinopyroxene is a rare phenocryst phase. The section display intersertal texture. The ground mass contains plagioclase laths and mesostasis. The plagioclase is generally seen fresh. Alteration of groundmass cannot be identified because of its microcrystalline grain size. Fe-Ti oxides are seen as accessory phase. Vesicles are rarely seen and they are spherical to elongated in shape.</p>	



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	microcrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Plagioclase	1	1	0	1	1.5	0.3	subhedral	tabular	
Clinopyroxene	rare			0.15	0.4		subhedral	Equent	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
2 (Sparsely vesicular)	100	0	0.1	1	0.4	spherical	

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

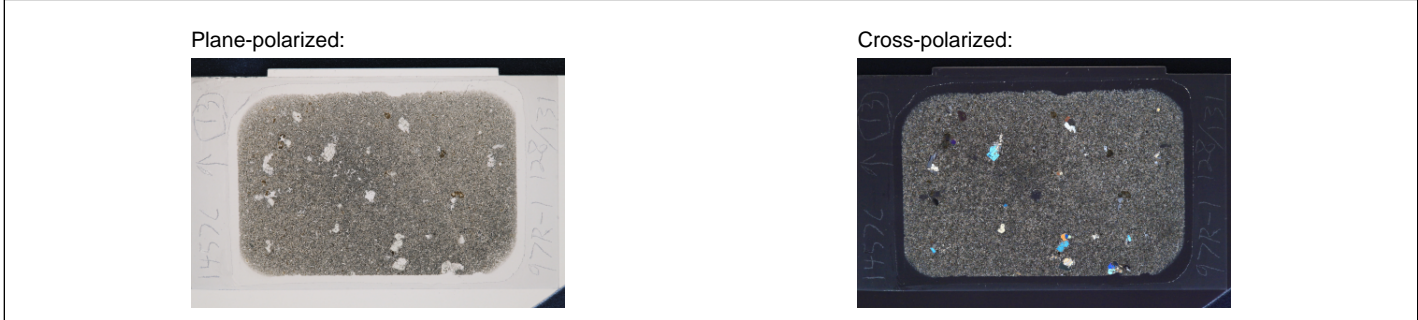
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]			rare	1
Total present [%]				1
Total replaced [%]				0

## GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		45					subhedral	laths	
Mesostasis	50								

THIN SECTION LABEL ID **355-U1457C-97R-1-W 128/131-TSB-TS\_13** Thin section no.: 13  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is clinopyroxene plagioclase phyric basalt. It contains 2% plagioclase phenocrysts. Clinopyroxene phenocrysts are about 1%. Anhedral olivine is a rare phenocryst phase. Ground mass contains about 35% plagioclase as lath shaped. Plagioclase is mostly fresh with sharp grain boundaries. Fe-Ti oxides are seen as accessory phase. The rock shows intersertal texture. Alteration, if any, restricted to groundmass and is difficult to observe due to microcrystalline nature. The rock is considered moderately altered. Vesicles/veins are almost absent.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: clinopyroxene-plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	microcrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	Rare		0	0.2	1	0.4	subhedral	elongate	
Plagioclase	2	2	0	0.4	1	0.45	subhedral	tabular	
Clinopyroxene	1	1	0	0.2	1		subhedral	Equent to elongate	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
<1 (Non vesicular)							

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

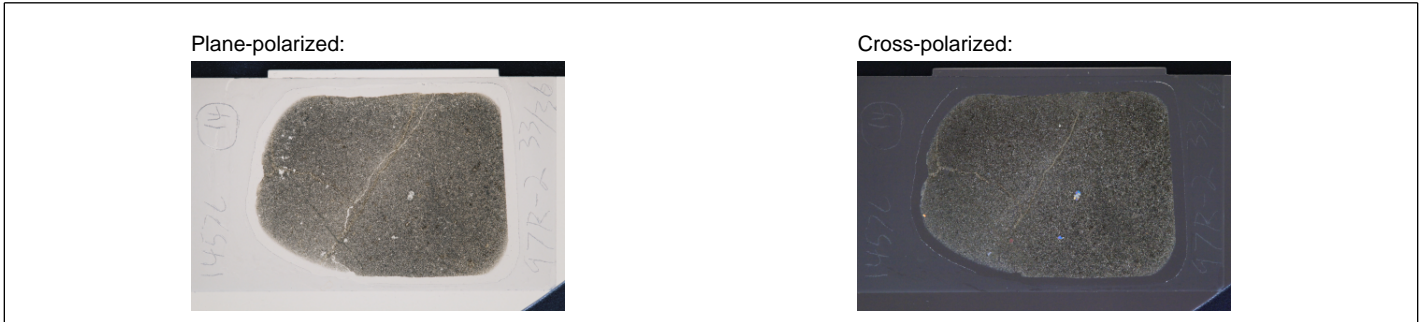
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	Rare		1	2
Total present [%]			1	2
Total replaced [%]	0		0	0

## GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		35					subhedral	laths	
Mesostasis	60								

THIN SECTION LABEL ID **355-U1457C-97R-2-W 33/36-TSB-TS\_14** Thin section no.: 14  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is aphyric basalt. Clinopyroxene and olivine occur seldom as phenocrysts. Plagioclase laths may comprise 35% of the groundmass and the rock is classified as intersertal in texture. The phenocryst phase is mostly unaltered. Fe-Ti oxides are seen as accessory phase. A thin micro-fracture of 0.5 mm is seen across the section. Although alteration is not clearly identified, a red colouration is seen in a zone of 1 mm across the section. The rock is non-vesicular



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	microcrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	Trace			0.4	0.4	0.4	anhedral	subequant	
Clinopyroxene	rare			0.15	0.4		subhedral	Subquent to elongate	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
<1 (Non vesicular)							

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

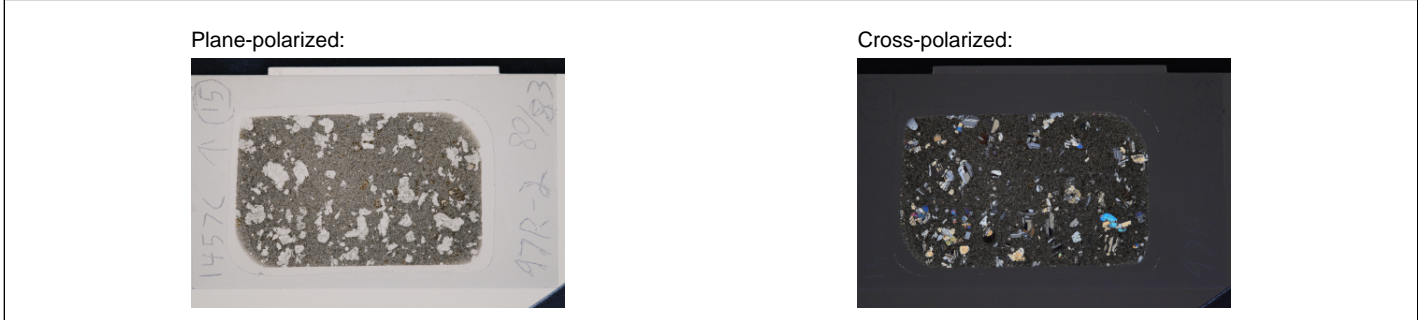
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	Trace		rare	

GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		35					subhedral	laths	
Mesostasis	65								

THIN SECTION LABEL ID **355-U1457C-97R-2-W 80/83-TSB-TS\_15** Thin section no.: 15  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is clinopyroxene olivine plagioclase phyric basalt. Plagioclase phenocrysts are seen in abundance (~12%). Olivine and clinopyroxene phenocrysts are less than 1%. Fe-Ti oxides are seen as accessory phase. The groundmass is cryptocrystalline and texture is intersertal. Plagioclase laths are about 30%. Plagioclases are nearly fresh with sharp grain boundaries. Groundmass alteration is not clear. A few vesicles are seen in spherical shape and mostly filled with calcite/carbonate. However, by their abundance, the rock is non-vesicular.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: clinopyroxene-olivine-plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	cryptocrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	1	1	0	0.6	2.5	0.25	subhedral	elongate	
Plagioclase	12	12	0	0.2	2.6	0.8	euhedral	tabular	
Clinopyroxene	1	1	0	0.1	1		subhedral	Elongate	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
2 (Sparsely Vesicular)	0	100	0.1	0.25	0.2	spherical	

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	1		1	12
Total present [%]	1		1	12
Total replaced [%]	0		0	0



GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		30					subhedral	laths	
Mesostasis	55								

THIN SECTION LABEL ID **355-U1457C-97R-2-W 122/124-TSB-TS\_16** Thin section no.: 16  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is olivine plagioclase phyric basalt. Plagioclase phenocryst is subhedral and is about 3%. Olivine is anhedral and subequant. The rock is intersertal in texture. Groundmass contains about 1% clinopyroxene as microphenocrysts. Plagioclase laths comprises of 25%. Phenocrysts exhibit sharp grain boundaries and are fresh. Groundmass alteration is difficult to identify. Fe-Ti oxides are seen as accessory phase. A vein of 1-1.2 mm wide cuts across the section. Vein fillings are calcite/carbonate. The rock contains high content of vesicles and may be classified as highly vesicular basalt. Zeolite appears to be a vesicle-filling mineral.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: olivine-plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	microcrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	1	1	0	0.1	0.2	0.15	anhedral	subequant	
Plagioclase	3	3	0	0.2	0.9	0.45	subhedral	tabular	
Clinopyroxene	trace			0.15	0.2				

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
20 (Highly vesicular)	20	80	0.4	16	0.6	spherical	

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

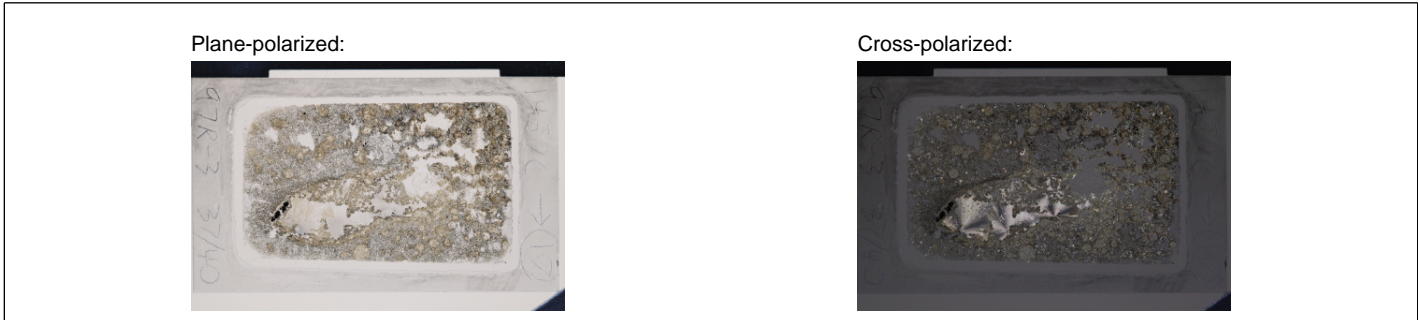
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	1		trace	3
Total present [%]	1			3
Total replaced [%]	0			0

## GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		25					subhedral	laths	
Mesostasis	55								

THIN SECTION LABEL ID **355-U1457C-97R-3-W 37/40-TSB-TS\_17** Thin section no.: 17  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is aphyric vesicular basalt. The rock has only minor clinopyroxene as microphenocrysts. In the groundmass, plagioclase laths comprise about 15% and appear to have some alteration to clay minerals along twin planes. Fe-Ti oxides are seen as accessory phase. The rock is highly vesicular. Vesicles are both spherical and elongated; also filled and unfilled. Zeolite or calcite constitute the vesicle fillings.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt

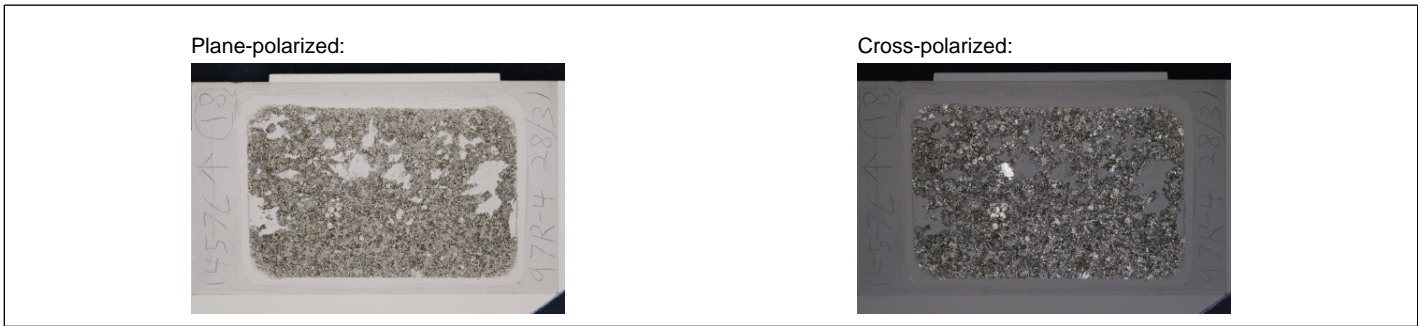
Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	microcrystalline	Grain size distribution:	bimodel

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
40 (Highly vesicular)	20	80	0.1	2.5	0.8	spherical	

GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		15					subhedral	laths	
Clinopyroxene	0.5	0.5							
Mesostasis	50								

THIN SECTION LABEL ID <b>355-U1457C-97R-4-W 28/31-TSB-TS_18</b>	Thin section no.: 18
Unit/Subunit:	Observer: Radhakrishna
Thin section summary:	The rock is plagioclase phyric basalt. Plagioclase phenocrysts are about 1.5%. The rock is intersertal in texture with the groundmass of plagioclase laths and mesostasis. Ground mass is fine grained. Clinopyroxene can be described as microphenocrysts and range up to 1%. The plagioclase laths make up to 40%. Plagioclase is generally fresh with sharp grain boundaries. Fe-Ti oxides are seen as accessory phase. The rock in terms of alteration is slightly altered. Vesicles are present and is described as sparsely vesicular basalt. Zeolite appear to be the common vesicle filling mineral



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	fine grained	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Plagioclase	1.5	1.5	0	0.2	1	0.4	subhedral	tabular	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
~5 (Sparsely vesicular)	80	20	0.1	0.5	0.4	elongate	

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

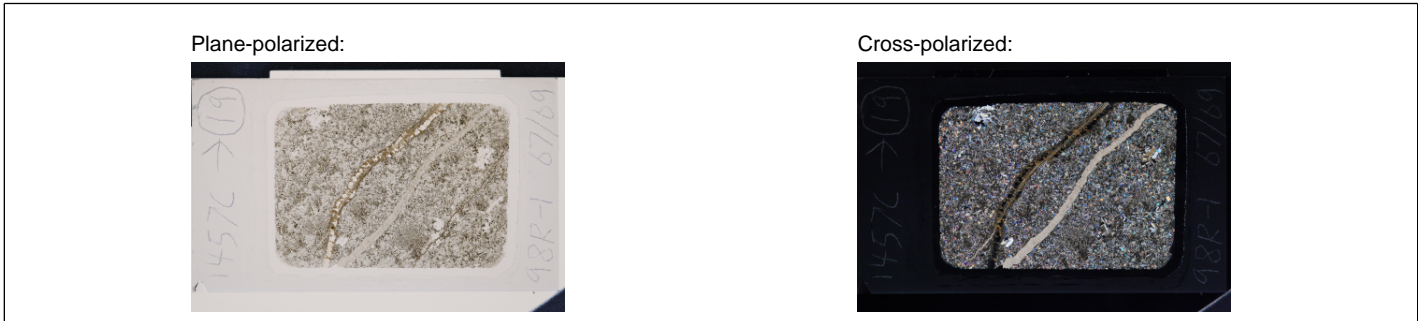
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]				1.5
Total present [%]				1.5
Total replaced [%]				0

## GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		40					subhedral	laths	
Clinopyroxene	1	1							
Mesostasis	45								

THIN SECTION LABEL ID **355-U1457C-98R-1-W 67/69-TSB-TS\_19** Thin section no.: 19  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is olivine clinopyroxene plagioclase phyric basalt with nearly 3% plagioclase phenocrysts. Clinopyroxene phenocrysts are about 1% and olivine is less than 1%. The rock is fine grained and intersertal in texture. Rarely subophitic texture is also seen. Olivine and clinopyroxene seen as microphenocrysts and range up to 3%. Plagioclase laths make up to 50% of the section. Plagioclase is generally fresh with sharp grain boundaries. Fe-Ti oxides are seen as accessory phase. The rock in terms of alteration is slightly altered. However, the section contains at least four micro-veins; two are <1 mm wide and the other two are 0.1 mm wide and filled with calcite and a few unidentified mineral. Vesicles are rare and the rock is non-vesicular basalt.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: olivine-clinopyroxene-plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	fine grained	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	1	1	0	0.1	0.2	0.15	anhedral	subequant	
Plagioclase	3	3	0	0.2	1.1	0.5	subhedral	tabular	
Clinopyroxene	1	1	0	0.1	0.2		anhedral	Equent	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
<1 (Non vesicular)							

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	1		1	3
Total present [%]	1		1	3
Total replaced [%]	0		0	0

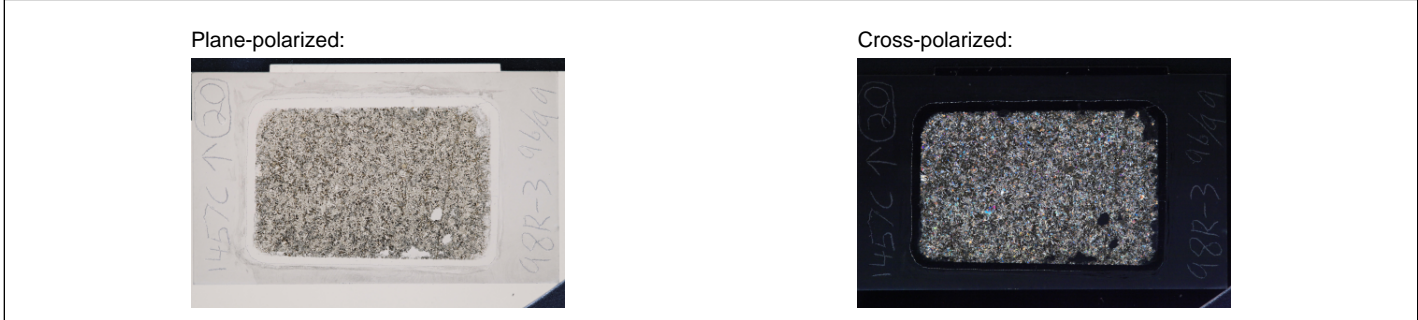


## GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Plagioclase		50					subhedral	laths	
Clinopyroxene	3	3							
Mesostasis	40								

THIN SECTION LABEL ID **355-U1457C-98R-3-W 96/99-TSB-TS\_20** Thin section no.: 20  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is olivine, clinopyroxene plagioclase olivine phyric basalt. Olivine phenocrysts are about 0.5%; plagioclase and clinopyroxene are about 1% each. Rock is fine grained and texture is intersertal. About 2-3% Clinopyroxene and olivine is seen as microphenocrysts. Plagioclase laths are abundant (55%) and sometimes show sub-ophitic intergrowth. Fe-Ti oxides are seen as accessory phase. Phenocrysts are fresh and the rock is slightly altered. Vesicles are rare and veins are absent. The rock is non vesicular.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: olivine-clinopyroxene-plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	fine grained	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	0.5	0.5	0	0.1	0.25	0.15	anhedral	equant	
Plagioclase	1	1	0	0.2	0.42	0.275	subhedral	tabular	
Clinopyroxene	1	1	0	0.15	0.25		anhedral	Equent to elongate	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
<1 (Non vesicular)							

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

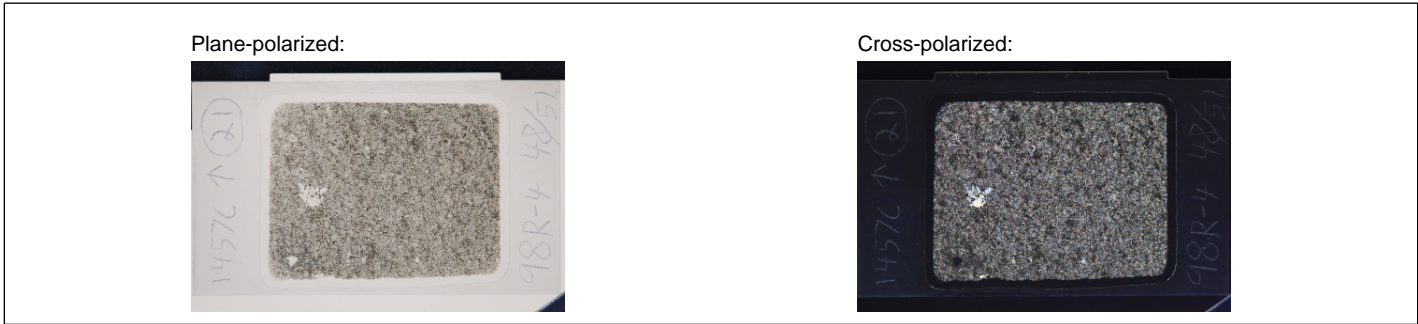
Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	0.5		1	1
Total present [%]	0.5		1	1
Total replaced [%]	0		0	0

## GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Olivine	1	1							
Plagioclase		55					subhedral	laths	
Clinopyroxene	1	1							
Mesostasis	40								

THIN SECTION LABEL ID **355-U1457C-98R-4-W 48/51-TSB-TS\_21** Thin section no.: 21  
 Unit/Subunit: Observer: Radhakrishna

Thin section summary: The rock is olivine, clinopyroxene, plagioclase phyric basalt. Plagioclase is the major phenocryst phase. Olivine and clinopyroxene also found to be occur as phenocrysts in smaller percentages (nearly 1%) but are commonly occur as microphenocryst phases (2%). The rock is fine grained and texture is intersertal to rarely subophitic. Plagioclase laths are more abundant and occupies 50% of the rock. Fe-Ti oxides are seen as accessory phase. The phenocrysts are fresh and do not show any alteration features. So the rock can be classified as slightly altered one. Vesicles and veins are almost absent and the rock is nonvesicular.



**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: olivine-clinopyroxene-plagioclase phyric basalt

Texture 1:	intersertal	Domain relative abundance:	100
Avg. grain size:	microcrystalline	Grain size distribution:	bimodel

Phenocrysts	(%) original	(%) present	(%) replaced	size MIN (mm)	size MAX (mm)	size MODE (mm)	Shape	Habit	Comments
Olivine	0.5	0.5	0	0.1	0.2	0.15	anhedral	equant	
Plagioclase	1.5	1.5	0	0.2	0.8	0.4	subhedral	tabular	
Clinopyroxene	0.5	0.5	0	0.1	0.25		anhedral	Equent to elongate	

Vesicle abundance	% empty	% filled	MIN size (mm)	MAX size (mm)	AVG size (mm)	Vesicle shape	Vesicle distribution
<1 (Non vesicular)							

**SECONDARY (ALTERATION) MINERALOGY**

General phenocryst comments:

Phenocryst	Olivine	Orthopyroxene	Clinopyroxene	Plagioclase
Total original [%]	0.5		0.5	1.5
Total present [%]	0.5		0.5	1.5
Total replaced [%]	0		0	0

GROUNDMASS total original (%):

Groundmass phases	% original	% present	% replaced	MIN size (mm)	MAX size (mm)	Average size (mm)	Shape	Habit	Comments
Olivine	1	1							
Plagioclase		50					subhedral	laths	
Clinopyroxene	1	1							
Mesostasis	45								