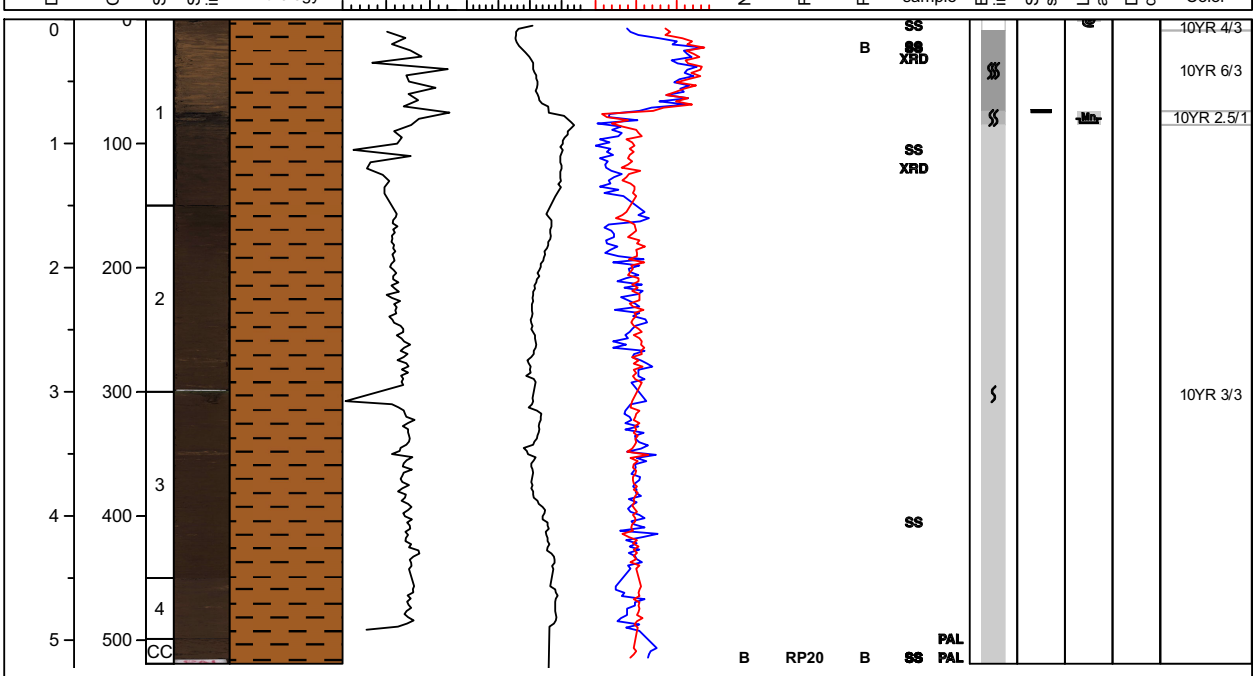
Core Photo

Hole 320-U1331A Core 1H, Interval 0.0-5.19 m (CSF-A)

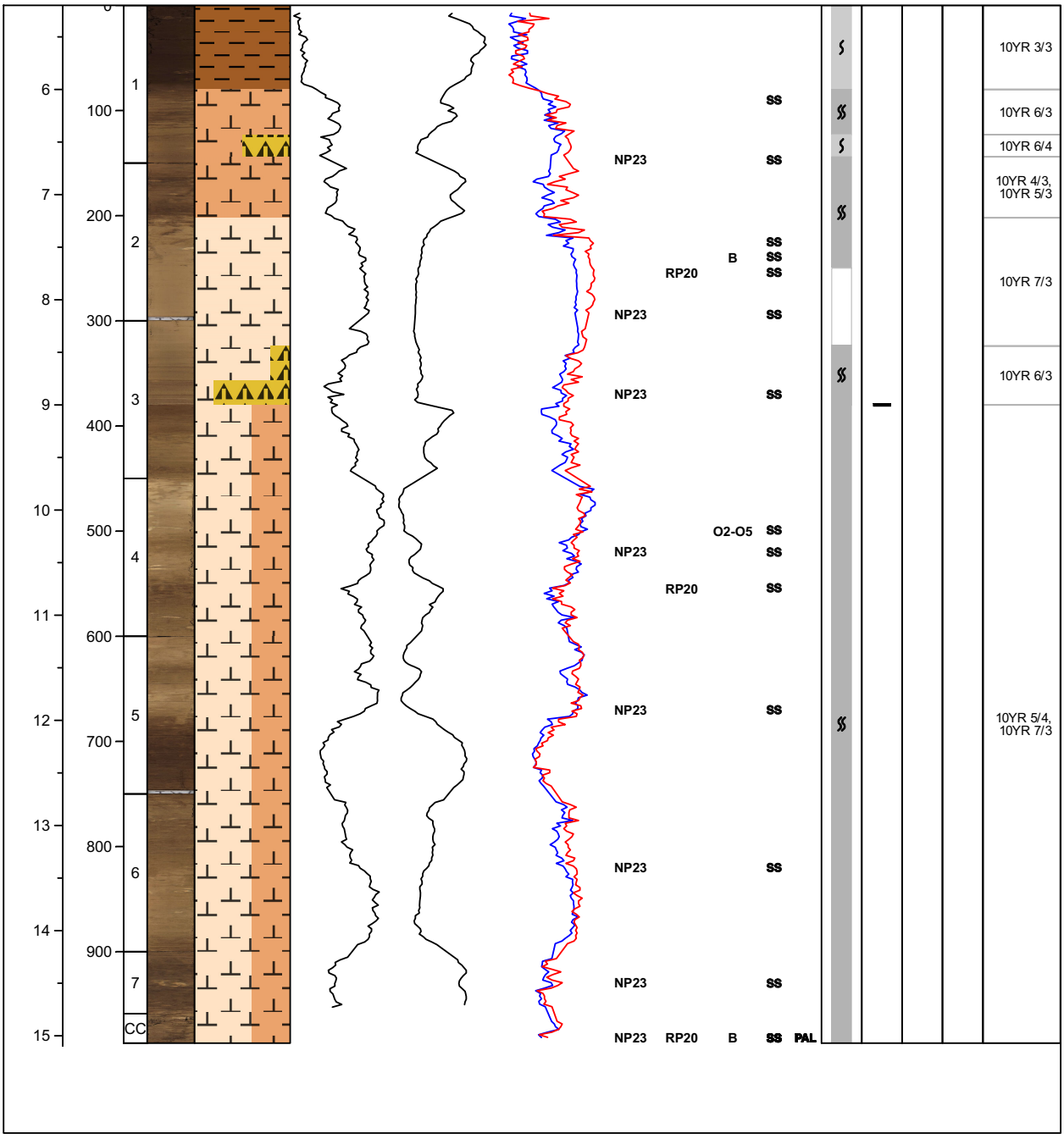
Major lithology: Clay with radiolarians and micronodules. Minor lithology: Manganese crust. Homogeneous brown to reddish black clay with radiolarians and micronodules. A manganese crust is present in the upper section.



Core Photo

Hole 320-U1331A Core 2H, Interval 5.2-15.07 m (CSF-A)

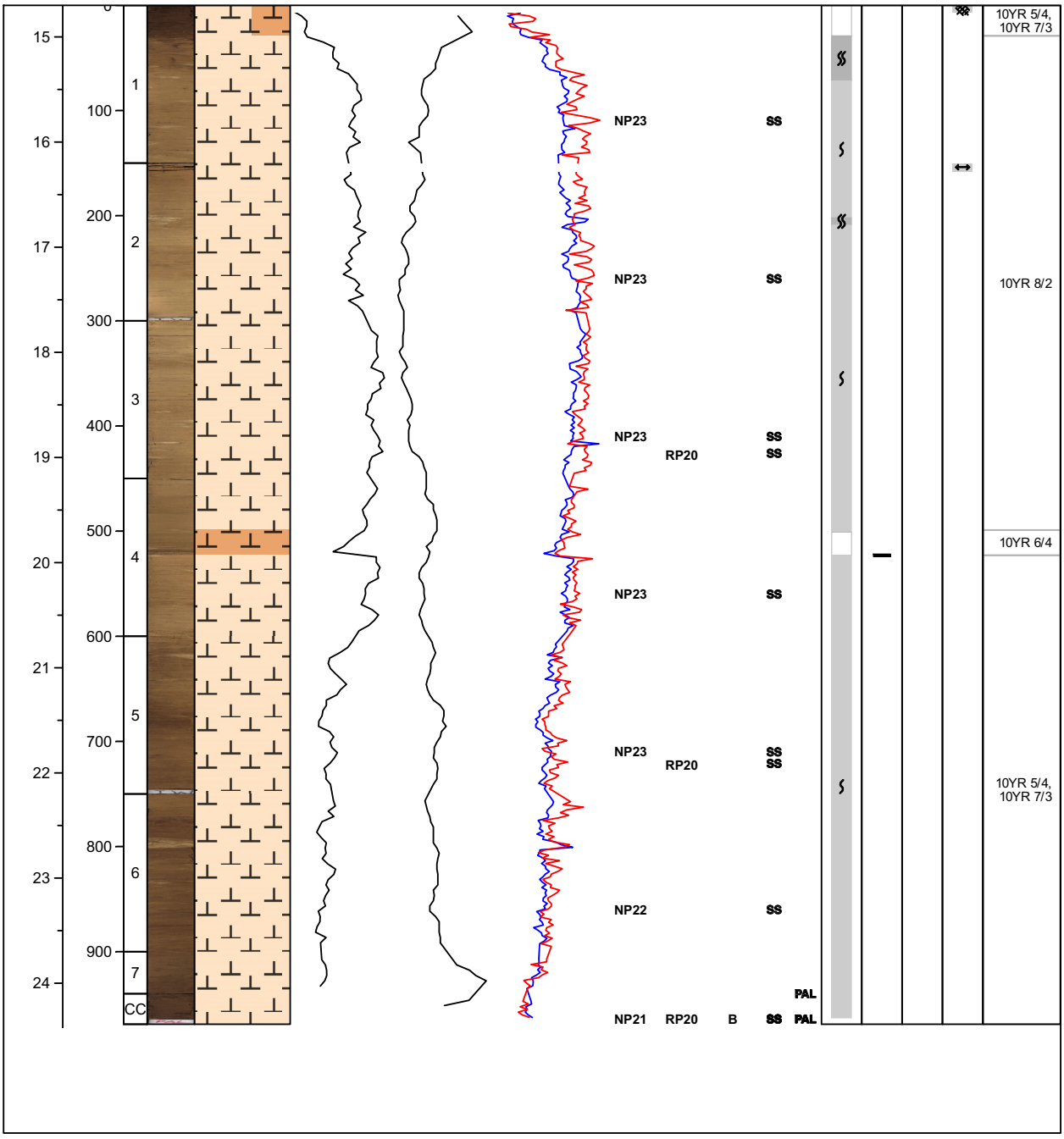
Major lithology: Radiolarian nannofossil ooze. Nannofossil ooze, radiolarian ooze with nannofossils, clay with radiolarians. Dark brown clay with radiolarians overlying an alternation of homogeneous pale brown nannofossil ooze and yellowish brown radiolarian ooze with nannofossils and light yellowish brown radolarian nannofossil ooze.



Core Photo

Hole 320-U1331A Core 3H, Interval 14.7-24.39 m (CSF-A)

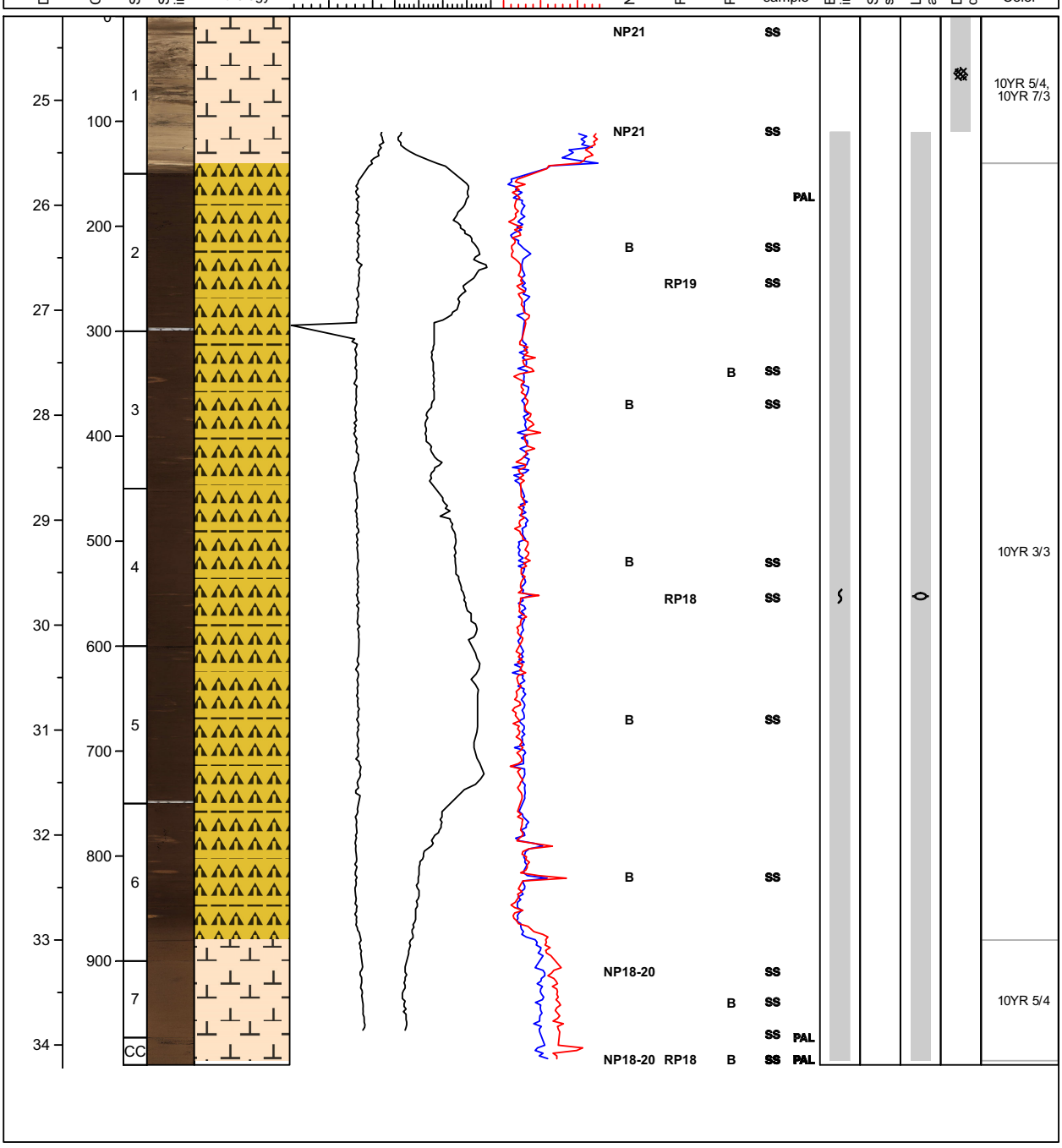
Major lithology: nannofossil ooze with radiolarians, radiolarian nannofossil ooze. Homogeneous very pale brown nannofossil ooze with radiolarians and yellowish brown radiolarian nannofossil ooze.



Core Photo

Hole 320-U1331A Core 4H, Interval 24.2-34.19 m (CSF-A)

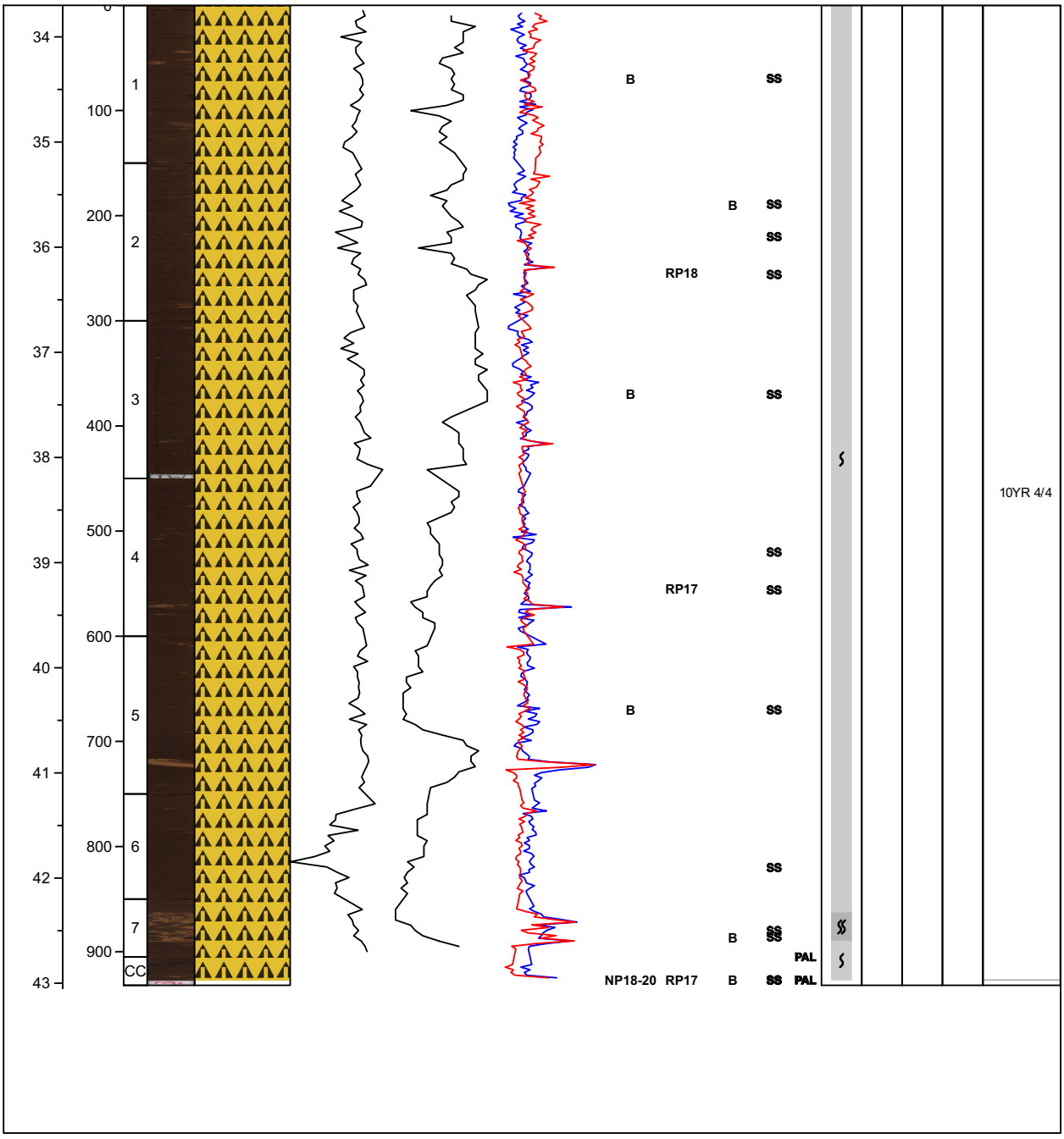
Major lithology: Nannofossil ooze, clayey radiolarian ooze, nannofossil ooze with radiolarians. Very pale brown nannofossil ooze overlying a homogeneous dark brown clayey radiolarian ooze, grading downcore into a yellowish brown nannofossil ooze with radiolarians.



Core Photo

Hole 320-U1331A Core 5H, Interval 33.7-43.02 m (CSF-A)

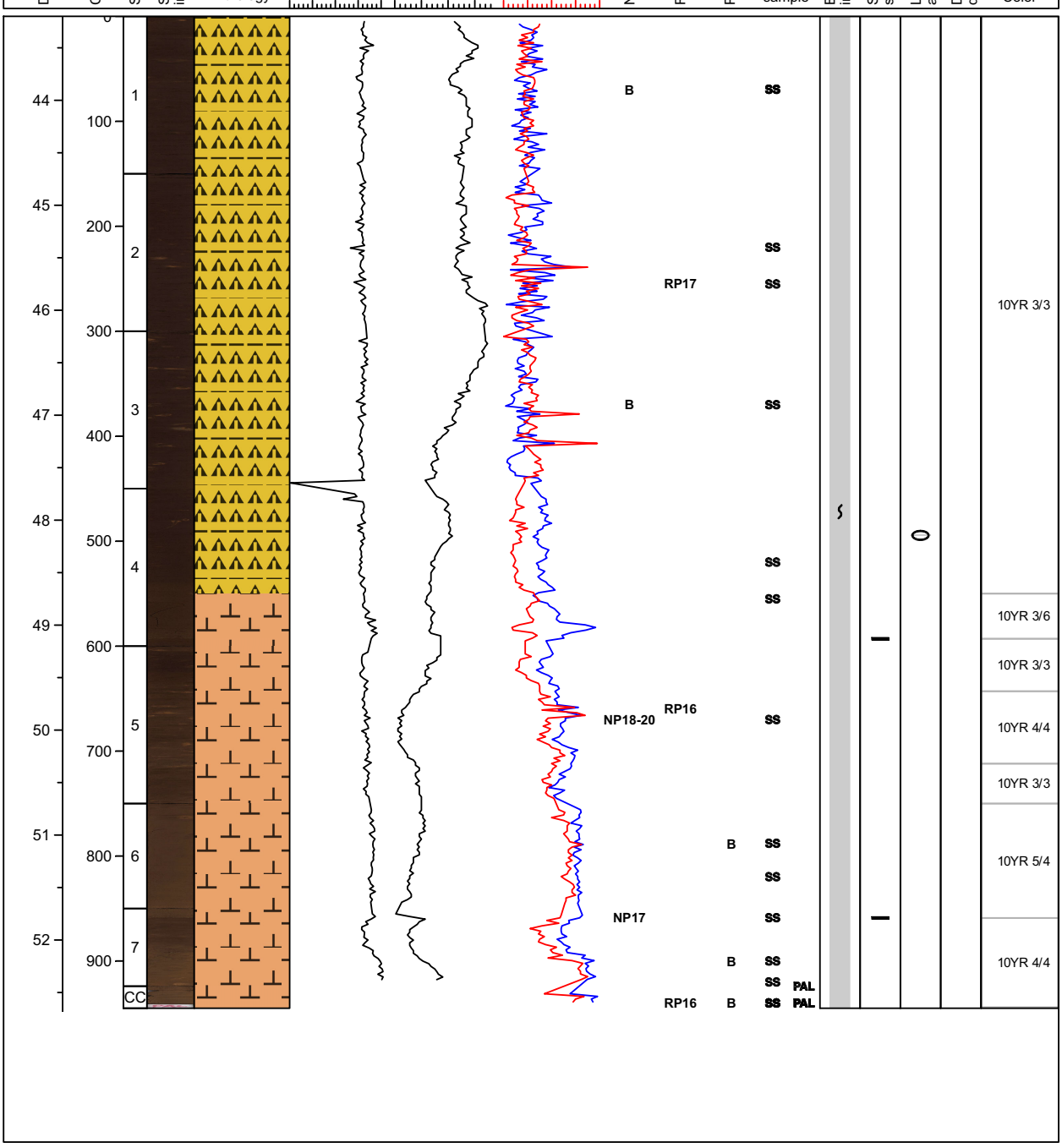
Major lithology: Radiolarian ooze with clay. Homogeneous dark yellowish brown radiolarian ooze with clay and brownish yellow burrows.



Core Photo

Hole 320-U1331A Core 6H, Interval 43.2-52.65 m (CSF-A)

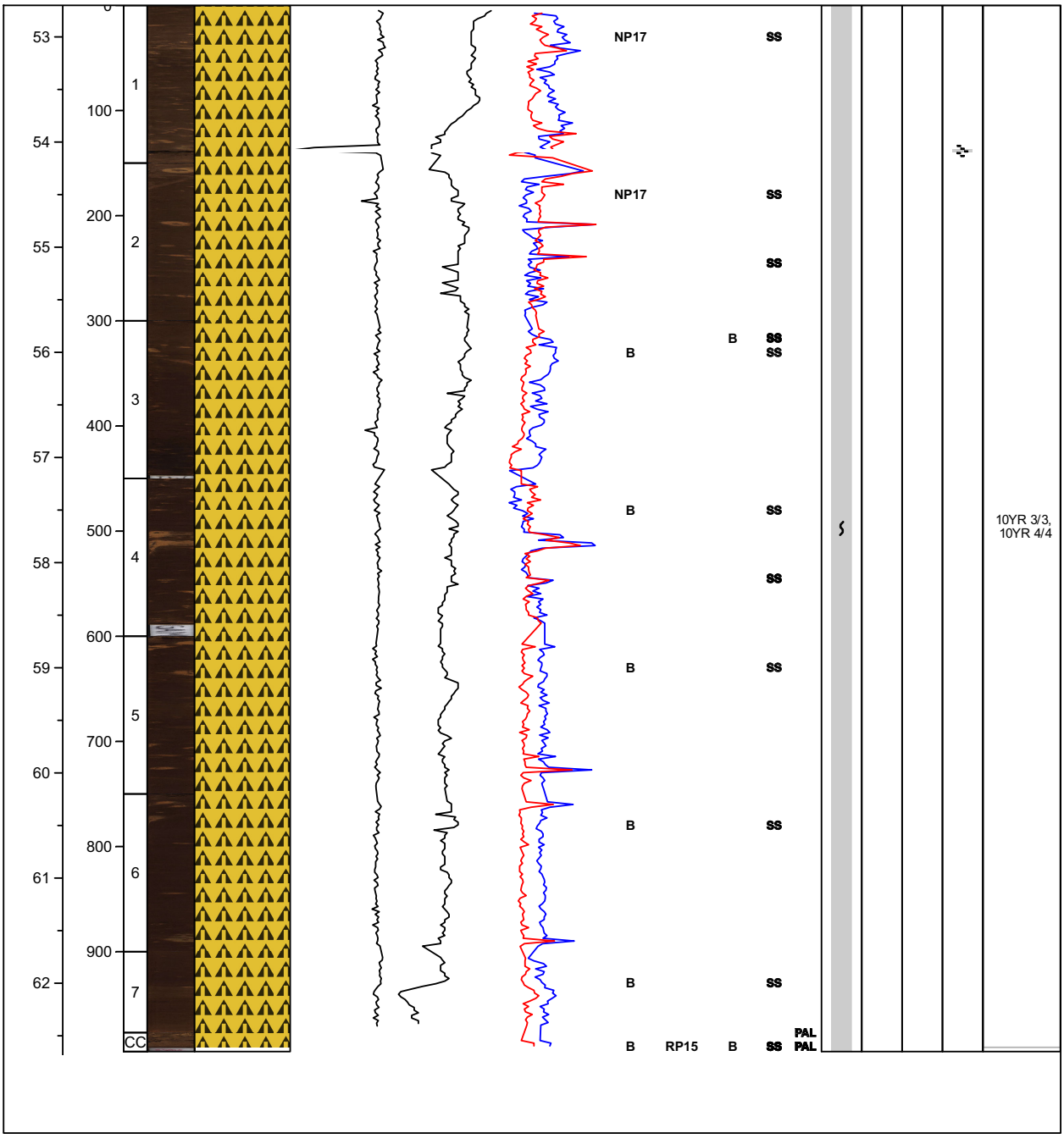
Major lithology: Clayey radiolarian ooze; radiolarian nannofossil ooze. Homogeneous dark brown clayey radiolarian ooze with brownish yellow burrows overlying yellowish brown to dark yellowish brown radiolarian nannofossil ooze.



Core Photo

Hole 320-U1331A Core 7H, Interval 52.7-62.65 m (CSF-A)

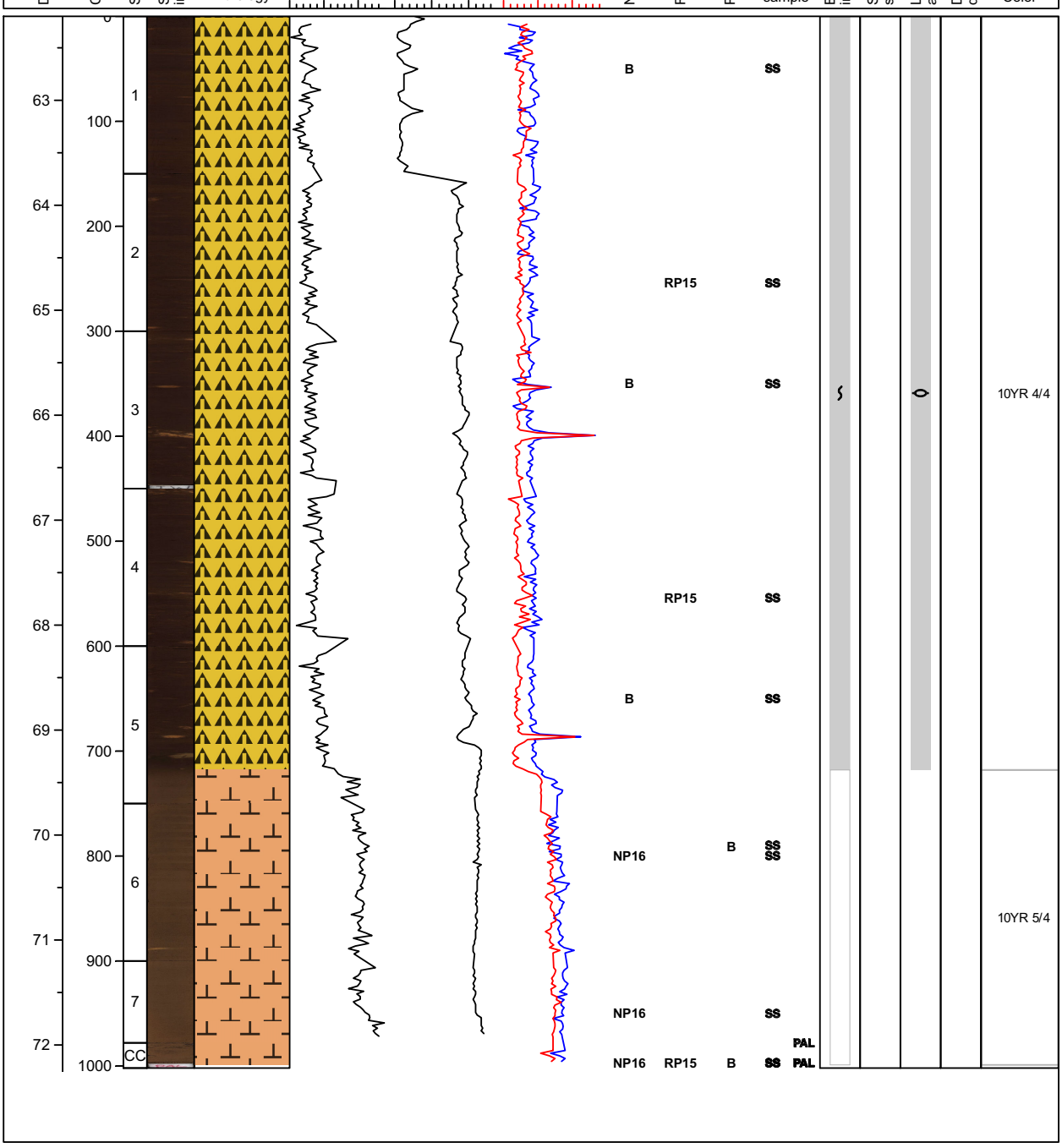
Major lithology: Radiolarian ooze with nannofossils. Homogeneous dark brown to yellowish brown radiolarian ooze with nannofossils.



Core Photo

Hole 320-U1331A Core 8H, Interval 62.2-72.22 m (CSF-A)

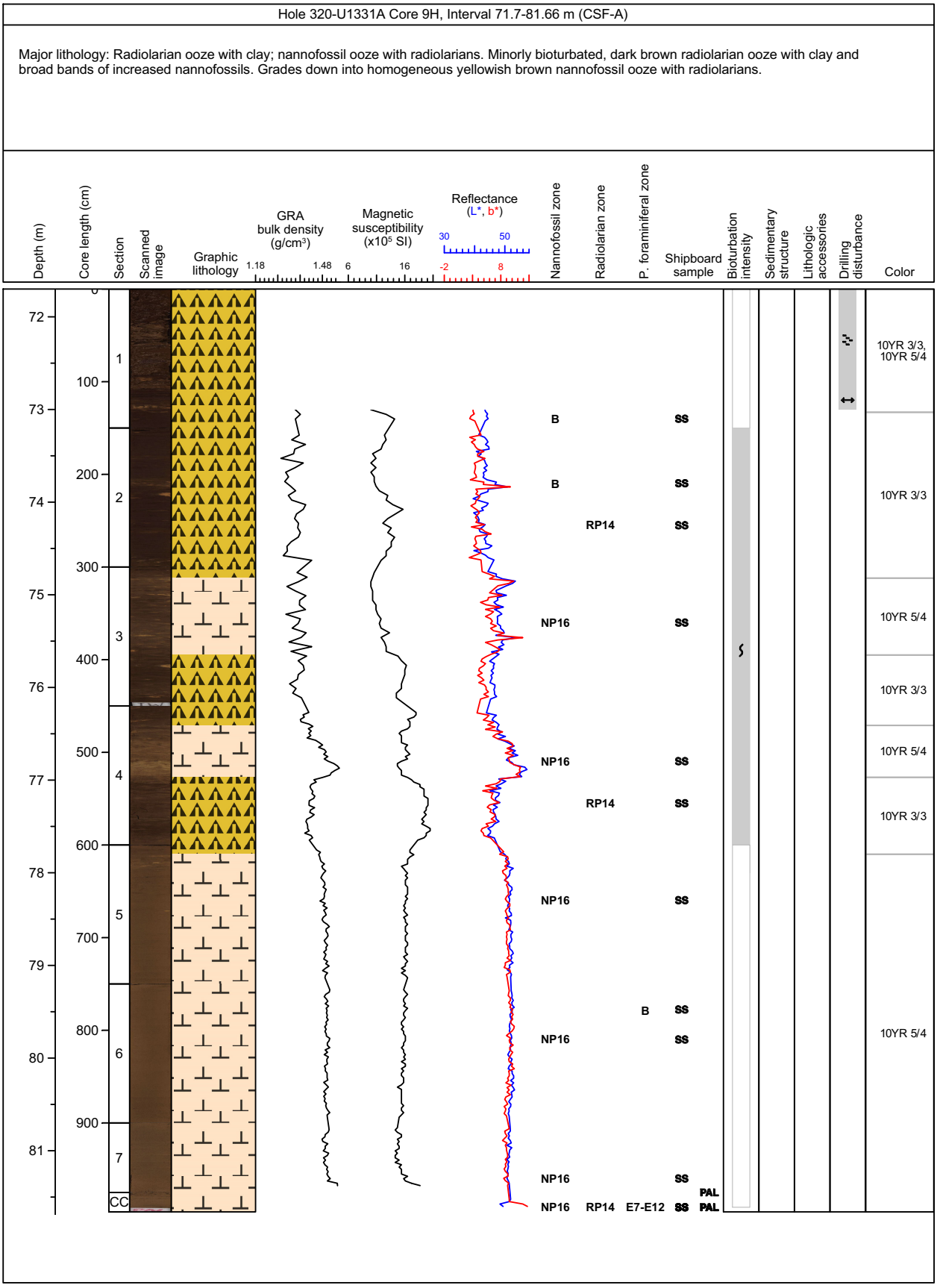
Major lithology: Radiolarian ooze with clay; radiolarian nannofossil ooze. Homogeneous dark yellowish brown radiolarian ooze with clay grading downcore into yellowish brown radiolarian nannofossil ooze.



Core Photo

Hole 320-U1331A Core 9H, Interval 71.7-81.66 m (CSF-A)

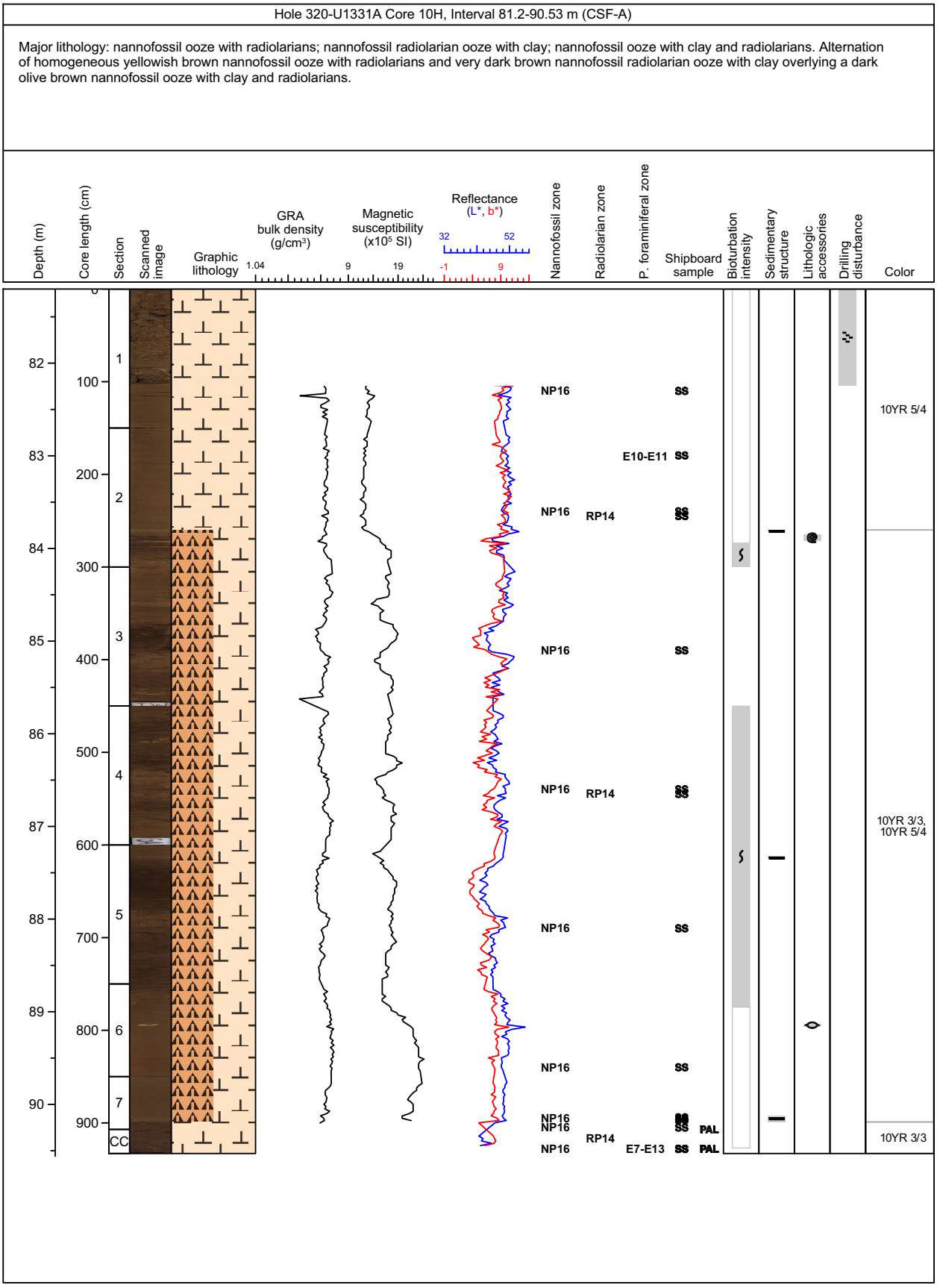
Major lithology: Radiolarian ooze with clay; nannofossil ooze with radiolarians. Minorly bioturbated, dark brown radiolarian ooze with clay and broad bands of increased nannofossils. Grades down into homogeneous yellowish brown nannofossil ooze with radiolarians.



Core Photo

Hole 320-U1331A Core 10H, Interval 81.2-90.53 m (CSF-A)

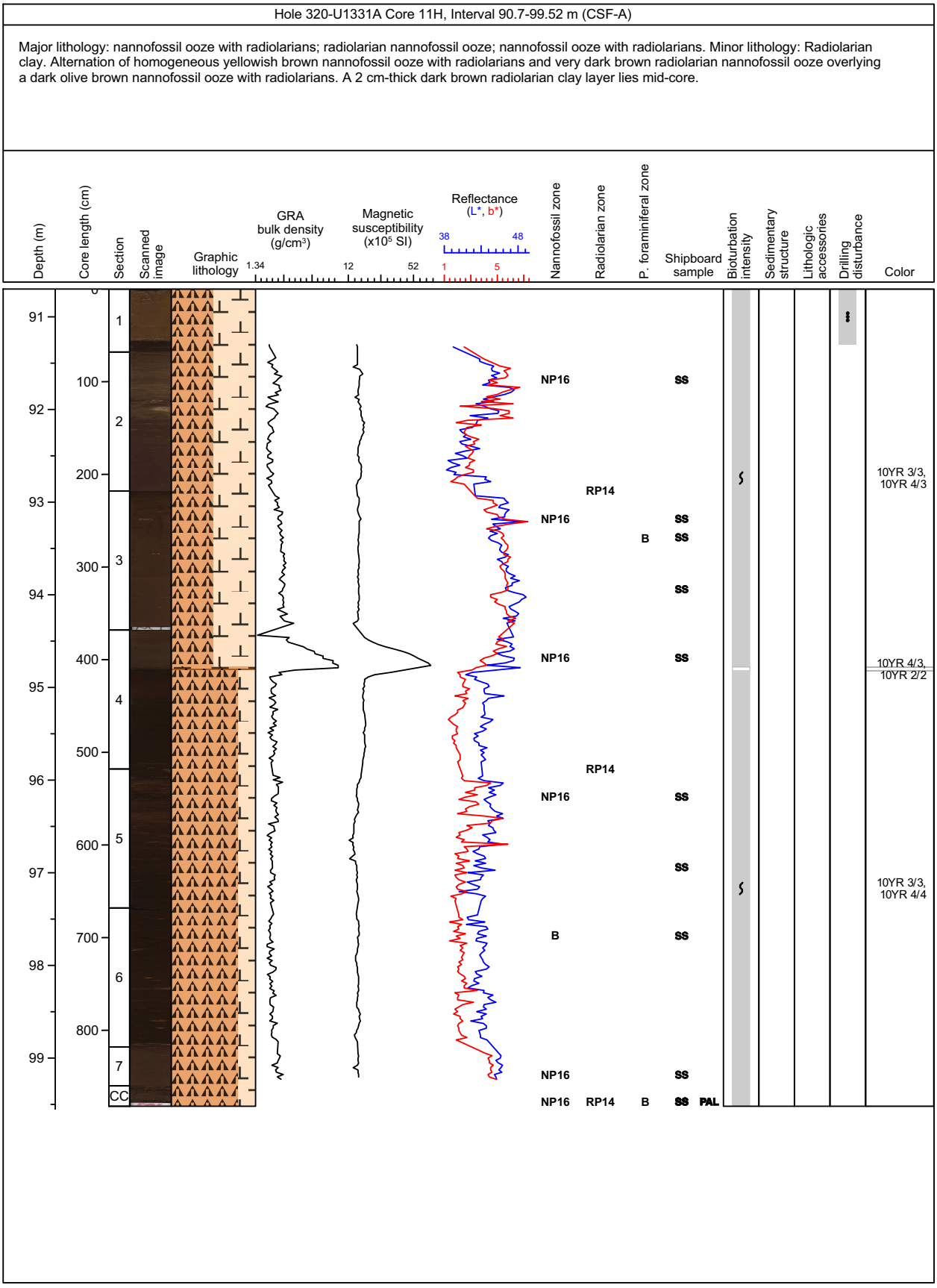
Major lithology: nannofossil ooze with radiolarians; nannofossil radiolarian ooze with clay; nannofossil ooze with clay and radiolarians. Alternation of homogeneous yellowish brown nannofossil ooze with radiolarians and very dark brown nannofossil radiolarian ooze with clay overlying a dark olive brown nannofossil ooze with clay and radiolarians.



Core Photo

Hole 320-U1331A Core 11H, Interval 90.7-99.52 m (CSF-A)

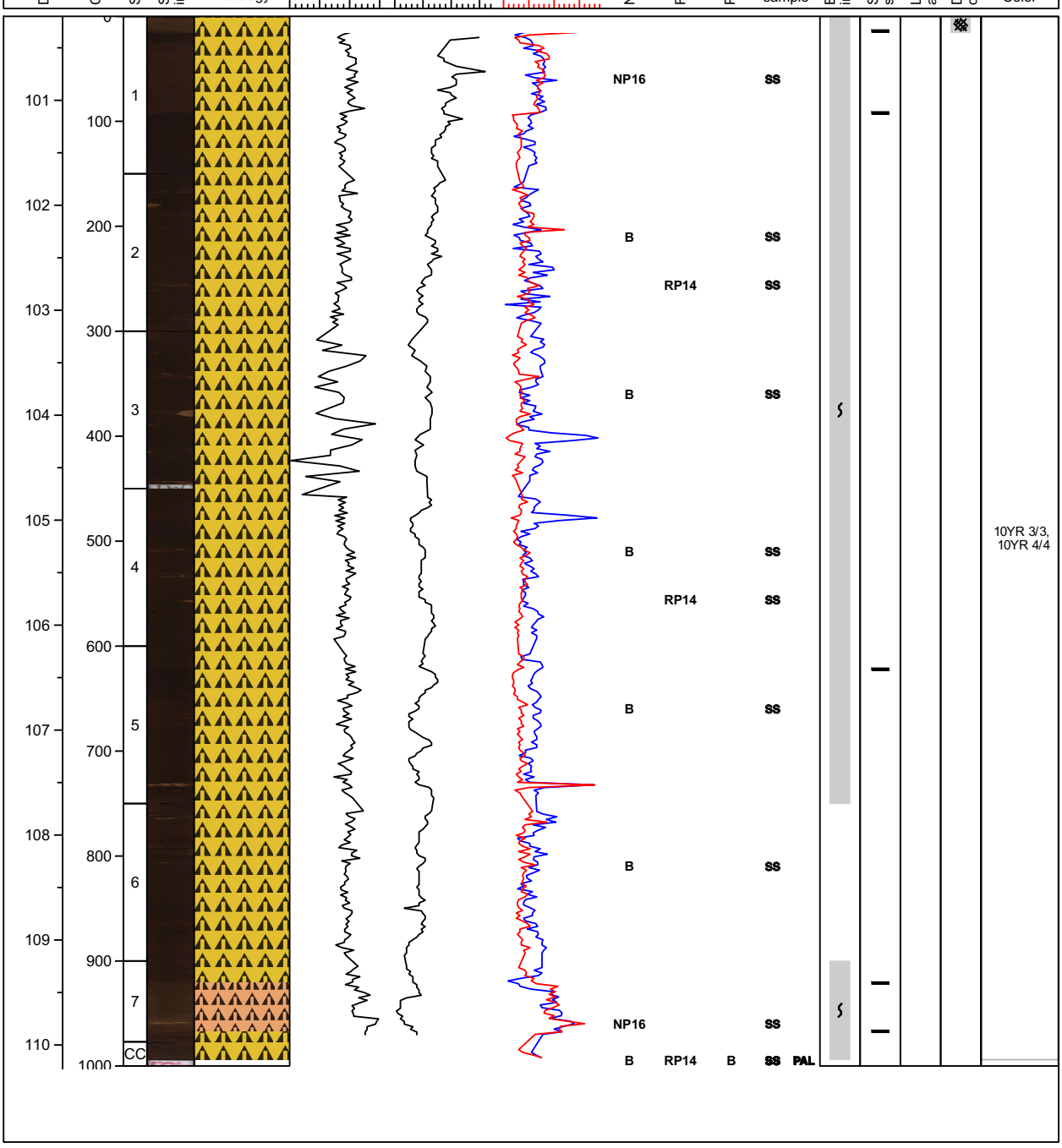
Major lithology: nannofossil ooze with radiolarians; radiolarian nannofossil ooze; nannofossil ooze with radiolarians. Minor lithology: Radiolarian clay. Alternation of homogeneous yellowish brown nannofossil ooze with radiolarians and very dark brown radiolarian nannofossil ooze overlying a dark olive brown nannofossil ooze with radiolarians. A 2 cm-thick dark brown radiolarian clay layer lies mid-core.



Core Photo

Hole 320-U1331A Core 12H, Interval 100.2-110.2 m (CSF-A)

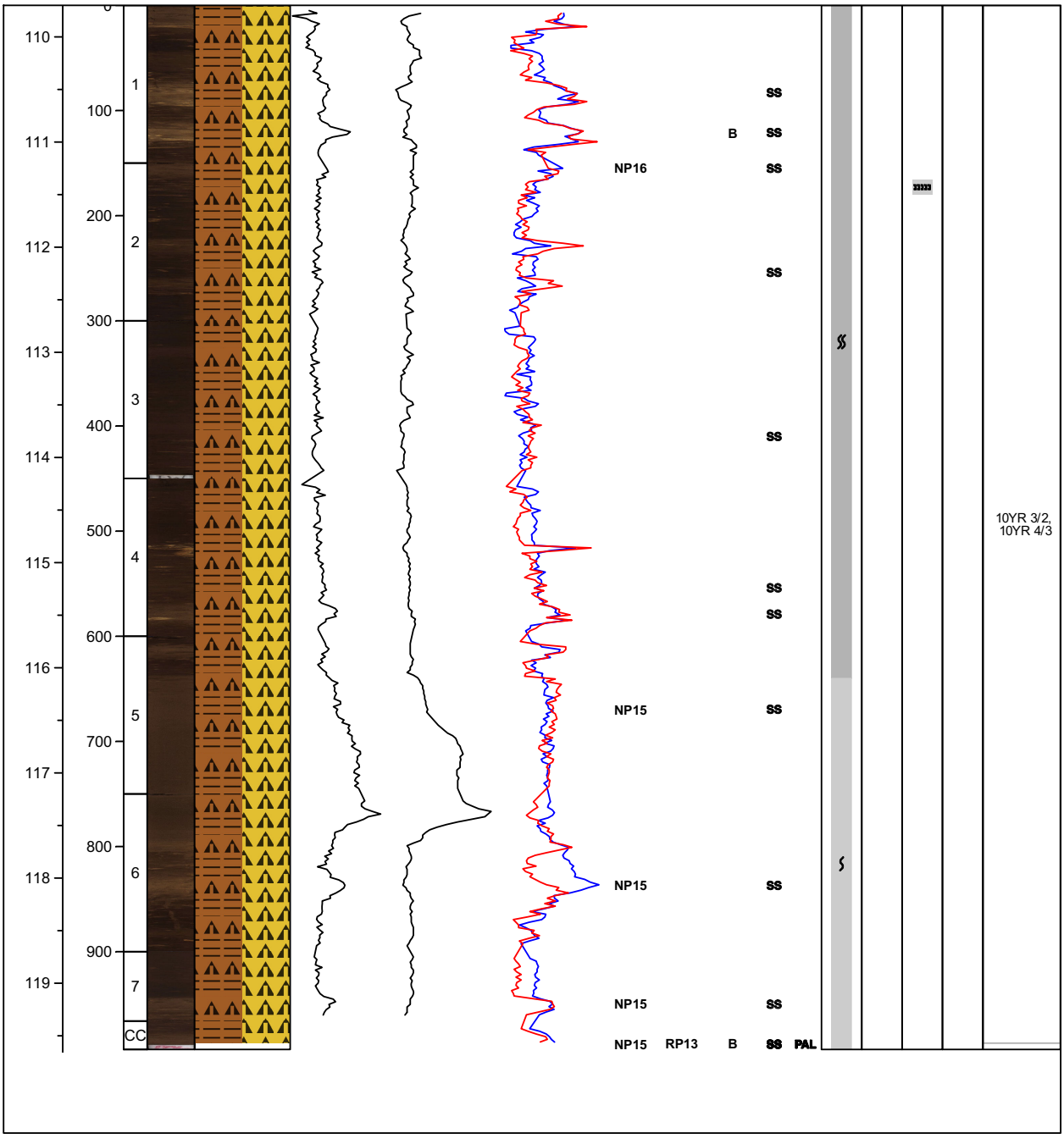
Major lithology: Radiolarian ooze with nannofossils and clay; radiolarian ooze with clay; nannofossil radiolarian ooze. Alternation of homogeneous dark yellowish brown radiolarian ooze with nannofossils and clay and very dark brown radiolarian ooze with clay with a short interval of nannofossil radiolarian ooze. The lithologic changes are marked by sharp color contacts.



Core Photo

Hole 320-U1331A Core 13H, Interval 109.7-119.63 m (CSF-A)

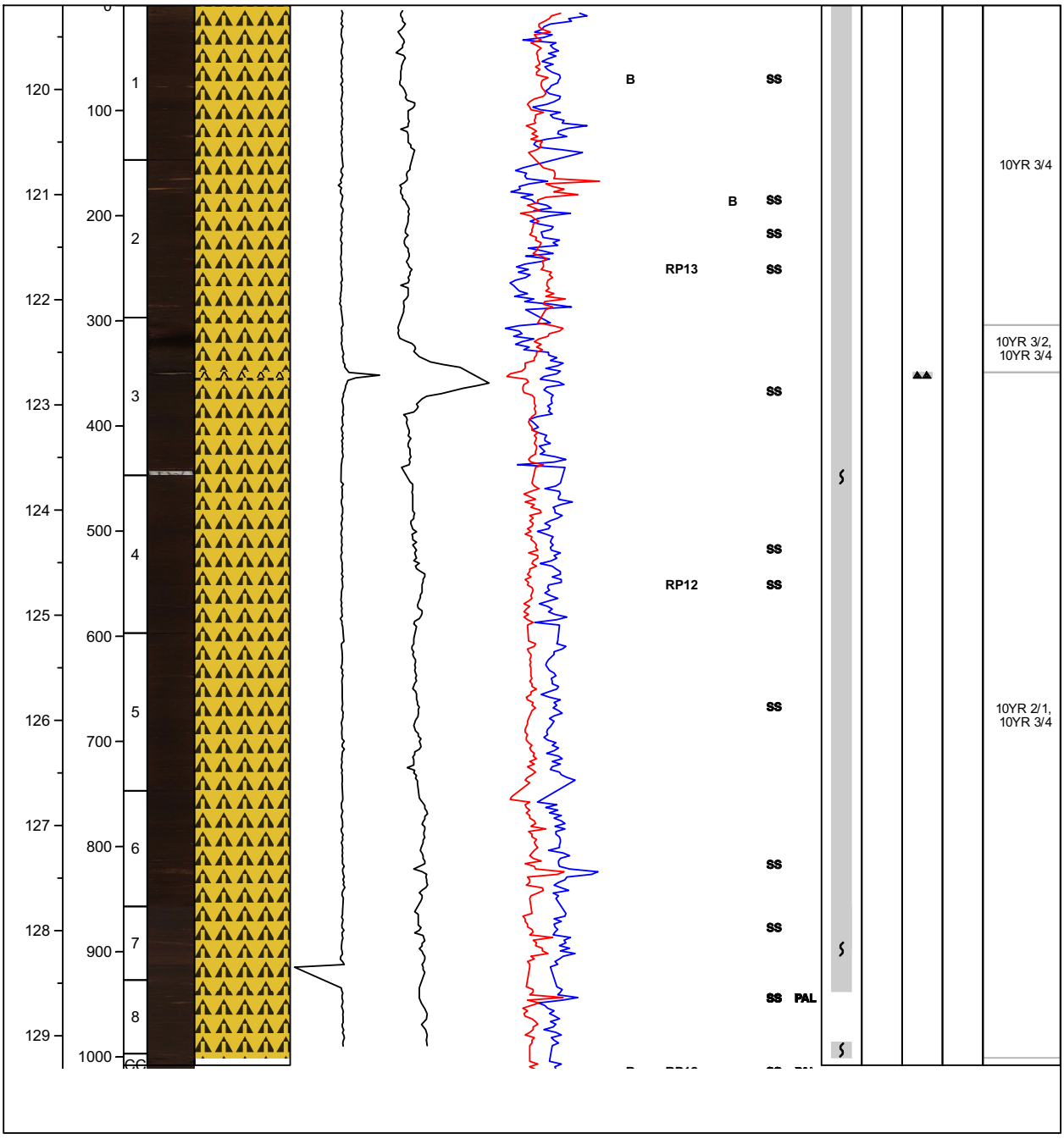
Major lithology: Radiolarian ooze with nannofossils; radiolarian clay with nannofossils. Alternation of a brown radiolarian ooze with nannofossils and a dark grayish brown radiolarian clay with nannofossils.



Core Photo

Hole 320-U1331A Core 14H, Interval 119.2-129.28 m (CSF-A)

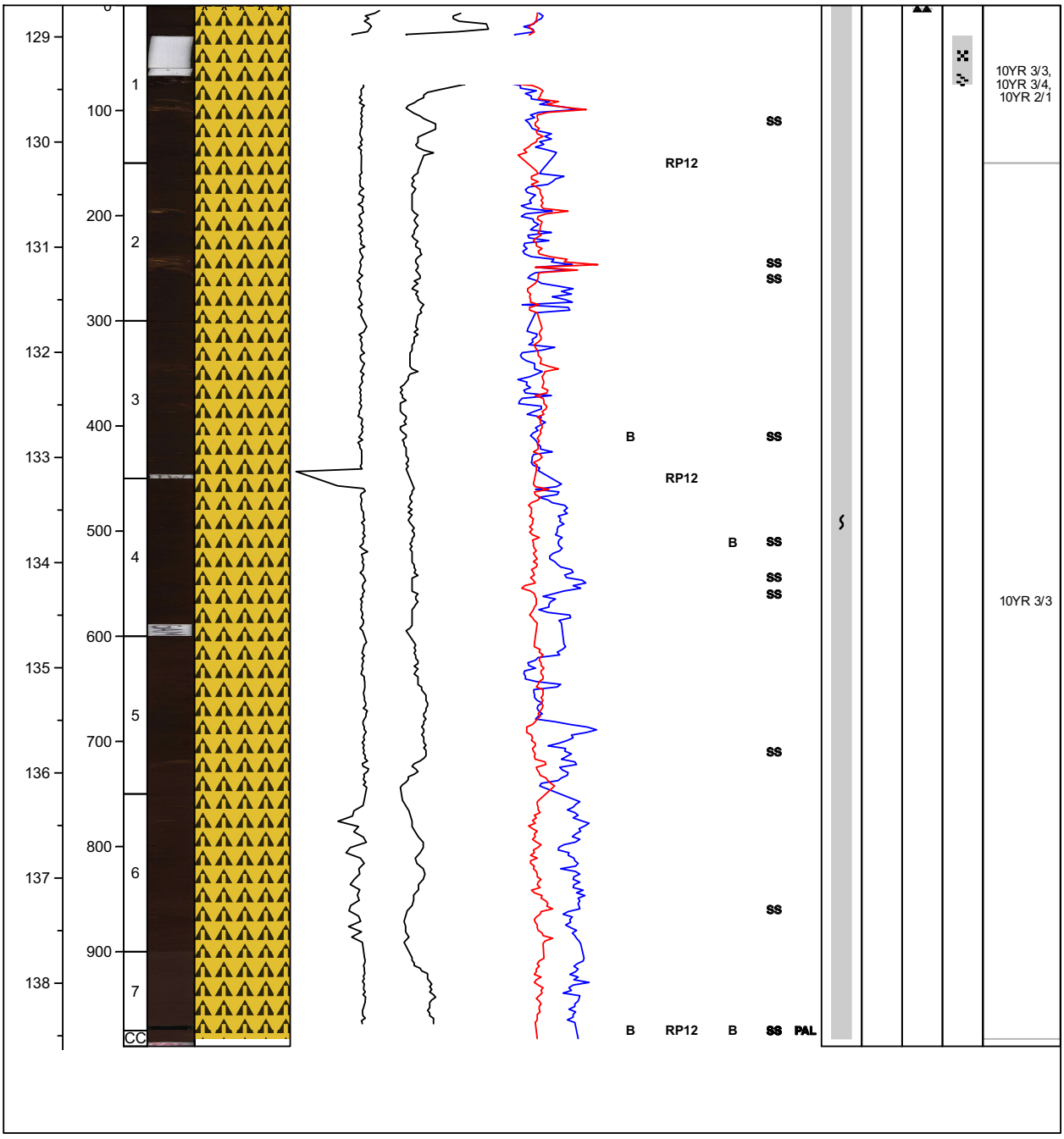
Major lithology: Radiolarian ooze with nannofossils and clay. Minor lithology: Radiolarian ooze; Porcellanite. Dark yellowish brown homogeneous radiolarian ooze with nannofossils and clay with firm interval of very dark brown radiolarian ooze containing a large (ø = 5cm) porcellanite nodule.



Core Photo

Hole 320-U1331A Core 15H, Interval 128.7-138.6 m (CSF-A)

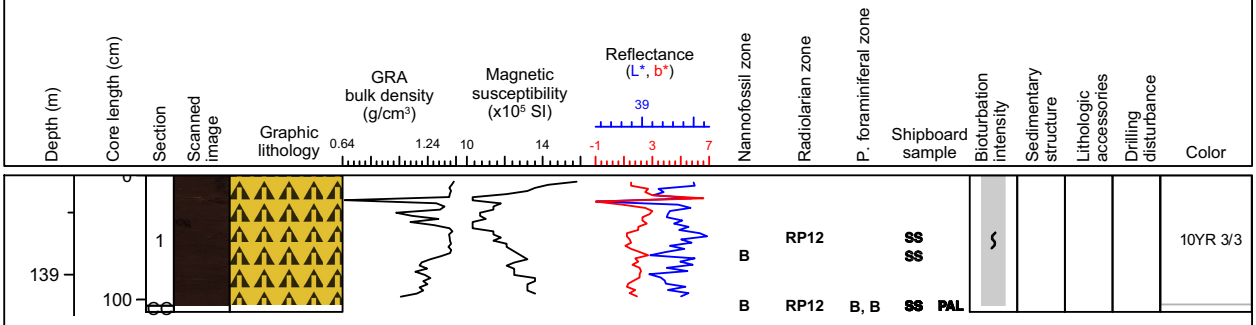
Major lithology: Radiolarian ooze with clay. Minor lithology: Porcellanite. Dark brown homogeneous radiolarian ooze with clay containing a 2 cm large porcellanite nodule.



Core Photo

Hole 320-U1331A Core 16X, Interval 138.2-139.3 m (CSF-A)

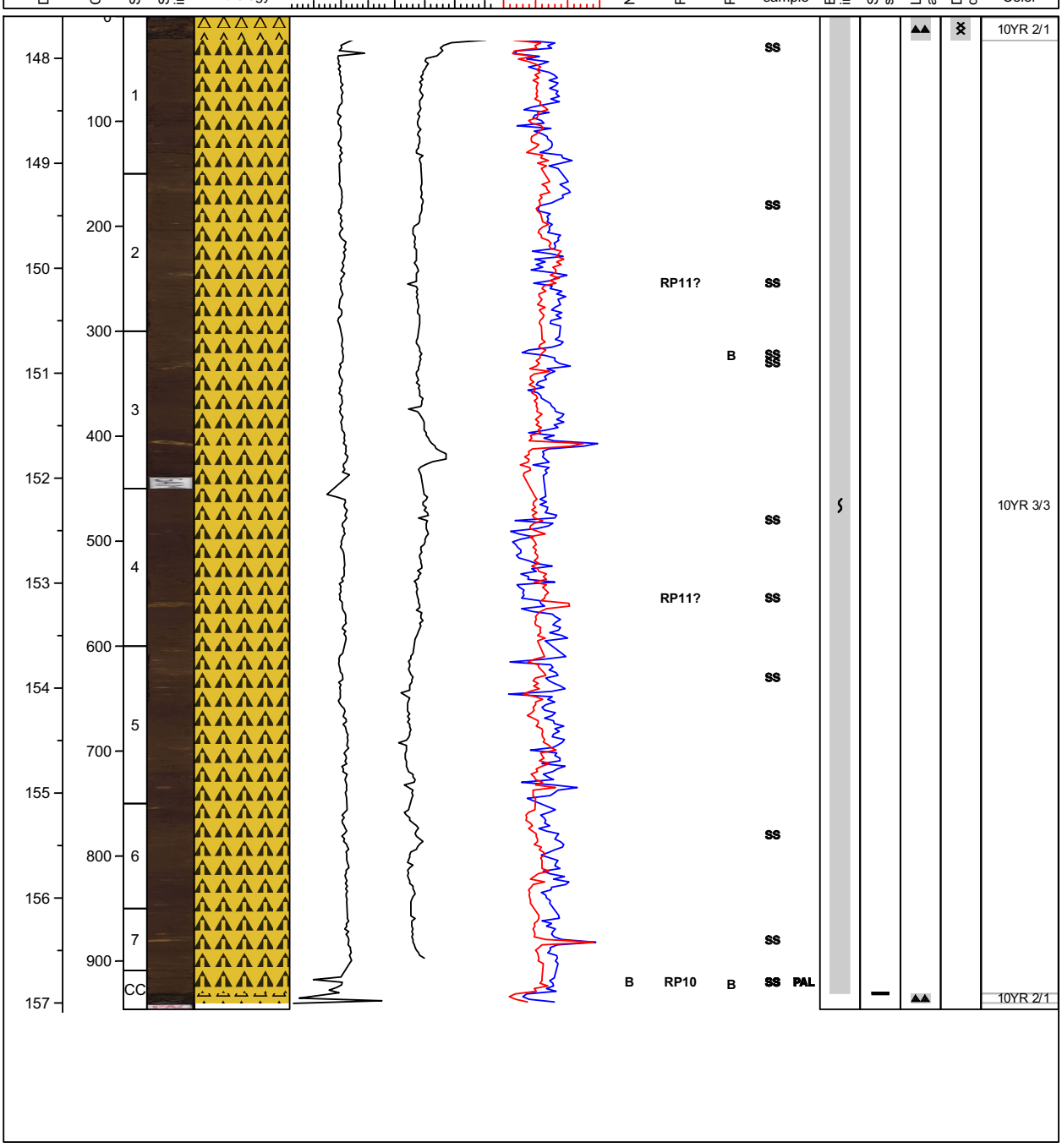
Major lithology: Radiolarian ooze with clay. Dark brown homogeneous radiolarian ooze with clay.



Core Photo

Hole 320-U1331A Core 17X, Interval 147.6-157.06 m (CSF-A)

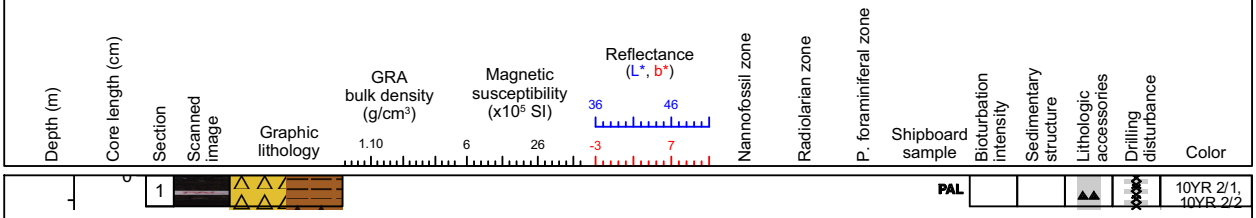
Major lithology: Radiolarian ooze with clay. Minor lithology: Porcellanite. Black porcellanite layer underlain by a dark brown homogenous radiolarian ooze with clay. Another black porcellanite interval at base of core.



Core Photo

Hole 320-U1331A Core 18X, Interval 157.3-157.55 m (CSF-A)

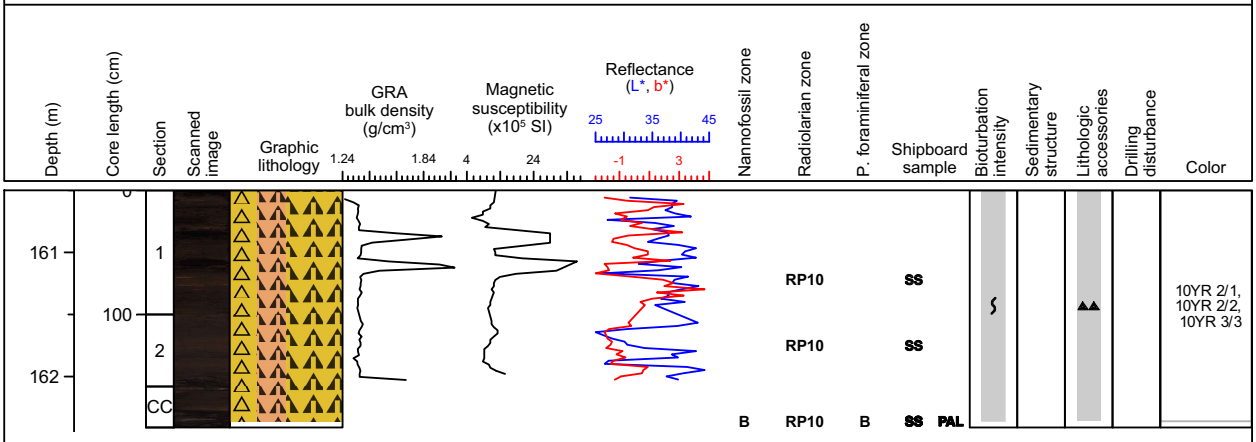
Major lithology: radiolarian ooze; porcellanite. Alternation of homogenous very dark brown radiolarian ooze with 2 to 4 cm-thick black porcellanite layers.



Core Photo

Hole 320-U1331A Core 19X, Interval 160.5-162.41 m (CSF-A)

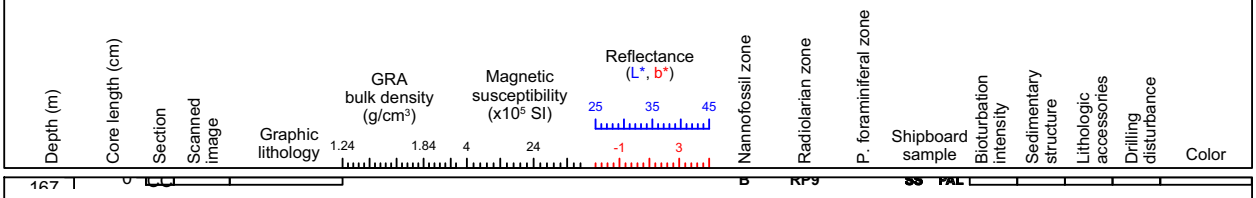
Major lithology: Radiolarian ooze; clayey radiolarian ooze; porcellanite. Alternation of homogenous very dark brown radiolarian ooze with dark brown clayey radiolarian ooze intercalated by 2 to 4 cm-thick black porcellanite layers.



Core Photo

Hole 320-U1331A Core 20X, Interval 167.0-167.06 m (CSF-A)

Major lithology: Porcellanite. Black porcellanite internal.

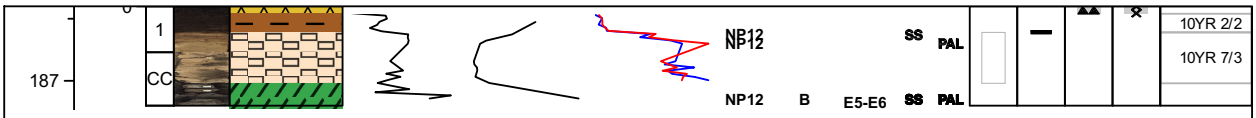


U1331A-21X NO RECOVERY

Core Photo

Hole 320-U1331A Core 22X, Interval 186.4-187.2 m (CSF-A)

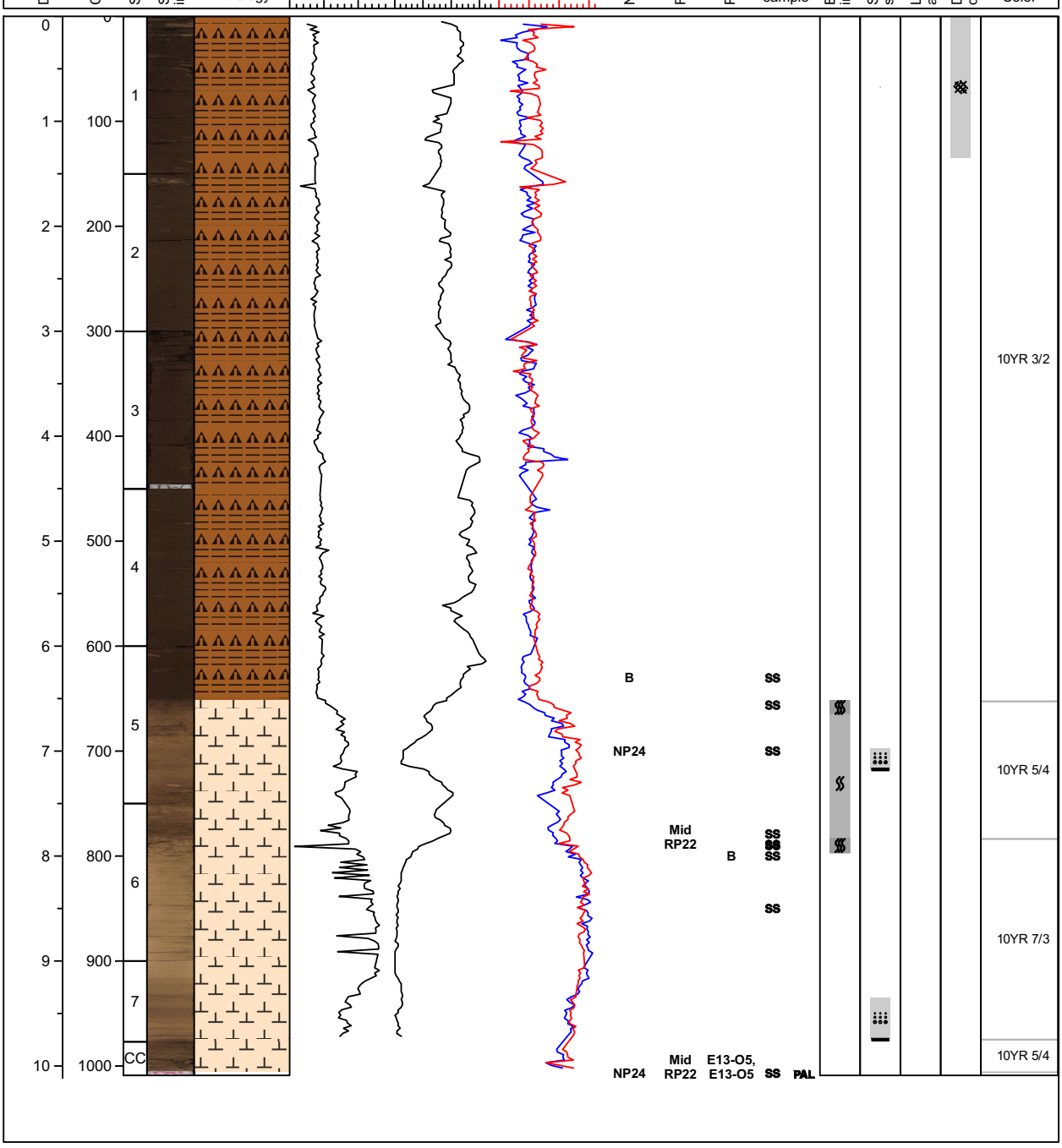
Major lithology: Clay; calcareous micritic ooze; basalt. Minor lithology: Porcellanite. Small porcellanite fragments overlying very dark brown soft clay overlying a calcareous micritic ooze overlying altered and fresh basalt.



Core Photo

Hole 320-U1331B Core 1H, Interval 0.0-10.09 m (CSF-A)

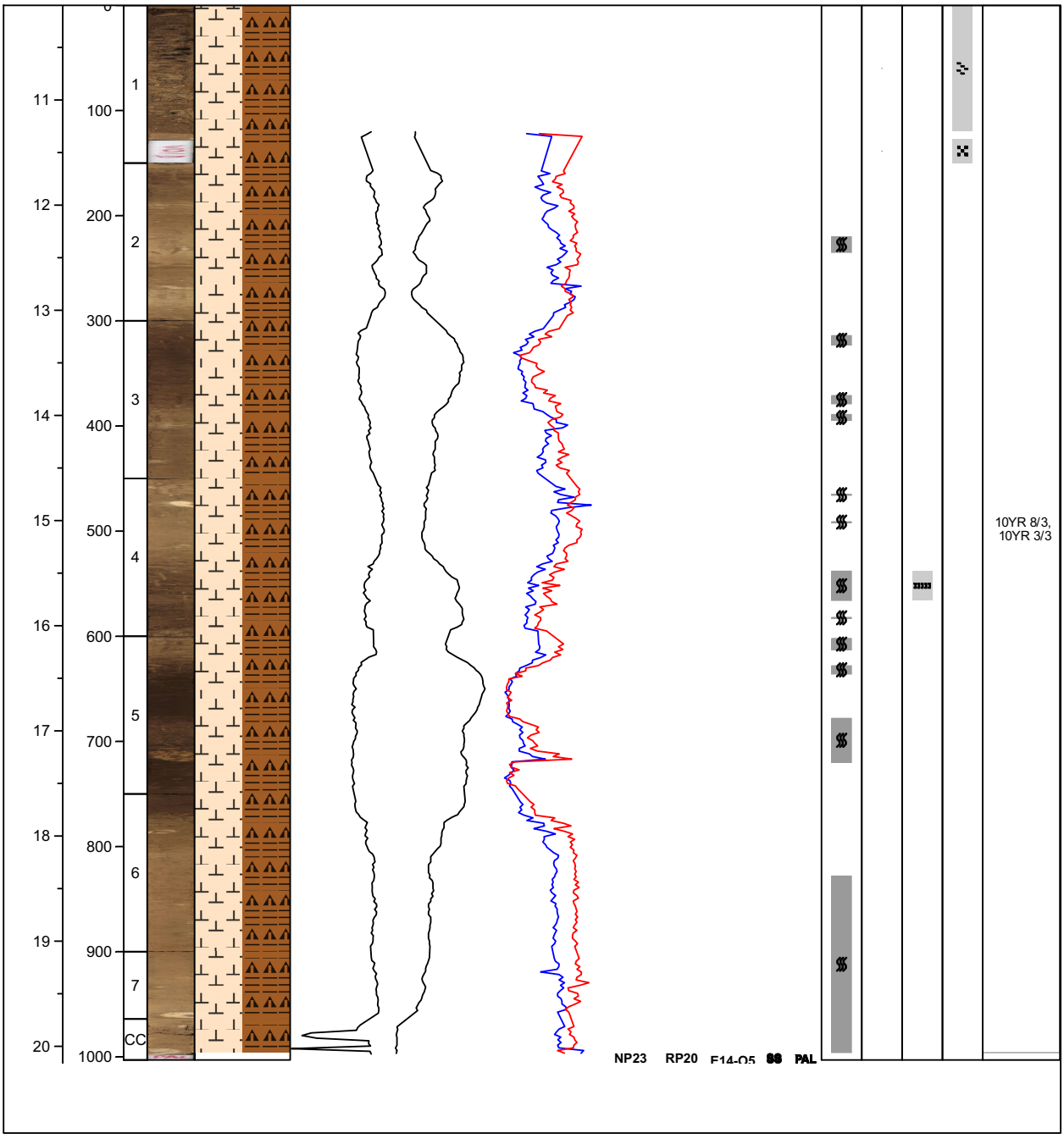
Major lithology: Radiolarian clay; nannofossil ooze with radiolarians.Very dark grayish brown radiolarian clay that transitions downcore to a very pale brown nannofossil ooze with radiolarians. Two erosional contacts overlain by fining upward sequences are present.



Core Photo

Hole 320-U1331B Core 2H, Interval 10.1-20.13 m (CSF-A)

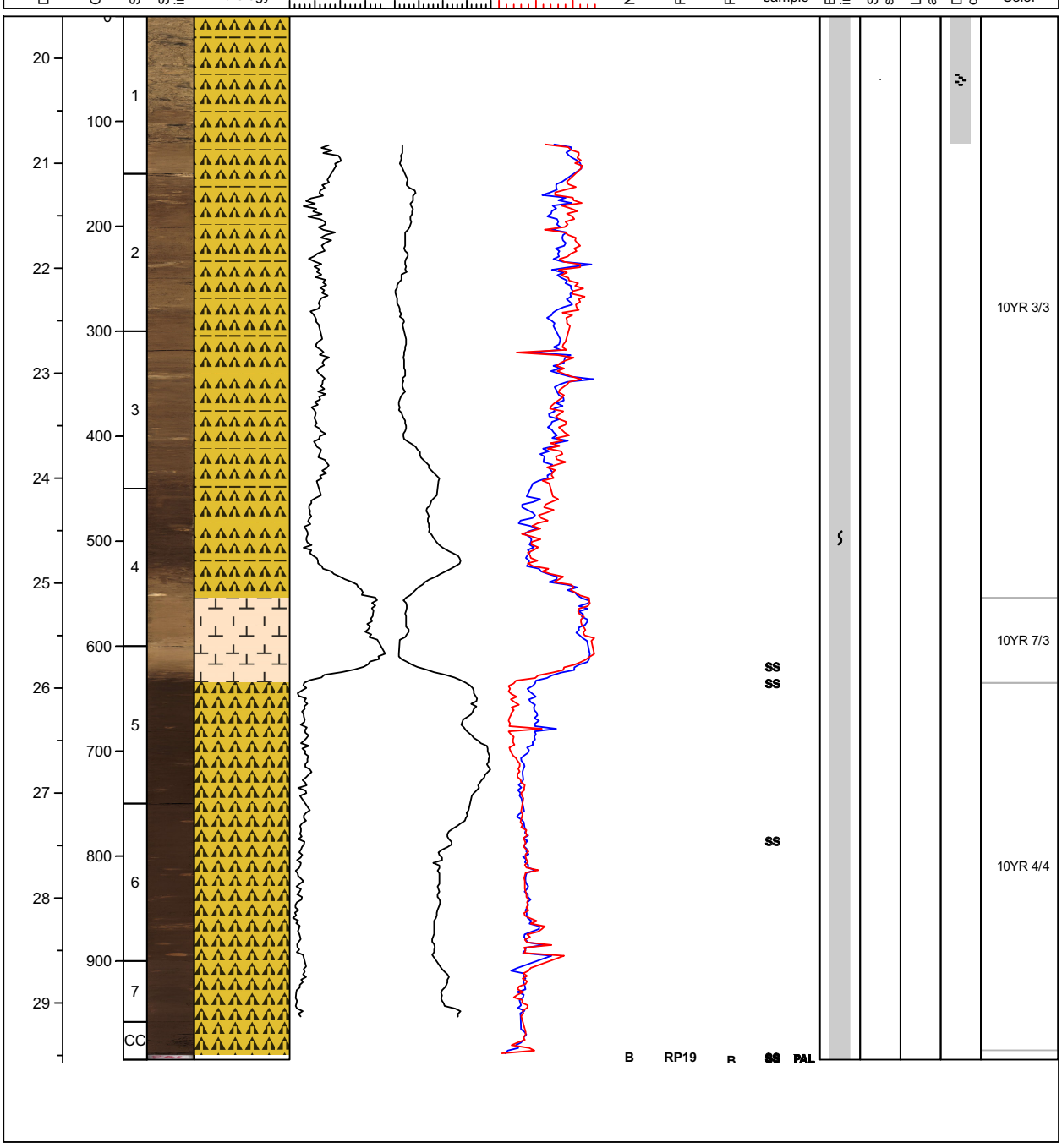
Major lithology: Nannofossil ooze with radiolarians; radiolarian clay. Alternation of intensely bioturbated light yellowish brown nannofossil ooze with radiolarians and dark brown radiolarian clay.



Core Photo

Hole 320-U1331B Core 3H, Interval 19.6-29.54 m (CSF-A)

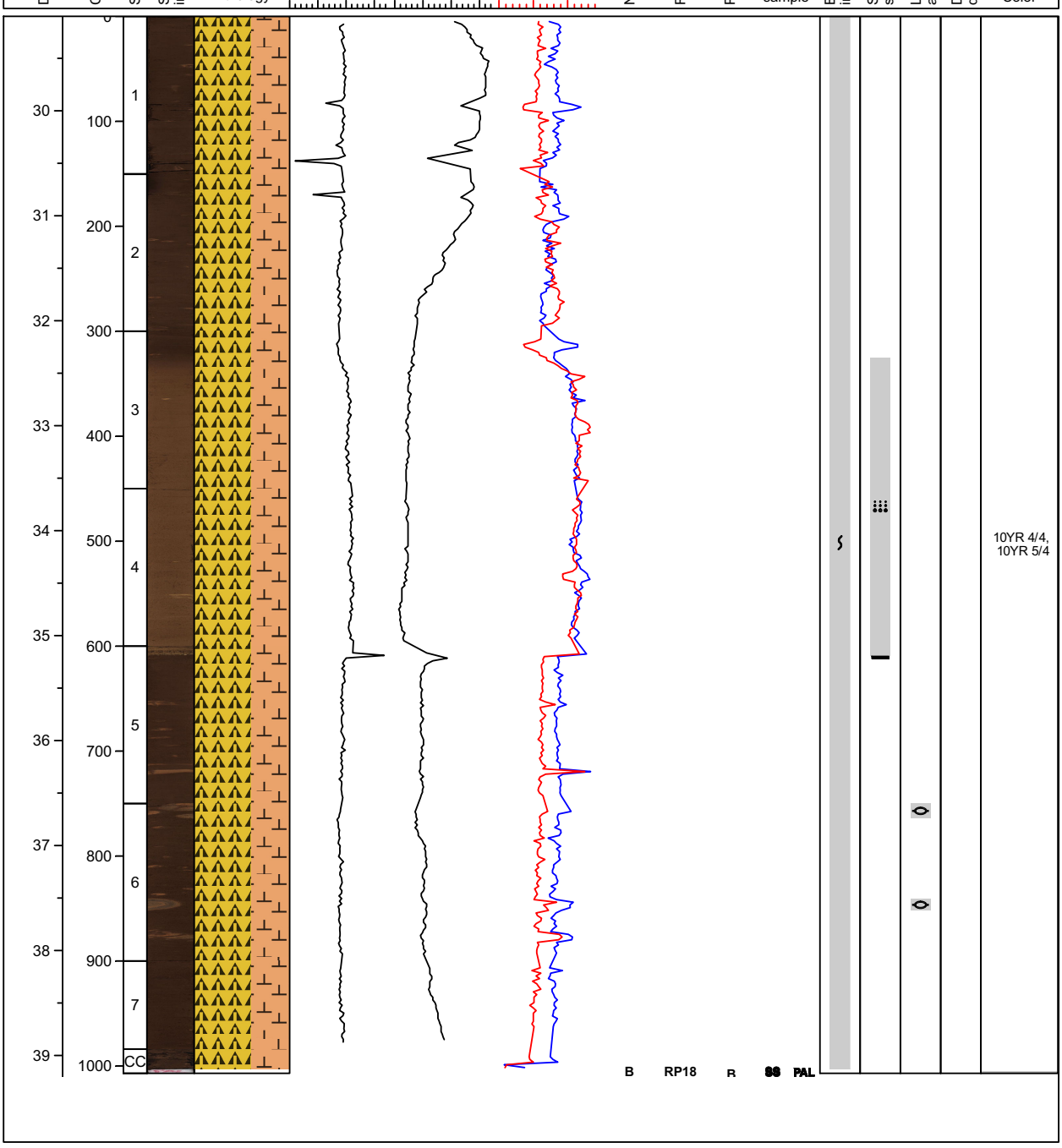
Major lithology: Nannofossil ooze; clayey radiolarian ooze; radiolarian ooze with clay. Alternation of very pale brown nannofossil ooze and dark brown clayey radiolarian ooze that transitions downcore to a dark yellowish brown radiolarian ooze with clay.



Core Photo

Hole 320-U1331B Core 4H, Interval 29.1-39.17 m (CSF-A)

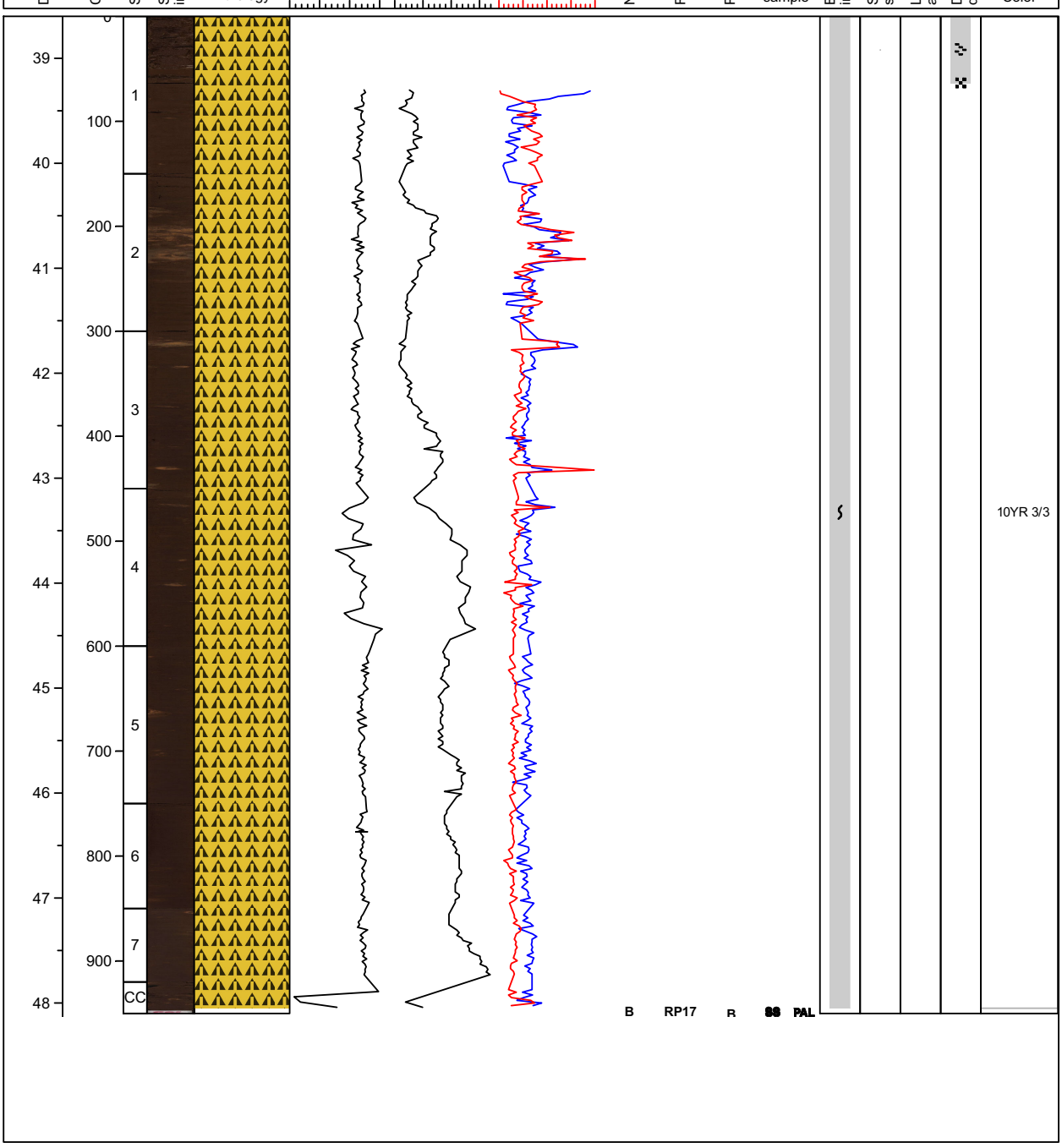
Major lithology: radiolarian nannofossil ooze; radiolarian clay. Alternation of yellowish brown radiolarian nannofossil ooze with dark yellowish brown radiolarian clay. One erosional contact, with sand sized coarse grains at the base of a fining upward sequence is present.



Core Photo

Hole 320-U1331B Core 5H, Interval 38.6-48.1 m (CSF-A)

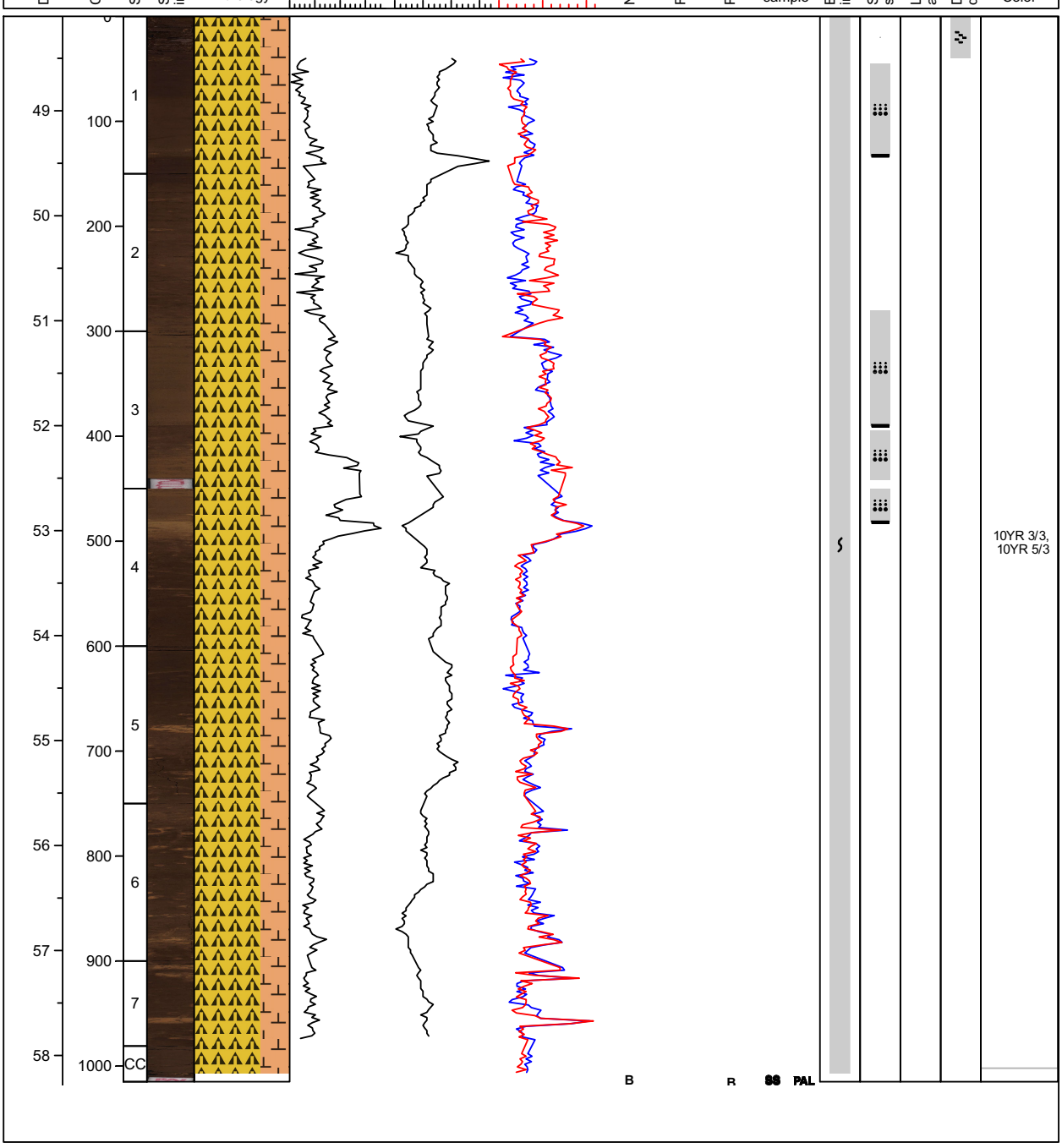
Major lithology: Radiolarian ooze with clay. Minor lithology: Radiolarian ooze. Homogeneous dark brown radiolarian ooze with clay. Burrows are filled with light brownish gray or light yellowish brown radiolarian ooze.



Core Photo

Hole 320-U1331B Core 6H, Interval 48.1-58.25 m (CSF-A)

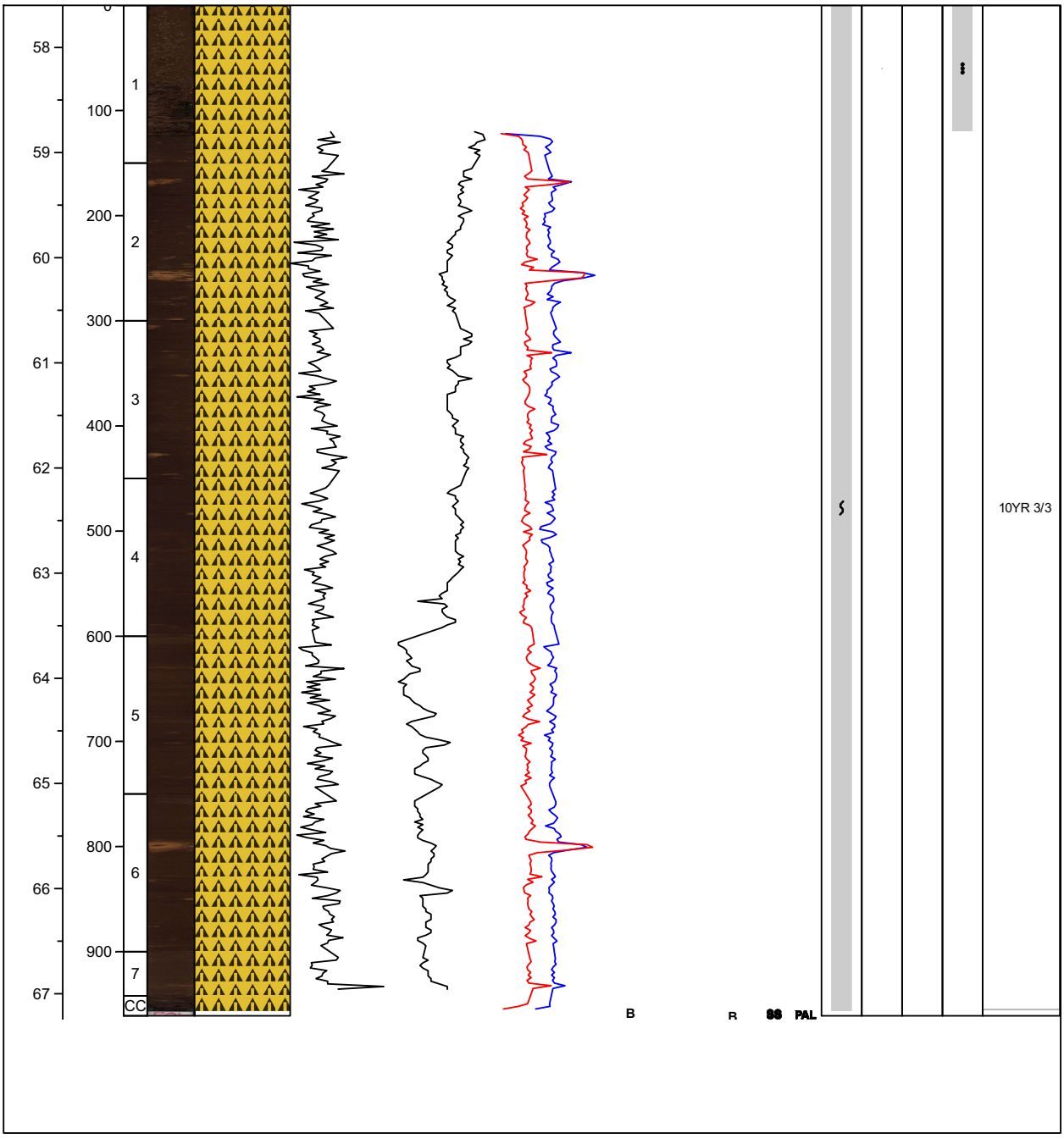
Major lithology: Radiolarian ooze with clay; radiolaran nannofossil ooze with clay. Alternation of homogeneous dark brown radiolarian ooze with clay with brown radiolarian nannofossil ooze with clay. Three erosional contacts, with sand sized coarse grains at the base of a fining upward sequence is present.



Core Photo

Hole 320-U1331B Core 7H, Interval 57.6-67.21 m (CSF-A)

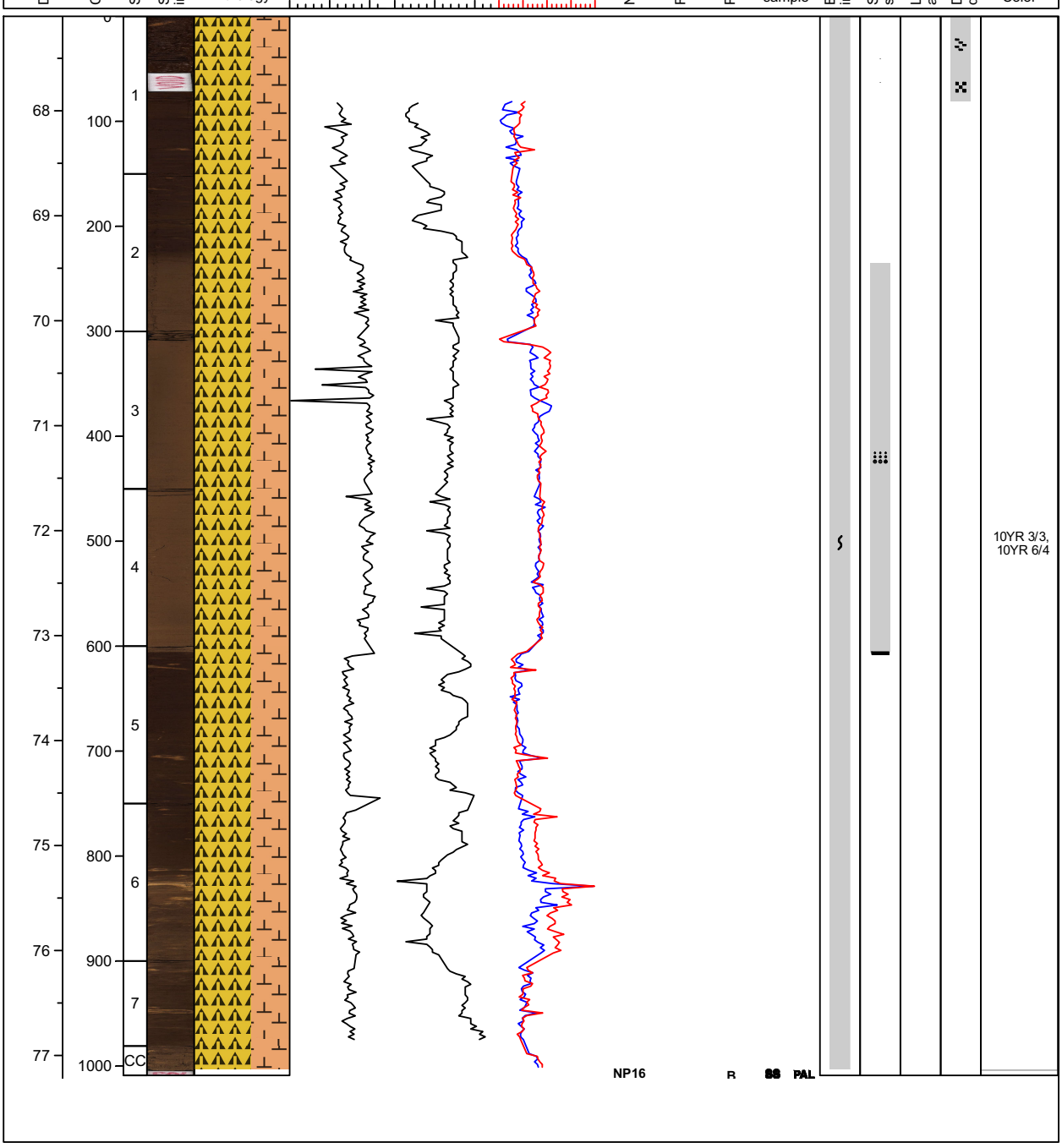
Major lithology: Radiolarian ooze with clay. Dark brown homogeneous radiolarian ooze with clay.



Core Photo

Hole 320-U1331B Core 8H, Interval 67.1-77.19 m (CSF-A)

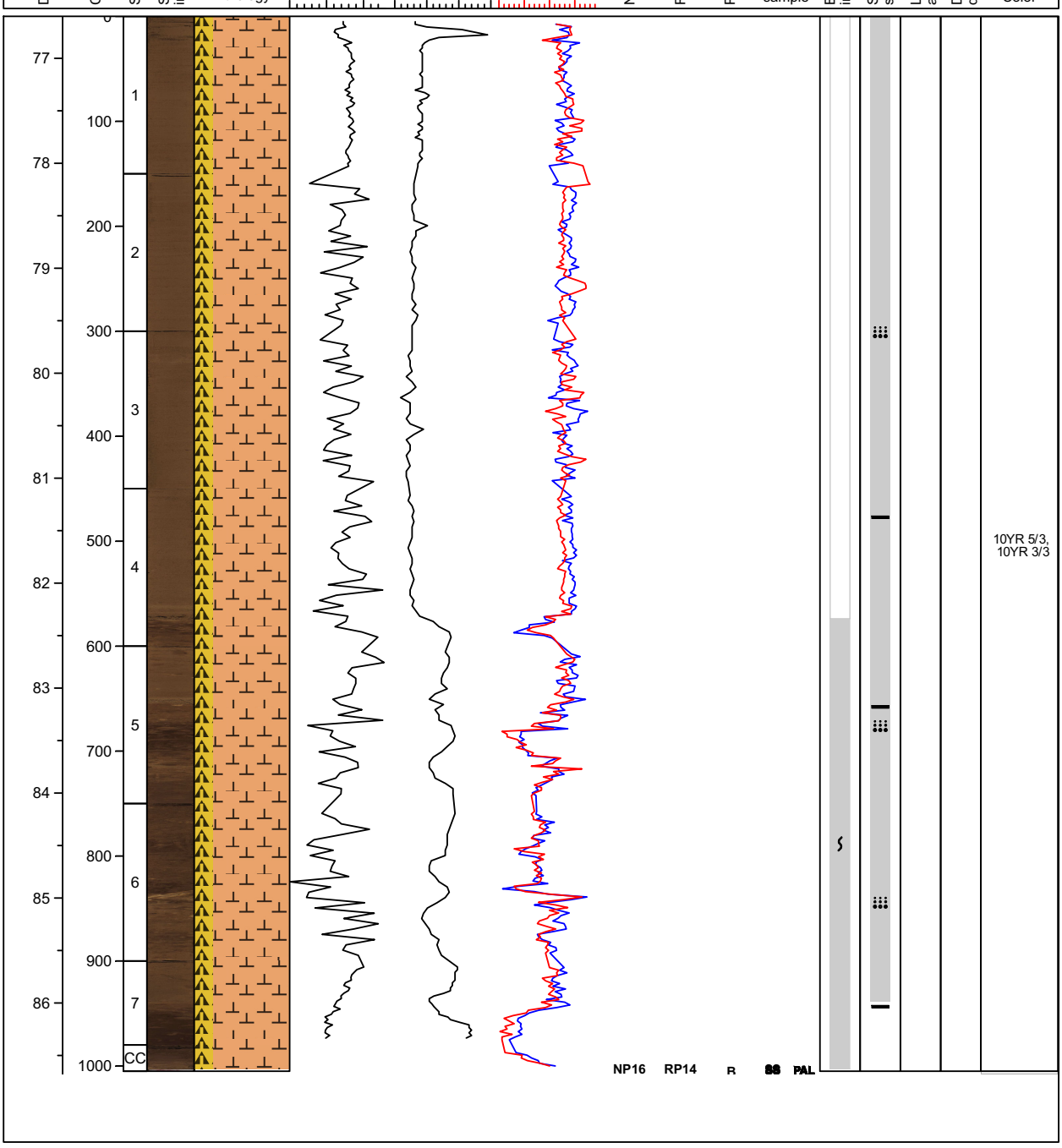
Major lithology: Radiolarian ooze with clay; radiolaran nannofossil ooze with clay. Alternation of dark brown radiolarian ooze with clay with brown radiolarian nannofossil ooze with clay. An erosional contact, with sand sized grains at base of a fining upward sequence, is presant.



Core Photo

Hole 320-U1331B Core 9H, Interval 76.6-86.65 m (CSF-A)

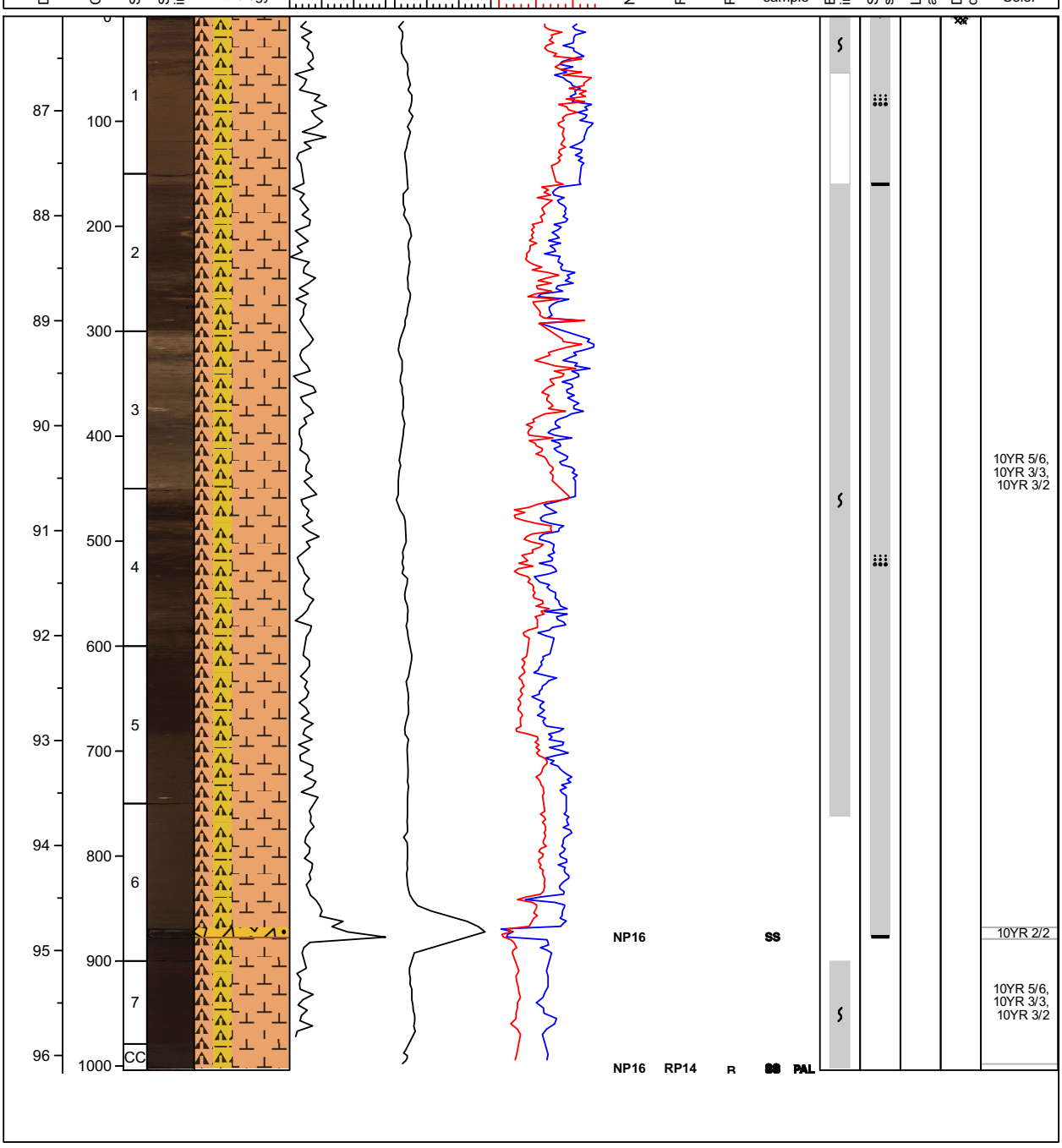
Major lithology: Radiolarian nannofossil ooze; radiolarian ooze with clay and nannofossils. Alternation of brown radiolarian nannofossil ooze and dark brown radiolarian ooze with clay and nannofossils. Three erosional contacts, with sand sized coarse grains at the base of a fining upward sequence are present.



Core Photo

Hole 320-U1331B Core 10H, Interval 86.1-96.14 m (CSF-A)

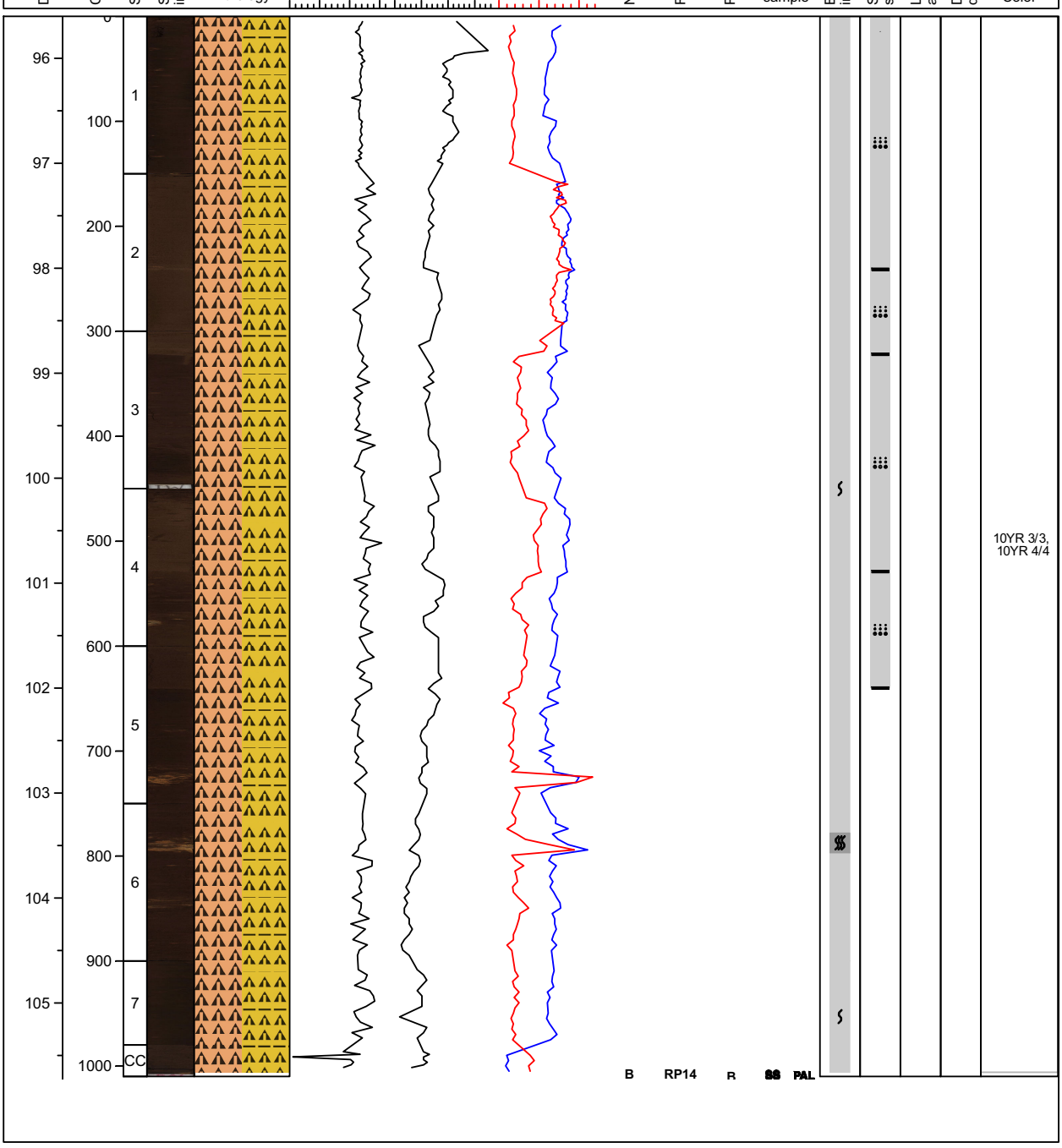
Major lithology: Radiolarian nannofossil ooze; nannofossil radiolarian ooze with clay; clayey radiolarian ooze. Minor lithology: Conglomerate; zeolite clay. Alteration of yellowish brown radiolarian nannofossil ooze and dark brown nannofossil radiolarian ooze with clay and dark brown clayey radiolarian ooze. Two erosional contacts, one with sand sized coarse grains at the base of a fining upward sequence and one with sand sized coarse grains at the base with a dark brown conglomerate. The underlying lithology is charachterized by a 2 cm-thick very dark brown zeolite clay horizon.



Core Photo

Hole 320-U1331B Core 11H, Interval 95.6-105.7 m (CSF-A)

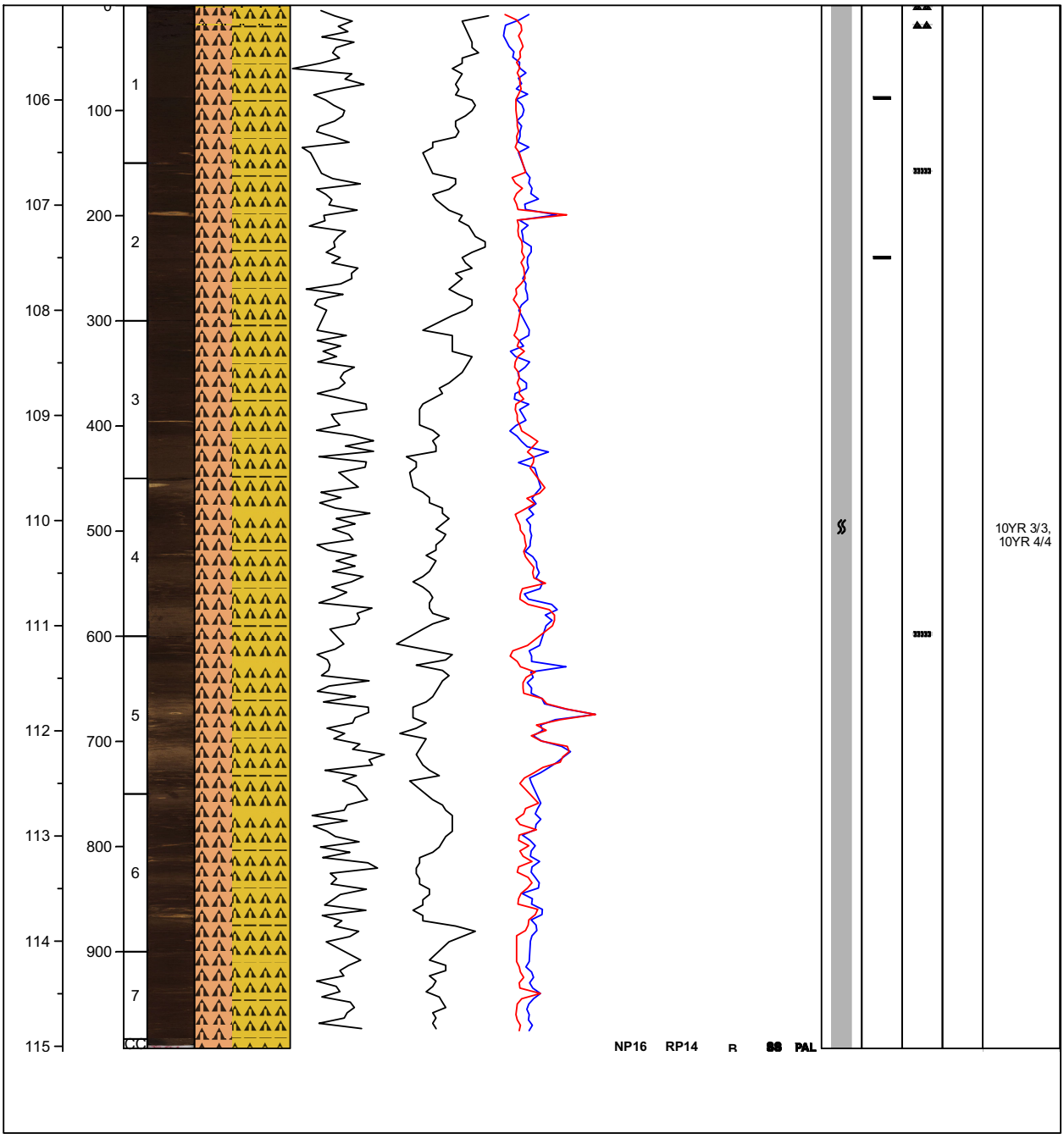
Major lithology: Clayey radiolarian ooze; nannofossil radiolarian ooze with clay. Alteration of dark brown clayey radiolarian ooze and dark yellowish brown nannofossil radiolarian ooze with clay. Four erosional contacts, with sand size coarse grains at the base and a clay rich layer.



Core Photo

Hole 320-U1331B Core 12H, Interval 105.1-115.02 m (CSF-A)

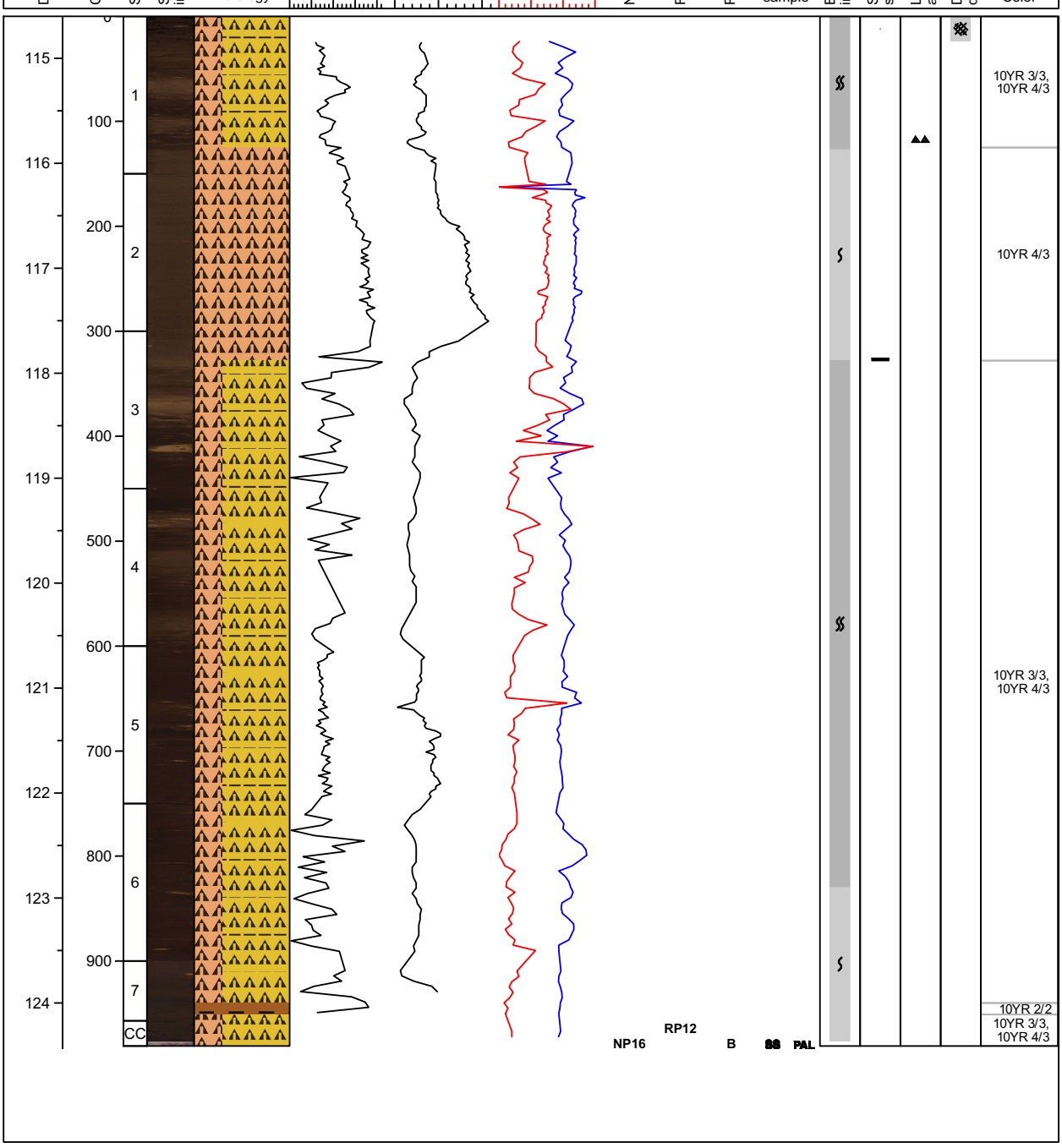
Major lithology: Clayey radiolarian ooze; nannofossil radiolarian ooze. Minor lithology: Porcellanite. Alteration of dark brown clayey radiolarian ooze and dark yellowish brown nannofossil radiolarian ooze. Two porcellanite intervals are present. Two erosional boundaries with overlying nannofossil radiolarian ooze containing fragments of foraminifera.



Core Photo

Hole 320-U1331B Core 13H, Interval 114.6-124.41 m (CSF-A)

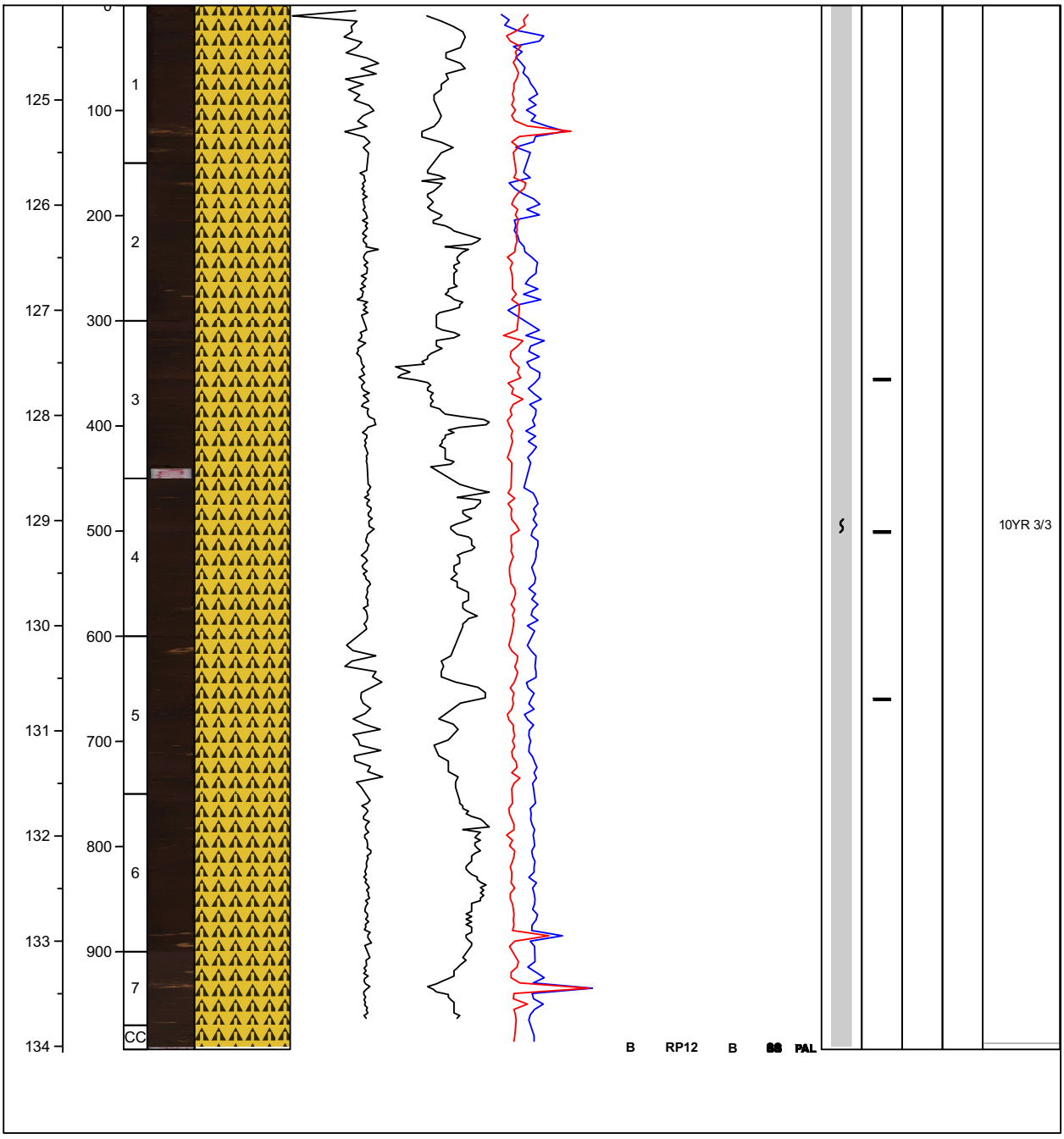
Major lithology: Clayey radiolarian ooze; nannofossil radiolarian ooze. Minor lithology: Porcellanite. Alteration of dark brown clayey radiolarian ooze and dark yellowish brown nannofossil radiolarian ooze, zeolite clay porcellanite pebble and a 10 cm layer of clay with zeolite and nannofossi at the base. One erosional boundary separating homogeneous nannofossil radiolarian ooze with clay from clayey radiolarian ooze.



Core Photo

Hole 320-U1331B Core 14H, Interval 124.1-134.03 m (CSF-A)

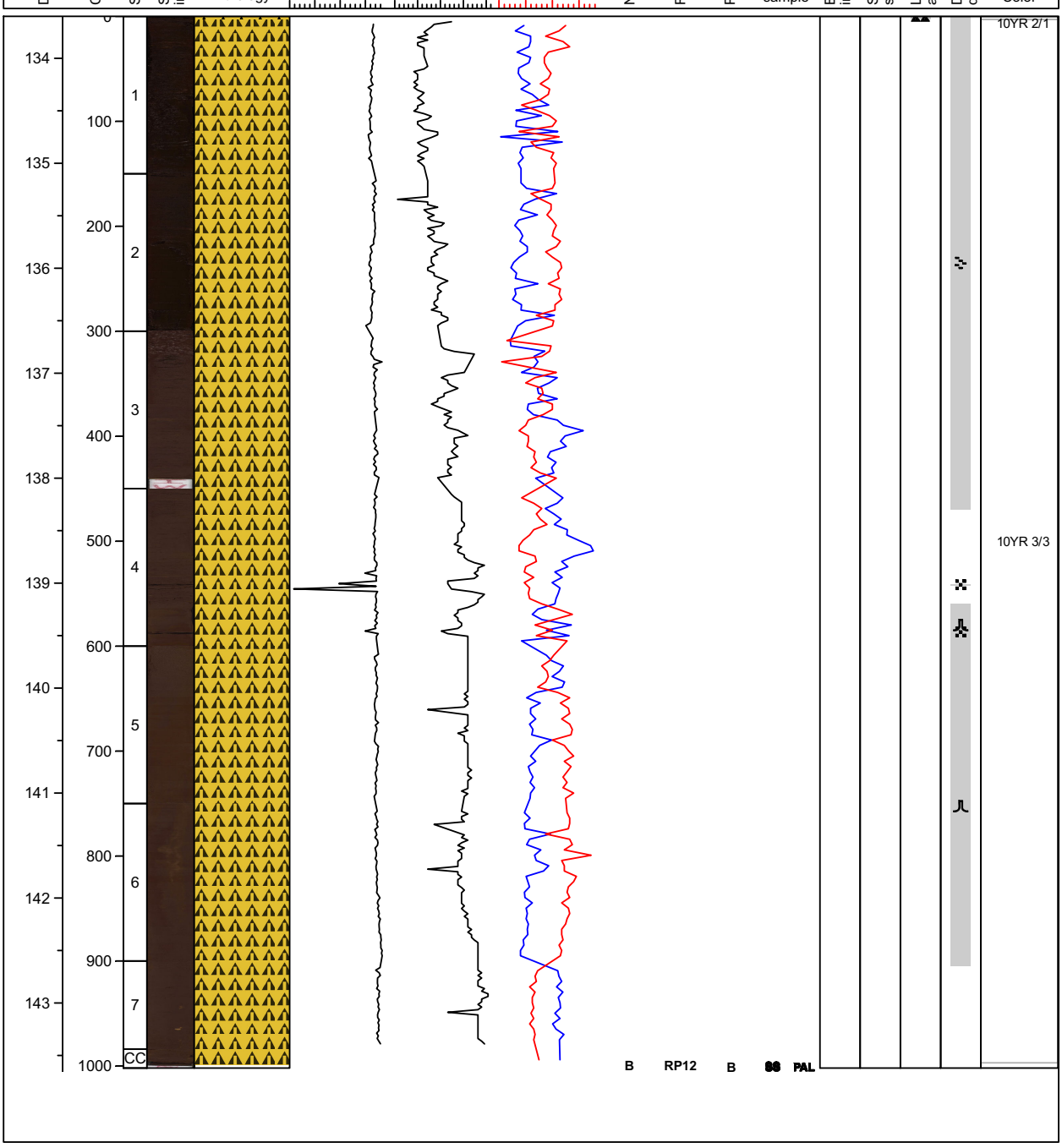
Major lithology: Radiolarian ooze with clay. Dark brown homogeneous radiolarian ooze with clay. Three erosional contacts identifiable by sharp color changes.



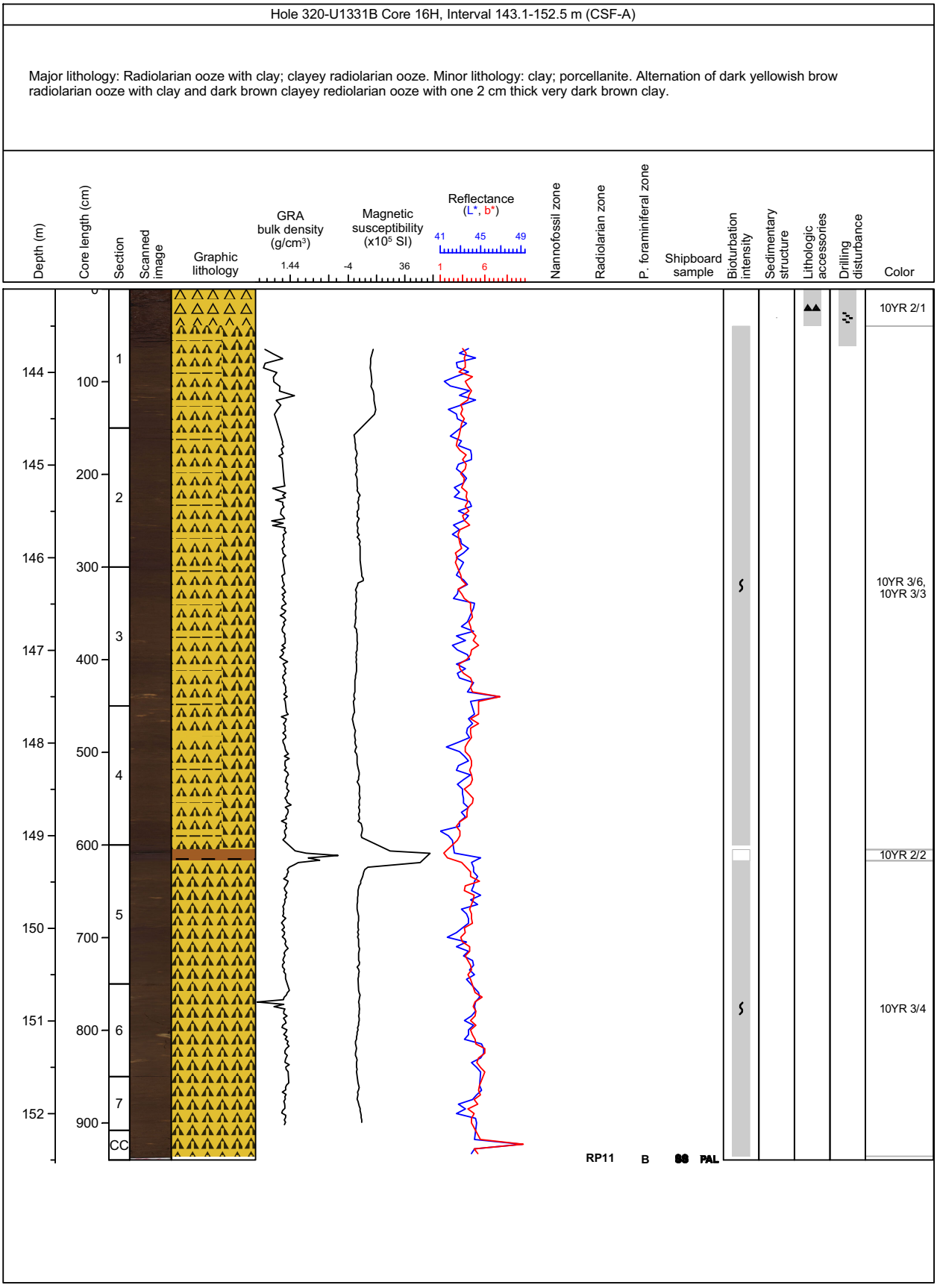
Core Photo

Hole 320-U1331B Core 15H, Interval 133.6-143.62 m (CSF-A)

Major lithology: Radiolarian ooze with clay. Minor lithology: Porcellantie. Dark brown homogeneous radiolarian ooze with clay porcellanite fragments are present at the top of core. Most of the core is disturbed by drilling.



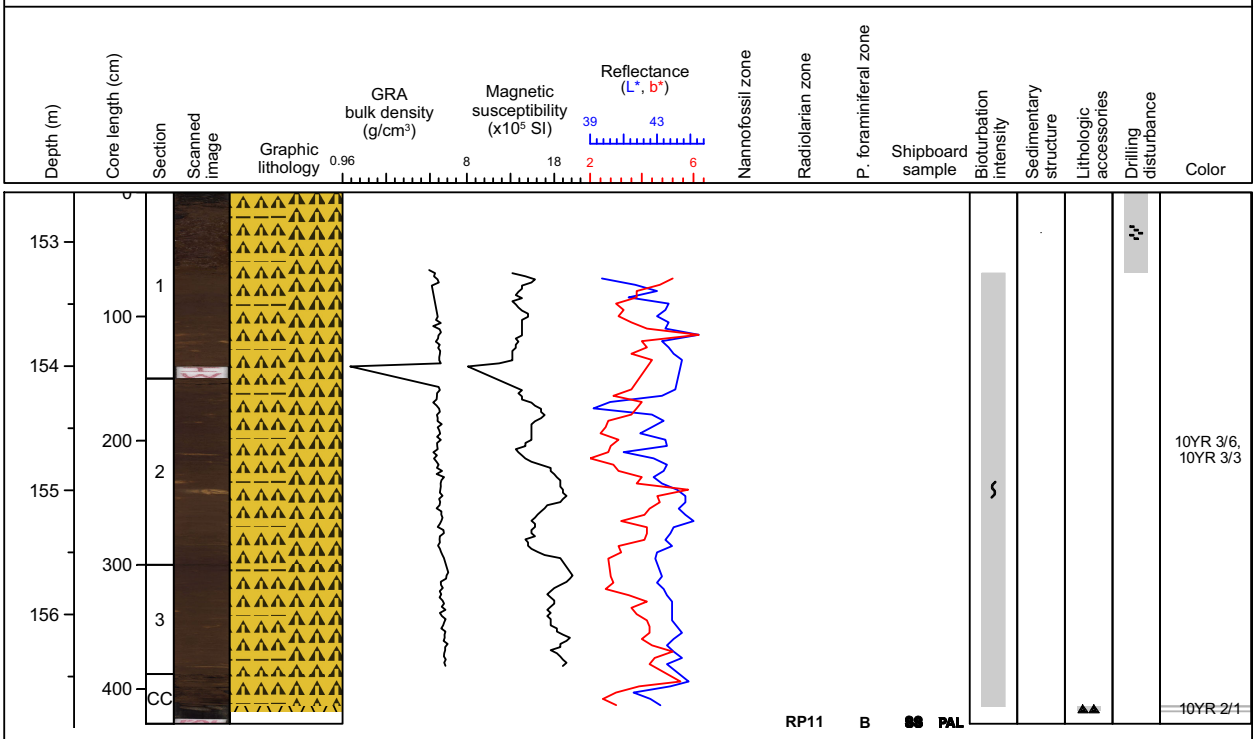
Core Photo


Hole 320-U1331B Core 16H, Interval 143.1-152.5 m (CSF-A)
Major lithology: Radiolarian ooze with clay; clayey radiolarian ooze. Minor lithology: clay; porcellanite. Alternation of dark yellowish brow radiolarian ooze with clay and dark brown clayey rediolarian ooze with one 2 cm thick very dark brown clay.
Depth (m)
Core length (cm)
Section
Scanned image
Graphic lithology
GRA bulk density (g/cm³)
Magnetic susceptibility (x10⁵ SI)
Reflectance (L*, b*)
Nannofossil zone
Radiolarian zone
P. foraminiferal zone
Shipboard sample
Bioturbation intensity
Sedimentary structure
Lithologic accessories
Drilling disturbance
Color
10YR 2/1
10YR 3/6, 10YR 3/3
10YR 2/2
10YR 3/4
RP11
B
PAL

Core Photo

Hole 320-U1331B Core 17H, Interval 152.6-156.88 m (CSF-A)

Major lithology: Radiolarian ooze with clay; clayey radiolarian ooze. Minor lithology: Porcellanite. Alternation of dark yellowish brown radiolarian ooze with clay and dark brown clayey radiolarian ooze. A 4 cm thick porcellanite layer is present at base of core.



U1331B-18X NO RECOVERY

U1331B-19D DRILLED INTERVAL

U1331B-20H NO RECOVERY

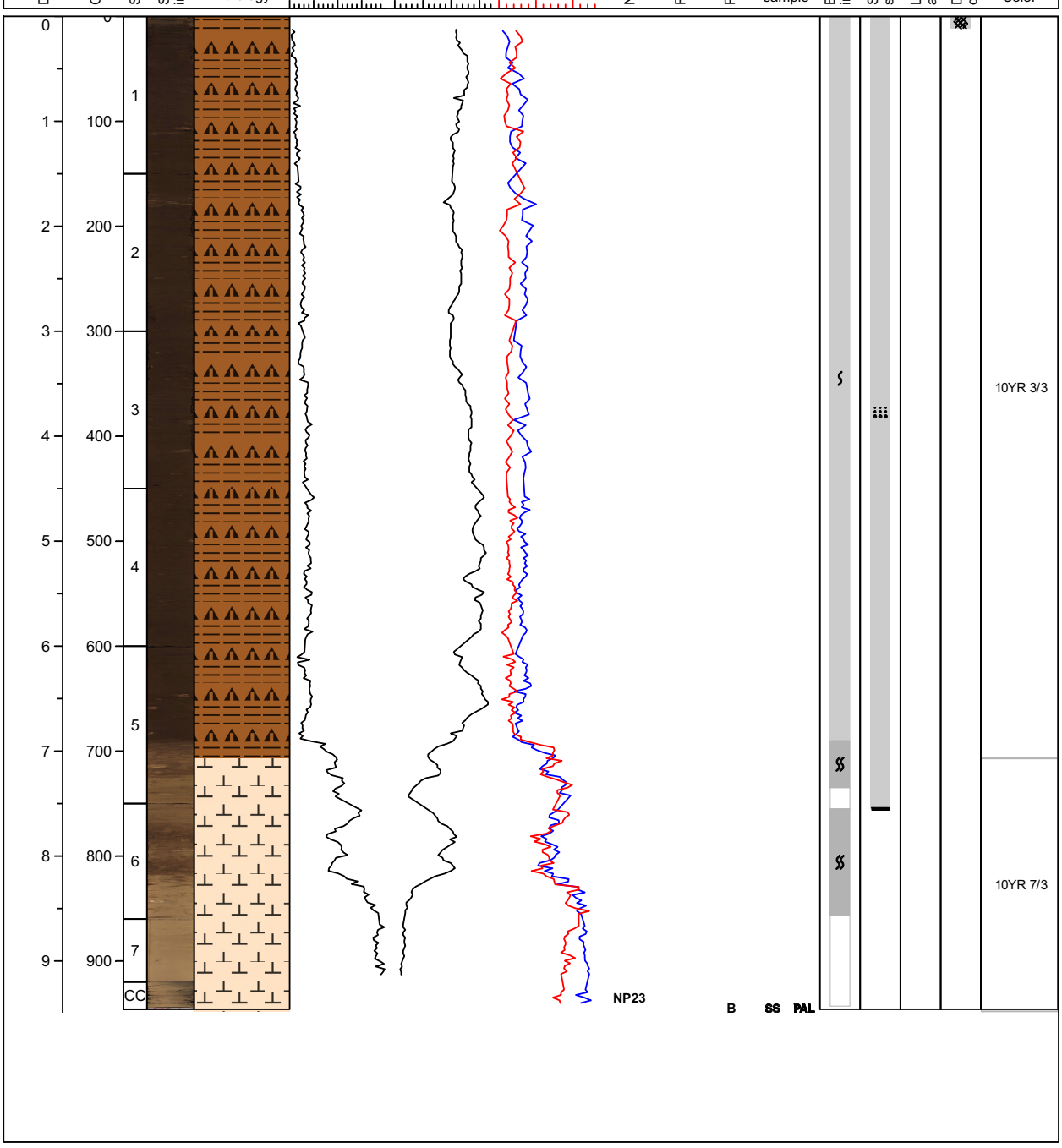
U1331B-21D DRILLED INTERVAL

U1331B-22X NO RECOVERY

Core Photo

Hole 320-U1331C Core 1H, Interval 0.0-9.46 m (CSF-A)

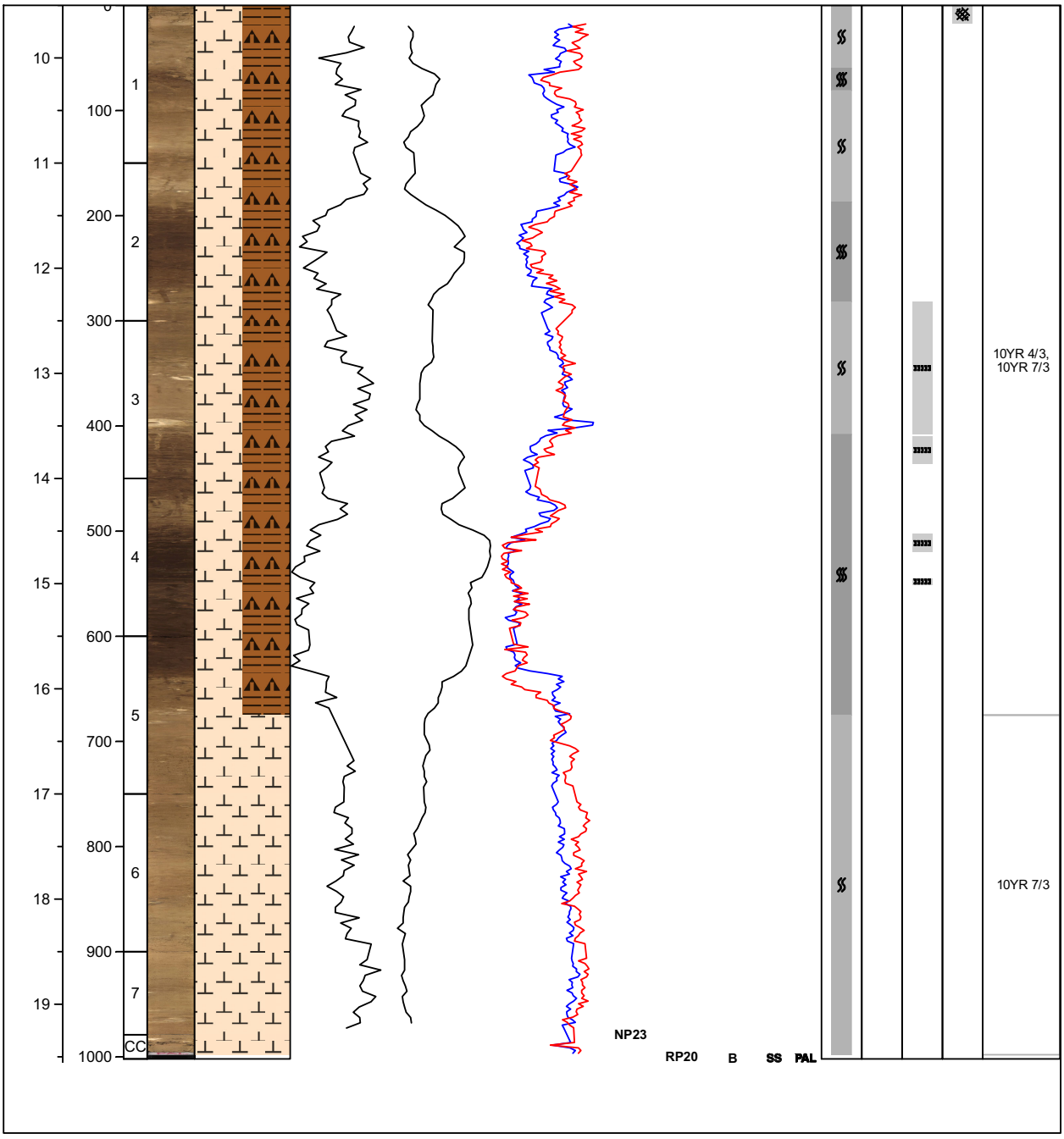
Major lithology: Radiolarian clay; nannofossil ooze with radiolarians. Very dark grayish brown radiolarian clay that changes gradationally downcore to a very pale brown nannofossil ooze with radiolarians. One erosional contact overlain by fining upward sequence is present.



Core Photo

Hole 320-U1331C Core 2H, Interval 9.5-19.52 m (CSF-A)

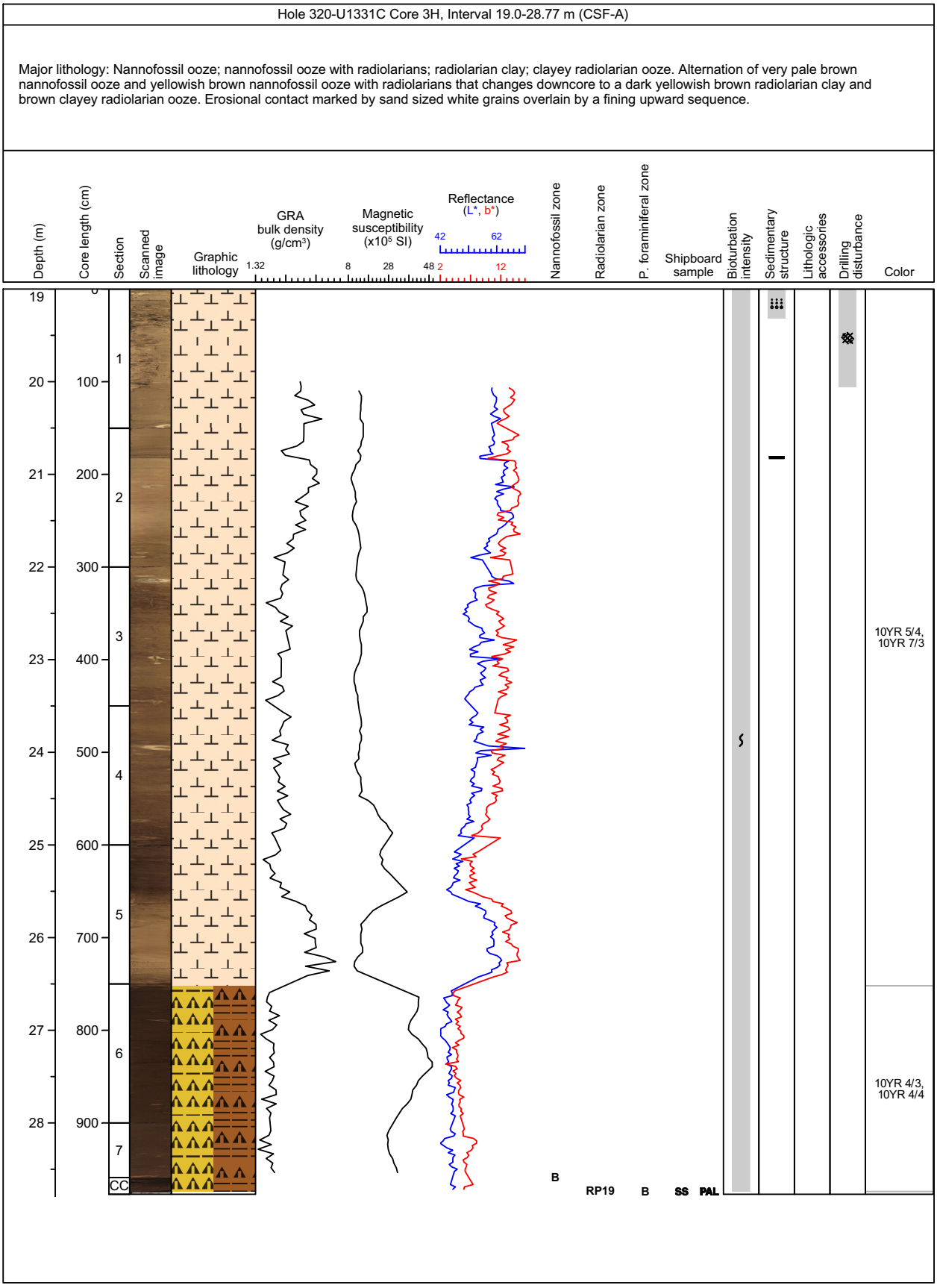
Major lithology: Nannofossil ooze with radiolarians; radiolarian clay. Alternation of very pale brown nannofossil ooze with radiolarians and brown radiolarian clay that changes gradationally downcore to a very pale brown nannofossil ooze.



Core Photo

Hole 320-U1331C Core 3H, Interval 19.0-28.77 m (CSF-A)

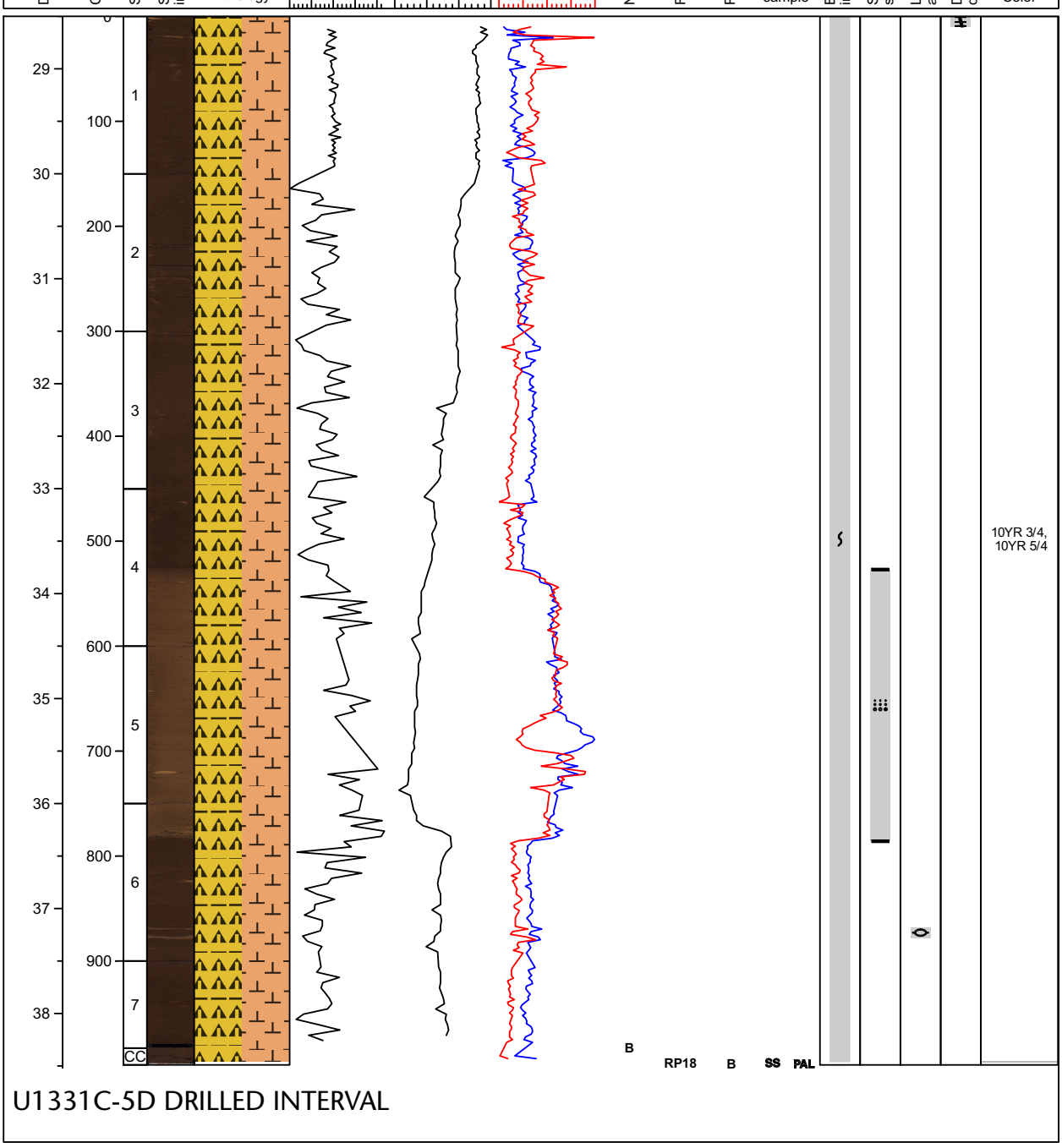
Major lithology: Nannofossil ooze; nannofossil ooze with radiolarians; radiolarian clay; clayey radiolarian ooze. Alternation of very pale brown nannofossil ooze and yellowish brown nannofossil ooze with radiolarians that changes downcore to a dark yellowish brown radiolarian clay and brown clayey radiolarian ooze. Erosional contact marked by sand sized white grains overlain by a fining upward sequence.



Core Photo

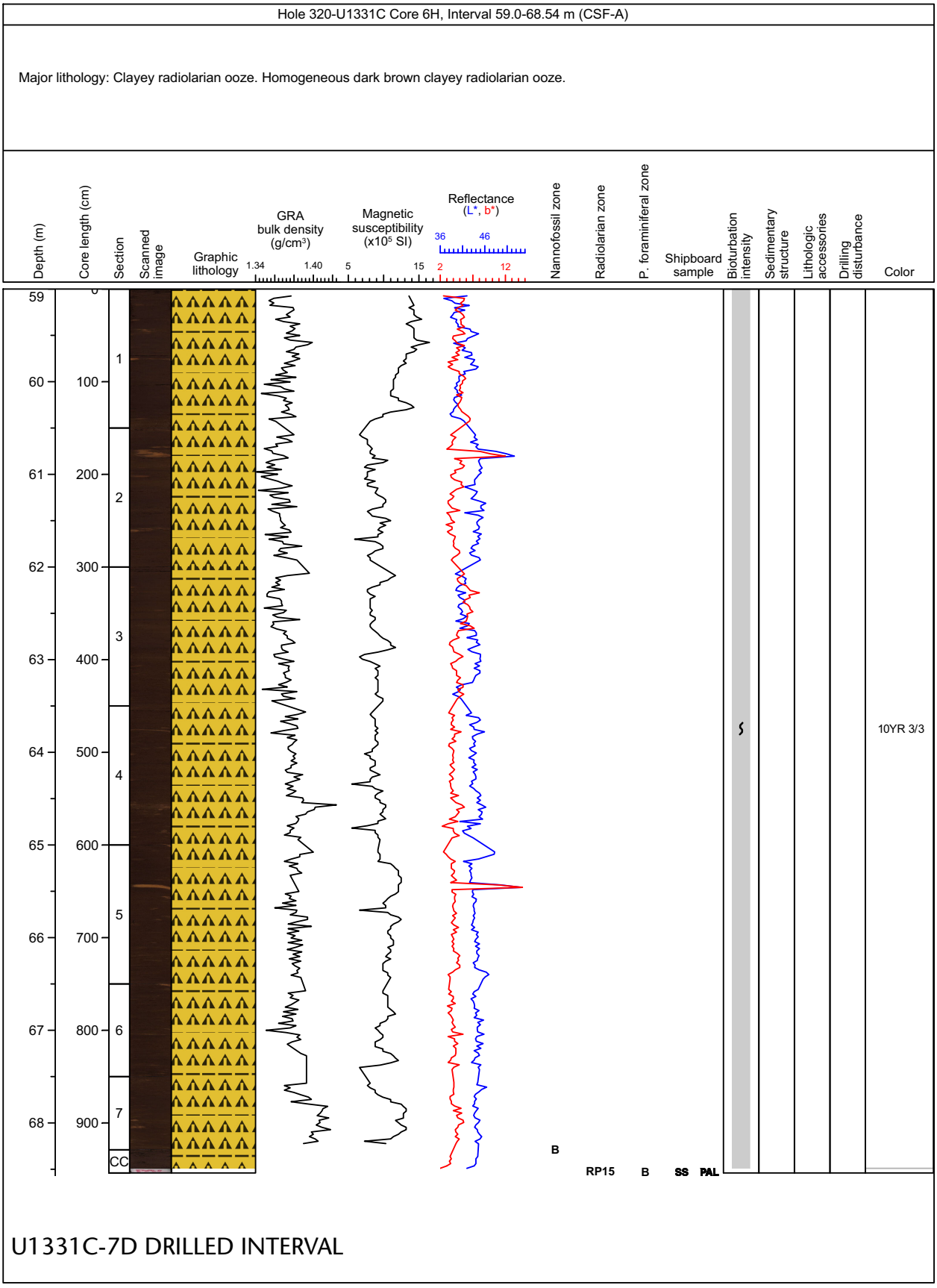
Hole 320-U1331C Core 4H, Interval 28.5-38.49 m (CSF-A)

Major lithology: clayey radiolarian ooze; radiolarian nannofossil ooze. Alternation of dark yellowish brown clayey radiolarian ooze and yellowish brown radiolarian nannofossil ooze. Two erosional contacts, one marked only by color change (Section 4), and the other by a coarse basal layer and a fining upward sequence (Section 6).



U1331C-5D DRILLED INTERVAL

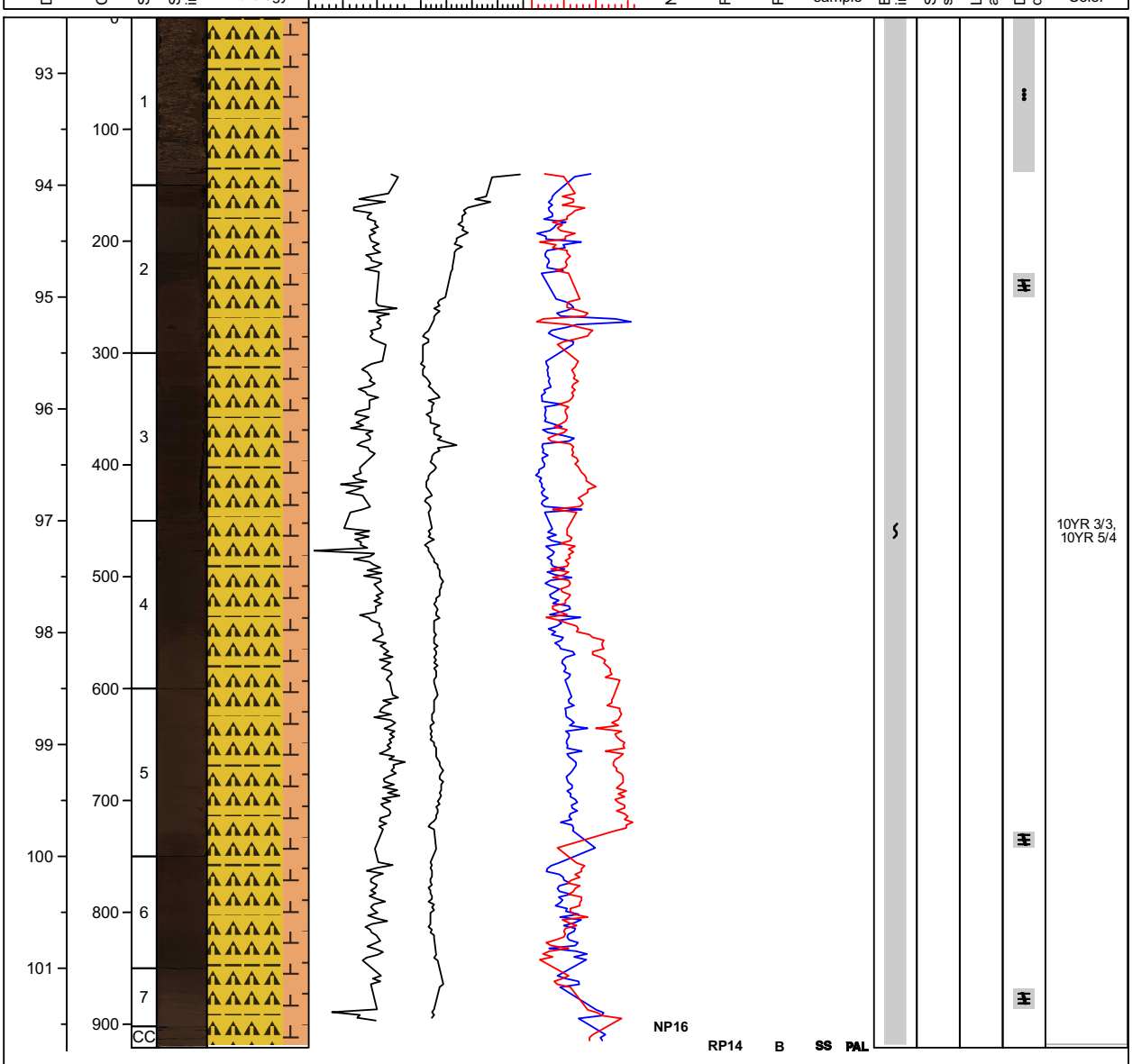
Core Photo


Hole 320-U1331C Core 6H, Interval 59.0-68.54 m (CSF-A)
Major lithology: Clayey radiolarian ooze. Homogeneous dark brown clayey radiolarian ooze.
Depth (m)
Core length (cm)
Section
Scanned image
Graphic lithology
GRA bulk density (g/cm³)
1.34
1.40
Magnetic susceptibility (x10⁵ SI)
5
15
Reflectance (L*, b*)
36
46
2
12
Nannofossil zone
Radiolarian zone
P. foraminiferal zone
Shipboard sample
Bioturbation intensity
Sedimentary structure
Lithologic accessories
Drilling disturbance
Color
59
60
61
62
63
64
65
66
67
68
100
200
300
400
500
600
700
800
900
1
2
3
4
5
6
7
CC
B
RP15
B
SS
PAL
10YR 3/3
U1331C-7D DRILLED INTERVAL

Core Photo

Hole 320-U1331C Core 8H, Interval 92.5-101.71 m (CSF-A)

Major lithology: Clayey radiolarian ooze; radiolarian nannofossil ooze. Alternation of dark yellowish brown clayey radiolarian ooze and yellowish brown radiolarian nannofossil ooze.

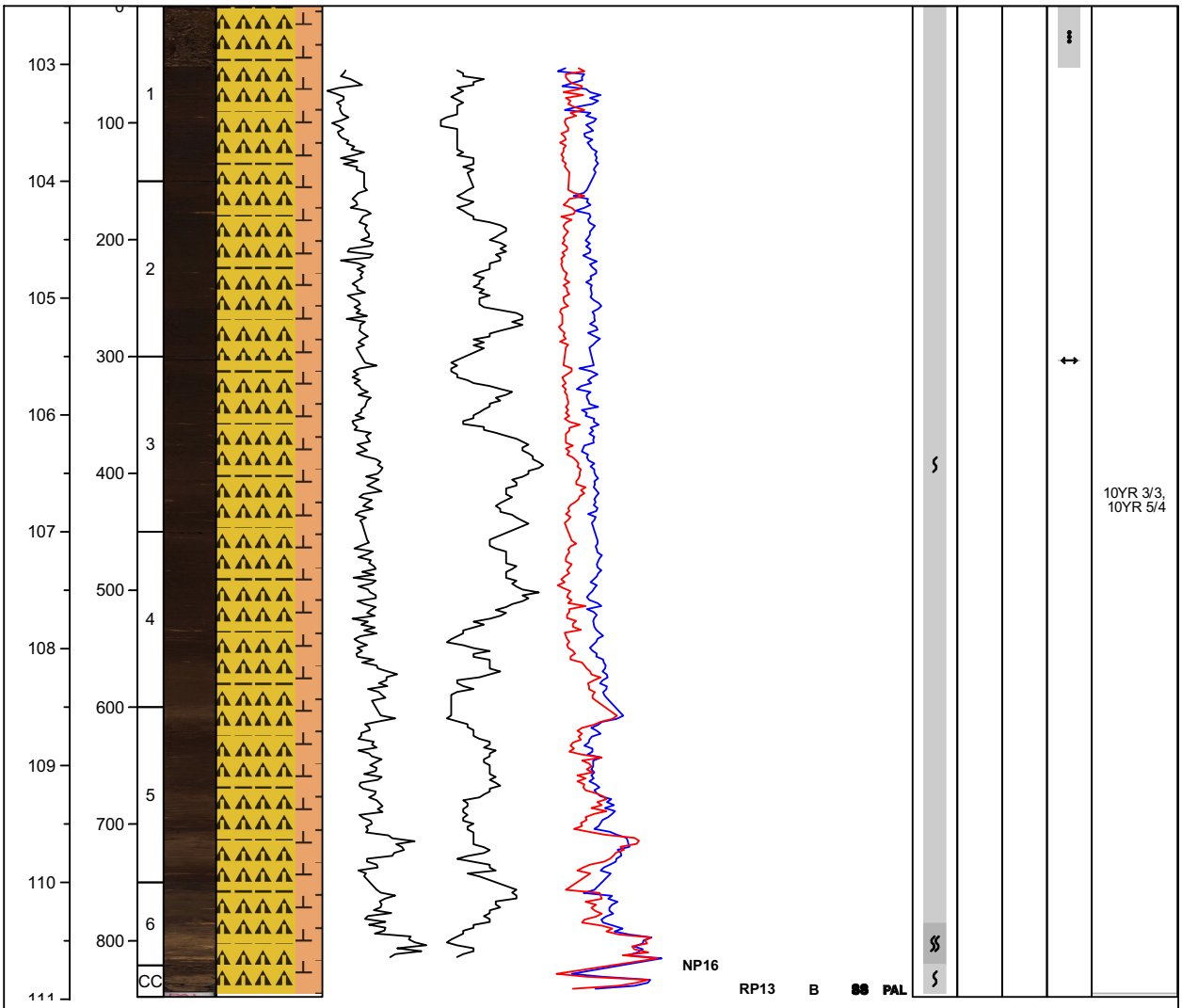


U1331C-9D DRILLED INTERVAL

Core Photo

Hole 320-U1331C Core 10H, Interval 102.5-110.98 m (CSF-A)

Major lithology: Clayey radiolarian ooze; radiolarian nannofossil ooze. Alternation of dark yellowish brown clayey radiolarian ooze and yellowish brown radiolarian nannofossil ooze.

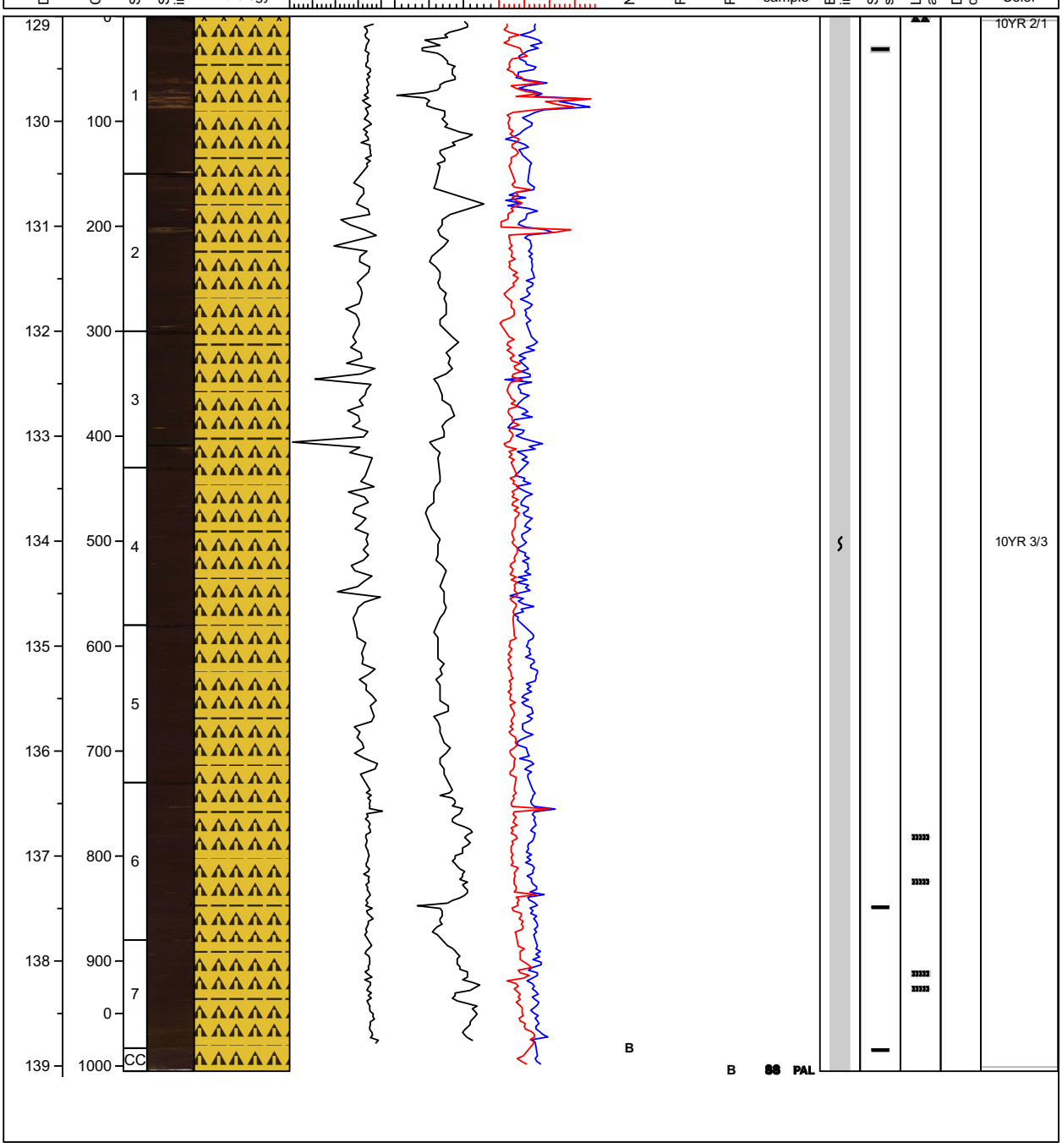


U1331C-11D DRILLED INTERVAL

Core Photo

Hole 320-U1331C Core 12H, Interval 129.0-139.05 m (CSF-A)

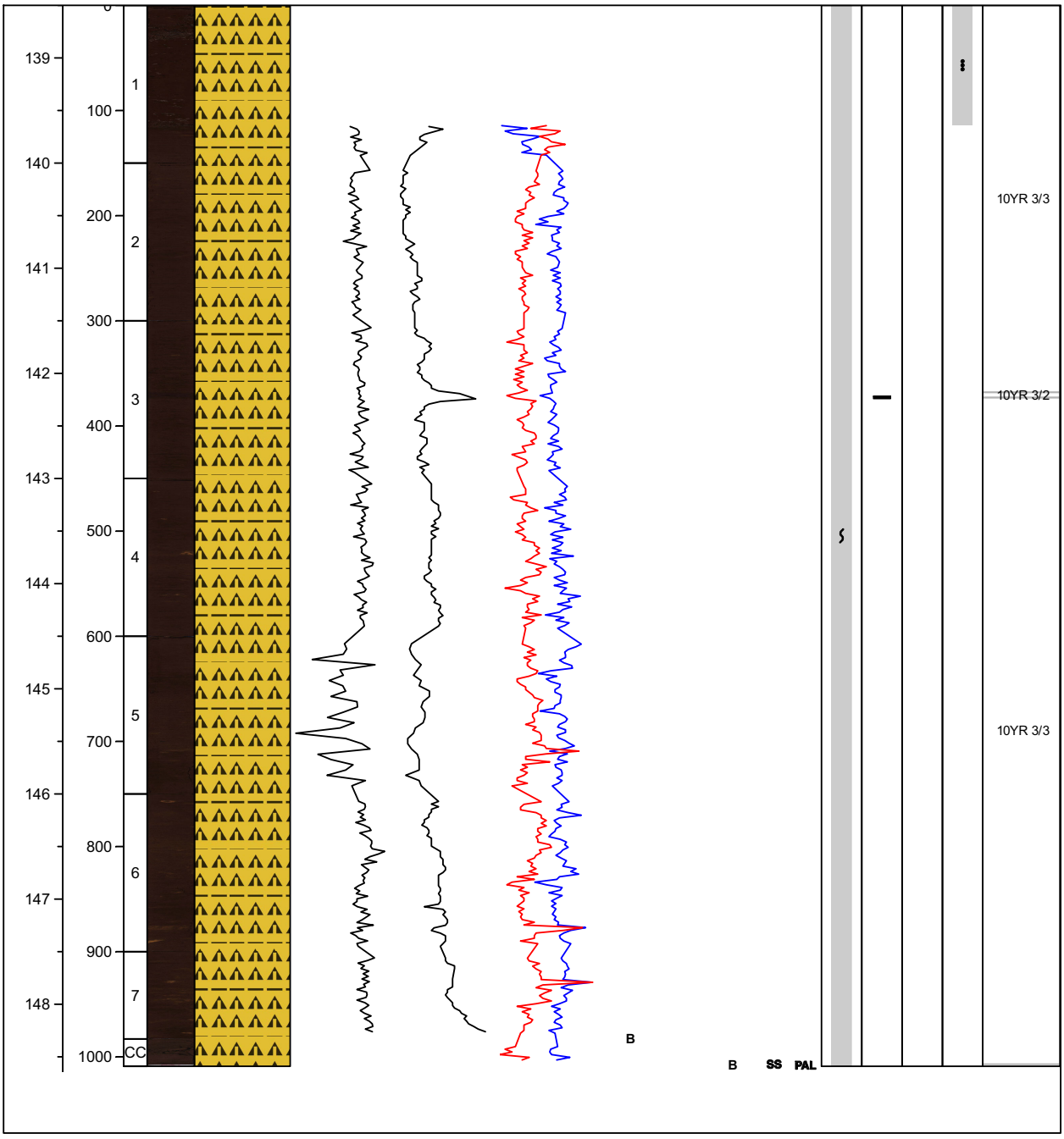
Major lithology: Clayey radiolarian ooze. Minor lithology: Porcellanite. Alternation of dark yellowish brown clayey radiolarian ooze and dark brown porcellanite. Three erosional contacts marked by color change.



Core Photo

Hole 320-U1331C Core 13H, Interval 138.5-148.59 m (CSF-A)

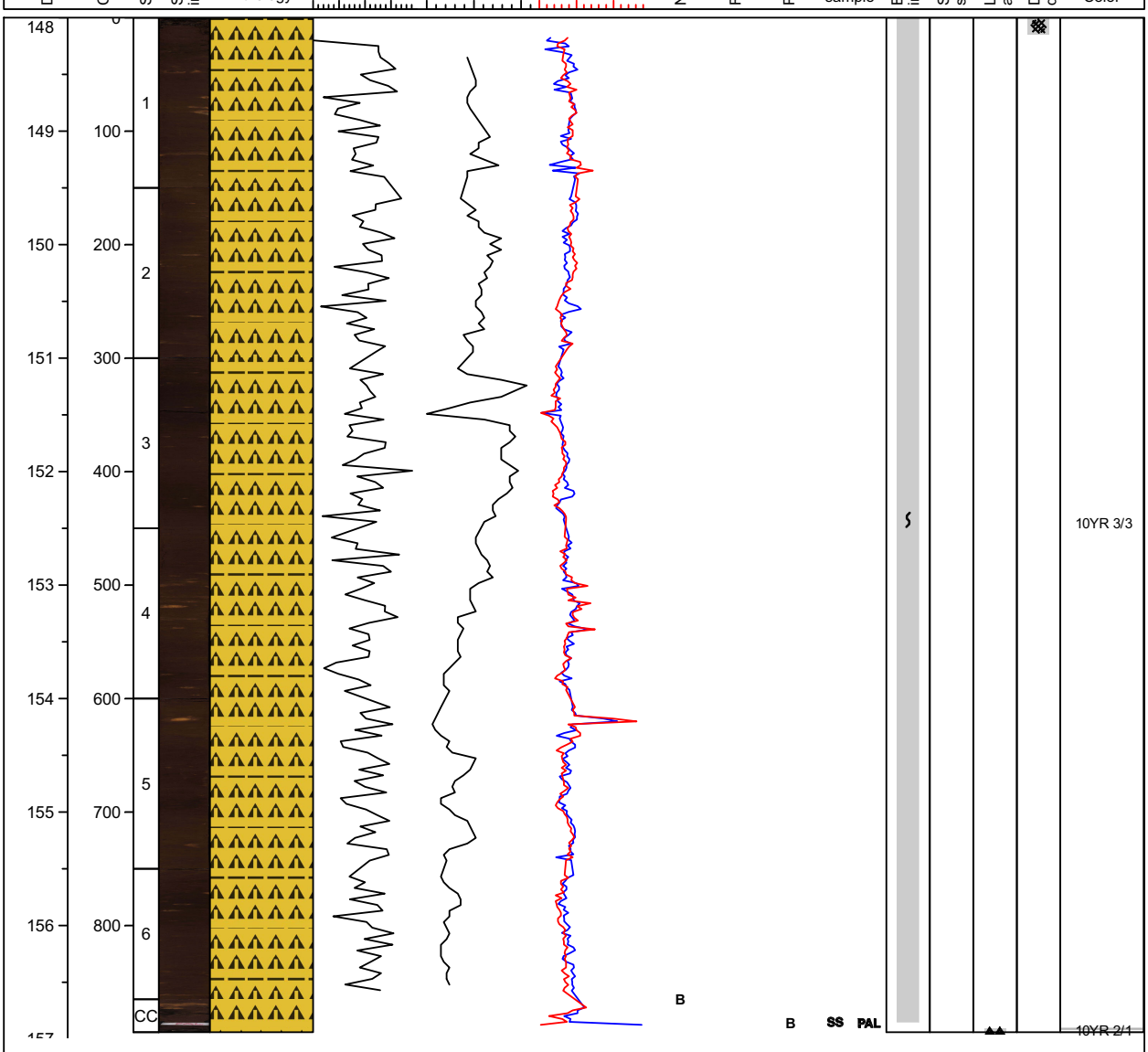
Major lithology: Clayey radiolarian ooze. Homogeneous dark brown clayey radiolarian ooze with a 5 cm-thick very dark grayish brown clay-rich interval above a sharp boundary.



Core Photo

Hole 320-U1331C Core 14H, Interval 148.0-156.94 m (CSF-A)

Major lithology: Clayey radiolarian ooze. Minor lithology: Porcellanite. Homogeneous dark brown clayey radiolarian ooze and a ø = 3 cm black porcellanite.

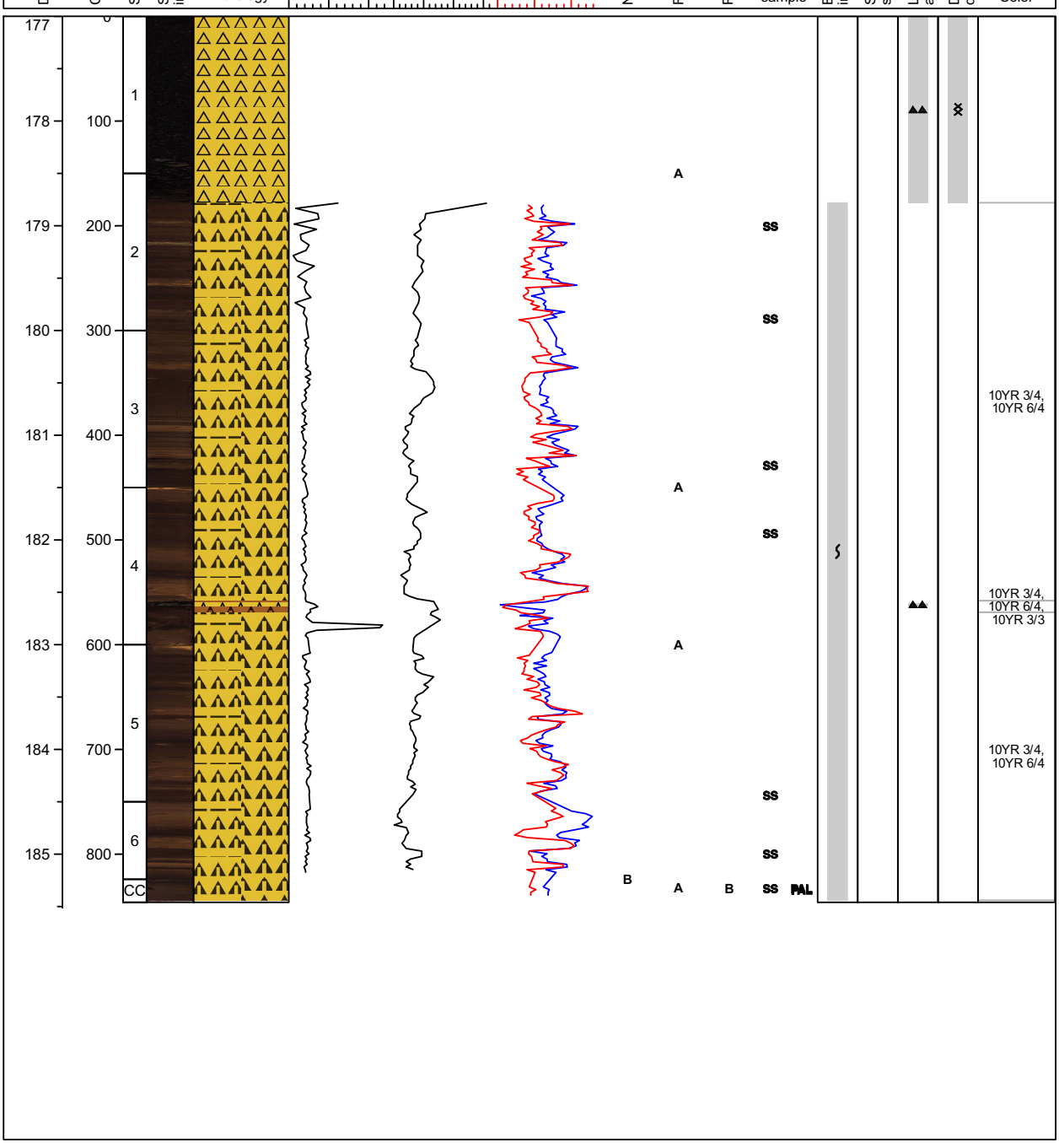


U1331C-15D DRILLED INTERVAL

Core Photo

Hole 320-U1331C Core 16H, Interval 177.0-185.46 m (CSF-A)

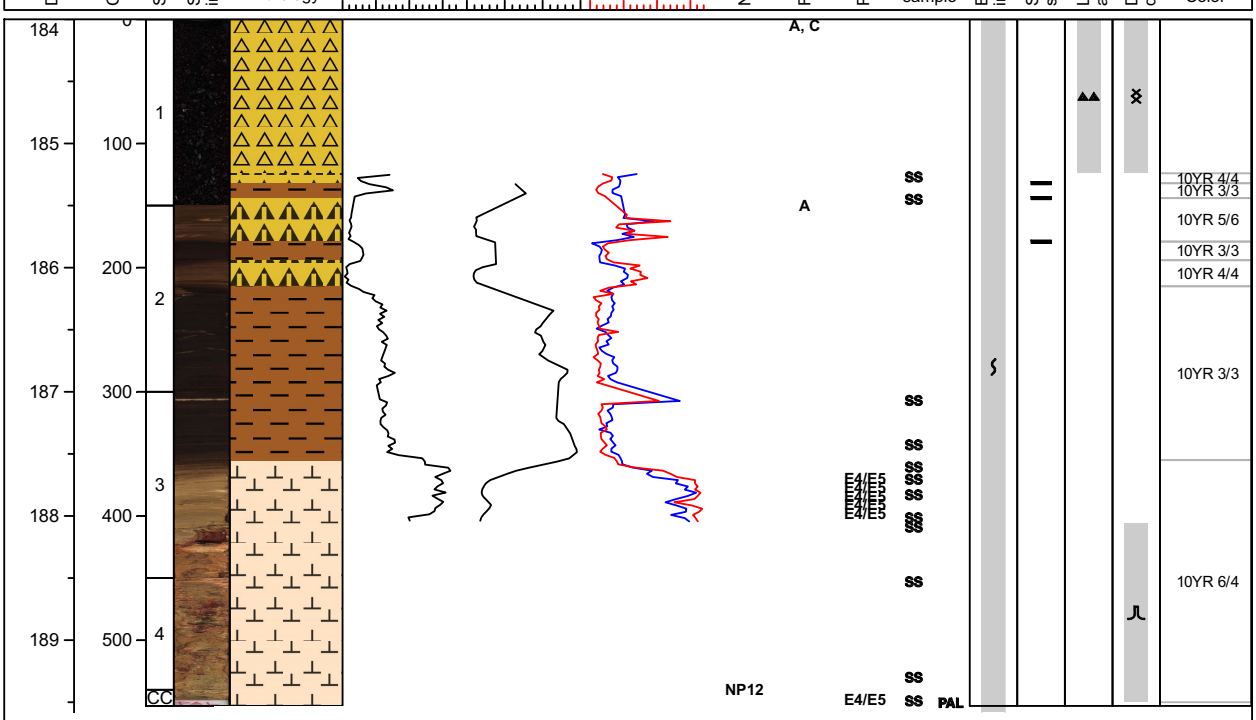
Major lithology: Radiolarian ooze; clayey radiolarian ooze. Minor lithology: Radiolarian clay; porcellanite. Alternation of light yellowish brown radiolarian ooze and dark yellowish brown clayey radiolarian ooze interrupted by a dark brown radiolarian clay layer capped by a porcellanite nodule.



Core Photo

Hole 320-U1331C Core 17H, Interval 184.0-189.53 m (CSF-A)

Major lithology: Radiolarian ooze; zeolite clay; calcareous (micrite) nannofossil ooze; porcellanite. Alternation of light yellowish brown radiolarian ooze and dark yellowish brown radiolarian ooze interrupted by three thick (10-100 cm) dark brown zeolite clay layers overlying a calcareous (micrite) nannofossil ooze. Top 26 cm is marked by brecciated black porcellanite. The calcareous lithology is altered by hydrothermal activity in the bottom 1.2 m.



Sample				Mineralogy (%)												Biogenic (%)											
Sample ID	Top Interval (cm)	Depth CSF-A (m)	Lithology*	Clay Mineral	Phillipsite	Clinoptilolite	Mica	Calcite	Dolomite	Quartz	Microcrystalline Quartz	Apatite	Fe Oxide	Mn Oxide	Feldspar	Volcanic Glass	Micronodules	Nannofossils	Foraminifers	Diatoms	Radiolarians	Silicoflagellates	Spicules	Fish Remains	Opaque	Comments
Hole A																										
320-U1331A-1H-1-A	30	0.30	D	60					T**				5				15			5	15		T			Clay with radiolarians and micronodules
320-U1331A-1H-1-A	78	0.78	M	25					T				15	25			35			T	T					Clay with manganese oxide and micronodules
320-U1331A-1H-1-A	120	1.20	D	74	5				T				5	1							15					Clay with radiolarians
320-U1331A-1H-3-A	50	3.50	M	43									T							5	52					Radiolarian Clay
320-U1331A-2H-1-A	120	6.40	D	2				5	T									60		1	30		2		1	Radiolarian nannofossil ooze
320-U1331A-2H-1-A	142	6.62	D	8														50	1		40				1	Radiolarian nannofossil ooze
320-U1331A-2H-2-A	46	7.16	D	20														40		5	34				1	Radiolarian nannofossil ooze with clay
320-U1331A-2H-2-A	120	7.90	D	2				5										87		2	3		1		T	Nannofossil ooze
320-U1331A-2H-3-A	80	9.00	M	5				5							T			20	3	3	60		3	T	1	Radiolarian ooze with nannofossils
320-U1331A-2H-5-A	100	12.20	D	10				1		T								49		3	37				T	Radiolarian nannofossil ooze with clay
320-U1331A-3H-1-A	15	14.85	D	6				3										50		5	32		2		2	Radiolarian nannofossil ooze
320-U1331A-3H-1-A	115	15.85	D	1														75		2	22				T	Nannofossil ooze with radiolarians ooze with radiolarians
320-U1331A-3H-4-A	72	19.92	D	13														48	2	2	32				3	Radiolarian nannofossil ooze with clay
320-U1331A-3H-6-A	90	23.10	D	3														67	T	10	20					Nannofossil ooze with diatoms and radiolarians
320-U1331A-4H-1-A	139	25.59	D	5														75			20		T			Nannofossil ooze with radiolarians
320-U1331A-4H-3-A	80	28.00	D	35				2					T					T			60		3			Clayey radiolarian ooze
320-U1331A-4H-7-A	50	33.70	D	5				2					T				T	60			30		3			Radiolarian nannofossil ooze
320-U1331A-5H-1-A	75	34.45	D	10																T	90					Radiolarian ooze with clay
320-U1331A-6H-1-A	75	43.95	D	35				5					T					T			60					Clayey radiolarian ooze
320-U1331A-6H-6-A	13	50.83	M					5										55			40					Radiolarian nannofossil ooze
320-U1331A-6H-6-A	50	51.20	D					5					T					55			40					Radiolarian nannofossil ooze
320-U1331A-6H-7-A	4	51.74	D	1				1					1	1				50	1		45					Radiolarian nannofossil ooze
320-U1331A-7H-1-A	75	53.45	D	3									1	T			T	40	T		55					Nannofossil radiolarian ooze
320-U1331A-7H-4-A	63	57.83	D	2				3										15		T	80					Radiolarian ooze with nannofossils
320-U1331A-8H-3-A	99	66.19	M	2									T							5	90	T	2		T	Radiolarian ooze
320-U1331A-8H-4-A	50	67.20	D	15									1							5	75	T	2		1	Radiolarian ooze with clay
320-U1331A-8H-6-A	75	70.45	D	7				1					1					55		4	30		1		1	Radiolarian nannofossil ooze
320-U1331A-9H-1-A	128	72.98	M	3									T							8	85	1	2		T	Radiolarian ooze
320-U1331A-9H-1-A	140	73.10	D	13									2							3	80		1		1	Radiolarian ooze with clay
320-U1331A-9H-4-A	66	76.86	D	6				1					1					75		1	15	T	T		1	Nannofossil ooze with radiolarians
320-U1331A-9H-6-A	100	80.20	D	6				1					1					70		1	20		T		1	Nannofossil ooze with radiolarians
320-U1331A-10H-5-A	50	87.70	D	15									1					30		T	50	3	T		1	Nannofossil radiolarian ooze with clay
320-U1331A-10H-7-A	49	90.19	M	18				3	T				3				5	40			25	1		5		Radiolarian nannofossil ooze with clay
320-U1331A-10H-CC-A	10	90.37	D	12									1					60		1	25	T	T		1	Nannofossil ooze with clay and radiolarians
320-U1331A-11H-2-A	120	92.58	D	30				3					1				1	5			60					Clayey radiolarian ooze
320-U1331A-11H-3-A	100	93.88	D	9				1					T				T	50			40					Radiolarian nannofossil ooze
320-U1331A-11H-4-A	20	94.58	D	8				2					2					60		T	23		3		2	Nannofossil ooze with radiolarians
320-U1331A-11H-4-A	41	94.79	M	2	3			1					1				1	60	T		30				1	Radiolarian nannofossil ooze
320-U1331A-11H-4-A	100	95.38	D	35									3							T	60	T	1		1	Clayey radiolarian ooze
320-U1331A-12H-1-A	67	100.87	D	10														10			80					Radiolarian ooze with clay and nannofossils

*Lithology: (D) Dominant; (M) Minor

**(T) Trace

Sample				Mineralogy (%)													Biogenic (%)										
Sample ID	Top Interval (cm)	Depth CSF-A (m)	Lithology*	Clay Mineral	Phillipsite	Clinoptilolite	Mica	Calcite	Dolomite	Quartz	Microcrystalline Quartz	Apatite	Fe Oxide	Mn Oxide	Feldspar	Volcanic Glass	Micronodules	Nannofossils	Foraminifers	Diatoms	Radiolarians	Silicoflagellates	Spicules	Fish Remains	Opaque	Comments
Hole A (continued)																										
320-U1331A-11H-4-A	44	94.82	M	60																	40					Radiolarian Clay
320-U1331A-12H-3-A	94	104.14	D	15				3					T				T	2			80					Radiolarian ooze with clay
320-U1331A-12H-7-A	41	109.61	D	3				1										40			55				1	Nannofossil radiolarian ooze
320-U1331A-13H-1-A	55	110.25	D	10														10			80					Radiolarian ooze with clay and nannofossils
320-U1331A-13H-1-A	85	110.55	D	5														20			75					Radiolarian ooze with nannofossils
320-U1331A-13H-5-A	85	116.55	D	4														20			75				1	Radiolarian ooze with nannofossils
320-U1331A-14H-3-A	41	122.58	D	15				5					T				T	15			65				1	Radiolarian ooze with clay and nannofossils
320-U1331A-14H-7-A	40	127.67	D	15														T			85					Radiolarian ooze with clay
320-U1331A-15H-5-A	80	135.50	D	14				5					1								80					Radiolarian ooze with clay
320-U1331A-17X-3-A	135	151.95	D	20						T			4							1	70	T	T		4	Radiolarian ooze with clay
320-U1331A-18X-1-A	22	157.52	M	50			T			T			5								40	T			5	Radiolarian Clay
320-U1331A-19X-1-A	64	161.14	D	30			T			T			5								60				5	Clayey radiolarian ooze
320-U1331A-19X-2-A	27	161.77	D	12									3								80				5	Radiolarian ooze with clay
320-U1331A-22X-1-A	19	186.59	D	90	5																				5	Clay
320-U1331A-22X-1-A	29	186.69	D					90										10								Calcareous ooze with nannofossils
Hole B																										
320-U1331B-1H-3-A	99	3.99	D	70																	30				T	Nannofossil Clay
320-U1331B-1H-7-A	5	9.06	D															85	T	T	15					Nannofossil ooze with radiolarians
320-U1331B-2H-5-A	65	16.75	D	70										T						T	30				T	Radiolarian Clay
320-U1331B-2H-7-A	40	19.50	D															75		4	20					Nannofossil ooze with radiolarians
320-U1331B-2H-7-A	57	19.67	M															90		3	7					Nannofossil ooze
320-U1331B-3H-4-A	149	25.59	D															95		1	2	T				Nannofossil ooze
320-U1331B-3H-5-A	82	26.42	D	45																T	55				1	Clayey radiolarian ooze
320-U1331B-3H-7-A	3	28.63	D	17				T												2	80				1	Radiolarian ooze with clay
320-U1331B-4H-3-A	99	33.10	D	0				1									T	50		T	46				2	Radiolarian nannofossil ooze
320-U1331B-4H-5-A	6	35.18	M	75	7			T										3			15				T	Clay with radiolarians
320-U1331B-4H-5-A	68	35.80	D	10				T	T									T			90					Radiolarian ooze with clay
320-U1331B-4H-6-A	92	37.54	M	15				T										T			82				3	Radiolarian ooze with clay
320-U1331B-5H-2-A	73	40.83	M	8						T										2	80	T	T		8	Radiolarian ooze
320-U1331B-5H-5-A	55	45.15	D	20						T										2	70	T	1		5	Radiolarian ooze with clay
320-U1331B-6H-3-A	90	52.00	M	20				5	T	1					T			18	1	T	50		T		5	Radiolarian ooze with clay and nannofossils
320-U1331B-6H-4-A	31	52.91	M	17				7	T	1					T			15			55		T		5	Radiolarian ooze with clay and nannofossils
320-U1331B-7H-4-A	120	63.30	D	20						T					T					2	75	T			3	Radiolarian ooze with clay
320-U1331B-8H-2-A	130	69.90	D	10														50			40					Radiolarian nannofossil ooze
320-U1331B-9H-5-A	52	83.15	M	8						1					1			45	2		35		1	T	7	Radiolarian nannofossil ooze
320-U1331B-9H-7-A	79	86.43	D	18						T					T			20		T	60				2	Radiolarian ooze with clay and nannofossils
320-U1331B-10H-1-A	70	86.80	D															55		T	45				T	Radiolarian nannofossil ooze
320-U1331B-10H-2-A	1	87.61	M	4														50	1		45				T	Radiolarian nannofossil ooze
320-U1331B-10H-2-A	9	87.69	M							T					T			40	23		25			T	T	Radiolarian nannofossil ooze with foraminifers
320-U1331B-10H-2-A	76	88.36	D	10									T	T				40			50				T	Nannofossil radiolarian ooze with clay

*Lithology: (D) Dominant; (M) Minor

**(T) Trace

Sample				Mineralogy (%)													Biogenic (%)											
Sample ID	Top Interval (cm)	Depth CSF-A (m)	Lithology*	Clay Mineral	Phillipsite	Clinoptilolite	Mica	Calcite	Dolomite	Quartz	Microcrystalline Quartz	Apatite	Fe Oxide	Mn Oxide	Feldspar	Volcanic Glass	Micronodules	Nannofossils	Foraminifers	Diatoms	Radiolarians	Silicoflagellates	Spicules	Fish Remains	Opaque	Comments
Hole B (continued)																										
320-U1331B-10H-5-A	129	93.39	M	55	40				T								5								1	Zeolite Clay
320-U1331B-10H-5-A	145	93.55	D	30					2								3				65				T	Clayey radiolarian ooze
320-U1331B-11H-1-A	36	95.96	D	30									T	T							70				1	Clayey radiolarian ooze
320-U1331B-11H-2-A	60	97.70	D	10				T										40			50					Nannofossil radiolarian ooze with clay
320-U1331B-12H-1-A	90	106.00	D	44				T						T							55				1	Clayey radiolarian ooze
320-U1331B-12H-2-A	90	107.50	D	40				2										T			57				1	Clayey radiolarian ooze
320-U1331B-12H-5-A	112	112.22	D											T				65			35				1	Radiolarian nannofossil ooze
320-U1331B-13H-2-A	80	116.90	D	10										1				40			50				T	Nannofossil radiolarian ooze with clay
320-U1331B-13H-4-A	34	119.44	D	3				T										37			60				T	Nannofossil radiolarian ooze
320-U1331B-13H-4-A	46	119.56	D	30				T													69				1	Clayey radiolarian ooze
320-U1331B-13H-5-A	82	121.42	D	45																	54				1	Clayey radiolarian ooze
320-U1331B-13H-6-A	55	122.65	D	25													T	T			75					Clayey radiolarian ooze
320-U1331B-13H-7-A	40	124.00	M	70	10			2										15			2				1	Clay with Zeolite and nannofossils
320-U1331B-13H-CC-A	7	124.23	D	30										T				15			55				T	Clayey radiolarian ooze with nannofossils
320-U1331C-14H-3-A	90	151.90	D	40						1					T						55				3	Clayey radiolarian ooze
320-U1331B-14H-4-A	52	129.12	D	25	T																72		T		3	Clayey radiolarian ooze
320-U1331B-16H-5-A	9	149.19	M	90			1			1					T									T	7	Clay
320-U1331B-16H-5-A	12	149.22	M	90			1			1					T									T	7	Clay
320-U1331B-16H-5-A	16	149.26	M	75			T			2					2						10			1	6	Clay
320-U1331B-17H-2-A	103	155.13	D	22						T					T					1	70		T		7	Radiolarian ooze with clay
Hole C																										
320-U1331C-1H-3-A	96	3.97	D	60	T			2	T					1					T		35				1	Nannofossil ooze with radiolarian
320-U1331C-1H-7-A	5	8.69	D									T						90		2	5					Nannofossil ooze
320-U1331C-1H-CC-A	15	9.39	D	90															T		10					Clay with radiolarians
320-U1331C-2H-4-A	73	14.50	D	70				1										T			30					Radiolarian Clay
320-U1331C-2H-7-A	55	18.58	D															95			5					Nannofossil ooze
320-U1331C-3H-1-A	27	19.27	D											T			T	90		1	10				T	Nannofossil ooze with radiolarians
320-U1331C-3H-1-A	93	19.93	D															93		1	6	T			T	Nannofossil ooze
320-U1331C-3H-5-A	30	25.13	D															50		8	35					Radiolarian nannofossil ooze
320-U1331C-3H-5-A	106	25.89	M											T			T	93		1	7				T	Nannofossil ooze with radiolarians
320-U1331C-3H-6-A	70	26.99	D	53				1						T			T	3			45				1	Clayey radiolarian ooze
320-U1331C-3H-7-A	43	28.18	D	40													T	3			55				1	Radiolarian nannofossil ooze
320-U1331C-4H-5-A	70	34.91	D															65			34				1	Radiolarian nannofossil ooze
320-U1331C-6H-5-A	56	65.53	D	45															T		50					Clayey radiolarian ooze
320-U1331C-8H-5-A	105	99.55	D	8				5										45			40				2	Radiolarian nannofossil ooze
320-U1331C-10H-6-A	51	110.51	D	3				6										50			40				1	Radiolarian nannofossil ooze
320-U1331C-12H-7-A	100	138.80	D	30						1										2	65				2	Clayey radiolarian ooze
320-U1331C-13H-3-A	71	142.21	D	45						1											50				4	Clayey radiolarian ooze
320-U1331C-14H-3-A	90	151.90	D	40						1					T						55				3	Clayey radiolarian ooze
320-U1331C-16H-2-A	67	179.17	M	T													1				99				T	Radiolarian ooze

*Lithology: (D) Dominant; (M) Minor

**(T) Trace

Sample				Mineralogy (%)													Biogenic (%)										
Sample ID	Top Interval (cm)	Depth CSF-A (m)	Lithology*	Clay Mineral	Phillipsite	Clinoptilolite	Mica	Calcite	Dolomite	Quartz	Microcrystalline Quartz	Apatite	Fe Oxide	Mn Oxide	Feldspar	Volcanic Glass	Micronodules	Nannofossils	Foraminifers	Diatoms	Radiolarians	Silicoflagellates	Spicules	Fish Remains	Opaque	Comments
Hole C (continued)																										
320-U1331C-16H-3-A	50	180.50	D	20																	80					Clayey radiolarian ooze
320-U1331C-16H-4-A	98	182.48	D	2																	98				T	Radiolarian ooze
320-U1331C-16H-4-A	116	182.66	M	55													T				45				T	Radiolarian Clay
320-U1331C-17H-1-A	137	185.37	M	70	30												T									Zeolite Clay
320-U1331C-17H-2-A	57	186.07	D	2																	98				T	Radiolarian ooze
320-U1331C-17H-3-A	7	187.07	M	70	30			T							T											Zeolite Clay
320-U1331C-17H-3-A	22	187.22	D	70	27												3									Zeolite Clay
320-U1331C-17H-3-A	77	187.77	D	10				7	18									65								Clayey Nannofossil ooze with calcite dolomite
320-U1331C-17H-3-A	80	187.80	M	40	25			5	22									8								Zeolite Clay with dolomite
320-U1331C-17H-3-A	116	188.16	M	98				1						T	T										T	Zeolite Clay
320-U1331C-17H-3-W	117	188.17	M	85				2	9									3							1	Clay
320-U1331C-17H-4-A	80	189.30	D	40	30			5	13									12								Zeolite Clay with dolomite
320-U1331C-17H-4-A	86	189.36	M	87	12			1																		Zeolite Clay

*Lithology: (D) Dominant; (M) Minor

**(T) Trace

THIN SECTION:	**320-U1331A-22X-CC 26-29 PC1**
Depth CSF-A (m)	**187.03-187.06**
ROCK NAME:	**Sparsely plagioclase phyric basalt**
GRAIN SIZE:	**Very fine grained**
TEXTURE:	**Intergranular, spherulithic (altered groundmass), hypocrystalline,**

PRIMARY MINERALOGY	Percent Present	Percent Original	Size (mm) min.	Size (mm) max.	Size (mm) ave.	Aproximate composition	Morphology	Comments
Phenocrysts								
Plagioclase	2	3	0.3	0.5	0.3		Lath	
Groundmass/matrix								
Plagioclase	15	25		0.3	0.2		Lath	
Olivine	0	T		0.2	0.1			
Clinopyroxene	2	10		0.2	0.1		Subhedral	Preserved in the rim (chilled margin?)
Opaque minerals	T	T		0.01				
Glass	10	60						Preserved in the rim (chilled margin?)

SECONDARY MINERALOGY	Percent	Size (mm) min.	Size (mm) max.	Size (mm) ave.	Replacing/filling	Comments
Clay minerals	70				Ferromagnesian minerals, plagioclase and glass	Chlorite replaces cpx
Calcite	T				Ferromangesian minerals and rim of veins	

VESICULES/CAVITIES
Vesicules

COMMENTS:	A highly altered basalt at the top of basement of 320-1331A. Glass and ferromagnesian minerals are partly preserved in the rim (chilled margin?). Several veins running across the chilled margin.

THIN SECTION:	**320-U1331A-22X-CC 37-44 PC4**
Depth CSF-A (m)	**187.14-187.21**
ROCK NAME:	**Plagioclase microphyric basalt**
GRAIN SIZE:	**Fine grained**
TEXTURE:	**intergranular (rarely subophitic); isotropic, equigranular, holocrystalline (glass <5%)**

PRIMARY MINERALOGY	Percent Present	Percent Original	Size (mm) min.	Size (mm) max.	Size (mm) ave.	Aproximate composition	Morphology	Comments
Phenocrysts								
Plagioclase	5	10	0.3	0.7	0.4		Lath	
Clinopyroxene	T	5	0.3	0.7	0.4		Subhedral	
Olivine	0	1	0.3	0.6	0.4		Subhedral	
Groundmass/matrix								
Plagioclase	35	40		0.3			Lath	
Olivine	0	15		0.3			Subhedral	
Clinopyroxene	T	15		0.3			Subhedral	
Opaque minerals	3	3		0.2				
Glass	0	3						

SECONDARY MINERALOGY	Percent	Size (mm) min.	Size (mm) max.	Size (mm) ave.	Replacing/filling	Comments
Clay minerals	55				Ferromagnesian minerals and plagioclase	Chlorite replaces cpx

VESICULES/CAVITIES
Vesicules

COMMENTS:	A highly altered basalt at the top of basement of 320-1331A.

Thin section summary

Sample Interval	(cm)	Depth CSF-A (m)	Structures/ Textures	Textures				Non-biogenic materials											Biogenic materials							Lithology Name	Comments
				Gravel	Sand	Silt	Clay	Clay Mineral	Phillipsite	Clinoptilolite	Mica	Calcite	Dolomite	Quartz	Microcrystalline Quartz	Apatite	Feldspar	Volcanic Glass	Micronodules	Nannofossils	Foraminifers	Diatoms	Radiolarians	Silicoflagellates	Spicules	Fish Remains	Opaque		
320-U1331A-14H-3	53-55	122.70-122.72						40				15			20								10				15	Porcellanite	Radiolarian remains are replaced/filled with microcrystalline quartz. Opaque materials are sparsely observed but partly aggregated, filling remains of radiolarians.
320-U1331A-18X-1	7-10	157.37-157.40						40							25								10				25	Porcellanite	Highly silicified (cemented by microcrystalline quartz) around cracks. Radiolarian remains are replaced/filled with microcrystalline quartz
320-U1331A-19X-1	52-61	161.02-161.11						30	T						35								10				25	Porcellanite	Radiolarian remains are replaced/filled with microcrystalline quartz
320-U1331B-10H-6	120-128	94.80-94.88	Matrix-supported	15	10			25	1			20		T	12		T			4	5						8	Conglomerate	Gravel and sand are mostly subrounded claystone (opaque materials inside). Foraminifers are partly replaced/filled with microcrystalline quartz and opaque materials.

Top	(cm)	Bottom	(cm)	Top Depth CSF-A (m)	Bottom Depth CSF-A (m)	Lithology	Abundance (%)	Color	Comment	Thin section
Hole A										
320-U1331A-14H-3-A	52	320-U1331A-14H-3-A	57	122.69	122.74	Porcellanite	100	10YR 2/1	Large nodule*	53-55 cm
320-U1331A-15H-1-A	2	320-U1331A-15H-1-A	4	128.72	128.74	Porcellanite	100	10YR 2/1	$	
320-U1331A-17X-1-A	1	320-U1331A-17X-1-A	23	147.61	147.83	Porcellanite	100	10YR 2/1	Porcellanite fragments$	
320-U1331A-17X-CC-A	22	320-U1331A-17X-CC-A	31	156.91	157.00	Porcellanite	100	10YR 2/1	Brecciated porcellanite#	
320-U1331A-18X-1-A	0	320-U1331A-18X-1-A	32	157.30	157.62	Porcellanite	50	10YR 2/1	2-4 cm-thick Porcellanite layers*	7-10 cm
320-U1331A-19X-1-A	0	320-U1331A-19X-CC-A	28	160.50	162.36	Porcellanite	25	10YR 2/1	2-4 cm-thick porcellanite layers are associated with the clayey radiolarian ooze intervals*	52-61 cm
320-U1331A-20X-1-A	0	320-U1331A-20X-1-A	3			chert	100	10YR 2/1	$	
320-U1331A-22X-1-A	0	320-U1331A-22X-1-A	6	186.40	186.46	Porcellanite	100		Fragments$	
Hole B										
320-U1331B-12H-1-A	0	320-U1331B-12H-1-A	2	105.10	105.12	Porcellanite	100		$	
320-U1331B-12H-1-A	18	320-U1331B-12H-1-A	19	105.28	105.29	Porcellanite	100		^	
320-U1331B-13H-1-A	117	320-U1331B-13H-1-A	117	115.77	115.77	Porcellanite	100		Porcellanite pebble 0.5 cm in diameter^	
320-U1331B-15H-1-A	0	320-U1331B-15H-1-A	3	133.60	133.63	Porcellanite	100	10YR 2/1	Porcellanite pebble 6 cm in diameter$	
320-U1331B-16H-1-A	0	320-U1331B-16H-1-A	40	143.10	143.50	Porcellanite	100	10YR 2/1	Porcellanite pebble 0.5 - 3 cm in diameter$	
320-U1331B-17H-CC-A	26	320-U1331B-17H-CC-A	30	156.74	156.78	Porcellanite	100	10YR 2/1	Two porcellanite pebbles (4-5 cm in diameter)$	
Hole C										
320-U1331C-12H-1-A	0	320-U1331C-12H-1-A	4	129.00	129.04	Porcellanite	100	10YR 2/1	Fragment$	
320-U1331C-14H-CC-A	26	320-U1331C-14H-CC-A	29	156.91	156.94	Porcellanite	100	10YR 2/1	Porcellanite pebble (4cm in diameter)#	
320-U1331C-16H-1-A	0	320-U1331C-16H-2-A	28	177.00	178.78	Porcellanite	100		$	
320-U1331C-16H-4-A	110	320-U1331C-16H-4-A	113	182.60	182.63	Porcellanite	100		$	
320-U1331C-17H-1-A	0	320-U1331C-17H-1-A	124	184.00	185.24	Porcellanite	100		Brecciated porcellanite float from hole$	

* Interbedded, $ Top of core (fall in?), # Core catcher only (in place?), ^ Fragment within sediment