

Depth (metres below KB)

GA  
(AP

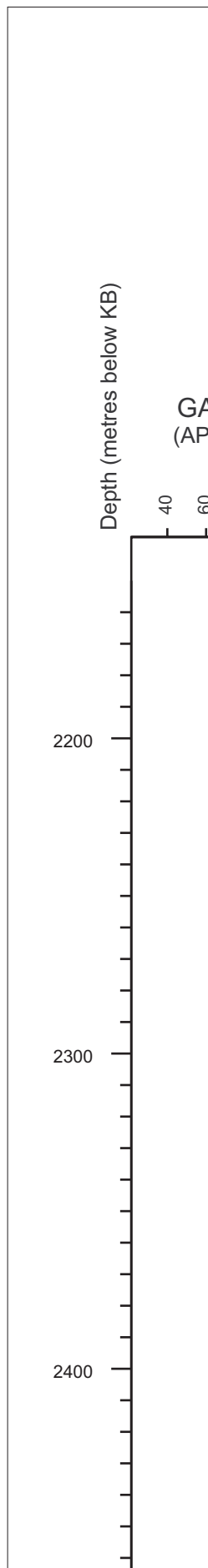
40

60

2200

2300

2400



# D219 SHUBENACADIE H-1

KB:24m, WD:1476.5m, TD:4200m

To accompany Report No. M.RES.G.-PAL.2-2000RA

## Well Logs

AMMA  
I Units)

DENSITY  
(kg/m<sup>3</sup>)

SONIC  
(dt)

80  
100  
1400  
1600  
1800  
2000  
2200  
2400  
2600

400  
600

**Lithostratigraphy**  
after MacLean, B.C. & Wade, J.A. 1993









## Biostratigraphy

Leskiw, 1983  
(micropaleontology)  
Audretsch, 1983  
(palyonology)  
Thomas 2000  
(pers. comm.)

**Lithostratigraphy**  
(Canstrat Ltd.)

## Sample positions

**Biostratigraphy**  
(based on palyonology)  
**THIS STUDY**

	P23867 2140-2150m (CL = 3)
	P23868 2180-2190m (CL = 3)
	P23869 2220-2230m (CL = 3)
	P23870 2260-2270m (CL = 3)
	P23871 2300-2310m (CL = 3)
	P23872 2340-2350m (CL = 2)
	P23873 2380-2390m (CL = 2)
	P23874 2420-2430m (CL = 2)

PLIOCENE

PLIOCENE-PLEISTOCENE  
OR YOUNGER (PROBABLE)

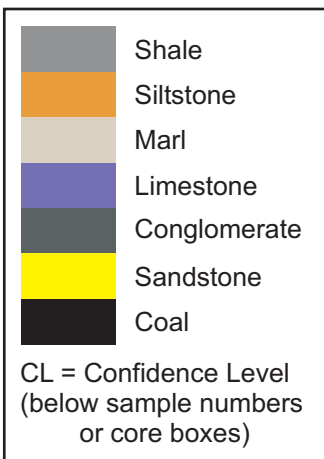
00

### PALYNOLOGY

*Batiacasphaera micropapillata* (3 Ma)  
*Impagidinium* frequent (deep water)

*Spiniferites ovatus*

### LEGEND



*Barssidinium graminosum* (?5 Ma)  
*Barssidinium wrennii* (v. rare but consistent)

*Barssidinium breviaraminosum* (?5 Ma)

2500

2600

2700

2800

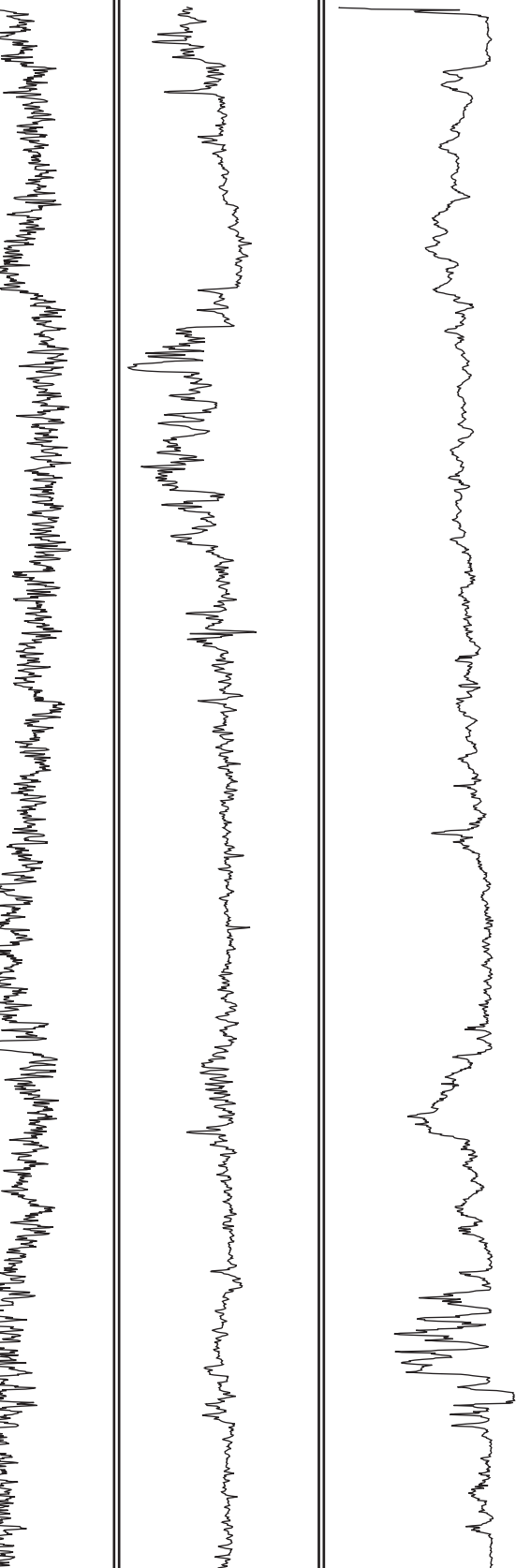
2900

3000

10/10/10

10/10/10

10/10/10



BANQUEREAU FORMATION

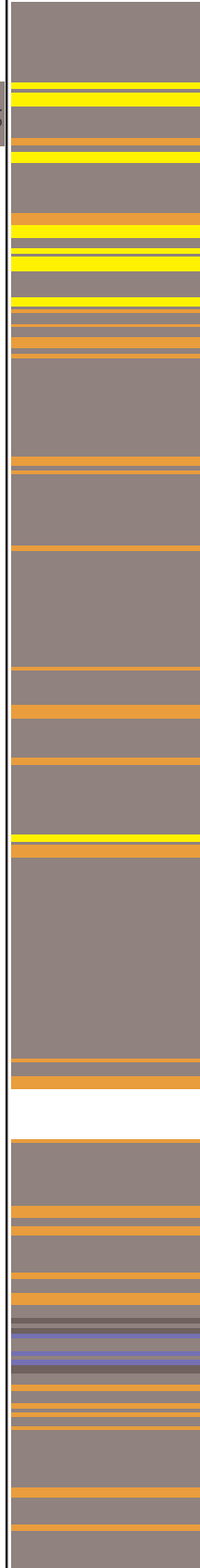
P

LATE MIOCENE

EARLY TO MIDDLE MIOCENE (PROBABLE)

Miocene

01



P23875 2460-2470m  
(CL = 3)

P23876 2500-2510m  
(CL = 3)

P23877 2540-2550m  
(CL = 3)

P23878 2580-2590m  
(CL = 3)

P23879 2620-2630m  
(CL = 2)

P23880 2660-2670m  
(CL = 2)

P23881 2700-2710m  
(CL = 3)

P23882 2740-2750m  
(CL = 3)

P23883 2780-2790m  
(CL = 3)

P23884 2815-2825m  
(CL = 3)

P23885 2860-2870m  
(CL = 3)

P23886 2900-2910m  
(CL = 3)

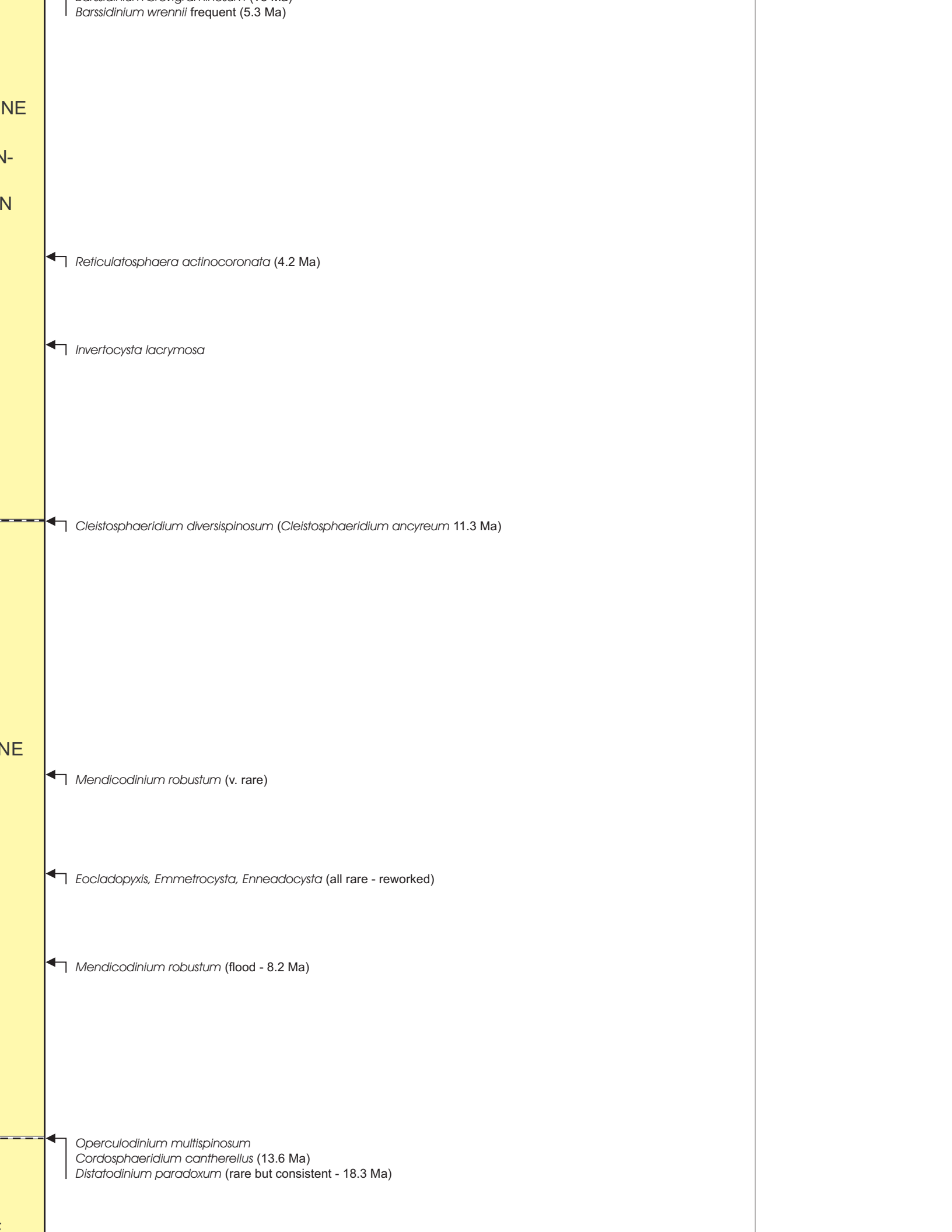
P23887 2940-2950m  
(CL = 2)

P23888 2980-2990m  
(CL = 2)

LATE MIOCE  
MESSINIAN  
TORTONIA

MID MIOCE

EARLY  
MIOCENE



Barssidinium wrennii frequent (5.3 Ma)

NE

N-

N

← Reticulosphaera actinocoronata (4.2 Ma)

← Invertocysta lacrymosa

← Cleistosphaeridium diversispinosum (Cleistosphaeridium ancyreum 11.3 Ma)

NE

← Mendicodinium robustum (v. rare)

← Eocladopyxis, Emmetrocysta, Enneadocysta (all rare - reworked)

← Mendicodinium robustum (flood - 8.2 Ma)

← Operculodinium multispinosum  
Cordosphaeridium cantherellus (13.6 Ma)  
Distatodinium paradoxum (rare but consistent - 18.3 Ma)

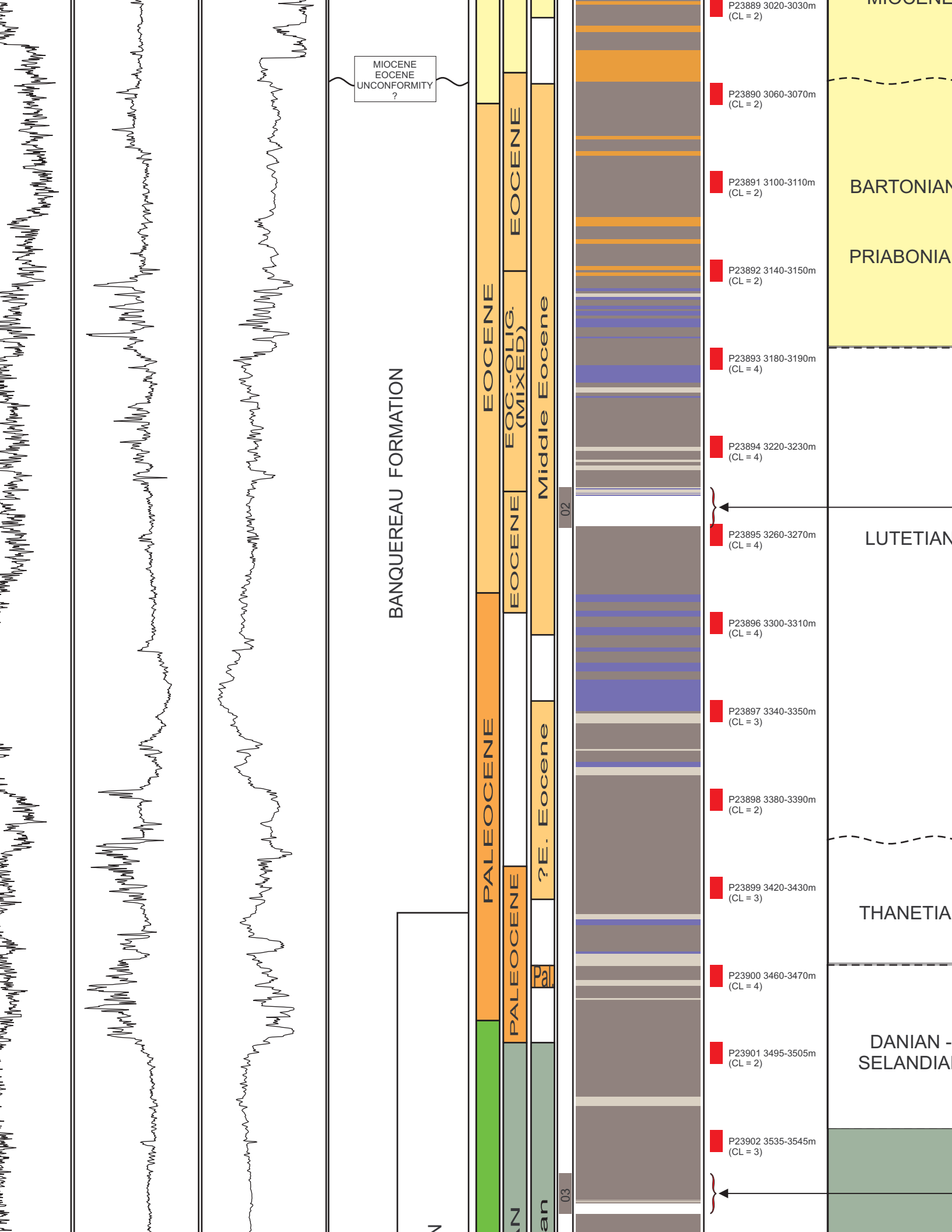
3100

3200

3300

3400

3500



MIOCENE  
EOCENE  
UNCONFORMITY  
?

BANQUEREAU FORMATION

EOCENE

EOC.-OLIG.  
(MIXED)

EOCENE

Middle Eocene

PALEOCENE

PALEOCENE

?E. Eocene

02

03

P23889 3020-3030m  
(CL = 2)

P23889 3060-3070m  
(CL = 2)

P23891 3100-3110m  
(CL = 2)

P23892 3140-3150m  
(CL = 2)

P23893 3180-3190m  
(CL = 4)

P23894 3220-3230m  
(CL = 4)

P23895 3260-3270m  
(CL = 4)

P23896 3300-3310m  
(CL = 4)

P23897 3340-3350m  
(CL = 3)

P23898 3380-3390m  
(CL = 2)

P23899 3420-3430m  
(CL = 3)

P23900 3460-3470m  
(CL = 4)

P23901 3495-3505m  
(CL = 2)

P23902 3535-3545m  
(CL = 3)

BARTONIAN

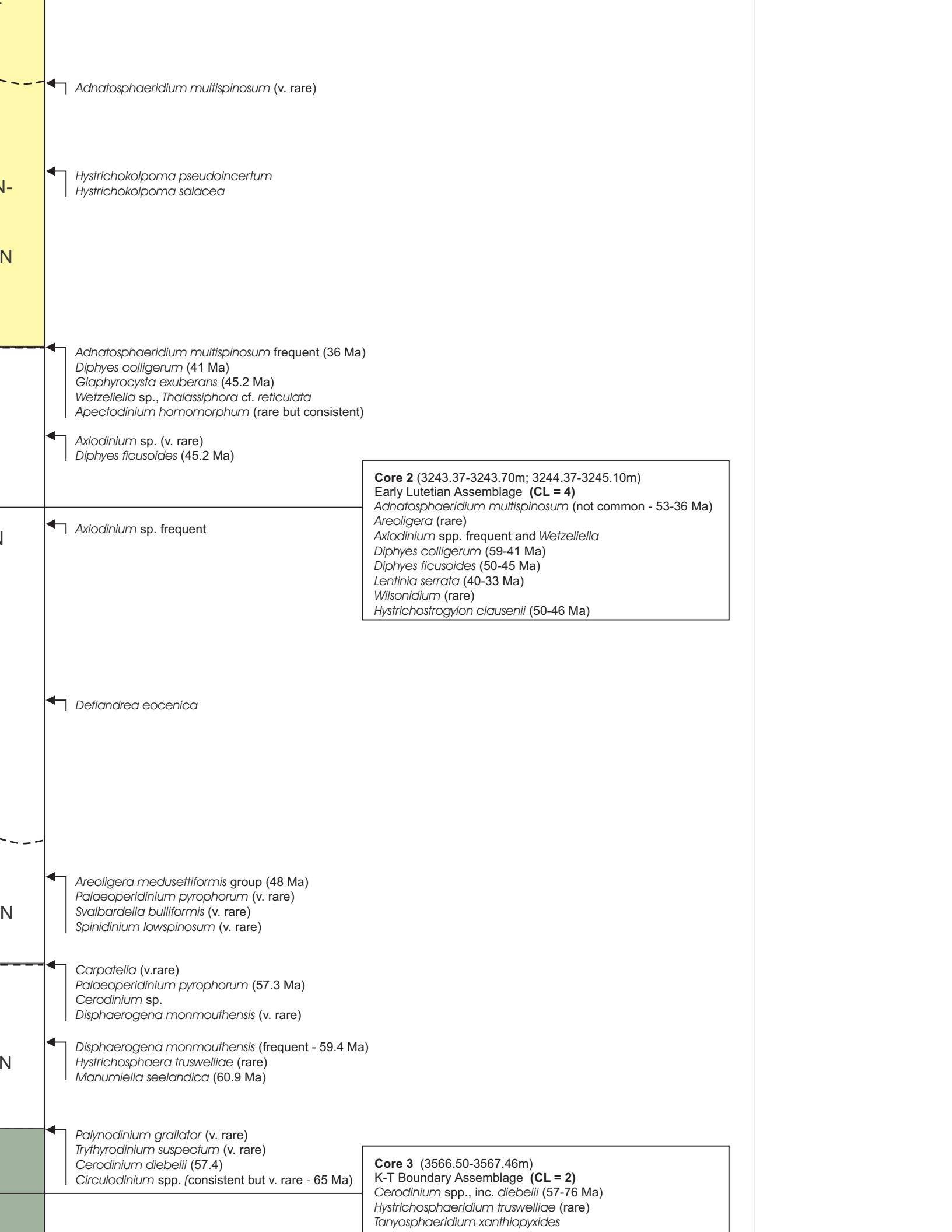
PRIABONIA

LUTETIAN

THANETIAN

DANIAN -  
SELANDIAN





Adnatosphaeridium multispinosum (v. rare)

Hystrichokolpoma pseudoincertum  
Hystrichokolpoma salacea

Adnatosphaeridium multispinosum frequent (36 Ma)  
Diphyes colligerum (41 Ma)  
Glaphyrocysta exuberans (45.2 Ma)  
Wetzeliella sp., Thalassiphora cf. reticulata  
Apectodinium homomorphum (rare but consistent)

Axiodinium sp. (v. rare)  
Diphyes ficusoides (45.2 Ma)

**Core 2** (3243.37-3243.70m; 3244.37-3245.10m)  
Early Lutetian Assemblage (**CL = 4**)  
Adnatosphaeridium multispinosum (not common - 53-36 Ma)  
Areoligera (rare)  
Axiodinium spp. frequent and Wetzeliella  
Diphyes colligerum (59-41 Ma)  
Diphyes ficusoides (50-45 Ma)  
Lentinia serrata (40-33 Ma)  
Wilsonidium (rare)  
Hystrichostrogylon clausenii (50-46 Ma)

Axiodinium sp. frequent

Deflandrea eocenica

Areoligera medusettiformis group (48 Ma)  
Palaeoperidinium pyrophorum (v. rare)  
Svalbardella bulliformis (v. rare)  
Spinidium lowspinosum (v. rare)

Carpatella (v. rare)  
Palaeoperidinium pyrophorum (57.3 Ma)  
Cerodinium sp.  
Disphaerogena monmouthensis (v. rare)

Disphaerogena monmouthensis (frequent - 59.4 Ma)  
Hystrichosphaera truswelliae (rare)  
Manumiella seelandica (60.9 Ma)

Palynodinium grillator (v. rare)  
Trythyrodinium suspectum (v. rare)  
Cerodinium diebelii (57.4)  
Circulodinium spp. (consistent but v. rare - 65 Ma)

**Core 3** (3566.50-3567.46m)  
K-T Boundary Assemblage (**CL = 2**)  
Cerodinium spp., inc. diebelii (57-76 Ma)  
Hystrichosphaeridium truswelliae (rare)  
Tanyosphaeridium xanthiopyxides

3600

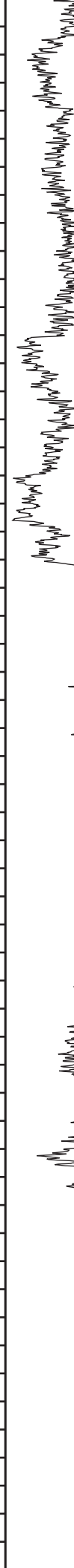
3700

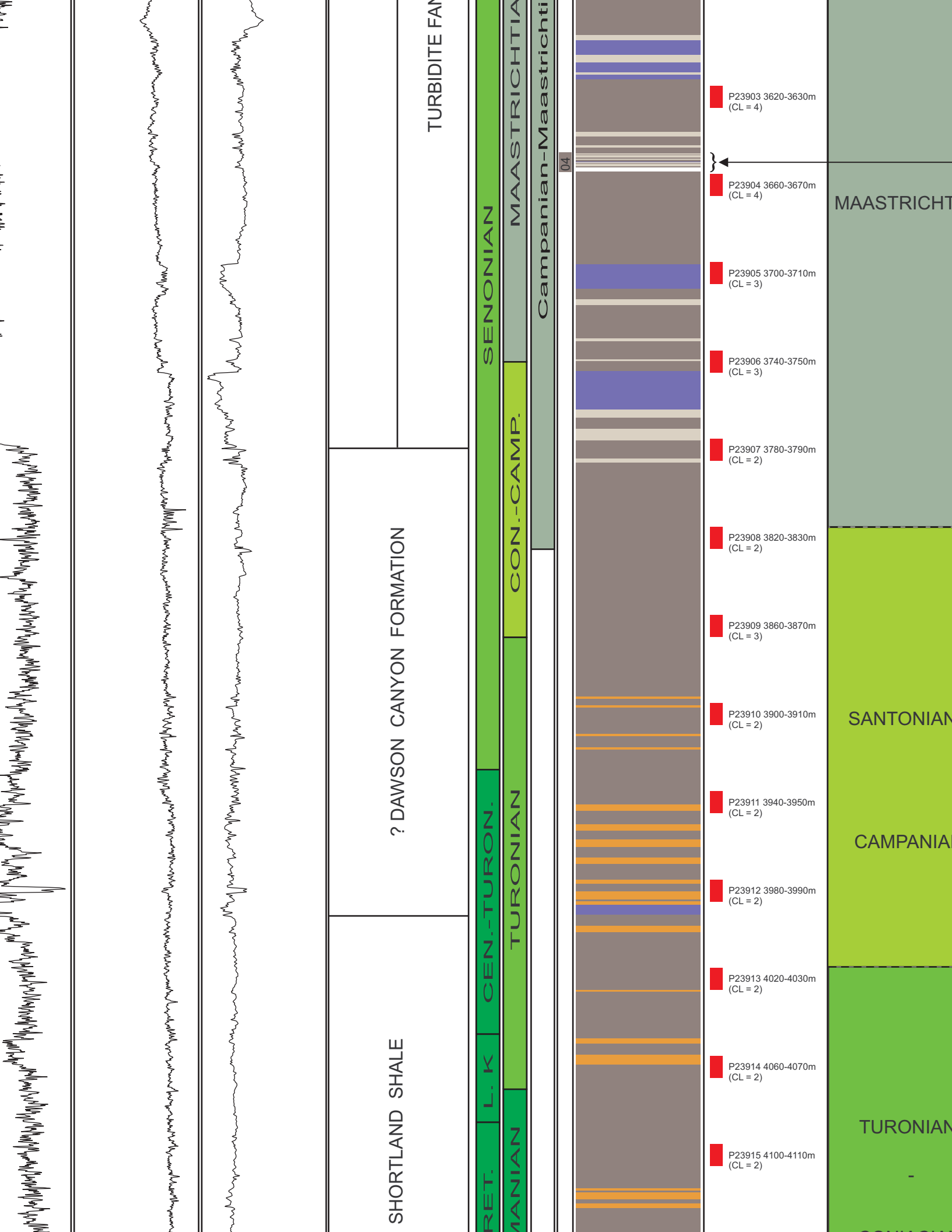
3800

3900

4000

4100





SHORTLAND SHALE

? DAWSON CANYON FORMATION

TURBIDITE FAN

RET. MANIAN

L. K

CEN.-TURON.

TURONIAN

CON.-CAMP.

SENONIAN

MAASTRICHTIA

Campanian-Maastrichti

04

P23915 4100-4110m (CL = 2)

P23914 4060-4070m (CL = 2)

P23913 4020-4030m (CL = 2)

P23912 3980-3990m (CL = 2)

P23911 3940-3950m (CL = 2)

P23910 3900-3910m (CL = 2)

P23909 3860-3870m (CL = 3)

P23908 3820-3830m (CL = 2)

P23907 3780-3790m (CL = 2)

P23906 3740-3750m (CL = 3)

P23905 3700-3710m (CL = 3)

P23904 3660-3670m (CL = 4)

P23903 3620-3630m (CL = 4)

TURONIAN

CAMPANIA

SANTONIAN

MAASTRICHT

*Trithyrodinium suspectum* (59-71 Ma)

*Trythyrodinium suspectum* (59.7 Ma)  
*Spongodinium dellifense* (64 Ma)  
*Coronifera oceanica* (v. rare)

**Core 4** (3651.62-3651.65m; 3654.50-3654.53m;  
3656.04-3656.07m)

**Maastrichtian Assemblage (CL = 3)**

*Areoligera* spp.  
*Cerodinium diebellii*  
*Chatangiella / Isabelidinium* sp.  
*Cordosphaeridium arboriforme*  
*Exochosphaeridium* sp.  
*Svalbarella lidiae*  
*Trythyrodinium suspectum*  
*Trythyrodinium sabulum*

*Xenascus* (v. rare)

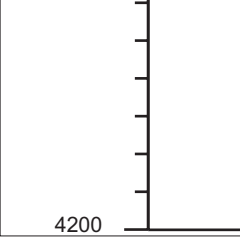
*Odontochitina* spp. (rare ~70 Ma)

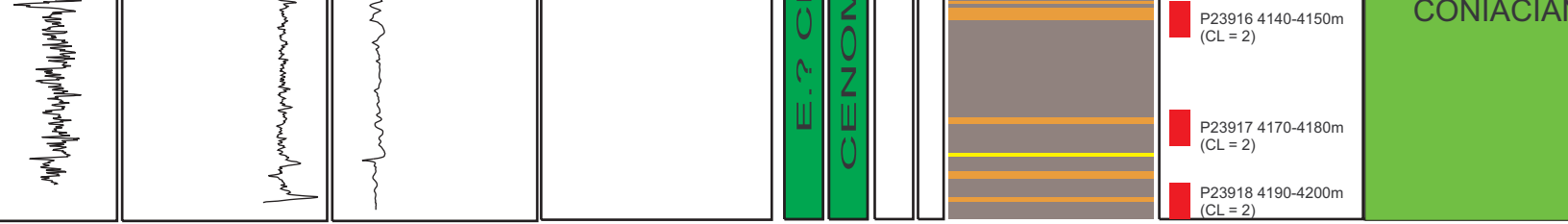
*Odontochitina* spp. (frequent)  
*Canningia reticulata* (128 Ma !?)

*Callaiosphaeridium asymmetricum* (v. rare) (76.2 Ma)

*Cyclonephellium vannophorum* (85.8 Ma)  
*Surculosphaeridium longifurcatum* (v. rare) (76 Ma)  
*Litosphaeridium siphoniphorum* (v. rare) (92 Ma)  
*Kiokansium williamsii* (v. rare) (96 Ma)

*Surculodinium* spp. (frequent, but no flood)





E.P. C


CENON

P23916 4140-4150m  
(CL = 2)

P23917 4170-4180m  
(CL = 2)

P23918 4190-4200m  
(CL = 2)

CONIACIA



Compiled by: R.A. MacRae and W.C. MacMillan  
Updated for web presentation: 16 February 2004  
Updated by: P. J. Upson