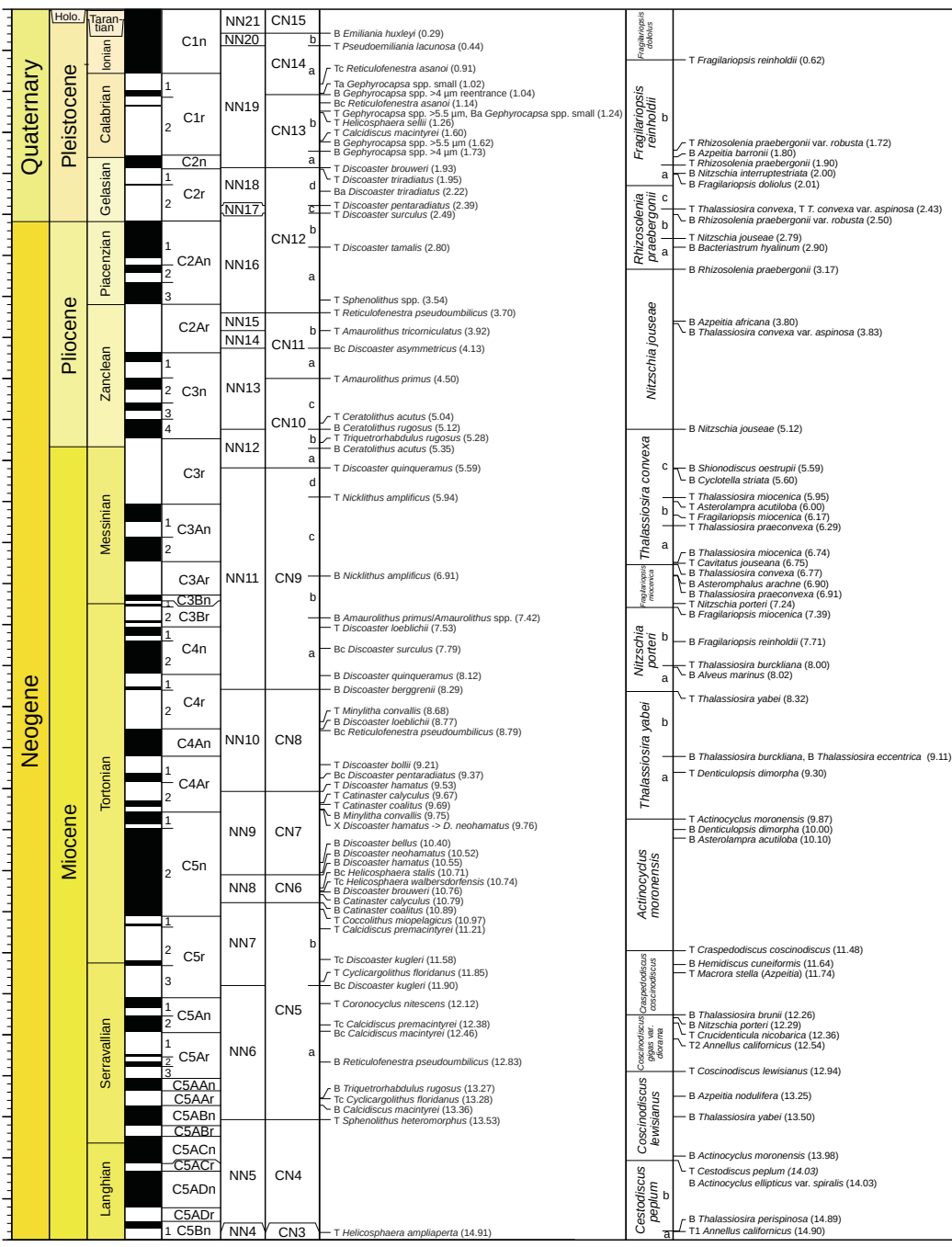
Age (Ma)
Period
Epoch
Age/Stage
Polarity
Chron
Calcareous nannofossils
Martini (1971)
Okada and Bukry (1980)
Nannofossil biohorizon/datum (Ma)
Diatoms
Scherer et al. (2007)
Diatom biohorizon/datum (Ma)
Quaternary
Neogene
Holo.
Pleistocene
Pliocene
Miocene
Taranian
Ionian
Calabrian
Gelasian
Placenzian
Zanclean
Messinian
Tortonian
Serravallian
Langhian
C1n
C1r
C2n
C2r
C2An
C2Ar
C3n
C3r
C3An
C3Ar
C3Bn
C3Br
C4n
C4r
C4An
C4Ar
C5n
C5r
C5An
C5Ar
C5AAn
C5AAr
C5ABn
C5ABr
C5ACn
C5ACr
C5ADn
C5ADr
C5Bn
NN21
NN20
NN19
NN18
NN17
NN16
NN15
NN14
NN13
NN12
NN11
NN10
NN9
NN8
NN7
NN6
NN5
NN4
CN15
CN14
CN13
CN12
CN11
CN10
CN9
CN8
CN7
CN6
CN5
CN4
CN3
B Emiliania huxleyi (0.29)
T Pseudoemiliania lacunosa (0.44)
Tc Reticulofenestra asanoi (0.91)
Ta Gephyrocapsa spp. small (1.02)
B Gephyrocapsa spp. >4 µm reentrance (1.04)
Bc Reticulofenestra asanoi (1.14)
T Gephyrocapsa spp. >5.5 µm, Ba Gephyrocapsa spp. small (1.24)
T Helicosphaera sellii (1.26)
T Calcidiscus macintyrei (1.60)
B Gephyrocapsa spp. >5.5 µm (1.62)
B Gephyrocapsa spp. >4 µm (1.73)
T Discoaster brouweri (1.93)
T Discoaster triradiatus (1.95)
Ba Discoaster triradiatus (2.22)
T Discoaster pentaradiatus (2.39)
T Discoaster surculus (2.49)
T Discoaster tamalis (2.80)
T Sphenolithus spp. (3.54)
T Reticulofenestra pseudoumbilicus (3.70)
T Amaurolithus tricorniculatus (3.92)
Bc Discoaster asymmetricus (4.13)
T Amaurolithus primus (4.50)
T Ceratolithus acutus (5.04)
B Ceratolithus rugosus (5.12)
T Triquetrorhabdulus rugosus (5.28)
B Ceratolithus acutus (5.35)
T Discoaster quinqueramus (5.59)
T Nicklithus amplificus (5.94)
B Nicklithus amplificus (6.91)
B Amaurolithus primus/Amaurolithus spp. (7.42)
T Discoaster loeblichii (7.53)
Bc Discoaster surculus (7.79)
B Discoaster quinqueramus (8.12)
B Discoaster berggrenii (8.29)
T Minylitha convallis (8.68)
B Discoaster loeblichii (8.77)
Bc Reticulofenestra pseudoumbilicus (8.79)
T Discoaster bollii (9.21)
Bc Discoaster pentaradiatus (9.37)
T Discoaster hamatus (9.53)
T Catinaster calyculus (9.67)
T Catinaster coalitus (9.69)
B Minylitha convallis (9.75)
X Discoaster hamatus -> D. neohamatus (9.76)
B Discoaster bellus (10.40)
B Discoaster neohamatus (10.52)
B Discoaster hamatus (10.55)
Bc Helicosphaera stalis (10.71)
Tc Helicosphaera walbersdorfensis (10.74)
B Discoaster brouweri (10.76)
B Catinaster calyculus (10.79)
B Catinaster coalitus (10.89)
T Coccolithus miopelagicus (10.97)
T Calcidiscus premacintyrei (11.21)
Tc Discoaster kugleri (11.58)
T Cyclicargolithus floridanus (11.85)
Bc Discoaster kugleri (11.90)
T Coronocyclus nitescens (12.12)
Tc Calcidiscus premacintyrei (12.38)
Bc Calcidiscus macintyrei (12.46)
B Reticulofenestra pseudoumbilicus (12.83)
B Triquetrorhabdulus rugosus (13.27)
Tc Cyclicargolithus floridanus (13.28)
B Calcidiscus macintyrei (13.36)
T Sphenolithus heteromorphus (13.53)
T Helicosphaera ampliaperta (14.91)
Fragilariopsis doliolus
Fragilariopsis reinholdii
Rhizosolenia praebergonii
Nitzschia jouseae
Thalassiosira convexa
Fragilariopsis miocenica
Nitzschia porteri
Thalassiosira yabei
Actinocyclus moronensis
Craspedodiscus coscinodiscus
Coscinodiscus radiatus var. diorama
Coscinodiscus lewisianus
Cestodiscus peplum
T Fragilariopsis reinholdii (0.62)
T Rhizosolenia praebergonii var. robusta (1.72)
B Azpeitia barronii (1.80)
T Rhizosolenia praebergonii (1.90)
B Nitzschia interruptestriata (2.00)
B Fragilariopsis doliolus (2.01)
T Thalassiosira convexa, T T. convexa var. aspinosa (2.43)
B Rhizosolenia praebergonii var. robusta (2.50)
T Nitzschia jouseae (2.79)
B Bacteriastrum hyalinum (2.90)
B Rhizosolenia praebergonii (3.17)
B Azpeitia africana (3.80)
B Thalassiosira convexa var. aspinosa (3.83)
B Nitzschia jouseae (5.12)
B Shionodiscus oestrupii (5.59)
B Cyclotella striata (5.60)
T Thalassiosira miocenica (5.95)
T Asterolampra acutiloba (6.00)
T Fragilariopsis miocenica (6.17)
T Thalassiosira praeconvexa (6.29)
B Thalassiosira miocenica (6.74)
T Cavitatus jouseana (6.75)
B Thalassiosira convexa (6.77)
B Asteromphalus arachne (6.90)
B Thalassiosira praeconvexa (6.91)
T Nitzschia porteri (7.24)
B Fragilariopsis miocenica (7.39)
B Fragilariopsis reinholdii (7.71)
T Thalassiosira burckliana (8.00)
B Alveus marinus (8.02)
T Thalassiosira yabei (8.32)
B Thalassiosira burckliana, B Thalassiosira eccentrica (9.11)
T Denticulopsis dimorpha (9.30)
T Actinocyclus moronensis (9.87)
B Denticulopsis dimorpha (10.00)
B Asterolampra acutiloba (10.10)
T Craspedodiscus coscinodiscus (11.48)
B Hemidiscus cuneiformis (11.64)
T Macrora stella (Azpeitia) (11.74)
B Thalassiosira brunii (12.26)
B Nitzschia porteri (12.29)
T Crucidenticula nicobarica (12.36)
T2 Annellus californicus (12.54)
T Coscinodiscus lewisianus (12.94)
B Azpeitia nodulifera (13.25)
B Thalassiosira yabei (13.50)
B Actinocyclus moronensis (13.98)
T Cestodiscus peplum (14.03)
B Actinocyclus ellipticus var. spiralis (14.03)
B Thalassiosira perispinosa (14.89)
T1 Annellus californicus (14.90)