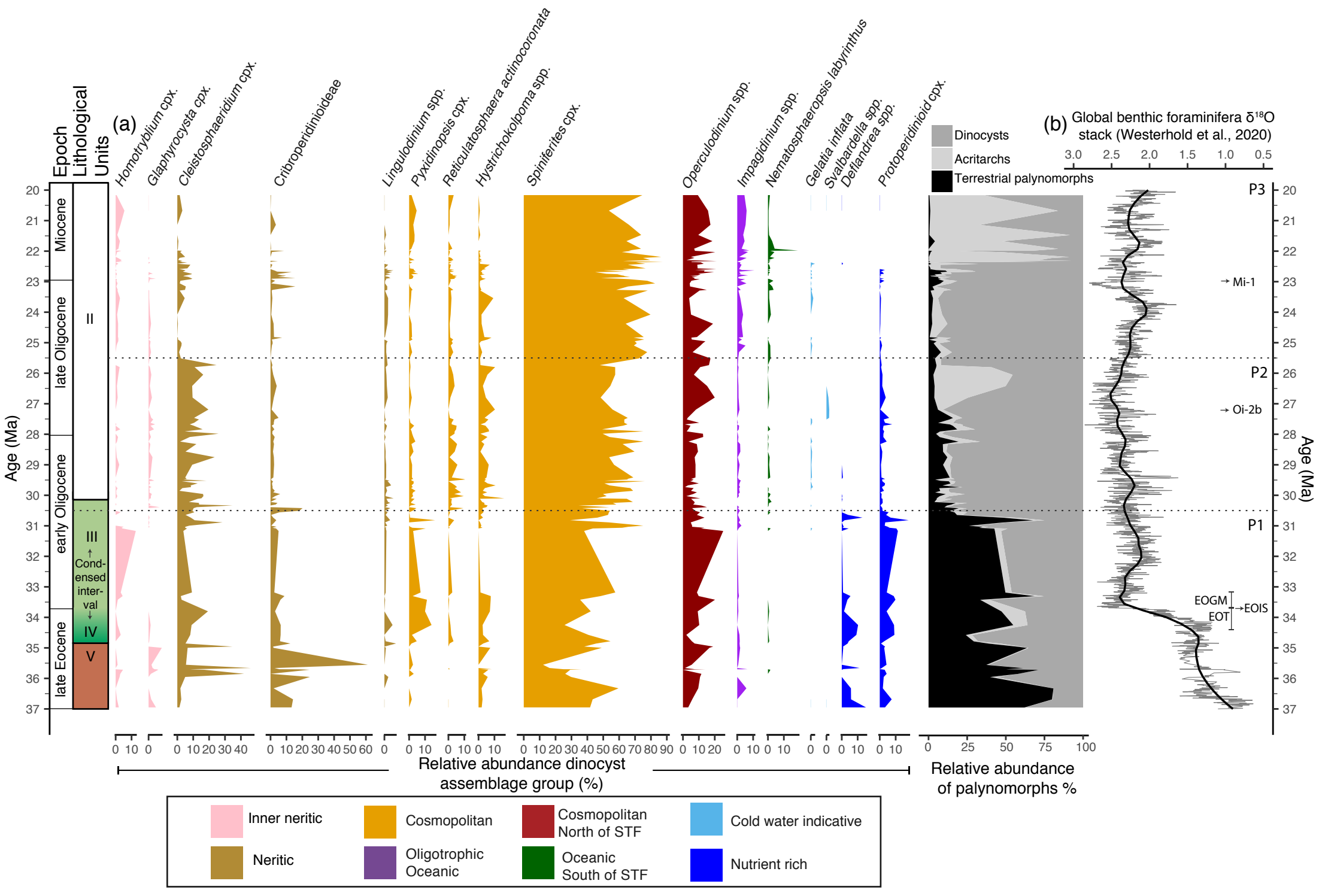
(a)
Epoch
Lithological Units
Homotryblium cpx.
Glaphyrocysta cpx.
Cleistosphaeridium cpx.
Cribroperidinioideae
Lingulodinium spp.
Pyxidinopsis cpx.
Reticulatosphaera actinocoronata
Hystrichokolpoma spp.
Spiniferites cpx.
Operculodinium spp.
Impagidinium spp.
Nematosphaeropsis labyrinthus
Gelatia inflata
Svalbardella spp.
Deflandrea spp.
Protoperidinioid cpx.
Dinocysts
Acritarchs
Terrestrial palynomorphs
(b) Global benthic foraminifera δ18O stack (Westerhold et al., 2020)
Age (Ma)
Miocene
late Oligocene
early Oligocene
late Eocene
II
III
Cond-ensed inter-val
IV
V
P3
P2
P1
→ Mi-1
→ Oi-2b
EOGM
EOT
→EOIS
Relative abundance dinocyst assemblage group (%)
Relative abundance of palynomorphs %
Inner neritic
Neritic
Cosmopolitan
Oligotrophic Oceanic
Cosmopolitan North of STF
Oceanic South of STF
Cold water indicative
Nutrient rich