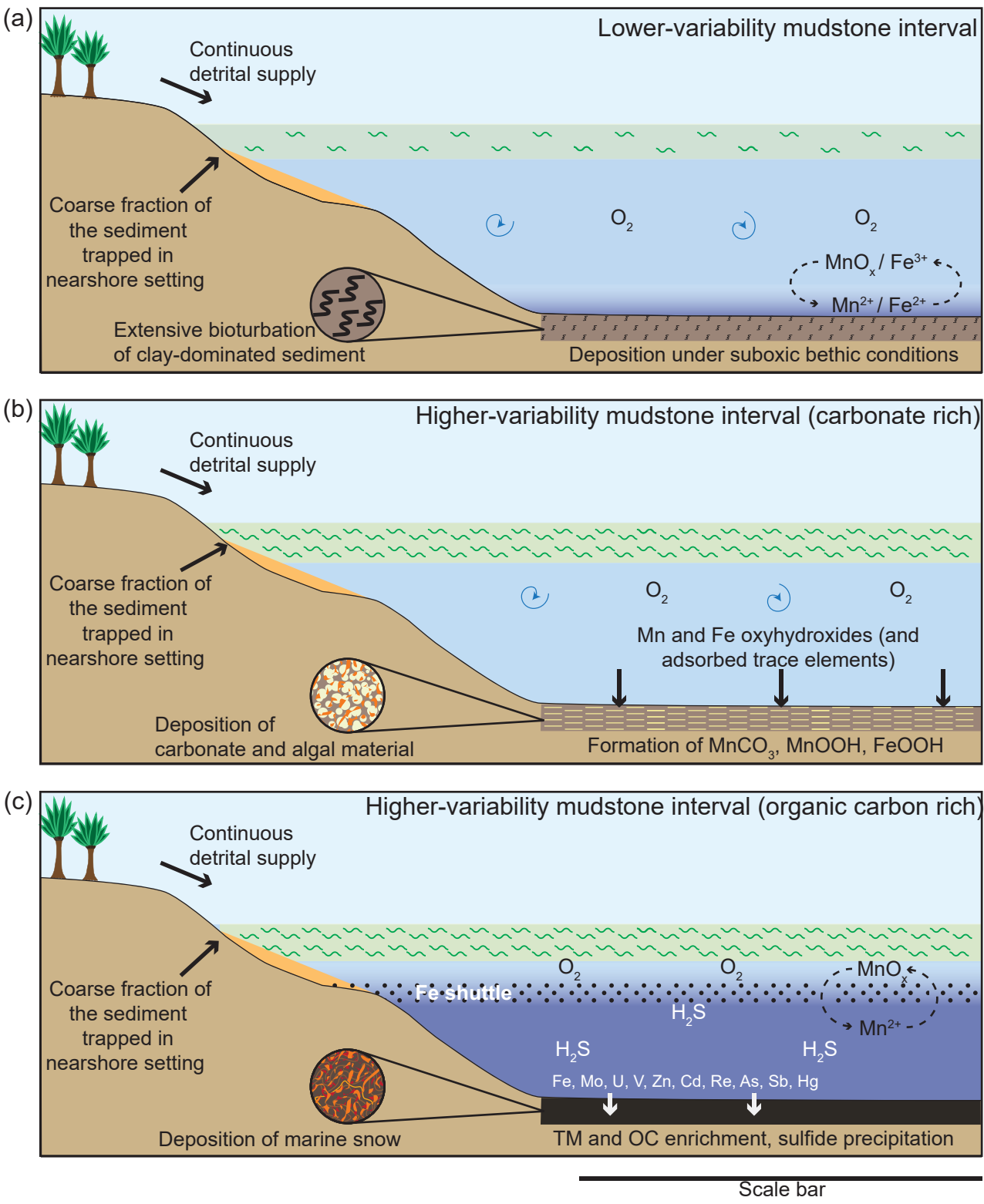
(a)
Lower-variability mudstone interval
Continuous detrital supply
Coarse fraction of the sediment trapped in nearshore setting
O2
O2
MnOx / Fe3+
Mn2+ / Fe2+
Extensive bioturbation of clay-dominated sediment
Deposition under suboxic bethic conditions
(b)
Higher-variability mudstone interval (carbonate rich)
Continuous detrital supply
Coarse fraction of the sediment trapped in nearshore setting
O2
O2
Mn and Fe oxyhydroxides (and adsorbed trace elements)
Deposition of carbonate and algal material
Formation of MnCO3, MnOOH, FeOOH
(c)
Higher-variability mudstone interval (organic carbon rich)
Continuous detrital supply
Coarse fraction of the sediment trapped in nearshore setting
O2
O2
MnOx
Fe shuttle
H2S
Mn2+
H2S
H2S
Fe, Mo, U, V, Zn, Cd, Re, As, Sb, Hg
Deposition of marine snow
TM and OC enrichment, sulfide precipitation
Scale bar