

Table S2. Carbonate lithofacies

Lithofacies	Descriptions	Depositional environments
Microbialaminite	Undulose crinkly lamination with micro-unconformities, grainstone lenses, edge-wise intraclastic conglomerate, channels, tepee structure and tepee breccia, paleocalcrete, silcrete or ferricrete	Littoral and supralittoral zones
Grainstone	Well-sorted arenite, generally oolitic or intraclastic, beds >0.2 m thick, commonly crossbedded, intraclast breccia, authigenic chert nodules	Shallow sublittoral and lower littoral zones, wave-dominated shoreface, off-shore sand bars
Stromatolite	Discrete columnar or domal, internally-laminated microbialite, with or without branching, generally associated with grainstone	Euphotic zone of sublittoral shelf and lower littoral zone
Ribbonite	Wavy-laminated lutite, beds <0.2 m thick, low-angle cross-stratification, wave or current ripples may be present	Open shelf and upper slope, above fairweather wave-base
Marly ribbonite	Argillaceous lutite, beds <0.2 m thick, low-angle cross-stratification, wave or current ripples, lenticular stratification	Deep shelf and upper to middle slope, above storm wave-base
Rhythmite	Flat parallel-laminated lutite or marl, with or without turbidites or debrites	Restricted deep shelf, lower slope and basin floor