|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Facies Association** | **Constituent Facies** | **Description** | **Interpretation** | **Facies Belt** |
| Sinuous crested dunes (FA1) | Stx, Spsl | Tabular bodies composed of trough cross-bedded sandstones (Stxs) stacked into sets (1-5 m), that interfinger with thin deposits of pinstripe-laminated sandstones (Spsl). Set surfaces are convex-up with relatively planar coset surfaces that extend beyond the outcrop. | Aeolian sinuous crested dunes, given the pervasive deposition of grainfall and grainflow strata combined with the convex-up geometry of set bounding surfaces (Banham et al., 2018). Wind ripples along dune toesets suggest winds with sufficient energy for traction to dominate in the lee of dune bedforms (Kocurek, 1991). | Coastal Aeolian Dune Field |
| Straight crested dunes (FA2) | Spx, Spsl | Tabular bodies composed of planar cross-bedded sandstones (Spx) stacked into sets with low-angle planar bounding surfaces. Cosets are up to 5 m thick, with coset bounding surfaces that are extremely planar and low angle extending laterally beyond the outcrop. Rhizoliths are sporadically identified along foresets, towards the top of sets. | Aeolian straight crested dunes, given the pervasive deposition of grainfall and grainflow strata combined with the planar geometry of set bounding surfaces (Mountney & Thompson, 2002). Wind ripples along dune toesets suggest winds with sufficient energy for traction to dominate in the lee of dune bedforms (Kocurek, 1991). Rhizolith development on foresets and towards set tops indicates primitive vegetation on the dune lee and dune crests. | Coastal Aeolian Dune Field |
| Sand sheet (FA3) | Su, Spsl, Stx, Pfg | Thick sheet-like bodies with planar to undulose bounding surfaces, dominated by undulose sandstones (Su) and sporadic occurrences of trough cross-bedded sandstone (Stx) and pinstripe laminated sandstone (Spsl). Towards the top of the succession, a ferric gleysol is seen (Pfg). | Sand sheet facies formed by being starved of sediment due to fluctuations in the water table (Mountney & Jagger, 2004). Fluid escape structures in the undulous bedded sandstones and illuviation of a ferric gleysol, suggest a high water table, but minor trough cross-bedded sandstones of aeolian origin suggest periods of low water table and sediment starvation. | Coastal Aeolian Dune Field to Coastal Plain |
| Supra-tidal flat (FA4) | Spl, Ss, Stx, Pgpl, Sltpl | Tabular bodies of parallel-laminated siltstones and sandstones (Sltpl & Spl) and erosionally based structureless sandstones (Ss) comprise the majority of the association, with isolated occurrences of trough cross-stratified sandstones (Stx) and a single occurrence of planar-laminated  gypsisol (Pgpl) at the top of the association. | Arid supra-tidal flat occasionally flooded by the sea. Parallel-laminated siltstones and sandstones were deposited by suspension settling of wind-blown particles, with trough cross-stratified sandstones representing the migration of isolated, sinuous-crested dunes. Occasional structureless sandstones with a concave-up and erosive base represent channelised flash deposition of high sediment loads (Zuchuat et al., 2019). Evaporites indicate a high water table and sufficient exposure to have drawn down by evapotranspiration. | Coastal Plain to Tide-Dominated Shallow Marine |
| Intertidal flat (FA5) | Sltpl, Spl, Surl, Swb, Srpl | Planar laminated siltstones (Sltpl) interbedded with rippled undulose sandstones (Surl), overlain by wave-ripple laminated sandstone facies (Srpl) and wavy bedded sandstones (Swb). Planar laminated sandstones (Spl) can be seen towards the top of the succession. | Sand-rich intertidal flat sedimentation produced by tidal fluctuations in water level (Kvale, 2012). A rising water table deposits inversely-graded (with regards to laminae thickness) undulose and rippled sandstones (Zuchuat et al., 2018). Bedding planes commonly display sinuous out-of-phase ripples. | Tide-Dominated Shallow Marine |
| Sub- to intertidal flat (FA6) | Shcs, Swb, Sfb, Slti, Spl, Srpl | Tabular bodies of parallel-laminated, inversely-graded siltstones (Slti), grading into parallel laminated sandstones (Spl). Towards the top of the association wavy-bedded (Swb), flaser-bedded (Sfb), symmetrical ripple-cross-laminated sandstones (Srpl), and unidirectional ripple- to herringbone cross-stratified sandstones (Shcs) are abundant. | Sub- to intertidal flat dominated by suspension settlement and bidirectional flow deposits, evidencing changes in flow depth and depositional energy through alternating settlement grain sizes. Herringbone cross-stratification indicates the migration of dune deposits in two directions evidencing minor tidal influence (Zuchuat et al., 2019; Philips et al., 2020). The presence of mud draping on flaser and wavy bedding provides further evidence of tidal influence to the deposits. | Tide-Dominated Shallow Marine |