

Stratigraphy and sedimentology of a Jura-Cretaceous 'Park' near Bandar Muadzam Shah, Pahang

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About 50 m of well-preserved Jura-Cretaceous rocks are exposed at about 23 km from Bandar Muadzam Shah, along the road from Pahang River to Bandar Muadzam Shah. Stratigraphic logging of these rocks reveal at least seven upward-fining cycles of sandstone-siltstone-mudstone successions with minor conglomerates.

Cycle I (lowest cycle) is about 9.0 m thick. At the base, a ~2.0 m thick medium-to-coarse grained sandstone occur with a well developed basal conglomerate. Internally, this sand unit displays subhorizontal lignitic laminae with lignitised plant debris. This unit is overlain by a thin silty mudstone layer, which in turn is overlain by another ~2.0 m thick sandstone unit characterised by well developed epsilon cross-bedding. This sand unit is capped by '*en echelon*' inclined sand lenses in a matrix of sandy siltstone. A ~5.0 m thick sandy mudstone represent the uppermost part of this cycle.

Cycle II which overlies Cycle I is also made-up of a lower ~2.0 m cross-bedded sand unit with basal conglomerate. This is succeeded by a ~3.0 m thick siltstone characterised by well developed '*en echelon*' inclined sand lenses. The vertical facies arrangement of Cycle I and II suggests that these cycles represent deposits of a fluvial channel that has undergone chute cut-off type gradual abandonment.

A localised 'channel-fill' conglomerate with chert pebbles and large coal fragments occur at the base of Cycle III. This is sharply overlain by a ~3.5 m thick of poorly sorted 'pebbly' sandstone, dominated by large quartz clasts and well rounded chert granules. Cycle III is capped by ~1.0 m thick dark mudstone. This cycle is probably the product of a neck cut-off of a meander loop.

A relatively thin Cycle IV comprise a thin basal conglomerate at the base of ~1.0 m thick cross bedded sandstone. This is capped by a ~1.5 m thick clayey silt with interbedded sand lenses.

Cycle V (~7.5 m) is distinctly characterised by decimeter thick 'sheets' of fine-grained green sandstone. In the field, the distinctive feature of these green sand layers is the presence of large, rounded concretions (suggesting rapid burial and early cementation). Thin section study of these sandstone samples shows the widespread presence of chlorite cement. This unit is capped by a ~1.0 m thick silty mudstone. This cycle could probably represent products of proximal floodplain processes.

A ~2.0 m thick Cycle VI is made up of a lower 'massive' sandstone with thin basal conglomerate capped by clayey siltstone.

Cycle VII is a composite upward-fining cycle. The base comprises a ~4.0 m thick channelised complex

of clean cross-bedded sandstone bearing rounded mudclasts. The beds are separated in places by mudstone lenses. The upper, finer-grained part of this cycle is ~15.0 m thick. This thick upper unit shows at least nine small-scale coarsening upward units which pass from muds into siltstone or even fine sandstone, which represent records of deposition of fine grained material from suspension in interchannel areas during periodic flooding.

The sedimentary characteristics of the Jura-Cretaceous successions at Muadzam Shah suggests that they are deposits of an alluvial complex of relatively sinuous rivers.
