

STORM BEDS AS A MARINE TRANSGRESSIVE SHOREFACE AND INNER SHELF SEQUENCE IN THE J SANDSTONE, MALAY BASIN, OFFSHORE PENINSULAR MALAYSIA

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The early Miocene basal J Sandstone in the Malong Field consists of a stacked channel sequence succeeded by a transgressive shoreface and inner-shelf sequence. Progressively increasing depth of deposition in the transgressive sequence is interpreted based on micropaleontological information supported by mineralogical, physical and biogenic sedimentary structures.

Four types of storm fining-upward units are described namely: i) amalgamated planar laminated unit, ii) graded unit, iii) massive sandstone unit and iv) amalgamated bioturbated sandstone unit. Each unit is characterized by a sharp basal contact and exhibits upward increase in bioturbation rate. Features suggestive of hummocky cross-stratification are shown, by the presence of antiformal domal structures, gently undulating and laminated units, lack of grain size grading within the laminae and its restriction to coarse siltstone and very fine-grained sandstone.

The variability of these storm units are interpreted to be controlled primarily by water depth. Apart from being good time-stratigraphic markers for field scale studies, they can also be used for paleogeographic reconstruction.