

Sedimentological Reappraisal of Mass-flow Sandstones, Fulmar Formation Play, UK Central North Sea

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Abstract

Mass-flow sandstones in the Upper Jurassic Fulmar Formation play represent secondary reservoir targets in the Central North Sea. However, their origin, character and distribution is still poorly understood. This study uses a process-based sedimentological analysis of cores, integrated with wireline log data to understand depositional processes that led to the emplacement of these mass-flow sandstones. Ten major sedimentary facies types (1-10) were identified. The sedimentary facies types, grouped into seven facies associations (T1 – T5; D1 and H1) represent deposition within a submarine fan – lobe setting. The two main depositional models, constrained by interpreted facies associations are turbidity current flows ponded in topographic lows; and hyperpycnal flows deposited as poorly confined to unconfined sheets. These models are only applicable on a sub-regional (field-wide) scale reflecting complex spatial and temporal variations. The results of this study emphasizes the need for a rigorous sedimentological reappraisal of the extensive core database of the Central North Sea, to better constrain depositional models.