Fluvial Research Group

UNIVERSITY OF LEEDS

Reservoir character of the Permo-Triassic Sherwood Sandstone Group, UK

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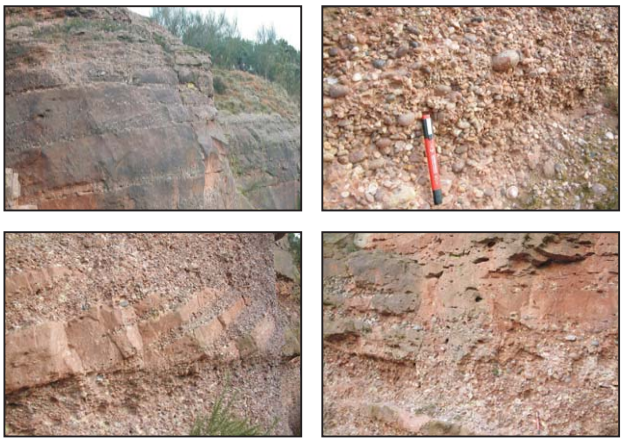
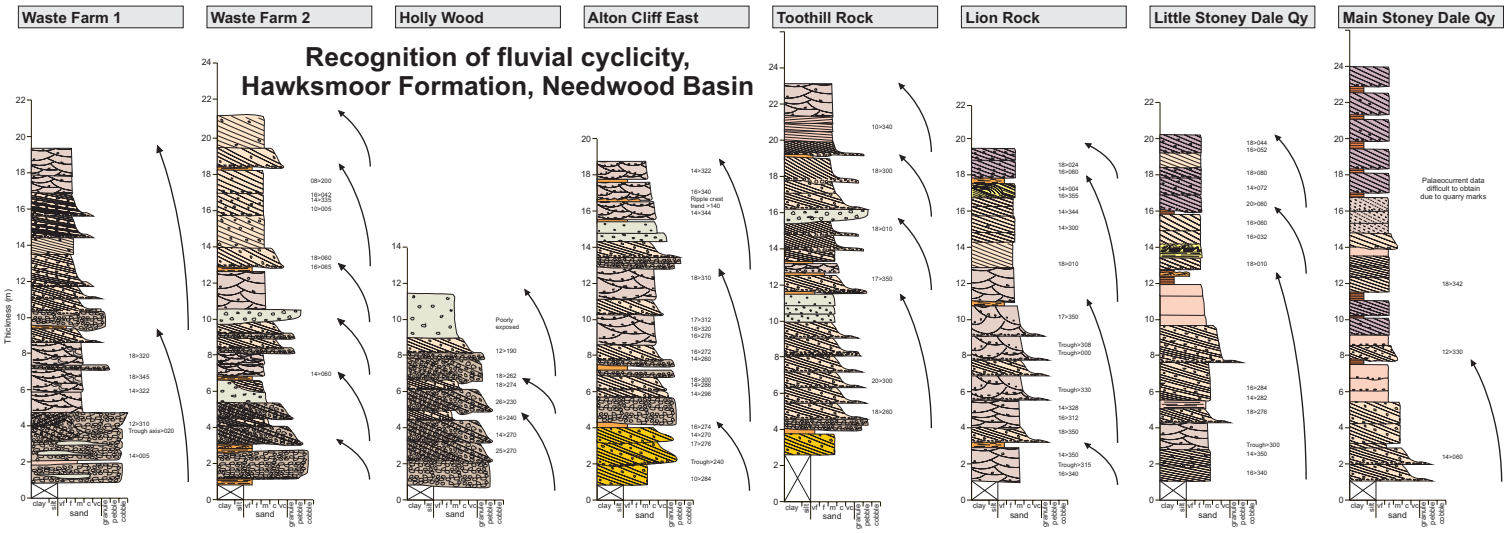


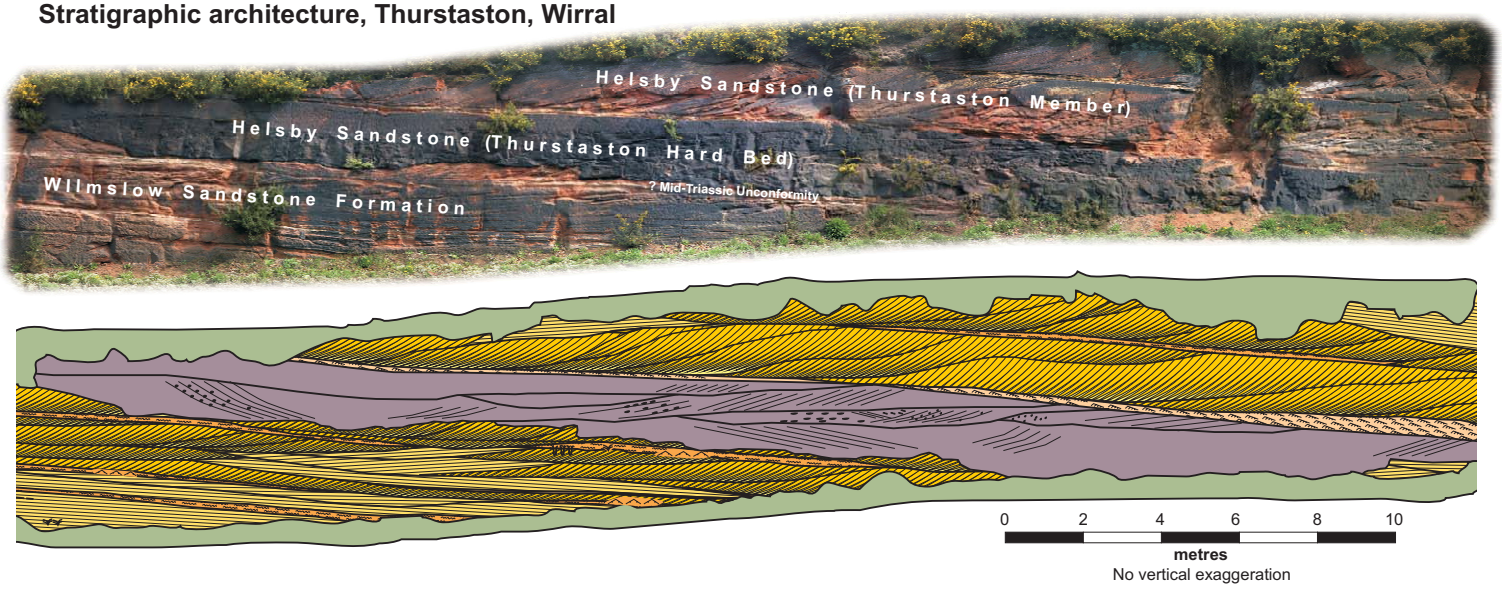
The predominantly fluvial Sherwood Sandstone Group is exposed across much of Central and NW England and forms an important reservoir succession in the Southern North Sea and East Irish Sea basins. Representative fluvial facies vary from coarse-grained channelised conglomerates to fine-grained unconfined sheet-flood sandstones, with mud-prone facies present in places. Additionally, fluvial facies exhibit a variety of styles of interaction with aeolian, sabkha and lacustrine facies, all of which has resulted in an overall succession with reservoir properties that are difficult to predict. This project is developing models that characterise the various styles of stratigraphic and diagenetic heterogeneity present within the Sherwood Sandstone Group in order to produce quantitative estimates of sand-body geometry and degree of interconnectivity that can be used as input to reservoir models in an attempt to determine the reservoir behaviour of marginal 'tight gas' plays.

Analysis of basin-scale architecture has involved the recording of over 80 1D sedimentary logs from which the internal stratigraphy of various formations in the Sherwood Sandstone has been established. Regional key-surface tracing has been employed to determination the nature of spatial changes in preserved sedimentary style. The construction of 2D architectural panels has enabled the style of fluvial behaviour to be determined such that the geometry of preserved architectural elements can be used to reconstruct the likely style of the fluvial system and the nature of the processes that acted therein. A series of dynamic facies models account for complex spatial and temporal complexity within the system.

Recognition of fluvial cyclicity, Hawksmoor Formation, Needwood Basin



Stratigraphic architecture, Thurstaston, Wirral



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