

TRANSGRESSIVE-REGRESSIVE (T-R) SEQUENCE ANALYSIS OF THE EARLY TRIASSIC SUCCESSION OF THE POTWAR BASIN PAKISTAN

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Abstract

The Early Triassic clastic and carbonate mixed lithologies of Mianwali Formation of the Musa Khel Group is well exposed in the Nammal gorge section in the Western Salt Range Pakistan. It consists predominantly of dolomitic limestone, sandstone and siltstone.

Outcrop and microscopic based identified lithofacies are; laminated siltstone facies (LF), dolomitic limestone facies (DLF), cross laminated sandstone facies (CF), hummocky cross stratified sandstone facies (HF), tempestite facies (TF), glauconitic limestone facies (GF) and dolomite facies (DF). These facies show deltaic to shallow marine carbonate settings.

On the basis of present and previous biostratigraphic work the assigned stages are; Induan and Olenekion to Mianwali Formation corresponds two second order composite sequences with time span of 5.1 Ma. Two sequence boundaries (SB-1 & 2); one is paraconformity (SB-1) at the contact of Permian Chhidru Formation and Early Triassic Mianwali Formation while the other one (SB-2) is at the top of Mianwali Formation which is present in the form of laterite beds, surface of erosion and non deposition. Sequence-1 comprised of two Transgressive Systems Tract (TST-1 & TST-2) and one Regressive Systems Tract (RST-1). Sequence-2 comprised of Transgressive Systems Tract (TST-3), this sequence is continuous above the Mianwali Formation which is beyond the scope of this paper. Comparing with global sea level curve the short term sea level fluctuations in the said formation are totally in contrast with the global sea level curve while the long term sea level changes showing a close matchup.