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Cyclicity of Lithofacies in Sullavai Sequence of Kampa-Tempa Area, Pranhita Godavari Graben, Central India

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Abstract

Cyclic characters of Lower, Middle and Upper Sullavai sequences from Pranhita-Godavari Graben in Central India have been studied statistically using first order Markov chain and Entropy analyses. The facies relationship evaluated from difference matrices exhibits fining upward asymmetric cycles. The combination of these lithofacies strongly divulges that the lower part of the succession was deposited in braided-stream regime, whereas the upper part was deposited in erg environment. The upward facies transition data recorded from field observations were subjected to Markov chain and entropy analyses. The pre and post-depositional entropy values ($E^{(pre)}$ and $E^{(post)}$) for most of the facies deciphering wide range of variation depict variable degree of dependency on precursor and influence on successor states during Sullavai sedimentation.

Keywords: Cyclicity, Markov chain analysis, entropy analysis, siliciclastic sedimentation, Pranhita-Godavari Graben, India