

Sequence Stratigraphy and Depositional Facies in the Chase Group (Permian, Wolfcampian), South-Central Kansas: Abstract

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ABSTRACT

Chase Group strata in south-central Kansas consist of 400 ft of cyclic carbonate and siliciclastic strata. The fundamental stratigraphic unit recognized is the cyclothem (sensu Heckel), defined as a transgressive-regressive package of genetically-related strata. Component shallowing-upward cycles within the transgressive and regressive phases of cyclothem are the highest-frequency genetic units in the section. Single cyclothem, or groups of two cyclothem, are included within six depositional sequences, which are bounded by terrestrial red shales interpreted as representing periods of maximum lowstand emergence.

The six depositional sequences recognized in the section, and most of their component cyclothem, are regionally correlated from southeastern Nebraska, through Kansas, and into northeastern Oklahoma. Evidence of Southern Hemisphere glaciation and characteristic stacking patterns of cyclothem and component cycles suggest fundamental glacio-eustatic control on deposition. However, some cyclothem and component high-frequency cycles in the section do not extend regionally, cyclothem and cycle thicknesses deviate from those expected in eustatic-controlled accommodation events, and in many cases, cycles can not be correlated regionally. Furthermore, dramatic thickness changes occur within some cyclothem, particularly in areas of long-lived tectonism. In these cases, cycle and cyclothem development apparently were controlled largely by accommodation changes related to local tectonism. Chase Group strata therefore represent a complex mosaic of eustatically and tectonically-controlled cyclic deposits.

ACKNOWLEDGMENTS AND ASSOCIATED FOOTNOTES

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