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Growth Strata and Fluvial Reservoir Distribution

Because of their facies diversity and susceptibility to local variations in accommodation, fluvial deposystems can be sensitive indicators of syndepositional deformation. Investigation of fluvial facies in salt-related growth strata outcrops (Triassic Chinle Formation near Moab, Utah) and subcrops (flanks of offshore Gulf of Mexico salt domes) in the context of kinematic sequence development (see Barbeau and Geslin, this volume) suggest that channel complex geometries correlate with their respective kinematic systems tracts. Results from analyses of fluvial stacking patterns in different kinematic systems tracts infer that: 1) The trends of fluvial channel complexes are more structurally controlled in Offlap Systems Tracts than in Onlap Systems Tracts. 2) Channel complexes in Offlap Systems Tracts are isolated, relatively narrow and have small (<20) width-thickness ratios. 3) Channel complexes in Onlap Systems Tracts are thin, connected and have large (40-100) width-thickness ratios. These correlations support the interpretation that onlap and offlap stratal termination patterns develop as a result of distinct rates of syndepositional deformation and suggest that stratal termination patterns are an accurate means of delineating kinematic systems tracts. Fluvial facies contained within growth strata outcrops may therefore prove useful in establishing deformation histories of attendant structures, especially in the cases of stratal termination patterns and bedding planes that are not easily tracked. Application of these and similar interpretations in the context of kinematic sequence stratigraphy can improve predictive models for fluvial reservoir characterization and distribution in growth strata settings.