

# Facies architecture, paleo-reconstruction and controls of a fluvial system: Cretaceous Ferron-Notom Delta, Utah, U.S.A.

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There are 4 models that have been hypothesized to explain channel-belt organization in ancient fluvial systems 1) avulsion processes create clustered channel-belts with random geometry, 2) channel-belt organization is related to net to gross, wherein the cross sectional geometry of fluvial systems can be attributed to changing accommodation and sediment supply, 3) channel-belt organization is controlled by sequence stratigraphy in which a fall in base level creates lateral confinement and amalgamated clusters within valleys, and 4) fluvial systems can be self-organized by autocyclic processes, producing non-random stratigraphy, dominated by avulsion clusters.

The aim of this research is to test these models by examination of fluvial deposits of the Late Cretaceous (Turonian) Ferron Sandstone Member, within the Mancos Shale Formation in Central Utah, along Sweetwater Wash, where the alluvial stratigraphy of the upper part of the Ferron is particularly well-exposed. Detailed cross sections, based on measured sections, walking out beds, and photopans, will show the proportion of channel belt, floodplain, and overbank splays and crevasse channels, which will address the degree of amalgamation of the channel-belts. Previous sequence stratigraphic analysis will help determine the larger-scale allogenic controls on alluvial architecture and stratigraphy. Detailed analysis of the internal facies architecture will enable determination of the plan-view style of the rivers that build each channel belt. This will also allow a test of the classic idea that meandering systems form muddy alluvial successions while braided systems form predominantly sandy successions. ■

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