

**ANATOMY OF DELTAIC COMPOUND CLINOFORMS; COLORADO  
DELTA IN BAJA CALIFORNIA, MEXICO, PLIOCENE COLORADO  
DELTA IN FISH CREEK-VALLECITO BASIN, CALIFORNIA, USA**

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**ABSTRACT**

Recent datasets on modern tidal deltas suggest that a compound-clinoform arrangement is characteristic for large tidal-dominated river deltas, but there are no good examples from ancient deposits. The modern Colorado river delta, in Baja California, Mexico, is tidally dominated and exhibits a compound clinoform.

The km-long outcrops of the Yuha and Camel Head members of the Deguynos Fm., located in Fish Creek-Vallecito Basin, California, expose the ancient (mid-Pliocene) deposits of the Paleo-Colorado Delta. The sedimentary features of four continuous Fish Creek-Vallecito Basin outcrops were measured, producing hundreds of meters thick stratigraphic sections through the Yuha and Camel Head members. Seven associations of facies were recognized and assembled into three depositional environments: subaqueous foreset to bottomset, subaqueous topset, and platform, and shoreline clinothems. The depositional environments are part of the progradation of the mid-Pliocene Colorado delta in Vallecito-Fish Creek Basin and are analogous to the ones observed in the modern Colorado Delta. The Yuha and Camel Head Members exhibit multiple (at least 22) high-frequency regressive-transgressive (R-T) sequences with an average thickness of 25 m. However, in each sequence the thickness changes laterally along the outcrops. R-T sequences, with a coarsening-upward lower part and a sandy to silty upward-fining upper part are interpreted as 5th order timescale related to autogenic changes within the depositional environment, as suggested by variations in thickness and approximate time duration of each cycle. The R-T sequences are further organized in four sequence sets interpreted as 4th order timescale, mapped by vertical changes in thickness and environment along the outcrop, and probably controlled by eustatic processes.



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