

## **Sedimentology and Facies Architecture of a Mixed-Energy Strand Plain Deposit, Upper Member Dakota Formation, Southern Kaiparowits Plateau, Southern Utah**

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Along the southern margin of the Kaiparowits Plateau, the Cretaceous (Albian - Cenomanian) Dakota Formation is divided into three informal members: 1) a lower member that consists of gravelly braided stream deposits; 2) a middle member that consists of mixed load meandering channel, flood plain, and nearshore coastal plain deposits; and 3) an upper member that consists of mixed-energy (tide and storm wave modified), strand plain deposits. In general, the Dakota Formation is a retrogradational parasequence set, recording the mid Cretaceous transgression of the Greenhorn Sea into southern Utah.

The upper member of the Dakota contains two landwardstepping, “top-truncated”, progradational parasequences. The facies assemblage and invertebrate fauna of the lower parasequence indicate that it was deposited within a large bay behind a microtidal barrier island system, whereas the facies assemblage and invertebrate fauna of the upper parasequence indicates it was deposited on a mesotidal strand plain, characterized by tidal channels, marshes, tidal inlets and an ebbtidal delta.

The top-truncated nature of the parasequences is due to both, autocyclic tidal processes during progradation and erosion below wave base during the subsequent transgression. Detailed facies mapping and paleocurrent analysis of the upper member near its seaward pinch-out reveals an excellent example of an ebb-tidal delta.