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**The Stratigraphic Expression of Parasequences in a Coastal Plain Setting, Examples from the Book Cliffs of Eastern Utah: A Sediment Portioning Model for Improved Correlation**

The Blackhawk Formation, from the Book Cliffs of Eastern Utah is a well-studied clastic-wedge that includes shallow-marine and coal-bearing coastal-plain deposits. The shallow marine portions of the cliffs are one of the type areas for the study of parasequences. The majority of shoreface parasequences are capped by coals (in their up-dip portion) which extend into the nonmarine succession. Using regional extensive coal-seams as stratigraphic markers it is possible to trace parasequences from the shallow-marine into the broadly time equivalent coastal-plain strata. The amount of sea-level rise associated with the formation of each successive parasequence is estimated at 10 – 15m and the landward displacement of the shoreline is typically 8 – 10km.

The nonmarine deposits of the Blackhawk are predominantly comprised of meandering channel and sub-aqueous overbank deposits. In modern examples, such systems generally dip at  $<0.01^\circ$ . Consequently a 10m sea-level rise should result in a 600 km landward displacement of the shoreline. This is clearly not the case. Correlation of individual parasequences up depositional-dip reveals the solution to this paradox and has important implications for the mechanism of parasequence formation within both the nonmarine and marine portions of the depositional system.

Two distinct scenarios have been observed up depositional dip from the marine sections of parasequences. In the most common case, the relative rise in sea-level caused the shoreline to become a barrier system whilst in the other case, the shoreline on-laped on to the edges of topographically raised mires. In both cases timing of deposition in the coastal plain and shoreface are partitioned into discrete events.