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Variations in System Tract Architecture and Accommodation Space in Upper Campanian Strata, Eastern Book Cliffs, Colorado and Utah

Six high-resolution stratigraphic sequences are interpreted within Upper Campanian strata of the Book Cliffs in Colorado and Utah. The sequences are informally named for prominent stratigraphic units, in ascending order, the upper Segoo, Neslen, Corcoran, Buck Canyon/lower Cozzette, upper Cozzette, and Cozzette/Rollins sequences. All sequences are bounded by major incised surfaces except the upper conformable sequence boundary of the Cozzette/Rollins. The incised surfaces are interpreted as sequence boundary unconformities that allowed bypass of sediment to either attached or detached lowstand shorelines. The subsequent valley-fill deposits generally consist of tidally-influenced strata that were deposited during an overall base-level rise. Retrogradational parasequences are well preserved only in the Cozzette/Rollins sequence. Transgressive surfaces can be traced or inferred into estuarine deposits above and landward of the shoreface deposits, and maximum flooding surfaces can be traced or inferred into coastal-plain deposits. Coastal-plain deposits associated with progradational parasequences are thick in the Cozzette/Rollins sequence, but are thin in the rest of the sequences. Most sequences have been affected by relatively low rates of creation of accommodation space as indicated by incised valleys, a lack of preservation of retrogradational parasequences, low preservation of coastal plain strata in the highstands, and a low angle of stratigraphic climb in the highstand parasequences. In contrast, the Rollins/Cozzette sequence had higher accommodation space as indicated by a lack of valley incision at the top of the sequence, well-developed retrogradational parasequences, high preservation of coastal-plain strata in the highstands, and a high angle of stratigraphic climb in the highstand parasequences.