as was significantly stronger than the influence of long-term RSL fluctuations. Autocyclic processes and RSL-independent variations in sediment input could have been significant only on the medium- and long-term scales, i.e., they could have modified bundling of the small-scale lithological units. Relative sea level variations (regional and local) were responsible for most of the prominent lithologic changes identifiable in subsurface data. Along with the dilution mechanisms, the RSL control was mediated by changes in the accommodation envelope: owing to the generally low-accommodation conditions, deposits of medium- and long-term lowstands show a tendency for winnowing or bypassing-related condensation. The winnowed (typically phosphate-bearing) intervals are considered lowstand deposits. In many cases, they can provide the key for sequence stratigraphic interpretation of distal hemipelagic successions.

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Depositional and Relative Sea Level History of the Cenomanian/Turonian Interval, Dakota and Straight Cliffs Formations of the Western Interior Basin, Southwestern Utah

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Continental to shallow marine deposits of the latest Cenomanian to Middle Turonian age were studied in the westernmost part of the Western Interior foreland basin, in the areas of Markagunt and Paunsaugunt plateaus. The combination of field and subsurface-based, sedimentologic and stratigraphic research allowed a relatively detailed reconstruction of depositional and relative sea level history of the interval to be made. Further correlation with the 'classic' hemipelagic succession of the Bridge Creek Limestone, in which fine orbital tuning was performed in previous studies (Meyers et al., in press), resulted in relatively precise assessment of the temporal context of the stratigraphic record.

The studied succession was subdivided into 14 informal units based on recognition of surfaces or zones of subaerial exposure, which are overlain by marginal marine deposits (typically barrier/lagoonal). Most of these depositional units formed in response to allocyclic processes, but their relationships to possible high-frequency relative sea level (RSL) changes remains debatable.

The depositional units are grouped into three packages, whose bounding surfaces can be laterally traced into erosional surfaces of probable fluvial origin. These surfaces are interpreted as sequence boundaries (*sensu* VanWagoner et al. 1988). The erosional topography is typically filled with deposits of tide-dominated estuary, which are attributable to lowstand or early transgressive systems tracts.

The sequence stratigraphic analysis suggests that prominent RSL rise and the associated transgression during early *Sciponoceras gracile* were followed by three minor (medium-term) episodes of forced regression, all during the latest Cenomanian (*Sciponoceras gracile* to early *Neocardioceras juddii*). Another prominent RSL rise took place during the latest Cenomanian (late *Neocardioceras juddii*), and culminated during Early Turonian. Its effect was, however, partly masked in the westernmost part of the study area by syndepositional deformation and uplift of the foredeep deposits.

In addition to regional changes in relative sea level, local RSL variations due to faulting in the proximal foredeep affected the geometry of the basin fill. Late Cenomanian to Early Turonian subsidence history of the study area was characterized by rapid eastward (i.e. basinward) migration of the major depocenters, which might have been related to in-sequence propagation of the Sevier thrust front.

Well-log-based correlation of the regional sequences to the coeval hemipelagic succession with well-established chronostratigraphic framework suggests that durations of the short-term depositional sequences ranged between 80 and 100 ka. These values are comparable to periodicities of the Milankovitch cycles of eccentricity suggesting a possibility of orbital forcing of the regional sea level fluctuations.

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