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SOURCES AND CONTROLS ON ORGANIC MATTER DEPOSITION AND PRESERVATION IN THE CRETACEOUS WESTERN INTERIOR SEAWAY

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The latest Cenomanian-earliest Turonian interval was sampled in cores representing a three-site transect across the KWIS (Bridge Creek member of the Greenhorn formation and correlative units) for organic geochemical analysis. This study was designed to examine paleoceanographic controls on organic matter composition within a cyclic pelagic carbonate sequence. Sources of water to the seaway include fresh, riverine input from the east and west margins and oceanic water from both the North (Boreal) and South (Tethyan); we expected to see differences in the distribution and $\delta^{13}\text{C}$ of biomarkers across the basin as the relative inputs of these waters varied.

The dominant control on compound distribution was location relative to the basin margin. *N*-alkane distributions indicate that terrestrial inputs dominated on the western margin, proximal to the Sevier highlands, and a mixture of marine and terrestrial sources contributed to the central and east-central basin. Sterane distributions also vary across the basin; in general, central basin cores have similar distributions while the westernmost core contains proportionally less C_{29} and proportionally more C_{28} and C_{30} . Variations in the homohopane index and diasterane ratio suggest that relative to the proximal location, central basin samples experienced more oxidizing conditions.

While less distinct, sterane distributions also vary between the two central basin cores: $\%C_{28}$ and $\%C_{30}$ were less and $\%C_{27}$ greater in the central basin samples than in the east-central basin samples. On the basis of preliminary isotopic evidence, we suggest these differences arise from a greater contribution of Tethyan Ocean water to the easternmost sample location. Furthermore, shifts in sterane distributions from our deep central basin core to the shallow, east central basin core are the same as upsection biomarker changes reported by Curiale (1994); this suggests that the data of Curiale reflect a Tethyan incursion associated with sea level rise.