

Grab-bag geochemistry of the Kaiparowits Formation in southern Utah: How analyzing whatever you can reveals a complex picture of floodplain hydrology, carbon cycling, forest structure, and dinosaur behavior during the Late Cretaceous

Henry Fricke
Colorado College

Deposited in a foreland basin associated with the Sevier Orogeny, sediments of the Kaiparowits Formation host a wide variety of biogenic and authigenic materials suitable for isotopic analysis, including invertebrate shells, vertebrate tooth enamel & dentine, leaf waxes & other plant biomarkers, paleosol carbonate nodules and carbonate cements. Comparison of data obtained from these different materials provides insights into topography (Sevier highlands close to 4000 m), hydrology (interfluvial wetlands recharged by episodic flooding of large rivers), carbon cycling (methanogenesis in seasonally waterlogged soils), forest structure (existence of both open & closed canopies with occurrence related to soil drainage), and dinosaur behavior (hadrosaurids were selective eaters & drinkers). Similar data collected from contemporaneous localities in Alberta & Montana suggest that southern Utah is not unique in these characteristics.