NON-MARINE SYNOROGENIC SEDIMENTATION IN THE WYOMING-IDAHO-UTAH THRUST BELT FORELAND BASIN

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Tectonic development of the Wyoming-Idaho-Utah segment of the Cordilleran thrust belt is recorded in Upper Jurassic through Eocene deposits of the associated foreland basin. Non-marine strata deposited directly adjacent to the thrust-formed highlands contain evidence of episodic tectonism. These strata intertongue to the east with marine deposits of the Western Interior Cretaceous seaway.

Depositional environment analyses of the nonmarine strata of the foreland basin show that periods of tectonic activity are characterized by braided stream deposition in proximal areas. Clast supported cobble conglomerates, horizontally stratified, and planar-tabular cross-bedded coarse-grained sandstones are characteristic. These proximal strata typically grade eastward down paleoslope into finer grained meandering stream deposits characterized by point bar pebble conglomerates and trough cross-bedded sandstones and floodplain mudrocks.

Proximal nonmarine sedimentation during periods of tectonic quiescence is dominated by low-gradient meandering streams. Typical deposits include medium to fine grained trough crossbedded sandstone, siltstone, and mudstone. Similar meandering stream deposits characterize distal environments. However, mudrocks and micritic limestones, deposited in clastic and carbonate lacustrine systems respectively, also occur.

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