

## Abstracts of Papers

The lower unit of the Quadrant Sandstone represents a shallowing upwards depositional sequence of massive and bioturbated sandy dolostone, algal laminated sandy dolostone, and thin bedded, cross-stratified sandstone. These deposits, originally formed in sandy carbonate tidal flats, resemble modern siliclastic subtidal to sabkha environments in coastal areas along the Persian Gulf. The upper unit of the Quadrant Sandstone formed by eolian deposition landward of these coastal carbonate environments. In this sandstone unit, compound and simple dune bedforms, as well as interdune depositional features are recognized from five descriptive facies: 1) medium- to small-scale cross-stratified sandstone, 2) large-scale, cross-stratified sandstone, 3) horizontally-laminated sandstone, 4) rippled and irregularly-laminated sandstone, and 5) massive sandstone. The accumulation and subsequent preservation of Quadrant sands resulted from the migration and net sand deposition of climbing dune bedforms.

Paleowind directions from the upper sandstone unit reveal a regionally consistent north to south wind flow comparable to that of equivalent Late Paleozoic sandstones in Wyoming and Colorado. A Quadrant-Tensleep sand sea model is postulated for a large area of eolian deposition on the Wyoming shelf.

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### **Origin and Paleotectonic Setting of the Pennsylvanian Quadrant Sandstone, Southwestern Montana**

A thick sequence of Pennsylvanian Quadrant Sandstone in southwestern Montana was deposited within an intracratonic basin (the Snowcrest trough) at the western edge of the Late Paleozoic Wyoming Shelf.