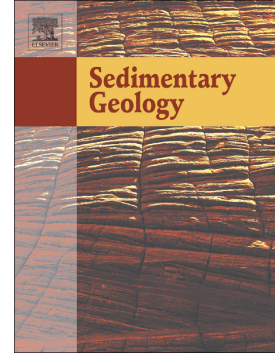


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**Pedogenic record of climate change across the Pennsylvanian-Permian boundary in red-bed strata of the Cutler Group, northern New Mexico, USA**

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**Abstract**

The Upper Pennsylvanian to lowermost Permian El Cobre Canyon and Arroyo del Agua formations are well exposed in a 250+ m section in the Chama Basin in northern New Mexico. This is one of the few known successions of fossiliferous red-bed siliciclastic sediments encompassing the Pennsylvanian-Permian boundary in the American Southwest and thus may inform questions regarding changing paleoclimate in tropical Pangea across the Pennsylvanian-Permian boundary. The section consists mainly of silty mudstones and sandstones with sheet-like to ribbon geometry and very minor limestones and records an upward transition from mainly braided stream deposition in the El Cobre Canyon Formation to anastomosing stream deposition in the Arroyo del Agua Formation.

We recognized multiple paleosol types within these strata, including calcic Protosols, calcic Argillisols, argillic Calcisols and Calcisols, all generally consistent with the interpretation of a seasonal sub-humid to semi-arid climate. The calcretes in these paleosols occur primarily as truncated profiles. Although Calcisols occur in both

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