Late Albian sequence stratigraphy and geochemical events in the Chihuahua Basin, southeast New Mexico

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This research project has two objectives: 1) test the prominent Upper Albian sequence boundary between the Edwards Formation and the Washita Group for subaerial exposure, and 2) test for evidence of the latest Albian oceanic anoxic event. The sequence boundary at the top of the Edwards Formation and Fredericksburg Group is a widespread contact in the subsurface and outcrops in the area of the United States and Mexico Gulf Coast.

Multiple oceanic anoxic events occurred during the Cretaceous Period and while all of these events have been identified in other parts of the world, not all have been identified in the Gulf Coast of North America. This research will test the Mesilla Valley Formation, a black shale exposed on the northeast flank of Cerro de Cristo Rey in Doña Ana County, New Mexico, for the location of Oceanic Anoxic Event 1d. Testing will be accomplished through geochemical analyses, including: isotopes, trace metals, and iron. Chronostratigraphic and chemostratigraphic changes will be tracked throughout the shale and geochemical data will be integrated with existing biostratigraphic data to correlate with standard zonal schemes. It is expected that a positive $\delta^{13}C$ shift will be identified in the Mesilla Valley shale that will correlate globally with Oceanic Anoxic Event 1d.

Testing for evidence of subaerial exposure at the top of the Finlay limestone, for regional correlation of the sequence boundary, will be accomplished through isotope and petrographic analyses. Thin sections of the Finlay limestone have been prepared and geochemical data is being processed.