Stratigraphic Variability of the Desmoinesian Marmaton Group across the Lips Fault System in the Texas Panhandle Granite Wash, Southern Anadarko Basin

Patrick D. Jordan

Department of Geosciences, Mississippi State University, 108 Hilbun Hall,
P.O. Box 5448, Mississippi State, Mississippi 39762

GCAGS Explore & Discover Article #00197*
http://www.gcags.org/exploreanddiscover/2017/00197_jordan.pdf
Posted October 30, 2017.

*Article based on a full paper published in the *GCAGS Transactions* (see footnote reference below), which is available as part of the entire 2017 *GCAGS Transactions* volume via the GCAGS Bookstore at the Bureau of Economic Geology (www.beg.utexas.edu) or as an individual document via AAPG Datapages, Inc. (www.datapages.com), and delivered as a poster presentation at the 67th Annual GCAGS Convention and 64th Annual GCSSEPM Meeting in San Antonio, Texas, November 1–3, 2017.

ABSTRACT

The Desmoinesian Marmaton Group, along the southern portion of the Anadarko Basin in the Granite Wash, comprises over 2000 ft of stacked tight sandstones and conglomerates, containing unconventional reservoirs. Uncertainty around facies variability and lateral continuity of these reservoirs represents challenges to accurate reservoir characterization due to laterally restricted submarine fan systems, and mountain-front faulting. This study examines 206 wireline well log suites and nine ice-house flooding surfaces across an 810-square mile study area to frame fine-scale sequences, track facies changes, and estimate fault timing and duration. This high-resolution stratigraphic framework comprises a hierarchy of cycles: one third-order, three fourth-order, and eight fifth-order cycles; these were mapped across fault blocks. Mapping at the fifth-order scale documented previously unpublished faults, and showed that movement occurred during two separate fifth-order cycles. Within the stratigraphic framework, well log trends, calibrated to core descriptions, enabled prediction of depositional environments in uncored wells.

Originally published as: Jordan, P. D., 2017, Stratigraphic variability of the Desmoinesian Marmaton Group across the Lips Fault System in the Texas Panhandle Granite Wash, southern Anadarko Basin: Gulf Coast Association of Geological Societies Transactions, v. 67, p. 147–157.