# Influences on the prospectivity of the Tocito and El Vado Sandstones of the San Juan Basin, New Mexico and maybe a few new opportunities.

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The Tocito and El Vado Sandstones have proven to be highly prolific hydrocarbon reservoirs in the largest domestic onshore conventional gas basin in the U.S., the San Juan Basin (SJB). Application of modern drilling technology and favorable petroleum commodity prices have enabled producers to continue pursuing these resources.  However, recent dramatic changes in commodity prices have slowed pursuit of historical plays and now allow opportunity to look for innovative new exploration ideas.  This talk will examine our understanding of the distribution and variability of productive reservoir facies and the factors influencing reservoir heterogeneity after 50 years of development.   Likewise, we will look to underexplored opportunities and look to explain some of the uniqueness regarding these shelf sand units. The Tocito Sandstone is a locally deposited, coarse grained, glauconite rich sandstone with a unique depositional style involving multiple depositional sequences and complex erosional contacts due to focused tidal influence in local paleogeographic lows. The El Vado Sandstone is a low porosity, low permeability regressive-transgressive, storm- and wave-influenced shelf sand that produces in vertical wells from natural fractures and extends deep into the SJB.  New ideas in how shelf sands move and are deposited in the super-greenhouse climates of the WIC Seaway have baring on sand distribution.  Despite being commonly encountered in wells as stacked reservoir intervals, the Tocito Sandstone and El Vado Sandstone are lithologically unique, stratigraphically separate and require different technologies to exploit. Ample opportunity exists for new exploration in both, especially in areas previously un-explored using unconventional techniques. Through extensive regional well log correlations, core analysis and thin section petrography, this study characterizes the controls on deposition of the Tocito and El Vado Sandstones, the regional variability of the nature of these sandstones, the vertical relationships of the Tocito and El Vado Sandstones and underlying units and the influencing factors on reservoir properties and exploration success.

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Dr. Wood joined the faculty at Colorado School of Mines in January 2015 as a Professor and the Robert Weimer Endowed Chair in Sedimentary and Petroleum Geology, where she is director of the Sedimentary Analogs Database and Research Program (SAnD). Prior to joining CSM, Dr. Wood held positions at the University of Texas at Austin, Amoco Production Company and Arco. She received her doctorate in 1992 from Colorado State University following her MS work at the University of Arkansas. Dr. Wood specializes in quantitative seismic geomorphology of clastic basins, structural and sedimentary system interactions, submarine mass failures, petroleum geology, mobile shales and geomorphology of Mars. She has served as SEPM Society for Sedimentary Geology national Secretary-Treasurer, the GCSSEPM President and is active in the Geological Society of America, the American Association of Petroleum Geologists and the Geological Society of Trinidad and Tobago. She also served as a member of the Ultra-Deepwater Advisory Committee for the U.S. Secretary of the Department of Energy and sits on the RPSEA Board of Directors and the RPSEA GECO2 advisory board. She serves as an Associate Editor at Geosphere and Interpretation. Dr. Wood has published widely on the nature of modern and ancient deep- to shallow-water systems around the world and has won numerous best paper and poster awards, including AAPG's Sproule Award, and most recently the 2014 EAGE Norman Falcon Award as co-author of the Best Paper in Petroleum Geosciences.

https://geology.mines.edu/project/wood-lesli/

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