



# West Texas Geological Society 2021 Spring Field Trip

## *Old Rocks, New Ways: The Precambrian through Devonian of far west Texas and New Mexico*

Field Trip Leader:

Andy Roark

Chevron North America E & P



Sponsor:

**SUTTLES LOGGING, INC.**



*Additional sponsors are welcome!*

**Thursday, May 6 – Sunday, May 9**

### **TRIP ABSTRACT & ITINERARY:**

Precambrian through Devonian strata exposed in the Franklin, Organ, and Sacramento Mountains are nearly identical in thickness and lithology to the equivalent subsurface interval in the Permian Basin. WTGS's off-cycle field trip for Spring 2021 will visit these areas, each of which provides unique insights to deep saltwater disposal zones, conventional reservoirs, and unconventional target zones. Over three days we will investigate this section, which covers over 100 million years of time, and the major bounding unconformities, several of which represent a more than 10-million-year time gap each.

Thursday: Travel day.

Friday: We will highlight the stratigraphy and matrix pore systems of these rocks. The Franklin Mountains near El Paso, Texas, offer a complete section of the Ordovician El Paso Group (Ellenberger equivalent), as well as the type sections of the Montoya and Fusselman Formations. These strata are saltwater disposal zones and conventional reservoirs in different parts of the Permian Basin. We will reconstruct measured sections from literature, learn about matrix porosity and permeability systems, and view spectacular examples of karstic porosity and collapse features.

Saturday: Our focus will be on fractures and tectonic history as we visit Bishop Cap in southern New Mexico. Multiple shallow abandoned fluorite mine shafts penetrate seismic-scale faults cutting the Fusselman, revealing the associated natural fracture networks in three dimensions. We will also have a chance to examine an over 2,000' long outcrop of the Percha Shale, a rare opportunity to observe distal organic-rich mudstones at the scale of a horizontal well.

Sunday: We will trace the major unconformity bounding surfaces nearly 100 miles from the southern Franklin Mountains in Texas to the Sacramento Mountains in New Mexico. In Alamo Canyon, continuous exposure and minimal vegetation show truncation along the low-angle Montoya-Fusselman and Fusselman-Percha unconformities. Multiple dikes cutting through the canyon are reminders of the importance of Basin and Range-era tectonism in driving thermal maturity in the western Delaware Basin. At each stop along the transect, we will observe distinct characteristics reflecting changes in environment of deposition in the Devonian Percha Shale (Woodford equivalent). We will also do a geosteering simulation exercise.

**DETAILS:**

- The Field trip will depart from Midland on Thursday afternoon, spend three nights in Anthony, TX then return to Midland on Sunday evening. Participants will receive a detailed itinerary and packing list ~3-4 weeks prior to the field trip.
- **Attendance is limited to 15 participants.**
- Some COVID-19 protocols will be in place throughout the field trip.
- If you have food allergies, please indicate so we may accommodate you.
- If flying out of Midland on Sunday, schedule flights leaving after 7:00 pm.
- The hikes on this trip are moderately difficult. Hikes are on well-traveled, mostly flat trails with fair footing, with some short detours up heavily vegetated arroyos to see outcrops. Participants must be able to hike upwards of 5-6 miles over the course of a day (6-8 hrs). Rugged, closed-toed shoes and long-rugged pants are required. Temperatures can range from 30-50 degrees F to more than 110 degrees F during this time period. Please take these hiking and weather conditions into consideration before registering for this trip.
- Field trip price includes guidebook, vehicle transportation, snacks/drinks, lodging (single occupancy), breakfast, and lunch. Participants will be responsible for the cost of their dinner throughout the trip. Dinner will be in small groups and accommodated to the local restaurant COVID-19 protocols.

**REGISTRATION:**

To register, please call Paula Sanchez (WTGS office: 432-683-1573) to confirm your spot or mail this completed form with payment to: WTGS, P.O. BOX 1595, Midland, TX 79702. Credit card payments may be made by phone or in person to the WTGS office: 432-683-1573, 2900 W. Front St. Building B (across from the Midland Energy Library). DO NOT send credit card information via email due to security risks. Registration deadline is April 22.

\_\_\_ **Member price \$750.00 per person**  
\_\_\_ **Non-member price \$800.00 per person**

Name: \_\_\_\_\_ Email: \_\_\_\_\_

Company: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Cash, Check, or Credit Cards are accepted. I authorize you to charge the above to my:

Card Number: \_\_\_\_\_

Expiration Date: \_\_\_\_\_ Signature: \_\_\_\_\_