Gulf Coast Association of Geological Societies
and the Gulf Coast Section of SEPM

4 Field Trips
Summaries and Extended Descriptions
60th Annual Convention
October 10-12, 2010
San Antonio, Texas

Hosted by the South Texas Geological Society

Summaries:

Trip 1: Day trip Sunday October 10th, 2010

Stratigraphy and Structure of the Glen Rose Formation and Hidden Valley Fault, Canyon Lake Spillway Gorge, Comal County, Texas

Leaders: David A Ferrill (Southwest Research Institute), William C. Ward (retired, University of New Orleans), and Ann Molineux (Texas Natural Science Center, University of Texas at Austin)

Summary: At Canyon Lake Gorge floodwaters exposed a 60-m-thick continuous section of the Lower Albian Glen Rose Formation with abundant fossils, trace fossils, and the Hidden Valley fault. We will explore a fault zone in carbonate strata like many other faults that influence the behavior of groundwater aquifers and hydrocarbon reservoirs in carbonate strata. We will see examples of spring discharge from faults, fractures, and beds with vuggy porosity, as well as contrasting impermeable fault zones. For those interested in groundwater reservoirs, the Upper Glen Rose Trinity Aquifer is exposed in the gorge.

Trip 2: Day trip Sunday, October 10th, 2010

The Balcones Fault Zone Edwards Aquifer of South-Central Texas

Leaders: Geary Schindel, Steve Johnson, John Hoyt (Edwards Aquifer Authority, San Antonio, Texas)

Summary: We will tour research and environmental monitoring sites in the contributing, recharge, and artesian zones of the Balcones Fault Zone segment of the Edwards Aquifer. We will visit Bear and Cub caves, discussing their hypogenic paleo springs to epigenic recharge feature transition, and Comal Springs, discussing recharge zone interaction, endangered species issues, and a nearby saline water well.

Trip 3: Day trip Sunday, October 10, 2010

Geology of the San Antonio Area

Leader: Thomas E. Ewing, Frontera Exploration Consultants

Summary: On this field trip we 'follow the water' from caves and other recharge features north of San Antonio to the springs where Edwards Aquifer water issues, then downstream to discuss the five early Spanish mission complexes and their building stones and water supplies. We will also visit quarry sites which supplied building stone and cement, and which have been reclaimed as gardens and golf courses. Anyone interested in the interaction of geology, landscapes, and natural and human history would enjoy and learn from this trip. The trip is non-technical and open to all attendees, delegates and spouses.

Trip 4: Tuesday evening, October 12, 2010 through Thursday evening, October 14, 2010

Eagle Ford (Boquillas) Formation and Associated Strata in Val Verde County, Texas.

Leader: Brian Lock – University of Louisiana, Lafayette

Summary: If you are trying to decide where to buy Eagle Ford leases or in what interval to drill your lateral, here is a chance to see the environments of Eagle Ford shale deposition which may control the reservoir quality in the subsurface. Black, bituminous Boquillas shale, the local equivalent of the Eagle Ford, outcrops in Val Verde and Terrell counties, exposing the sequence from Albian through Coniacian. The basal member displays excellent examples of debris flows and slump structures, with possible contourites. We shall also visit and discuss the distinctive tepee structures in the Boquillas. The second morning will be spent looking at the Del Rio Formation, with exposures of tempestite sands with hummocky cross-stratification, gutter casts, sole marks and microbial mats. The significance of several unconformity surfaces will also provoke debate.

Extended Descriptions:

Trip #1 – Stratigraphy and Structure of the Glen Rose Formation and Hidden Valley Fault, Canyon Lake Spillway Gorge, Comal County, Texas

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Leaders: David A Ferrill (Southwest Research Institute), William C. Ward (retired, University of New Orleans), and Ann Molineux (Texas Natural Science Center, University of Texas at Austin)
Date: Sunday, October 10, 2010
Depart: Grand Hyatt, Convention Center, 8 am
Return: Grand Hyatt, Convention Center, 3 pm
Tuition: $TBA per person; price includes transport, picnic lunch and guidebook.
Enrollment: Maximum 44 persons.
Who Should Attend?
This field trip will be of interest to paleontologists, geomorphologists, stratigraphers, and structural geologists. The hike will require walking and moderate climbing over uneven terrain for nearly 2 km (1.2 mi). Wear sturdy shoes or boots. Wear hat and bring water. No fossils or rock samples may be collected in Canyon Lake Gorge.
Summary:

Horrendous rains in the Guadalupe River watershed in late June and early July 2002 sent rapidly rising waters of Canyon Lake over the spillway for the first time. The creek valley below the spillway was transformed by floodwaters into a long gorge, excavated as much as 9 m below the former ground level. This new canyon exposes a 60-m-thick continuous section of the Lower Albian Glen Rose Formation. This stratigraphic section is deformed and offset by the Hidden Valley fault, which is exposed for an along-strike distance of 800 m (0.5 mi) in the gorge, providing the opportunity to explore a fault zone in carbonate strata like many other faults that influence the behavior of groundwater aquifers and hydrocarbon reservoirs in carbonate strata. During the field trip we will explore the stratigraphy, paleontology, and structure of Canyon Lake Gorge. For those interested in groundwater reservoirs, the Upper Glen Rose Trinity Aquifer is exposed in the gorge. We also will see examples of spring discharge from faults, fractures, and beds with vuggy porosity, as well as contrasting cases where the fault zone appears to be impermeable versus highly permeable.

Trip #2 – The Balcones Fault Zone Edwards Aquifer of South-Central Texas

Leaders: Geary Schindel, Steve Johnson, and John Hoyt – Edwards Aquifer Authority, San Antonio, Texas
Date: Sunday, October 10, 2010
Depart: Grand Hyatt, Convention Center, 8 am
Return: Grand Hyatt, Convention Center, 5 pm
Tuition: $TBA per person; price includes transport, one picnic lunch and guidebook.
Enrollment: Maximum 44 persons.
Who Should Attend?
This field trip will be of interest to geologists, hydrogeologists, and environmental scientists.
Summary:

The Balcones Fault Zone Segment of the Edwards Aquifer, located in south-central Texas, is one of the most permeable and productive aquifers in the United States. The aquifer extends more than 180 miles from Del Rio, east through San Antonio, and then north through Austin to Waco. The Edwards Aquifer is the primary water source for more than 1.7 million people in the region and provides most of the water for agriculture and industry. In addition, the aquifer discharges through a series of large springs that provide critical habitat for a number of threatened and endangered species.

The Edwards Aquifer Authority (Authority) was created in 1996 by the Texas Legislature to preserve and protect the Edwards Aquifer, a unique groundwater resource. The Authority has broad authority to implement programs to regulate water withdrawal and water quality in the aquifer. The Authority has a comprehensive research and data collection program to support regulatory and policy programs for the aquifer. This field trip will visit various research and environmental monitoring sites in the contributing, recharge, and artesian zones of the aquifer.

Trip #3 – Landscapes, Water and Man: Geology and History in the San Antonio Area

Leader: Thomas E. Ewing, Frontera Exploration Consultants
Dates: Sunday, October 10, 2010

Depart: Grand Hyatt, Convention Center, Sunday morning, 8 am
Return: Grand Hyatt, Convention Center, Sunday afternoon, 4 pm
Tuition: $TBA per person; price includes transport, lunch and guidebook.
Enrollment: Maximum 44 persons.

Who Should Attend?
Anyone interested in the interaction of geology, landscapes, and natural and human history would enjoy and learn from this trip. It is also an excellent introduction to the geology and history of the San Antonio area. The trip is non-technical and open to all attendees, delegates and spouses.

Summary:
San Antonio and the nearby Hill Country are the most historical part of Texas. The development of this area has been intimately shaped by the diverse landscapes, the abundant groundwater, and other earth resources. The diverse rocks that underlie the area control these resources and landscapes.

On this field trip we 'follow the water' from caves and other recharge features north of San Antonio to the springs where Edwards Aquifer water issues, then downstream to discuss the five early Spanish mission complexes and their building stones and water supplies. We will also visit quarry sites which supplied building stone and cement, and which have been reclaimed as gardens and golf courses.

Trip #4 – Eagle Ford (Boquillas) Formation and Associated Strata in Val Verde County, Texas.

Leader: Brian Lock – University of Louisiana, Lafayette
Dates: October 12 through October 14, 2010
Depart: Grand Hyatt, Convention Center, Tuesday afternoon, 4 pm, October 12, 2010 (NOTE: last technical session ends at 3:55 pm, so plan to leave early and be on bus by 4 pm)
Return: Grand Hyatt, Convention Center, Thursday evening, 8 pm, October 14
Tuition: $TBA per person; price includes transport, two picnic lunches and guidebook. Breakfasts, dinners, and two nights in Del Rio Inn and Suites ($40 to $60 per night), to be paid directly by individual participants.
Enrollment: Maximum 44 persons.
Who Should Attend?
This field trip will be of interest to petroleum geologists, particularly those interested in shale plays, as well as stratigraphers and sedimentologists.
Summary:
If you are trying to decide where to buy Eagle Ford leases or in what interval to drill your lateral, here is a chance to see the environments of Eagle Ford shale deposition which may control the reservoir quality in the subsurface. Outstanding outcrops along U.S. Highway 90 in Val Verde and neighboring Terrell counties expose the sequence from Albian through Coniacian. Wednesday will be spent looking at outcrops of the Boquillas and Atco formations. The Boquillas is the local equivalent of the Eagle Ford and is attracting interest as a potential shale reservoir. Good outcrops of black, bituminous shale will be visited. The basal member displays excellent examples of debris flows and slump structures, with possible contourites.

Thursday morning will be devoted to the Del Rio Formation (Grayson equivalent), with outstanding tempestite sands (hummocky cross-stratification, gutter casts, sole marks and microbial mats).

We shall also visit and discuss the distinctive tepee structures in the Boquillas, interpreted to result from Cenozoic caliche formation, as well as several unconformity surfaces whose significance will also provoke debate.