



*"Science is the great
antidote to the
poison of enthusiasm
and superstition."*

— Adam Smith —
(1723-1790)
Scottish Economist

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PBS-SEPM NEWSLETTER



October 2015

President's Column

As President of PBS-SEPM for 2015-2016, I'm looking forward to an exciting year. The Society plans to continue the tradition of providing outstanding geoscience educational activities throughout the year.

For as many years that I've been a member of various professional societies, it seems that every year its leaders start their letter with a state-of-the-industry report. I didn't plan on doing that, but given the prolonged downturn we're experiencing, it deserves mention. Some of our members, and others in our community have already faced layoffs; undoubtedly there will be more fallout before we reach a turnaround. This is the third major downturn I've experienced in my career and it doesn't seem to get easier. Although these can be trying times, it can also be a time to regroup, reevaluate projects that were executed during boom times, and take advantage of educational opportunities. To that end, PBS-SEPM will be offering the following:

- As always, we have a great series of luncheon speakers for this year. I hope everyone adjusts to, and enjoys

our new luncheon venue, Midland Country Club. Last year's board voted to change locations, due to cost, quality, and ultimately the uncertainty surrounding the future of the Midland Center. I welcome your feedback regarding our new venue.

- We are planning another core workshop in Spring of 2016. Look for more information on that soon. If you have a specific theme or formations you would like to see in a core workshop let us know, we may be able to accommodate.
- For the first time in a few years, PBS-SEPM will be leading a field trip. It will focus on the Pennsylvanian carbonates of the Paradox Basin. The trip will begin and end in Durango, CO, May 12 – 15, 2016. We have several outstanding leaders for this trip. I'd especially like to acknowledge Curtis Helms, PBS-SEPM Past President, for his hard work and personal passion for making this trip a reality.

- The Intern and New Hire Field Trip continues to be very popular, and we will be running it again in June 2016.
- In addition to our major field trip to the Paradox Basin, we hope to bring back our one-day field trips. For those unfamiliar with them, these trips are local, free (or nominal cost), and aim to have a broad appeal. Our goal is to have them be both fun and educational, not just for our members, but for families and other non-technical folks.

In closing, I'd like to express my appreciation to the members of the Board and all of our committee chairpersons for taking the time and effort to contribute to the society. I also thank all of our members for your continued support.

John Leone

**PBS-SEPM President
2015-2016**

<http://www.pbs-sepm.org>

Mark Your Calendars! (all PBS-SEPM luncheons at Midland Country Club)

OCTOBER 2015

- **20: PBS-SEPM Luncheon:** (11:30am-1pm) **Speaker:** Dr. Qilong Fu, B.E.G. (U.T. Austin), **Title:** Early Permian (Wolfcampian) Succession in the Midland Basin: Icehouse Platform, Slope Carbonates, and Basinal Mudrocks

NOVEMBER 2015

- **5: WTGS Fall Social:** (5-9pm) Kessler's Hall, 3204 W. Wall St.
- **10: WTGS Luncheon:** (11:30am-1pm) **Speaker:** Dr. Callum Hetherington, Texas Tech, **Title:** The Porosity and Permeability Response to Matrix Acidification in Oil and Gas Producing Mudstones
- **14: PBS-SEPM One Day Field Trip:** (1-3pm) Caverns of Sonora; Sonora, TX
- **17: PBS-SEPM Luncheon:** (11:30am-1pm) **Speakers:** Sam Huisman and Bob Krantz, ConocoPhillips, **Title:** Regional Tectonic Synthesis of the Delaware Basin

PBS-SEPM Luncheon Talk – October 20, 2015

Dr. Qilong Fu

“Early Permian (Wolfcampian) Succession in the Midland Basin: Icehouse Platform, Slope Carbonates, and Basinal Mudrocks”

Research Associate, Bureau of Economic Geology, U.T. Austin

Tuesday October 20, 2015 - Midland Country Club, 11:30 a.m.

Abstract

Wolfcampian stratigraphy in the Permian Basin records deposition in deep-water basins surrounded by shallow-water carbonate platforms. The stratigraphic framework and facies stacking pattern in West Texas outcrops can be used as a high-resolution analog for comparison to seismic data and wireline log cross sections of the Wolfcamp strata in the subsurface in order to better understand and predict stratal architecture and facies distributions in platform carbonate reservoirs.

The Wolfcampian succession along the eastern Central Basin Platform consists of at least six third-order stratigraphic sequences. Reservoir-quality pores preferentially occur in thick grainstones, phylloid algal boundstones, and a few wackestones and packstones subjected to brief subaerial exposure. Distribution of pores in the Wolfcampian section indicates that supply of clastics and diagenetic processes are major factors determining ultimate porosity in limestones.

Wolfcamp basinal mudrock sequences consist of subaqueous density-flow deposits alternating with more organic matter-rich hemipelagic sediments. The basinal Wolfcamp play includes two primary productive lithofacies associations: detrital carbonate and siliceous or calcareous mudrock. Conventional reservoirs in detrital carbonates are found mainly around basin margins.

In basin-center areas, unconventional reservoirs are found where siliceous and calcareous mudrocks form organic-rich (>2%) intervals. Siliceous mudrocks have the highest TOC content and highest potential for generating hydrocarbons.

Biography



Academic Background: B.Sc. Geology, Changchun College of Geology (Jilin University), Changchun, China, 1987 M.Sc. Geology, Institute of Geology, Chinese Academy of Sciences, Beijing, China, 1990 Ph.D. Geology, University of Regina, Saskatchewan, Canada, 2005 Current Appointment Research Associate, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin (January 2008-Present).

Professional Societies: AAPG, SEPM, IAS

“An education isn't how much you have committed to memory, or even how much you know. It's being able to differentiate between what you do know and what you don't.”

Antoine France

(1844—1924)

“Chance favors the prepared mind.”

- Louis Pasteur
(1822-95)
French chemist and bacteriologist.

PBS-SEPM Executive Board (2015-2016)

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Do you have an idea for an interesting luncheon talk? Have a core workshop you'd like to present? Have some suggestions on how PBS-SEPM can better serve the geologic community? Just click on the e-mail above & drop us a note, your PBS-SEPM Executive Board would love to hear from you!

"Science is facts; just as houses are made of stone, so is science made of facts; but a pile of stones is not a house, and a collection of facts is not necessarily science."

- Jules Henri Poincaré (1854-1912)
French mathematician

Corporate Sponsorships (2015-2016)

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If you are interested in a sponsorship opportunity, please call Paula Mitchell-Sanchez for more details at (432) 683-1573.



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"No one is useless in this world who lightens the burden of it for someone else"

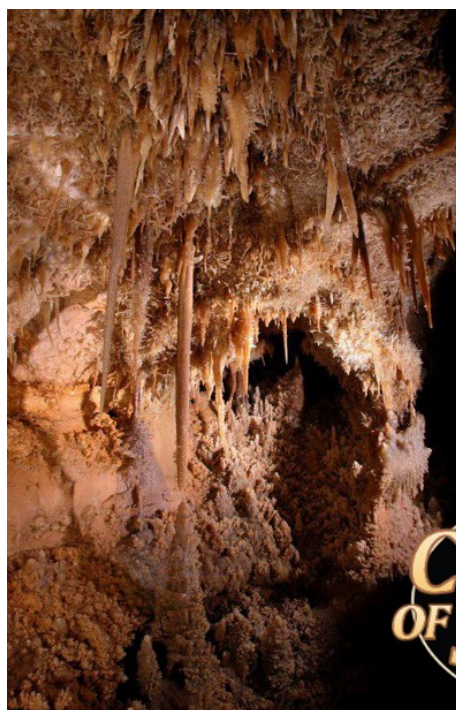
- Benjamin Franklin

PBS-SEPM One-Day Field Trip: November 14, 2015

PBS-SEPM One Day Family-Friendly Field Trip

Caverns of Sonora

Saturday, November 14, 2015 (1-3 PM)



Bring your family for a one hour forty-five minute guided tour of the spectacular Caverns of Sonora in Sonora, TX. Ticket prices are \$18 for adults and \$16 for children ages 4-11 (children under four years of age are free).

The Caverns of Sonora are approximately two and a half hours from Midland. Trip attendees will drive themselves or make their own car-pooling arrangements.

Please call or email the PBS-SEPM office to declare your interest in the trip. **The registration deadline is November 6, 2015.**

Phone: (432) 683-1573 Email: wtgs@wtgs.org

"No man ever steps in the same river twice, for it's not the same river and he's not the same man. Nothing endures but change."

Heraclitus of Ephesus
(535-475 BCE)
Greek philosopher

"Chance favors the prepared mind."

- Louis Pasteur
(1822-95)
French chemist and bacteriologist.

PBS-SEPM 2016 Field Trip: May 12-15, 2016

CARBONATE RESERVOIR CHARACTERIZATION: From Rocks to Fluid Flow Simulation Using Sequence Stratigraphy, Paradox Basin, Utah, USA

LEADERS: J.F (Rick) Sarg¹, L.J. (Jim) Weber², T. (Tom) Chidsey³ and S. (Scott) Ridder⁴

Thursday, May 12 – Sunday, May 15, 2016

(trip begins and ends in Durango, Colorado)



FEE: \$1,450 (includes ground transportation from Durango Doubletree Hotel to Four Corners and back, five nights' lodging (double occupancy, beginning on Wednesday, May 11), river rafting, breakfasts in Bluff, all lunches, one group dinner, refreshments, and guidebook).

Participants responsible for travel arrangements and expenses to/from Durango, CO.

For trip details see following page —>

"In rivers, the water that you touch is the last of what has passed and the first of that which comes; so with present time."

— Leonardo da Vinci
(1452 - 1519)

"You cannot teach a man anything; you can only help him discover it in himself."

— Galileo Galilei
(1564 - 1642)
Italian physicist,
mathematician,
engineer, astronomer,
and philosopher.

¹Colorado School of Mines; ²ExxonMobil Exploration; ³Utah Geologic Survey, ⁴Brigham Young University

PBS-SEPM 2016 Field Trip: May 12-15, 2016 (cont.)

CARBONATE RESERVOIR CHARACTERIZATION: From Rocks to Fluid Flow Simulation Using Sequence Stratigraphy, Paradox Basin, Utah, USA

Introduction and Goals

Deeply incised canyons along the San Juan River provide spectacular exposures of Upper Paleozoic rocks that produce oil in the nearby subsurface of the Paradox Basin of southwestern Colorado and southeastern Utah. These outcrops along with selected subsurface cores will be examined within the context of a mixed carbonate-siliciclastic-evaporite depositional system that may be analogous to other oil producing basins. Particular attention will be devoted to the cyclic nature of Upper Carboniferous strata and the vertical and lateral variation of reservoir and associated non-reservoir rocks. Heterogeneity of lagoon/tidal flat, sand shoal, and reef/mound settings will be investigated as these major depositional systems produce oil and gas in the Paradox basin. Carbonate source rocks in the basin are discussed for their potential as unconventional targets.

The goals of the field trip are to demonstrate how outcrop and subsurface data are integrated to develop reservoir models and in particular permeability models within the context of a predictive sequence stratigraphic framework. The stratigraphic architecture of the giant Aneth Field will be used to generate maps that predict the distribution and quality of stratified carbonate reservoirs. Engineering and petrophysical data are integrated with the geology to refine and validate geologic concepts and develop an understanding of interwell- and reservoir-scale heterogeneities that affect fluid flow and hydrocarbon recovery processes. Methods and concepts discussed are applicable to exploration and producing ventures worldwide.

With river rafts, we will examine the architecture of algal mound buildups at 8-Foot Rapids. Vertical facies successions and the cyclic nature of the strata will be studied in sections at Raplee Anticline and Honaker Trail. These field localities will be used to generate discussion involving the significance of lateral and vertical variability of rock types and their impact on the exploration and production history in the basin. In addition, we will discuss how high resolution sequence stratigraphy is applicable to exploration and producing ventures worldwide.

Itinerary

Day one of this trip will begin in Durango, Colorado on Thursday May 12th, 2016 with background geology presentations and core examination of the Aneth Field. On day two, we will travel from Durango to Bluff, Utah via several stops north of Durango and at the Aneth Field to introduce the participants to the outcrop geology and reservoirs of the Paradox Basin. On day three, we will raft down the San Juan River to observe (1) vertical and lateral variability of reservoir facies (e.g., algal mounds and carbonate sand shoals), (2) porosity and permeability distribution within and between buildups, and (3) petrophysical characteristics of reservoir facies. In addition, we will hike through part of the Raplee Anticline section to examine the transgressive to regressive character of the stratigraphy, general facies types, vertical stacking patterns of high-frequency cycles, biostromal mound geometries, and stacked ooid shoals. On day four, we will hike down Honaker Trail to look in detail at the vertical succession, compare lateral off-mound facies to the reservoir facies at the Aneth Field, and to extend the sequence stratigraphic framework. The trip will end in the evening of day four, Sunday May 15th in Durango, Colorado.

Please note that some of the field stops of this field trip involve walking and climbing in rough terrain. Participants should be physically prepared for climbs and hikes that gain 300 to 1,000 feet (100-300 m) elevation at 5,000-6,000 feet (1500-1800 m) altitude and high temperatures (90 degrees F; 32 degrees C).

Total cost of the field trip is \$1,450. A non-refundable deposit of \$500 is required by January 31, 2016. A second installment payment of \$500 is due by April 1, 2016. The balance of \$450 is due by April 30, 2016. You may pay the full amount in advance, if desired.

Participants are responsible for their travel arrangements and expenses to/from Durango, CO.

For more information, please visit www.pbs-sepm.org or call 432-683-1573

*"No man ever
steps in the
same river
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and he's not
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Nothing
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Heraclitus of Ephesus
(535-475 BCE)
Greek philosopher

*"Chance
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- Louis Pasteur
(1822-95)
French chemist and
bacteriologist.

PBS-SEPM Luncheon Talk – November 17, 2015**Sam Huisman and Bob Krantz*****“Regional Tectonic Synthesis of the Delaware Basin”*****ConocoPhillips**

Tuesday November 17, 2015 - Midland Country Club, 11:30 a.m.

Abstract

Multiple orogenic events have contributed to the shape and style of sedimentary fill in the Delaware Basin. This lecture will focus on the role of the Ancestral Rockies, as the Delaware Basin transformed from the mid-Paleozoic Tobosa Basin into a discrete depo-center in the Pennsylvanian and Permian. Lecture topics include the importance of Proterozoic and Cambrian orogenic events and the re-emergence of crustal fragments as neo-formed structural features forming the Diablo Platform and Central Basin Platform, bounding margins of the emerging Delaware Basin. Permian basin tectonics has been a long discussed topic; refined interpretations presented in this talk will be supplemented from figures in published literature and from ConocoPhillips subsurface datasets.

*“We learn
geology the
morning af-
ter the
earthquake.”*

Ralph Waldo Emerson

*“A
geologist is
a fault-
finder.”*

- Anonymous

PBS-SEPM Publications



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"..In reply, I can only plead that a discovery which seems to contradict the general tenor of previous investigations is naturally received with much hesitation."

[Charles Lyell](#),
British Lawyer, Geologist,
(1797 - 1875)

PBS-SEPM is the Permian Basin Section of SEPM—the Society for Sedimentary Geology. However, you do not need to be a SEPM member or a geologist to join PBS-SEPM.

Our non-profit society relies upon the efforts of dedicated volunteers to serve the geological community—primarily through educational events. These events include monthly luncheon talks, core workshops, annual field trips, and special geological publications. Additionally, we are involved on the college campuses—reaching out to future earth scientists through scholarships, discounted memberships, and offering full-time geology students the ability to participate in professional-grade field trips at little to no cost.

If you would like to join PBS-SEPM, you may visit our website (www.pbs-sepm.org) to learn more about us, download a membership form, and learn how to get involved.

Individual Sponsors of PBS-SEPM (2015-2016)

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Your card will be in every newsletter for one year May to May, on the Website, the Power Point shown prior to every luncheon and in the calendar credits.

"Volunteering is an excellent way to provide meaning in your life and help give back to your local community."

Peter Muggeridge