



PBS-SEPM NEWSLETTER

November 2020

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KEY DATES For November 2020

- NOVEMBER 2020**
- **5: SPE-PB COSG, Petroleum Club of Midland,** 5:30pm-7pm, Laine Valle, Full Section Development Flowback Strategy Case Study in the Delaware Basin Wolfcamp, [RSVP](#)
 - **7: Midland Gem & Mineral Society Fall Outdoor Market,** 602 S. Main St., 10am-4pm
 - **10: WTGS Luncheon,** [Virtual](#), 11:30am-1pm, Kevin Wutherich, Identifying Differing Pathways of Fracture Driven Interactions and Associated Methods to Mitigate
 - **17: PBS-SEPM Luncheon, Bush Convention Center & Virtual,** 11:30am-1pm
 - **19: SPE Section Meeting,** [Virtual](#), 11:30am-1pm, Evan Halpern & Deb Ryan, Where did All the Capital Go? A Look at Full Life-Cycle Economics on Key U.S. Shale Plays

President's Column

This month, I would like to donate my space to introduce the Midland Gem and Mineral Society (MGMS). Event Coordinator, Linda Page and shop foreman, Jim Darby were kind enough to give my wife and I a tour a couple of weeks ago. MGMS has an outdoor event coming up in a few days, which you may be interested in knowing about (see article later in this issue).

I would also encourage you to see the first installment in our new series designed to get you familiar with our officers. Norman Wells, Jr., our 2nd VP, will kick us off with an article giving you an update on how you can help PBS-SEPM. For now, though... please meet MGMS!

Originally started in 1957, the Midland Gem and Mineral Society currently has an eclectic membership of geologists, rock hounds, jewelers, artists, teachers, and others, who come together around a genuine love of minerals, rocks, fossils and all the creative things that can be done with them. We have a monthly meeting the 4th Thursday of the month, and have a presentation on a geologic, rock, or fossil-related topic. Afterwards, members share their projects or recent finds.

Rock and fossil hunts are a regular occurrence, and we have had field trips to road cuts around the state of Texas and to private properties, for which we have gotten special permission to visit. This helps us add to our personal collections, fuel our love of stone, and fill our garages and homes with amazing samples! Members can take advantage of a workshop at our Scharbauer location, which contains grinders, polishers, saws, silversmithing equipment, and more. Together, we learn the arts of lapidary (creation of cabochons), create beautiful silver and stone jewelry, cut slabs and geodes, or take a class on wire-wrapping, chainmaille, or venetian beads. It is a great advantage having access to all those pieces of equipment, which are maintained by the club rather than having them all at your home (though, admittedly, we all tend to collect gadgets of all sorts whether it be a rock tumbler or a lapidary machine!). There are also specialized classes on things like faceting (cutting of gemstones) or general classes on identifying rocks and minerals.

The club often gives demonstrations of what we do at the Midland County Library or during fairs, and we also work with Kids College, a summer program at Midland College, or help organizations like the Girl Scouts earn their geology or jewelry badges.

If you are interested in visiting our shop, we are open most Mondays (except holidays) from 6:30-9:00 p.m at 602 S. Main St. You can tour the shop, talk to some members and check out what folks are working on. You can also find out more about us on our website: www.midlandgemandmineral.org, our Facebook page @midlandgemandmineral or give us a call at (432) 242-7057.



MGMS Headquarters: 602 S. Main St.



"From Slab to Cab" Demonstration Board showing the process from rough-cut slab to final polished cabochon



The MGMS workshop has a collection of saws (left) and grinders (right) available weekly for MGMS members' use, for an additional fee on an "as used" basis.

All photos: Mike Raines
October, 2020



Susan May
Outdoor Market Advertising Chairman



PBS-SEPM Luncheon Talk – November 17, 2020

Stephen R. Robichaud, PG, CPG, Geologist

“Marketable Minerals in Permian Basin Waste Water”

Echelon Exploration & Production Company, Inc.

Tuesday, November 17, 2020 - [Bush Convention Center](#), 11:30 a.m.

~Will be available virtually through Zoom, link will be available after RSVP for that option~

Abstract

Every day, oil and gas operators in the Permian Basin recover, as an unwanted co-produced fluid, tens of millions of barrels of saline waste water. During the early years of production, this waste water was recognized as a nuisance and, eventually, a hazard. Until the present day, the recovery of minerals from this waste water for commercial production has been largely untested. This presentation will outline the technical basis for the exploration for these minerals, and illuminate recent technological developments for economically recovering these minerals.

Previous generations of geologists have recognized that in the Permian Basin the connate water in the oil-bearing rocks is in motion. Carol Hill in 1996 published a comprehensive study on the interdependence between the motion of these fluids with the chemistry of the rocks, the chemistry of the fluids and the dissolution and deposition of minerals. Later work by Art Saller and co-workers illuminated the origin of the fluids through the examination of the water chemistry.

Permian Basin operations have, for many years, unintentionally recovered some of the minerals from this hyper-saline water. Scale in the form of calcium and magnesium sulfates and calcium and magnesium carbonates have been a nuisance in the oil field from the beginning. Additionally, barium in solution is incorporated into this scale as the mineral barite, and is a Naturally Occurring Radioactive Material. Also known to exist at measurable concentrations in Permian Basin water are boron, cadmium, cobalt, lithium, potassium, rubidium and strontium. Other potentially recoverable metals whose presence in Permian Basin waters is unknown are beryllium, copper, molybdenum, nickel, silver, thorium and uranium.

Lithium mining in the past has been mostly by way of the hard-rock mining of spodumene (which contains lithium) and the evaporative precipitation of LiCl and Li₂CO₃ from brines. Recent advances in membrane technology have successfully recovered lithium from brines without the need for the broad footprint of an evaporative pan. In this way the recovery of lithium from Permian Basin water is possible, and under certain conditions could become a significant secondary revenue stream.

In 1976 the USGS convened a symposium on “Lithium Resources and Requirements by the Year 2000”, within which oil field waste water was identified as a probable source of recoverable lithium. The exploration for lithium and other metals will require the sampling of waters over a broad geography in the Permian Basin, and across a broad spectrum of strata, with analysis by way of atomic emission spectrometry.

Biography



Steve Robichaud is Founder, President and Geologist at Echelon Exploration & Production Company, Inc. in Midland, Texas. Mr. Robichaud holds a BS in Geology from Rensselaer Polytechnic Institute in Troy, New York, and an MS in Geology from Louisiana State University in Baton Rouge, Louisiana. Mr. Robichaud began his oil industry experience in 1979 at Getty Oil Company in Midland, and then he worked for Coastal oil and Gas/Border Exploration Company. Since 1984 he has been a Consulting Geologist and Independent oil businessman, specializing in Permian Basin stratigraphy as applied to reservoir characterization, acquisition of producing properties, waste water disposal, and the relationship between regional geologic phenomena and the habitat of hydrocarbons in the Permian Basin. His current work focusses on the economic resource value of minerals which could be recovered from the hypersaline brines associated with the oil and gas production in the Permian Basin.



Permian Basin Section-SEPM ROZ Core Workshop & Field Trip



Friday April 16 (8 AM-2 PM), Bush Convention Center, Midland, Texas
Saturday-Sunday April 17th-18th, 2021 – Field Trip, New Mexico

PBS-SEPM is pleased to announce

The ROZ Core Workshop will be held on Friday, April 16, 2021, from 8 AM to 2 PM at the Bush Convention Center in Midland, Texas. Breakfast will be provided for all registrants.

- Goldsmith San Andres
- Goldsmith-Landreth S
- Shafter Silver District,
- Cleveland # A-601, Ril

Lunch at the Bush Convention Center will be provided. After the workshop, we will head to the Stevens Hotel in Midland for an evening of outcrop stops. Saturday begins the field trip with a breakfast at the Stevens Hotel. Box Lunch is provided (both Saturday and Sunday). Dinner is provided on Sunday. Sunday morning's breakfast will be provided. After breakfast, we will head east. Sunday's field trip will be a day of outcrops and well developed karst. The trip will end with a return to Midland, arriving around 6 PM at the Bush Center.

If you are interested in sponsoring this event, either for the food, supplies, transportation, or student sponsorship, please send an email to info@pbs-sepm.org with your name, company, contact information, and amount you would like to contribute.

If you are interested in driving one of the 5 SUVs on this trip, please send an email to info@pbs-sepm.org with a copy of your Driver's License, Insurance Information, and a few notes of previous experience driving off road in SUVs.

Field trip attendance is limited to 35 registrants, on a first-come, first-served basis.

The Core Workshop and Field Trip give you a chance to see:

- The ROZ interval (and its oil saturation variations with depth)
- Lower San Andres Limestones below the ROZ
- Pay Zones in the Horizontal San Andres Play*
- San Andres meteoric water recharge area
- Impact of Meteoric water-sweep (on fluids and rock)
- Maturity enhancements in clastics exposed to volcanics
- Diagenesis related to volcanic hydrothermal waters
- Stratigraphic and depositional styles of the San Andres
- Karst / collapse breccia in San Andres in outcrops
- Two newly slabbed silver mine cores, never before described

* Yoakum is the most active area, with 250 wells since 2014, producing 300,000 BOPD. Riley's cores are in the heart of the play.

Registration Fees

Core and Field Trip:	PBS-SEPM Members \$425 ()	Non-Members \$460 ()	** Students \$325 ()
Workshop Only:	PBS-SEPM Members \$250 ()	Non-Members \$285 ()	** Students \$125 ()
Field Trip Only:	PBS-SEPM Members \$350 ()	Non-Members \$385 ()	** Students \$200 ()

Name: _____

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Make checks payable to PBS-SEPM & send order form to: PBS-SEPM, 2900 Front St., Midland, Texas 79701

To purchase online, go to <https://www.pbs-sepm.org/events-1/roz-core-workshop-and-fieldtrip> and pay by card

** - Student rate is limited to full time students who are not employed full time

**POSTPONED TO
APRIL 16-18, 2021**

and Field Trip

Registrations will be available for

- C (ROZ), XTO, Ector
- Faskin, Gaines
- Tecos (2 Cores)
- Yoakum

Registrants will board SUVs to travel to the field trip with an overview of the geology of the region. The field trip will be an overview of the geology of the region west of Carlsbad. Participants will have their individual plans for the field trip. The field trip will be to Northern Ruidoso and Roswell, which has well developed karst.

PBS-SEPM Luncheon Talk – December 15, 2020

Hepeng Tian

Majie Fan, Kevin Chamberlain, Lowell Waite, Robert J. Stern

“Zircon Absolute Dates of Late Paleozoic Volcanic Tuffs in the Midland Basin, West Texas”

Department of Earth and Environmental Sciences, UT Arlington
Department of Geosciences, UT Dallas
Department of Geology and Geophysics, University of Wyoming

Tuesday, December 15, 2020 - [Bush Convention Center](#), 11:30 a.m.
~Will be available virtually through Zoom, link will be available after RSVP for that option~

Abstract

High resolution zircons absolute dates of volcanic tuffs from the Lower Pennsylvanian Atoka, the Lower Permian Wolfcamp B, Wolfcamp A, and Lower Sprayberry analyzed by both LA-ICPMS and CA-ID-TIMS will be reported by this talk. The results are the first absolute dates in the Permian Basin and they can help improve regional stratigraphic correlations for the Late Paleozoic time and shed light on the correlation between the Late Paleozoic North America regional time scale and the International Geological Time Scale. Comparing zircon CA-TIMS and LA-ICPMS dates also has implications on how to better determine zircon LA-ICPMS maximum depositional ages.

Biography

Hepeng Tian is currently working towards his Ph.D in Geoscience under his advisor Dr. Majie Fan at the University of Texas at Dallas. He achieved his Master's Degree in Geology at Texas Tech University and his Bachelor's Degree in Geochemistry at China University.



"The thinnest yellow light of November is more warming and exhilarating than any wine they tell of. The mite which November contributes becomes equal in value to the bounty of July."

-Henry David Thoreau
(1817-1862)
Transcendentalist, Writer



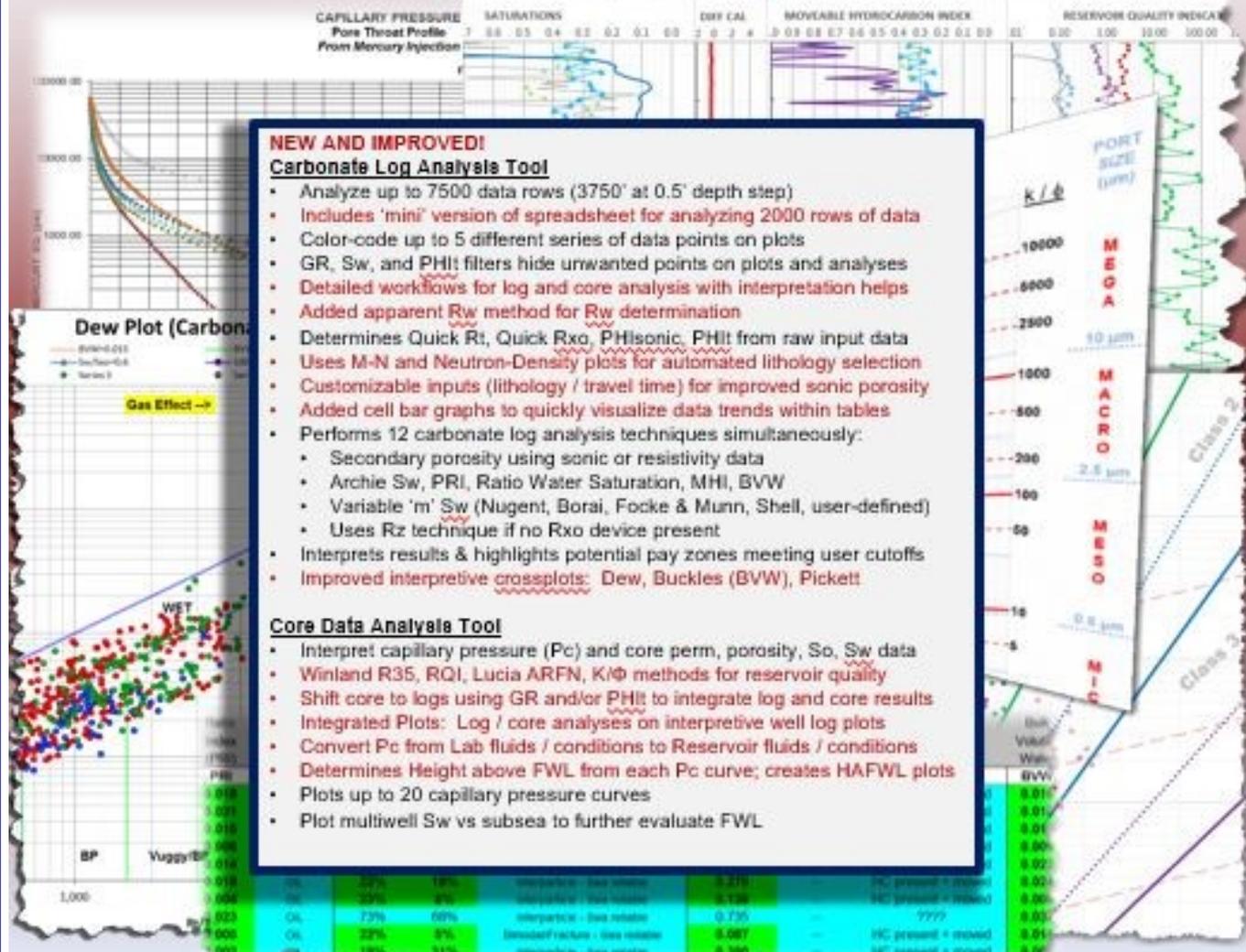
Carbonate Log & Core Analysis Spreadsheet v. 5.0

By Cory L. Hoffman, Ph.D.



Major Upgrade (January 2020)! [Designed for Microsoft Excel 2013]

Carbonate Log analysis draws heavily upon teachings of George Asquith
 Core Data analysis draws heavily upon teachings of Dan Hartmann



**Carbonate Log and Core Analysis Tool (\$50) – includes free 'mini' version and any in-version upgrades (5.x)
 \$25 for Students with proof of Student ID**

Quantity: _____ Will Pick up at PBS-SEPM Office (Y/N)? _____

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SPE/AAPG: Permian Basin Members in Training Webinar—November 16, 2020**Nuny Rincones**

“What’s the Shape of Your Learning Curve? From Unfamiliarity to Mastery and Retooling Your Resume”

Corporate Reservoir Engineer, Concho Resources

Monday, November 16th, 2020 - [GoToWebinar](#), 11:30 a.m.

[Click HERE to RSVP](#)

~Unemployed members and students who want a discount
can reach out to fakintunji@unitexoil.com~

Abstract

Please check the [website](#) for the abstract.

Biography

Nuny Rincones is a former wireline engineer, sales engineer, and petrophysicist. She is currently working as a corporate reservoir engineer for Concho Resources.



“Yesterday I was clever, so I changed the world. Today I am wise, so I am changing myself.”

– Rumi
(1207-1273)
Sufi Poet

Midland Gem and Mineral Society Outdoor Market
GEODES, Jewelry, Rocks and More!
Saturday, November 7th, 10:00 a.m.-4:00 p.m.
 The Market will be at our Scharbauer Property
602 South Main St.
Midland, Texas

Free Entry!

Covid-19 Guidelines
 Masks are required for entry to property, social distancing will be followed, hand sanitizer will be available. No building entry or restrooms.

Geodes will be cut on site and you will be the first to see inside! Wire-wrapped, silver-smithed and chainmaille jewelry of all kinds. Rock slabs and grab bags. Tye-dyed t-shirts and artistic sculpture. Fossils and minerals. There will be something for everyone!

MGMS has had an annual show for over 50 years, with last year's being at the beautiful, new Bush Convention Center. With COVID-19, this year we have had to scale back. However, we are still offering a great variety of items at our Fall Outdoor Market, on **Saturday, November 7th, from 10 a.m.-4 p.m.** on our Scharbauer property, at 602 S. Main St., Midland, Texas.

We are highlighting our local members, who are usually excluded from the annual show, so as not to compete with our vendors, but the quality and variety offered is still fantastic. The club will be cutting geodes on site, which will be available in a variety of sizes and kinds. It is truly exciting to choose your geode and then get to be the first to see inside! Our geodes come from mines in Mexico, and include single, double, and triple chambers. Inside, these geodes have a variety of crystal and color combinations, including amethyst. There will be jewelry of all types, including silver and turquoise, wire-wrapped and chainmaille. Fossils (including ammolite from Canada), mineral specimens, rock slabs, tie-dye and macrame items, artistic polymer clay sculpture, core lamps and more will also be available.

You can see a list of vendors with pictures of what they have to offer at our website: www.midlandgemandmineral.org. For everyone's safety, we are requiring face coverings, will have sanitizer on hand, will adhere to social distancing guidelines and will enforce crowd limitations. Come meet us there!



Example of a 4-chamber geode

PBS-SEPM Publications



PBS-SEPM PUBLICATION HIGHLIGHT

“Cyclostratigraphic Principles for Reservoir Characterization in Carbonates: Examples from the Cretaceous of West-Central Texas. Field Trip and Core Workshop, March 28-30, 2003”

[\\$30.63 Members \\$35.00 Non-Members](#)



Section I: Core Workshop—Glen Rose Rudist Reef Complex, Pipe Creek Area, Bandera County, TX

- Individual Core Descriptions, Pipe Creek Dip- & Strike-Oriented Cross Section

Section II: Field Trip— Itinerary, Road Log, Route Map, Geological Setting

- Day 1-Edwards Formation of Central TX, Cycle Characteristics and Cycle-Stacking Patterns in the Kerrville Area
- Day 2-Edwards Formation of North-Central TX

Appendix-Facies and Outcrop Photos (Kerrville Area), Facies Photo (North-Central TX Area), Fossil Guide and Background Geology Photos, Bibliography, Technical Papers



Entire PBS-SEPM publication library (1955 – 2007)

There is a fully searchable Table of Contents—find a topic or author just by typing in the word(s). All publications are in Adobe PDF with all major articles being bookmarked, and all the figures are linked in the text for quick reference. Those areas that are off limits to geologists like the Glass Mountains or Sierra Diablos have been written up in these publications. Numerous out-of-print publications and figures and/or plates not published in the original guidebooks are now available in this library.

DVD I - Symposiums & Guidebooks (1955-1989)

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 Non-Member- **\$150.00** plus 8.25% tax and \$5.00 shipping and handling

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DVD III - Core Workshops (82, 83, 85, 98) & Special Publications (A, 88-28, 96-39, 84)

Member- **\$125.00** plus 8.25% tax and \$5.00 shipping and handling
 Non-Member- **\$150.00** plus 8.25% tax and \$5.00 shipping and handling

Entire Set of three DVDs

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luncheon talk?
Have a core work-
shop you'd like to
present? Have some
suggestions on how
PBS-SEPM can
better serve the geo-
logic community?
Send us an e-mail
to share your idea,
your PBS-SEPM
Executive Board
wants to hear from
you!*



Perrito Moreno Glacier Argentina
Calving Jan 2002 by Ross and
Barney C McCasland

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***“Think of
giving not as a
duty, but as a
privilege.”***

**-John D. Rockefeller
Jr.
(1839-1937)**

**Founder and CEO of the
Standard Oil Company,
Founder of the
University of Chicago,
Rockefeller University,
Central Philippine
University**

A Rolling Rock Gathers No Moss: How You Can Make a Difference

Greetings colleagues! It certainly has been a hectic couple of months trying to plan Luncheons and Events for our members and interested community, especially with all the challenges that a pandemic brings. With this in mind, I want to let you know about some great volunteering possibilities within the organization.

In 2016, PBS-SEPM reverted back to an All-Volunteer organization because they separated from the West Texas Geological Society. The separation resulted in the end of all services WTGS (and former PBS-SEPM) Executive Director Paula Sanchez and the office staff provided. As a result, all of the responsibilities returned to the executive committee and anyone who wanted to help us. Fortunately there have been a dedicated few that have taken on roles that we could not do without, such as Frank Fullbright as Webmaster and Robert Campbell as Intern/Young Professional Field Trip Chairman.

However, there are many more positions that could use additional manpower, which the Executive Committee currently is trying to complete by themselves. Many of these committees don't take much time throughout the year, while others are a little more time intensive. Please keep in mind, for those of you who may be looking for a job, volunteering for one of these committees (even if it's not as a chairman) is a good way to get noticed and continue networking within the Permian Basin community. The current committees are:

1. Publications, Newsletter (headed by the Secretary);
2. Luncheon, Sponsorship, Membership (headed by the 2nd VP);
3. Website, Publicity, Robert L. Read, Jr. Distinguished Lecture Series, Annual Field Trip, Calendar (headed by the President Elect);
4. One Day Field Trip, Intern/Young Professional Field Trip (headed up by the 1st VP);
5. Nominating, Honorary Life, Stratigraphic, Scholarship, Core Location, and Dedicated Service Award (headed by the President).

Participating in any of these committees would be great experience, and would help the Section tremendously.

Also, it's not just volunteers we are looking for, but Ideas! Your comments, ideas, and suggestions on not just programs, but the direction of the organization, too, is not only beneficial to us (your executive committee members), but also to the rest of the membership. We try to come up with programs that we think you would like and any feedback we can get is much appreciated. We want to keep our members engaged, as well as allow them to continue benefiting from our programs. So, please feel free to email the Executive Committee Members at info@pbs-sepm.org and tell us what you'd like to see from us, or what else you would like to get out of PBS-SEPM.

Thank you all,
Norman E. Wells Jr.
2nd Vice President 2020-2021



Sponsorship Information (2020-2021)

Our non-profit society relies entirely upon the efforts of dedicated volunteers to serve the geological community—primarily through educational events. The PBS-SEPM hosts luncheon lectures, core workshops and field trips that are led by experts in their chosen areas of the geosciences. If you would like to sponsor the PBS-SEPM in anyway, we have various levels of commitment you can choose from.

Platinum: \$1500+: Company Logo for 2 years on YPFT field trip, core workshops, luncheon slides, newsletters, website, or new publications (from date of donation)

Gold: \$1000: Company logo for 1 year on the YPFT field trip (which includes guidebooks and other paraphernalia-stickers, pens/pencils, rite in the rain books), luncheon slides, newsletter, and website

Silver: \$700: Logo on the core workshop / one day field trip (which includes guidebooks), luncheon slides, newsletter, and website

Bronze: \$400: Will get their logo on all PBS-SEPM luncheons, newsletters, and the website.

Aluminum: \$250: Will get logo on all luncheons slides, and table tent for one luncheon date.

If you are interested in a sponsorship opportunity, please call PBS-SEPM for more details at (432) 279-1360 or e-mail info@pbs-sepm.org.



Your Company Logo could be in our newsletter showing your support of PBS-SEPM.

Your support lifts your corporate name within the Permian Basin.

Individual Sponsors of PBS-SEPM (2020-2021)

*Your Business Card
Could be here!*

Individual sponsors are advertised on the PBS-SEPM website and each newsletter. Cost is \$50/year. If you are interested in a sponsorship opportunity, please call PBS-SEPM for more details at (432) 279-1360 or email info@pbs-sepm.org.

Your card will be in every newsletter and on the PBS-SEPM Website for one year from August to May.





PBS-SEPM
2900 Front St,
Midland, TX, 79701

Web: www.pbs-sepm.org
Phone: 432-279-1360
Fax: 432-683-8739
Email: info@pbs-sepm.org

If you are interested in a sponsorship opportunity, please call PBS-SEPM for more details at (432) 279-1360 or e-mail info@pbs-sepm.org.

***“When we
give
cheerfully and
accept
gratefully,
everyone is
blessed.”***

**-Maya Angelou
(1928-2014)
Writer, Poet, Civil Rights
Activist**

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.

PBS-SEPM prides itself on its success in providing high caliber speakers as well as exceptional core workshops and field trips. PBS-SEPM also provides scholarships to graduating high school students in western Texas and New Mexico. These scholarships are on occasion, offered to college students that have declared their desire to pursue a degree in the geosciences. Through continued support from the industry, PBS-SEPM can continue to provide excellent educational opportunities for the oil and gas industry.

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

Scholarship and Distinguished Speaker Events (2020-2021)

Wendell J. Stewart Fund: so named for the famous sequence stratigrapher, was initially funded by the family, and then later through PBS-SEPM members who have contributed over the years. In the past, the scholarship was established to award high school students intending to pursue a college education in the geoscience field (declared major), and had evolved to include college students actively pursuing a geology degree when there were no other qualified candidates. Funding for this scholarship has waxed and waned over the years with the changes of the petroleum industry and because this scholarship is set up in such a manner that only the interest can be used to distribute funds, most scholarships in the last 30 years have been awarded through the PBS-SEPM main budget and not the scholarship fund.

We are proud to announce that we had two receivers for the Wendell J. Stewart Scholarship Fund in May 2020: Vanessa Armendariz, an undergraduate petroleum geologist at UTPB, and Heather Dudley, a paleontology graduate student at Sul Ross.

Robert Read Distinguished Lecturer Fund: was founded to honor a bright, young geologist who had been an active member of both PBS-SEPM and WTGS and was tragically killed by a drunk driver. Donations from various members of both societies contributed to a membership donation fund that both encourages our continuing education efforts by helping offset the cost of bringing in a distinguished lecturer, usually in geosciences, but not required.