



PBS-SEPM NEWSLETTER



April/May 2016

*"We are like a judge
confronted by a
defendant who
declines to answer,
and we must
determine the truth
from the
circumstantial
evidence."*

— Alfred Wegener

Inside this issue:

- PBS-SEPM April Luncheon**, Speaker: Dr. Richard Kyle, BEG / UT Austin, Title: Texas Industrial Mineral and Metal Resources—A Permian Basin Perspective. **2**
- PBS-SEPM Publication: *NEW*** Carbonate Well Log & Core Data Analysis Spreadsheet v. 4.0 (\$40) **3**
- PBS-SEPM May Luncheon**, Speaker: Dr. Melanie Barnes, Texas Tech University. Title: West Texas and Eastern New Mexico Precambrian Basement Revealed. **4**
- PBS-SEPM Publication:** Digital Publication Project DVD order form. **5**
- PBS-SEPM 2016-17 Election:** Candidate Biographies. **6**
- PBS-SEPM Executive Board 2015-2016 **8**
- Individual Sponsors About PBS-SEPM **9**

President's Column

Fellow PBS-SEPM Members,

As my term as President for 2015-16 draws to a close, I would like to use this opportunity to inform you of some major changes that will be coming to PBS-SEPM. As everyone is aware, we are still in the midst of what is likely to be the worst downturn in the oil and gas industry in a generation. Many of you have been affected by this, either directly, by job cuts, or at the very least, by experiencing significant reduction in your budgets. These difficult times have also put a strain on the finances of non-profit organizations, such as PBS-SEPM.

Many of the projects that PBS-SEPM relies on to generate revenue unfortunately had to be cancelled or postponed this year. These projects included our Paradox Basin field trip, Young Professional / Intern field trip, and a core workshop. In addition to these short-term losses in revenue, there have been some longer-term, structural expenses that have been weighing on the finances of the society.

As you know, PBS-SEPM and WTGS enjoyed a long, cooperative relationship. Based on my research, at least since the 1960s, both societies have shared office space, and employed shared staff. Since the early 1990s, Paula Sanchez has served as Executive Director for both organizations. Recently Cindy Bowden joined as

Assistant Executive Director.

For a very long time, there has been a contract between PBS-SEPM and WTGS to share the expenses of maintaining an office and paying for staff salaries. Given the escalation in expenses of the last several years, and PBS-SEPM's income remaining flat (or recently decreasing), the circumstances became untenable. There was a good-faith effort to renegotiate the contract between PBS-SEPM and WTGS. Unfortunately an agreement was not reached.

Effective June 1, 2016, PBS-SEPM will become an all-volunteer society. That means that PBS-SEPM will be parting ways with WTGS, no longer have a dedicated office, and sadly, no longer employ an Executive Director, or Assistant Executive Director. Personally, and as leader of this society, we will deeply miss having Paula and Cindy around. Their knowledge, leadership, and friendship is irreplaceable. I would especially like to thank Paula for her dedication to PBS-SEPM for so many years.

To be clear, at least on a personal level, there are no hard feelings directed towards WTGS, or its Board. This was a business decision, and in the long-term should be beneficial to both societies. I would like to thank WTGS for their generosity over the many years towards PBS-SEPM. I'm confident that both groups will continue to have a positive, collegial working relationship.

tionship.

So what does this mean for you, as a member of PBS-SEPM? Other than a new way of contacting the society, not much will change. The mission of PBS-SEPM stays the same. We will continue to have monthly luncheon meetings, will organize core workshops, short courses, and field trips in the future, and provide scholarships. There will be a **new email address: info@pbs-sepm.org**, and a **new phone number: 432-279-1360**. This phone number goes to a voice mailbox that will be regularly checked by board members—there will be no dedicated office staff. I ask for your patience as we make these changes. We will strive to make the transition seamless for you, but undoubtedly there will be some growing pains.

Finally, I would like to thank the 2015-16 Executive Board. This has been a trying year, and many important and difficult discussions and decisions were made. Your Board gone above the call of duty this year, and have done an outstanding job. I know that PBS-SEPM will be in good hands when Cory Hoffman, and the newly elected board take over in June.

Sincerely,

John Leone

**PBS-SEPM President
2015-2016**

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

APRIL 2016

- **19: PBS-SEPM Luncheon:** (11:30am-1pm) **Speaker: Dr. Richard Kyle**, BEG / UT Austin, **Title:** Texas Industrial Mineral and Metal Resources—A Permian Basin Perspective.

MAY 2016

- **1: PBS-SEPM Ballots Due!**
- **5: WTGS Spring Fling** (6-9pm)
- **10: WTGS Luncheon:** (11:30am-1pm) **Speaker: John R. Hogg**, President AAPG, **Title:** An Unconventional Energy Future.

- **17: PBS-SEPM Luncheon:** (11:30am-1pm), **Speaker: Dr. Melanie Barnes**, Texas Tech, **Title:** West Texas and Eastern New Mexico Precambrian Basement Revealed.
- **20: WTGS Awards Banquet** (6-9pm)

PBS-SEPM Luncheon Talk – April 19, 2016

Dr. J. Richard Kyle

“Texas Industrial Mineral and Metal Resources—A Permian Basin Perspective”

Professor, U.T. Austin / BEG

Tuesday April 19, 2016 – Midland Country Club, 11:30 a.m.

Abstract

Texas' earth resources production is dominated by the energy sector, but a significant contribution to local economies is provided by the industrial minerals sector. Further, potential for several types of metal deposits exist within the state. An example of the interrelations between the petroleum and industrial minerals industries is the increased industrial sand production from central Texas to supply proppants for hydraulic fracturing in the Permian Basin and other Texas plays. The Trans-Pecos region is arguably the most complex geologic province of Texas, with major tectonic, magmatic, and sedimentation events including the 1.3–0.9 Ga Grenville orogenic belt; Paleozoic continental shelf sedimentation, the late Paleozoic Marathon tectonic belt and resultant development of Permian foreland basins; Laramide compressional deformation and local magmatism; Paleogene caldera-related volcanism and related intrusive activity, and Neogene extensional deformation that is responsible for the current Basin and Range topography and that continues today.

Given that resource development is a fundamental component of a region's geologic history, this complexity has endowed the Permian Basin with diverse mineral occurrences. The uplifted margin of the western Delaware Basin provides a site to demonstrate industrial mineral concentration as an integral part of basin evolution. Further, Permian strata of the Marfa Basin host strata-bound concentrations of silver and other metals in the Red Hills–Shafter district. Complex diagenetic processes before and during post-Permian to Early Cretaceous subaerial exposure prepared the Permian strata for early Cenozoic hydrothermal fluids and account for the strata-bound nature of the Shafter ore zone just below the P-K unconformity. Mid- to late Cenozoic deformation accounted for the development of the contiguous Presidio Bolson which in turn has been modified by late down-cutting of the Rio Grande to account for many of the modern features of the Big Bend region.

Biography



Rich Kyle is the C. E. Yager Professor of Geology at the University of Texas at Austin. He received a Ph. D. from the University of Western Ontario and worked as a minerals exploration geologist prior to joining the UT faculty. Much of Dr. Kyle's career has focused on the origin and evaluation of mineral resources in sedimentary basins. His research interests include geology and geochemistry of energy critical materials, minerals exploration, industrial minerals, high resolution X-ray computed tomography applications to resource studies, stratigraphic inheritance in skarn development, and Texas geology. His teaching incorporates

field experience to complement classroom education and offers students the opportunity to participate in regional to international field work in mineral resources geology.

“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 .”

“Chance favors the prepared mind.”

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



PBS-SEPM Publication

Carbonate Well Log / Core Data Analysis Spreadsheet v. 4.0

By: Cory L. Hoffman

Optimized for Microsoft Office Excel 2013

Carbonate Log Analysis Tool
NEW AND IMPROVED!

- Analyze up to 7500 data rows (depths)
- Color-code up to 5 different series of data points on plots
- GR, Sw, and porosity filters hide unwanted points on plots and analyses
- Quick Rt, Quick Rxo, Sonic Porosity, Total Porosity from raw input data
- Input data plotted: GR, N/D/Sonic/Total porosity, Rxo and Rt
- Performs 11 carbonate log analysis techniques simultaneously:
 - Secondary porosity using sonic or resistivity data
 - Archie Sw, PRI, Ratio Water Saturation, MHI, BVW
 - Sw using variable 'm' (Nugent, Borai, Focke & Munn, user-defined)
 - Uses RZ technique if no Rxo device present
- Interprets results & highlights potential pay zones meeting user cutoffs
- Generates interpretive plots: Dew, Buckles (BVW), Pickett
- Includes guide to interpreting log analysis results

Core Data Analysis Tool

- Integrates capillary pressure and core perm/porosity data
- Winland R35 and K/Φ methods (port size) for rock quality
- Plots up to 20 capillary pressure curves
- Plots depth profiles of porosity, perm, K/Φ
- Plot multiwell Sw vs subsea to evaluate apparent OWC
- Includes guide to interpreting Winland R35 and K/Φ results

Ratio Index (PRI)	Quicklook PRI Interp.	Archie Water Saturation Swa (m=2)	Ratio Water Saturation Swr	Swa/Swr Ratio Interpretation	Hydrocarbon Index (MHI) Swa/Sxo	MHI Using Rz Sw/Si	Quicklook MHI Interpretation	Bulk Volume Water BVW
0.018	OIL	20%	33%	Interparticle - Swa reliable	0.408	--	HC present + moved	0.018
0.021	OIL	26%	28%	Interparticle - Swa reliable	0.360	--	HC present + moved	0.0160000
0.015	OIL	15%	20%	Interparticle - Swa reliable	0.275	--	HC present + moved	0.01
0.006	OIL	29%	45%	Moldic/Vuggy/High ROS - Swr reliable	0.530	--	HC present + moved	0.006
0.014	OIL	25%	35%	Interparticle - Swa reliable	0.427	--	HC present + moved	0.023
0.019	OIL	22%	19%	Interparticle - Swa reliable	0.270	--	HC present + moved	0.024
0.004	OIL	23%	8%	Interparticle - Swa reliable	0.138	--	HC present + moved	0.005
0.023	OIL	73%	68%	Interparticle - Swa reliable	0.735	--	????	0.03
0.005	OIL	22%	5%	Bimodal/Fracture - Swa reliable	0.087	--	HC present + moved	0.011
0.002	SW	19%	31%	Interparticle - Swa reliable	0.390	--	HC present + moved	0.00

INTRODUCTORY PRICE: \$40 (all proceeds go directly to PBS-SEPM; nominal shipping charges may apply)

- Get 2 tools for 1 low price — spreadsheet includes carbonate log analysis AND core data analysis tools
- Flash drive contains current version (Excel 2013; v. 4.0) and previous version (Excel 2010; v. 3.2) of spreadsheet
- Price includes free upgrades within version class (v. 3, v.4, etc.) for each registered user

Quantity: _____ Total: \$ _____

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Please send registration and payment information: PBS-SEPM, P.O. Box 1595, Midland, Texas 79702

For additional information contact: **PBS-SEPM office** (432) 683-1573.

PBS-SEPM Luncheon Talk – May 17, 2016

Dr. Melanie Barnes

“West Texas and Eastern New Mexico Precambrian Basement Revealed”

Professor, Texas Tech University

Tuesday May 17, 2016 - Midland Country Club, 11:30 a.m.

Abstract

Seismic interpretations, U-Pb zircon ages, and geochemical and isotopic analysis from the last decade combined with earlier information, provides a geologic framework for the Precambrian basement of west Texas and eastern New Mexico. Much of the crystalline basement documents voluminous, episodic magmatism that is a key component in the development of southern Laurentia. This complex history involves at least four major magmatic events and at least two periods of basin development from 1.49 to 1.07 Ga. The Texas Panhandle Precambrian basement consists of quartz monzonite, granite, rhyolite, and quartz syenite that can be divided into separate periods of magmatism at ~1.47 and ~1.37 Ga and may extend as far south as the Carrizo Mountain Group near Van Horn (1.33 Ga). Sm-Nd isotopic signatures indicate that these magmas had similar source regions.

From 1.28 to 1.22 Ga, a broad, carbonate-dominated shelf, known locally as the Debaca sequence, extended throughout the region from the Llano Uplift in the southeast to the western Grand Canyon regions. Well log data coupled with seismic data and deep crustal reflection data image large basins with cross-cutting sills. Outcrop and well data support the presence of associated mafic magmatism, along with episodic rhyolite ash falls which may be sourced in the Burro Mountains of southwestern New Mexico.

About 1150 Ma, after the deposition of quartz-rich sandstone of the Lanoria Formation, renewed bimodal magmatism began and lasted until ~1070 Ma. This magmatic episode was characterized by tholeiitic basalt and alkaline (“A-type”) rhyolite/granite, all typical of extensional settings. U-Pb (zircon) dating provides evidence of widespread, Grenville-age (1070-1110 Ma) plutonic rocks in the Texas/New Mexico basement. Dated samples include alkali feldspar granite of the Abilene gravity minimum, monzonitic xenoliths from Potrillo maar west of El Paso, a differentiated sill from the Texas Panhandle and $40\text{Ar}/39\text{Ar}$ age from a gabbroic sill in the basement of eastern New Mexico. In addition, evidence of the northwest directed Grenville collisional event is apparent in the deformed nature of rocks located in the southernmost part of the Laurentian continent.

Biography



Dr. Melanie Barnes has been a Senior Research Associate at Texas Tech University since 2004, specializing in Igneous Petrology & Geochemistry and Laser-Ablation ICP Mass Spectrometry. She received a B.A. in Chemistry and Geology from Mount Holyoke College (1976), a M.S. in Geology from the University of Oregon (1981), and a Ph.D. in Geology from Texas Tech University (2001). Dr. Barnes has co-authored over a dozen publications since 1999, and has been an active member of GSA serving on various committees ranging from the Precambrian Symposium to Public Policy (2001-2007). Dr.

Barnes has served on the League of Women Voters of Texas as a State Board member and Natural Resources Chair (1989-1991) and as Hazardous Waste Director (1995-2007). She has also served as a member and co-chair of the Texas Commission on Environmental Quality Pollution Prevention Advisory Committee (1995-2011), and in 2004 was a finalist for the Texas Governor's Environmental Excellence Award. Dr. Barnes has been a member of the Region O Llano Estacado State Water Planning Board since 2003.

“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)

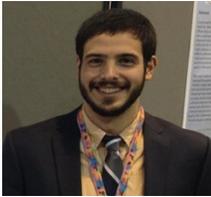
“You cannot teach a man anything; you can only help him discover it in himself.”

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

PBS-SEPM 2016-2017 Candidates

PBS-SEPM is grateful not only for the high caliber of these candidates and the energy they will bring to the society, but the willingness of these individuals to serve in such uncertain times in the oil and gas industry. Over the past 2 months, several other candidates that had initially agreed to run felt unable to do so given the negative impact this downturn has had on their jobs / companies. Our thoughts are with all our volunteers navigating these difficult times.

Treasurer



Brice A. Otto

Title: Technical Development Geologist

Company: SM Energy, Midland TX

Education: 2015, M.S. Geology, Oklahoma State University; 2013, B.S. Geology, University of Tulsa

Memberships: AAPG, GSA, Geochemical Society, PBS-SEPM, WTGS

Activities: AAPG Student Chapter Treasurer (2014-2015) and Interim VP (2015), Boone Pickens School of Geology – Oklahoma State University

Secretary



Bryce Swinford

Title: Geophysicist

Company: Concho Resources, Midland TX

Education: 2012 MSc. Applied Geophysics, IDEA League Joint Masters; 2007 BSc. Geophysical Engineering, Colorado School of Mines

Memberships: SEG, WTGS, PBS-SEPM, PBGS

Activities: Summer Mummers, Midland Community Symphonic Band

1st Vice President



Norman E. Frances

Title: Operations Geologist

Company: McClure Oil Company, Inc., Midland TX

Education: 2003, B.A. Geology, Miami University (Ohio)

Memberships: AAPG, PBS-SEPM, WTGS, YPG

Activities: Committee Member - YPG (2016-Present); Associate Venture Crew Advisor – BSA (2006-2007); Assistant Scout Master - BSA (2003-2004); Co-Vice President - Miami U. Geological Society (2002-2003); Webmaster - M.U.G.S (2001-2003); Treasurer - M.U.G.S (2000-2001); Culinary Chairman – OA (1997-1999)

Honors: Vigil Member – OA (1999), Eagle Scout - BSA (1997)



Troy R. Tittlemier

Title: Geoscience Technician

Company: Trey Resources, Inc., Midland TX

Education: 2016, M.S. Geology, The University of Texas of the Permian Basin; 2014 B.S. Geology, California Lutheran University

Memberships: AAPG, WTGS, PBS-SEPM

PBS-SEPM 2016-2017 Candidates

2nd Vice President



Curtis D. Helms, Jr.

Title: Director

Company: Midland College PPDC, Midland TX

Education: 2011 M.S. Geology, The University of Texas of the Permian Basin;
2003 B.S. Biology, The University of Texas of the Permian Basin

Memberships: AAPG, AAPG-DPA, AAPG-SWS, FCGS, PBGS, PBPA, PBS-SEPM, RMAG, SIPES, SPE, SPE-ESG, TACE, WTGS

Activities: PBS-SEPM Past President 2015-2016, MEL Board 2014 - Present, AAPG-SWS Secretary 2014-2015, PBS-SEPM President 2014-2015, WTGS 2015 Symposium Field Trip Chair, WTGS Luncheon Chair 2013-2014, WTGS 2014 Symposium Co-Technical Chair, WTGS 2014 Field Trip Chair, PBS-SEPM President Elect 2013-2014, PBS-SEPM Luncheon Chairman 2011-2014, PBS-SEPM Secretary 2012-2013, PBS-SEPM Treasurer 2011-2012, WTGS Judge 2010 Annual Symposium

Honors: PBS-SEPM Volunteer of the Year 2013-2014, PBS-SEPM Volunteer of the Year 2011-2012

President-Elect



James Hawkins

Title: Geologist / Petrophysicist

Company: Independent, Midland TX

Education: M.S. Geology, Univ. of Texas of the Permian Basin, 2005; B.S., Univ. of Texas of the Permian Basin, 1993

Activities: 26 Years Oil & Gas Experience in Permian Basin; Current Vice President SPWLA (2016); Past President SWPLA Permian Basin (2015)

Memberships: AAPG, PBS-SEPM, SEPM, WTGS, APGE, SPWLA, SPWLA Permian Basin, SPE

DEADLINE: Ballots due to PBS-SEPM by May 1, 2016.

PBS-SEPM Publications



**PBS-SEPM Symposia
And Core Workshops on 3 DVDs**



This is your opportunity to have the entire **PBS-SEPM** publication library (1955 – 2007) at your finger tips. 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.

This includes all publications, even the special publications and coveted core workshops. Can you imagine the hidden treasures you might find? Here is your chance to uncover them in this special three (3) DVD set. *Buy one or all.*

DVD I - Symposiums & Guidebooks (1955-1989)

Member- **\$75.00** plus 8.25% tax and \$5.00 shipping and handling

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DVD II - Symposiums & Guidebooks (1990-2007)

Member- **\$75.00** plus 8.25% tax and \$5.00 shipping and handling

Non-Member- **\$100.00** plus 8.25% tax and \$5.00 shipping and handling

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

Member- **\$75.00** plus 8.25% tax and \$5.00 shipping and handling

Non-Member- **\$100.00** plus 8.25% tax and \$5.00 shipping and handling

Entire Set of three DVDs

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For additional information **contact: PBS-SEPM office (432) 683-1573.**

PBS-SEPM Executive Board (2015-2016)

President:	John Leone	jvleone95@yahoo.com
President-Elect:	Cory L. Hoffman, Ph.D.	choffman@sm-energy.com
First Vice President:	Alan LeFever	alefever@bcoperating.com
Second Vice President:	Amy Hall	Amy.Hall@corelab.com
Treasurer:	Daphne Sullivan	dcsull78@gmail.com
Secretary:	Shellie Crossland	Shellie.Crossland@weatherfordlabs.com
Executive Director:	Paula Mitchell-Sanchez	wtgs@wtgs.org
Previous President:	Curtis Helms Jr.	cdhelms@suddenlink.net

"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

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!

Corporate Sponsorships (2015-2016)

Your Company Logo could be in this space showing your support of PBS-SEPM.

Your support lifts your corporate name within the Permian Basin.

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



PBS-SEPM is grateful for the generosity of these fine corporate sponsors!

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

- Benjamin Franklin



PBS-SEPM
P.O. Box 1595
Midland, TX 79702

Phone: 432-683-1573
Fax: 432-686-7827
E-mail: wtgs@wtgs.org

We're on the Web!
www.pbs-sepm.org

“..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 501(c)(3) 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, annual 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)

Individual sponsors are advertised on the PBS-SEPM website and each Newsletter. Cost is \$85/year. If you are interested in an individual sponsorship opportunity, please call Paula Mitchell-Sanchez for more details at (432) 683-1573.

Your Business Card Could be here

Your business card will be in every newsletter for one year May to May, on our PBS-SEPM website, and the Power Point shown prior to every Luncheon talk.

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

Peter Muggeridge