



PBS-SEPM NEWSLETTER



February / March 2017

"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:

NEW LUNCH VENUE! 2
Midland College
3600 N. Garfield
Carrasco Room

PBS-SEPM March Luncheon, Speaker: Dr. Susan Nash (AAPG), Title: Recent Developments in the Use of Big Data, Deep Learning, and AI in Upstream E&P

PBS-SEPM Publication: 3
NEW Carbonate Well Log & Core Data Analysis Spreadsheet v. 4.0 (\$40)

Rock-Based Integrated Reservoir Characterization Core Workshop and Short Course, Dr. Robert Lindsay; March 15-17 @ C.E.E.D. (\$500); 8am-5pm daily

Young Professional / Intern Field Trip (\$950; June 8-11; Guad. Mtns.) 6

PBS-SEPM Publication: 7
DVD order form

PBS-SEPM Executive Board 2016-2017 8

Individual Sponsors About PBS-SEPM 9

President's Column

We are rapidly moving into the final months of the fiscal year, and it is time to elect another group of volunteers to carry the torch forward for PBS-SEPM. The society is in excellent shape financially, has a new office, has made the transition to an all-volunteer staff incredibly well, and has successfully blazed the trail to make it easier for all future Board members. James Hawkins will be the President for 2017-2018, and his experienced leadership will enable PBS-SEPM to enjoy even greater success than we had this year.

For 63 years PBS-SEPM has made this transition in leadership smoothly, obtaining abundant member volunteers to run for office and fill all the offices of the Executive Board. Yet to date we have only found two members willing to run for office. Two.

I know this is a strange time in the cycle of the industry. There are many new faces in town getting settled, many still concerned about their jobs, many who have retired or who have served faithfully in the past. Excuses to sit on the sidelines are easy to come by, but that is not our legacy and not who we are.

Perhaps some of you are new to the Permian Basin, the society, or both and don't feel qualified to serve. I have been where you are and encourage you to get involved. You will not be alone as there are many mentors available to guide you. And serving on the PBS-SEPM Executive Board is a great way to enhance your professional network, develop new leadership skills, and make a positive impact on your local geologic community. The time commitment per month is minimal (3-10 hours depending on the position), but the benefits to your personal growth and the geologic community are immeasurable.

Or perhaps some of you have already served PBS-SEPM in the past. As President, I can certainly appreciate the sacrifice of your time and the need for others to share the workload that goes with maintaining a healthy society. But speaking as a second term President and its six years of commitments, may I also encourage you to bring your experience and leadership to bear once again in order to enhance the society and inspire others to serve.

If you are interested in running for office, or have questions

about the various positions please do not hesitate to contact me.

While elections are important for the continuity of the society, our society exists to serve the educational needs of our members. Please note we have two special educational opportunities available to you—one in March and the other in June. From March 15-17 Dr. Robert Lindsay will be leading a three day short course and core workshop on rock-based, integrated reservoir characterization. Seating is limited, so please do not wait to register. From June 8-11 we will again run the popular Young Professional and Intern Field Trip in the Guadalupe Mountains. Information on both courses may be found in this newsletter.

I look forward to seeing you at our next meeting on March 21!

Cory L. Hoffman

**PBS-SEPM President
2016-2017**

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P.O. Box 6054

Midland, TX 79704

Mark Your Calendars! [PBS-SEPM luncheons at Carrasco Room, Midland College]

MARCH 2017

- **15-17: PBS-SEPM Short Course & Core Workshop:** Rock-Based Integrated Reservoir Characterization (Dr. Robert Lindsay)
- **21: PBS-SEPM Luncheon:** (11:30am-1pm) **Speaker:** Dr. Susan Nash, AAPG, **Title:** Recent Developments in the Use of

Big Data, Deep Learning, and AI in Upstream E&P

APRIL 2017

- **18: PBS-SEPM Luncheon:** (11:30am-1pm) **Speaker:** Dr. Mohamed Zobaa, UTPB, **Title:** The Geologic and Biogenic Controls on the Abundance of Organic Matter in Hydrocarbon Source Rocks

MAY 2017

- **16: PBS-SEPM Luncheon:** (11:30am-1pm) **Speaker:** Dr. Harry Rowe, Bureau of Economic Geology, **Topic:** Depositional Model for the Southern Delaware Basin

JUNE 2017

- **8-11: Young Professional and Intern Field Trip** (Guad. Mtns.)

PBS-SEPM Luncheon Talk – March 21, 2017

Susan Nash, Ph.D.

“Recent Developments in the Use of Big Data, Deep Learning and Artificial Intelligence in Upstream E&P”

**Director of Innovation and Emerging Science / Technology
AAPG - American Association of Petroleum Geologists**
Tuesday March 21, 2017 - [Midland College, Carrasco Room](#), 11:30 a.m.

Abstract

When many people think of Big Data, with deep learning / artificial intelligence, they may not actually think of the oil industry, and even less about geosciences. Yet, Big Data is increasingly used in the geosciences in areas that range from developing 3D reservoir models, reservoir characterization, and identifying sweet spots, fracture networks, geochemical markers, and more. Big Data and new analytics are also used for ranking prospects, evaluating acreage, and integrating disparate data sets. This paper investigates the advances in analytics and Big Data, and it looks at the way that neural networks are used for “deep learning” and “machine learning” in the exploration and development cycle of upstream, as well as later work in enhanced oil recovery. The paper analyzes the results and examines cases of successful application and describes the data sets used, the construction of the algorithm (or utilization of an application) and how / where the analytics were performed. The focus is on cloud-based analytics which can be implemented at a relatively low cost, and yet can powerfully and quickly process massive data sets of wildly diverging sources and quality. In addition to looking at the goals of Big Data analytics in the exploration and development process, the paper looks at data quality and the ways in which bad data and “noise” are identified and eliminated. Finally, the paper reviews new directions in Big Data, and the ways in which some of the most persistent problems / ambiguities in the oil field are being addressed, with pros, cons, costs, and benefits.

Biography



Susan Nash earned her B.S., M.A., and Ph.D. at the University of Oklahoma. She has also studied graduate-level economics at Texas A&M Texarkana.

Recent initiatives: Drone / UAS technologies, analytics / sensors, “Pitchapalooza” (innovative ideas / technologies / opportunities meet capital sources); Deep learning / Big data

Interests: Economic and business development, new technologies, creativity, innovative thinking and self-expression, literature (industrial novels / innovative literature, Spanish/Russian literature(s)), humanities, history and philosophy of science.

“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 .”

Antole France

(1844—1924)

“Chance favors the prepared mind.”

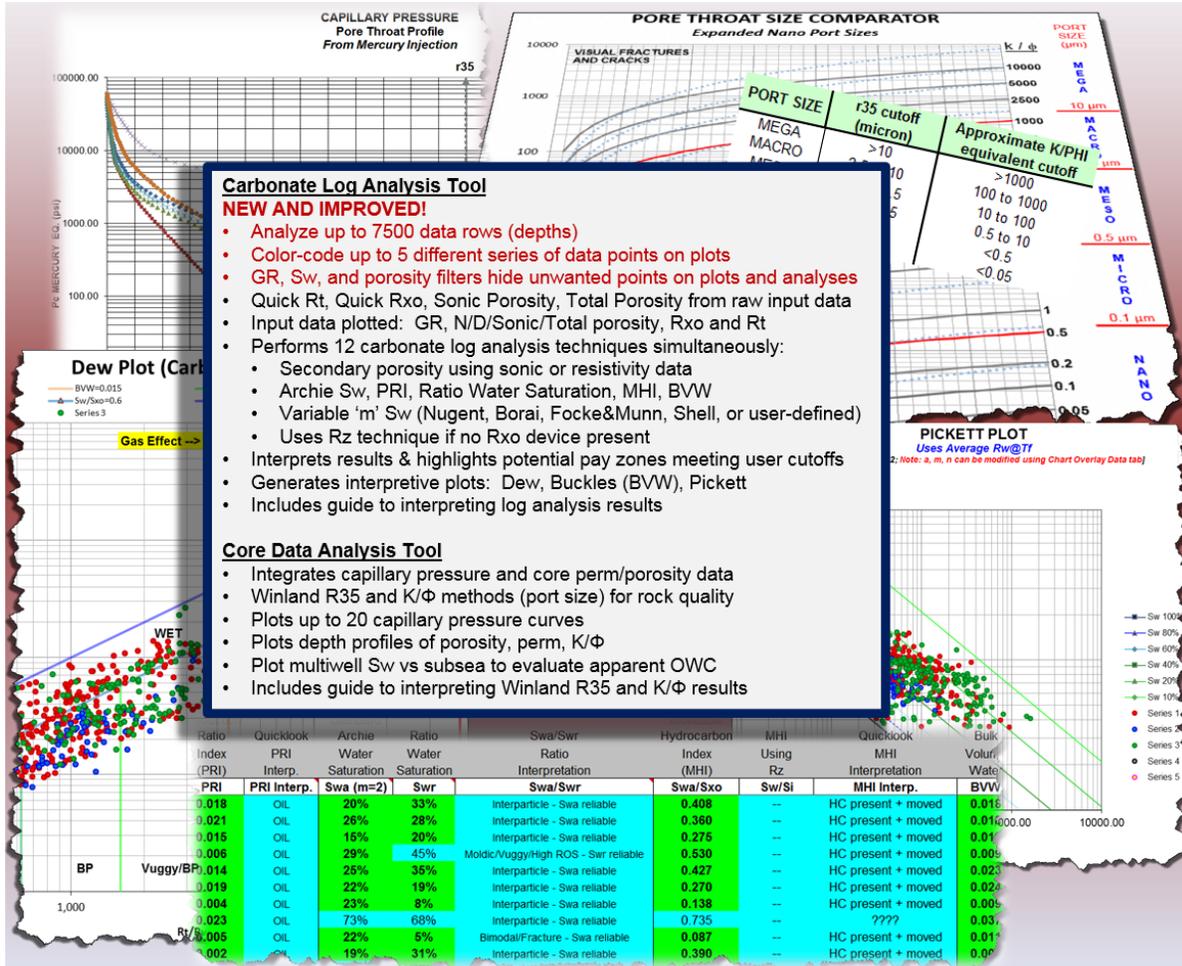
- Louis Pasteur
(1822-95)

French chemist and bacteriologist.



PBS-SEPM Publication Carbonate Log Analysis Spreadsheet v. 4.0

By: Cory L. Hoffman
Designed for Microsoft Office Excel 2013



INTRODUCTORY PRICE: \$40 (all proceeds go directly to PBS-SEPM)

- 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

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For additional information contact: PBS-SEPM office (432) 279-1360 or info@pbs-sepm.org.

PBS-SEPM Luncheon Talk – April 18, 2017

Mohamed K. Zobaa, Ph.D.

“The Geologic and Biogenic Controls on the Abundance of Organic Matter in Hydrocarbon Source Rocks”

University of Texas of the Permian Basin

Tuesday April 18, 2017 - Midland College, Carrasco Room, 11:30 a.m.

Abstract

The quantity of sedimentary organic matter in hydrocarbon source rocks is a key factor in evaluating petroleum systems. Exploration geologists routinely measure the abundance of organic matter (kerogen) by means of total organic carbon analysis. Total organic carbon values, however, can be misleading, if interpreted without considering other critical source rock aspects such as kerogen type and maturation stage. Additionally, there are many geologic and biogenic factors that control the abundance of organic matter in sedimentary rocks. These include for instance the nature of the source organic matter, distance of transportation, sedimentation rate, oxygenation state, and sediment grain size (among others). This makes the task of interpreting kerogen abundance in a potential source rock a much-complicated process than it may appear. This presentation will focus on the fundamental controls that exploration geologists must consider when evaluating organic matter abundance in hydrocarbon source rocks.

Biography



Mohamed K Zobaa received his PhD degree in 2011 in Geology and Geophysics from Missouri University of Science and Technology. His BS (Geology) and MS (Paleontology) degrees were awarded by Benha University, Egypt. Mohamed has been working continuously in academia since 2002, beginning during his graduate training. He has taught several geology courses at both the undergraduate and post-graduate levels (e.g. Stratigraphy and Sedimentation; Systematic Paleontology; Stratigraphy Lab; Paleobotany and Palynology). His teaching at institutions in Egypt and the USA has given him the experience to handle large class numbers as well as students from a wide range of cultural and educational backgrounds. Mohamed's research expertise is mainly focused on Applied Palynology (palynofacies analysis, organic thermal maturation, source rock evaluation, paleoenvironmental

reconstruction, detecting past catastrophic climatic events), in addition to systematic palynology and Mesozoic and Cenozoic palynostratigraphy. His scientific record includes nine published international journal papers, one international conference paper, 16 international conference/workshop abstracts, five invited talks, six funded awards, and five achievement and recognition awards. These are in addition to supervising graduate students, and serving as a reviewer for nine peer-reviewed international journals.

“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
CORE WORKSHOP & SHORT COURSE**



**ROCK-BASED INTEGRATED
RESERVOIR CHARACTERIZATION:
PART 1: HOW TO DESCRIBE A CORE &
PART 2: HOW TO BUILD A SEQUENCE STRATIGRAPHIC MODEL**

Presented By: Dr. Robert F. Lindsay

WHEN: March 15-17, 2017, 8am-5pm Daily
WHERE: CEED (1310 FM1788, Midland, TX 79707)
COST: \$500 members, \$550 non-members (Limited to 20)

WHAT'S PROVIDED:
All Supplies (incl. hand lenses), Handouts,
LUNCH, Snacks & Beverages



REGISTER BY:

March 10, 2017

DESCRIPTION:

This course will provide the participants with a direct and detailed classroom experience in learning the techniques used to: 1) describe a core (or outcrop) in detail, with hands on exercises involving core from the Grayburg Formation in a producing field in the Permian Basin; and 2) build a sequence stratigraphic model from the individual cycle scale to the composite sequence scale (flow unit to reservoir scale). This workshop/short course represents the first two parts of a larger five part course developed by Dr. Robert F. Lindsay that draws upon decades of experience working and describing carbonate reservoirs from the Permian Basin to the Middle East for companies such as Chevron and Saudi Aramco. Lessons learned will help geologists/engineers better understand and characterize conventional reservoirs. The course will answer the following questions and more: “Why is this useful?”, “Isn’t this an academic exercise?”, and most important – “How will my company benefit from this kind of work?”

WHO SHOULD TAKE THE COURSE: Geologists, Geophysicists, and Engineers.

REGISTER: Online @ WWW.PBS-SEPM.ORG or Mail:

First Name: _____ Last Name: _____

Company: _____ Position: _____

Address: _____

City: _____ State: _____ Zip: _____

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PERMIAN BASIN SECTION SEPM



YOUNG PROFESSIONAL AND INTERN FIELD TRIP

June 8-11, 2017

Registration Form

- Four day multi-disciplined field trip in the Guadalupe Mountains for geology, engineering and land young professionals and interns
- Trip led by Dr. Robert Trentham from The University of Texas of the Permian Basin and Dr. Cory Hoffman of SM Energy who have a combined 60 years of geological experience in research, development and production in the Permian Basin.
- Robert Campbell (engineering), Chris Fling (land), and Teri McGuigan (land) will provide mentoring support and have comparable years of Permian Basin experience in their respective professions.
- Goal is to educate participants in combining outcrop data with industry exploration and production techniques in a multi-disciplined environment
- Participants will have opportunity to observe world-class outcrops of shelf to basin deposits that are direct analogues to producing fields in the Permian Basin
- Lectures covering geology of west Texas, carbonates, sequence stratigraphy, quick and simple log and engineering calculations and land practices
- Classroom exercises on general land practices, sequence stratigraphy, log correlation, water saturation determination, seismic interpretation and production analysis
- Break out sessions specific to each discipline

Participants will leave Midland, TX on June 8, travel to Carlsbad, NM, where they will stay at the Stevens Inn, and return to Midland, TX, the evening of June 11. **Included in the costs:** round trip transportation from Midland, three nights lodging, three breakfasts, three lunches, refreshments in the field, guidebook and handouts.

Limited space is available, so the first to register will be given priority.

Cost per person for Double Occupancy is \$950.00

(Single rooms will be allocated based on availability and happenstance of an odd number of male or female participants)

Discipline (Mark One) Geologist () Land Professional () Engineer ()

REGISTRATION FEE NON-REFUNDABLE AFTER June 1, 2017

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 For additional information contact: Robert Campbell (432) 557-2458

PBS-SEPM Publications



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And Core Workshops on 3 DVDs**



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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

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PBS-SEPM Executive Board (2016-2017)

President:	Cory L. Hoffman, Ph.D.	choffman@sm-energy.com
President-Elect:	James Hawkins	geo_hawk@att.net
First Vice President:	Norman E. Frances	nfrances@mcclureoil.com
Second Vice President:	Curtis Helms Jr.	chelms@midland.edu
Treasurer:	Brice Otto	botto@sm-energy.com
Secretary:	Bryce Swinford	bswinford@concho.com
Previous President:	John Leone	jleone@arcoperating.com
Board Advisor:	TBD	

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 wants to hear from you!

Corporate Sponsorships (2016-2017)

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 PBS-SEPM for more details at (432) 279-1360 or e-mail info@pbs-sepm.org.

"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



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



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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 non-profit society relies entirely 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 updated website (www.pbs-sepm.org) to learn more about us, download or fill out a membership form, and learn how to get involved.

Individual Sponsors of PBS-SEPM (2016-2017)

Individual sponsors are advertised on the PBS-SEPM website and each Newsletter. Cost is \$85/year. 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.

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

Peter Muggeridge

Cover Inset Photo: “Sitting Bull Falls” (Lincoln National Forest; Carlsbad, NM)