



PBS-SEPM NEWSLETTER



November — December, 2010

PBS-SEPM 2010-2011 5

**Nov. 9: WTGS
Lunch Meeting, 11:30
am, Midland Center.**

Speaker: Robert J. Stern,
Topic: TBA— See
www.wtgs.org for more
details.

**Nov 16: PBS-SEPM
Lunch Meeting, 11:30
am, Midland Center.**

Speaker: Donald P.
McGookey, Independent
Geologist, Midland, TX
Topic: "Geology of Mex-
ico: An Overview."

**Nov 17: SIPES Lunch
meeting, 11:30 am,
Midland Country Club.**

Speaker: Sean Murphy,
Advanced Energy Consor-
tium: **Topic:** "Nanno-
Technology in the O & G
Industry."

**Dec. 14: WTGS Lunch
Meeting, 11:30 am,
Midland Center.**

Speaker: Christopher
Kendal, Ph.D. **Topic:** TBA

Jan. 18. PBS-SEPM,

Speaker: Richard E. Lewis,
Schlumberger **Topic:**
"Wire line Logging for
Shale Gas."

Dr. Donald P. McGookey — PBS-SEPM Luncheon Speaker

— Biography on page 3 —

— Tuesday, November 16, 2010 —

— 11:30 am, Midland Center, Midland, TX —

RSVP by noon Monday, November 15th : 432-683-1573 or email: <wtgs@wtgs.org>

"Geology of Mexico: An Overview"

ABSTRACT:

Physiography

A considerable part of Mexico has elevations above 2,000 meters. There are four large mountainous trends: Sierra Madre Occidental, Sierra Madre Oriental, Trans-Mexican Volcanic Belt (TMVB), and Sierra Madre del Sur.

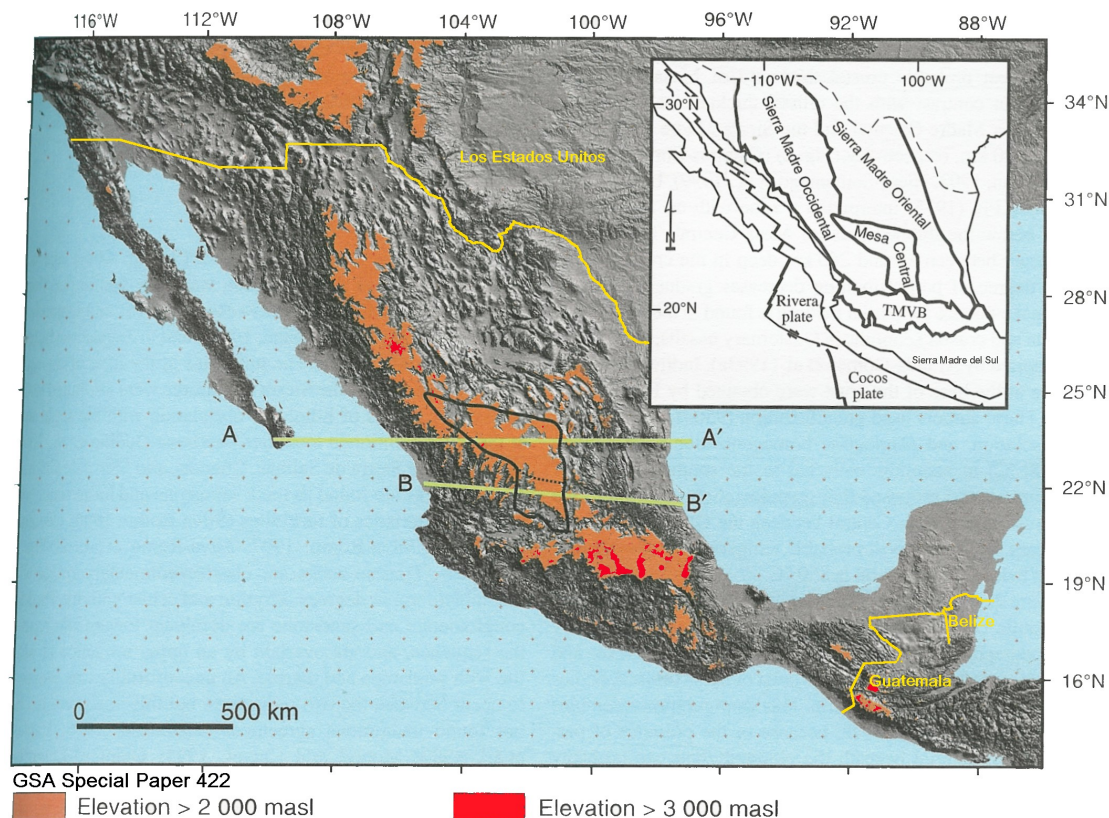


Figure 1: Physiographic Map of Mexico.

Plate Tectonics

Mexico is a patchwork quilt of microcontinents (terranes) that accreted to the North American continent from north to south starting in the late Paleozoic and continuing into the early Cenozoic. In total the blocks comprise an isthmus between the Pacific Ocean and Gulf of Mexico. They are separated from the continent by an east-southeast left-lateral wrench system that extends from southeast California to the east coast called the Mojave-Sonora Megashear. Exposures of the shear zone are poor because of widespread cover by Tertiary extrusives and younger valley-fill. The existence of this feature is not accepted by everyone, but considerable scattered evidence argues for the interpretation.

Magmatism

As the microcontinents docked and moved southwest with the rest of the continent, they overrode the east side of the Pacific oceanic crust. This subduction resulted in continuous magmatic activity during the Mesozoic and Cenozoic that has migrated from north to south. Along the west side of the Sierra Madre Occidental trend there are exposures of a Jurassic-Cretaceous batholith. This mountain trend is primarily a very thick pile of Late Eocene to early Miocene extrusives dominated by Oligocene ignimbrites. The current subduction underlies the Sierra Madre del Sur and generates magmas responsible for the Trans-Mexican Volcanic Belt and the Central America volcanic arc (El Chichon).

Gulf of Mexico Basin

As South America moved south during the breakup of Pangaea the Yucatan block was pulled away from the southeast part of Texas forming a large basin with an oceanic crust, but no evidence of a sea-floor spreading ridge. The movement of the Yucatan block apparently happened in two stages. An early Mesozoic opening formed the basin. This was the basin at the time of mid-Jurassic salt deposition. Additional late Mesozoic movement is indicated by a large central area of the Gulf that is salt-free.

Mining

The rich copper deposits of Arizona continue south into the state of Sonora. If you are looking for the Treasure of Sierra Madre, I suggest you look there. In the northeast part of the country there are a number of Mississippi-valley type mineral deposits (fluorite, lead, zinc and barite). There is very little coal.

Oil and Gas

In the Gulf of Mexico basin there are five megagiant (over 5 Billion BO) fields. One is in east Texas and four are in Mexico. The Golden Lane fields along the west edge of the Gulf were discovered in the early 1900's by drilling seeps. These fields produce from Jurassic-Cretaceous reefs that fringe a large carbonate bank similar to the Horseshoe Atoll of the Midland Basin. In a deep trough west of the bank, debris from the reefs formed a thick pile that resulted in the Poza Rica fields. The Reforma area fields of southeast Mexico are along the east side of a salt basin. The megagiant A. J. Bermudez field developed during the 1970's, produces from Cretaceous carbonates in a highly faulted anticline that drapes over a salt pillow. There are three megagiant fields offshore west of the Yucatan peninsula along the east side of a large deep water salt basin. The Cantarell complex is extremely large (over 15 billion BO) and bizarre. It resulted from Mid-Tertiary overthrusting of Mesozoic carbonates. The main pay is a 1000 meter thick section of breccia at the top of the Cretaceous that was originally deposited on a slope west of the peninsula. The deposit is believed to be debris from the Chicxulub impact.

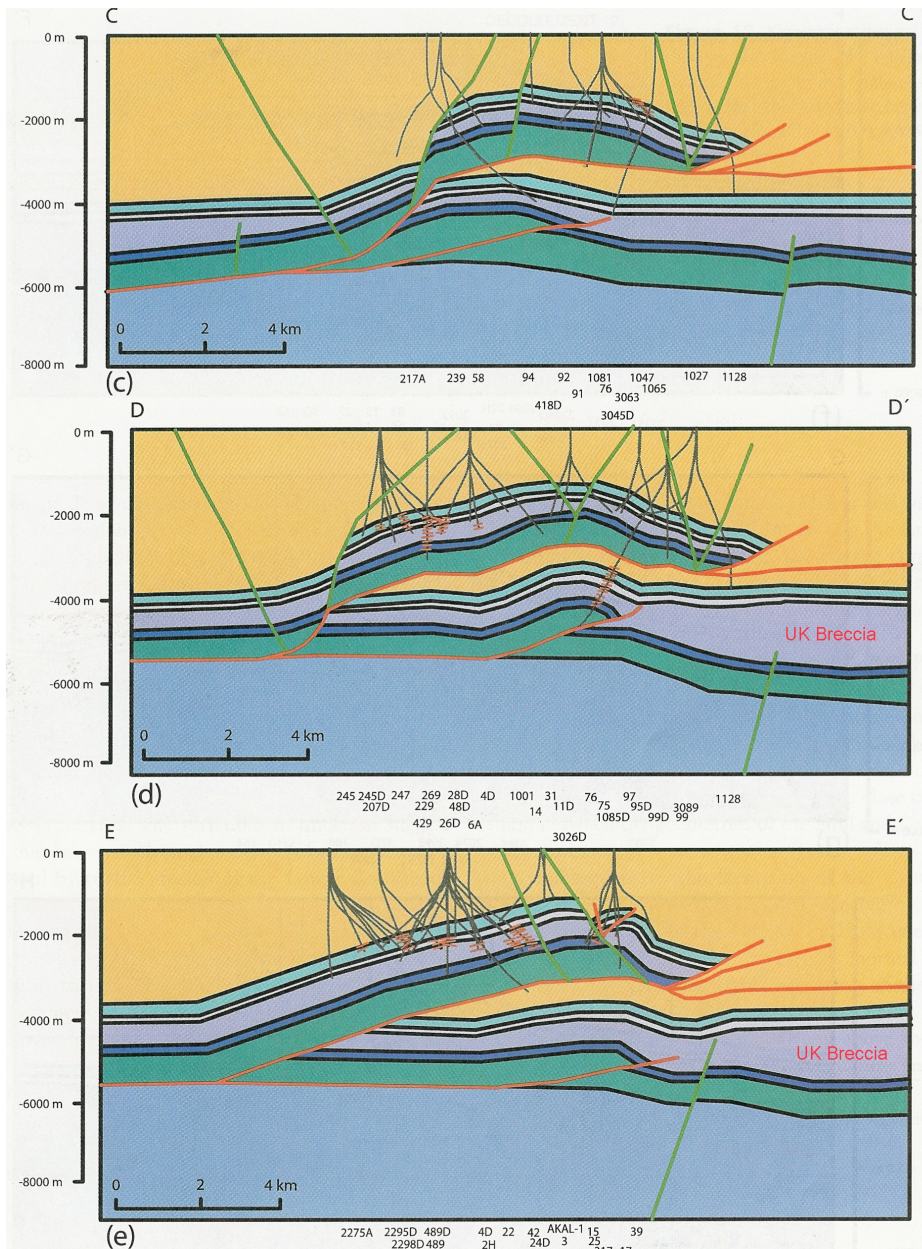


Figure 2: Above Right. Cross sections of Cantarell and Sihil Fields, Offshore Campeche Bay. Cantarell is a megagiant with an EUR of 15 Billion BO. Sihil is underneath the thrust and its EUR is unknown at this time. Both fields produce from debris thrown out by the Chicxulub meteor impact on the Yucatan Peninsula at the end of the Cretaceous.

From GSA Special Paper 422.

Bio— Donald P. McGooley was born and raised in Sandusky, Ohio. He spent two years in the US Navy as an Electronic Technician. He earned his Bachelor's degree from Bowling Green State University, a Masters from the University of Wyoming, and his Ph.D. in geology at The Ohio University. Texaco Inc. employed him from 1952 – 1979. Don worked in various parts of the Rocky Mountains for 17 years, in New York (International Exploration), and as Chief Geologist in Houston, Teas. Don ended his career with Texaco as manager of exploration in Midland, Texas. Since 1979, he has been an independent geologist working primarily in the Permian Basin of west Texas and southeast New Mexico.

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"Criticism may not be agreeable, but it is necessary. It fulfills the same function as pain in the human body. It calls attention to an unhealthy state of things."
Sir Winston Churchill





President's Column

Teri McGuigan



At closing on Friday, November 5, 2010, NYMEX West Texas Intermediate Crude Oil for December delivery closed up \$0.36 at \$86.85. Looks like the price of oil is slowing creeping up - something we are always thankful for in the oil and gas industry.

Last month, the society had a great speaker from Weatherford Laboratories. Mike Walker gave a very enlightening talk regarding the growth of technology associated to recovery of cores in light of the increased interest in shale rock analysis. Thank you again Mike for taking the time to share some of your knowledge with PBS-SEPM and the Midland geological community.

Your PBS-SEPM executive committee has been working hard to provide a field trip in the spring of 2011 that will interest many. I believe we did so when Dr. Xavier Janson, Research Associate for the Bureau of Economic Geology, The University of

Texas at Austin, agreed to lead a field trip to the Mississippian mounds in the Sacramento Mountains this spring. We have not yet established a date, but watch the newsletter and the website as additional information will be available very soon.

I also want to remind everyone that the 2011 PBS-SEPM calendars are on sale now. We have printed a limited number, so I would suggest that you get your orders in as soon as possible. There is an order form in the newsletter featuring the fantastic cover photo taken by Gilbert Barragan.

Thanksgiving will be here before we know it. It will be a time to be extremely thankful for what we have - especially our freedom and the young men and women that continue to fight each day so that we can maintain and enjoy our beautiful country and our rights.

Please have a very happy Thanksgiving. I know everyone is very busy right now, but be sure to make time to spend

this special holiday weekend with your loved ones.

Teri McGuigan

President, PBS-SEPM

2010-2011

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

*"Truth in
science can be
defined as the
working
hypothesis best
suited to open
the way to the
next better
one."*

Konrad (Zacharias)

Lorenz

(1903-89)

Austrian ethnologist.

[Nobel prize

for medicine, 1973]

New PBS-SEPM Executive Board (June, 2010—May, 2011)

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Executive Director:	Paula Mitchell	wtgs@wtgs.org	683-1573
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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 and drop us a note—your PBS-SEPM Executive Board would **LOVE** to hear from you!



"Experience shows that success is due less to ability than to zeal. The winner is he [sic] who gives himself to his work, body and soul."

- Charles Buxton, English brewer, philanthropist, write and member of Parliment

Corporate Sponsors (2010-2011) see others on p. 3

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

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

Your support lifts your corporate name within the Permian Basin .

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See page 3 for additional sponsors

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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.*

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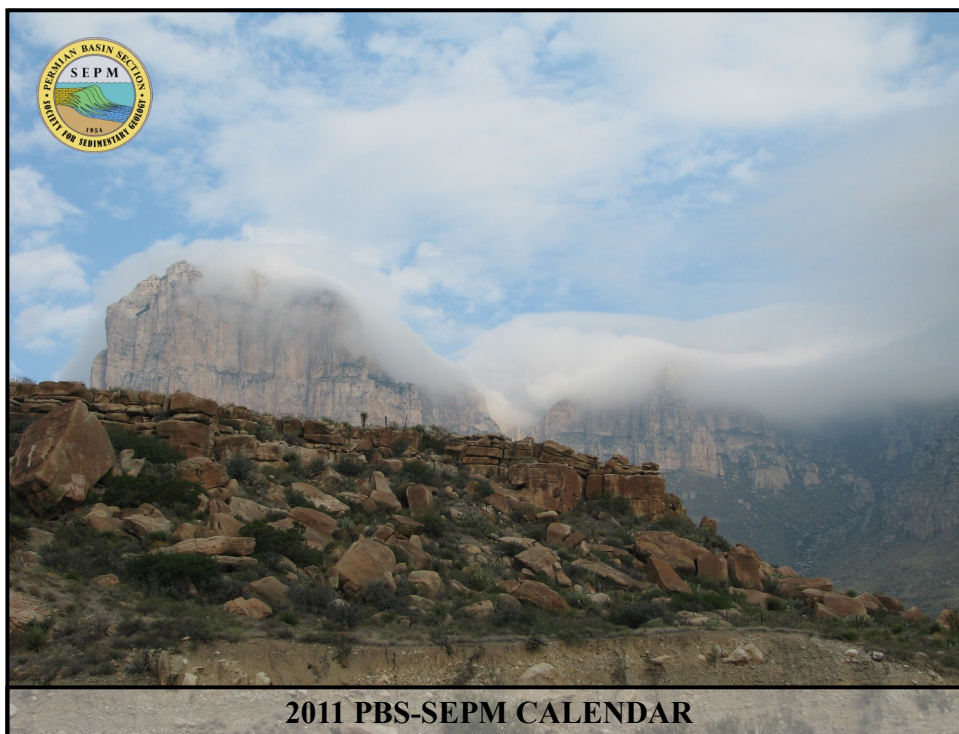
Make checks payable to **PBS-SEPM**.

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.

PERMIAN BASIN SECTION SEPM 2011 Calendar PRE-ORDER FORM

The PBS-SEPM is pleased to offer its 8.5x11" geologic calendar for 2011 (folds out to 11x17"). The calendar will feature West Texas scenery, icons of the oil patch, fossils, and minerals. Not only does each calendar purchase support the educational programs of PBS-SEPM, a non-profit organization, but a percentage of the calendar sales is dedicated to provide financial aid to full-time college students (geoscience majors) wanting to attend PBS-SEPM sponsored events. So each dollar spent not only helps PBS-SEPM continue to serve the professional geologic community with excellence, but also is an investment in the lives of future geosciences professionals as well.



Pre-Order Form for 2011 PBS-SEPM Calendar:

Member/Non-Member Price: **\$15.00** plus \$3.00 shipping and handling per calendar

Special Volume Discount: **'Buy 5, get 1 free'** [6 calendars for \$75.00 plus \$4.00 shipping & handling per bundle of 6]

Calendars will be ready by September 15, 2010 and will be for sale at the WTGS Fall Symposium. For those that order prior to that date, the calendars can be picked up at the WTGS Fall Symposium booth or at the WTGS office unless there is a request for the calendars to be shipped.

QUANTITY: _____ PICK UP: WTGS Office (Y/N) _____ WTGS Fall Symposium Booth (Y/N) _____

Sub-Total: \$ _____

SHIPPING: \$ _____ [\$3.00 per calendar or \$4.00 per bundle of 6 - N/A if calendars personally picked up]

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

Anyone who proposes to do good must not expect people to roll stones out of his [sic] way, but must accept his lot calmly, even if they roll a few stones upon it."

**Albert
Schweitzer**

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. Thanks to our Education Committee we are involved in MISD 5th grade geology presentations to interest elementary students in pursuing a career in geosciences. We would like to increase our exposure on 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, discover how to get involved and download a membership form.

Individual Sponsors of PBS-SEPM (2009-2010)

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 for more details at (432) 683-1573.



West Texas Fence after a snow—photo by Mark Russell, Odessa TX

Your Business Card Could be here

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

PBS-SEPM Core Repository Location Project

We Need Your Assistance !

Now we need your help. What do you do when you need to find a core? Do you know of any repositories that aren't in the list below ? Do you know what your employer or other operators have done or plan to do with their core? Please contribute any such information to this effort by contacting the committee: David M. Orchard, Chair, david.m.orchard@conocophillips.com, 832-486-2314; Dr. Emily Stoudt, stoudt_e@utpb.edu, 432-552-2244; and Andrew Parker, andrew.parker@whiting.com, 432-686-6784 office.

The following lists of portals and core repository facilities represent our first compilation

PORTALS TO INFORMATION

PTTC has a portal to the holdings of several public repositories. You can sort by repository and display their holdings in map view. <http://inside.mines.edu/Research/PTTC/Core%20Locator/>

AGI has a list of repositories of various geologic data, including cores. It provides contact information and accesses data through a map interface. <http://www.agiweb.org/ngdrs/overview/datadirectory.html>

Tony Troutman's website <http://www.carbonates.us/cores.htm> has a list of storage sites, including several state repositories.

PUBLIC AND COMMERCIAL STORAGE FACILITIES

The **USGS** has a storage facility in Denver that has Permian Basin material. Their collection can be searched online at <http://geology.cr.usgs.gov/crc/>. 303-202-4851.

The **Bureau of Economic Geology (BEG)** holds Permian Basin cores in their Midland, Houston, and Austin facilities. See <http://www.beg.utexas.edu/facilities.php> for information and contacts. Their catalog is called **IGOR** which has a link on above address. IGOR will be replaced soon by a more advanced database.

New Mexico Bureau of Geology and Mineral Resources has Permian Basin cores in Socorro. Request a list of the collection at <http://geoinfo.nmt.edu/libraries/subsurface/home.html>

CEED (Center for Energy and Economic Diversification) at **UT Permian Basin** (<http://ceed.utpb.edu/>) has Texas and New Mexico cores. 432-552-2020.

The **International Sample Library at Midland** has cores and core chips. Their collection is not in a database and must be searched through index cards. 707 Connell St, Midland, TX , 79701. 432-682-2682.