

PBS-SEPM NEWSLETTER



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March 2008

President's Column

Spring is in the Air

Companies are enjoying record earnings and geologists are again in demand. Are we moving too fast? The CEOs and Presidents are demanding we drill-drill-drill. Can we keep this up and spend wisely? There will be those that will stumble into some great production and some that will go bust. We have been down this road several times in the past. Those that have done their homework, looked at the rocks, made their maps, and worked with their engineers will have the odds stacked in their favor. All the “planets have to align” to ultimately be successful and find that next Bakken or Barnett look-alike. Last year folks wanted to have a Barnett gas project; this year it is a Bakken oil project. Ultimately, we all need to figure out what we do well, and do it. We can chase a lot of rabbits.

I recently talked to some geologists that have been successful drilling some of these plays. They will tell you what they think is the “secret” but when you look at the data, there is no silver bullet. Having the acreage in the right place at the right time helps.

It becomes apparent to me that the understanding of petroleum systems is important. For many years in the Permian Basin managers ignore the source/migration component of locating new fields. We have plenty of sources they would say. I am convinced those folks that start understanding the source rocks, the kitchen areas and how they are distributed will start to piece together these new opportunities. We have to start thinking out-of-the-box. What was traditionally thought to be uneconomic or “trash” rocks could be the next big field.

Using multiple working hypotheses and models can help us focus our attention on what

makes a play or field productive. The upcoming PBS-SEPM Field Trip (led by Dr. Charlie Kerans, Dr. Xavier Janson, and Dr. Ted Playton) will provide some wonderful visual models of these slope-to-basin settings. See our website or registration form on page 5 in this newsletter for more information. If you cannot make the trip, you might consider purchasing the PBS-SEPM library that will soon be digital. Put this great wealth of knowledge at your fingertips.

David J. Entzminger

Luncheon Schedule

March 19: (Wednesday)

Fractured Reservoir Characterization

*Dr. Jon Olson, AAPG Distinguished Lecture,
Assoc. Professor, University of Texas at Austin*

April 15: FutureGen's Aftermath, the Opportunities Ahead

Hoxie Smith, Director of PPDC

May 20: Karsting or Hydrothermal-Dolomites: What is the Reservoir Development in the Ellenburger

Dr. Robert (Bob) G. Loucks

Sr. Research Scientist, Bureau of Economic Geology, University of Texas at Austin

Updates can be found online at:
www.pbs-sepm.org

**Please contact Paula with your reservation at
(432)683-1573 or wtgs@basinlink.com**



2007-08 AAPG Distinguished Lecture

Abstract

JON OLSON

University of Texas, Austin

Funded by the AAPG Foundation

Fractured Reservoir Characterization: From Diagenesis and Fracture Mechanics to Reservoir Permeability

This talk describes how core-based diagenetic observations and mechanical properties measurements can be used to constrain natural fracture network geometry and flow properties in clastic rocks. A methodology is described that starts with optical microscopy and SEM-based cathode luminescence, relating pore-space diagenesis to fracture-filling cements. Geomechanical modeling of fracture pattern development and opening rate is constrained by anisotropic strain boundary conditions, mechanical layer thickness, and core-based fracture mechanics property measurements. Permeability calculations are made on a wide variety of fracture pattern geometries, including the effects of fracture pattern connectivity, heterogeneous aperture distributions, and the degree of aperture occlusion by mineralization. It is demonstrated that fractured rock permeability assessment can be improved with quantifiable geologic fracture attributes.

Jon Olson

Education:

- 1991 Ph.D., Applied Earth Sciences,
Stanford University
1984 B.S., Civil Engineering, B.S.,
Earth Sciences, University of
Notre Dame

Experience:

- 2002-Present Associate Professor,
Department of
Petroleum and Geosystems Engineering,
The University of Texas at Austin
1995-2002 Assistant Professor, Department of
Petroleum and Geosystems Engineering,
The University of Texas at Austin
1989-95 Research Engineer, Mobil Research and
Development Corporation, Dallas, TX



Publications and Awards:

- 2005 Michel T. Halbouty '30 Visiting Chair in Geology
and Geophysics, Texas A&M University
Authored or co-authored over 40 journal and conference
proceeding papers.

Five publications relevant to the lecture:

- Olson, J. E. 2007. "Fracture aperture, length and pattern
geometry development under biaxial loading: a
numerical study with applications to natural, cross-
jointed systems." In: *Fracture-Like Damage and
Localisation* (edited by Couples, G & Lewis, H.).
Geological Society of London, Special Publications.
Philip, Zeno, Jennings, James, Olson, Jon, Laubach,
Stephen and Holder, Jon, 2005, "Estimating
Permeability Multipliers for Reservoir Flow

Simulation from Geomechanically Simulated, Weakly
Connected, Fracture Networks," *SPE Reservoir
Evaluation and Engineering*, 8(4), p. 300-309.

Laubach, S. E., Olson, J. E., and Gale, J., 2004, "Are open
fractures necessarily aligned with maximum horizontal
stress?" *Earth & Planetary Science Letters*, v. 222 (1),
p. 191-195.

Olson, Jon E., 2003, "Sublinear scaling of fracture
aperture versus length: an exception or the rule?,"
Journal of Geophysical Research, v. 108(B9), Art. No.
2413.

Hennings, Peter H., Olson, Jon E., and Thompson, L. B.,
2000, "Combining Outcrop and 3-D Structural
Modeling to Characterize Fractured Reservoirs: An
Example from Wyoming," *American Association of
Petroleum Geologists Bulletin*, p. 830-849.

Professional Memberships

Society of Petroleum Engineers
American Geophysical Union

Professional Interests:

Involved in a wide range of petroleum and geoscience
related research and education, including interdisciplinary
geology and engineering efforts and K-12 outreach.

Research interests focus on two primary topics: 1) the
characterization of naturally fractured reservoirs,
incorporating geomechanics, diagenesis, structural
geology and spatial scaling, and 2) the application of
geomechanics to solving drilling, completion and
production related problems. Co-Dir, Fracture Research
and Application Consortium (FRAC) at UT-Austin.

American Association of Petroleum Geologists

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Mark your Calendars

MARCH

March 6: (DATE CHANGE from regular day) - 2007-08 AAPG Distinguished Lecturer, **Mike Blum** - *"Subsidence and Sea-Level Change along the Northern Gulf of Mexico, Response of Mississippi River to the Last Glacial Cycle, and the Flexural Ups and Downs of Mississippi Delta"*

March 19: (Wednesday)

Dr. Jon Olson, AAPG Distinguished Lecture, Assoc. Professor, University of Texas at Austin
"Fractured Reservoir Characterization"

APRIL

April 4-6 PBS-SEPM Annual Field Trip-
"Leonardian Slope Transition Facies of the Guadalupe Mountains"

April 8: Richard G. (Dick) Boyce - "Pinon Field Study with Implications for Texas Overthrust Natural Gas Exploration"

April 15: Hoxie Smith, Director of PPDC –
"FutureGen's Aftermath, the Opportunities Ahead"

April 20-24: National AAPG Convention- San Antonio, Texas

MAY

May 20: Dr. Robert (Bob) G. Loucks
Sr. Research Scientist, Bureau of Economic Geology, University of Texas at Austin; *"Karsting or Hydrothermal-Dolomites: What is the Reservoir Development in the Ellenburger"*

"Success is not final, failure is not fatal; it is the courage to continue that counts"—
Winston Churchill

Let us tell your story of the *Permian Basin History*

We are featuring a new item in the newsletter which includes a story from our "well-seasoned" geoscientists. These may be their favorite plays, that once-in-a-lifetime project or well, or stories about their fellow workers (the pictures could be very interesting). If you would like to write a story or know of someone that would like to contribute, please contact David Entzminger, 686-6741.

Are you a PBS-SEPM member?
Applications on the website: www.pbs-sepm.org

PBS-SEPM- upcoming elections

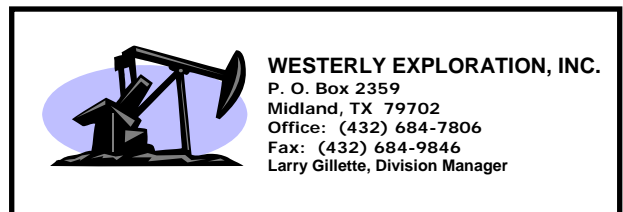
In the next few weeks you should be receiving a ballot for the 2008-09 slate of officers. I would encourage you to get involved by voting. The society only gets stronger with your participation.

If you would be interested in a position on a committee or the board, please contact any of the current board members found on page 8 of this newsletter.

When you do not know a thing, to allow that you do not know it--this is knowledge.
--Confucius

2007-08 Corporate Sponsorships

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



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2008 PBS-SEPM FIELD TRIP

April 4-6, 2008

Registration Form

Leonardian Slope Transition Facies of the Guadalupe Mountains

The Permian Basin Section of SEPM will be conducting their annual field trip this April. Here is your opportunity to register for what promises to be an exciting and fun trip. This year's trip leaders will be Dr. Charlie Kerans, University of Texas/Bureau of Economic Geology, Austin, Dr. Xavier Janson, BEG, Austin, and Ted Playton, University of Texas.

Participants will leave Midland at 12:00 noon on Friday, April 4th, in vans and personal vehicles. Please note, there will be a limitation on personal vehicles in the field on the second day, so plan on sharing the ride and good conversation in one of the vans. En route to Carlsbad, NM, the trip leaders will discuss geology and facies relationships in Walnut and Dark Canyons. An early evening icebreaker will be followed by dinner and a field trip overview at the Stevens Motel in Carlsbad. On Saturday, April 5th, we will spend the day in Shumard Canyon examining shelf to basin transition facies in the Victorio Peak margin, Bone Spring slope and basinal Cutoff formation. That night we will be back in Carlsbad at the Stevens Motel. The trip will conclude on Sunday, April 6th, with an opportunity to examine slope transition geometries in Pine Canyon before a late afternoon return to Midland. The trip is designed to investigate lateral and vertical facies patterns in the slope transition, and help derive reservoir models for exploration and development in these complexly interrelated environments.

Field trip cost includes: roundtrip transportation, icebreaker and dinner, two nights lodging, two lunches, two breakfasts, refreshments in the field, and a field trip guidebook. **Due to logistical constraints in the field, the trip will be limited to 35 people, so sign up early!**

Cost (please mark appropriately)

PBS-SEPM Member: \$445.00 double () Non-member: \$470.00 double ()
\$525.00 single () \$550.00 single ()

Guidebook(s) only: \$30.00 each ()

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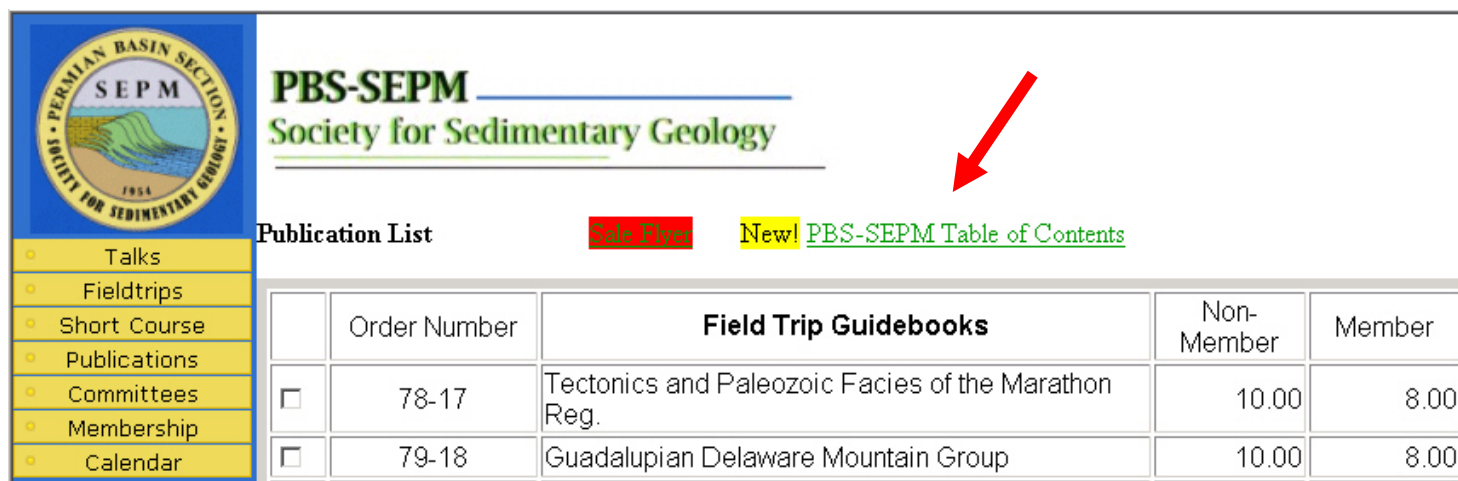
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Make checks payable to PBS-SEPM. Please send registration and payment information to: PBS-SEPM, P.O. Box 1595, Midland, Texas 79702
For additional information contact: PBS-SEPM office (432) 683-1595 or Mike Senich (432) 688-3047

PBS-SEPM DIGITAL PUBLICATION PROJECT

Check this out-----www.pbs-sepm.org/publications. You can now go to the PBS-SEPM website and search all their publications' tables of contents for topics, articles, authors. Just click on the PBS-SEPM Table of Contents- an Adobe PDF will be launched. You can use the Bookmarks on the left side or use the search function. Yes, you might find that little bit of information that will make your next exploration or development project a success. Limited time offer--- it will be part of the new digital publication package coming out in April.



The screenshot shows the PBS-SEPM website interface. On the left is a vertical navigation menu with links: Talks, Fieldtrips, Short Course, Publications, Committees, Membership, and Calendar. The main header area displays the PBS-SEPM logo and the text 'Society for Sedimentary Geology'. Below the header, there is a 'Publication List' section. To the right of this section, there are two buttons: 'Sale Ends' and 'New! PBS-SEPM Table of Contents'. A red arrow points to the 'New! PBS-SEPM Table of Contents' button. Below the buttons is a table listing publications.

	Order Number	Field Trip Guidebooks	Non-Member	Member
<input type="checkbox"/>	78-17	Tectonics and Paleozoic Facies of the Marathon Reg.	10.00	8.00
<input type="checkbox"/>	79-18	Guadalupian Delaware Mountain Group	10.00	8.00

The compilation of all the Tables of Contents is a quick reference to all PBS-SEPM publications. Since this file has been OCR, one can use **word searches** to find a publication, article, subject or author. On the **Toolbar**, you will find a binocular “search”, click on it and you will get the search menu (Figure 1, p. 7). By simply typing in the information you would like to find, and clicking the **search key**, you will be shown to all the places that have that word or words (Figure 2, p. 7).

All publications have been **Bookmarked** and put into three categories: Publications, Special Publications or Core Workshops (Figure 3, p. 7). By simply clicking on any of these categories, they will expand to the publication list. “Click” on the desired publication and you will be taken directly to that page. All publications have a “Table of Contents” associated with them and by going to the next page(s), you will be able to view all the articles in that publication. You can also get to any of the “Tables of Contents” from the bookmarks by expanding any of the individual publications and “clicking” on the Table of Contents below the publication of choice.

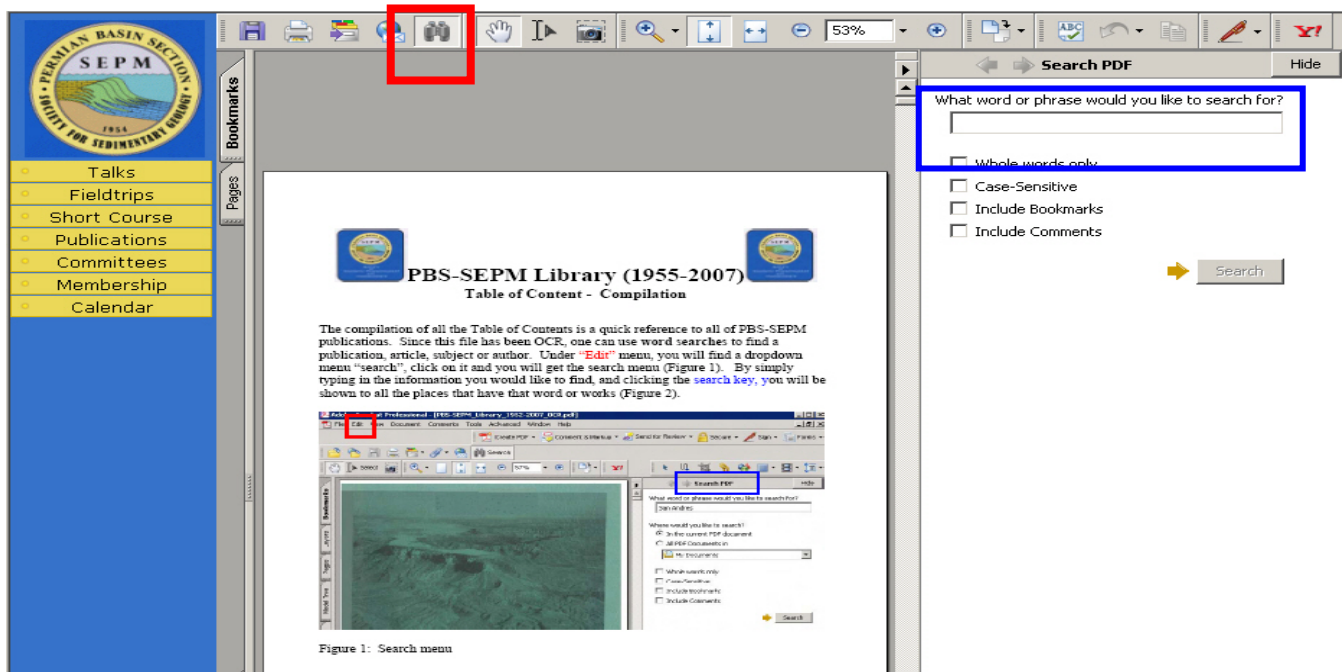


Figure 1: Search menu

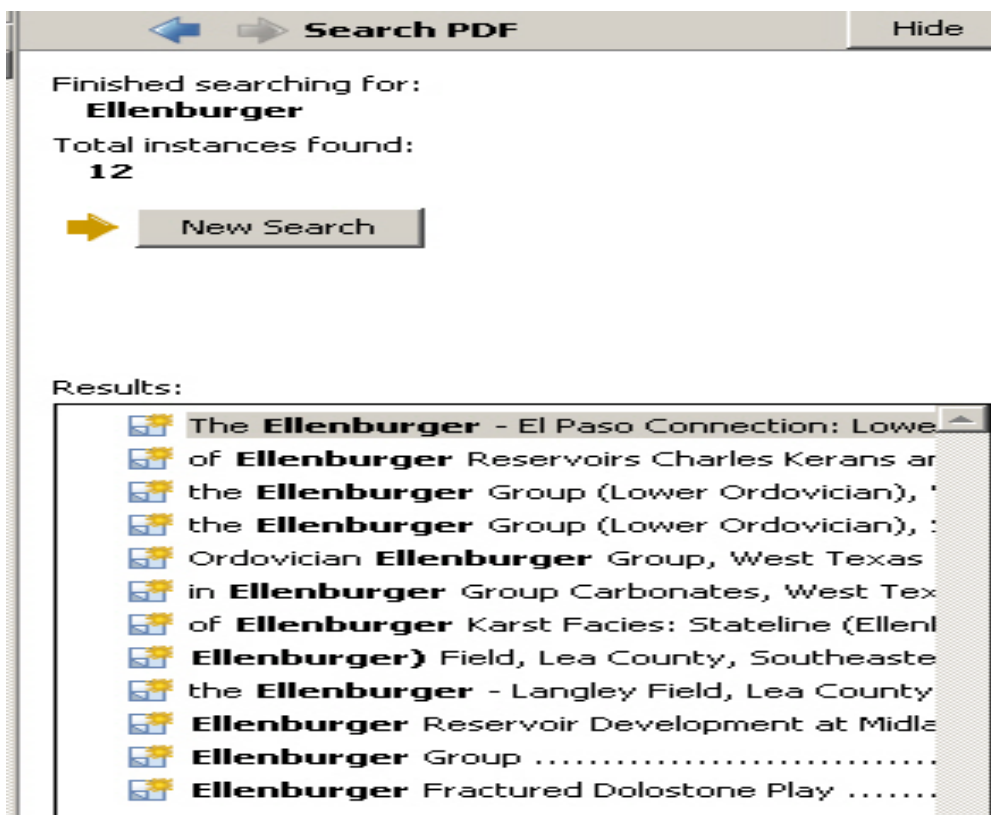


Figure 2: Search retrieval

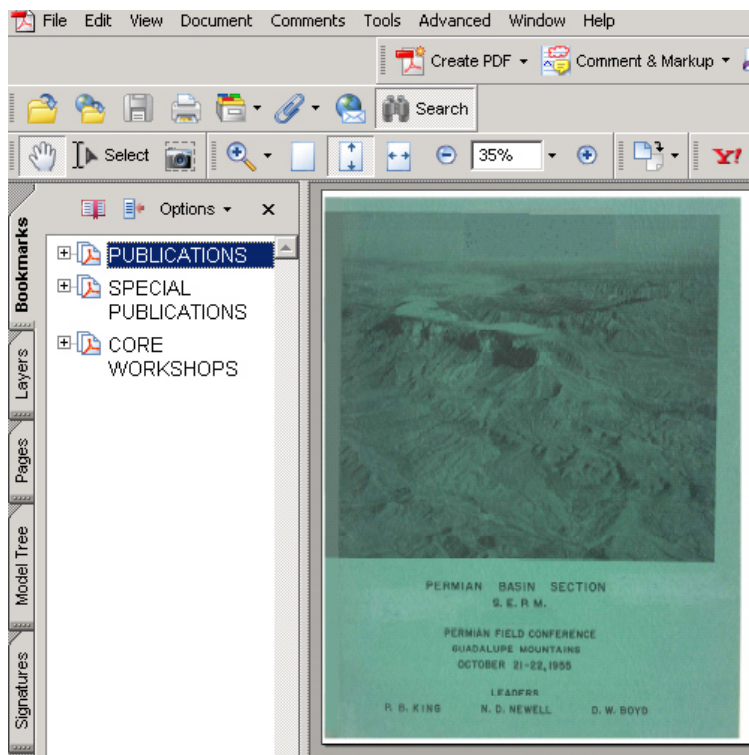


Figure 3: Bookmarks

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PBS-SEPM COMMITTEES

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Newsletter	<i>Please Volunteer</i>			
Luncheon Program	Steve Trudeau	Independent	(214) 683-4044	SteveTrudeau@GMail.com
Calendar	Gilbert Barragan	Whiting Petroleum Inc.	(432) 686-6750	Gilbert.Barragan@whiting.com
Honorary Life	Emily Stoudt	UTPB	(432) 552-2244	stoudt_e@utpb.edu
Nominating	David Farmer	Stanolind Oil & Gas Corp.	(432) 688-4250	dfarmer@stanolind.com
One Day Field Trip	Gilbert Barragan	Whiting Petroleum Inc.	(432) 686-6754	Gilbert.Barragan@whiting.com
Publications	Richard Blackwell	Consultant	(432) 683-4971	rcbgeol@nts-online.net
Publicity	Rick Doehne	University Lands	(432) 684-4404	rdoehne@utsystem.edu
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This includes all publications, even the special publications and coveted core workshops. Can you imagine the hidden treasures you have missed? Here is your chance to uncover them.

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ORDER FORM

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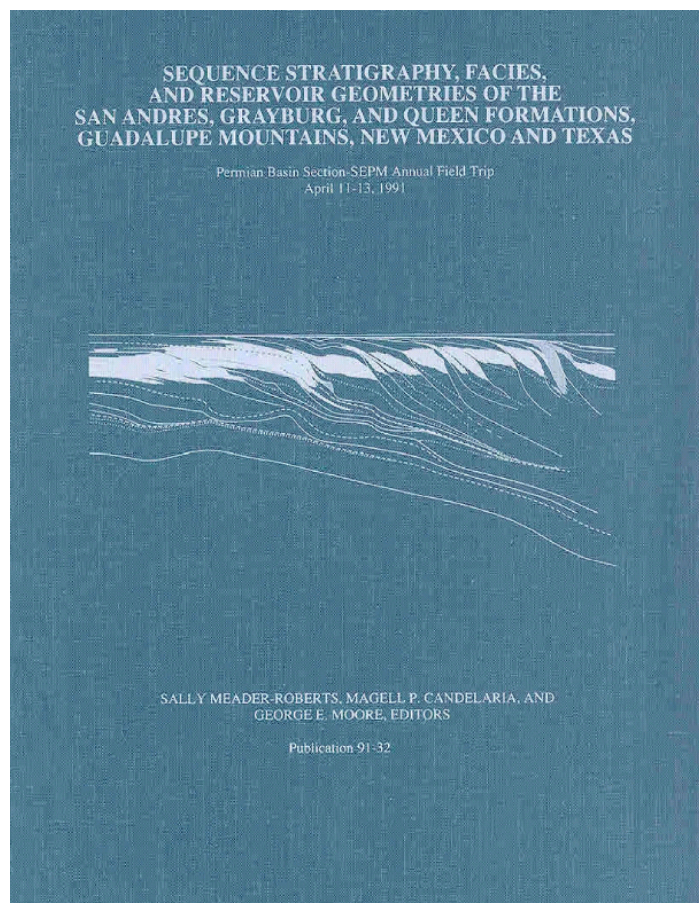
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Sequence Stratigraphy, Facies, and Reservoir Geometries of the San Andres, Grayburg, and Queen Formation, Guadalupe Mountains, New Mexico & Texas

March - Special Featured Book - \$5



Publication 91-32

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