



September 2005

Los Angeles Basin Geological Society Newsletter

**September Meeting: Colleen Barton – GeoMechanics International Inc.,
Houston, TX**

Will speak on

Geomechanics Applied to Reservoir Fracture Permeability and Fault Trap Integrity

Speaker Synopsis / Abstract

The performance of low-permeability fractured reservoirs is controlled by the in situ state of stress and by the distribution and orientation of natural fractures and faults. Local variations in stress orientation and magnitude can significantly impact reservoir production. In situ stress distribution and fracture geometry are key to detecting and managing the effects of these localized variations in reservoir performance. Geomechanical oilfield studies from the San Joaquin and Santa Maria Basins California, central Hokkaido, Japan and from geothermal fields in Nevada and California demonstrate that there exists a predictable relationship between in situ stress and permeability which can be used to optimize production from fractured and faulted reservoirs. These studies show that fractures and faults optimally oriented to the current stress field to be at the frictional limit for shear failure are “critically stressed” and control reservoir permeability.

Many hydrocarbon traps are underfilled or completely breached. Fault-trap integrity is strongly influenced by the state of stress resolved on reservoir bounding faults. Careful construction of a geomechanical model can reduce the risk of encountering breached reservoirs in exploration and appraisal wells. Studies from the northern North Sea and the Nancar Trough region of the Timor Sea show that the ability of a fault to behave as a seal and support a hydrocarbon column is influenced by the principal stress directions and magnitudes, and fault geometry. If a fault is critically stressed with respect to the present-day stress field, there is a high likelihood that the fault will slip, thereby elevating fault zone permeability that enables hydrocarbons to leak.

Significant environmental damage can occur due to the injection of water or steam for enhanced reservoir production. Injection within the vicinity of a fault could compromise its sealing integrity. A causal relationship between fault seal failure and injection pressure has been revealed in a number of studies. Geomechanical modeling to characterize the full in situ stress tensor enables the calculation of critical injection pressures for safe reservoir production and the development of operational procedures that limit or eliminate the surface/seafloor eruptions of oil

Dr. Colleen Barton, Ph.D., is the Vice President of Technology Development and Co-Founder of GeoMechanics International Inc. Dr. Barton is responsible for implementation of new science and technology research into new or existing software tools. She is a senior geomechanical analyst in reservoir permeability and fault-seal integrity applied to oil and gas and geothermal reservoirs, as well as mining and geotechnical applications. She has extensive experience in the analysis of wellbore failure, fracture characterization, and fracture permeability, and is considered an industry expert in wellbore image analysis technologies.

Before completing her Ph.D. at Stanford in 1988 in reservoir geomechanics, Dr. Barton spent two years as a research scientist at the Massachusetts Institute of Technology conducting research in wellbore sonic logging. She also had a four-year career in the field of geotechnical geophysics. From 1988 to 1996 Dr. Barton was at Stanford University developing techniques in in-situ stress measurement and enhanced recovery from fractured reservoirs.

Time & Place

Time:

Thursday, September 22, 2005

Typical Meeting Agenda

Lunch Served: 11:30 AM to 12:00PM

Announcements: 11:50 AM to 12:15 PM

Guest Speaker: 12:15 PM to 12:45 PM

Place:

The Grand at Willow Street Conference Center located at 4101 East Willow Street, Long Beach, CA. (562-426-0555). Take Lakewood Boulevard south from the San Diego Freeway (405), turn west onto Willow Street and turn right onto Grand Avenue at the sign for the Center. Park free in the garage structure.

Announcements / Information

Cost

Cost:

Lunch and Speaker: \$20.00 with reservations
\$25.00 without reservations
Student: \$ 5.00 (Lunch and Speaker)

Reservations:

Make your reservations using our web site at www.labgs.org, emailing iaburto@breitburn.com or calling Ivan Aburto at (213) 225-5900 ext. 234.

Reservations must be made prior to Tuesday before the meeting.

LABGS Future Meetings

Lunch meetings are held at *The Grand at Willow Street Conference Center*. Lunch starts at 11:30 AM

2005 Speaker Schedule

October 27, 2005 -The speaker will be **Don Fife** speaking on "*The Lucerne Valley Limestone Province, San Bernardino Mountains, California.*"

November 17, 2005 - The speaker will be **George Copenhaver** speaking on the "*History and Geology of the San Diego and Arizona Eastern Railway.*" **Note the day of the month change to accommodate Thanksgiving.**

There will be no meeting in December.

January 26, 2005 - The speaker will be **Boris Zaprianoff** speaking on "*The Dead Sea and Noah's Flood: Recent Sub-sea Archeological Discoveries.*"

Future speakers include **Bob Davis** – "*Outcrop and Subsurface Dipmeter examples.*"

If you have a speaker suggestion please mention it to a Board member.

The exact titles for these talks may change. See the Newsletter for the most current info

The new Board is "in the house."

President

Jon Kuespert, BreitBurn Energy, LP

Program Chair / VP

Dick Brown, Consultant US Geologic Services

Treasurer

Steve Zigan, Environmental Resolutions, Inc

Secretary

Ivan Aburto, BreitBurn Energy, LP

2005 Student Recognition Awards

The Los Angeles Basin Geological Society offers two annual scholarship awards as a form of encouragement and recognition to those College students who show dedication and passion to the field of Geoscience. It is our goal to help future geoscientists on in their pursuits. Both of these awards consist of a Brunton Compass and a wall certificate.

The LABGS Brunton Award

The 2005 recipient of the LABGS Brunton Award is **Michael Peet** from California State University, Los Angeles. Mike will graduate with a BS in Geology next June. The LABGS Brunton Award is given to a qualified undergraduate student attending a four-year LA Basin College or University currently pursuing a baccalaureate degree in Geology or the Earth Sciences.

SELECTION PROCESS

The above award winner was selected from candidates nominated by a faculty member. The winner was selected based on the following criteria:

- Grade point average in earth science classes.
- An enthusiastic or special recommendation from the college advisor, department chair, or mentor professor

The Don Clarke Brunton Award

The Los Angeles Basin Geological Society will unfortunately not present The Don Clarke Brunton Award in 2005, due to a lack of qualified candidates. The Don Clarke Brunton Award is given annually to a qualified student graduating from an LA Basin Community College with an Associate Degree, enrolled in a Geology or Earth Science curriculum with plans to pursue a baccalaureate degree in Geology or the Earth Sciences. Hopefully, there will be qualified candidates in 2006.

Your Name Here!

Advertising in newsletters is available!

Advertising rates for a business card size ad is \$60 for 6 issues. These fees help offset our publishing costs. If interested please contact a Board member.

LABGS Publication List

1. Guidebook from the 2004 LABGS Field Trip Examining the Catalina Schist and the Palos Verdes Peninsula. **\$20**. The book is 179 pages and printed in color. There is enough detail to allow you to recreate the trip on your own.
2. Neotectonics and Coastal Instability, Orange and Northern San Diego Counties, California - CD VERSION from the 2000 PSAAPG and WRSPE Field Trip Guidebook. **\$28**.

For Information regarding these publications, contact Ivan Aburto – His email is accessible from our web site at www.labgs.org

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SEPM FALL 2005 FIELD TRIP: Sedimentology and Facies Architecture of Channelized Slope Systems: Eocene Ardath and Scripps Formations and Miocene Capistrano Formation, Southern California

Mark your calendars for the PS-SEPM Fall Field Trip scheduled for October 29 – 30, 2005...

The Pacific Section SEPM fall field trip will focus on the architecture, lithology, and distribution of facies within two different deep-water systems exposed at two localities in southern California. Both systems were deposited in continental slope environments. Middle Eocene strata in the Ardath and Scripps Formations near La Jolla, California were deposited in an upper slope environment within a relatively larger submarine canyon. In contrast, Miocene strata in the Capistrano Formation at San Clemente, California were deposited near the distal edge of a lower slope environment within a complex of relatively smaller channels. Channel sedimentation in both deep-water systems display a well-developed hierarchy of architectural units consisting of channel stories, channels, channel complexes, and channel complex sets. Lithofacies within these slope systems range from gravelly coarse-grained turbidites to muddy, low-concentration turbidites.

The trip will be led by Kirt M. Campion and Anthony R. Sprague from ExxonMobil Upstream Research Company and Morgan D. Sullivan from California State University, Chico.

LABGS T-Shirts ON SALE

The LABGS sells T-Shirts to generate additional funds to help support our scholarship and field trip activities. The shirt display's the LABGS logo on the Back with the words "LA Rocks" on the Front. The Price for shirts are \$15.00 and available at our luncheon meetings or by contacting Ivan Aburto (see contact list in this newsletter). Sizes are limited to Medium, Large, and Extra Large. **Buy one at the September Meeting!**

Renew Your Annual Dues

The Pacific Section AAPG and LABGS operate on a fiscal year from July 1 to June 30. If you are a current member, you will receive a PSAAPG membership renewal notice this month in the mail. Please note, when you renew you are renewing for both LABGS and PSAAPG (for one low price of \$12).

If you haven't done so, take this opportunity to send in a check and update your mailing information. New directories will be printed in spring of 2005 and will be included in your dues for the next fiscal year (the directory is one of the key benefits of joining the LABGS through PSAAPG).

Not a Member you say!!! Join and get on the LABGS Membership / Mailing List

Become a member of the LABGS and enjoy the benefits of membership. Our goal is to provide a value added service to the geologic community of the LA area at a reasonable cost. If you join the LABGS you also become a member of the PSAAPG and vice versa. The purpose of this is to reduce waste and duplicated effort. Check out the membership form for a list of the dual membership benefits. Membership is our primary source of income so I urge you all to join or renew. To join or renew, fill out the attached membership form and mail it in to PSAAPG or better yet bring it to the next meeting. This will ensure you are on our lists and the only way you can request a hard copy through the mail. The use of E-mail is our preferred method of distribution so please make sure we have your address

WE'LL BE THERE



Epoch is one of the energy industry's leading suppliers of wellsite data gathering systems. Our drilling instrumentation products, wellsite reporting software and mud logging services are industry leaders, and myWells.com allows you to access that information anytime, anywhere. That means you can make more timely decisions that deliver efficiency and economy. If real time, accurate wellsite information is important to you, call Epoch. We'll be there.

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President's Note

I would like to thank Dalton Lockman for his years of service in developing our Society. His efforts followed Don Clarke's activity in re-establishing the Los Angeles Basin Geological Society (LABGS) as a viable and energetic entity. The new LABGS adds greatly to the distribution and understanding of earth science knowledge to our community and beyond.

Thank you,

Jon

Contact Us – The LABGS Board

President: Jon Kuespert (213) 225-5900

jkuespert@breitburn.com

Program Chair: Dick Brown (562) 598-0595

dickbrowngeo@adelphia.net

Secretary: Ivan Aburto (213) 225-5900, ext. 234

iaburto@breitburn.com

Treasurer: Steve Zigan, (949) 355-4467

szigan@eri-us.com

OUR WEB SITE ADDRESS IS:

www.labgs.org



Los Angeles Basin Geological Society Membership Form

Join the LABGS and become a member of the Pacific Section AAPG all for one low price of \$12.00 per year - 2 West Coast Geoscience Organizations for the price of one



Membership Benefits

- LABGS Membership
- Monthly Luncheon Meetings with Strong Technical Programs
- Pacific Section AAPG Membership
- Pacific Section AAPG Bi-Monthly Newsletter
- Discounts for PSAAPG Bookstore Publications
- Bi-Annual West Coast Geoscience Directory - *next edition 6/03*
- Networking and Social Opportunities with Fellow Geoscientists

Current Annual LABGS/PSAAPG Dues	
1 Year Option = \$12.00	\$ _____
3 Year Option = \$36.00	\$ _____

Extended E-Mail Announcement List Fees	
To receive meeting notices from SJGS and CGS	
1 Year Option = \$12.00	\$ _____
3 Year Option = \$36.00	\$ _____

PSAAPG Foundation Contributions	
B. Hacker Publication Fund	\$ _____
Martin Van Couvering Fund	\$ _____
Dibble Map Foundation	\$ _____
California Well Sample Repository	\$ _____
John Kilkenny Scholarship Fund	\$ _____
PSAAPG Foundation Trust Fund	\$ _____

TOTAL PAYMENT	
Total Amount Enclosed	\$ _____

Essential Member Information	
Last Name	_____
First Name	_____
Middle Initial	_____
E-Mail Address	_____
Mail Address	_____
<i>Res or Bus ?</i>	_____

Additional Directory Information					
Employer	_____				
Position / Title	_____				
Bus Phone #	_____				
Res Phone #	_____				
Fax Phone #	_____				
Spouse's Name	_____				
Education	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;"><i>Highest Degree</i></td> <td style="text-align: center; border: none;"><i>Year</i></td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> </table>	<i>Highest Degree</i>	<i>Year</i>	_____	_____
<i>Highest Degree</i>	<i>Year</i>				
_____	_____				
School	_____				

Signature _____

Annual membership is handled through PSAAPG and runs from July 1, through June 30. If you are already a current member of PSAAPG and you selected LABGS affiliation you are already a member of the LABGS.

**Please Make Checks out to PSAAPG and mail along with member form to:
PSAAPG P.O. Box 1072, Bakersfield, CA 93302**