March 2009

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6	7
			GSH/SEG Spring Symposium			
8	9	10	11 Technical Breakfast @ Fugro	12 GSH Board Meeting	13 Science & Engineering Fair of Houston	14
15	16	17 Technical Lunch @ Omni	18 Technical Lunch @ Petroleum Club ~~~~~~~ Rock Physics SIG	19	20	21
22	23	24	25	26	27	28
29	30	31	**April 2009** 1	2	3	4
EEGS Annual Meeting March 29 - April 2, 2009						

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VOL. 43, NO. 7 NEWSLETTER MARCH 2009

Technical Luncheon

The Same Talk, Two Locations

Date 1
Date: Tuesday, Mar. 17, 2009
Time: 11:30 a.m. - 1:30 p.m.
Location 1: Omni Palace (Salon A)
12121 Westheimer Rd.
Houston, TX 77077

Date 2
Date: Wednesday, Mar. 18, 2009
Time: 11:30 a.m. - 1:30 p.m.
Location 2: Petroleum Club
800 Bell St. (43rd Floor)
Houston, Texas 77002
Downtown Houston

Register Online: www.gshtx.org

Cost: $25/members pre-registered
$30/members nonregistered
$35/non-members

Title: "***Imaging Challenges In the Carbonate Environment; Examples From the Mid and Far East"***

Speaker: **J. M. Reilly,** *ExxonMobil*

Technical Luncheon continued on page 4.

Technical Breakfast

Date: Wednesday, March 11, 2009
Time: 7:00 a.m. Social
7:30 a.m. Presentation
8:00 a.m. Q & A
Location: Fugro
6100 Hilcroft, Suite 100
Houston, TX 77274
RSVP to: Liz Ivie at Fugro
713-369-5863 or
livie@fugro.com

Title: ***"A New Approach to Seismic Interpretation in Challenging Imaging Environments"***

Authors: **C. Edward Helsing* and David C. Berman,** *ExxonMobil Exploration Company*

**** Speaker***

Abstract:
A seismic image adjacent to a complex velocity anomaly such as a salt body comprises reflections resulting from multiple ray path types. Despite application of multipathing algorithms such as Wave Equation PSDM, the full stack seismic data

Technical Breakfast continued on page 14.

President's Column

By Bob Ayers

A Few Thoughts

As I sit here at home, staring at my monitor, I ponder what to write for this month's column. I would like it to be something witty and entertaining but I draw a complete blank. We all know there have been many authors before me, which have written elegant prose for this column that made us sit back and reflect on their message. I read many previous columns for inspiration, yet I struggle.

Well, I will take the lead from my predecessors, as I know there are many people that need to be thanked. There are many individuals who have been very generous with their time working on the many GSH functions, most of all, the individuals who chair the various committees that organize and put on the technical, sporting and social events, and their many volunteers. Each is important to the success of those events; they deserve recognition. So, to that end, I wish to express my sincere appreciation to each and every one of them for their time and diligent efforts.

President's Column continued on page 16.

GSH Spring Symposium is March 4 – 5 !

(See Page 13 for details)

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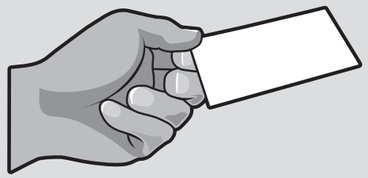

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Editor's Note:

To ensure your information reaches the GSH society members in a timely manner it must appear in the appropriate newsletter issue. Please note the following deadlines and plan your function's publicity strategy accordingly. Items must be received on or before the corresponding deadline date. Please send any obituary or memorial articles of recently deceased members to Glenn Bear, editor, at glenn.w.bear@exxonmobil.com. If you have any questions please call Glenn Bear at 713/431-6583.

2009 GSH Newsletter Deadlines

Issue.....April 2009
Deadline.....March 2, 2009

Issue.....May 2009
Deadline.....April 1, 2009

Announcements

Technical Breakfast
@ Fugro
Wed., March 11, 2009

Technical Lunch 1
@ Omni
Tues., March 17, 2009

Technical Lunch 2
@ Petroleum Club
Wed., March 18, 2009

Rock Physics SIG
Wed., March 18, 2009

Call for Volunteers!

We need volunteers to act as Special Award judges and others to man the SEG/GSH Career booth in shifts at the 50th Science and Engineering Fair of Houston. The fair will be held on March 13 and 14 at the George R. Brown Convention Center in downtown Houston and will include about 1200 junior and senior high school students from16 countries. Additional information is available at http://hunstem.uhd.edu/SEFH/.

The GSH judges will be working with Houston Geological Society (HGS) judges to select winners for special awards and Houston Museum of Natural Science internships (one from GSH and two from HGS). SEG/GSH Career Booth volunteers will hand out information to interested students and teachers. We may also conduct geophone/oscilloscope demos and hands-on activities. Please contact Lisa Buckner, lbuckner@hess.com or 713-609-4256, if interested in either volunteer activity.

GSH MEMBERSHIP REPORT

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February 4, 2009

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Lifetime	30
Total	1140

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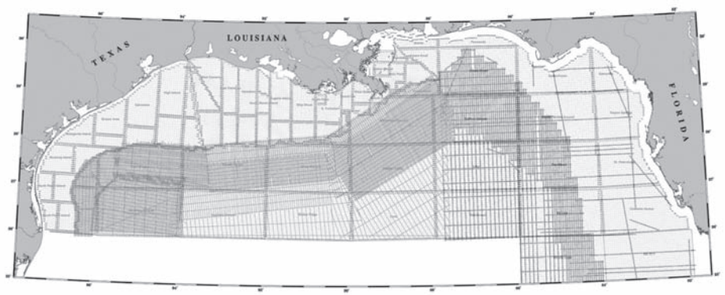

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Technical Luncheon continued from page 1.

Abstract:
Exploration and exploitation of carbonate platforms in the Mideast, and carbonate buildups in the Far East, represent an important source of hydrocarbon reserves. Interpretation of time-based seismic imaging products in these areas has been successful for numerous decades as the base seismic products for Exploration, Development and Production Geophysics.

With the continuing advances in seismic depth imaging, there is an obvious interest in applying new depth migration algorithms in these environments. However, many of these carbonate reservoirs have accompanying imaging challenges which cannot be addressed by seismic migration algorithms alone.

For example, small-scale distortion in the overburden often results in artifacts at the reservoir which are of the same scale as the true geologic structure. Similarly, land and transitional marine acquisition settings can add further complications. All of these factors adversely affect seismic imaging. This is particularly problematic in the mature Production setting because the dense well control will naturally demand that the precision of the seismic depth images exceeds the conventionally defined criteria for success.

This paper will discuss the basic geological factors affecting the seismic imaging in these settings, their physical impact on the seismic wavefield, and show examples of where alternative processing strategies have been applied to compensate for these effects.

Biography:
Joseph M. Reilly received a BSc. (1977) from the University of Rochester, New York and an MSc. (1980) from Virginia Poly. Tech. Inst. and State University. In 1980 he joined Mobil Exploration and Producing Services Inc., Dallas. From 1986 to 1994 he was employed by Mobil North Sea Limited in London, England. In 1994 he was transferred to Mobil New Business Developments, later moving to Mobil Technology Company, Dallas. He has worked on numerous exploration and producing projects throughout the world. His interests include seismic AVO & imaging, modeling, velocity analysis; and the evaluation, development and integration of geophysical tools and technologies. He is the author of numerous papers on these topics. During 2000-2005 he managed ExxonMobil's world-wide distributed Geophysical Processing and Geophysical Applications Groups. From 2005-2008 he was Manager of Integrated Seismic Research at ExxonMobil Upstream Research Company and he is currently the Senior Geophysics Consultant for the company.

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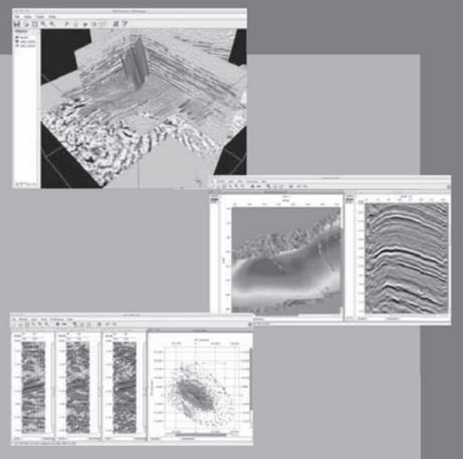

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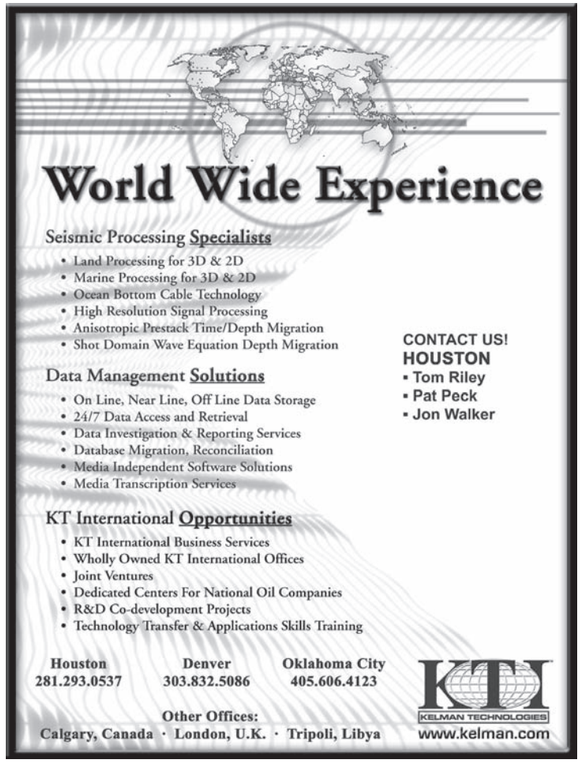

President's Column continued from page 1.

But, what other words can I write that will be worthy of the paper on which they will be printed? As I sit here, my thoughts keep coming back to the economic turmoil that seems to grip our great nation, and, if you believe what you read in the press and hear on the news, the entire world. You or I cannot change much as an individual, but we can rely on each other to help all of us get through these trying times. I have been in this crazy business for over thirty-four years. I have been through numerous cycles of rapid growth and rapid retrenchment. I survived most, got caught in a few of the down turns, but I have always landed on my feet with a little help from the geophysicists who are my friends. I believe that the keys to survival in this business environment are to keep your technical and managerial skills well honed and to tap your network of professional and personal contacts. That network is important. It gives us a place to search for that next challenge when needed, and it gives us an opportunity to assist our friends in their times of need. Our networks will help all of us whether the economic storm that lies ahead, whether it is an isolated thunderstorm or a raging hurricane with wide ranging and long lasting effects.

So, I encourage each of you to reinforce your network and reach out to your friends. Participate in the wide range of GSH events, be they technical, social, or sporting in nature. I encourage you to attend the various functions, support your society and invigorate your personal network by inviting them to come along. I hope these economic rigors in which we seem to be mired will diminish quickly. If they persist, use your network. It has helped me in the past.

. . . Here's My Card . . .

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Museum News *by Tom Fulton*

Texas Exploration In The 1920s

An examination of the pictures of Schander, the prospect reports of GRC to Pure Oil and the history collected by Sweet allow one to make the observation that our industry continues to change as a function of time. First, in April of 1924, Gulf Oil brought the Seismos' Mintrop crew headed by Otto Guessenhainer from Mexico to Ft. Bend County for several weeks of testing at the Blue Ridge and Boling domes, discovered in 1921 and 1923 respectively. They were then sent to nearby Orchard where a bend in the Brazos River (remember creekology?) suggested an anomaly and where two wells had failed to find oil. After shooting Gulf's program and finding nothing, Guessenhainer moved five miles to the Southwest and shot a line which revealed an anomaly. Guessenhainer wired Mintrop then in New York about the discovery and Mintrop took the next train to Houston--all before reporting to Gulf. Additional shooting in late June determined a drill site and prediction of a top of dome at about 350 feet. On November 19th the well hit caprock at the predicted depth and then in December found oil. The seismic industry had its first U.S. discovery. The Long Point Dome was the second found in the U.S. by the same crew. A similar Seismos crew had been dispatched to Oklahoma in July of 1923 to work for Marland, but had not yet been successful.

1925 was a busy year for our industry, with Karcher fielding crews for Geophysical Research Corporation, a part of Amerada, with more sensitive instruments. Petty Geophysical was formed with its new instruments and word was getting out about the work of Rieber in California. We have prospect reports generated by GRC crews working for Pure Oil. The refraction shooting took advantage of an idea of Gulf's L.P. Garrett, who suggested recording data about a fan from the shot point. As such, refraction was used as a reconnaissance

Museum News continued on page 11.

Sugar Land Field Wooden Storage Tank

Brazos River Ferry at Helmstead

14 Meter Deep Blue Ridge Crater

Another Crater

Mintrop Instruments. The microphone adjacent to the round tall refraction detector was used to detect the air wave.

Blue Ridge Refraction Shot

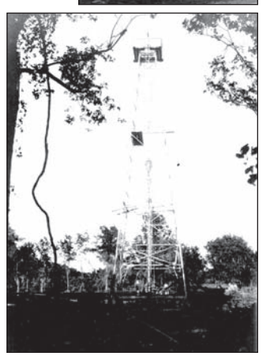
Observer With Large Radio Instruments

Seismos German Crew

Harris County Seismos Camp

Brazos River Cut To Ferry

Sugar Land Well



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RAISING THE STANDARD

Technical Breakfast continued from page 1.

generally exhibits low signal-to-noise ratios allowing for multiple valid structural interpretations. We present a new approach to this common interpretation problem.

Recent advances in computing now allow commercial production of Wave Equation PSDM subsurface angle gathers which are used for residual velocity updates. Taking the next step and stacking subsurface angle gathers provides the interpreter with a new way of viewing seismic data, in which partial stacks are defined as a function of subsurface angle rather than the familiar surface offset or angle. This distinction is important because subsurface angle stacks more often efficiently separate signal from noise compared to surface offset or angle stacks. The reason for this is, given a point in the volume, a dip and a reflection angle, the ray paths from a given source and receiver to the image point are uniquely defined. This is not true for surface offset data in a multipathing situation.

Using subsalt examples from the Gulf of Mexico we describe a technique that allows the interpreter to integrate subsurface angle stacks with seismic and non seismic datasets to discriminate between valid alternative structural interpretations.

Additional applications of this technique include imaging beneath velocity anomalies related to shallow gas, large discovered gas fields or anomalous channel fill within the overburden.

Biography:
Ed Helsing is an Exploration Geophysicist for the ExxonMobil Exploration Company in Houston, Texas. He received a degree in Geology from the University of North Carolina at Wilmington in 1978 and has been in the oil industry for almost 30 years.

Ed started his career with Chevron in Houston in 1979 as a seismic data processor. In 1981, he began generating prospects on the Texas shelf as an Exploration Geophysicist for Phillips Petroleum. From 1985 to 1996, Ed generated prospects in the Gulf of Mexico moving progressively into deeper waters for Texas Eastern, Mitchell Energy and the Minerals Management Service.

In 1996, Ed joined Mobil Exploration Co. in New Orleans, concentrating on deep water subsalt plays. After the merger of Exxon and Mobil, he was moved to Houston and has continued to pursue new depth imaging technologies and subsalt prospect generation. Ed is currently involved in ExxonMobil's deepwater Brazil exploration project.

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A clearer image www.pgs.com

Recommendations from the SEG Governance Review Committee

The Governance Review Committee (GRC) reaffirms the role of the Council as specified in the Constitution. However, it appears to us that currently the Council meeting operates more like a shareholders meeting than a board meeting. For example, opinions, (dis)agreement may be voiced, but these do not transfer directly into actionable items or policy changes for execution by ExCom and business office. In addition, it is probably true that most of the Council members (and/or their delegates) are unaware of their formal responsibilities and obligations. We conclude that a number of changes need to be made to ensure the Council will function as the highest governing body of the SEG. The primary role of the Council will be actively setting policy for the SEG. Effectively, the Council should function as a Board of Directors. To that end the following eight recommendations are made to the ExCom:

* The GRC recommends that the Council be tasked by the ExCom to develop a mid- to long-term strategy for the SEG and to periodically review that strategy to ensure that it remains relevant.
* The GRC recommends that the Council meet quarterly. One Council meeting will be held at the Annual Meeting. The other three Council Meetings will be held on a rotating basis in the other districts, preferably associated with a major SEG or industry event (IPTC, EAGE, SPE).
* The GRC recommends that the SEG reimburse travel costs of all officers, Council members, and the Executive Director who elect to attend any of the Council meetings in person.
* The GRC recommends that it be made possible to participate in all Council meetings remotely, via electronic means, with full voting privileges.
* The GRC recommends that each District have one representative on the Council.
* The GRC recommends that Sections and other societies affiliated with the SEG no longer have seats on the Council.
* The GRC recommends that a formal description of the roles, responsibilities and obligations of council members be developed. Written acknowledgement from the council members (or their delegates) accepting those obligations should be kept on file within the SEG and remain current.
* The GRC recommends that the SEG's indemnification and liability insurance is extended to cover all Council members.
* The GRC recommends striking Article XVII (Review by Members) from the Constitution.

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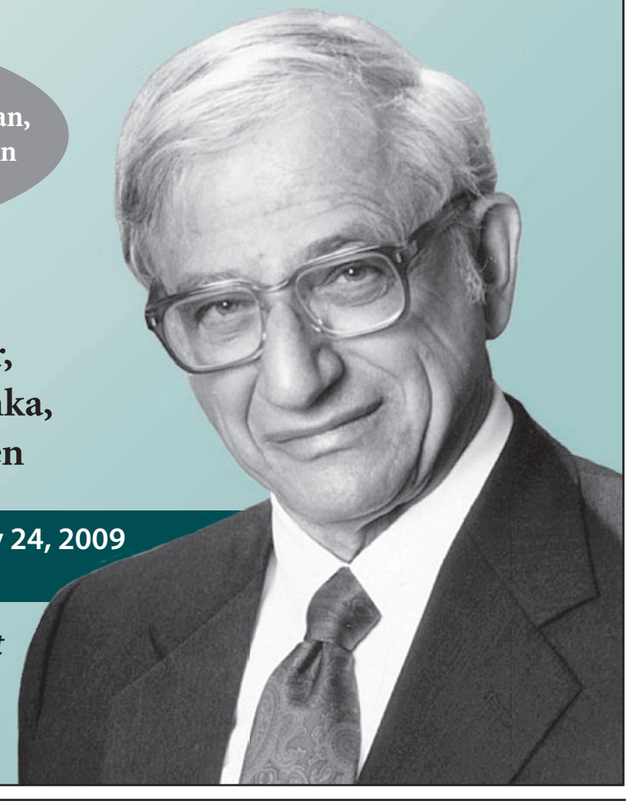

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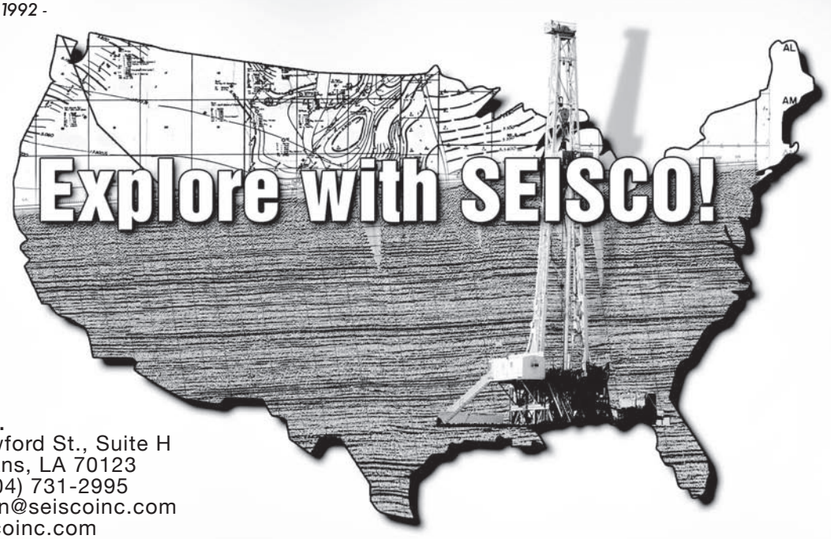

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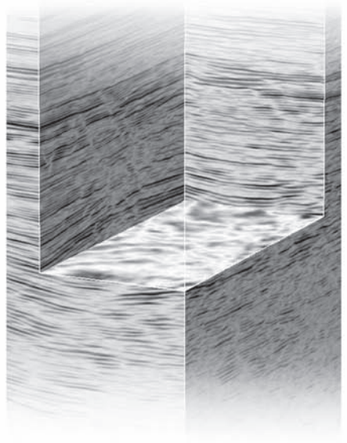

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GSH Response and Comments On the Position Statement And Recommendation Presented By The Governance Review Committee at the 2008 SEG Annual Meeting

The GSH has held discussions regarding the recommendations of the GRC. We have had the opportunity to get the perspectives from two of the Committee members in presentations to the GSH Board. Several GSH members also attended the GAC meeting in Las Vegas.

In short, it is the view of the GSH board and many long standing members of the GSH (and SEG) that these *sweeping changes are not warranted* and could have some profound effects on the working relationship between the SEG and its sections. The following are comments on specific proposal items that have been compiled from the feedback I have received from the GSH membership to support our position:

Long Term Strategy:
It would seem that the ExCom should be better suited to develop a long term strategy, with help from the Advisory Committee and appropriate SEG staff and other members as needed.

Role of the Council and Communication:
We agree with the recommendation that a more formal description of the roles, responsibilities and obligations of Council members should be developed. This would include provisions for alternate representatives, especially for District representatives. This and periodic communication might help the attendance problem at Council meetings.

The Annual meeting of the Council should be sufficient. At present there is no communication during the year until just before Council meets. The ExCom could communicate with the Council members electronically if needed during the year. Quarterly meetings would add unnecessary expense.

Representation:
It is our considered opinion that the proposed changes will NOT increase direct involvement by the membership through the mechanism of having an 18 (6 Excom + 12 "special interest" / Regional) member council. It is hard to see how one representative from the Southeast US region could possibly represent the wide variety of interests that affect that constituency. In particular it will dilute the representations of the larger sections on the SEG Council.

Quorum:
The GRC report states, [Council has been] *"..perilously close to not having a quorum."* In fact, only one third of the council is needed for a quorum. Currently with about 100 council members, only 33 are needed. With the twelve members of the Excom (incoming and outgoing members), only around 22 to 23 are needed to reach a quorum. We seem to recall that there were about 60 present in Las Vegas. We could not remember an instance when this was even close to being an issue

Striking of Article XVII:
The GSH agrees with Lee Lawyer's (SEG Past President) comment as follows:

"The recommendation that Article XVII be stricken from the Constitution because it confuses the lines of responsibility and allows the SEG members to change any decision made by the Council, ExCom, or any other committee should be rejected. It is stated that this has never been invoked in the past. Not true! After the large dues increase in the mid eighties, petitions were circulated to undo the Council's decision. A member wide election was held. The Council decision was upheld in a very close election. As I recall, at that time, only one percent of the Active members was necessary for the petition (I could be wrong). Currently 5% is necessary (over 400 Active Member signatures). I can see absolutely no justification for removing this from the Constitution. To be consistent, you would have to strike part of Article XIX, Section 1, which allows 5% of the members to propose amendments to the Constitution."

Continuity:
On the continuity issue, the President has a year of experience on the ExCom and various SEG staff members have been involved with many of the issues and thus are available to help the newly elected Officers. Most of the elected Officers have been involved through committee activities and thus are familiar with SEG structure.

We do want to thank the GRC and its committee members for all the hard work that we are sure went into the proposed recommendations. We are certain that continued dialog and communication will serve to help redefine the roles of the Council and the Excom for the benefit of the members of the SEG.

Respectfully submitted on behalf of the Geophysical Society of Houston by Frank Dumanoir, GSH president, 2008-2009

GSH Scenes

Scenes from the January Technical Breakfast...

Scenes from the January Technical Luncheons...

ROCK PHYSICS SIG

Date: Wednesday, March 18, 2009
Time: 5:30 p.m. - 7;00 p.m.
Location: CGG Veritas
10300 Town Park Dr.,
Houston TX 77072
(Visualization Center, 3rd floor)
Speaker: **Lev Vernik,** *Marathon Oil Corporation*
Topic: ***"Stress Sensitivity of Sands and 4D Applications"***

Abstract:

Variation of reservoir properties over production time frames is a complex superposition of pore pressure and saturation changes. For this reason, time-lapse (4D) seismic projects designed to monitor reservoir changes are always subject to the nonuniqueness of interpretation, even if the quality of the 4D signal is good and the magnitude of stress/saturation change is strong. While saturation variations can be adequately handled by Gassmann's theory, stress changes due to pore pressure depletion within the reservoir are less well understood and multiple conceptual models exist to account for this effect on seismic rock properties.

I have refined a popular empirical model for relatively clean sands and sandstones with dry clay content (Vcl) less than 12%. The vast majority of siliciclastic hydrocarbon reservoirs worldwide meet this description. The functional form of the model is the exponential rise function. Using the strong correlations revealed between the fitting parameters, one can create a petrophysical software code to iteratively predict the likely change in dry compressional and shear wave velocities as a function of the effective stress change. The computed "dry" frame properties can then be used in a fluid substitution routine using Gassmann's equation to model the synthetic seismic response of the reservoir under in situ stress and saturation conditions.

Biography:

Lev Vernik is currently Sr. Technical Consultant for Marathon Oil, specializing in rock physics and AVO modeling/interpretation. His career started at the Kola Superdeep Research Drilling project in Russia and his PhD thesis was dedicated to the rock properties analysis of cores and logs acquired in this the deepest well drilled so to date. His later appointments include Stanford Rock Physics and Borehole Geophysics project, ARCO/Vastar/BP and Noble Energy, where he was involved with seismic petrophysics and pore pressure prediction for a variety of projects worldwide.

Museum News continued from page 6.

tool to indicate a general area where a salt dome could be found. The Torsion balance was then brought in to actually locate the dome. Other companies were also building new instruments to compete with Seismos and American Oil companies were hiring Seismos people to run their own crews. Burton McCollun had purchased his own Torsion Balances to complement his instruments and to be more competitive with Seismos and with North American Exploration. For their part, North American Exploration was using primarily the Torsion balance for exploration and had brought over Dr. John R. Schander to be VP and General Manager.

Sweet indicates that a meeting between Everette De Golyer and John Karcher determined that in the period from 1924 through 1929, 44 salt domes had been found by refraction and 11 had been located using the Torsion Balance. These discoveries coupled with other discoveries in Texas from 1894 to 1930 (Corsicana, Spindletop, Burburnett, Desdemona, Mexia, Breckenridge, Santa Rita, Borger, and Odessa) produced a glut of oil resulting in the departure of the German Companies (North American in 1930 and Seismos in 1931.) Schander's photos document refraction work with Mintrop instruments like those we now have on display at North Harris College.