HGS Bulletin
Houston Geological Society
Volume 49 Number 7
March 2007

Illuminating Asset Value through New Seismic Technology
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Global Warming, GHGs and the Carbon Markets—Welcome to the 21st Century
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The Bulletin
Houston Geological Society

Volume 49, Number 7 March 2007

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About the Cover: Upheaval Dome in; Canyonlands National Park, Utah, believed now to be the result of a large meteorite impact in the late Cretaceous.
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by ***Steve Brachman***

From the **President**

Bad Analogies, Oil Companies and the True Benefit of the HGS

I remember watching Mutual of Omaha's "Wild Kingdom" with the late Marlin Perkins and his assistant, straight-man and later co-host, Jim Fowler, on Sunday afternoons. Two things about the program remained stuck in my mind over the years. First, the life-threatening fixes Jim would get into and the absurd analogies Marlin would make out of them "… just as that anaconda looked like it would get the best of Jim, so could wrestling with your insurance problems get the best of you. At Mutual of Omaha…") Second, was their bread and butter; "Life and Death on the Serengeti." I think everyone remembers the scene of lions stalking the unsuspecting wildebeest herd in the tall grass, then the chase and the herd bolting in panic, and, finally, the lions (and the camera) focusing in on the laggard with the inevitable gruesome results.

Though I apologize in advance for using "Wild Kingdom" as my own absurd analogy, the Serengeti scene consistently comes to mind when I envision the life and death of energy companies. Paul Babcock, along with his many other duties, helps keep the "HGS Directory of Oil Company Name Changes." This volume commemorates the tumultuous history of companies devouring others until they, in turn, are eaten. But with all of the carnage chronicled by the directory, there does not appear to be a shortage of energy companies. On the contrary, annually the *Oil and Gas Journal* tracks 500 of the largest. I have been able to unearth lists of up to 1500 companies while searching the Internet. Clearly, the energy industry has shown itself to be strong enough to withstand low product prices, political pressure and corporate upheavals.

While the industry as a whole has been resilient, many of our employers have not. In my own case, I have had a ringside seat as two, Gulf Oil and SOHIO, were devoured by lions, Chevron and BP, respectively. In another case, one of my former employers was sold for its assets, or, to continue the analogy, dismembered by the hyenas and vultures of our industry. But besides listening to "the way we used to do it at Superior" or shedding a sentimental tear for "good old Kewanee Oil," I have come to realize over the past 25 years that such changes are neither good nor bad, but simply the natural order of the corporate world.

This fact, however, does not assuage our own individual angst. The death of our employer may be only a footnote in the *Wall Street Journal*, but the consequences of a new supervisor, new job description or lay-offs may be cataclysmic on a personal scale. At this point, I have noted that many geoscientists seek solace in the Houston Geological Society. In fact, I would venture to say that this is the predominant purpose for the HGS. According to our bylaws the Houston Geological Society was founded in 1923 to (1) stimulate interest and promote advancement in geology for the Houston area, (2) disseminate and facilitate discussion of geological information and (3) aid and encourage academic training in the science of geology. I would add, "to promote fellowship and support among colleagues." The HGS, as a simple volunteer organization run by geoscientists, has survived hundreds of companies (and who said we make poor managers?). According to my "How do we benefit the membership?" theme for 2006–2007, I believe the greatest value of membership in the HGS is that your co-workers and colleagues also belong. Where else can we find others who share our concerns and will always be there when we need them? That seems to me to be a pretty good value for twenty-four bucks a year, which, last time I checked, was a whole lot cheaper than my Mutual of Omaha Life Insurance policy. ■

The consequences of layoffs can be cataclysmic on a personal scale…many geoscientists seek solace with their peers in the Houston Geological Society. In fact, this may be the predominant purpose for the HGS.

HGS *Bulletin* Instructions to Authors

All materials are due by the 15th of the month, 6 weeks before issue publication. Abstracts should be 500 words or less; extended abstracts up to 1000 words; articles can be any length but brevity is preferred as we have a physical page limit within our current publishing contract. All submissions are subject to editorial review and revision.

Text should be submitted by email as an attached text or Word file or on a clearly labeled diskette in Word format with a hardcopy printout to the Editor.

Figures, maps, diagrams, etc., should be digital files using Adobe Illustrator, Freehand, Canvas or CorelDraw. Files should be saved and submitted in .eps (Adobe Illustrator) format. Send them as separate attachments via email or on a diskette or CD if they are larger than 1 MEG each, accompanied by figure captions that include the file name of the desired image. DO NOT EMBED them into your text document; they must be sent as separate files from the text. DO NOT USE POWERPOINT, CLIP ART or Internet images (72-DPI resolution) as these do not have adequate resolution for the printed page and cannot be accepted. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

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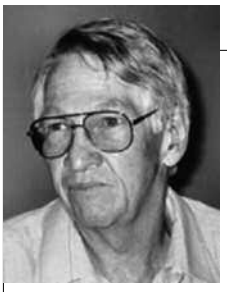


by ***Bill Rizer***
editor@hgs.org

This Month

This month you will want to check out Daniel Tearpock's presentation on ethics in petroleum geoscience at the joint HGS and GSH Luncheon at the Petroleum Club on March 28. Current efforts to develop standardized definitions and procedures for reserves estimation are among the topics to be discussed. This presentation satisfies the one-hour ethics obligation required for all Texas Professional Geologists. Also scheduled is an interesting presentation at the HGS General Dinner on March 12 by Michelle Judson on imaging below salt in the deepwater GOM and below layered anhydrites in the Nile Delta. New technology in the form of wide-azimuth acquisition, ocean bottom seismic and multi-azimuth surveys was required to image these difficult and geologically complex targets.

The newly released IPCC Fourth Report concludes that global warming is an unequivocal fact and most of it is caused by human activities.

Also this month, Art Berman will give a presentation at the SIPES Luncheon at the Petroleum Club on March 15. "New Ideas and Their Diffusion: A Model for Exploration & Production Companies in the 21st Century" strives to explain the way that new ideas propagate and how the proper understanding and use of the Diffusion Model along with proper risk assessment can lead to economic success by using new ideas to be early into new plays. W. Keith Campbell will give a presentation at the International Dinner Meeting on March 19 on how detailed 3D seismic coupled with core and image log data was used to better define the complex reservoir geology in the Eocene of the northern part of the Santos mobile salt basin, offshore Brazil. Bruce Hart, McGill University, will give a presentation at the North American Dinner on March 26 on the use of 3D seismic to delineate hydrothermal dolomite reservoirs and some of the structural plays associated with the Trenton-Black River trend. At the Environmental and Engineering Dinner on March 20, John Larson will discuss the global carbon cycle and how greenhouse gasses and carbon inventories will play a dominant role in future economics.

The "In the News" column this month includes a brief discussion of the results of the Summary of the long-awaited Fourth Report of the Intergovernmental Panel on Climate Change (IPCC). Six years in the making, the report narrows the uncertainties associated with the conclusions reached in the previous report (2001) and now states that global warming is an unequivocal fact and most of it is caused by human activities. It is important to realize that this is a consensus report, and the statements and conclusions released have been at least accepted as true by all of the delegates. Rumor has it that significant pressure was applied by some countries to water down the wording of the report. Nevertheless, the Summary that was released is chilling enough. For example, the current levels of CO_2 (379 ppm in 2005) far exceed the natural range over the last 650,000 years (180 to 300 ppm) determined from analyses of ice cores. ■

In the News

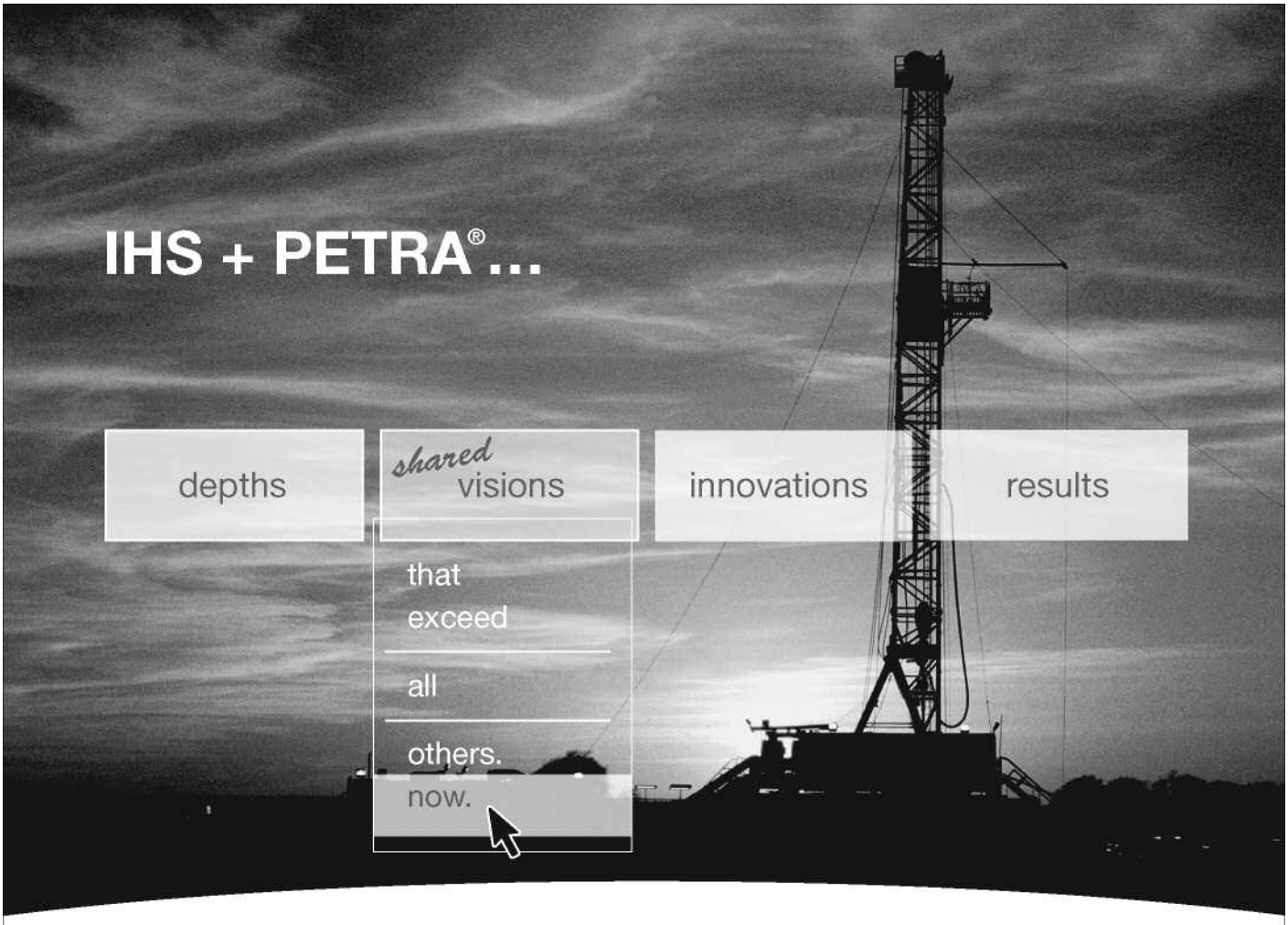
by ***Bill Rizer***

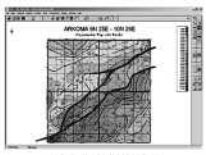
Engineering, Science and Technology Council of Houston

On Saturday, January 27, The Engineering, Science and Technology Council of Houston (ECH) held a retreat at the University of Houston. You may recognize the organization as the sponsor for the annual Science & Engineering Fair of Houston. The purpose of the organization is to

- promote math and science education,
- enhance opportunities for professional development and discussion, and
- serve as a focal point for informing the public on engineering, science and technical matters.

Among the many technical, engineering and scientific organizations that are members of the ECH are the HGS, SPE and Society for Technical Communication. Representing the HGS at this meeting were Engineering Council Liaison Committee Co-Chairs Claudia Ludwig and Richard Howe. Also present were Janet Combes and Bill Rizer. Dave Hixon, a vice president for ECH, was not at the meeting. The purpose of **In the News** *continued on page 9*





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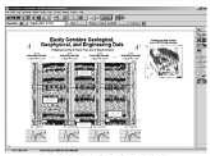

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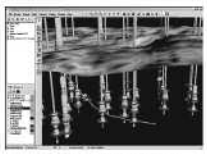

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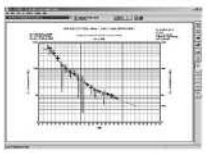

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Lettters to the Editor

Hello all,

I am a member of the HGS and live in Luanda, Angola. HGS is a great organization to belong to, even for someone like me who lives overseas. The benefit for me is receiving the very informative HGS *Bulletin* and I attend almost yearly the joint HGS-PEGSB Africa Conferences.

Here is a minor suggestion: in the section "HGS Welcomes New Members", it does not mention the affiliations of the new members. I recommend that this is also included since I, along with most readers, would be interested in knowing their backgrounds, i.e. oil company, oil service company, university, government, etc.

Also I suggest you have a column on "Members on the Move", like is done by the AAPG in the Explorer magazine, so it lets HGS members know about important career moves that are happening to their fellow members.

Best wishes for 2007!

Tako Koning
Consultant
Tullow Oil Angola
Luanda, Angola

Editor's Note: *Tako's excellent suggestions have been forwarded to the appropriate leadership for their recommendations. If there is enough interest in a column modeled after the AAPG column "Professional News Briefs" we can certainly start one. Members are invited to give their opinions in a short email or letter to HGS .*

Dear Mr. Rizer,

I am troubled by your four-page essay in the January issue about global warming that expresses your personal view that it is mostly caused by human activity. While, I agree that the earth is presently in a warming phase, I certainly do not agree that this has been proven to be mostly due to human activity. Rather, I agree with the AAPG's official, geologically-based view that the present warming is part of the earth's naturally occurring temperature cycles and not man-made. You may argue that the AAPG has a vested interest in its position, but I can argue that many scientists have a vested interest in the idea that it is all man's fault and are building careers on it. I also agree with the views of former HGS President Dave Rensink's message in the January 2006 issue of the *Bulletin* that generally agrees with the AAPG position on global warming. Rather than your personal editorials, I look to the HGS Board of Directors and the HGS Environmental and Engineering Committee to state the official HGS position on the causes and effects of global warming, if they feel it is appropriate for the HGS to even take such a position.

Sincerely,
Fred W. Kelly, Jr.
1/21/07

Editor's Comment: *Fred and I have agreed to disagree on some of the issues related to global warming. But, I thank Fred sincerely for writing his letter and becoming more engaged in the ongoing discussion. Perhaps more members on both sides of the issue could share their thoughts, ideas, opinions and understanding of global warming and its causes.*

In The News *continued from page 7*

the retreat was to energize the membership and solicit volunteers for a number of initiatives that served as the topics for breakout sessions of attendees and leaders.

A number of those sessions centered on issues relevant to the HGS membership, including

- Cooperative effort to address the challenges of "The Rising Storm" in education **In the News** *continued on page 13*

Representing the HGS at this meeting were Engineering Council Liaison Committee Co-Chairs Claudia Ludwig and Richard Howe, here shown presenting check to Matt Kolodney, president of ECH

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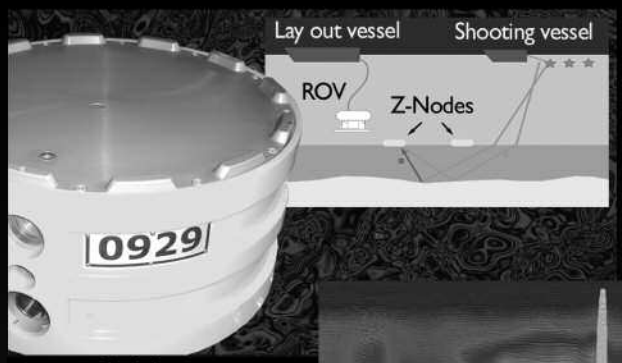

Acquisition

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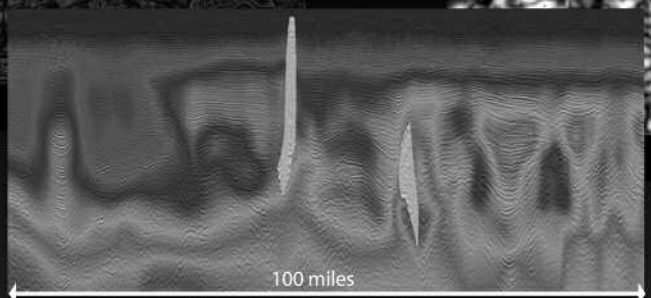
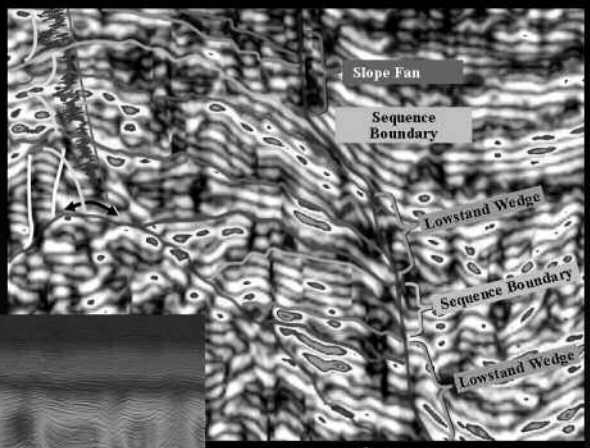


Multi-client Seismic Data

Prestack Depth Migration
This 100-mile crossline is an extraction from Fairfield's multi-client database. The color velocity overlay, created from Fairfield's proprietary 3D tomographic, pre-stack depth migration velocity analysis, demonstrates the complexity of the geology.



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Monday, March 12, 2007

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Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Cost: $28 Preregistered members; $35 non-members & walk-ups

The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476 (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

by ***Michelle Judson***
Technology Unit Leader, Exploration & Production Technology, BP

Illuminating Asset Value through New Seismic Technology

Everything We Do Starts With Our Ability to Create an Image...

The ability to reduce risk and uncertainty across the full life cycle of an asset is directly correlated to creating an accurate subsurface image that enhances our understanding of the geology. This presentation focuses on this objective in areas of complex overburden in deepwater. Marine 3D seismic surveys have been acquired in essentially the same way for the past decade. This configuration of towed streamer acquisition, where the boat acquires data in one azimuth has been very effective in imaging areas in fairly benign geologic settings. As the industry has moved into more complicated geologic settings these surveys no longer meet the imaging objectives for risk reduction in exploration through production. In shallow water, we have seen increasing use of ocean bottom cables to meet this challenge. For deep water, new advances in technology were required. Two examples will be highlighted; imaging below large salt bodies in the deep water Gulf of Mexico and imaging below the interbedded anhydrites of the Nile Delta.

The need to mitigate business risks in two very costly subsalt plays led BP to explore the technical limits of the seismic method...

GOM—Mad Dog: The Mad Dog field is located approximately 140 miles south of the Louisiana coastline in the southern Green Canyon area in water depths between 4100 and 6000 feet. The complex salt canopy overlying a large portion of the field results in generally poor seismic data quality. Advanced processing techniques improved the image, but gaps still remained even after several years of effort. We concluded that wide azimuth acquisition was required to better image the field. Results from the Wide Azimuth Towed Streamer (WATS) survey deployed at Mad Dog demonstrated the needed improvement in the subsalt image.

GOM—Atlantis Field: An alternative approach to wide azimuth acquisition, ocean bottom seismic (OBS) node technology was developed and tested. In 2001 deepwater practical experience was limited to a few nodes owned by academic institutions; there were no commercial solutions either available or in development. BP embarked on a program of sea trials designed to both evaluate technologies and subsequently encourage vendor activity to develop and deploy a commercial system.

Nile Delta: In the Nile Delta, Egypt, a relatively thin but complex layer of partially eroded and interbedded anhydrite and salt (the 'Messinian') causes wavefield distortion and shadow zones. Multi-azimuth (MAZ) surveys were proposed based on the encouraging results from a dual azimuth field trial in 2003. A very efficient six azimuth survey acquired in late 2004 proved highly effective as an appraisal tool.

The 3D seismic method exploded into general usage in the 1990's. Our industry delivered 3D cheaper and faster, improving quality through improved acquisition specifications and new processing technology. The need to mitigate business risks in two very costly subsalt plays led BP to explore the technical limits of the seismic method, testing novel acquisition techniques to improve illumination and signal to noise ratio. These were successful and are applicable to analogue seismic quality problems globally providing advancements in illuminating previously hidden geology and hydrocarbon reservoirs.

A focused business challenge, smart risk taking, investment in people and computing capability, partnerships and rapid implementation are key successful business practices that will be touched on throughout the talk. ■

Biographical Sketch

Michelle Judson, Technology Unit Leader—Geosciences, BP America Inc.

HGS General Dinner *continued on page 13*

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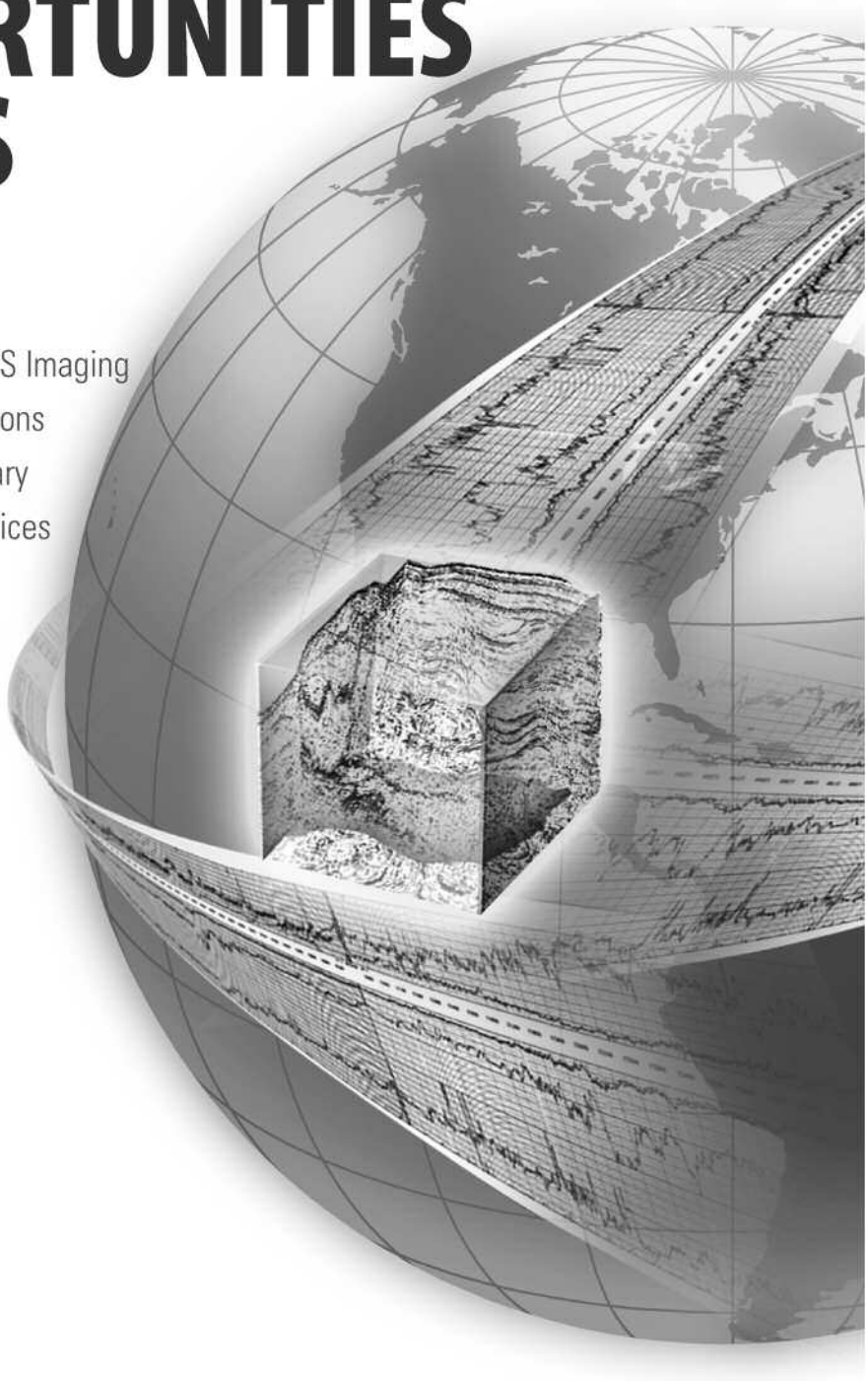

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HGS General Dinner Meeting continued from page 11

Michelle's current role is Technology Unit Leader—Geosciences for BP's Exploration and Production (E&P) division. In this capacity she leads a global team of technical experts who develop, deliver and apply geosciences technological solutions to business units worldwide. Prior to her current role she was the program director for the Subsalt Imaging Technology Leadership Area, responsible for setting strategic direction and assuring program delivery.

Before moving to Technology she was the performance unit leader for BP Canada Energy Company's exploration program in western Canada. In addition to her line responsibilities, she was responsible for the functional health of the subsurface segment of the organization, and played a role in building community and stakeholder relationships.

Michelle has a broad range of experience in the international exploration and production business as well as in business planning and development. From 1999–2001 she was a co-leader of the MCBU Innovation Project focusing on unlocking greater organizational performance. She has held various subsurface technical, leadership and commercial roles in the Lower 48 and Deep Water Gulf of Mexico. Michelle has also worked overseas in Scotland, England and Azerbaijan.

Michelle started her career as an operations geologist for Sohio Petroleum Co. on the North Slope of Alaska. She holds a B.Sc. in Geology from St. Lawrence University, and an M Sc. in Geology from the University of South Carolina.

Michelle currently lives in Houston with her Husband Dr. G. Barry Hembree, a violin maker. She has two stepchildren Ryan (a student) and Bridget (an architect). Her passions outside of work include sailboat racing, travel, pottery, education, friends and family.

In The News continued from page 9

- ECH Houston Website—making it a destination for science and engineering professionals
- Co-sponsored programs—future conferences
- Young professional initiative—ECH networking efforts
- Scientists and engineers in schools—How ECH can be involved

The educational initiatives are based on a report by the National Academies (2006), *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. In a convocation in Washington, D.C., in September 2006, the National Academies of Sciences and Engineering called for a cooperative effort to address the challenges of "The Rising Storm" in education. The results of those sessions and how HGS can be involved will be reported in subsequent *Bulletins* and on the Web site as they become available.

Claudia Ludwig chatting with two retreat attendees.

Congressman Charges Foul

In a brief article for ScienceNOW, Eli Kintisch (2007) reported how Representative Henry Waxman (D-CA), the new chair of the House Oversight and Government Reform committee, charged in a hearing on January 30 that the Bush administration altered and manipulated evidence in scientific reports on climate change for political ends. Citing documents that had been requested last July, but delivered on January 29, Waxman said his staff had found evidence that the administration conducted "an orchestrated effort to mislead the public."

Among the documents that Waxman and his staff were allowed to see but not copy was evidence that the administration had deleted arguments, statements and references linking climate change to human activity. In one document, his staff uncovered a section wherein former White House Council on Environmental Quality Chief of Staff Philip Cooney added a statement that "satellite data disputes global warming." That statement was declared "wrong" by a NASA researcher at the hearing. Calls by Kintisch to the White House were not returned.

Eli Kintisch
ScienceNOW Daily News (http://sciencenow.sciencemag.org/)
30 January 2007

In the News *continued on page 17*

The 6th PESGB/HGS African Conference

Africa's Petroleum Systems: From Outcrop To Deepwater

Cape Town Convention Centre, South Africa
11–13 September, 2007
Two days of talks PLUS field trips

FINAL CALL FOR PAPERS

Abstracts due March 2007

***Talks (11/12th) will include*:**

- Late Ordovician Reservoir Geometry from Outcrop, North Africa (BP)
- Comparison of Niger Delta and Gulf of Mexico Plays (Chevron)
- Tertiary Tectonostratigraphy and Petroleum Systems of Africa (K. Burke)
- The Santonian Event and its Petroleum Effects (W. Bosworth)
- Northern Red Sea Plays (Hess)

Post-Conference Events planned include:

- Full screening of Seb Luning's film on the petroleum Geology of Libya (13th)
- One day 'tourist geology' field trip to the Cape of Good Hope (13th)
- Three day field trip to the famous Tanqua Karoo outcrops (12th–15th)

Submit Abstracts before end March 2007

Further Abstracts (circa 200 words) are invited and should be sent as soon as possible, and no later than March 2007, to Duncan Macgregor at duncan.macgregor@neftex.com or duncan.macgregor2@ntlworld.com. Extended abstracts are normally written once your paper is accepted and are issued on a conference CD.

Pre-registration will be available April 1st, further details will be listed in the PESGB newsletter and website. For sponsorship opportunities and associated exhibition space please contact Jennie at the PESGB office on (44) (0) 20 7408 2000, jennie@pesgb.org.uk or visit www.pesgb.org.uk

The conference is sponsored/co-organised by PetroSA and supported by the Geological Society of South Africa and the Petroleum Agency of South Africa.

Convenors include: Ray Bate, Duncan Macgregor, Varsha Singh, Sumesh Naidoo, Jean Malan, Al Danforth, Ian Poyntz, and Steve Henry

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Petroleum Club • 800 Bell (downtown)
Social 11:15 a.m., Lunch 11:45 a.m.

Lunch meetings are $30 per person (until the Tuesday before the meeting); $35 for late registrations and at the door - no shows will be billed. Register online at http://www.sipes-houston.org/.

SIPES
Luncheon Meeting

by ***Arthur E. Berman***

New Ideas and Their Diffusion: A Model for Exploration & Production Companies in the 21st Century

Most petroleum exploration and production (E&P) companies have embraced risk evaluation and portfolio management practices but are not replacing reserves except by acquisitions and mergers. There are two principle causes for failure to discover new reserves. First, approximately 80% of the world is controlled by state oil companies and is, therefore, unavailable for competitive investment and drilling. It is reasonable, therefore, that if companies must continue to prospect in the same 20% of the world's basins that the size of new discoveries should decline, as it has.

The other main reason for not finding significant new reserves in recent decades, and the focus of the present analysis, is failure to recognize and understand the implications of the Diffusion Model of Innovation for E&P company organization, strategy and risk assessment.

In petroleum E&P, opportunity is quite low for all but the first adopter groups in a new play or using a new technology.

The Diffusion Model was originally developed at Iowa State University Department of Sociology in the 1920s and 1930s as researchers studied how Iowa farmers adopted hybrid seed corn, one of the major agricultural advances of the early 20th century. Despite obvious advantages and the low risk to farmers of trying it, the new corn was adopted by only 5% of the farm community during the first 5 years of its availability. Other farmers adopted hybrid seed corn in quantum groups until, after 15 years, all farmers were using the new corn. Only the first group—the early adopters—decided to use the new corn based on data; later adopters joined the trend based on social forces and momentum.

The Diffusion Model and the patterns of adoption of new ideas that it predicts have profound implications for available and remaining opportunity, as well as entry cost, among the various adopter groups.

In petroleum E&P, opportunity is quite low for all but the first adopter groups in a new play or using a new technology. E&P history shows that companies do not understand this fundamental fact, as they rush to participate at great cost in plays that are already somewhat mature at the time of their entry. Examples include the deepwater Gulf of Mexico and the Barnett Shale plays.

At least one contributing factor to the relatively late entry of many companies into new plays or technologies is the risk evaluation process that they use to guide their decisions and strategies. The risk process in most E&P companies discourages early entry into new plays and technologies. It encourages late entry into plays only after success has been demonstrated by early adopters. The risk process also promotes other activities such as buying other companies' reserves through acquisition and merger and late entry into resource plays, where there is little doubt that the petroleum exists, along with the apparently more manageable risk of finding ways to making the venture economic.

The risk assessment process, as practiced in most E&P companies, practically ensures poor decisions, not because the risk process is flawed but because of the way evaluations are done in a group or committee setting. Group dynamic studies show that groups generally reach poorer and higher risk decisions than their individual members make separately. Decision groups achieve superior solutions only when individuals have unique knowledge or information to bring to the group; when group members represent a diversity of experience, background and thinking styles; and when individual decision-making is relatively independent and decentralized.

Because management typically abdicates responsibility for all technical decisions, including risk assessment, to lower status people in the company, high-potential employees opt out of the technical side of the business as quickly as possible. Because senior management does not value **Sipes Meeting** *continued on page 17*

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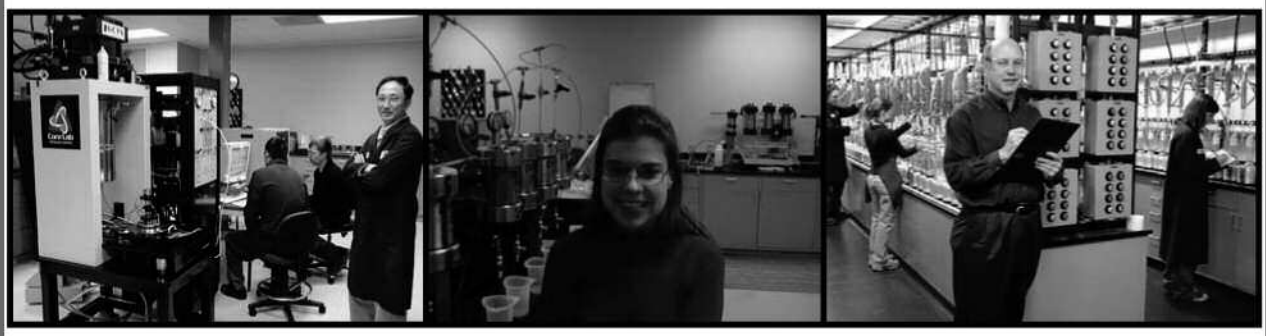

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SIPES continued from page 15

technical ideas, there is little incentive for technical staff to experiment with new models and approaches to E&P evaluation.

Petroleum companies reward their management largely without regard or accountability for reserve additions through E&P. Poor company performance has led to repeated technical staff reductions over the past 30 years, which, in turn, has discouraged young people from entering petroleum-related fields. The result is a depleted workforce that has little replacement potential, but remains unappreciated and inadequately rewarded by employers.

Technical staff also bears responsibility for poor E&P performance. Staff has not adequately embraced inventive application of new analysis and technology and has not generally developed new ideas for E&P. Seismic attribute analysis and deepwater facies models are believed by most to be the cutting edge of E&P, but the diffusion model shows that because everyone is using these approaches, they will yield limited future opportunities.

Petroleum E&P companies must understand the implication of the diffusion model to their business in order to become more successful. E&P companies, if they are to survive, must reestablish new ideas and the inventive people who conceive them as the core capability of their organizations. Senior management must involve themselves in the world of technical ideas and abandon the absurd notion that they are business people who can afford to leave science to technical risk committees.

E&P companies and their managers must learn to encourage and embrace inventiveness, along with the risk it brings. Companies should abandon highly structured, bureaucratic organizations where managers are rewarded for not making mistakes. Senior management should have their pay linked to reserve additions made only through drilling, and not through acquisition. E&P company strategies should acknowledge that, while petroleum is a commodity, the business of discovering and producing it is not a commodity business and cannot be approached and managed that way. ■

Biographical Sketch

Arthur Berman is a geological consultant with specialty in petroleum geology, seismic interpretation, and database design and management. He is currently consulting for several independent oil companies, working on exploration and production projects in North America and in international locations. Previously, he worked for Amoco in both Denver and Houston for over 20 years. He has worked extensively in Latin America.

He was Editor of the Houston Geological Society *Bulletin* in 2004-2005 and is currently a columnist for *World Oil*, and Associate Editor, Gulf Coast Region for the AAPG *Bulletin*. He has published over 20 articles on geology and technology during the past 10 years. Publication topics include petroleum exploration, sequence stratigraphy, oil and gas price trends and cycles, coastal subsidence, earthquakes, tsunamis, and petroleum geopolitics.

Art has given presentations to the AAPG, HGS, GSH, The South Texas Geological Society, Corpus Christi SIPES, ASCE and several universities in the past 2 years. He has an MS (Geology) from the Colorado School of Mines and a BA (History) from Amherst College.

In The News continued from page 13

December, 2006 warmest on record

According to a preliminary analysis of data for the globally averaged combined air and sea temperature just released by the National Climatic Data Center , the month of December 2006 was the warmest December on record and 2006 was the fifth warmest year on record. The report can be viewed at http://www.ncdc.noaa.gov/oa/ncdc.html.

And Now Some Good News

As most of us know, the sun is the ultimate source of heat energy for the earth's surface and atmosphere. Some of the photons emanating from the sun are reflected back by clouds and particles in the atmosphere and by reflection from the surface, particularly when the surface is covered by snow and ice. The surface absorbs the energy not directly reflected, heats up and then releases the energy as low-energy long-wavelength radiation (heat). The temperature of the earth's surface depends on the difference between the high-energy short-wavelength (visible) radiation that reaches the earths surface and the longer wavelength (heat) energy that the surface radiates back to space. The net energy flux, the difference between what comes in and what goes out, is what determines the global surface temperature.

In a study of radiation flux at the top of the atmosphere (100 km) Kato et al. (2006) determined that the expected decrease in reflectivity or the earth's albedo, defined as **In the News** continued on page 21

Quantification of Risk - Petroleum Exploration and Production

Date: May 7-10, 2007
Location: Dallas, Texas
Tuition: $1095, AAPG members; $1,195, non-members (increases to $1195/1295 after 4/9/07), includes course notes and refreshments
Limit: 40 persons
Content: 3.0 CEU
Instructors: Gary Citron, Mark McLane, Rose and Associates, Houston and Midland, TX, respectively

Who Should Attend

Course is designed for geologists, geophysicists, engineers, and their managers. The course is also helpful for financial advisors, corporate planners, accountants, and state and federal government individuals.

Short Courses

Seismic Interpretation in Fold- and Thrust- Belts Using Fault-Related Folding Techniques

Date: May 21-24, 2007
Location: Houston, Texas
Tuition: $995, AAPG members; $1,095, non-members (increases to $1095/1195 after 4/23/07), includes course notes and refreshments
Content: 2.8 CEU
Instructor: Professor John H. Shaw, Harvard University, Cambridge, MA

Who Should Attend

This course is intended to assist E&P professionals involved in the interpretation of seismic reflection data for trap delineation and reservoir characterization in both orogenic and passive margin fold-and-thrust belts. The course should also be a useful for supervisors who evaluate structural interpretations to assign and reduce drilling risks.

May Education Opportunities with AAPG!!

Field Seminars

Complex Carbonates Reservoirs: The Role of Fracturing, Facies and Tectonics

Leaders: Raffaele Di Cuia, G.E.Plan Consulting (Italy); Claudio Turrini, Total S.A. (France), Davide Casabianca BP plc (UK)
Dates: May 19 -25, 2007
Location: Begins in Naples and ends in Rome (Italy)
Tuition: $2,800.00 (increases to $2900.00 after 4/06/07); includes guidebooks, transportation expenses during the field seminar, all meals during the course.
Limit: 15
Content: 4.2 CEU

Who should attend

Petroleum/exploration geologists and geophysicists who are involved in the interpretation of carbonate sequences/ reservoirs in sub-thrust and thrust belts; reservoir geologists and engineers that deal with the 3D characterization and distribution, at reservoir scale, of carbonate facies and fracture/faults.

Controls On Porosity Types and Distribution in Carbonate Reservoirs

Leaders: Evan K. Franseen, Kansas Geological Survey, Lawrence, KS; Robert H. Goldstein, University of Kansas, Lawrence, KS; Mateu Esteban, REPSOL-YPF, Mallorca, Spain
Dates: May 20-25, 2007
Location: Almeria Region, SE Spain, begins and ends in Las Negras, Spain. Fly from London/Barcelona/Madrid
Tuition: $2,500 USD, dependent on exchange rate (increases to $2,600 after 4/06/07), includes field transportation, all meals and lodging during trip, guidebook
Limit: 15
Content: 4.8 CEU

Who Should Attend

Petroleum geologists, engineers, and geophysicists who are involved in interpreting carbonate sequences.

Modern Terrigenous Clastic Depositional Systems

Leader: Walter J. Sexton, Athena Technologies, Inc., Columbia, South Carolina
Dates: April 13-20; May 12-19; September 22-29, 2007
Location: Begins in Columbia and ends in Charleston, South Carolina
Tuition: $2,500 (increases to $2600 one month prior to each start date), includes ground transportation to Charleston, water transportation, guidebook, beach cookout, modern core workshop, lunch on the fluvial day, and CD-ROM
Limit: 27
Content: 5.6 CEU

Who Should Attend

Geoscientists and engineers who need to understand the sedimentology, facies architecture, and sequence stratigraphy of modern terrigenous clastic depositional systems in tidal estuarine, incised valley, shelf, shoreface barrier island, fluvial and alluvial environments.

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Monday, March 19, 2007

HGS International Explorationists Dinner Meeting

Register Now! Registration deadline is Fri 16-Mar-07 5:30 PM
Westchase Hilton • 9999 Westheimer
Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Cost: $28 Preregistered members; $35 non-members & walk-ups

The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476 (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

by ***W. Keith Campbell***

Impact of Seismic Loop-Scale Depositional Models on Reservoir Architecture in a Heavy Oil Accumulation, Santos Basin, Brazil

University and College Students Please Note: the first 14 students can attend for free, compliments of Swift and ConocoPhillips. Additional students will be charged the emeritus rate, half the regular member rate. Students are encouraged to call the HGS office in advance of the meeting they wish to attend and to make a reservation; but walk-ins are also accepted at events. Students will need to identify themselves and provide school name and ID.

Several deepwater turbidite discoveries of Eocene age have been made in the northern Santos mobile salt basin, offshore Brazil. The Shell-operated BS-4 NE discovery (2001) shows significantly better reservoir development than in equivalent sections penetrated nearby. Both the discovery and appraisal wells encountered in excess of 100 m of predominantly clean sand.

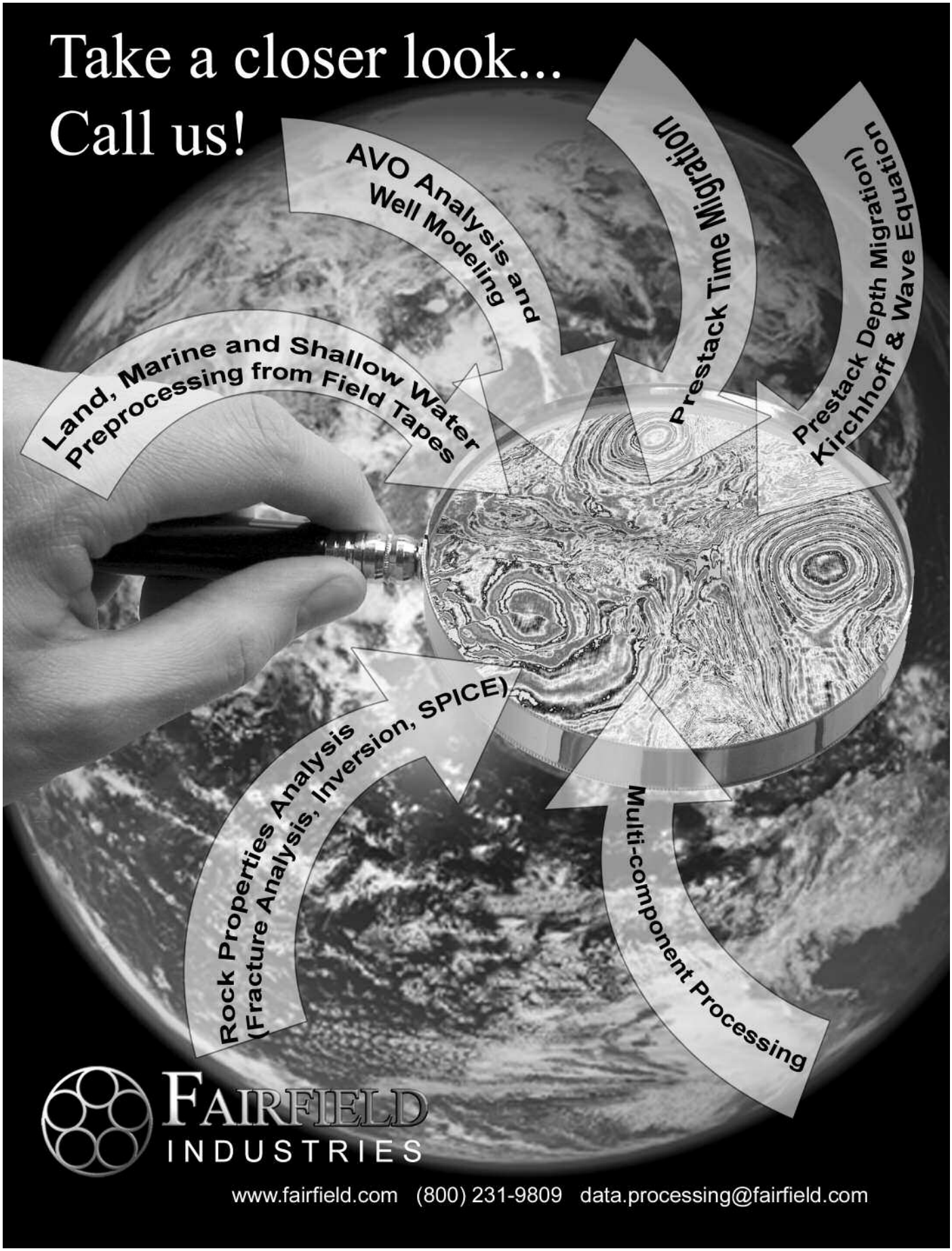
A 3D seismically-based study covering some 4000 km^2 was undertaken to better understand the sub-regional context, paleo-slope position and depositional architecture of the proximal, high net-to-gross reservoirs penetrated in the BS-4 NE. The main focus was on detailed loop-scale seismic interpretation of internal heterogeneities and understanding aquifer potential, both of which have direct impact on field development planning.

Study results demonstrate that considerable uncertainty remains with respect to the distribution of discrete heterogeneities within these highly amalgamated reservoirs, specifically the nature and configuration of predominantly silty material that drapes over incision surfaces. Reservoir facies were deposited within a dominantly channelized environment as part of a fan apron developed across an inherited stepped slope profile, with a depositional trend from NW to SE. An Eocene intra-slope break is evident about 15 km up-dip of the present-day closure, at the downward limit of several confined feeder canyons, outboard of which low- to moderate-aggradation channel complexes were deposited across a lower gradient slope. The BS-4 NE reservoir complex is situated in the outer part of this low gradient "step flat" with a higher gradient "exit ramp" immediately down-dip. Seismic mapping of complex erosional surfaces with evidence for multi-phase knick point migration and significant bypass, also supported by core and image log data, provide a framework within which to better understand the distribution of key heterogeneities. A key observation is that the canyon systems and channel complexes become progressively younger to the NE. There is a strong interplay between this migrating sedimentary system and tectonics that can be related to the amount of incision and bypass. The conceptual models derived from this front-end work provide key constraints to static reservoir model building in order to derive realistic infill architecture for testing the dynamic impact of reservoir heterogeneities. Results from the 2006 appraisal drilling on BS4-NE are consistent with the conceptual geological model. ■

Seismic mapping of complex erosional surfaces…supported by core and image log data, provide a framework within which to better understand the distribution of key heterogeneities.

Biographical Sketch

W. Keith Campbell is production geologist for Shell Brazil's BS4 Appraisal/Development Team based in Houston. Keith's 16-year career with Shell International E&P has covered a variety of technical roles. Based initially **International Dinner** *continued on page 21*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HGS International Dinner Meeting continued from page 19

in the Netherlands, he worked on exploration projects in the Southern North Sea, both as seismic interpreter and as regional/structural geologist. In 1997, Keith transferred to Syria, where he was involved in country-wide and near-field evaluations, in both carbonate and clastic environments. In 2000, Keith was seconded to Al Furat Petroleum Company, a joint venture with the Syrian government. He spent the next 5 years working as production geoscientist on mature waterflood projects in the clastic-dominated Euphrates Graben. He took on sub-surface coordination roles in both operations and study teams before transferring to Texas in early 2005. His talk today is based on a presentation made at the AAPG Annual Convention in April 2006.

Keith received BSc Honours in geology from University College London and was awarded an MSc in basin evolution and dynamics from Royal Holloway College. In between his University of London studies, he worked for 2 years in Indonesia as exploration geologist for Petromer Trend Corp., where his work included conducting a 6-month field geological survey in southeast Borneo.

In The News continued from page 17

the percentage of incoming sunlight the earth reflects back to space, did not change significantly over the Arctic during the four year period 2000–2004 over which he was able to measure it. A decrease in albedo is expected to provide a positive feedback mechanism for increasing the rate of global warming (the ice-albedo mechanism), because more energy would be absorbed as less heat was reflected. Kato found that whatever decrease in albedo had resulted from the melting of ice and snow in the Arctic was compensated by an increase in cloud cover that acted to reflect back a percentage of the incoming solar radiation. In short, the decrease in surface reflectivity was matched by an increase in reflectivity from more cloud cover. It is not known whether the increased cloud cover was simply fortuitous or a result of increased moisture and clouds that we can expect to match the decrease in albedo over the long term. Over the measured period at least the ice-albedo mechanism for amplifying warming did not kick in.

Kato S., Loeb, N.G., Minnis, P., Francis, J.A., Charlock, T.P., Rutan, D.A., Clothiaux, E.E. and Sun-Mack, S. (2006). Seasonal and interannual variations of top-of-atmosphere irradiance and cloud cover over polar regions derived from the CERES data set. *Geophysical Research Letters*, 33, L19804. doi:10.1029/2006GL026685.

Lindsey, Rebecca, 2007: Arctic Reflection, Clouds Replace Snow and Ice as Solar Reflector, *Earth Observatory, NASA, Features,* January 31, 2007, can be viewed at: http://earthobservatory.nasa.gov

The Fourth IPCC Report on Climate Change Released

The Intergovernmental Panel on Climate Change (IPCC) released its fourth report on February 2 and its findings are not encouraging. Among the conclusions reached by the 600 authors from 40 countries are the statements that the fact of global warming is unequivocal and that most of the warming is the result of human activity. It took the IPCC 6 years to finish the report.

According to Kerr (2007) the Summary for Policy Makers is a distillation of the IPCC report that resulted from a meeting of 300 IPCC delegates from 113 governments in Paris from January 29 through February 1, 2007. The report upgraded its 2001 conclusion that the warming is most likely due to rising greenhouse gasses to the statement that global warming is very likely human caused.

Some of the main conclusions are as follows:

"Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years. The global increases in carbon dioxide concentration are due primarily to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture.

- Carbon dioxide is the most important anthropogenic greenhouse gas. The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm in 2005. The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores. The annual carbon dioxide concentration growth-rate was larger during the last 10 years (1995–2005 average: 1.9 ppm per year), than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year) although there is year-to-year variability in growth rates.

- The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossil fuel use, with land use **In the News** continued on page 23

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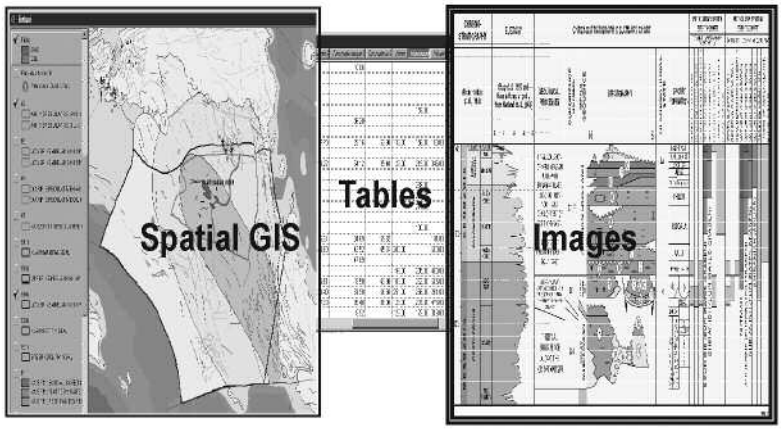

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Tuesday, March 20, 2007

HGS Northsiders Luncheon Meeting

The Sofitel Hotel • 425 Sam Houston Pkwy. East
Social 11:15 a.m., Luncheon 11:30 a.m.

Cost: $30 Preregistered members; $35 non-members & walk-ups

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by ***Andrew Thomas,*** *NewField Exploration,* ***Kevin M. Robinson, Paul Baltensperger, William Schneider, Alan J. Finlay, Chandra Velu and Paula Hix***

De-Risking Deepwater Sarawak with Controlled-Source Electromagnetic Imaging

First published at the 2006 AAPG Conference and Exhibition, 5-8 November, 2006, Perth, Australia

In late 2005 Newfield and Petronas Carigali acquired controlled source electromagnetic imaging (CSEMI) data over a series of rank wildcat prospects in the Deepwater 2C block, offshore Sarawak, Malaysia. The CSEMI , 3D seismic and remote sensing data were used as a risk reduction tool to high grade a prospect for drilling in late 2006. An exploratory well has since been drilled.

Comparison of unconstrained and constrained 2.5D EM inversion , with the 3D seismic data, indicated that the EM anomalies coincided with prospects identified on seismic.

The CSEMI survey acquired 390 km of data along 10 lines over 11 prospects and two dry holes. The prospects are Pliocene turbidites and large structures at the mid Miocene unconformity (MMU). Water depths were generally greater than 1000 meters with reservoir targets 1500 to 2500 meters below the sea floor. Sediments are primarily shales and sands with resistivities in the 1.5 to 2.5 ohm range. Data with a fundamental transmission frequency of 0.25 Hz were collected at approximately 1 km intervals along the lines.

A series of EM anomalies, 20 to 60 % above the normalized field amplitude, were found over a number of the Pliocene turbidite prospects and large MMU structural prospects, although not all of the turbidite or MMU prospects showed EM anomalies. In addition no EM anomalies were found at the two dry holes. Comparison of unconstrained and constrained 2.5D EM inversion, with the 3D seismic data, indicated that the EM anomalies coincided with prospects identified on seismic. There was good agreement where the EM lines crossed.

A positive test of the EM anomalies will considerably reduce future exploration risk in the block. ■

Biographical Sketch

Andrew Thomas has Bachelor and Honours degrees in Science from the University of Adelaide, Australia. After graduation he worked for Geoscience Australia as a structural geologist mapping the Precambrian terrains of central Queensland. From 1988 to 1998 Andrew worked for Santos Ltd and Gulf Australia. Assignments included exploration roles in a variety of onshore and offshore Australian basins (Cooper/Eromanga, Carnarvon, Bonaparte) and in International New Ventures teams. In 1999 Andrew joined Newfield Exploration and has worked on projects in the offshore Timor Sea and in SE Asian New Ventures. He transferred to Houston in 2003 and is currently working in the International New Ventures team.

In The News *continued from page 21*

change providing another significant but smaller contribution. Annual fossil CO_2 emissions increased from an average of 6.4 [6.0 to 6.8] GtC (23.5 [22.0 to 25.0] Gt CO_2) per year in the 1990s, to 7.2 [6.9 to 7.5] GtC (26.4 [25.3 to 27.5] Gt CO_2) per year in 2000–2005 (2004 and 2005 data are interim estimates). Carbon dioxide emissions associated with land-use change are estimated to be 1.6 [0.5 to 2.7] GtC (5.9 [1.8 to 9.9] GtCO_2) per year over the 1990s, although these estimates have a large uncertainty."

This report can be downloaded from http://ipcc-wg1.ucar.edu.
Kerr, Richard A., 2007: ScienceNOW Daily News, 2 February 2007. (http://sciencenow.sciencemag.org/)

In the News *continued on page 54*

Tuesday, March 20, 2007

Environmental and Engineering Group
Dinner Meeting

New Location Cheddar's • 10601 Westpark Drive
(the southwest corner of Westpark and Beltway 8)
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 non-members & walk-ups

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by ***John R. Larson***

Global Warming, GHGs and the Carbon Markets—Welcome to the 21st Century

Humans release about 8 billion tons of carbon-based (or 8 gigatons GtC) greenhouse gases (GHGs) per year: 6 GtC from fossil fuels and 2 GtC from land disturbance (soil erosion, forest depletion, etc.). Of this the oceans absorb 2 GtC and plants absorb about 2 GtC; the remaining 4GtC are added to the atmosphere each year.

Possible solutions to mitigate excess GHGs and their associated global warming/climate change effects include increased energy efficiencies and new conservation measures, further development and use of alternative energy sources, and carbon capture and storage. This presentation provides an overview of the global carbon cycle, potential global warming causes and effects, and geo-engineering solutions for mitigating those effects. These mitigating measures are fundamental to establishing the value of the current carbon commodity markets where carbon cap and trade of credits and GHG/carbon inventories will play a dominant role in future economies. ■

This presentation provides an overview of the global carbon cycle, potential global warming causes and effects, and geo-engineering solutions for mitigating those effects

Biographical Sketch

John R. Larson is a licensed professional geologist with a BS in Geology from SMU and a Masters of Public Health in Environmental Health Sciences from the UT-Houston. He has published on topics that range from health effects associated with community water supplies, impacts of effluent loadings on estuarine environments, to in-situ bioremediation and environmental justice. His expertise is in the area of providing cradle-to-grave risk management for environmental projects. His clients have included electronics manufacturers, oil and gas producers and shippers, transportation carriers and real estate developers in 21 states. Larson has also directed projects that include significant public involvement, regulatory agency interface, and legal aspects for complex development projects including National Environmental Policy Act issues.

John is President of BioGeo Solutions, a company he launched in July 2006. Before establishing his own company he the positions of:

- Faculty member, Sciences Department, University of Phoenix (current);
- Program Manager, TRC Environmental, Kansas City Missouri, 2004-2006;
- Assistant Vice President and Environmental Group Manager, TranSystems Corp., Kansas City, Missouri, 1999-2003;
- Senior Risk Assessor, Dames & Moore, Houston, Texas, 1993-1994 and 1996-1999;
- Project Manager, DuPont Environmental Remediation Services (DERS), Houston, Texas, 1994-1996; and
- Exploration Geologist, Marathon Oil Co. and Texas Oil and Gas Co. (TXO), Houston, Texas, Shreveport, Louisiana, and Oklahoma City, Oklahoma, 1984-1992.

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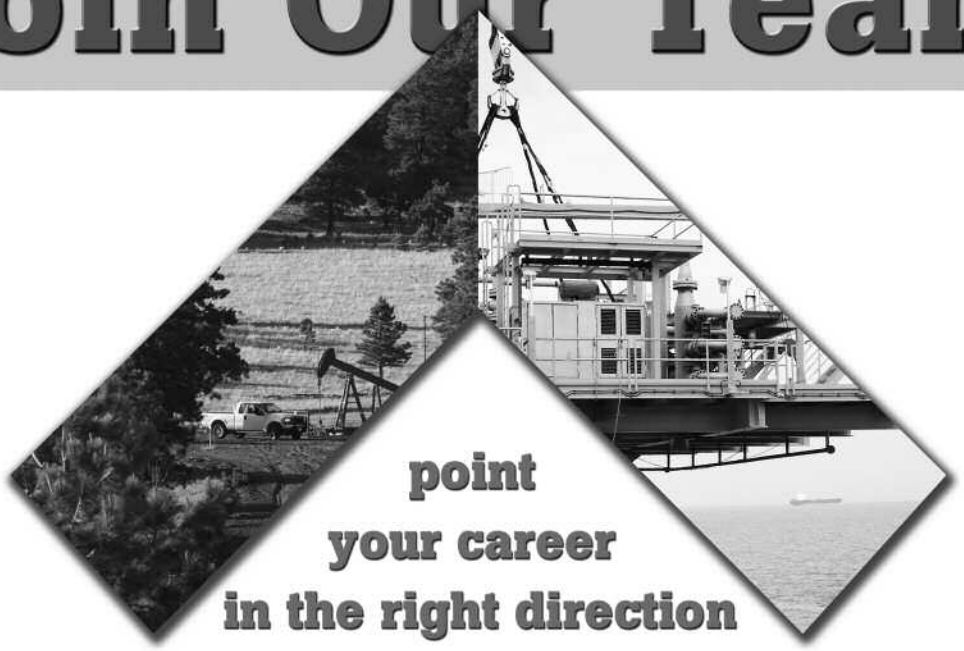

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Monday, March 26, 2007

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Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Cost: $28 Preregistered members; $35 non-members & walk-ups

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HGS North American Explorationists Dinner Meeting

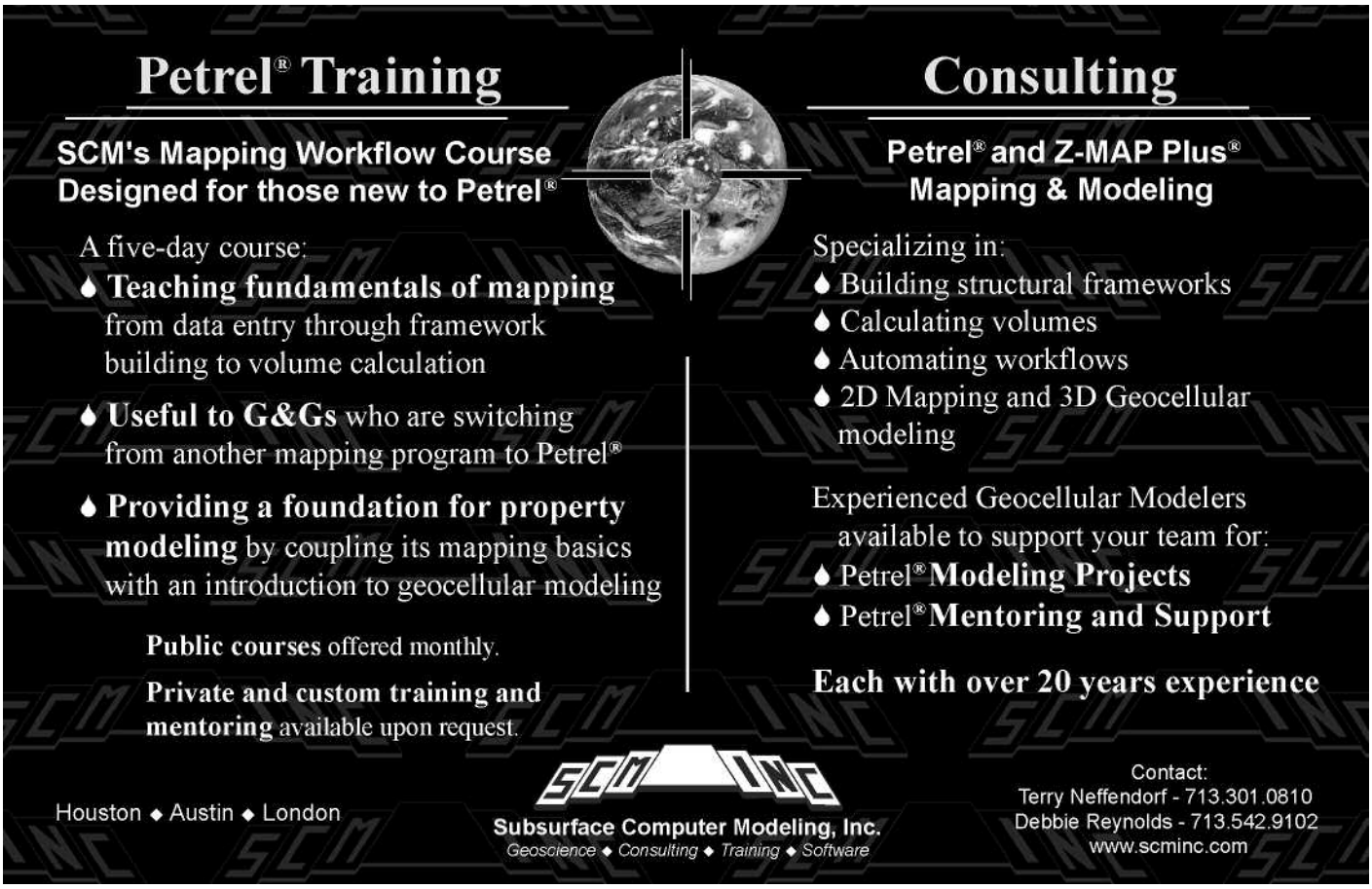
by ***Bruce Hart***

3-Dimensional Seismic Imaging of Hydrothermal Dolomite Reservoirs

Hydrothermal dolomite reservoirs are receiving considerable attention lately because of successful exploration and development efforts in areas such as the Devonian of western Canada (e.g., Ladyfern Field) and the Ordovician Trenton–Black River (T-BR) play of the Appalachian Basin. We now recognize that the 500 million barrel Lima-Indiana and the 290 million barrel Albion-Scipio T-BR trends produce from hydrothermal dolomites. Recent T-BR gas discoveries in New York have had initial test rates of 3 to 42MMCFD (million cubic feet of gas per day). Furthermore, a hydrothermal dolomite component has been suggested for Ghawar Field,the world's largest oil field, North Field the world's largest gas field, and other large and small fields worldwide.

…quantitative seismic methods can be used to predict reservoir properties and improve our understanding of the relationships among faulting, fluid flow and reservoir development.

In a structurally controlled hydrothermal dolomite reservoir, hot Mg-rich brines rise along fault and fracture networks to create porosity and dolomite in otherwise tight limestones. The hydrothermal origin is recognized by a variety of criteria, including the presence of saddle dolomite textures and geochemical data that indicate formation **North American** *continued on page 28*



HGS North American Dinner Meeting continued from page 27

at elevated temperatures. Hydrothermal dolomite reservoirs are genetically related to Mississippi Valley–type ore deposits.

Hydrothermal dolomite prospects are commonly defined seismically, using a combination of criteria that includes sags on key horizons, fault geometry, changes in amplitude or frequency of the seismic data, and other observations. Drilling results based on these qualitative methods have been mixed and provide little insight into the controls on porosity and permeability development. In this presentation we use 2-D and 3-D seismic examples to examine some of the structural styles associated with productive T-BR reservoirs. We then show how quantitative seismic methods can be used to predict reservoir properties and improve our understanding of the relationships among faulting, fluid flow and reservoir development.

Two 3-D seismic-based projects from the T-BR play illustrate the methodology and results. We used well data to identify the stratigraphic and geographic variability of porosity development and to establish that porosity is developed only in dolomites. Wells were tied to seismic data via synthetic seismograms. Fault and fracture networks were mapped in coherence volumes. In one case faults define graben with a minor wrench component, whereas in the other study, the producing wells penetrate localized extensional collapse zones in a transpressive flower structure. We then integrated seismic attributes and log data to predict the distribution of porosity away from well locations. By merging the coherence-based faults with the porosity, we show that porosity is best developed in structural environments that combine extension and wrench faulting. ■

Biographical Sketch

Bruce Hart is an Associate Professor at McGill University. He held positions with the Geological Survey of Canada, Penn State and the New Mexico Bureau of Mines and Mineral Resources prior to joining McGill in 2000. His research interests focus on the integration of 3-D seismic data with other data types to characterize fractured reservoirs, heavy oil sands and other reservoirs. He was the Southwest Section AAPG's Educator of the Year in 2002–2003 and a visiting lecturer for the Canadian Society of Petroleum Geologists in 2006. He is currently (August 2006–May 2007) working as a seismic stratigrapher at ConocoPhillips in Houston while on sabbatical leave.

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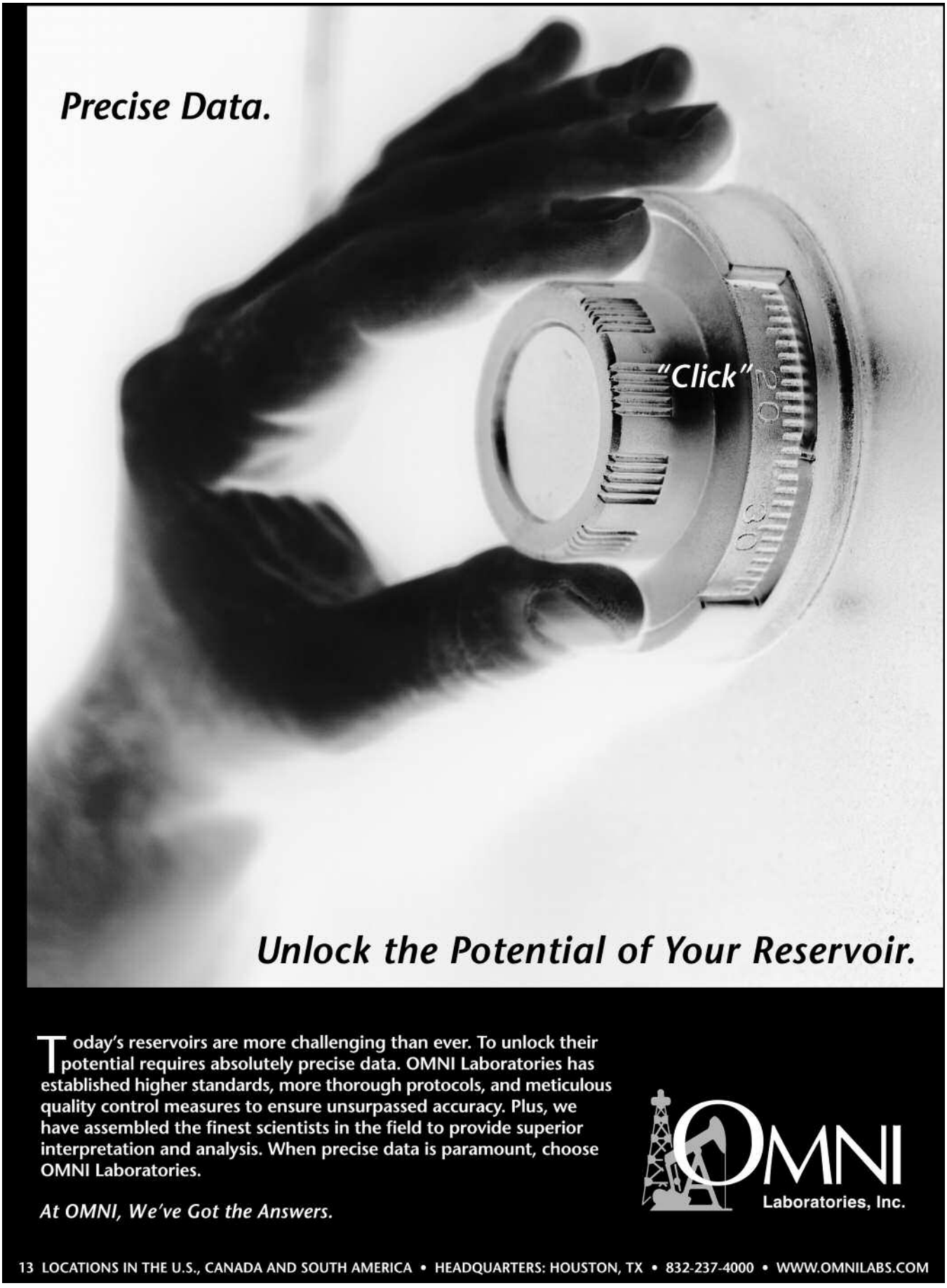
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March 2007


Sunday	Monday	Tuesday	Wednesday
	Members Pre-registered Prices: General Dinner Meeting . . . . . .$28 Nonmembers walk-ups. . . . . $35 Env. & Eng. . . . . .$25 Luncheon Meeting . . . . . .$30 Nonmembers walk-ups. . . . . $35 International Explorationists . . . . . .$28 North American Expl. . . . . .$28 Emerging Technology $25	**Reservations:** The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476. **Reservations for HGS meetings must be made or cancelled by the date shown on the HGS Website calendar, normally that is 24 hours before hand or on the last business day before the event.** If you make your reservation on the Website or by email, an email confirmation will be sent to you. If you do not receive a confirmation, check with the Webmaster@hgs.org. Once the meals are ordered and name tags and lists are prepared, no more reservations can be added even if they are sent. **No shows will be billed.**	
4	5 **GSH: Milton Dobrin Memorial Lecture** by Dr. Alan R. Huffman *"Geophysical Pressure Prediction in The Presence of Multiple Pressure Mechanisms with Applications to Deep Wells"*	6 **HGS Executive Board Meeting**	7 **GSH-SEG 2007 Spring Symposium** *A Tribute to Dr. Tury Tanner* Page 43
11	12 **HGS General Dinner Meeting** by Michelle Judson *"Illuminating Asset Value through New Seismic Technology"* Page 11	13	14 **GSH: Technical Breakfast** by David W. Huff *"The Entry of Petrobras America into the Deepwater Eocene Trend"*
18	19 **HGS International Dinner Meeting** by Keith Campbell *"Impact of Seismic Loop-Scale Depositional Models on Reservoir Architecture in a Heavy Oil Accumulation, Santos Basin, Brazil"* Page 19	20 **HGS Northsiders Luncheon Meeting** *"De-Risking Deepwater Sarawak with Controlled-Source Electromagnetic Imaging"* Page 23 **HGS Environmental and Engineering Dinner Meeting** *"Global Warming, Greenhouse Gases & the Carbon Markets – Welcome to the 21st Century"* Page 24	21
25	26 **HGS North American Dinner Meeting** by Bruce Hart *"3-D Seismic Imaging of Hydrothermal Dolomite Reservoirs"* Page 27	27	28 **Joint HGS and GSH Luncheon Meeting** by Dan Tearpock *"Professional Practices as They Apply to the Petroleum Geosciences: The Practical Application of Ethics"* Page 33

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GeoEvents

Thursday	Friday	Saturday
1	**2**	**3**
8	**9**	**10**
15 SIPES Luncheon Meeting by Arthur E. Berman *"New Ideas and Their Diffusion: A Model for E&P Companies in the 21st Century"* Page 15 GSH: Potential Fields Group Bi-Monthly Meeting by Dr. Ernie Hailwood	**16**	**17**
22 *"Rock Magnetism and Reservoir Characterization"*	**23**	**24**
29 NeoGeos Etiquette Dinner *Page 39*	**30** NOW you can make your reservations on-line at www.hgs.org	**31**

Upcoming GeoEvents

Sunday – Wednesday, April 1 – 4
AAPG 2007 Annual Convention,
Long Beach, California

Monday, April 9
HGS General Dinner
by Michael Geffert, Redevelopment of Sligo Field, Bossier Parish, Louisiana

Monday, April 16
HGS International Explorationists Dinner
by Alex Martinez, West Africa DHI's: Pushing the Envelope

Tuesday, April 17
HGS Northsiders Luncheon
Speaker TBA

HGS Environmental & Engineering Dinner
Speaker TBA

Thursday, April 19
SIPES Luncheon
by Mark Nibbelink, Gulf Coast Activity and Scout Report

Monday, April 23
North American Explorationists Dinner
TBA

Wednesday, April 25
Joint HGS-SPE Luncheon
By Michael Mileo, Frade Field Development, Deepwater Campos Basin, Brazil

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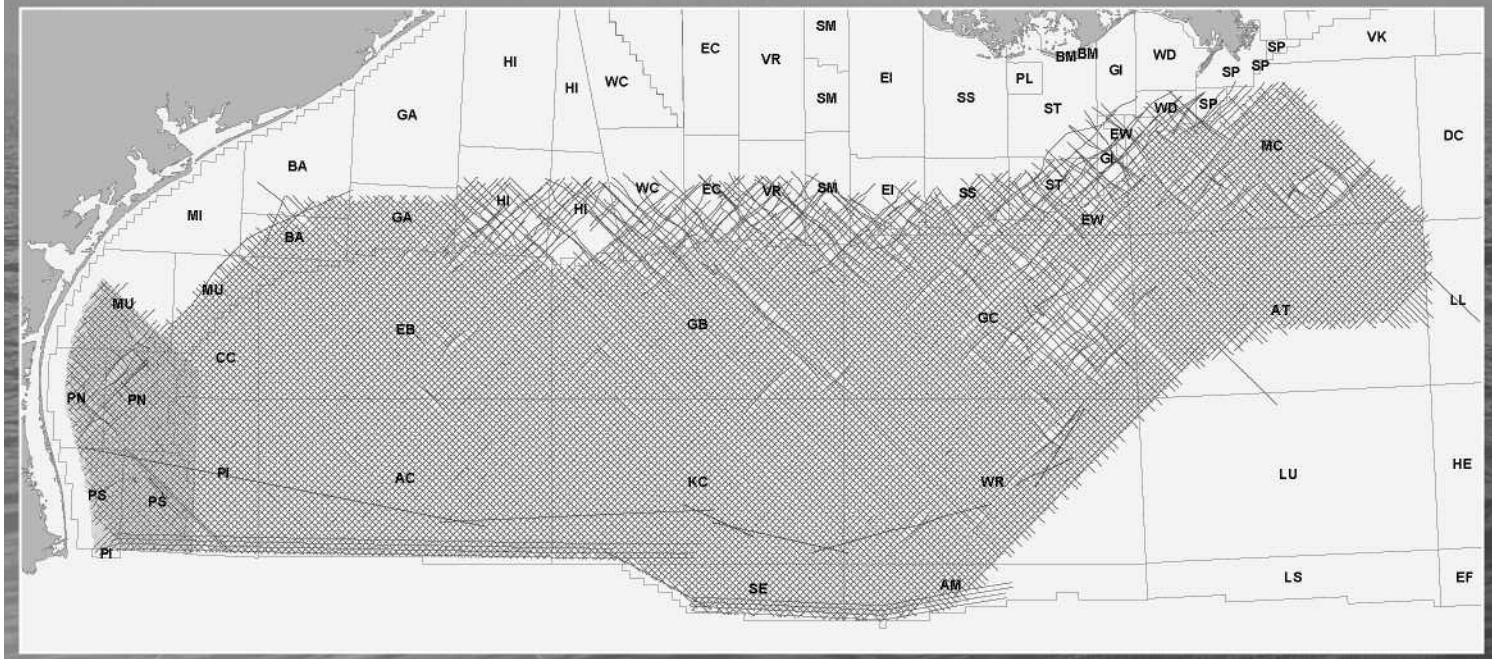

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Wednesday, March 28, 2007

Petroleum Club • 800 Bell (downtown)
Social 11:15 a.m., Lunch 11:45 a.m.

Cost: $30 with advance reservations, $35 for walk-ins, space available ($15 for Emeritus and Honorary).

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Joint HGS and GSH Luncheon Meeting

by ***Daniel J. Tearpock***
Subsurface Consultants & Associates, L.L.C.

Professional Practices as They Apply to Petroleum Geoscience: "The Practical Application of Ethics"

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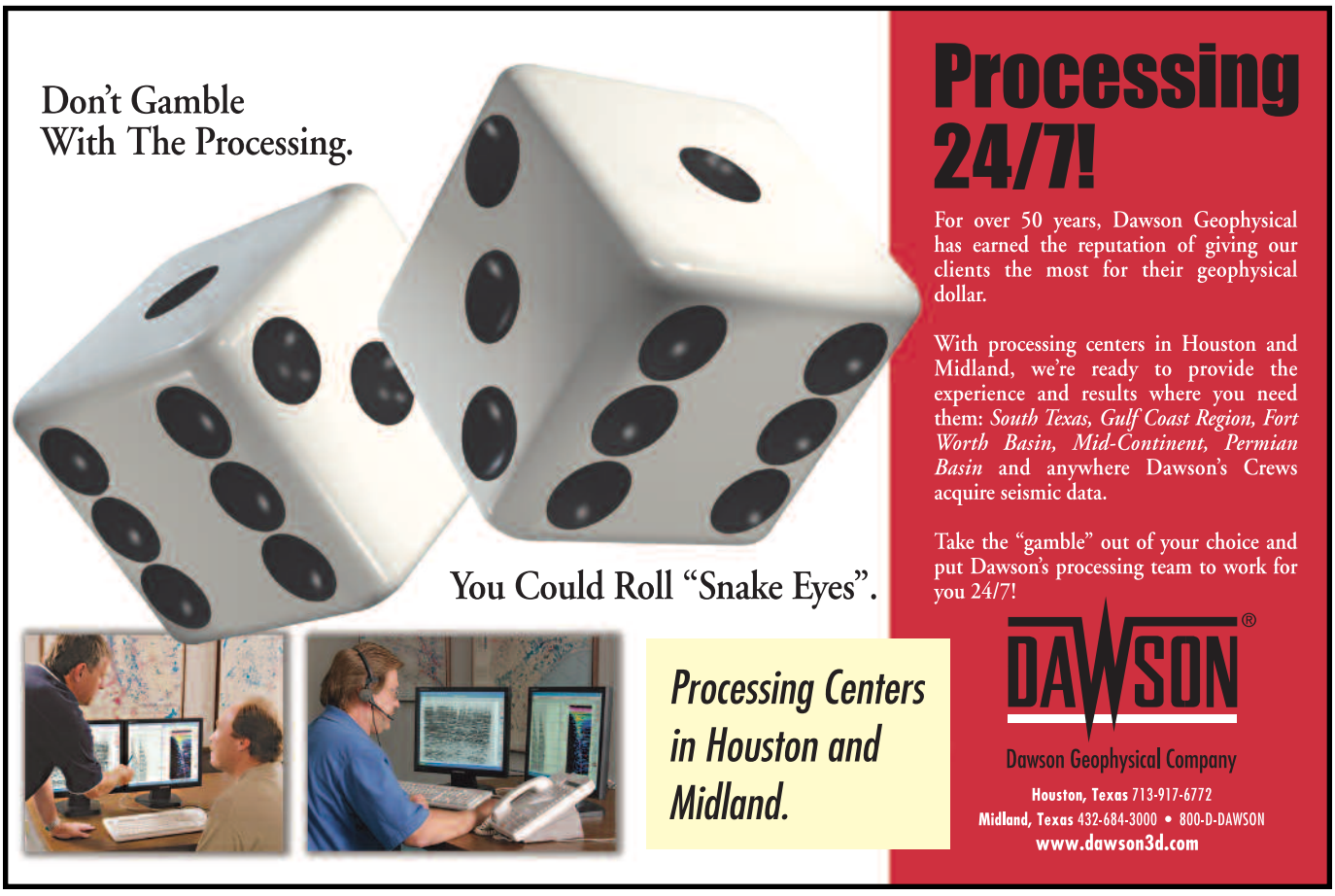
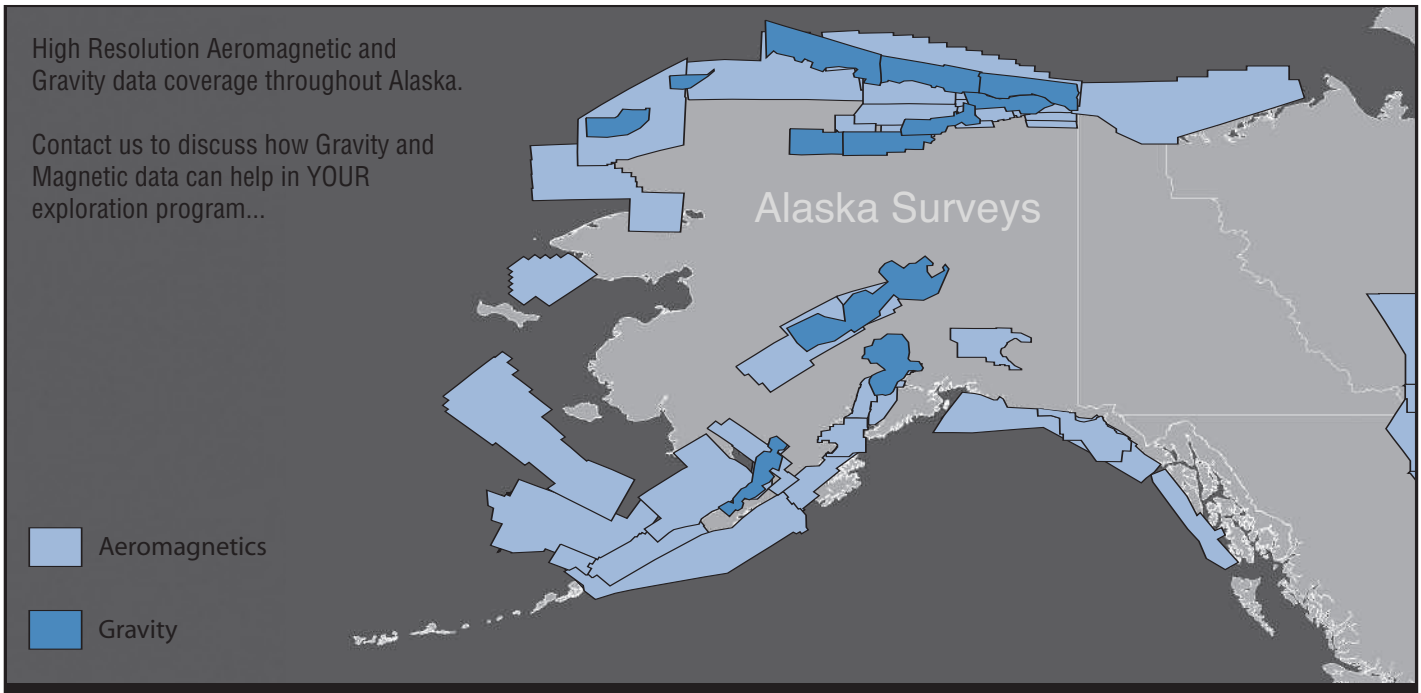
Reliability is increased when managers, companies and investors have the assurance that the information they are evaluating was professionally prepared.

Professional practices, as they apply to petroleum geoscientists, are key and fundamental aspects of delivering on our promises and conducting ourselves in an ethical manner. Reliability in a geoscientist's work is the cornerstone to building confidence in the product, whether it is a seismic interpretation, prospect map, resource or reserves estimate, to name a few. Reliability is increased when managers, companies and investors have the assurance that the information they are evaluating was professionally prepared.

This talk discusses "professionalism and professional practices" in petroleum geoscience and highlights the important factors such as educational background, experience, knowledge of recommended practices, the use of advanced technology and, last but not least, personal values—ethics. There is, of course, always uncertainty **Joint HGS and GSH** *continued on page 35*





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and risk associated with the exploration and development of hydrocarbons. However, the proper use of technology, recommended practices, industry-wide standards and the assurance of ethical/professional conduct not only can reduce risk and uncertainty, but can also provide to companies and investors the confidence needed to move forward with an exploration or development plan or program.

The area of "reserves estimation," for example, has been in the negative limelight for several years now. The SPE, AAPG, WPC and SPEE are sponsoring a committee to investigate the reserves situation and evaluate the potential training needed for geoscience and engineering reserves evaluators. This initiative is centered around three key topics: training in recommended practices, industry-wide definitions and ethics. In the end, professionalism encompasses our use of technical practices and standards in conjunction with our character and moral consciousness that ultimately define who we are and the reputation that will follow us through our professional career. ■

Biographical Sketch

Daniel J. Tearpock is Chairman and Chief Executive Officer of Subsurface Consultants & Associates, LLC (SCA), an international petroleum consultancy and training firm. SCA is a client-focused firm that offers specialized **Joint HGS and GSH** continued on page 37

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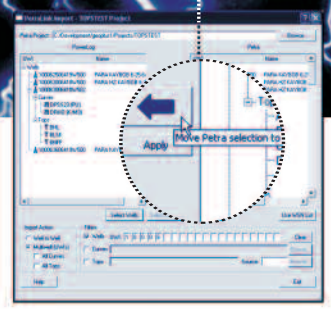

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Joint HGS and GSH Luncheon Meeting continued from page 35

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As a working geoscientist, Mr. Tearpock has generated numerous exploration and exploitation prospects, either as the sole generator or as part of an organized multidisciplinary team. He is the co-author of three textbooks, *Applied Subsurface Geological Mapping*" (© 1991), *Quick Look Techniques For Prospect Evaluations* (© 1994) and *Applied Subsurface Geological Mapping With Structural Methods* (© 2003), and numerous technical articles. Mr. Tearpock was a finalist in 1996 and 1998 for the Ernst & Young Entrepreneur of the Year program and in 1998 received the Distinguished Service Award from Bloomsburg University, Bloomsburg, PA. He holds a bachelors degree in geology from Bloomsburg University (1970) and a masters in geology from Temple University (1977). He is a member of numerous societies and is an AAPG/DPA Certified Petroleum Geologist No. 4114, State of Texas Licensed Geologist No.2660 and SIPES Certified Earth Scientist No. 3015. Member of AAPG, Nominee for President of the DPA, Trustee of AGI Foundation, member of SPE, SIPES, SEG, GSA, HGS, NOGS, LGS, IPA and PESGB.

Bringing Earth Science to High School Students

by ***Janet Combes***

In November, 2006, the Texas State Board of Education voted to require 4 years of science in Texas high schools, starting in the fall of 2007. One of the approved options for the fourth year is a senior level Earth and Space Science course, incorporating geology, chemistry, physics and biology. The HGS has been involved with the effort to get this accomplished for several years. There is now an opportunity for the Houston Geological Society to be a leader in preparing the school districts, teachers and the students for the return of earth science to the high school curriculum after several years' absence. It will be an effort bigger than any of the current HGS outreach committees and will need more VOLUNTEERS and CORPORATE SUPPORT, in terms of people, time and money, and handouts and training rooms and …

There is now an opportunity for the Houston Geological Society to be a leader in preparing the school districts, teachers and the students for the return of earth science to the high school curriculum…

Dr. Sharon Mosher, Farish Chair and professor in the Jackson School for Geosciences at the University of Texas at Austin, was one of the active proponents in efforts last year to convince the Board of Education to change the curriculum. In an email distributed after the November success, she stated:

> "We now have an excellent opportunity to make a difference in public education as well as effectively recruit undergraduate majors. Current teachers will want professional development opportunities to refresh their earth science background, help will be needed in reviewing/developing the curriculum (TEKS) and in giving talks to counselor groups to raise the level of awareness of job opportunities and the importance of earth science education, and school districts will need assistance in meeting the new requirements. There will be career opportunities for students as earth science teachers—teacher certification for geoscience graduate and undergraduate students is needed. Let's make the most of this opportunity—we can make a major difference."

The current chairs of the HGS outreach committees and a network of other volunteers who have been committed to educational outreach have started to come up with different methods of helping out, and other area geoscience organizations (GSH, AWG, etc) are joining our efforts. The Energy Council of Houston is working to help HISD improve their curriculum in all areas of science and mathematics. Contact has been established with the AAPG, the SEG and with the Texas Earth Science Teachers Association (TESTA); plans include keeping in touch with other Texas geological societies and the AGI. Watch the HGS *Bulletin*, Web site and newsletters for further information. ■

You can help.

To assist with ideas, with planning, with your time and experience, with anything, PLEASE contact one of the HGS Outreach chairs, or get in touch with Janet Combes : jmcombes@msn.com or home 281-463-1564.

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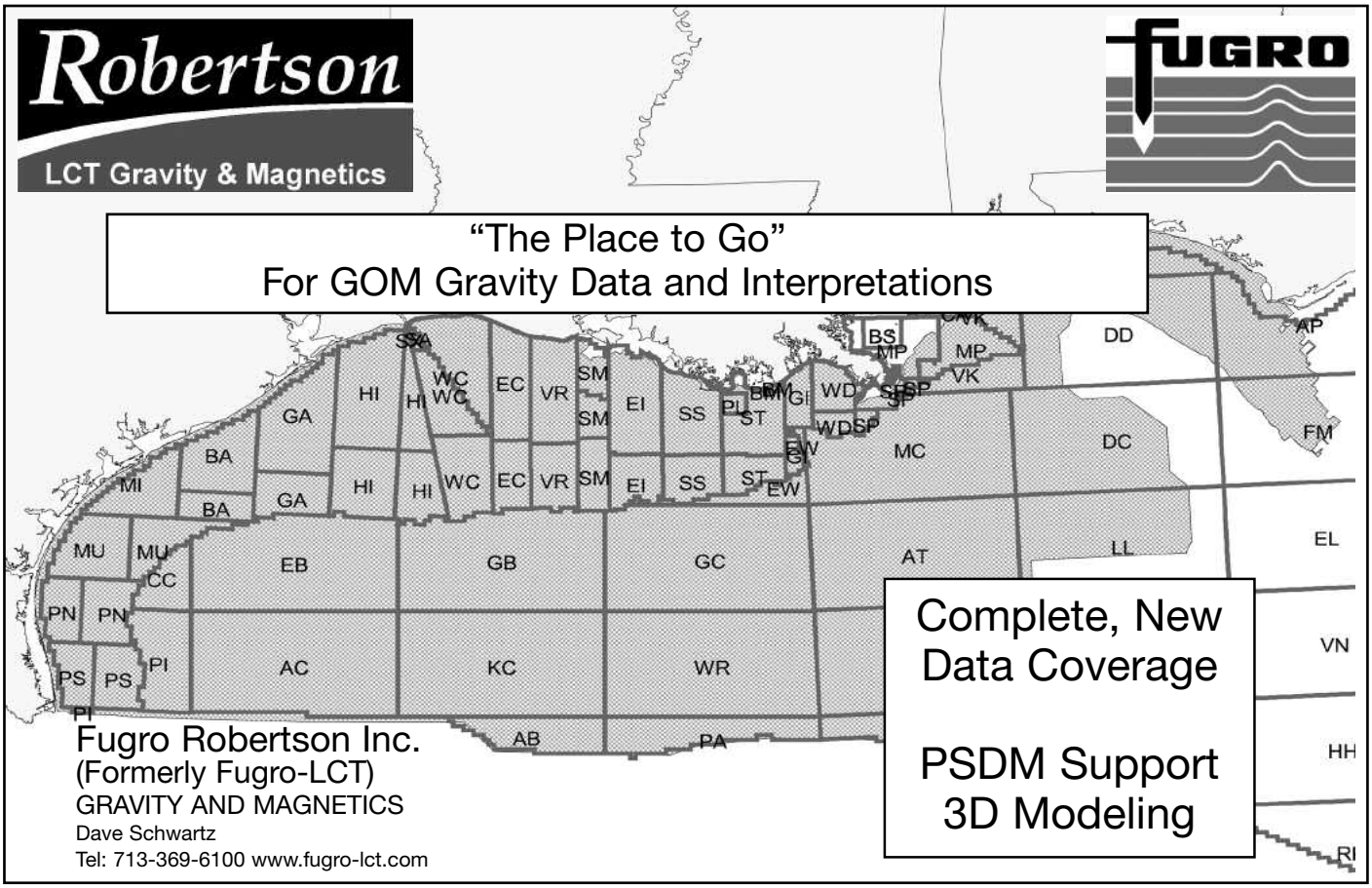

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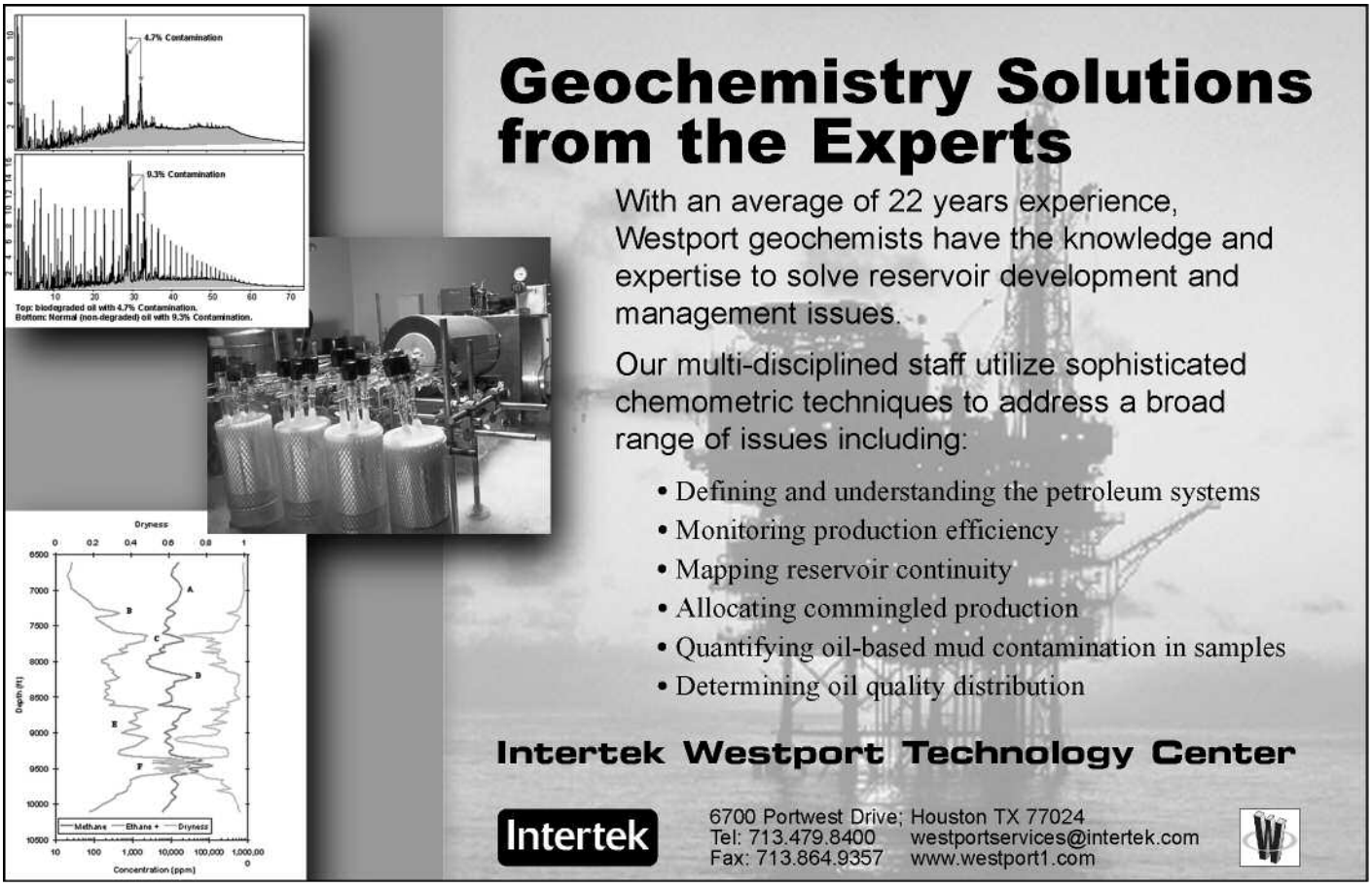

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Book Review

by **George Devries Klein**

Discoverers of the 20th Century: Perfecting the Search,
Edited by Charles R. Sternbach, Marlan W. Downey and Gerald M. Friedman, 2005, AAPG Special Publication. 208 p.

This book, which emerged from the 200 AAPG Annual convention in Houston, successfully summarizes the insiders' history about some of the more significant oil and gas discoveries of the late 19th and 20th century. It represents the core history of our profession, how we got to where we are today, and what it took to get there. It wasn't all science, but it sure helped (particularly after World War I).

The articles are grouped into three sections. Section I deals with Landmark Regional Discoveries in Pennsylvania (Flaherty), Texas (Fisher, Halbouty, Barrow, Hunt), California (Henderson, Grosband), and Alaska (Barrow). Section II deals with Landmark Technology Discoveries and includes a short history of geophysical exploration, Gulf of Mexico bright spots (Forrest), low-resistivity pay (Sneider), mapping the world's oceans (Tharp), and coal bed methane (Deul). Section III deals with Landmark Recent Field Discoveries and includes gas discoveries in Saudi Arabia (Abdul-Baqi), Tangguh field, the first major pre-Tertiary discovery in Indonesia (t(Robertson), the Agbami field in Nigeria (Applebaum), Thunderhorse in the deepwater Gulf of Mexico (Yielding), and closes with an overview of Anadarko's Bossier play (Emme).

The book represents the core history of our profession, how we got to where we are today, and what it took to get there.

All the articles are well-written, informative and in some respects unique. Some are historical summaries with maps of annual discoveries, some are personal accounts, some are technical accounts, and some focus on what it took to be successful. That success included persistence and going back to basics (Yielding on Thunderhorse), challenging accepted paradigms (Applebaum on Agbami), and progressive management willing to try new approaches (Forrest on bright spots) for openers.

Although all the papers are worth reading, the ones that caught my eye were:

Mike Forrest's paper on the Gulf of Mexico "bright spots". He not only provides a detailed account of the players and the management decisions that led to this technological breakthrough, but also includes the critical seismic sections, well logs, maps and related displays showing how the technique was applied. From my perspective that makes it one of the significant papers in the book, one that can be used by explorers for their projects in similar plays.

Bruce Applebaum's discussion of the Agbami field, offshore Nigeria, highlights the importance of challenging existing geological, geophysical, technical and management paradigms, and of assembling a team of relevant experts to develop the key play concept that can lead to the discovery of a "big elephant." The supporting discussion and figures clearly show the key data used in developing the play concept that was applied.

Cindy Yielding's paper on Thunderhorse in the deepwater Gulf of Mexico is a telling lesson on how one can initially go wrong by focusing too much on the glitz of attribute-driven exploration. After a series of failures, BP went back to basics, and assembled an interdisciplinary team of geoscientists and engineers to first complete a regional assessment, develop an exploration paradigm, and undertake the critical drilling that led to the discovery. Their integrative approach is a blueprint for success.

If there is a lesson in reading these papers it is that in the present day, an integrated approach relying on basics, challenging paradigms and being willing to try new approaches (coupled with the integration) spells success. Try it, you'll like it. It is the future. ■

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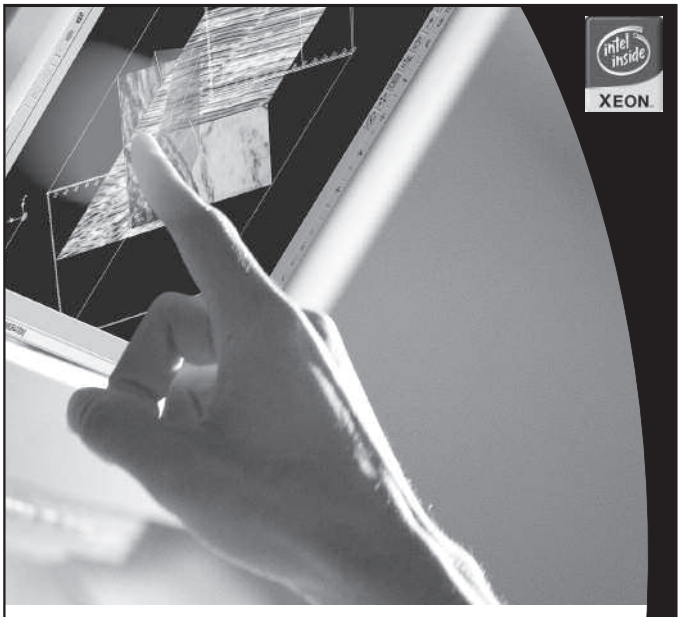

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My Shaggy Dog Story About Reviews

by ***George Devries Klein***

As an undergraduate at Wesleyan University in the 1950's when it was an all-male institution, I earned part of my expenses by singing in the Wesleyan University Chapel Choir. Every so often we would do "home-and-Home" concerts with choirs from regional woman's colleges like Mt. Holyoke, Smith, etc.. This also provided an opportunity for socializing, and several romances developed that ultimately led to marriage.

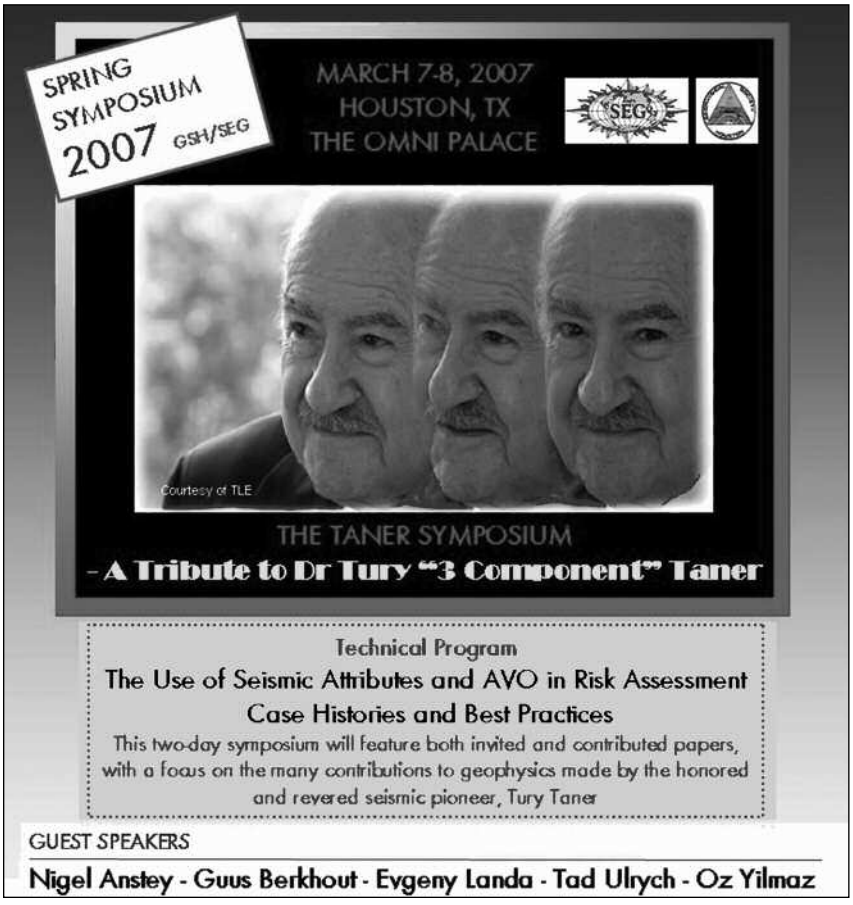
One year, our exchange arrangement was with Pembroke College in Providence, RI (they later merged into Brown University). They came to our campus first and on the Saturday when they arrived, we did a rehearsal. Because by this time I was an officer of the choir, I had certain duties to complete after the rehearsal and witnessed a conversation between the choir director and the chapel organist. The choir director said with a panicked look on his face "They can't sing!".

We had the concert that evening and a party afterwards. Some of the choir members really liked some of those Pembroke ladies. One of colleagues put it well when he said "Those gals can't sing but they sure can make out."

On Tuesday, the student newspaper appeared and one of my buddies was the music critic. He reviewed the concert and severely criticized the Pembroke ladies for their inability to sing. Now the Pembroke choir had a rather high opinion of themselves and arranged for the paper to mail them the review, expecting accolades at least. When we arrived in Providence on the following Saturday, we received a frosty welcome and a few choice words were exchanged. Suddenly the warmth and friendliness of the ladies (translation — their making out abilities) disappeared.

Several of my colleagues were furious and wrote harsh letters to the student paper about the critical review. All were published, and so was a reply by the reviewer. He explained how reviews were done and he concluded the response by saying "Always remember, a review is the opinion of the reviewer only."

FYI. I harshly criticized a book by Phil Allen on basin analysis 20 years ago and got a haughty and frosty letter from him, but he also wanted a list of the key references I had indicated were missing. I wrote him back with the above story and he calmed down considerably. ■



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On The Lighter Side *Geological Wit and Witticisms*

by ***Charles E. Revilla,*** *Member Emeritus, HGS*

Introduction

In 1950 the annual meeting of the Geological Society of America was held in Washington, DC. For the occasion the Pick and Hammer Club, DC's local geological society, presented an unusual event for the entertainment of the attendees. It was a full scale mock-Greek drama, live on stage, entitled "The Last Days of Pomp or Jason's Golden Fleecing." You get an idea right off as to the tone of the show. And when you read the title page, it is plain that the authors further intend to provide the convention viewers with a different sort of theatrical experience: "An Argocynical Fantasy Debased from an Incident Lost from Homer's *(The) Idiot* and *(The) Oddity*", finally concluding punnily with a second explanatory sub-title: "The pan is mightier than the word (adapted)." What follows is an introduction to the many songs ingenuously created by earth scientists of the Pick & Hammer Club for the occasion (further selections next month).

The protagonists of the play are scientists of giant stature in the community of earth scientists of the time (the expression probably hadn't even been coined back then). The whole show is an extended exercise in good-humoredly poking fun at all of them. As if to erase any doubt that it is quite obviously the Geological Society of America that is vicariously doing the poking, the program for the show is presented as a feature of the *Interminable Proceedings of the Geosophical Society of Atlantis, 1950 B. C.* The Foreword of this play ends with a poem that embodies the avowed intention of making non-malicious fun of many of the recognized (earth science) thinkers of the day:

"O pompous men of Earth! Ye who aspire
To sit on high Olympus and acquire
The stature and the mien of gods! Big shots
Who reap a paltry harvest from your thoughts,
Know, then, there's ne'er a fame beneath the sun
So vulnerable as that by ego won!
Who sets himself apart as master mind
Is marked for mocking banter by mankind.
Mere dictates of the self-appointed sages
Do not make Truths that echo through the ages;
And little men who toil for fewer pages.
May build sound laws by incremental stages."

You may be thinking "Just who are the targets of GSA's mockery in this full-scale mock-Greek drama (in 2 acts and 9 Scenes)"? Without including all the terms of identification given in the program of the play, these scientific authorities are listed unmistakably for us under "Dreamatic Personalities," in order of appearance:

"Zeus, Poseidon and Pluton - Ye gods!
Uniaxis, Biaxis, and Triaxis"
and little fishes
Protocolos, Jason, Batemanosthenes, Dunbarodorus,
Mooreschylus, Goutarch, Buchericarus, Billingsides,
Gillulyopoulos, Cloosostom, Rubeycon, Oracle, Bowenus, and
Goodspeedocles (who takes everything for granite);
also: Ewingimenes, Dietzander, Shepardysseus: sea-going plumbers;
and Uranius (the noblest Greek of them all),
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"ASPIRATIONAL
(sung to the tune of 'Tit-Willow' from *The Mikado*)

I

When I as a babe at my dear mother's knee
Did bellow, did bellow, did bellow,
I dreamed of the red-letter day that I'd be
A Fellow, a Fellow, a Fellow;
But alas, I have learned, it is easier far
To journey through space to the outermost star
Than to gain such renown that they'll tell you you are
A Fellow, a Fellow, a Fellow.

II

As a youth I believed that a scholarly life
Is mellow, is mellow, so mellow,
Where a man could become, in a world far from strife,
A fellow, a Fellow, a Fellow.
Now, it often is said, and I'm sure you'll agree,
That with proper beginning you'll end properly;
If you choose the right college, you're certain to be
A Fellow, a Fellow, a Fellow.

III

How nice to be able to follow one's name
With Fellow, yes Fellow, great Fellow;
The highest attainment, the acme of fame,
A Fellow, a Fellow, a Fellow.
But it does me no good just to sit here and sigh
With no sponsors about to take heed of my cry!
If I meet the right people, I'll be, ere I die,
A Fellow, a Fellow, a Fellow!"

Spring Break©

Toward the close of a long winter, the academic geologist finds his clothing powdered with chalk dust, his eyes tending to focus only a few feet away, and his ears dulled by incessant talk, including his own. Another **On the Lighter Side** *continued on page 47*

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On the Lighter Side continued from page 45

season of attempting to read the literature has once more raised nagging doubts about whether he's in the right science or has wandered through one of those doors marked GEOLOGY that leads to something entirely different. Although for months he's been lecturing learnedly about rocks, it occurs to him that it's been a long time since he actually came face to face with a rock in its native habitat.

The professor is, in short, ready to take to the field. The spring recess offers just the chance he needs, especially if he's been forehanded enough to schedule a five-day field course in the Appalachians. The course is a challenge to the students, bit it's a rejuvenation for their instructor. Coal beds and channel sands reappear like old friends, fern leaves on the shale seem to have been waiting for this moment. That all-but-incredible structural line, along which the flat-bedded rocks have been flipped back like folded blankets, yields a sort of exhilaration – as does the majestic series of thrust slices that it heralds. How precisely the sharp edge of sandstone angles from the ridge crest down the wall of the water gap, to cross the river in parallel ripples! In a troubled world, how reassuring the familiar succession of formations! What a pleasure to encounter that pink stylolitic "marble" in a road cut rather than in a restroom! How revitalizing the blow of the hammer on the ledge! (p. 1, *Pandora's Bauxite*)

On the other hand, Bates notes (p. 8, op cit) that there are always 'spoil-sports' around:

The Two Creeks Forest Bed on the shores of Lake Michigan, famous for its glacial deposits, has been reproduced and brought into the classroom through the media of movies, videotape, projection slides and study kits. "The program is expected to cut down measurably on the number of costly field trips ordinarily needed for such instruction." Get your field trips on film, folks – it's the modern low-cost way. No bus rentals, weather worries, sprained ankles, or perspiration. All in air-conditioned comfort, daily 10 to 11. Forty field trips every term! (p. 8, op cit)

Selections from *Pandora's Bauxite*, by R. L. Bates, © 1986 American Geological Institute, published originally in *Geotimes Magazine* and used by permission of AGI.

Continuing Education Committee Changes Leadership

by ***Steve Earle, Editor-elect***

The HGS Board recognizes and thanks Leta Smith for the fine job she did as Chair of the Continuing Education Committee. Due to job demands, she has had to step aside and that position has been taken over by James Foradas.

The mission of the Continuing Education Committee (CEC) is to evaluate the education needs of the membership and organize programs to meet those needs. Emphasis is placed on presenting low cost, high quality state of the art programs on timely topics. Short courses the past few years have focused on meeting the continuing education requirements as required for maintaining the Professional Geologist license and development of technical skills needed in industry. The CEC generally runs six to eight short courses each year.

According to Jim, "It is my vision that the CEC will stick to our mission statement during my tenure as Chair. I see us conducting business as usual with respect to offering a core of nationally recognized industry-related workshops, as we have for many years. However, I also see the CEC increasingly working in an advisory capacity with other HGS Committees to help develop and manage educational workshops. For example, CEC is jointly working with the NeoGeos to help them develop a Public Speaking Workshop, and we are looking into developing other workshops for members just entering the field as well. I'm leading the development of a workshop introducing Cultural Resource Management to geologists, and am hoping to provide workshops by experts from other related environmental fields." Jim is also interested in working with members who may be earth science educators or others with an avocational passion for geology who would like to develop programs that could benefit people like themselves.

Jim was the featured speaker at the January Environmental and Engineering Group's dinner meeting, and his biographical sketch is available on page 43 of the January *Bulletin*. If you would like to join the Continuing Education Committee, Jim and the other members would be very appreciative of your interest and help. Contact Jim at 713-541-0473 or e-mail him at jforadas@hragp.com. ■

HGS Welcomes New Members

Effective February 6, 2007

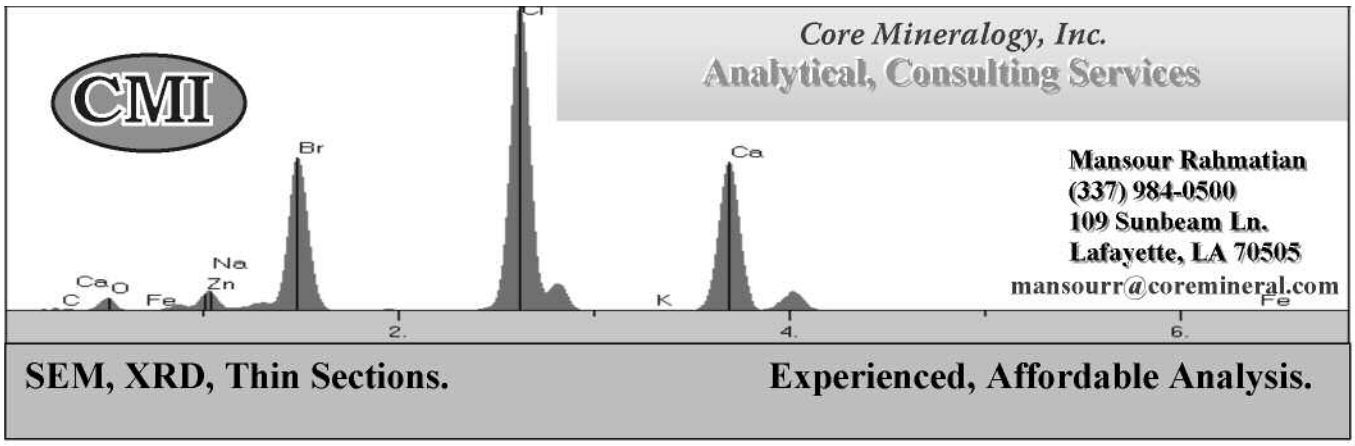
ACTIVE MEMBERS

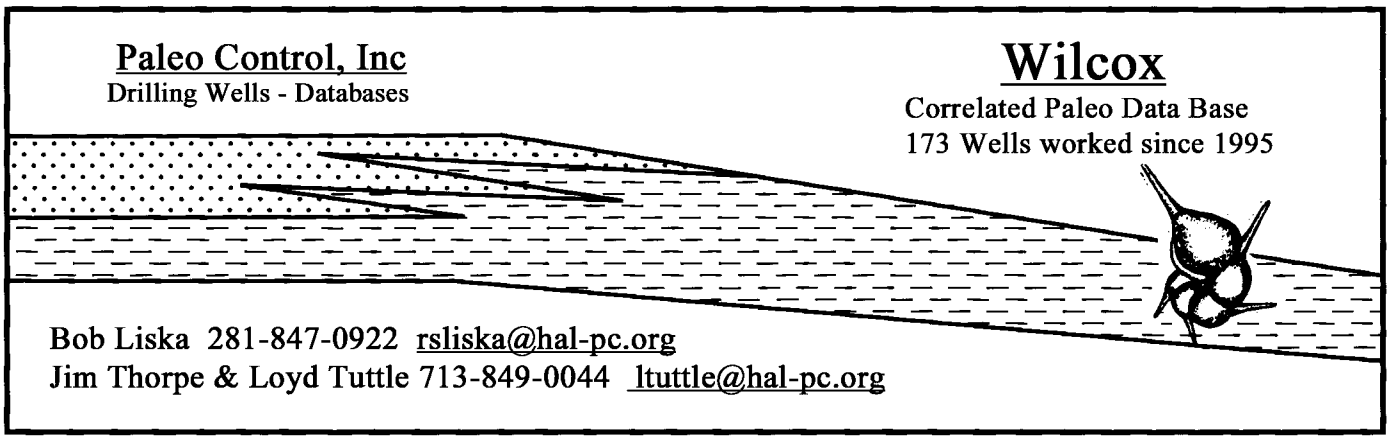
Denise Butler
Amy Christensen
Julius Des Camps
Lee DiStefano
Thomas Dunnahoe
Elias Gomez
L. David Gossett
L. Rogers Hardy
Jan Harrell
Jean-Claude Heidmann
Rick Kincaid
Paul Lake
Philip Morath
Charles Murphey
Christopher Olson
Russell Opfer
Andrew Peloso
Lauren Petty
Lucy Plant
Don Price
Matthew Ritter
Muhammad Shahzad
Michael Stellas
Shyng-Jye Tsay
Kenneth Walker
Serene Wardinsky

ASSOCIATE MEMBERS

Rebecca Barber
James Morgan
Grigoriy Perov
Amber Tull
Kimberly Varhaug

Welcome New Members





Government Update

by ***Henry M. Wise, P.G.*** *and* ***Arlin Howles, P.G.***

AGI Government Affairs Monthly Review (December 2006)

Low-Pressure Pipeline Legislation Becomes Law

Late on December 7, the House and Senate sent a bipartisan bill (H.R. 5782) to improve existing pipeline regulations to President Bush. The legislation, which has been moving through Congress for many months, received some additional amendments in response to the partial shutdown of BP's low-pressure pipelines in Prudhoe Bay Alaska in August. The bill extends the Department of Transportation oversight to all low-pressure oil and gas pipelines. The legislation will cover 5,400 miles of low-stress lines compared with a proposed rule by the Bush Administration to cover "unusually sensitive" low-stress lines that would have covered only 1,200 miles. It also contains provisions to hire 45 safety inspectors over several years and strengthen state programs preventing construction-related pipeline accidents. The President signed the bill, the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006 into law on December 29, 2006.

H.R. 5782 is available from Thomas at http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.05782:

Much Debated, but Limited Offshore Drilling Legislation Approved

Congress approved a tax bill, S. 3711, which opens 8.3 million acres in the Gulf of Mexico to offshore drilling. The newly opened area is estimated to contain 1.26 billion barrels of oil and 5.8 trillion cubic feet of natural gas. The bill does not, however, expand oil and gas drilling to the east and west coasts as had been proposed in the House version of the bill. The House approved the measure on Friday, December 8, 2006, in a 367-48 vote and the Senate approved the bill the next day in a rare weekend vote, by a comfortable margin of 79-9.

About 37.5 percent of the royalties will go to Louisiana, Alabama, Mississippi and Texas initially. In ten years, royalties from revenues from previously existing leases in the Gulf will also be shared with these states. This will provide $13 billion over the next 30 years to the state of Louisiana, a triumph for Senator Mary Landrieu (D-LA), who calls this bill "essential for the recovery and long-term economic vitality of South Louisiana." The bill also steers 12.5 percent of the royalties to the Land and Water Conservation Fund, initially from newly opened reserves and later from other Gulf areas.

The bill also extends numerous tax incentives for alternative energy resources through 2008, including the wind energy tax credit, biomass and geothermal facility credits, tax incentives for new cellulosic ethanol plants and a 30 percent tax credit to consumers and businesses that purchase solar equipment and fuel cell power. In addition, the bill extends the 54-cents-per-gallon tariff on imported ethanol until 2009. The tax provisions have been met with some concern because they will reduce federal revenues collected by the Treasury by over $45 billion over the next 10 years.

An amendment by Representative Ed Markey (D-MA) and other Democrats to bar companies from obtaining new oil leases until flawed leases from 1998 and 1999, which mistakenly omitted "price thresholds" were renegotiated, was defeated in a close 205-207 vote.

Lawmakers also included a no drill-buffer provision for Florida in order for representatives from that state to agree to the bill. The provision bans drilling within 125 miles south of the Florida Panhandle and over 235 miles from Tampa until mid-2022.

The bill also reauthorizes the Abandoned Mine Land Act, which requires the cleanup of old mine sites and extends onshore restrictions along the Rocky Mountain Front in Montana. Senator Craig Thomas (R-WY) predicts that the Abandoned Mine Land Act will generate $1.6 billion for the state of Wyoming. Ranchers and hunters in Montana are celebrating the extended restrictions too.

S. 3711 is available from Thomas at http://thomas.loc.gov/cgi-bin/bdquery/z?d109:s.03711:

Drought and Tsunami Legislation Signed by President

Congress passed two bills related to natural hazards, the "National Integrated Drought Information System Act" (H.R. 5136) and the "Tsunami Warning and Education Act" (H.R. 1674). Both bills provide new infrastructure and research funding to the National Oceanic and Atmospheric Administration (NOAA) to improve forecasting and reduce the impacts of droughts and tsunamis. The drought bill authorizes a forecasting and monitoring network, which NOAA is already developing, to help anticipate, mitigate and react to droughts more effectively. The tsunami bill authorizes a new NOAA research program and standardizes existing warning systems. The President signed these bills into law on December 8, 2006. The programs will be reviewed by the National Academy of Sciences and the Government Accountability Office. Although the bills authorize new funding to NOAA, the congressional appropriation committees

Government Update *continued on page 51*

International Oil Conference and Exhibition

Veracruz, Mexico, 28–30 June 2007

The International Oil Conference and Exhibition in Mexico is being organized by CIPM, AIPM, AMGE, AMGP, and SPE. These Societies welcome your paper proposal submission to this, their second collaboration for an exciting event in Veracruz, Mexico, 28–30 June 2007.

ORGANIZERS

CIPM - Colegio de Ingenieros Petroleros de México
AIPM - Asociación de Ingenieros Petroleros de México
AMGE - Asociación Mexicana de Geofísicos de Exploración
AMGP - Asociación Mexicana de Geólogos Petroleros
SPE - Society of Petroleum Engineers

This three-day event will offer over 200 technical papers and will address the topics listed below.

- Deepwater Development and Production Issues
- Field Development of Heavy and Extra-Heavy Fields
- Characterization and Production Optimization of Turbidite Reservoirs
- IOR/EOR, Optimal Well Placement, Data Mining and Water Management Issues in Mature Fields
- Reservoir Engineering of Fractured Reservoirs

Rodolfo Camacho Velázquez, Program Committee Chairperson, invites you to submit a paper proposal online at http://manuscripts.spe.org/ams/cgi-bin/main.plex.

The submission deadline is 12 January 2007.

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Government Update continued from page 49

will ultimately decide how much of this funding is provided annually.

The bills are available from Thomas at Drought: http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.05136: Tsunami: http://thomas.loc.gov/cgi-bin/query/z?c109:H.R.1674:

DOE Releases Short-Term Energy Outlook Report

On December 12, 2006, the Energy Information Administration (EIA) released official energy statistics from the U.S. Government in a "Short-Term Energy Outlook Report." Highlights from the report include short-term energy price estimates of oil, gas and average household heating expenditures. The report states that West Texas Intermediate (WTI) crude oil prices were above $60 per barrel in the last week of November due to cuts in production by the Organization of Petroleum Exporting Countries (OPEC), a recent decline in surplus U.S. product inventories and projected increase in energy demand during the winter season. The EIA projects that WTI prices will average $66 per barrel in 2006 and $65 per barrel in 2007. Because of predictions for a colder winter, natural gas prices are projected to increase in the first quarter of 2007 compared with the first quarter of 2006 by about $0.65 per thousand cubic feet (mcf), to an average of $8.65 mcf. This winter average household heating is projected to cost $938 compared with $948 last winter. The next update will be released from EIA on January 9, 2007.

The Short-Term Energy Outlook Report is available at http://www.eia.doe.gov/emeu/steo/pub/contents.html.

DOE Inspector General Report Recommends Relocating Strategic Petroleum Reserve's Alternate Site

Experience from Hurricane Katrina has prompted the Department of Energy's Inspector General to recommend the relocation of the Strategic Petroleum Reserve's alternate operating station in a December 2006 Audit Report. The Stennis Space Center in Mississippi serves as the emergency operating facility for the 727 million barrel reserve. However, located only 55 miles from the primary site in New Orleans, this alternate site was "rendered inoperable" synchronously with the main station during Hurricane Katrina due to problems with its computer network system. In the Audit Report, the Inspector General commended the department for providing 21 million barrels of oil in loans and sales during the Gulf of Mexico's oil production shutdown. However, it urged DOE to move SPR's alternate site to avoid the potential shutdown of both operating facilities at the same time. The department said it plans to evaluate the reserve's alternate site in the future.

The Inspector General's report is available online at http://www.ig.energy.gov/documents/IG-0747.pdf

NASA's Exploration Plans

On December 4, 2006, NASA disclosed two crucial elements of the new U.S. space policy aimed at returning humans to the Moon—the initial stages of a global exploration strategy and a proposed U.S. lunar architecture. The global exploration strategy will address why humans are returning to the Moon and what they will do on the surface. In April 2006, NASA met its congressional mandate and began developing the strategy. The strategy has been created through a dialogue with over 1,000 individuals from NASA, 13 other international space agencies, non-governmental organizations and private interests.

The lunar architecture will examine how to achieve the goal of exploring the Moon. Chartered in March 2006, NASA's Lunar Architecture Team plans to create a solar-powered lunar base near one of the lunar poles in order to learn how to use the Moon's natural resources to human advantage and eventually travel to Mars. Four person crews will begin seven-day visits to the Moon in 2020. Following these short visits, 180-day missions to prepare for journeys to Mars will be launched. NASA will continue to refine and develop its Global Exploration Strategy and lunar architecture through open dialogue in 2007.

A NASA press release is available on these plans at http://www.nasa.gov/home/hqnews/2006/dec/HQ_06361_ESMD_Lunar_Architecture.html.

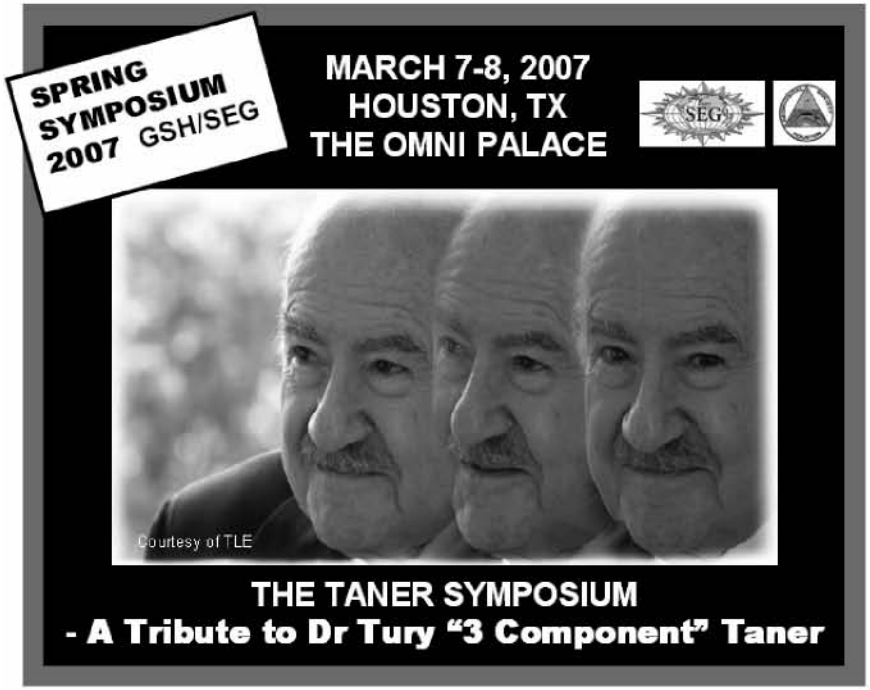
USGS Publishes Land Use Report

A new USGS publication, "Rate, Trends, Causesand Consequences of Urban Land-Use Change in the United States" (Professional Paper 1726), studies the change in land use associated with increasing urbanization and its impacts at local, regional, and national scales. Based on the broad view of satellite imagery, the twenty scientific contributions that make up the publication examine urban land change in the United States from many perspectives—historical, geographic, economic and ecological. Together the analyses provide new insights into critical issues of concern for both science and society.

An online version of Professional Paper 1726 is available at http://pubs.usgs.gov/pp/pp1726/.

Science Editor-in-Chief Responds to Fraudulent Papers

On December 1, Donald Kennedy, *Science Magazine's* editor-in-chief, released an editorial entitled "Responding to Fraud." The committee assembled to examine the publishing process also released a report that analyzed the magazine's handling of two fraudulent papers. It recommended steps for *Science* and the scientific community to take to respond to publication fraud. Following this committee report, Kennedy provided a response. The release of this editorial, **Government Update** continued on page 53



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Invited Papers

Luis Canales: Statistical Wavelet Estimation in the Footsteps of Tury Taner
Guus Berkhout: Tury Taner, Looking Back at Fifty Exciting Years of Geoscience
Evgeny Landa: Imaging of Diffractions as an Outlook on Seismic Superresolution
Tad Ulrych: A Turytour in 5 acts
Oz Yilmaz: Earthquake Seismology, and Engineering Seismology: How Sweet It is – Listening to the Earth

Contributed Papers

Rocky Roden: Calibrated Amplitude Characteristics for Risk Analysis – Results from an Industry-Wide Prospect Database
Scott Singleton: Q Estimation using Gabor-Morlet Joint Time-Frequency Analysis
Jack Dvorkin: Rock Physics Tributes to Attributes
Matt Carr: The Use of Neural Networks on Well Logs and Seismic Data for Reservoir Characterization
Kurt Marfurt: TBA
Charles Sicking_Weingold: Gas Shale Prospecting with 3D Seismic
Sergey Fomel: Semblance and other Seismic Similarity Attributes
Norman Neidel: Highest Possible Seismic Resolution Attributes
Jianlei Lui: Instantaneous Spectral Attributes to Detect Channels
Rene Mott: Reducing Interpretation Risk Pre-drill Using Seismic Attributes
Steve Carlson: Fractal-based Seismic Attribute Generation and Visual Classification
Tony Rebec: The Seismic Coherence Attribute Within the Interpretation Cycle
Bruce Hart: Seismic Attributes: Observations of an Empiricist
Mark Quakenbush: Poisson's Impedance – Case History

"Roasters and Toasters"

John Sangree, Sven Treitel, Mike Graul and many more!

Government Update continued from page 51

report and response continues a running anthology from *Science* magazine on its response to two fraudulent stem cell papers by Dr. Woo Suk Hwang and his colleagues that were published in the magazine in 2004 and 2005.

The committee report recommends changes in order to prevent such an occurrence in the future. It calls for the creation of a formal, required "risk assessment" for papers selected for publishing with "special scrutiny" on those that are highly visible on topics such as climate, energy and human health. It recommends the development of a method to clarify the contributions and responsibilities of authors and co-authors, and more extensive information in the published supporting material. Finally, the committee calls for common standards for *Science* and *Nature* so that authors will not choose one journal over the other based on its standards. "The report is notable for its thoroughness, insight and candor," stated Kennedy in his editorial.

The editorial, committee report and response are available at http://www.sciencemag.org/sciext/hwang2005/#section_committee-report.

Cobb County School Board Abandons Evolution Disclaimer Stickers

On December 20, 2006, the Cobb County (Georgia) School Board decided to abandon its court case to retain stickers in biology textbooks that question the theory of evolution. After four years in court, the school board decided it would be too expensive and time-consuming to proceed with its appeal. The Cobb County School Board agreed in federal court never to use a similar sticker or to undermine the teaching of evolution in science classes.

More background on this and other legislative and legal battles about the teaching of evolution are available from AGI's Government Affairs web page on evolution: http://www.agiweb.org/gap/evolution/index.html

In addition, the National Center for Science Education tracks and evaluates threats to the teaching of evolution and provides tools to help teachers and other professionals deal with the controversy at http://www.ncseweb.org/

Key Federal Register Notices

DOE: The Department of Energy is implementing provisions in the Energy Policy Act of 2005 that require DOE to establish revised energy efficiency performance standards for the construction of all new federal buildings, including both commercial and multi-family high-rise residential buildings and low-rise residential buildings. The amendment made by this interim final rule is effective January 3, 2007. (*Federal Register*: December 4, 2006, Volume 71, Number 232)

DOT: The Pipeline and Hazardous Material Safety Administration is publishing a list of special permit applications that have been in process for 180 days or more. The reason(s) for delay and the expected completion date for action on each application is provided with each identified application. For further information contact Ann Mazzullo at (202) 366-4535. (*Federal Register*: December 13, 2006, Volume 71, Number 239) ■

GEOSCIENCE JOBS & PERSONNEL AVAILABLE!

Job Seekers: During the past year, the HGS Jobs Hotline website has averaged over 30 positions per month. New ads are being posted almost every day!

Employers: Post your job listings, and get a large response from qualified candidates, for your ads. Our website averages nearly 11,000 website "hits" per month.

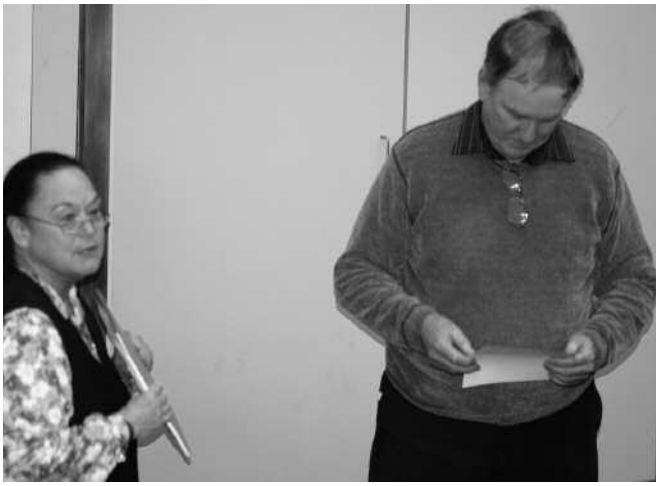
Current Jobs page at: http://www.hgs.org/en/jobs/search.asp

Contact info: Peter Welch – Chairman, HGS Personnel Placement Committee
(713) 862-2287 peter-welch@sbcglobal.net

In The News continued from page 23

Important Decisions for AAPG Members

Members of AAPG need to be informed of a number of proposed changes that will be voted on in the House of Delegates meeting at the Annual Convention in Long Beach, CA this April. One proposed change is to convert the annual dues to a graduated system. If you are not familiar with the proposals you can find them at the AAPG Web site aapg.org. After reading them make your voice heard by sending an email to one of the Houston delegates listed on the HGS Web site and let them know whether you support or oppose the proposed changes. ■



Claudia Ludwig presents a check for $1,250 to Larry Spears as the HGS contribution to support the Science and Engineering Fair of Houston. Larry is the Director of the SEFH for ECH

ECH officers who attended the January 27 Retreat from left to right: Back Row: Art Schroeder, Brad Hoge. Front Row : Sunny Tang, Fred Stoerkel, Glenn Carlson, Bazel Crowe and Matt Kolodney

Deborah Silvi, Society for Technical Communication, describes her ideas for the Web site and for encouraging volunteerism in the scientific and engineering societies.

Check out the

New HGS Message Board

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2) Have a degree in science or engineering from an accredited college or university and have been engaged in the professional study or practice of earth science for at least five (5) years.

Qualifications for Associate Membership (including students)

1) Be involved in the application of the earth or allied sciences.
2) Be a full-time student enrolled in geology or in the related sciences.

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To the Executive Board: I hereby apply for ❑ Active or ❑ Associate membership in the Houston Geological Society and pledge to abide by its Constitution and Bylaws. ❑ Check here if a full-time student.

Name: _____
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Home Phone: _____ *Spouse's Name:* _____
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Job Title: _____
Company: _____
Company Address: _____

_____

Work Phone: _____ *Fax Number:* _____
Circle Preferred Mailing Address: Home Office
Professional Affiliations:

❑ Active AAPG Others: _____

Professional Interest:

❑ Environmental Geology
❑ International E&P
❑ North American E&P (other than Gulf Coast)
❑ Gulf Coast E&P (onshore & offshore)

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❑ Printed

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Degree _____ *Major* _____ *Year* _____

School _____
Degree _____ *Major* _____ *Year* _____

School _____
Degree _____ *Major* _____ *Year* _____

Earth Science Work Experience _____

_____

_____

Applicant's Signature _____ *Date* _____

Endorsement by HGS member (not required if active AAPG member)

Name: _____

Signature _____ *Date* _____

Membership Chairman _____ *HGS Secretary* _____

rev. 2/7/2006

As a HGA member you are invited to join

GeoWives

2006–2007 dues are $7.50

make check payable to *GeoWives* and mail to:

Sara Nan Grubb

11212 Memorial Drive • Houston, Texas 77024

Please provide the following

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I will help plan a GeoWives activity ☐

I will serve on a committee ☐

Notification / Phone Committee ☐

Courtesy / Hostess ☐

My home is available for a meeting ☐

HGA **News**

by ***Donna Parrish, 3rd Vice President***

Houston Petroleum Auxiliary Council Luncheon and Fashion Show.

Representatives from the Houston Geological Auxiliary and four other Petroleum auxiliaries combined their efforts for a spectacular and entertaining HPAC (Houston Petroleum Auxiliary Council) luncheon and fashion show by Talbot's on January 29 at the Junior League. Attendance was over the top. Congratulations to chairperson Linnie Edwards and her committee for choosing a fine luncheon and setting to host this successful event

Talbot's presented spring and travel attire for our perusal. Lovely members from each auxiliary circulated throughout the ballroom and professionally described their attire. Accessories were quite popular.

Amongst the hubbub in the Grand Ballroom voices were raised renewing old acquaintances and meeting new friends. Everyone attending will concur that this was likely the premier event of the year for the HGA and all four auxiliaries and set the standard that future events will strive to achieve.

Door prizes were fun, too. When you see Linnie Edwards and her committee, congratulate them profusely for such a high-spirited season opener.

You are invited to become a member of

Houston Geological Auxiliary

2006–2007 dues are $20.00

Due by July 15th 2006

Mail dues payment along wtih the completed yearbook information to

Sally Blackhall, 8714 Sterling Gate Circle, Spring, Texas 77379

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Please choose a Committee Assignment

☐ Fall Event	☐ Yearbook	☐ SOS	☐ Membership
☐ Christmas Event	☐ Spring Event	☐ Notification	☐ Game Day
	☐ May Luncheon	☐ Courtesy	

Annual Game Day

The annual Game Day returned on February 12 with a variety of new and old games played and fun had by all. Each year Daisy Wood and her committee entertain us with playful and creative door prizes. This year's event was no exception. The luncheon was marvelous and palates were well satisfied. If you missed this year's event, put Game Day on your 2008 to-do list. ■

GeoWives **News**

by ***Geo Wives President, SaraNan Grubb***

March 15, 2007

This is a must for all members, their husbands and friends.

Martha Lou Broussard and Lennie Edwards have planned another wonderful trip to explore our Texas Heritage. This year we visit Gonzales, where the first shot was fired in the Texas Revolution. Established in 1825, Gonzales was the westernmost Anglo settlement. The original layout of seven squares can still be seen. We will visit the Pioneer Village which has some original buildings from the colony and tour a more modern home, built in 1890, plus see wildflowers along the way—and maybe shop! Our bus will leave from the Memorial Drive Presbyterian Church at 8:00 am. ■

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Our mission at SCA is to provide a quality training experience that brings added success to you, our upstream oil and gas industry clients. Since 1988 SCA has provided leading edge, technical training services around the world to over 18,000 petroleum industry professionals of all experience levels.

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SCA 2007 Spring Training Program

Refer to our website www.scacompanies.com for our complete list and public schedule of courses

March, 2007			
12 - 14	**Reservoir Characterization - Clastics**	*Houston*	*3 day course*
15 - 16	**Multiple Bischke Plot Analysis - Application of LogBust™**	*Houston*	*2 day course*
26 - 30	**Applied Subsurface Geological Mapping**	*Dallas*	*5 day course*
April, 2007			
11 - 12	**Quick Look Techniques From Prospect Evaluation Through Reserves Estimates**	*Dallas*	*2 day course*
16 - 20	**Seismic Survey Design, Acquisition and Processing**	*Houston*	*5 day course*
23 - 27	**Fundamentals of Applied Geophysics**	*Houston*	*5 day course*
23 - 27	**Applied Subsurface Geological Mapping**	*London*	*5 day course*
30	**Chimneys for Seal and Charge Risk Assessment**	*Houston*	*1 day course*
30 - 2 May	**Basics of the Petroleum Industry**	*London*	*3 day course*
May 2007			
2 - 4	**Basics of the Petroleum Industry**	*Houston*	*3 day course*
7 - 11	**Descriptive Lithology Analysis of Cuttings and Cores**	*Houston*	*5 day course*
14 - 18	**Seismic Survey Design, Acquisition and Processing**	*London*	*5 day course*
14 - 18	**Applied Subsurface Geological Mapping**	*Houston*	*5 day course*
21 - 25	**Advanced Reservoir Engineering**	*Houston*	*5 day course*
22 - 24	**Geopressure Analysis, Application, Appraisal & Risk Assessment**	*London*	*3 day course*

SCA is authorised by IACET to award Continuing Education Units (CEUs)

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WE HOPE TO SEE YOU THERE

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