HGS Bulletin
Houston Geological Society
Volume 48 Number 1
September 2005

4th Annual HGS Photo & Graphic Art Contest
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Remember Dues Renewal Deadline is September 15!
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# Great White Prospect and Perdido Fold Belt—New Petroleum Province in Ultra Deepwater, Alaminos Canyon, Gulf of Mexico

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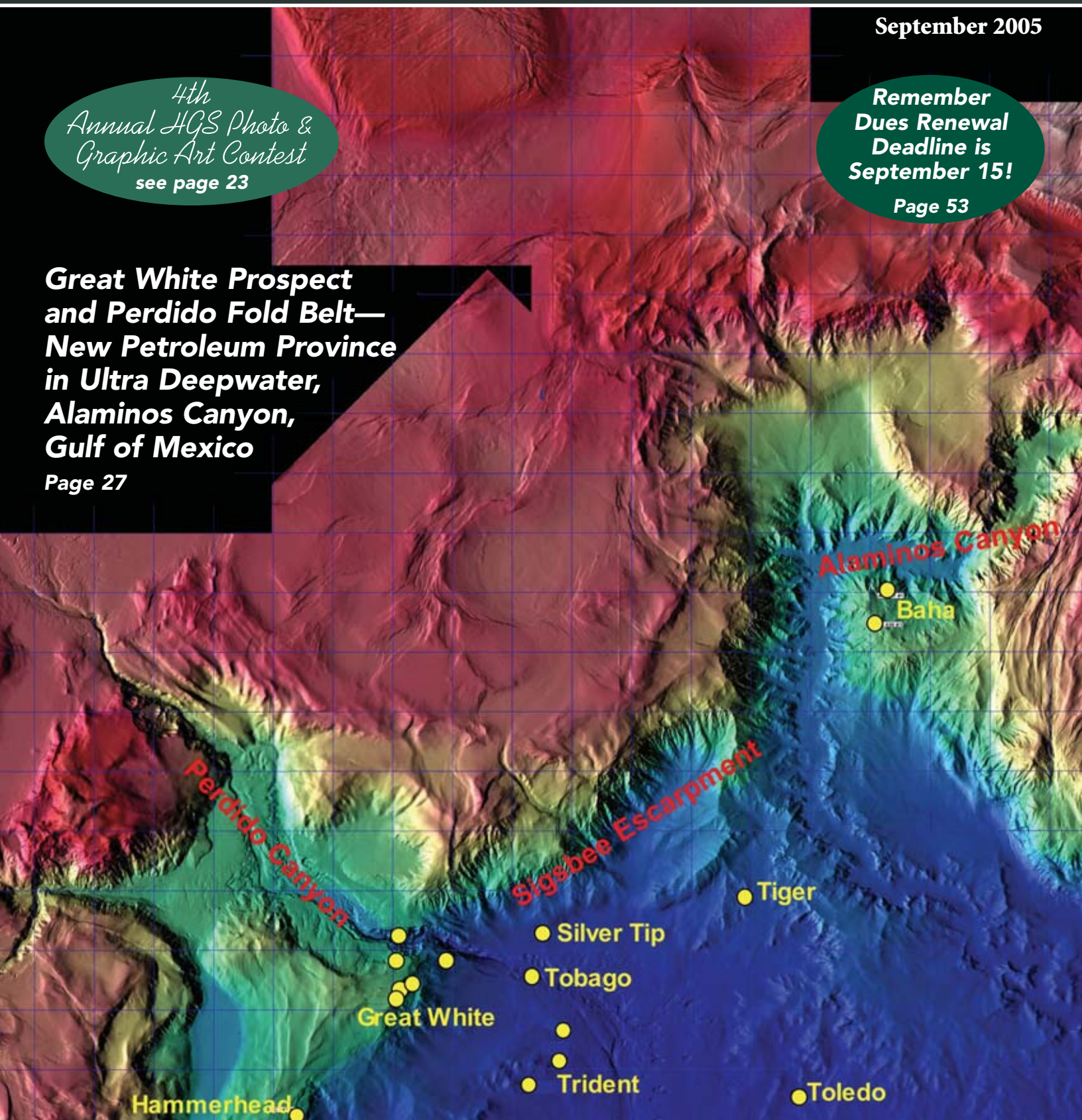

The Bulletin
Houston Geological Society

Volume 48, Number 1 September 2005

## In Every Issue



about the cover: Rendered bathymetry relief map of central Alaminos Canyon area, Gulf of Mexico
*Image provided courtesy of Shell*



The Houston Geological Society Bulletin (ISSN-018-6686) is published monthly except for July and August by the Houston Geological Society, 10575 Katy Freeway, Suite 290, Houston, TX 77024. Phone: 713-463-9476, fax: 713-463-9160

**Editorial correspondence** and material submitted for publication should be addressed to the Editor, Houston Geological Society Bulletin, 10575 Katy Freeway, Suite 290, Houston, TX 77024 or to Editor@hgs.org

**Subscriptions:** Subscription to this publication is included in the membership dues ($24.00 annually). Subscription price for nonmembers within the contiguous U.S. is $30.00 per year. For those outside the contiguous U.S. the subscription price is $46.00 per year. Single-copy price is $3.00. Periodicals postage paid in Houston, Texas.

**POSTMASTER:** Send address changes to Houston Geological Society Bulletin, 10575 Katy Freeway, Suite 290, Houston, TX 77024

## Technical Meetings



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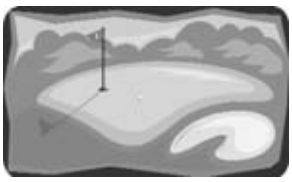

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http://www.hgs.org/about_hgs/leadership.asp

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# President's Letter

*by Dave Rensink*

As we start the new HGS fiscal year, there are at least two things many of you do not like. The directory is available only in digital form and the dues went up 20%.

The HGS board did not take these actions without much discussion and the intent is not to make things difficult for the members. The accounts for last year were not closed at the time this went to press, but we are projecting a loss of approximately $90,000. HGS is a not-for-profit organization, and a modest loss is to be expected and can be handled from our cash reserves. Needless to say, we cannot sustain losses of the magnitude we experienced last year for long. Providing the directory in digital format saved us approximately $12,000 in printing and mailing cost. This would have gone straight to the bottom line and would have proportionately increased the loss. The dues increase and cost cutting measures were obviously motivated by the board's desire to continue to provide the services our members expect and our fiduciary responsibility to balance our books.

*We are a volunteer organization in every sense of the word.*

You can get a hard copy of the directory, but it will cost you out of pocket. At present, you can borrow a CD from the office, take it to Kinkos, etc., and get a copy made. GSH printed a limited number of copies for sale to their members. If there is sufficient demand, we may do the same thing for HGS members.

The dues did go up 20%, but that is only $4. This is the first increase in years, and the only reason the increase was not more than $4 is that the bylaws do not allow for more than a 20% increase over a two year period. This means they cannot be raised again until 2007 without revising the bylaws.

If you have not yet paid your dues, or even if you have, please consider donating to our scholarship funds. The Calvert Memorial Fund provides scholarships to graduate students in Texas and its contiguous states, and the Foundation provides scholarships to undergraduates in Texas universities. Your donations are tax deductible, and GCAGS will match donations to each of these funds up to a maximum of $10,000 per fund through the month of September.

This month brings the first of the HGS lunch and dinner meetings for the year. Our vice president, Linda Sternbach, and the North American, International, Northsiders, and Environmental and Engineering groups have once again put together an impressive array of speakers for the lunch and dinner meetings. The attendance at these meetings has fallen off over the last few years from prior years, and I assume the increasing meal costs may have been the primary reason many of you have been staying away from the meetings. Unfortunately, we have to pass on our cost increases on to the consumer. This is no different than any other business. I sincerely thank those of you who have continued to attend our technical talks. I also hope those of you who have not attended a talk recently will come back to the fold. It is good for the professional soul. For those of you licensed in Texas, these meetings count toward the continuing education requirement for renewal of your license.

We are trying to fill open committee chairmanships on the advertising, arrangements, directory, and historical committees. HGS has prospered because of the efforts of its membership. We are a volunteer organization in every sense of the word. The rule of thumb is that twenty percent of the people in any organization do eighty percent of the work. In HGS, twenty percent may be optimistic. We are not an exclusive club or a good old boy network, although we do provide pretty good networking opportunities. We welcome your participation. If you have thoughts about getting involved in HGS on a personal level, this is the perfect way to do it. It is generally a painless and rewarding experience.

Speaking of networking, it is never too early or too late to expand your contact list. Even if you feel secure in your present employment, the nature of this business is that this will likely not be your last position. I will agree that an unintended benefit of the relatively few newly graduated geoscientists entering the business is that most of us will be able to work as long as we desire. You just may not be doing it where you are now. Most of the jobs I have had and almost all of the work I had as a consultant were the direct result of a business contact. Many of those contacts were made or strengthened through HGS. I do not think my experience in this regard is atypical of that of many of our members. It is difficult to find work as an employee or a consultant without some knowledge of whom to approach. Look at HGS as an aspect of your career planning—regardless of where you may be in your career. ■

# CAST 2005 is Coming to Houston and We Need You!

CAST is the Conference for the Advancement of Science Teaching, the annual meeting of the Science Teachers Association of Texas (STAT). STAT is a statewide organization of elementary through college level science teachers dedicated to maintaining the highest levels of science education in Texas schools. One of its goals is to cooperate with other science-oriented organizations in the promotion of good science teaching. CAST will be held in Houston this year on October 27–29 at Reliant Center—This is a great opportunity for HGS to reach out to science teachers across the state! CAST attendance is expected to be over 5000, with science and math teachers coming from Texas and adjoining states. CAST was last held in Houston in 2003, and the HGS had a very strong geology representation there, giving workshops, short courses and field trips and staffing a booth in the exhibit hall. We are planning a strong presence again this year and we are looking for volunteers!

If you have a geoscience presentation and ideas for activities that teachers can take back to their classrooms, we want you! Or if you would like to help out with planned events, we need volunteers to staff the HGS booth and to help with two workshops. One is "From Rocks to Soil and What Happens Along the Way" and the second workshop is "Black Gold, Texas Tea: How to Drill an Oil Well." Additional workshops include "Plate Tectonics" by Dr. Dale Sawyer, "Living on the Texas Coast" by Dr. Bill Dupré and "Fun with Geologic Principles" by Aram Derewetzky. We also have six field trips planned and can use volunteers to help with those as well:

- Bureau of Economic Geology Core Lab–Thursday, October 27, 7:30–12:00
- Chevron Drilling Fluids–Thursday, October 27, 8:30–12:00
- ExxonMobil Research Center–Friday, October 28, 8:30–12:30
- Kerr-McGee Visualization–Friday, October 28, 9:00–1:30
- Galveston Island–Saturday, October 29, 8:00–4:00
- Blue Lagoon–Saturday, October 29, 8:30–4:30

If you are interested in participating in CAST 2005, please contact Alison Henning (alison@henning.com) or Janet Combes (jmcombes@msn.com). Help us get Texas teachers and their students excited about geoscience! ■

Editor's Letter

*by* ***Paul Britt***
*editor@hgs.org*

# From Occam's Razor to KISS

**TOP TEN REASONS YOU MIGHT BE A GEOLOGIST: ***
10. If you have ever had to respond "yes" to the question, "What have you got in here, rocks?"
*next month, reason no. 9…*

In my university, structural geology was the class that tested your determination to become a geologist. That class washed out about half of the undergraduate geology majors each year. The class was taught by Dr. Lawrence Ogden, a very straight-laced professor with a sense of humor drier than a vodka martini. Dr. Ogden advocated two principles presented by him in that class have stuck with me that have remained with me ever since, the Law of Superposition (a geological standard), and the principle that usually the simplest answer to a problem was the best answer.

That second principle, I later came to learn, is known as "Occam's Razor", and is attributed to William of Ockham, a 14th century English Franciscan friar and philosopher from Ockham, a small village in Surrey, England. Occam's Razor states that one should not make more assumptions than the minimum needed, or "one should not increase, beyond what is necessary, the number of entities required to explain anything." This idea is often called the principle of parsimony. It underlies all scientific modeling and theory building, and it admonishes us to choose from a set of otherwise equivalent models of a given phenomenon the simplest one. In any given model, Occam's Razor helps us to "shave off" those concepts, variables or constructs that are not really needed to explain the phenomenon. By doing that, developing the model will become much easier, and there will be less chance of introducing inconsistencies, ambiguities and redundancies. William of Ockham was accused of heresy by Pope John XXII due to his writings, and he in turn accused the Pope of heresy. He fled to Bavaria and is believed to have been excommunicated, although historical sources vary. A curious contradiction to Occam's Razor lies in the various spellings of Ockham in the historical accounts, including Occam and many others.

William of Ockham would have readily understood the modern corollary to Occam's Razor, the KISS principle, (keep it simple, stupid). This saying is commonly attributed to Albert Einstein, though he is more properly quoted as having said "Everything should be made as simple as possible, but not one bit simpler" in an interview. The actual originator of the name "KISS principle" is unknown. Again, the basis of the principle is to seek the simplest solution, though with a twist, as Einstein cautions not to over-simplify.

In so many endeavors, it is human nature to make a problem overly complex. In that structural geology class mentioned earlier, we had a mining problem assigned over a two week period. After the first week, classmates alarmed me by talking about how difficult the problem was and how many of them had been working on it for hours. I left the class and sat down at the student union to work what appeared to be a very complicated problem. After carefully listing all of the known variables in the problem, the answer became obvious and I solved it in readily. Geological questions, exploration prospects, financial decisions and organizational structures are all too frequently overly complicated and almost always can be simplified.

*"Technology enhances our problem-solving capabilities, but it also gives us the tools to overly complicate the solution."*

I review many drilling prospects during the year, and see a variety of types of prospects, brochures and presentations. In each case, even the most complex prospect can be reduced to a simplest answer. The ones that require more variables than necessary, more leaps of faith or more assumptions than are needed don't pass the KISS test. Technology enhances our problem-solving capabilities, but it also gives us the tools to overly complicate the solution. Some of the best drilling successes that I've been involved with in the last three years were based on simple subsurface well control and a logical and simple presentation of the prospect. It is easy to find a complex answer to a complex problem. It is possible to find a complex answer to a simple problem. The challenge is to find the simplest answer to the complex problem. That goes against human nature. ■

** **The Top Ten Reasons You Might Be A Geologist** will be presented, one at a time, each month for all ten issues this year. Please see the Editor's Letter each month, and feel free to send in your favorite "Reason You Might Be A Geologist" for possible publication in the list.*

# Letters to the Editor

May 21, 2005

Reply to: Professional Registration of Geologists is Costly and a Waste of Your Time and Money

Art,
We, the undersigned, would like to correct some misconceptions in the May 2005 editorial letter by Mr. Ralph Baird. The $200 figure is not an annual renewal fee for a Professional Geoscientist (PG) renewal, but includes the application fee. The actual renewal fee is $168. The Texas Board of Professional Geoscientists (TBPG) determines the cost of the license. These fees are required because the State of Texas mandates that the TBPG be self-sufficient. These fees are in line with other states fees for professionals.

Yes, the TBPG is bragging that it had a great year, and deservedly so. It was expecting around 3,000 PGs and currently has around 6,800! The Board also had to start from scratch to organize itself and set up the various programs that will not only help geologists maintain their credentials, but to deal with those who act improperly or illegally.

As far as that fee being used by geologists to support other societies or providing scholarships, we doubt that would have been the case. All 6,800 registered PGs in the State of Texas were grandfathered in, meaning they were all well-established geologists. They were already members of other societies or contributing to scholarship funds, most were not looking for additional societies or scholarship funds, and we doubt that the PG caused anything but a minor drop in either contribution.

The annual fee, however, is not the issue here. The issue is the registration itself. Yes, registration is restrictive. It's supposed to be so that unqualified persons don't certify work that can affect the health and safety of the general public. The strongest argument we can give you for registration is jobs; not that you may loose yours and have to move to a new career, but for those of us who are already dealing with it on a day-to-day basis. Even though the PG legislation was passed two years ago, there are still moves underway for some professions to exclude PGs from the work that they are already doing.

The AAPG's DPA division and the AIPG CPG certification are good in general but carry no weight when it comes to legal documents. The PG is necessary because the State of Texas needs to hold people legally responsible for their work when it deals with public health and safety issues. Much legislation has been proposed in the past that prevents geologists from performing the work because no professional registration program existed. Prior to the enactment of the PG legislation geologists had to work under PEs in the environmental and water supply fields. Many geologists not only have more education than the PEs they were working under, but also more knowledge of the fields of study (e.g., the typical electrical engineering curriculum may not adequately prepare one for subsurface investigation and interpretation). Unfortunately, the PEs were the only ones who could "sign-off" on the reports, and so, if an engineer decided that the geologist was wrong, the report had to be changed to reflect the PE's point of view. Don't kid yourself that it doesn't really matter. Dams have collapsed and, here in Houston, pipelines have been destroyed by flooding because engineers didn't think that the surrounding geology was important.

Even though PG registration is now a fact, and legislation and associated rules are being changed to allow PGs to be legally responsible for their work, there continues to be legislation introduced that would exclude all but PEs from performing geological and hydrogeological tasks. The PG is necessary for continued health of the profession. You may not need it in oil and gas or mining, but those of us in the environmental and water supply sector do. The people of the State of Texas need it for those who would perform environmental services without proper training. The PG has helped with job security and pay increases for those who have earned the PG designation as well.

If you want to eliminate the PG designation, the only fair and equitable way would be to get rid of all licenses, PG, PE, etc. That way, no one would be excluded from practicing in their area of expertise. However, this would not service or protect the State of Texas, only the legal profession in the form of increased lawsuits.

As far as taking two minutes or two phone calls to identify a good geologist—we all yearn for those days. The truth is, they are gone forever. In this new world, post 9/11 and Enron, most of us would prefer to trust a system that helps identify and sustain competent geologists.

Sincerely and respectfully,

Henry M. Wise, P.G., (HGS) Government Affairs Co-Chair
Arlin Howles, P.G., (HGS) Government Affairs Co-Chair
Glenn R. Lowenstein, P.G., Member of the TBPG

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To the Editor
Houston Geological Society *Bulletin*

Subject: Comment upon "Letters from Jakarta: Indian Ocean Nations select a Tsunami Warning System" by A. Berman in Houston Geological Society *Bulletin*, April 2005, p 9–19 and 91

We congratulate Mr. Berman for an excellent and well thought article. We offer the following comment on the statement on page 18 which reads "...certain areas where great destruction occurred during the

**Letters to the Editor** *continued on page 11*

## Letters to the Editor continued from page 9



tsunami did not experience large amplitude surface waves. Other sources of kinetic energy might, therefore, be considered to explain both the genesis of tsunamis and the mechanism for their propagation".

We suggest that there need not be any correlation between the amplitudes of the earthquake surface waves and the maximum tsunami amplitudes at any given location. The physical characteristics of the 26 December 2004 tsunami at various locations can be accounted for through standard physical oceanographic processes, without the necessity to invoke earthquake surface waves or normal modes of oscillation of the earth. This is not to say that the normal modes approach is not relevant, indeed it may be an alternate way of looking at tsunami generation.

The following is a very brief summary of the processes that led the tsunami to behave the way it did.

Post-tsunami surveys indicated that Banda Aceh in Sumatra (Figure 1) was impacted by tsunami waves with amplitudes in excess of 30 m while certain areas of Thailand were struck by waves of 20-m amplitude. No special explanation was needed to account for such large amplitudes close to the epicentral area. Sri Lanka was hit by tsunami waves which exceeded 11 m in amplitude in the south-eastern corner of the island nation. Since a significant portion of the tsunami energy was directed towards Sri Lanka, these high amplitudes are not surprising. Since the scale of the island is smaller than the tsunami scale, the tsunami waves wrapped around the island and caused destruction not only on its east coast, but also on its west coast. There is a degenerate semi-diurnal tidal amphidromic point near the east coast of Sri Lanka, and the strong currents associated with this transferred energy to the tsunami and made it grow. Also the large wind waves in the Bay of Bengal at this time of the year, supplied energy to the tsunami via Reynolds Eddy stresses. A third factor was tsunami amplification through quarter wave resonance.

All these factors combined made this tsunami achieve amplitudes up to 8 m on the south coast of Tamil Nadu in India. The Andaman-Nicobar Islands were also impacted by tsunami waves up to 8 m in amplitude due to trapping of long gravity wave energy on the continental shelf and also contributions from shelf waves and edge waves. The proximity of Maldives to a tidal amphidromic point in the Arabian Sea contributed to water levels of about 4 m in amplitude. The Kollam area of Kerala in India suffered heavy losses, not necessarily from the direct waves, but also from waves reflected from the Lakshadweepa Islands. Helmholtz resonance played an important role in keeping the water levels high in the harbours of Kerala. Tsunami energy focusing by ocean bathymetry was the main reason for waves up to 4 m in amplitude on the coast of Somalia. Only a small amount of tsunami energy propagated north towards Myanmar and Bangladesh and south towards Australia.

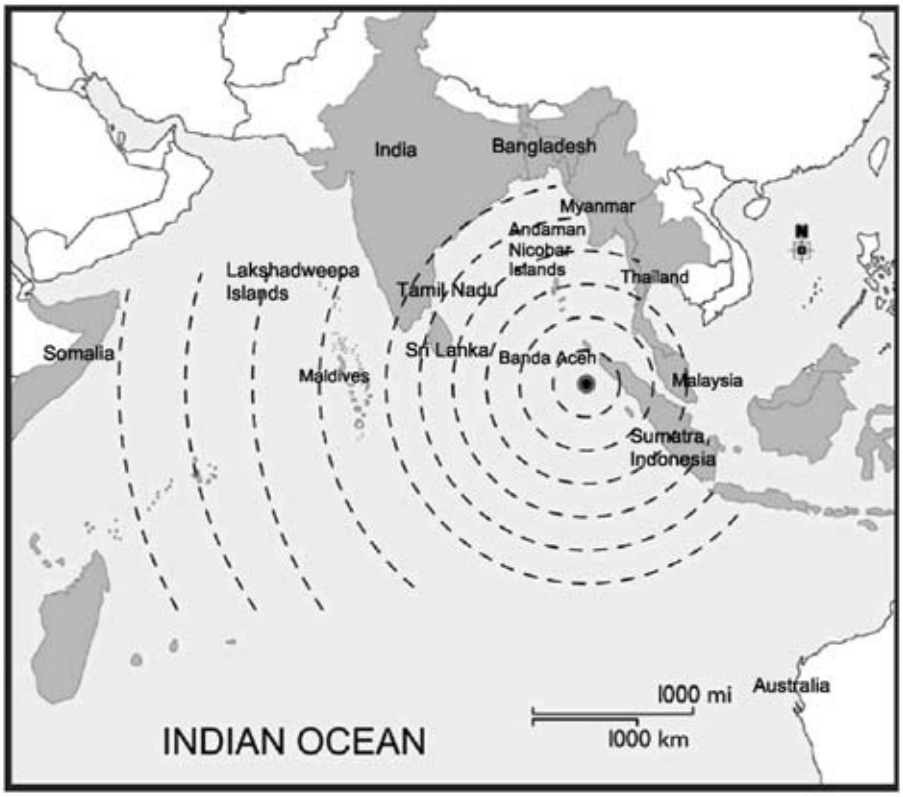


*Figure 1: Geographical map of the Indian Ocean*

T.S. Murty,[1] N. Nirupama,[2] I. Nistor[1] and A.D. Rao[3]

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[2] Emergency Management, Atkinson Faculty of Liberal and Professional Studies, York University, Toronto, Canada
[3] Centre for Atmospheric Sciences, Indian Institute of Technology, New Delhi, India

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Art,

As always, your "Editor's Letter" is interesting and informative.

A few comments on your June letter.

1: You may be interested in the story behind the story of Mexico's writing down

**Letters to the Editor** *continued on page 13*

## Letters to the Editor continued from page 11

its reserves, page 11 and Fig. 6. My understanding is that prior to the late 1990s, Pemex had its own internal system of reserve estimates. Starting in 1997, Pemex engaged two international reserve auditors, and for the next three years these companies worked from south to north to bring Mexico's reserve estimates in line with international standards. This period coincided with the start of private investment in Pemex projects (PIDIREGAS), which implies that the independent auditing may have been a requirement by the lending institutions. During this three year transion, Pemex continued to evaluate its reserves using the old method, from which it appeared that the old term for "reserves" was very close to the new "total reserves" or "3P" (proven plus probable plus possible), while the proven reserves were much reduced. Then in 2003, Pemex was obliged by the SEC to adopt more stringent methods and further reduced its proven reserves, mainly in the Chicontepec play. Thus the US Energy Information Administration, when queried about reserves in Mexico, is mixing two different data sets, pre-1997/99 in-house total reserves and post-1999 externally audited proven reserves. The declining trends of the 1982 to 1997, 2000 to 2002 and 2004 to 2005 reserves are similar to each other and are due to yearly production exceeding additions. The only small upturn was indeed due to Sihil which was booked in 1999 at a little over 1 Bboe. Thus "the country has effectively written down"—yes, but "depleted 75%"—no, not that much.

2: The story about Mexico's claim of over 50 billion barrels "reserves" is also interesting. Late August, 2004, Pemex's E&P Director, (now General Director), upstaged the President's September 1st State of the Nation address by announcing that Mexico had 54 BBOE "resources" yet to be found. This number is much greater than the estimate reported by Pemex Exploration management; the geologists I know were dumbfounded until it became clear that the estimate was a result of a McKennzie workshop. Months later the new E&P Director clarified that only about half of this was in deepwater Gulf of Mexico, the rest on the shelf and onshore.

3: Having some insight into the reported numbers in Mexico alone makes me wonder about the validity of numbers reported by international agencies and consultants from other areas, and hence I am concerned about the conclusions derived from such numbers. Maybe the only way to get at a reasonably close estimate of world reserves and resources is to gather experts from each country together and ask them to share their data and the stories about them.

4: I found the graphs in Figures 13 and 14 very revealing. By combining the two graphs for the last few years, it appears that supply of crude oil exceeded capacity to refine it in 2004. If that were the case, why did some refineries not start negotiating down the price among competing suppliers and thus start a downturn in the crude market? Maybe there is more to the story. Maybe there was still a shortage in the supply of light crudes relative to the refining capacity of light crudes, hence their price kept going up. Maybe the price of heavy crudes is being dragged up by the price of light crudes, but the differential is increasing.

5: Finally, how in 2005 can world crude oil demand exceed the capacity to refine it. This would suggest that refineries have excess storage capacity and are hedging by continuing to purchase crude in order to store it in their tanks. But why would they hedge when the price is so high? Would they not have filled their storage capacity when the price was low? Maybe the story here is that the demand for refined oil products (gasoline, diesel, jet fuel and heating oil), is increasing, and maybe this demand is close to, or even exceeding, the capacity of the refineries to produce them, causing their prices to go up.

Regards,
Colin Stabler

# Africa: Path to Discovery

## The 4th HGS/PESGB International Conference on African E & P
## Marriott Westchase Houston Hotel, Grand Pavilion Room
## September 7th-8th, 2005

***Latest details available at www.HGS.org in the Event Calendar for 7-8 September***

**REGISTRATION available at the Door, Members and non members: $400, Students: $150**

**SCHEDULE:**

Tuesday Sept. 6, *4-8 PM - Registration and* **OPENING RECEPTION**
***In Exhibits Area, Grand Pavilion Foyer (complimentary refreshments)***
Wednesday Sept 7, - *Registration 7:30-5*
Talks 8AM-5 PM (West Africa) -Grand Pavilion
Reception 5-8 PM Grand Pavilion Foyer (complimentary refreshments)
Thursday Sept 8, - *Registration 7:30-1*
Talks 8AM-5 PM (North Africa AM, Central and East Africa PM)

The two-day program of talks and posters emphasizes new ideas for exploration, geology of the continent, emerging technologies and case histories of discoveries. Exhibits from the sponsoring companies are a focal point for the receptions and meals.

***Don't miss the opening reception!!.*** Generous support of the sponsors enables complementary refreshments at two receptions in the Exhibits area.

The preliminary program of talks and posters (as of July 15, 2005) appears elsewhere in this issue. The final program schedule is maintained at www.HGS.org in the Event Calendar for 7-8 September.

Proceedings will be on CD including extended abstracts, animations of plate tectonics, and a large Landsat Mosaic of Africa by EarthSat.

This conference is an annual event organized jointly by members of the International Group of Houston Geological Society and the Petroleum Society of Great Britain. The venue alternates each year between London and Houston.

**Committee:**
Houston: Al Danforth, Steve Henry, Ian Poyntz Gabor Tari and John Dombrowski

London: Ray Bate, Duncan MacGregor, Mike Lakin and Val Clure

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# *The 4th HGS/PESGB International Conference on African E & P*

## Marriott Westchase Houston Hotel, September 7th-8th, 2005

# "Africa: Path to Discovery"

## *PRELIMINARY PROGRAM (as of July 15, 2005)*

| TALKS: | Authors |
|---|---|
| **WEST AFRICA (Wednesday)** | |
| Early Opening of the South Atlantic Ocean: new evidence from plate tectonic animations and revised chronostratigraphy. | Ian Davison*, Pedro Baptista (Earthmoves) & Colin Reeves (Earthworks) |
| West African and Brazilian conjugate margins: Crustal types, architecture, and plate configurations | B.R. Rosendahl*, W.U. Mohriak, M. Nemčok, M.E. Odegard, J.P. Turner, W.G. Dickson |
| Upper Cretaceous Hydrocarbon System, Gulf of Guinea, West Africa. | K. A. Nibbelink* (Devon) |
| Deepwater source rocks-accumulation and efficiencies. | C. Cornford, IGI; R. Bray*, and R. Kieft (ECL) |
| 3D Visualization of West Africa Waterbottom Leveed Channels and Debris Flows: Analogues for Offshore Reservoirs. | Jason P. Sutton* & Robert M. Mitchum (ChevronTexaco) |
| Petroleum Systems of Rio Muni Basin, Equatorial Guinea: Delivery, Capture and Degradation. | Niall J. McCormack*, Jon Clemson, Andrew S. Pepper, and Jackie Reed (Amerada Hess) |
| Paleogeography and Maturation from CongoSpan PSDM Data. | Steven G. Henry*, Al Danforth, A.G. Requejo, Craig F. Schiefelbein and S.Venkatraman |
| Kinetics and composition of generated hydrocarbons from Early Cretaceous lacustrine source rocks, Gabon, Congo Republic and Angola from pyrolysis experiments; integration with sedimentology and basin subsidence. | Nicholas B. Harris*, (Colorado School of Mines), Daniel M. Jarvie and Fausto Mosca, (Humble Geochemical Service) |
| Hinge Zone Control On Reservoir Quality In The West African Syn-Rift Succession. | Anne McAfee*, (Core Lab) Redhill, UK |
| Untested deepwater plays of the Gabonese segment of the Lower Congo Basin. | Jim Molnar, Gabor Tari*, Dave Valasek and Gary Walters (Vanco) |
| Angolan Margin from Up-Dip Extension to Ultra-Deepwater Compression-a Balancing Act. | Tim S. Buddin* (Midland Valley), Jeff Milliken, and Kent England (Marathon) |
| Ten years and Five Billion Barrels; Deepwater Exploration Block 14, offshore Cabinda, Angola | M. I. Smithard[1], N Pacavira[2], G. Delorme[2], R. J. Minck[1], E. P. Taia[3], A. J. Robinson[4] [1]Chevron North America, [2]Chevron Overseas Petroleum, [3]Sonangol Pesquisa & Produção, [4]Hunt Oil |
| Risk Reduction in Deep-Water Exploration: Application of AVO to the Outer Congo Fan of Angola. | Malcolm Francis*, Bob Godfrey, Doug Evans, John English (WesternGeco) |
| South-Western Africa – Oil And Gas Potential. | Roger Swart* (NAMCOR) |
| | |
| **NORTH AFRICA (Thursday)** | |
| The exploration history of the Gulf of Suez Rift Basin; continued success through technical innovation. | Tim Bevan* (BP) |
| Tectonostratigraphy of the Sirt Basin, Libya: Setting and Unresolved Problems | William Bosworth*, Steven Schulz, William Schock, Jr., and Brian Cardner (Marathon)and René Guiraud (Laboratoire Dynamique de la Lithosphère) |
| Petroleum Systems of the Sirt Basin, Libya: Geologic insights gleaned from a regional geochemical review of oils from a late Mesozoic/Tertiary rift province. | R. K. Olson*, (Baseline Resolution Inc), D. R. D. Boote and M. H. Reynolds, (Lynx Information Systems) |
| Progradation and Retrogradation of the Libyan Shelf and Slope, North African Continental Margin. | Fiduk, Joseph C.[1*], Peter B. Gibbs [2], Eugene R. Brush[1], Lynn E. Anderson[1], Thomas R. Schultz[1], Susan Towe[1], and Steven E. Schulz [3] [1] CGG, [2] Wealden Exploration, [3] Occidental Oil & Gas Corp |
| Understanding The Enigmatic Structural, Sedimentological And Diagenetic History Of a Cambrian Oilfield, Algeria | Russell Ball, Pieter van der Groen* (SonaHess) and Pauline Busby |
| **CENTRAL AND EAST AFRICA (Thursday)** | |
| Tectonic Evolution of the Doba and Doseo basins, Chad: Controls on Trap Formation and Depositional Setting of the Three Fields Area, Chad | David J. Reynolds* and Clive R. Jones (ExxonMobil) |
| Tracking Cretaceous-Tertiary Rift Systems In East Africa (Sudan, Kenya, Ethiopia) | S. R. Lawrence* (ECL), F. Arnott (Arnott Geohysical Consulting), C. Ebinger (Royal Holloway, University of London) |
| Rifting Rifts – contemplating heterogeneity in source rock development and thermal history | R. Bray, C. Cornford, R. Kelly*, S. R. Lawrence, IGI and ECL |
| Tectonic and Basin Evolution of the East Africa and Madagascar Conjugate Margins | Chris Scotese* (PaleoMap Project) |
| New insights into the Morondava Basin and Mozambique Channel, offshore Madagascar | Roger Welch and Graham Hyden* (TGS-NOPEC) |

# *The 4th HGS/PESGB International Conference on African E & P*

## Marriott Westchase Houston Hotel, September 7th-8th, 2005

# "Africa: Path to Discovery"

## *PRELIMINARY PROGRAM (as of July 15, 2005)*

| POSTERS: | Authors |
|---|---|
| Africa's Top Ten Prolific Hydrocarbon Basins, A qualitative assessment of the potential for further discoveries | Dirk Cuthbertson, Lorien Kater, Simon Otto, Tom Wilson (Fugro Robertson) |
| The Influence of Regional Tectonic Events for Petroleum Basin Development in West and Central Africa | Alex Blacque (Fugro Robertson) |
| Crude oil predictions of source rock depositional environments help constrain paleoclimatic models. | J.E. Zumberge[1], C.R. Scotese[2], S.W. Brown[1], and H.A. Illich[1]<br>[1] GeoMark Research, [2]PALEOMAP Project |
| Reducing risk and uncertainty in frontier exploration on and beyond the Outer Continental Shelf of West Africa – The role of tectonics, palaeodrainage and Earth System Modelling | John M. Jacques, Paul J. Markwick, J. Derek Fairhead, Kerri L. Wilson and David G. Wright (GETECH, University of Leeds) |
| Traditional and New Play Types of the Offshore Tano Basin, Ghana. | Nat Smith[1], Gabor Tari[2], David Valasek[2] Thomas Manu[3], and Nii Adzei-Akpor[3]. [1] CGG, [2] Vanco Energy [3] Ghana National Petroleum Corporation |
| Exploration Insights In The Deepwater NW Niger Delta From HD3d Seismic Interpretation | JTS Sahota and A. Robinson, (PGS Reservoir UK Ltd) |
| Reservoir Modeling, Deepwater Nigeria: Facies Characterization, Geocellular Modeling and Performance Prediction of Isolated and Stacked Multi-Story Channel Complexes. | David T. McGee, Douglas S. Moore, Gary Wu, David W. Burge, Nathan A. Geier (ConocoPhillips) |
| Break-Up And Uplift Along An Oblique Margin – Rio Muni To Cameroon – Implications For Deepwater Potential. | J. Turner (Birmingham University), and M. Richards, R. Bray, and S. R. Lawrence (ECL) |
| Petroleum Systems of the Gulf of Guinea and the Alba field, Equatorial Guinea. | Philip Rowell, J. D. Carballo, (Marathon Oil Company) |
| Offshore Basement Structural Patterns and Prospectivity – Inferences from Analysis of the Gabon Countrywide Aeromagnetic Data Compilation | Robert Pawlowski * [1], Jeffrey Rowe [2], Rao Yalamanchili [1], Vsevolod Egorov [1], Alan Morgan [1], [1] Fugro Robertson [2] Fugro Airborne Surveys |
| MD2 (Multi-dimensional, multi-disciplinary) interpretation: Geochemical integration with 2.5D seismic interpretation examples from the Niger Delta to the Congo Fan and Kwanza Basin. | William Dickson (DIGs), Craig Schiefelbein (GSI) and James Brooks (TDI) |
| Comparing Petroleum Systems Active on Conjugate Basins of the South Atlantic Margin | Craig F. Schiefelbein (Geochemical Solutions International) and Anne McAfee (Core Labs) |
| New Insights into Rifting History, Petroleum Systems and Plays in Angola – Congo – Gabon from CongoSpan PSDM Seismic Data. | Steve Henry (Innovative Exploration Services), Al Danforth, Sujata Venkatraman (GX Technology) |
| Using Seismic Facies Maps in Geological Models | F. Cunha[1], P. Neff[2], O. Voutay[2]<br>[1]Sonangol Luanda – Angola, [2]Beicip-Franlab |
| Controlled Source Electro-Magnetics for Hydrocarbon Exploration around Africa. | Dave Peace (AOA Geomarine Operations) |
| The Evolution of Submarine Channel, Canyon and Fan Systems as Evidenced on West African Seafloor Images and Spectral Analysis of 3D Seismic Data in Offshore Morocco | Katrina Coterill, Gabor Tari and Staffan Van Dyke, (Vanco) |
| Pre-breakup reconstruction of the conjugate passive margins of Morocco and Nova Scotia, Canada, based on potential field data | Meaux, D.P., Tari, A., (AOA Geophysics), Molnar, J. and Tari, G., (Vanco) |
| UBI and OBMI Characterisation of the Triassic Argilo-Grèseux Inférieur (TAGI) Formation in the Giant Ourhoud Oil Field, Berkine Basin, Algeria | N. Sabou[1]*, A. James[1], R. Hairr[2], C. Carr[2], Benmahiddi[2] AND A. Goudjil[2]<br>[1] Badley Ashton and Associates Ltd.<br>[2] Organisation Ourhoud |
| Progradation and Retrogradation of the Libyan Shelf and Slope, North African Continental Margin. | Fiduk, Joseph C.[1], Peter B. Gibbs [2], Eugene R. Brush[1], Lynn E. Anderson[1], Thomas R. Schultz[1], Susan Towe[1], and Steven E. Schulz [3]<br>[1] CGG, [2]Wealden Exploration, [3]Occidental Oil & Gas Corp |
| Eastern Africa Offshore | Bill St. John |
| Development of the Morondava Basin, offshore Madagascar. | Roger Welch and Graham Hyden, (TGS-NOPEC) |
| Stratigraphy to Seismic (StS™) on the East African Margin: the integration and interpretation of seismic and new biostratigraphic data. | Andrea Pardon (Fugro Robertson) |

# Guest Night 2005's "Lessons from Sumatra" Lecture Dedicated to Tsunami and Earthquake Public Awareness

*By **Linda Sternbach and Bill Osten,** Guest Night co-chairs*

Geologists are needed to help advise the general public on surviving earthquakes and tsunami, both in North America and in hard-hit, earthquake-prone areas overseas! That's the message we got when Dr. David Applegate, senior science advisor of the USGS Earthquake Hazards Program (http://earthquake.usgs.gov), delivered an informative and lively hour-long talk to a packed audience. More than 400 HGS geoscientists and their guests listened intently in the IMAX theatre of the Houston Museum of Natural Science during the Guest Night program this past June 11.

Applegate arrived in Houston from Reston, Virginia, where he oversees USGS programs relating to earthquake hazards, global seismic monitoring and coordinates with other government programs that address public safety related to volcanoes, landslides and coastal hazards. He told the HGS audience that he receives immediate pager messages on significant earthquakes as soon as they are detected by the global earthquake and tsunami warning system. Fortunately his pager didn't go off during the Guest Night program. The Guest Night program was recorded digitally and can be downloaded as a Windows media streaming video file from the HGS website at http://www.hgs.org/2005/June/GuestNight/HGSGuestNight-MPEG4-320x240.wmv.

*The energy released by the December 26 sudden plate movement was one of nature's most violent events of the past 100 years*

Applegate explained the latest theories and interpreted geophysical data relating to the December 26, 2004, magnitude 9 earthquake in the Indian Ocean that resulted in a catastrophic tsunami that destroyed villages in coastal Indonesia. The 2004 earthquake was the result of subsea stress between two tectonic plates under the Indian Ocean. The energy released by the December 26 sudden plate movement was one of nature's most violent events of the past 100 years, releasing more energy than people can conceive of—more powerful than common earthquakes, atomic bombs and even the 1980 Mt. St Helen's volcanic explosion. The seismic energy traveled along the fault zone at 6000 miles per hour for six minutes, displacing the ocean floor 30 meters and creating long-period standing waves of water, which became destructive only when the moving water column hit shallow water and became tsunami waves.

The most vulnerable region in the United States for tsunami damage is the Pacific northwest, including Oregon and California, home to 150 million **HGS Guest Night** *continued on page 21*

photo by Charles Sternbach

*Guest Night masterminds Bill Osten and Linda Sternbach with Guest Night speaker Dr. David Applegate of the USGS.*

photo by Elizabeth Danforth

*HGS members Mike and Donna Stricker read about well logging inside the Weiss Energy Hall.*

photo by Andrea Reynolds

*Packed house in the IMAX theatre to hear lecture on earthquakes and tsunami.*

## HGS Guest Night continued from page 19

photo by Elizabeth Danforth

*Brothers Nathan and Benjamin Hawworth in the Weiss Energy Hall during Guest Night.*

photo by Elizabeth Danforth

*Stacy Smith shares with his son, Forest, and father-in-law, Larry Ward, the aerial photo exhibit.*

people. The USGS, in conjunction with the National Oceanographic Atmospheric Administration (NOAA, www.noaa.gov) is pre-paring for a scenario in which Pacific earthquakes could create a tsunami affecting the Oregon coastal population.There is geologic evidence that Oregon had a catastrophic tsunami in January 1700. The US government is increasing the number of remote-monitored Global Seismographic Network stations that report earthquake activity to the USGS National Earthquake Information Center and to NOAA's West Coast Tsunami Warning Centers. Oregon coastal communities are practicing "TsunamiReady" preparedness in which the public is informed how and why to evacuate low-lying areas after a tsunami warning. Applegate also said the USGS Hazards program is keeping close watch on earthquake activity in the New Madrid Fault Zone in Missouri and on volcanic activity related to Mt. St. Helen's in Washington state.

The Guest Night program was upbeat and lively, despite the serious message about tsunami and earthquakes. HGS members roamed throughout the Houston Museum of Natural Science during the evening, watching and trying out the new Wiess Energy Hall geology interactive exhibits about drilling and finding oil and gas. Goode Company BBQ provided a feast of smoked meats, chicken and Mexican food. About a dozen lucky Guest Night attendees found out they won rock and mineral specimen prizes when their names were drawn by computer from the attendance list.

During the Guest Night program in the IMAX theater, outgoing HGS President Steve Levine awarded plaques to students who won prizes for their exhibits at the 2005 Houston Science and Engineering Fair. Four high school students won internships with the Natural Science museum: Kourtney Parker (Academy of Science and Health), James Taggart (Clear Lake High School), Stefan Kuhlman (Elsik High School) and Emilia Stepinski (Clear Brook High School). HGS also awarded achievement plaques to high school students Christopher Cargill (V.W. Miller Intermediate) and Kimberly Potter (Academy of Science and Technology). These students and their parents were thrilled to be invited to Guest Night and participate in the program.

After the Applegate lecture, the Guest Night program kept going, and the audience, including Applegate, viewed the 40-minute National Geographic IMAX movie "Forces of Nature." Although the movie was made prior to the December 2004 Sumatra earthquake, it includes actual footage of earthquake damage recorded during a major earthquake in Turkey, footage of Caribbean volcanic activity and tornadoes forming in the Midwestern US states.

photo by Andrea Reynolds

*HGS student awardees at Guest Night (left to right): Emilia Stepinski (Clear Brook High School), James Taggart (Clear Lake High School), Stefan Kuhlman (Elsik High School), Kourtney Parker (Academy of Science and Health) and Christopher Cargill (V.W. Miller Intermediate).*

The Guest Night committee continues to improve its program every year, making it one of the HGS top sellout programs each June. Key corporate sponsors such as TGS-Nopec (contacts: Karen Al-Tawil and John Adamick), BHP Billiton (Ron Meers), Schlumberger and BP contribute significant money to keep the event affordable to HGS members. Thanks to the hard-working Guest Night committee of Linda Sternbach and Bill Osten (co-chairs), Mike Deming, Tom Mather, Margaret Jones and Norma Jones (HGA), Janet Combes (student awards), Mike Allison (video) and Andrea Reynolds (photos).

Don't forget to sign up early next year for the next Guest Night, scheduled for June 17, 2006. ■

# HGS Welcomes New Members

**Effective August 1, 2005**

Darrell Eubanks
Steve Geetan
David Landau
Bruce Manchon
Robert Mason
Charles Jackson
John Linger
Troy Johnson
Adam Heffernan
Raymond Garber
Erin Lake
Joseph Dischinger
Robert Clarke
Eugene Kim
James Eberhardt
Peter Kubik
Saul Gonzalez
Delbert Pierson

Paul Coyle
Michael Kacher
Thomas Becker
Charlie Gell
Christine Gaynor
David Dalley
William Haskett
Joe Parker
Staffan Kristian Van Dyke
John Tilson
Diane Nolley
Daniel Chiang
Steven Davis
Peter Fender
Karen Hoffman
Charles M. Manske
Louis Rivera
Anna C. Shaughnessy

Mark Singleton
Robert Gauer
Larry Drake
Richard D. Burrell
Aubrey Waddail
Charles Harvie
Kimberly M. Stevens
Catherine Donohue
Joseph Struckel
David Bean
Marie Dunn
Franz Meyer
Kevin Potts
Sarah Venable
John Willoughby
Kathryn Ann Jenkins
Raphael Esedo
Jared Hammett

Rhonda Welch
J. Camilo Goyeneche
Dan Needham
Christopher Prince
John Delaughter

ASSOCIATE MEMBERS
Jerry Jurena
Hadi Koja
Carol Gregg
Erika Spink
Robert Walas
John Lastrapes
Steve Carter
Gary Antene
Alicia Kahn
Melissa Sager

*Welcome New Members*

# Show off Your Artistic Ability

## 4th Annual HGS Photo & Graphic Art Contest

**• Selected entries to appear on the cover of the HGS Bulletin**

**• All Entries to be displayed at a HGS General Meeting!**

Show off our artistic ability by participating in the 4th Annual HGS Graphic Arts Contest! Submit your best photographs, hand-drawn art or computer-generated graphics, and see them appear on the cover of the HGS *Bulletin*.

**JUDGING CRITERIA**

- Subject Matter
- Quality of Art
- Suitability for Publication on the HGS *Bulletin* Cover
- Geological Interest
- Industrial Interest

*All Entries Must Be Received By December 1, 2005.*

Send entries to the HGS office.
All entries imply permission to publish.

# HGS Night at the Houston Ballet

*by **Marsha Bourque***

More than two dozen HGS members and their families and friends gathered in June as the Houston Ballet concluded its 35th anniversary season with two company premieres: Stanton Welch's sensual "Maninyas," an intimate abstract work featuring five couples, and artistic associate Maina Gielgud's vibrant production and staging of "Giselle." Following the performance, Principal Dancer Mireille Hassenboehler, who performed the leading role in "Giselle," provided a backstage tour for the HGS group.

This was one of several new events initiated by past-President Steve Levine and past-Director Marsha Bourque. HGS is taking full advantage of a wide variety of social and entertainment events on behalf of our members. Levine successfully organized an HGS night at the Rockets, as well as an Astros night. Many of our members enjoy the performing arts, and more Theater District events, with group discounted tickets, will be offered in the future. Look for announcements on the website and in the *Bulletin.*

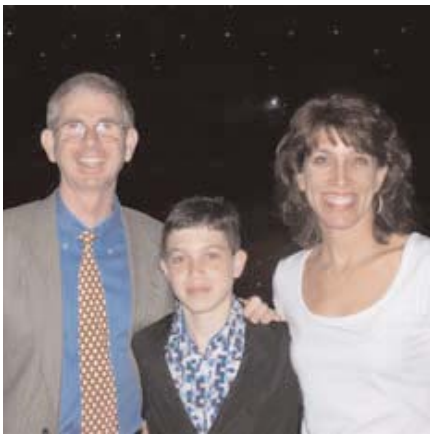
*Richard Howe and Principal Dancer Mireille Hassenboehler*

*Veronica Bourque, Bill Dupre, Elaine Dupre, Elizabeth Danforth, Richard Howe, Principal Dancer Mireille Hassenboehler, Marta Bianchi and Marsha Bourque*

*Stephanie Levine, Cole Levine, Principal Dancer Mireille Hassenboehler, Marsha Bourque, John Boone, David Smith and Gerry Higgs*

*Cole Levine, Principal Dancer Mireille Hassenboehler and Stephanie Levine*

*Marsha Bourque, Principal Dancer Mireille Hassenboehler and Bill Dupre*



*Steve, Cole and Stephanie Levine*

# HGS Golf Tournament

## Monday - September 19, 2005

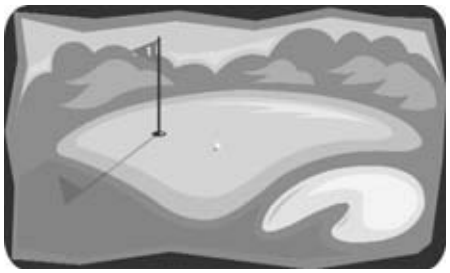
**Place:** Kingwood Country Club
**Format:** Four-man scramble
**Featuring:** Closest to the Pin, Refreshment stands, Longest drive contest, Bar-B-Q dinner, Trophies, awards, and prizes, Betting holes

This year's tournament will be a four-man scramble. A shotgun start at 11:45 a.m. will be followed by an informal buffet dinner with a presentation of awards at the Kingwood Country Club. Players may select their own course and foursome or be placed in a foursome by the tournament committee. The field will be flighted after play based on score. Entries will be limited and will be accepted on a first-in basis.

The entry fee will be $125.00 per person, or $500.00 per team. Entry fee includes green fees, golf carts, refreshments, driving range use with practice balls and a buffet award dinner with door prizes. So get your group together and come out and enjoy the competition, food, friends and fun.

Companies or individuals interested in sponsoring the event should contact Allan Filipov at 281-275-7649 or by fax at 281-275-7550. To enter, fill out the entry form at the bottom of this page and mail with your entry fee (payable to HGS Entertainment Fund) to:

**HGS attn: Joan Henshaw**
10575 Katy Freeway, Suite 290 • Houston, TX 77024
713-463-9476



**SCHEDULE OF EVENTS**

| | |
|---|---|
| 9:30 – 11:30 a.m. | Registration and free use of driving range |
| 10:30 – 11:30 a.m. | Optional lunch |
| 11:45 a.m. | Shotgun start |
| 4:45 p.m. | Cash bar, open buffet |
| 5:30 p.m. | Dinner with awards presentation |

All entries will be acknowledged by return phone call the week of September 5.

Name _____ Amount Enclosed _____

Company_____ Phone _____

| Foursome Members *(Please Print)* | Company Name | Phone Number |
|---|---|---|
| 1. _____ | _____ | _____ |
| 2. _____ | _____ | _____ |
| 3. _____ | _____ | _____ |
| 4. _____ | _____ | _____ |

Foursome Captain's e-mail _____

If you wish, please circle your course preference: Island Lake Marsh

**Monday, September 12, 2005**

Westchase Hilton • 9999 Westheimer
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 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#).

## HGS General Dinner Meeting

*by* ***Erik Mason, Mark Chapin, Gary A. Steffens***
*Shell Deepwater Exploration*
*Houston, Texas*

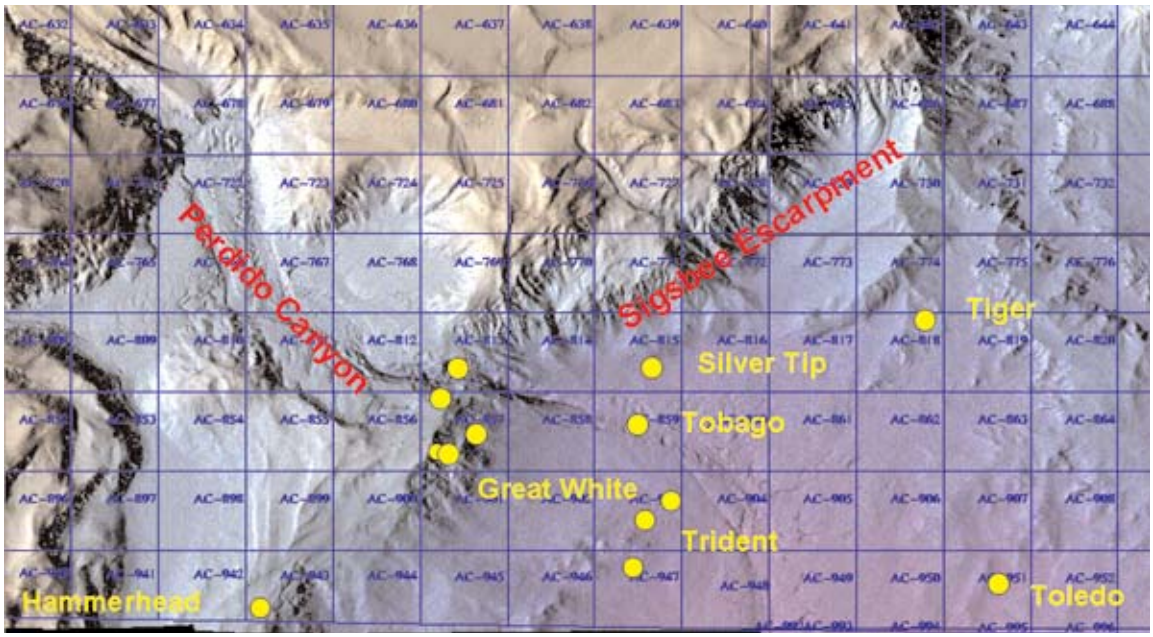
# Great White Prospect and the Perdido Fold Belt—New Petroleum Province in Ultra Deepwater, Alaminos Canyon, Gulf of Mexico

Announced discoveries at Great White, Trident, Tobago, Silver Tip and Tiger have established the Perdido fold belt, Gulf of Mexico, as a significant new ultra-deepwater petroleum province in the initial stages of evaluation. Great White Prospect was drilled to 19,907 ft and is beneath approximately 8,000 ft of water. The play has now moved beneath salt with the recent Diamondback prospect test. Three additional subsalt exploration tests are planned for 2005 and 2006 at prospects called Leopard, Whale and Ontario.

Prospect Baha (Alaminos Canyon Block 600), a high-relief four-way closure drilled in 2001, detected residual oil in multiple Oligocene and Paleogene turbidite sands and established the presence of an active petroleum system. Prospect Trident, the first Perdido discovery drilled in 2002, encountered multiple pay-bearing Paleogene sands trapped in a low-relief four-way closure. Great White (Alaminos Canyon 857), also drilled in 2002, found oil in three different Oligocene and Paleocene to Eocene turbidite sand packages that are trapped in within a moderate-relief, four-way closure. Tobago prospect (AC 859) encountered hydrocarbons in a Paleocene age stratigraphic trap.

*Key appraisal challenges include understanding variable reservoir quality as well as hydrocarbon distribution and connectivity in the various fault blocks.*

Perdido folds trend northeast-southwest. These folds are segmented along strike by low-relief saddle, and appear to have autochthonous salt cores. In a dip direction, folds deepen from west to east and are separated by deep synclines. Folds diminish eastward as autochthonous salt becomes thin. Much of the play is covered by tabular allochthonous salt. Shell geologists can identify three distinct play segments—"Eastern Subsalt," "Western Subsalt" and "Outboard" (no allochthonous salt). The Perdido area has a high geothermal gradient causing rapid degradation of porosity and permeability with depth, the prediction of which is a key to risking and ranking Perdido prospects.




**HGS General Dinner Meeting**

*continued on page 29*

HGS CONTINUING EDUCATION COMMITTEE PRESENTS

Part Four of the Mini-series

# Petroleum Reserves — Avoiding Write-downs:

## *An Overview of Recommended Petrophysical Practices*

by

*Bill Price*
*Petrophysical Solutions, Inc.*

*John Kulha*
*Consultant*

*Ted Griffin*
*Core Lab*

**Wednesday, September 21, 2005 • 8 a.m. – 4 p.m.**
**Registration Table opens at 7:30 a.m.**

**Bureau of Economic Geology Houston Research Center**
**11611 West Little York (Please use the Cunningham St. entrance)**
**Houston, TX 77441**

Large corporate reserve write-downs have increased attention of financial analysts, investors, rating agencies, banks, the U.S. SEC and corporate boards to the process of estimating and reporting reserves. Obtaining accurate net pay counts from correct petrophysical analysis is one of the basic ingredients of accurate reserve estimations.

- Understand the dangers of the digital world in which we live
- Discuss why the proper integration of data is still undervalued
- Learn the rules of wireline pressure interpretation and use of core data to validate reserves
- Learn the ten causes/sources of LRLC response and how to adjust your petrophysical evaluation to compensate.
- Learn a proven methodology to evaluate LRLC pays and when to apply it
- Real world examples will be presented

---

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## *An Overview of Recommended Petrophysical Practices*

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# HGS General Dinner Meeting continued from page 27



### The Great White Prospect

Great White is a large, doubly-plunging, thrust-propagation fold with numerous crestal collapse normal faults. Three main pay intervals exist, including a stacked sand series in the Frio, a single pay sand in the Eocene Upper Wilcox and a thick sand sequence, partially pay bearing, in the Paleocene Lower Wilcox. All the sands comprise low- and high-density turbidites with minor debris flow components, but the composition, texture and diagenesis vary markedly. Reservoir porosities range from near 40% shallow to less than 10% near TD.

Oil properties also vary significantly among the reservoirs at Great White ranging from low-API crude shallow to high-API crude deep. The interval is largely hydropressured, with an interpreted pressure leak point on a large structure to the west, providing a protected trap. Key appraisal challenges include understanding variable reservoir quality as well as hydrocarbon distribution and connectivity in the various fault blocks. ■

A Special Poster Session will be presented at the Dinner Meeting: "Great White Discovery and Appraisal Challenges" by Mark Chapin.

### Biographical Sketches

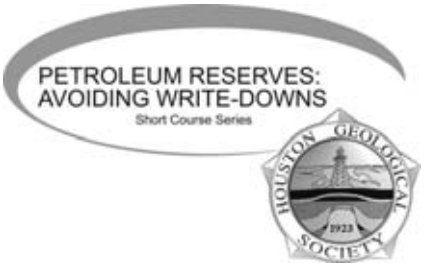
**Erik Mason** is area exploration manager for the Western Deepwater Gulf of Mexico. Erik received a BA degree in geology from Principia College and MS degree from Oklahoma State University. Erik has been with Shell for 17 years with assignments in both production and exploration in New Orleans and Houston.

**Mark Chapin** is team leader of the Great White Appraisal and Development team. Mark received a BS degree in geology from Wheaton College and MS and PhD degrees in geology from Colorado School of Mines. He has been with Shell for 15 years and had assignments in New Orleans, London, The Netherlands and Houston.

**Gary A. Steffens** is a senior staff geophysicist working in exploration in the Gulf of Mexico. Gary received BS and MS degrees in physics from the University of Illinois. After receiving his Bachelor's degree Gary entered the Army where he spent two years, before going back to school and completing an MS. He has been with Shell for 27 years with assignments in processing, exploration and production. He has worked South Texas, the Rocky Mountains and Alaska. His experience includes several years spent working on the Perdido fold belt at Shell.

## The Houston Geological Society

## Continuing Education Committee Presents the First HGS Digital Publication:




**Part I:**
**AN OVERVIEW OF RESERVE DEFINITIONS AND REPORTING REQUIREMENTS**
John E. Hodgin and Thomas Wagenhofer, Ryder Scott Company, L.P.

**Part II:**
**AN OVERVIEW OF RECOMMENDED GEOLOGICAL PRACTICES**
Daniel J. Tearpock, Subsurface Consultants & Associates, L.L.C.

**Part III:**
**AN OVERVIEW OF RECOMMENDED ENGINEERING PRACTICES**
William M. Kazmann and Edward P.Travis, LaRoche Petroleum Consultants, LTD

**Part IV:**
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Bill Price, Petrophysical Solutions, Inc.; John Kulha, Consultant; Ted Griffin, Core Lab
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**Monday, September 19, 2005**

Westchase Hilton • 9999 Westheimer
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 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#).

## International Explorationists Dinner Meeting

*by **Ricardo Bertolotti***
*Crown Minerals*
*New Zealand*

# Frontier Sedimentary Basins of New Zealand—East Coast and Great South Basins Revisited

New Zealand sits on a large continental shelf of over 4 million square kilometres with several extensive sedimentary basins (Figure 1), all of which are prospective for oil and gas. New Zealand's sedimentary basins are only lightly explored.

*To date all of New Zealand's commercial oil and gas discoveries have been located within the Taranaki Basin.*

Most of New Zealand's sedimentary basins are composite basins, reflecting various phases of structural evolution and sedimentary fill. From oldest to youngest, New Zealand's sedimentary basins can be divided into syn-rift, passive margin and active margin episodes that reflect the broad tectonic development.

The development of rift basins in the mid-Cretaceous was associated with Gondwana break up and sea floor spreading associated with the opening of the Tasman Sea. The New Zealand sub-continent continued to drift away from the former Gondwana continent and during this period of tectonic quiescence basin development was characterized by regional post rift thermal subsidence and widespread marine transgression. In Middle Eocene to Oligocene, **International Meeting** *continued on page 33*

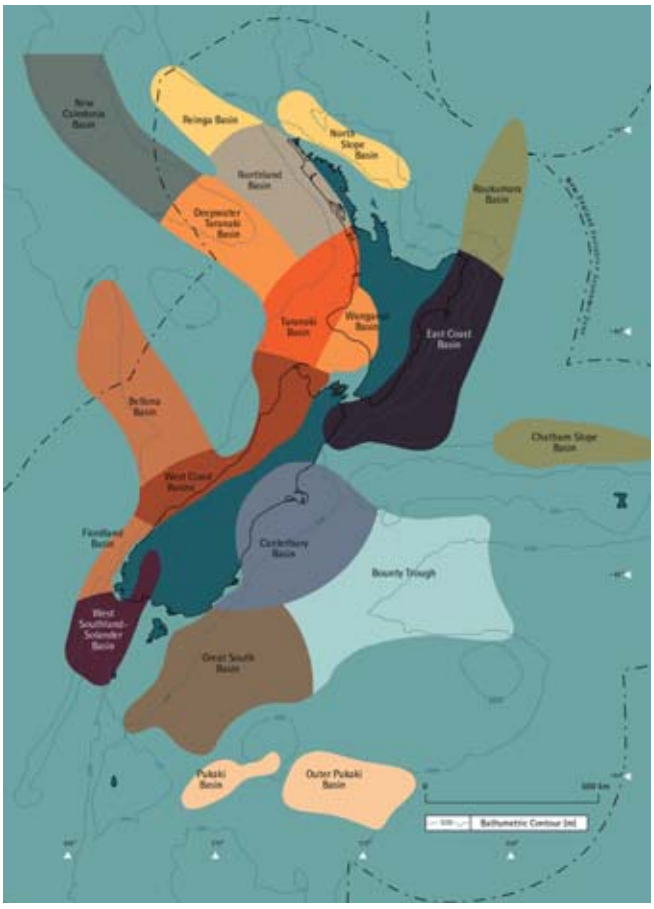


*Figure 1. New Zealand Hydrocarbon Basins*

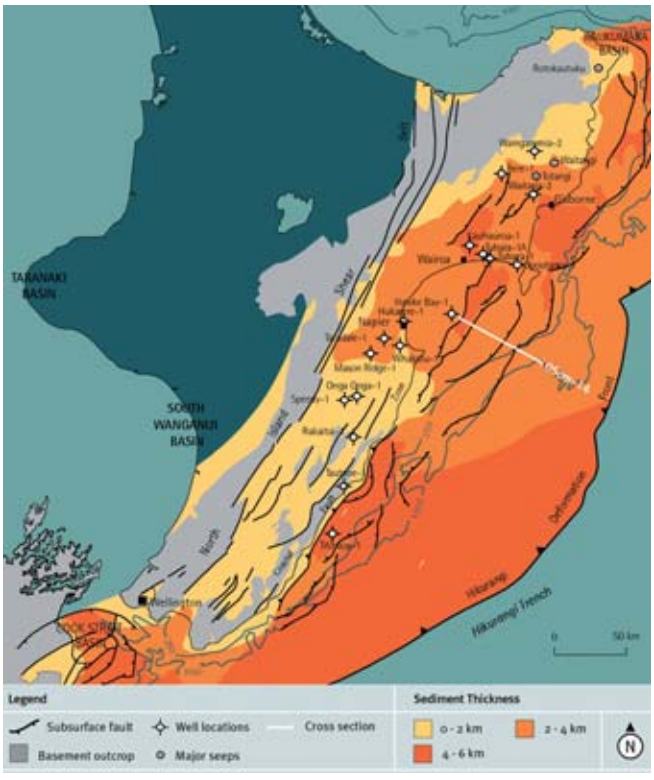


*Figure 2. East Coast Basin Geological Map*

## HGS International Meeting continued from page 31

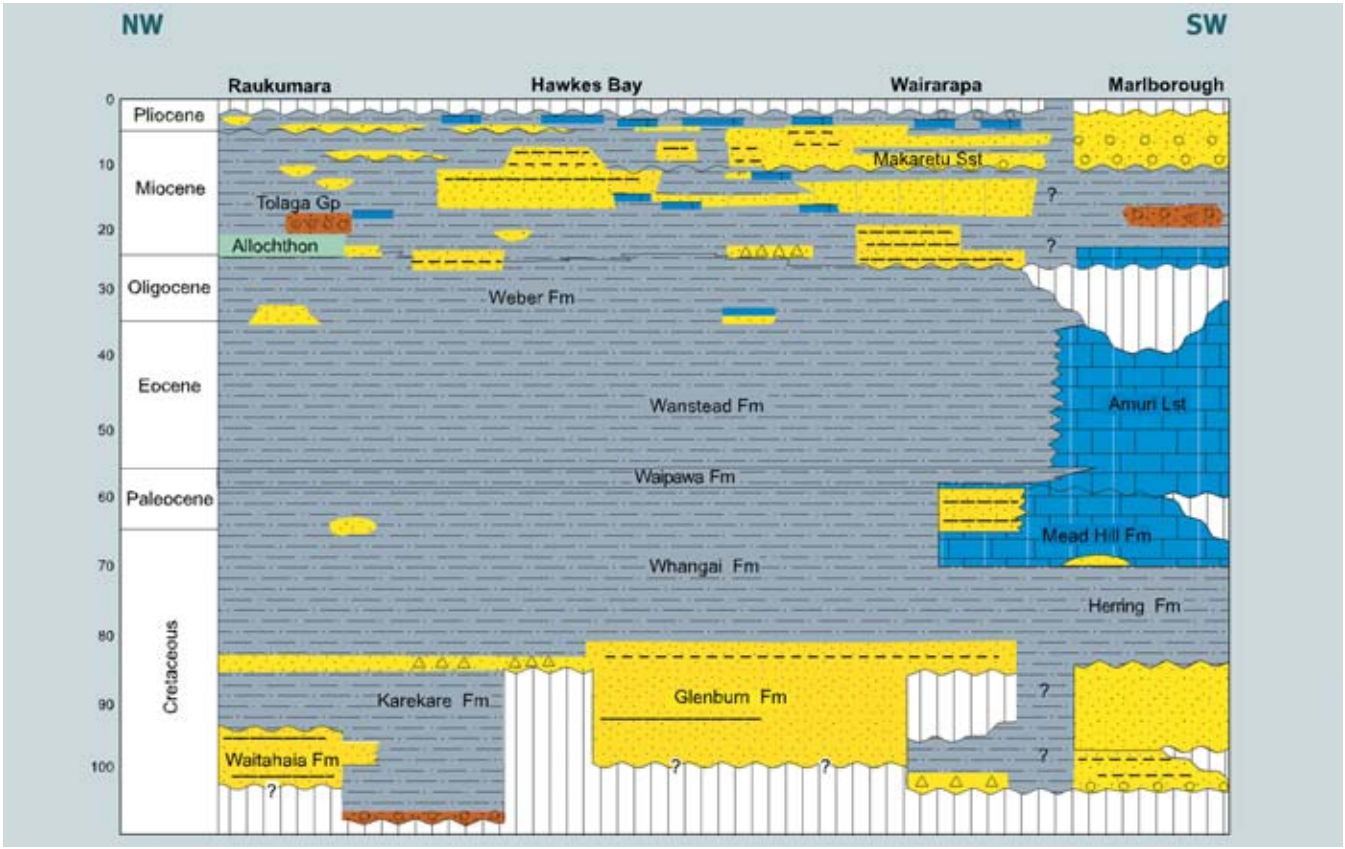


*Figure 3. East Coast Basin Stratigraphy*

**International Meeting** *continued on page 34*

## HGS International Meeting continued from page 33

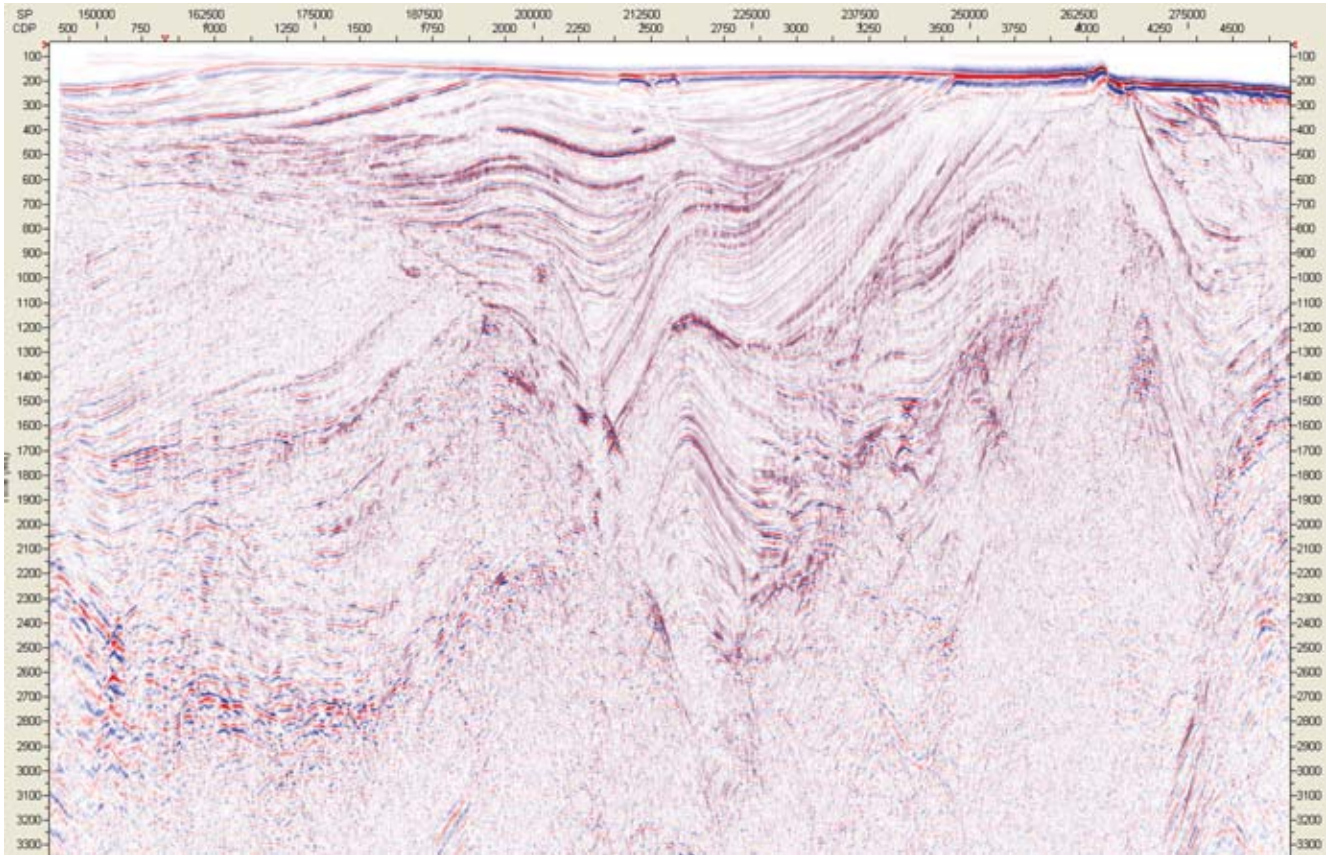

*Figure 4. 05CM-1 Satck Section from NW to SE*

**International Meeting** *continued on page 39*

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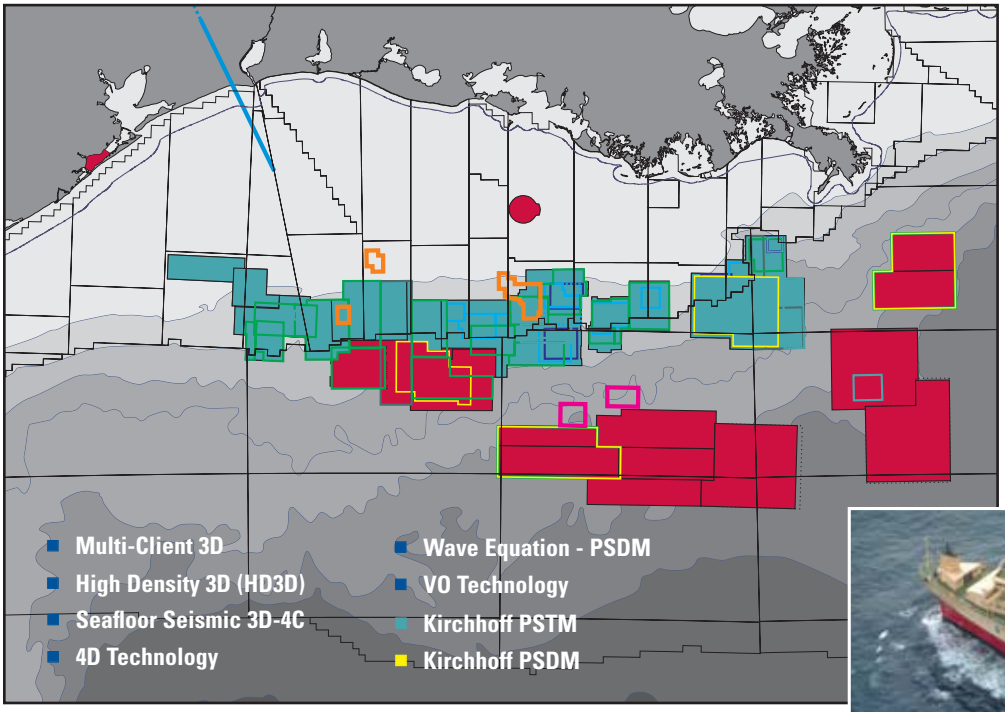


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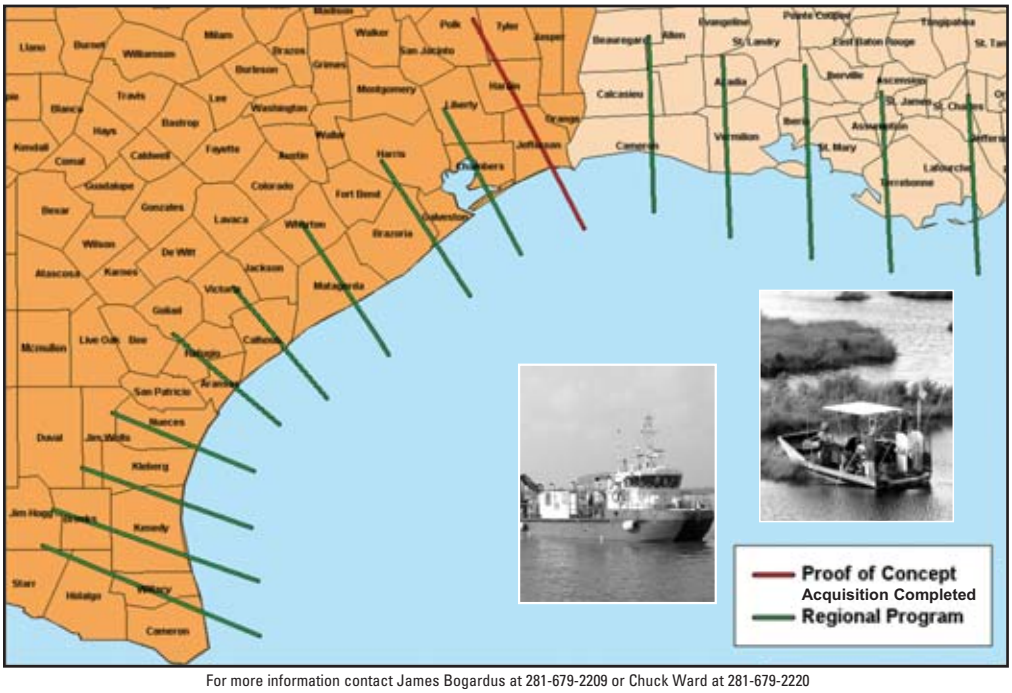


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# September 2005

| Sunday | Monday | Tuesday | Wednesday |
|---|---|---|---|
| | **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 | 6 **HGS Executive Board Meeting** | 7 **HGS/PESGB African E&P Conference** Page 15 |
| 11 | 12 **HGS General Dinner Meeting** by E. Mason, M. Chapin,G. Steffens *"Great White Prospect and the Perdido Fold Belt—New Petroleum Province in Ultra Deepwater, Alaminos Canyon, Gulf of Mexico"* Page 27 | 13 **SIPES Symposium** *"How Small Companies Get Big Value From 3D Seismic Latest Technologies and Best Case Histories, Onshore US"* Page 58 | 14 |
| 18 | 19 **HGS Golf Tournament** Kingwood Country Club Page 26 **HGS International Dinner Meeting** *"Frontier Sedimentary Basins of New Zealand—East Coast and Great South Basins Revisited"* Page 31 | 20 **HGS Northsiders Luncheon Meeting** *"Locating the Base of Salt at K-2 Field, Green Canyon Block 562"* Page 43 **HGS Environmental and Engineering Group Dinner Meeting** *"Evaluation of In Situ Chemical Oxidation of a CFC and TCE Plume"* Page 49 | 21 **HGS Reserves Course Part IV** by B. Price, J. Kulha, T. Griffin "Petroleum Reserves—Avoiding Write-downs: An Overview of Recommended Petrophysical Practices" *8:00 a.m., Bureau of Economic Geology Houston Research Center* *Page 28* |
| 25 **Gulf Coast Association of Geological Societies 55th Annual Convention** New Orleans, Louisiana September 25–27 | 26 **HGS North American Dinner Meeting** by R. Sorenson *"A Dynamic Model for the Permian Panhandle and Hugoton Fields, Western Anadarko Basin"* Page 53 | 27 | 28 **HGS General Luncheon Meeting** by A. Thomas, J. Jones, D. Balcer, T. Hines, L. O'Mahoney, L. Bonnell *"Jurassic Cotton Valley Reservoir Quality, Eastern Offshore Gulf of Mexico: Chlorite Coatings and the Porosity Preservation Story Found Below 20,000 ft"* Page 55 |


# GeoEvents

| Thursday | Friday | Saturday |
|---|---|---|
| 1 | 2 **NOW you can make your reservations on-line at www.hgs.org** | 3 |
| 8 | 9 | 10 **AAPG 2005 Mid-Continent Section Meeting** Oklahoma City, Oklahoma September 10–13 |
| 15 **SIPES Luncheon Meeting** *"Seismic Considerations for Classifying Resources/Reserves"* Page 59 | 16 | 17 |
| 22 **GSH Potential Fields Group DinnerMeeting** *"Marine CSEM: ExxonMobil's Experience and a Summary of the 2005 SEG Workshop"* Page 61 | 23 **HGMS 52nd Annual Gem, Jewelry, Mineral & Fossil Show** September 23–25 Page 48 | 24 |
| 29 | 30 | **Members Pre-registered Prices:**<br>General Dinner Meeting .....$25<br>Nonmembers walk-ups. ..... $33<br>Env. & Eng. .....$25<br>Luncheon Meeting .....$30<br>Nonmembers walk-ups. ..... $33<br>International Explorationists .....$25<br>North American Expl. .....$25<br>Emerging Technology .....$25 |

## Upcoming GeoEvents

**October 4**
SEPM Abstract deadline

**October 8**
Earth Science Week kickoff

**October 10**
General Dinner
*"Tahiti Discovery (Green Canyon 640), Opening another Deepwater Frontier"*

**October 17**
International Dinner
*"Basins of Offshore Peru"*

**October 18**
Northsiders Luncheon
*"Subsurface Vents in the Gulf of Mexico"*

**October 19**
HGS CEC Course "Applied Geopressure"
*Page 44*

**October 24**
North American Explorationists Dinner
*"New Insights into the Hydrocarbon System of the Fruitland Formation Coal Beds, Northern San Juan Basin, Colorado and New Mexico"*

**October 27-29**
Cast 2005
*Page 6*

**October 28**
HGS/GSH Shrimp Peel
*Page 46*

**November 3-5**
HGS/ECH Conference "Coastal Subsidence"
*Page 52*

## HGS International Meeting continued from page 34

sea floor spreading to the south of New Zealand brought about changes in structural and sedimentation style to the southern and western basins and the initial development of the Australian–Pacific Plate boundary across New Zealand. By mid Oligocene subduction of the Pacific Plate was impinging upon northeastern New Zealand. In early Miocene the Alpine Fault formed, in response to convergence of the southward-propagating subduction zone with the Chatham Rise. The Alpine Fault formed a link between the west-dipping subduction and Emerald Basin spreading and oblique extension in the southwest, and became the primary focus of dextral dislocation between the Pacific and Australian Plates.

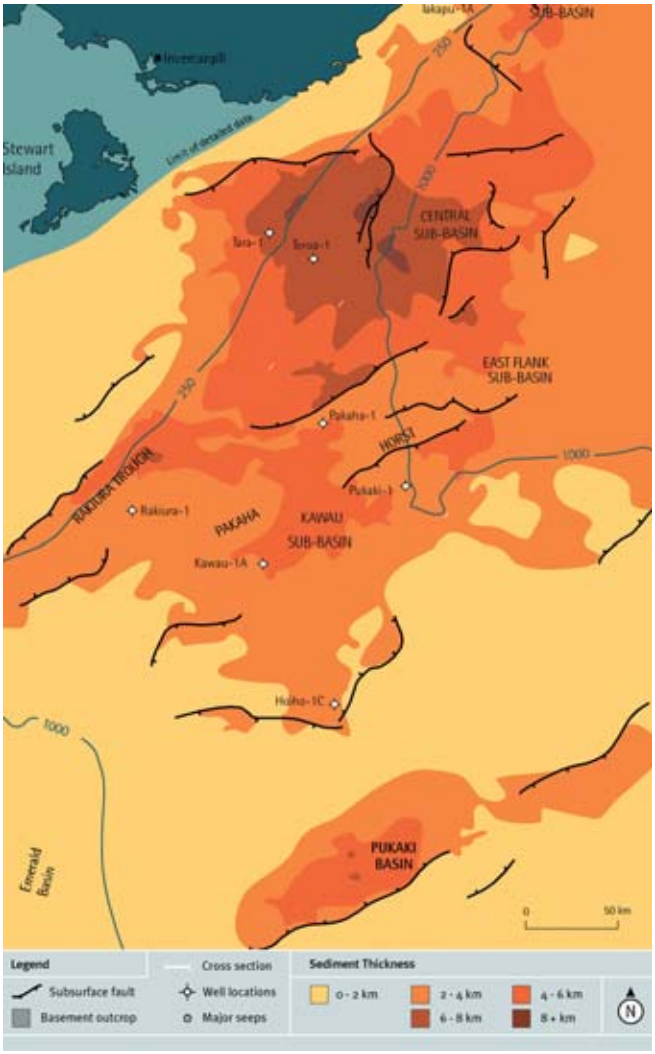


*Figure 5. Great South Basin Geological Map*

To date all of New Zealand's commercial oil and gas discoveries have been located within the Taranaki Basin. However, surface seeps, of oil and gas are **International Meeting** continued on page 41

## HGS International Meeting continued from page 39

present in several other areas, particularly in the East Coast Basin (Figures 2 and 3) and Great South Basin (Figures 3 and 4) where oil and gas have been discovered in wells.

Recent government funded seismic data acquisition along the East Coast (Figures 5 and 6) has provided new evidence of the tecto-stratigraphic basin evolution analogous with Californian coastal basins and deep water Sabah, Borneo.

The Great South Basin has been revisited by analysis of recently reprocessed seismic data. This data shows very large structures and a thick sequence of hydrocarbon bearing early Cretaceous to Palaeocene sediments.

Today, more than ever, these basins present a highly prospective destination for explorers. ■

### Biographical Sketch

**Ricardo Bertolotti** graduated with a Master's degree from Royal Holloway, University of London. Ricardo has experience in seismic acquisition, interpretation and prospect generation working with ENI, Lasmo and CGG in various international settings including Venezuela, Pakistan, Timor, Indonesia and Trinidad. He is currently Senior Petroleum Geophysicist at Crown Minerals in New Zealand. Ricardo is a Member of the Venezuelan Society of Geophysicists (SOVG)

**Tuesday, September 20, 2005**

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

Cost: $31 Preregistered members; $35 non-members & walk-ups

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## HGS Northsiders Luncheon Meeting

*by* ***John O'Brien, Arnold Rodriguez, David Sixta***
*Anadarko Petroleum Corporation*
***Mark Davies, Phillip Houghton***
*ARKeX Ltd.*

# Locating the Base of Salt at the K-2 Field, Green Canyon Block 562, Deepwater Gulf of Mexico

The K-2 Field is located in the deepwater Gulf of Mexico, in Green Canyon Block 562 at a water depth of 3,900 ft, approximately 180 miles south of New Orleans. This subsalt field was discovered in September 1999 by the Conoco GC-562 No. 1 well. Anadarko gained entry into the K-2 unit in October 2001 (Figure 1). Subsequent drilling encountered over 339 ft of pay in August 2002, below salt. Following up on this success, Anadarko discovered the K-2 North Field in the adjacent block, Green Canyon 518, in 2003. In May 2005, production from K-2 began from the first well, producing at 12,000 boepd through an 8-mile flow-line tie-back to the Anadarko-operated Marco Polo TLP in Green Canyon Block 608.

*Both FTG and wave equation prestack depth migration proved effective in locating the base of salt in the area updip of the field*

Prestack depth migration has played a vital role in exploring K-2, providing excellent definition of the salt body and of the underlying sedimentary section in areas where the salt has a tabular morphology (Figure 2). In these areas, we can image the base of salt (~20,000 ft) and also the underlying sedimentary section

**Northsiders Meeting** *continued on page 45*

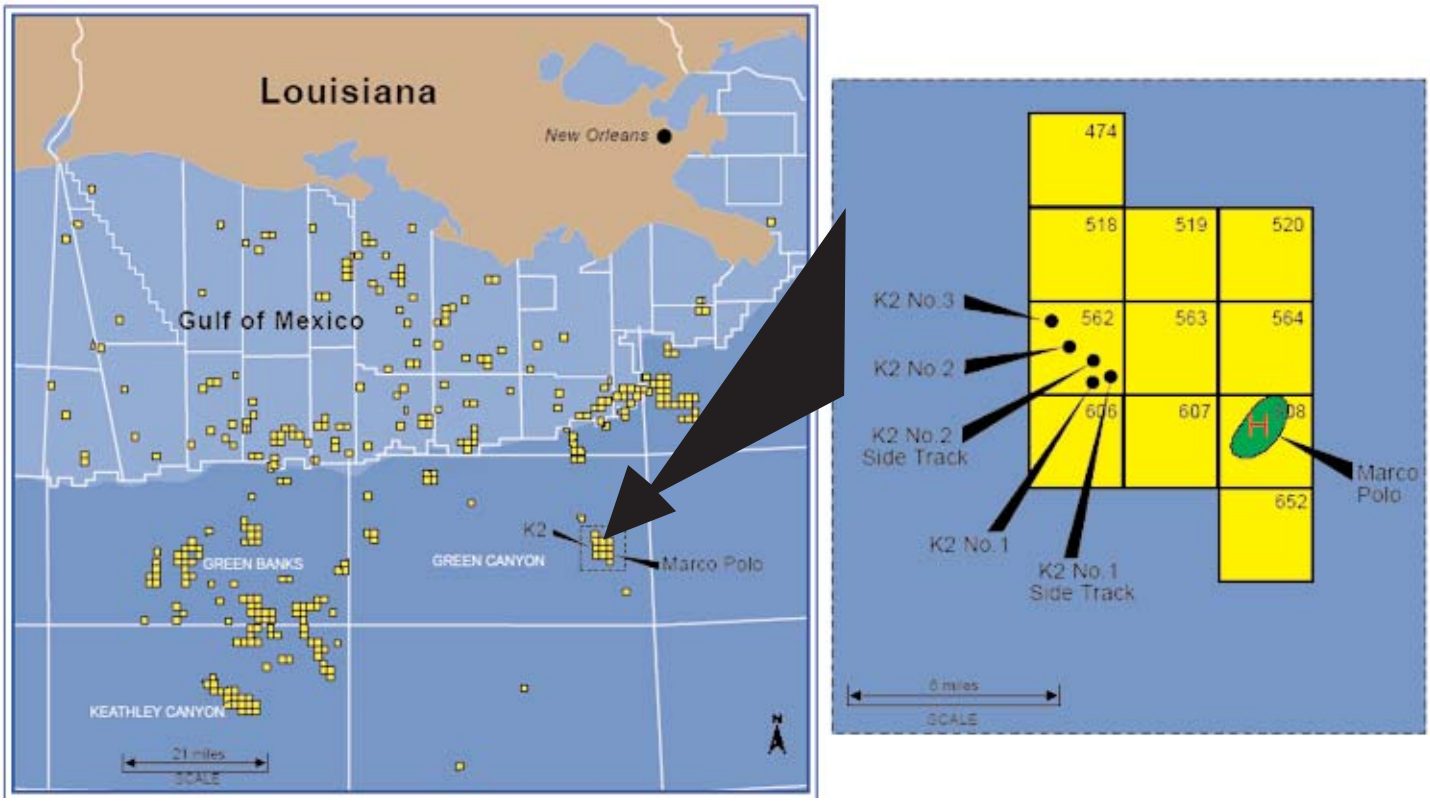


*Figure 1. Location map of the K-2 Field, Green Canyon 562, offshore Gulf of Mexico.*

HGS CONTINUING EDUCATION COMMITTEE PRESENTS

# Applied Geopressure

*by*

*Selim S. Shaker, Ph.D.*
*Geopressure Analysis Services (**G.A.S.**)*

**Wednesday, October 19, 2005**
**8 am – 4 pm**
**Registration Table opens at 7:30 am**

**Core Laboratories**
**6316 Windfern**
**Houston, TX 77040**

This course will provide in-depth practice of geopressure concepts, measurements, prediction, analysis, risk and appraisal.

**Review and learn about:**

- Causes, concepts and definitions of geopressure
- The tools, techniques and tests used for direct and indirect measurements, QC and calibration
- Different prediction methods, mainly based on effective stress
- Techniques used for predictions pre-drilling, during drilling and after drilling
- QC petrophysical properties adequate for pore pressure predictions, especially seismic velocity
- Supra-sub salt pressure models, fault sealing, trap sealing and retention capacities
- Applications for exploration, exploitation, and drilling, including compartmentalization, post drilling appraisal, and risk assessment
- Several case histories from the Gulf of Mexico will be discussed during this course.

***7 Professional Development Hours (0.7 CEU) are earned by attending this course***

---

**Registration Form**
**Applied Geopressure**

**Visit www.hgs.org for details and on-line registration. Registration form can be faxed or mailed to the HGS office.**

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**Non-Members: $105, if registered by 4:00 PM Friday, October 14; $120 thereafter**

**Price includes continental breakfast, box lunch and afternoon snack.**

* Membership prices are extended to any member of (circle one): Member Number: _____
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## Northsiders Meeting continued from page 43



down to a depth greater than 40,000 ft. This represents an outstanding subsalt imaging achievement.

While prestack depth migration has yielded some excellent imaging results, the technique is not without problems. The eastern flank of the K-2 salt has a steep face (~60°) whereas the salt top displays a prominent structural peak immediately west of this flank. Prestack depth migration using a Kirchhoff algorithm fails to image the base of salt and the subsalt section in this area, resulting in uncertainty in determining the updip extent of the K-2 Field and in estimating field size. This also impacts the appraisal drilling program: If the field is believed to extend farther updip then this provides additional drilling targets. Conversely, if we can determine that the field is more limited in the updip direction we may avoid drilling some costly deepwater wells.

To address this problem we employed two independent, complementary geophysical techniques: full tensor gravity gradiometry (FTG) and wave equation prestack depth migration. FTG measures the gradient of the earth's gravitational field and provides a superior measurement compared with that obtained with conventional gravity surveys.

- Effects induced by platform motion are suppressed because FTG measures differences in the gravitational field at the various sensors, all mounted on a common platform, and

- FTG is inherently more sensitive to the distance of a mass anomaly.

**Northsiders Meeting** *continued on page 47*

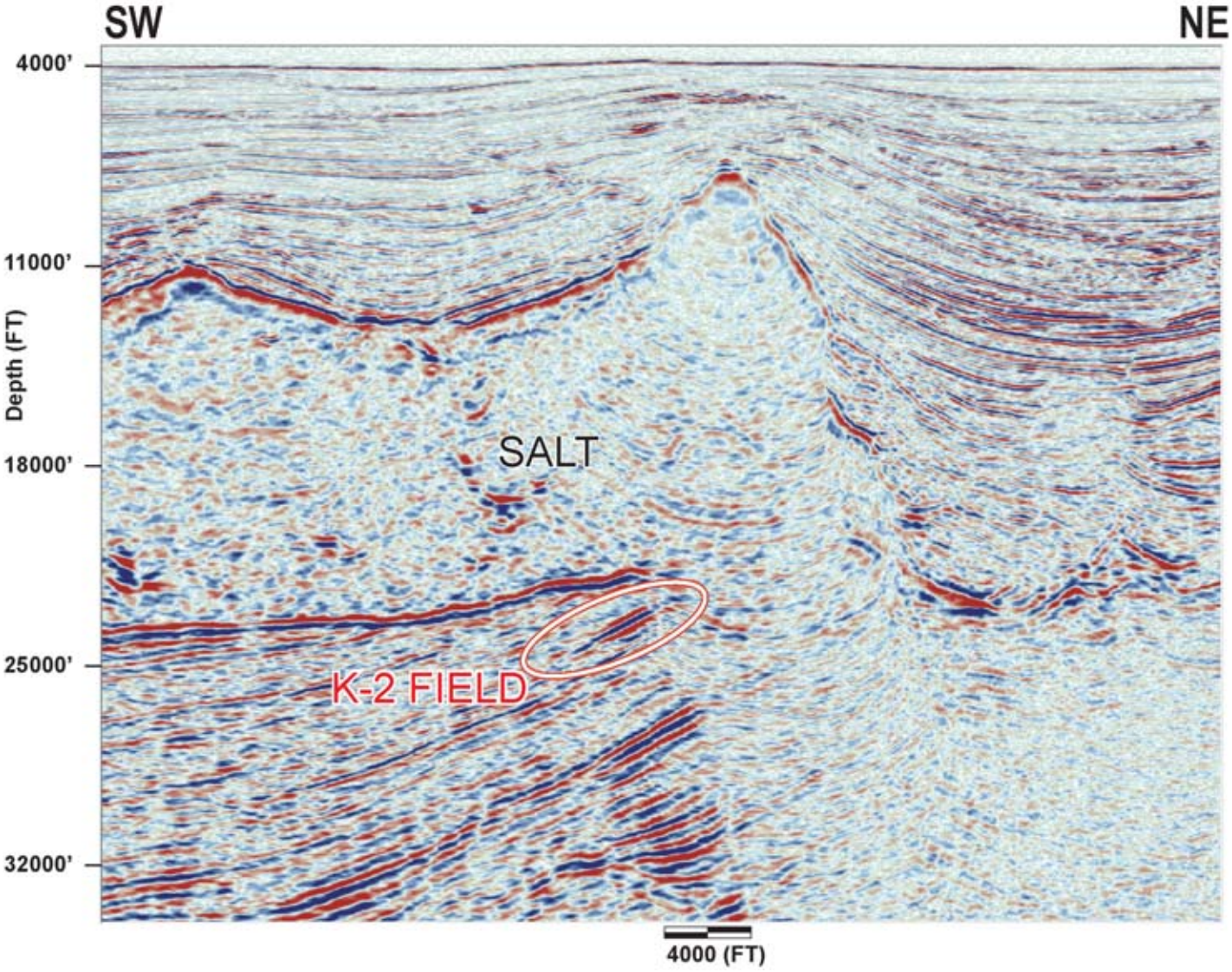


*Figure 2. Kirchhoff prestack depth migration profile through the K-2 salt body provides excellent image definition beneath the tabular section of the salt body. However, the seismic image underneath the peak of the salt and the eastern salt flank is very poor and interpretation of the base of salt and subsalt section is highly uncertain in this area. Seismic data are shown courtesy of WesternGeco.*

# H G S / G S H

# Shrimp Peel

**Friday, October 28, 2005 6pm. - 10pm**

at

**Sam Houston Race Park**

7275 N. Sam Houston Pkwy. West

(281.807.8700)

Boiled Shrimp - Beer & Beverages - Horse Races - Music - Door Prizes - Boiled Shrimp - Beer & Beverages - Horse Races - Music - Door Prizes - Boiled Shrimp

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## Northsiders Meeting continued from page 45

To analyze the FTG data a 3-D earth model was first constructed using all available geological and geophysical information, including the base of salt horizon where this could be interpreted with confidence. We then performed an inversion of the FTG data to determine the configuration of the base of salt in the "no-image" zone which would provide the best fit to the data. In this way we formulate the problem as a very specific question, incorporating all the known subsurface information, while focusing the inversion on that part of the earth model which we really need to determine.

In seismic imaging, wave equation prestack depth migration addresses two of the critical issues that can arise with Kirchhoff migration:

- Multipath effects, and
- Migration artifacts that mimic the Kirchhoff operator.

Using a wave equation approach, we reimaged the 3D seismic data which had previously been depth migrated with a Kirchhoff algorithm. Both migrations used a similar, but not identical, velocity field. By avoiding the Kirchhoff-induced migration artifacts, the wave equation depth migration succeeded in imaging the base of salt in what had previously been a no-image zone.

Both FTG and wave equation prestack depth migration proved effective in locating the base of salt in the area updip of the field, where Kirchhoff migration had previously failed. Both indicate that the salt has a keel structure, effectively delineating the updip extent of the field. Because the two methods measure very different properties of the subsurface, the agreement between the results provides a high level of confidence in the final interpretation.

As a result of this two-pronged approach we can confidently identify the updip extent of the pay sands and also resolve the need for further delineation in this part of the field. ■

For more information read: "Resolving the K-2 Salt Structure in the Gulf of Mexico; an Integrated Approach using Prestack Depth Imaging and Full Tensor Gravity Gradiometry," John O'Brien, Mark A. Davies, Arnold Rodriguez, David Sixta and Phillip Houghton, *The Leading Edge*, Vol. 24, p. 404, April 2005.

### Biographical Sketches

John O'Brien is Senior Geophysical Advisor in the Geophysical Technology Group at Anadarko Petroleum, serving as a champion for new and emerging geophysical technologies within the corporation. Recent accomplishments include development of the Sediment Proximity Survey for wells drilled into massive salt bodies, which received the CEO's Innovation Award for "farthest outside the box," recording the first time-lapse 3D VSP for EOR monitoring, and now the combination of gravity gradient inversion and wave equation depth imaging for locating the base of salt. His e-mail is john_obrien@anadarko.com.

Prior career highlights include a PhD from the University of Pittsburgh (physics), postdoctoral associate at Yale, geophysical staff at Gulf Oil R&D and at Sohio/Standard Oil/BP, and associate professor at South Dakota State University.

**Arnold Rodriguez** earned his BS in geology from Texas A&M University in 1984. Currently, Arnold is a Senior Staff Geophysicist on the K-2/K2-North Development team, in the World-Wide Offshore Deepwater Operations group at Anadarko Petroleum Corporation. He has worked in exploration, both domestic and international, during his career at Anadarko. Before joining Anadarko in 1994, he began working in 1990 at Marathon Oil Company in Houston, Texas, as a gologist in the Offshore Gulf of Mexico - Leasehold Exploration. Prior to employment with Marathon, Arnold worked from 1986 to 1990 in Houston, as an exploration geologist for Exploration Associates International, a subsidiary of Phoenix Resources Company. With Phoenix Resources Company of Malaysia, Arnold worked in exploration offshore Sabah and offshore Sarawak, Malaysia. As a geologist at Exploration Associates International, he worked on projects in Egypt's Western Desert (Khalda Concession), Australia, Tunisia, and Ecuador.

Arnold's primary interests include subsalt exploration and development in the deepwater Gulf of Mexico to get a better understanding of the deepwater depositional systems and their relationships with the overall structural evolution.

**David Sixta** is a Geophysical Advisor in Anadarko's Technology Group, where he works on projects related to seismic processing and imaging. Prior to his 5 years at Anadarko, he worked with Union Pacific Resources for 15 years.

# 52nd Annual HGMS Gem, Jewelry, Mineral & Fossil Show

## September 23-25, 2005

***Three days of fun for the whole family!***

- Experience Dinosaur World's new traveling museum exhibit, "A Prehistoric Journey."
- Shop at more than 40 gem, jewelry, mineral, lapidary, and fossil dealers.
- Join in continuous children's activities, including the Dino Dig and Scout Merit Badges.
- See jewelry-making and gemstone-cutting demonstrations and educational displays, including a fluorescent rock room.
- Bring your gemstones, rocks, minerals, and fossils for free expert identification.

**WHEN**
September 23-25, 2005
Friday: 9 a.m. — 6 p.m. (Kids' Day)
Saturday: 9 a.m. — 6 p.m.
Sunday: 10 a.m. — 5 p.m.

**TICKETS** (*good for all three days*)
Adults: $5. Students, Teachers, Seniors $3.
Children under 12 FREE with adult.

**LOCATION**
Humble Civic Center
8233 Will Clayton Parkway
Humble, TX

**FREE PARKING!**

HOUSTON GEM AND MINERAL SOCIETY

***For more information, visit HGMS online at www.hgms.org or e-mail show@hgms.org***

# Humble Dinosaur Invasion!

This year the Houston Gem and Mineral Society show at the Humble Convention Center will have some special visitors – more than 75 kinds of prehistoric creatures from the ***Dinosaur World*** collection in San Antonio. Dinosaur George, the ringmaster of this menagerie, will bring a whole tent full of replicated critters of all sizes. Past visitors will remember "Stan", a life-size ***T. rex*** skull replica from the Black Hills Institute. Stan's coming back, accompanied by a few of his friends. Dinosaur George is bringing a cute baby *rex* and a fierce juvenile *rex*, raptors, a nest full of dino eggs, and an enormous Triceratops skull. There will be a 23-foot Pteranodon suspended in the air. Plesiosaurs, the skull of a Mosasaur that made its living by eating other Mosasaurs, and a rarely-seen complete Ichthyosaur skeleton represent the swimming reptiles. You will see Ice Age fossils, too, including skulls from a Cave Bear and a huge carnivorous bird. In all, visitors will learn about almost 100 different species. Most science museums do not have this much variety – and you will get a whole lot closer than in a museum. The tent will be staffed with fossil experts who will answer all your questions. If you have a favorite bone, or any other fossil you have been wondering about, bring it by for identification.

**Tuesday, September 20, 2005**

## Environmental and Engineering Group
## Dinner Meeting

Guadalajara Hacienda Restaurant • 9799 Katy Freeway (south side of Katy Freeway between Bunker Hill and Gessner)
Social 5:30 p.m., Dinner 6:30 p.m.

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

**Make your reservations now on-line through the HGS website at www.hgs.org;** or, by calling 713-463-9476 or by e-mail to Joan@hgs.org (include your name, meeting you are attending, phone number and membership ID#).

*by* ***Sandra Parker***
*NASA*
*Houston, Texas, U.S.A*
***Michael Madl***
*Malcolm Pirnie*
*Houston, Texas, U.S.A.*

# Evaluation of In Situ Chemical Oxidation of a Chlorofluorocarbon and Trichloroethene Plume at NASA's Johnson Space Center

A leaking process discharge line at the Energy Systems Testing Area at NASA's Johnson Space Center (JSC) resulted in the release of 1,1,2-trichloro-1,2,2-trifluoroethane (chlorofluorocarbon 113 or CFC-113) and trichloroethene (TCE) into two hydrostratigraphic units from the 1960's through the 1980s. Contaminants migrated through deposits of interbedded clay and saturated sand to a depth of 80 feet below ground surface. Historically, the co-mingled plumes contained CFC-113 and TCE concentrations of up to 90 milligrams/liter (mg/L) and 0.05 mg/L, respectively. The level of TCE in groundwater exceeded the maximum contaminant level (MCL) in isolated locations within the shallow saturated sand zone (SS-1) at 10 to 20 feet below ground surface and a lower saturated sand zone (SS-2) at 60–80 feet below ground surface. Though CFC-113 concentrations did not exceed the MCL, JSC desired that both CFC-113 and TCE be treated. A groundwater pump and treat system installed in the early 1990s controlled migration of the affected groundwater but did not reduce the TCE concentrations to below the MCL in a timely fashion.

*These results indicate that sodium permanganate is effective at remediating a co-mingled plume of CFC-113 and TCE.*

To attain JSC's objective of reducing TCE concentrations to below the MCL and to reduce CFC-113 concentrations to the maximum extent practicable in an expedited manner, in situ chemical oxidation (ISCO) using sodium permanganate in groundwater was investigated and tested at the site. Few studies exist in the literature describing the effectiveness of permanganate oxidation of CFC-113. Some evidence indicates that high concentrations of CFC-113 might interfere with the direct oxidation of TCE. Bench-scale ISCO treatability studies using batch reactors and column tests indicated that sodium permanganate completely mineralized low concentrations of TCE in the presence of CFC-113, which itself was partially mineralized. The presence of high concentrations of CFC-113 did not inhibit the oxidation reaction at a TCE concentration of 0.1 mg/L.


*Groundwater monitoring conducted during pilot oxidant injection test. The purple color in the purging lines indicates the presence of the oxidant in groundwater.*

Pilot injection tests in both affected saturated zones confirmed bench-scale results that ISCO is effective at oxidizing both the CFC-113 and TCE. The initial results of the pilot tests indicated that TCE was oxidized to concentrations below the MCL within both saturated zones, while the CFC-113 concentrations were reduced from 50 to 65 percent in these zones. These results indicate that sodium permanganate is effective at remediating a co-mingled plume of CFC-113 and TCE. ■

**Environmental and Engineering Meeting** *continued on page 51*

# City of Houston's Brownfield Redevelopment Program

*submitted by* ***David Reel***

On May 10, 2005, the U.S. Environmental Protection Agency awarded $400,000 in new brownfields site assessment grant funds to the City of Houston: $200,000 to assess sites affected by hazardous substances and $200,000 to assess sites contaminated with petroleum products. These funds will be administered through the City of Houston's Brownfields Redevelopment Program and will be used to conduct environmental site assessments and to develop cleanup plans on qualified brownfield sites. These new funds will be available for use after October 1, 2005.

To receive assistance, local property owners and developers voluntarily enter their environmentally contaminated sites into the program. The program offers

- Free environmental site assessments to determine the nature and extent of contamination on sites;
- Facilitation of applicants' participation in the state's Voluntary Cleanup Program; and
- Coordination with local, state and federal governmental agencies to expedite project assessment, cleanup and redevelopment progress.

For consideration and inclusion in the Brownfields Redevelopment Program, each property must meet certain eligibility criteria, including

1. Property is located within the City of Houston limits;
2. Property is underutilized and has environmental concerns;
3. Property has realistic potential for near-term redevelopment;
4. Property is willingly enrolled into the Texas Voluntary Cleanup Program;
5. Property has actual near-term plans for site reuse or cleanup;
6. Property is not a Resource Conservation and Recovery Act permitted or interim-status facility, is not listed on the Environmental Protection Agency's National Priorities List and is not involved in or targeted for any federal or state enforcement action.

On September 9 the City of Houston will host its 7th Annual Brownfields Redevelopment Workshop at the George R. Brown Convention Center, which will include presentations by national experts in brownfields redevelopment and a bus tour of local brownfields. Copies of the agenda and registration form are available online at the program's website (www.houstonbrownfields.org).

To learn more about what the City of Houston's Brownfields Redevelopment Program has to offer, visit the program's website. To apply for assistance on a brownfield contact the City's Brownfields Redevelopment Program at 713-837-9076 or by e-mail at david.reel@cityofhouston.net. ■

## Environmental and Engineering Meeting continued from page 49

### Biographical Sketches

**Ms. Sandy Parker** has her BS degree in Environmental Science from Stephen F. Austin State University and is currently an Environmental Specialist for NASA at the Johnson Space Center (JSC) in Houston, Texas. Ms. Parker has been with NASA since 1989 and is responsible for environmental compliance at JSC, Sonny Carter Training Facility and Ellington Field. Major areas of oversight include the largest hazardous waste generators; the metal finishing shop and the photographic laboratory, oversight of the petroleum storage tank program, pollution prevention, cardboard recycling and the restoration program. She was responsible for installing an innovative treatment system that completely recycles photographic waste water and generates de-ionized water for re-use in the photographic laboratory, thereby eliminating the largest hazardous waste stream at JSC. Ms. Parker is currently conducting a study to determine if an in situ chemical oxidation treatment will reduce volatile organic constituents in a groundwater plume at JSC. Prior to working for NASA, Ms. Parker held environmental positions for the Texas Department of Water Resources, Texas Eastern Corporation and the Texas Water Commission. Among Ms. Parker's accomplishments she received the NASA Flight Space Awareness Award in 1992.

**Mr. Michael Madl** is a project engineer with the environmental consulting firm Malcolm Pirnie, Inc., in Houston, Texas. Mr. Madl's primary area of expertise is the characterization of sites contaminated with hazardous chemicals and developing various in situ remediation technologies for site restoration. His in situ remediation work has focused on cleanup of volatile organic compounds through bioaugmentation, biostimulation, chemical oxidation, permeable reactive barriers, air sparging, and monitored natural attenuation. Another area of expertise consists of the characterization of munitions and explosives of concern (MEC) and munitions constituents (MC) at other than operational military ranges under the Military Munitions Response Program (MMRP) for the United States Navy and Marine Corps. He also conducts range environmental vulnerability assessments for operational ranges for the Navy and Marine Corps. Mr. Madl previously supported two Department of Defense test and evaluation agencies at the Pentagon. He has Bachelor of Science degrees in Environmental Science and Biology from the College of William and Mary, and received a Master of Science degree in Environmental Engineering and Science from Clemson University.

# Brownfields Redevelopment Program

*by* ***David Reel***

Houston's award-winning Brownfields Redevelopment Program facilitates the reuse of eligible properties identified as Houston brownfields. Brownfields are abandoned, idled or underused industrial or commercial properties with real or perceived environmental contamination. Potential environmental liabilities and costs associated with cleaning up the contamination have been barriers to expansion or redevelopment of many of these properties. Through the City's initiative, stakeholders are working with developers to find workable solutions to assess, clean up and return these sites to productive use.

As of July 2005, Houston's Brownfields Redevelopment Program has
- Approximately 1,100 acres of sites participating;
- Completed 14 projects at a cost of $714 million;
- 3 projects underway at a cost of $8 million;
- Created more 2,564 new jobs;
- Facilitated construction of 975 housing units; and,
- Returned more than $1.6 million in delinquent taxes and more than $1.0 million per year to the City, county and school taxing districts.

Property owners and developers may qualify to have the Brownfields Redevelopment Program perform Phase I and/or Phase II Site Assessments on eligible brownfields. Because of funding constraints, not every qualified applicant will be able to participate in the program. The City will give priority to brownfield projects that, in the judgment of program coordinators, will generate the greatest potential for employment creation, clean up and improvement of brownfield sites, and significant community benefit.

For more information contact the City of Houston's Brownfields Redevelopment Program, in the Mayor's Office of Health Policy at 713-837-9076 or by e-mail at david.reel@cityofhouston.net. ■

**David Reel** is an HGS member and a USGS geologist on loan to the Brownfields Redevelopment Program, Mayor's Office of Health Policy, City of Houston.

# "Coastal Subsidence, Sea Level and the Future of the Gulf Coast"

## November 3-5, 2005

Photo by A. E. Berman, San Luis Pass, Texas

## A Conference to increase awareness of subsidence issues facing the Gulf Coast Region

**Sponsored by: Houston Geological Society and Engineering, Science & Technology Council of Houston**

November 3, 4, and 5, 2005 - 8:30 am - 5:30 pm • Registration Table opens at 7:30 am

Northwest Forest Conference Center
12715 Telge Road • Cypress, Texas 77429 • Map available at HGS website
7 Professional Development Hours (0.7 CEU) are earned by attending each day of this conference

Visit www.hgs.org for details. Registration form can be faxed or mailed to the HGS office.
Houston Geological Society, 10575 Katy Freeway, Suite 290, 10575 Katy Freeway, Suite 290, Houston, Texas 77024
713-463-463-9476 Fax (713) 463-9160

Please complete registration amounts and total. Payment is due at the time of registration. Prices include continental breakfast and lunch.

| REGISTRATION FEES: | Before Oct. 27 | Oct. 27 or Later | Reservation |
|---|---|---|---|
| All Three Days | $150.00 | $180.00 | |
| Thursday Night Banquet | $30.00 | $40.00 | |
| Thursday (one day) Only | $80.00 | $100.00 | |
| Friday (one day) Only | $80.00 | $100.00 | |
| Thursday and Friday (two days) Only | $130.00 | $160.00 | |
| Field Trip Only | $30.00 | $40.00 | |
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**Monday, September 26, 2005**

## HGS North American Explorationists Dinner Meeting

Westchase Hilton • 9999 Westheimer
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 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* ***Raymond P. Sorenson***
*Anadarko Petroleum Corporation*
*Houston, Texas*

# A Dynamic Model for the Permian Panhandle and Hugoton Fields, Western Anadarko Basin

Panhandle-Hugoton, the largest North American gas field, has long been controversial because of extreme subnormal pressures, variable gas composition and tilted fluid contacts, commonly attributed to hydrodynamic flow despite the absence of an effective updip aquifer. These anomalies are explained in terms of a basin-scale petroleum system history, largely independent of the geographically underlying pre-Permian system.

*Giant Amarillo uplift drape structures trapped hydrocarbons immediately following Permian evaporite deposition.*

Hydrocarbons were already being generated in the deep Anadarko basin during the Early Permian, with efficient southward migration from all potential source rocks via bounding faults and Pennsylvanian-Permian alluvial fans. Giant Amarillo uplift drape structures trapped hydrocarbons immediately following Permian evaporite deposition. The pre-Laramide Panhandle field, at maximum burial depth and pressure, contained most of the oil and gas now found in mid-continent Permian reservoirs.

The Early Tertiary Laramide orogeny redistributed Panhandle field fluid columns, possibly spilling gas into the Hugoton embayment. Subsequent erosion of Permian reservoir facies in eastern Kansas allowed water discharge to outcrops at elevations below the regional hydraulic head. As regional pressure dropped in response, the Panhandle field gas cap expanded rapidly, forcing a Late Tertiary-Quaternary mass movement of gas northward to fill Hugoton and associated fields.

Panhandle-Hugoton pressures, upon discovery, were subnormal relative to drilling depth but normal relative to reservoir outcrop elevations in eastern Kansas, indicating that pressures are controlled by aquifer communication with the surface rather than burial depth. Variations in fluid contacts, pressure, and gas composition suggest that reservoir fluids are still moving, driven by decompression and the rapid volumetric expansion of a supergiant gas accumulation. ■

A more detailed version of this presentation can be found in the July 2005 *AAPG Bulletin*, v. 89, no. 7, p. 921–938.

### Biographical Sketch

**Ray Sorenson** received his BS degree in geology from Michigan State University in 1972 and his MA degree in geology from the University of Texas at Austin in 1975. He worked for Texaco from 1974 to 1975, and has been employed by Anadarko, in Oklahoma City and Houston, since 1976. The majority of his career has focused on the geology of the United States mid-continent.

# Sept 15 Dues Renewal Deadline

Members are reminded that the deadline for dues renewal is September 15. Members who have not renewed their dues ($24.00 active/associate; $12.00 emeritus/student) by that date will be dropped from the mailing list for the HGS *Bulletin* and be charged the non-member rate for HGS events. There will be a $5.00 reinstatement fee for members renewing their membership after 9/15. Active status will be placed on hold until dues are received by the HGS office.

**Wednesday, September 28, 2005**

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).

**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#).

## HGS General Luncheon Meeting

*by* ***Andrew Thomas, Jessy Jones***
*Chevron Energy Technology Company, Houston, Texas*
***Dave Balcer, Tom Himes, Larry O'Mahoney***
*Chevron GOM Business Unit, New Orleans, Louisiana*
***Linda Bonnell***
*Geocosm, Austin, Texas*

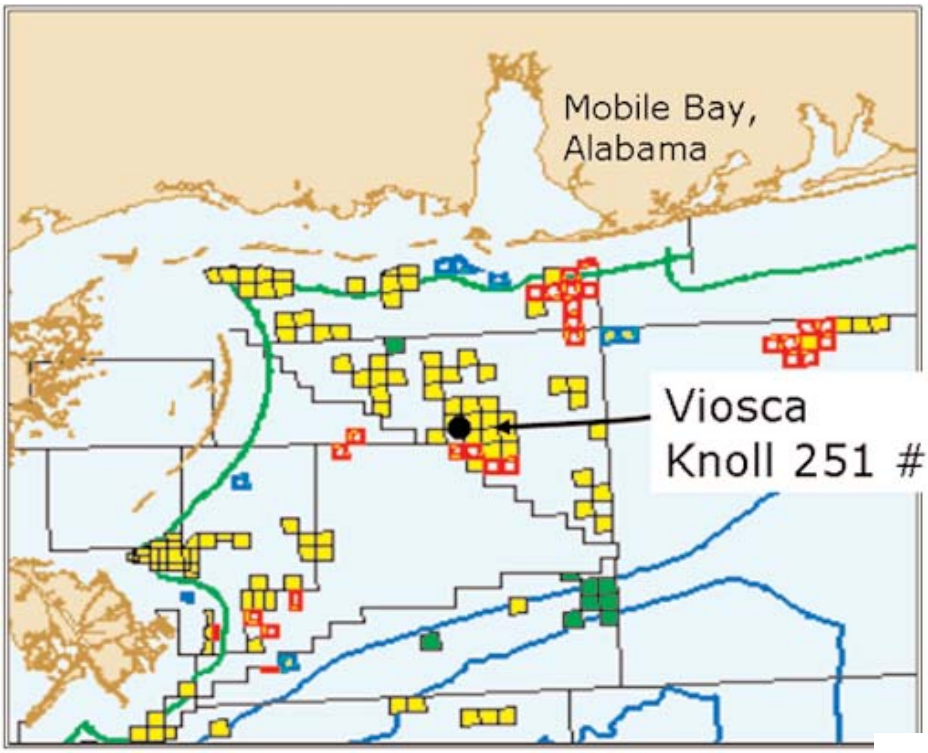
# Jurassic Cotton Valley Reservoir Quality, Eastern Offshore Gulf of Mexico: Chlorite Coatings and the Porosity Preservation Story Found Below 20,000 ft

The Jurassic Cotton Valley formation was penetrated near 20,000 ft in a shelf-margin growth-faulted well location in Viosca Knoll Block 251. The sands cored in the subject well describe three shallow water parasequences, each having argillaceous transgressive rocks overlain by coarser-grained highstand sandstones.

Intergranular, intragranular and fracture porosity are contained within these sandstones. Log porosity ranges from 1% to 14% overall, and core porosity ranges from 1.0% to 6.7%. Although quartz is the main cement, chlorite grain coatings inhibit quartz cement when they are well developed. Late fractures are partly filled with quartz and carbonate cement, and unfilled fractures are thought to enhance reservoir deliverability.

*Reservoir quality is driven by quartz cement volume and reservoir viability is lost below 15,000 ft.*

Cotton Valley in the eastern Gulf of Mexico (GOM) composition and diagenetic path stand in contrast to the quartzarenites found farther west on trend. Fluvial-deltaic Cotton Valley sands deposited and reworked in East Texas and North Louisiana systems are highly quartz cemented and contain few clay coatings. Reservoir quality is driven by quartz cement volume and reservoir viability is lost below 15,000 ft. In contrast, progradational fluvial-deltaic sands in Viosca Knoll are lithic arkoses and contain muscovite and biotite both as discrete mica and as metamorphic rock fragments. This sandstone composition shift is related to proximal Appalachian drainages and minor strandplain reworking in the eastern GOM. Biotite dissolution influences the Cotton Valley diagenetic pathway to one favoring chlorite coatings and porosity preservation below 20,000 ft.




*Location map showing the deep well location in Viosca Knoll 251.*

**HGS General Luncheon Meeting**

*continued on page 57*

# Remembrances

*Since the last report from the Remembrances Committee, our geological community has lost the following members:*

**Dr. Margaret Stearns Bishop**, born June 21, 1906, emeritus professor of geology, University of Houston, and noted geologist passed away peacefully and comfortably May 17, 2005.

She began her career by being the first woman to earn a PhD in geology from the University of Michigan (1933), where she was Phi Beta Kappa as an undergraduate.

During her lifelong career, she enjoyed several quite different phases. In 1933 she started as a geologist for a then large exploration company, Pure Oil, in Chicago, Illinois. In the early 1940s she and her husband, Barton, established Bishop and Bishop Consulting in Michigan. They had met at "the Pure," where she was a geologist and he a geophysicist. Because Barton's work took him south from Michigan to Texas, in 1953 she changed her career focus once again and became a professor at the University of Houston, Department of Geology.

During her teaching career she had many accomplishments, three of which her family is particularly proud of. First, she was a noted subsurface specialist and in 1960 authored the thin but widely quoted and copied textbook, *Subsurface Mapping*. Second, through the National Teacher Education Act, she established one of the early programs to teach nongeologist science teachers how to teach geology. Third, during her time as Department Chair, she succeeded in establishing a program in geophysics in 1969, which, from its inception to today, has attracted professors with international reputations and students who have become international leaders. Her success stemmed in part from her being an early practitioner of teambuilding—she succeeded in gathering advice and support not only from the university but also from Exxon Production Research Company and Shell Development, USA. But perhaps more important than these is that Mom took great pride and pleasure in the accomplishments of her students as they went beyond the University and became leaders in the oil industry. Nothing gave her more pride than to be at an AAPG or HGS meeting and point to the accomplishments of one of her students. She took great pride in her 67-year membership in the AAPG.

After her retirement from the university in 1971, she continued her love of teaching and, along with her sister, Phyllis Lewis, and a former student, Dr. Barry Sutherland, authored five editions of *Focus on Earth Science*, the most widely used geology textbook for secondary schools in the United States. This book was also translated into Spanish and Chinese and widely used in both cultures. In an unusual move, but so characteristic of her standards, she successfully sued the publisher to remove her name from the book because the publisher's edits were simply incorrect science.

She is survived by her two sons, Harry and his wife, Edith, and Richard and his wife, Edythe; grandchildren, Sabrina, Angie, Bill, Ryan and Tim; and great grandchildren, Matt, Chance, Cameron and Ashtyn. She was preceded in death by her beloved husband (and cheerful editor) of 61 years, Barton Phelps Bishop, and her three sisters, Elizabeth Stearns, Phyllis Lewis and Thelma Ogle.

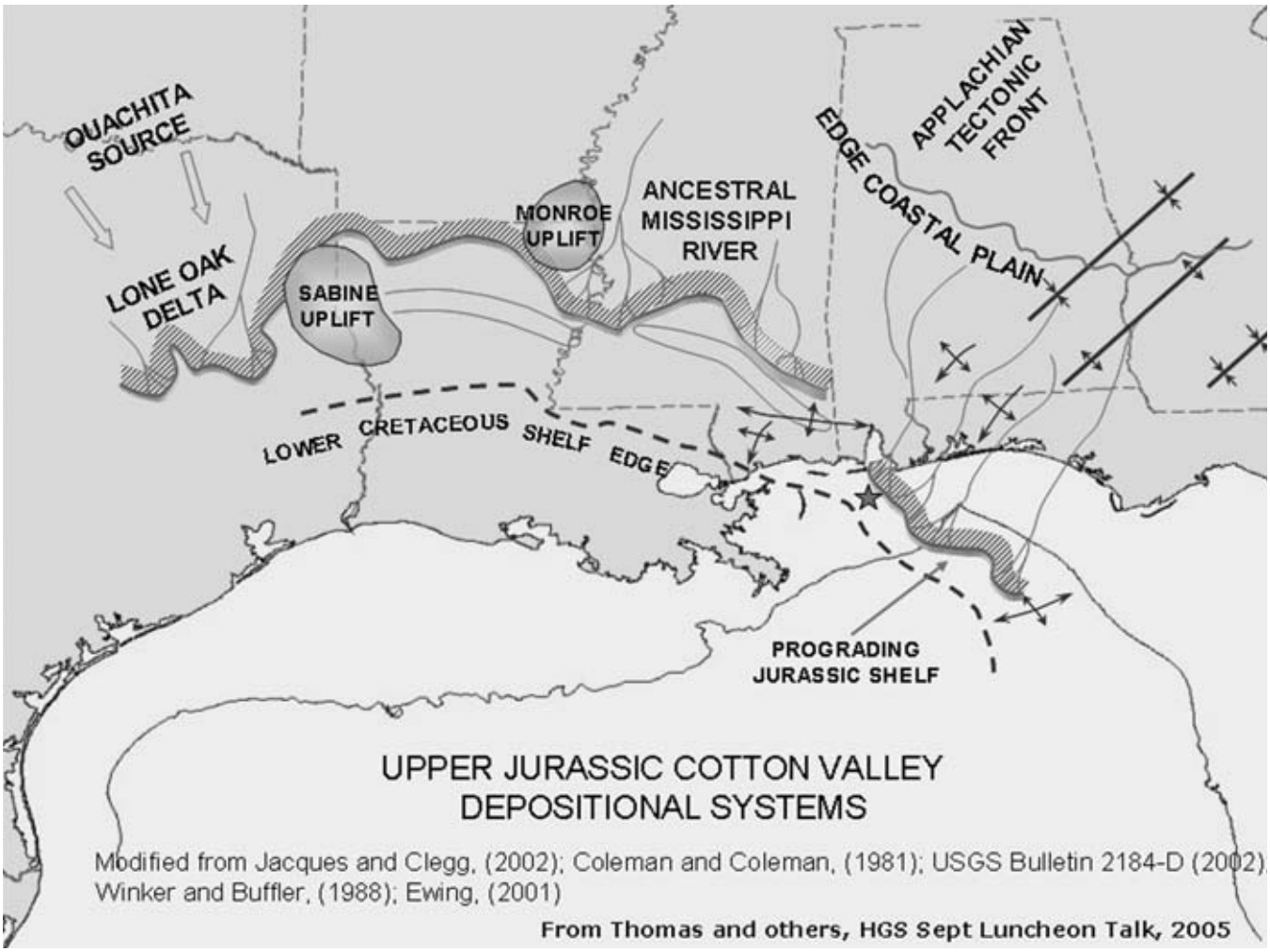
She is also survived by her legacy of love, responsibility and thoughtfulness. How does one describe such an extraordinary person?

The family remembered her in a private ceremony and asks that any donations be made to the University of Houston, Department of Geosciences. The family sends a special appreciation and recognition to the staff of both the Hampton at Shadowlake, Arbors Unit, and to Katy Hospice.

*Editor's Note: Margaret was an HGS member, and mother of HGS Past President Dick Bishop (1989-1990).*

**Remembrances** *continued on page 62*

## HGS General Luncheon Meeting continued from page 55




*Upper Cotton Valley depositional systems offshore Gulf of Mexico, showing the prograding Jurassic shelf.*

Reservoir quality uncertainty was constrained with Touchstone* modeling. With the subject well as calibration, chlorite coatings are shown to preserve reservoir quality to even greater depths. ■

**EDITOR'S NOTE:** **Touchstone is a software system for analysis of controls on reservoir quality in analog sandstones and for forward modeling of sandstone diagenesis and petrophysical properties.*

### Biographical Sketch

**ANDREW THOMAS** started work in 1981 with Texaco in New Orleans, after receiving a Master's degree in geology from Indiana University and a bachelor's degree in geology from the University of Georgia. He has lived in New Orleans twice and Houston twice, working various reservoir quality issues in sandstones and carbonate rocks for both Texaco and Chevron. Andy currently works in Houston within the Chevron Energy Technology Company and does global consulting regarding sandstone diagenesis, reservoir characterization and reservoir quality prediction using Touchstone. He is an AAPG Certified Petroleum Geologist and member of SEPM, serves on the executive committee of the Clay Minerals Society, and is a past HGS delegate to the AAPG.

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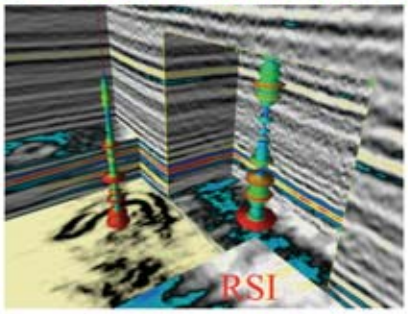


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| • SAA: A Carbonate Case History | Dr. Uwe Strecker (RSI) |
| • Gulf Coast 3D Opportunities | Dan Smith (Sandalwood) |

## SEPTEMBER 13TH, 2005 : 7:45 AM - 4:30 PM

## *MARK YOUR CALENDARS AND REGISTER NOW TO SAVE!*

---

**Location**: Houston Research Center of the Bureau of Economic Geology (BEG)
**11611 West Little York Road (Off Hwy 290), Houston, TX 77041**

**Tuition Price** includes: CD, Notebook, Catered Lunch, Coffee, & Snacks

| | | |
|---|---|---|
| **Early-Bird Special** Register by July 31st | $125 SIPES members | /$150 non-members |
| Register August 1st – September 6th | $200 " | /$225 " |
| After Sept 6th & Walk-Ins (Limited Space!!) | $225 " | /$250 " |

**To Register** contact B.K. Buongiorno at 713-651-1639 or Bkspee@aol.com
Name _____ Company _____ E-mail_____
Phone_____ Address_____ Zip _____
**Mail Checks to:** "SIPES", 1001 McKinney, Suite 801, Houston, TX 77002

**Thanks to our Sponsors!!**- Gold: Kiwi Energy & Seismic Stratigraphic Services. Silver: Seismic Micro Technology Bronze: New Century Exploration & Collarini Energy Staffing
**Sponsorship:** If your company would like to help sponsor, please contact Hans Sheline at 281-565-5305 or Sheline@VeriNova.com For updates click on: www.sipes-houston.org

**Thursday, September 15, 2005**

Petroleum Club • 800 Bell (downtown)
Social 11:30 a.m., Lunch 11:45 a.m.

Cost: $30 for members and affiliates pre-registered by 12 noon Tuesday 13th June (No-shows will be billed.). $35 for non-members, guests, and walk-ups.

**Make reservations by telephone (713-651-1639), Fax (713-951-9659), Web-site (www.sipes-houston.org), or e-mail (bkspee@aol.com) to B. K. Starbuck-Buongiorno by 12 noon Tuesday before the meeting.**

SIPES
**Luncheon Meeting**

*by **Jeffrey S. Ogilvie***
*Noble Energy Inc*
*Houston, Texas*

# Seismic Considerations for Classifying Resources/Reserves

It is important for planning and reporting that corporations have a clear assessment of the volumetric quantities of hydrocarbons as both OGIP/STOOIP (original oil in place/stock tank original oil in place) and recoverable resource/reserves. Recently developed and approved by the SPE, AAPG, and World Petroleum Congress is the "Resource Classification System" adopted by numerous oil and gas companies. Geophysical technology and its application, often referred to as "seismic considerations," can have significant impact to reserve/resource classification and available bookings under this system.

*Geophysical technology and its application, often referred to as "seismic considerations," can have significant impact to reserve/ resource classification*

The purpose of this talk is to stimulate discussion and recommend a set of clear yet stringent guidelines for the proper application of such geophysical technology when classifying resources/reserves. Some examples will be shown for how geophysical tools such as optical stacks, rock property analysis, fluid substitution, seismic synthetics and 3D amplitude extractions can be integrated with well log data to aid reserve/resource classification. This pertains specifically to extrapolation away from the wellbore as well as both below the lowest known hydrocarbon (LKH) and above the highest known hydrocarbon (HKH). An appropriate level of sophistication and redundancy is suggested as necessary to meet SEC guidelines of "reasonable certainty" to classify resources/reserves accordingly using seismic data. ■

### Biographical Sketch

Jeffrey S. Ogilvie is a geophysical advisor for Noble Energy in Houston. He is a member of SEG and SPE and author of papers in *Geophysics* and *The Leading Edge*. He began his career with Western Geophysical in 1984 and joined ChevronTexaco in 1988, where he held numerous earth science assignments in exploration and exploitation, both domestic and international (GOM, UK, West Africa). Jeff received his BS in geology-geophysics, Boston College (1983), and MS in geophysical sciences, Georgia Institute of Technology (1988). Career highlights include Best Paper in Geophysics (1996), Texaco's President's Award (1997), and ChevronTexaco's Chairman's Award (2003). His current interests are activities related to domestic/international reserve determination and reporting, rock properties/DHI, and seismic attribute analysis.

# East Texas Geological Society

## *Call for Papers*

# The Gulf Coast Mesozoic Sandstone Gas Province

**November 16, 2006**

**Tyler, Texas**
**Harvey Hall Convention Center**

The East Texas Geological Society is sponsoring a symposium on the geology, reservoir characteristics and petrophysical character of the Cotton Valley, Bossier, Travis Peak (Hosston), Woodbine and other gas-producing formations in the Gulf Coast Mesozoic. The area of interest includes East Texas, North Louisiana and Mississippi. The Society is actively seeking authors who would like to present their work to an audience of industry professionals involved in the exploration and production of petroleum. The proceedings of the symposium will be published as a volume of papers and distributed to the symposium participants and attendees.

The presentations should be designed to last about 25 minutes, and the publication guidelines are those used by the Gulf Coast Association of Geological Societies. Please submit a title and a brief description of the theme of the presentation to the East Texas Geological Society by November 15, 2005. Both hard copy and on-line submissions are acceptable.

Contact information:

Rick Turner
Vice President
East Texas Geological Society
Barrow-Shaver Resources Company
100 E. Ferguson, Ste. 712
Tyler, Texas 75702
rick-bsr@tyler.net
903-593-5221

All submittals are welcome. Questions should be directed to Rick Turner. The East Texas Geological Society looks forward to your participation in this informative and enjoyable event.

**Thursday, September 22, 2005**

HESS Building • 5430 Westheimer, Houston
Social 5:30 p.m.

Cost: $25
Call or email Dale Bird, by noon Tuesday, September 20, 2005
281-463-3816 or dale@birdgeo.com

## GSH Potential Fields Group
## Dinner Meeting

*by **Leonard J. Srnka***
*Subsurface Imaging Division*
*ExxonMobil Upstream Research Company*
*Houston, TX USA*

# Marine CSEM: ExxonMobil's Experience and a Summary of the 2005 SEG Workshop

Marine controlled-source electromagnetic surveying has emerged as a new tool for remotely detecting reservoired hydrocarbons offshore. The technology was pioneered by university and government researchers over the past 25 years, and recently has benefited from development by contractors and the oil industry, including ExxonMobil. When integrated carefully with other geoscience information, primarily seismic, marine CSEM shows promise for adding considerable value in Upstream applications. Remote reservoir resistivity detection and imaging results from a recent ExxonMobil survey demonstrate this technology.

Highlights from the recent SEG Forum on Marine CSEM will be reviewed, and an informal panel discussion is planned. ■

**Biographical Sketch**

BSc Engineering Sciences, Purdue 1968. PhD Physics, Newcastle upon Tyne UK, 1974

NASA Lunar Science Institute, 1974-79: Research on origins and evolution of lunar and planetary electromagnetism.

ExxonMobil, 1979 to present: Exxon Production Research Co., 1979–1993: Project leader and supervisor assignments in electromagnetic methods, seismic modeling and inversion, and borehole geophysics; Exxon Exploration Co., 1993–1998: Supervisor for Grav/Mag/Remote Sensing research and applications; ExxonMobil Upstream Research Co., 1998 to present, Project leader for "R3M" marine electromagnetic technology. Member of senior technical staff. Chief Scientist on numerous R3M surveys offshore West Africa in 2002–2003.

# A Special Appeal

This is a special appeal to HGS members for contributions to our two scholarship funds. At its annual meeting last year, the Gulf Coast Association of Geological Societies (GCAGS) offered to match the contributions to the scholarship funds of each of its membership societies up to a maximum of $10,000. HGS may receive up to $20,000 because of its size and because it supports two scholarship funds. However, the GCAGS matching contribution offer is valid only until September 15, 2005.

Board members of the funds, as well several HGS members serving on other committees, have worked hard to solicit contributions, as an example by inaugurating a benefit dance and silent auction in February that raised about $1,500 for each fund. But we still have fallen far short of our goal of raising $10,000 for each fund.

We urge you to make whatever contribution you can afford by the September 15 deadline. The need is great to increase the amount of individual scholarship awards to students to cover rapidly rising costs for a college education. According to the College Board's annual Reports on College Pricing and Financial Aid (http://www.collegeboard.com) tuition and fees at 4-year public institutions increased 10.5 % (to $5,132) between 2003–2004 and 2004–2005. Similar costs at private institutions increased 6 % to $20,082. HGS's one-year scholarship awards last year ranged from $1,500 (undergraduate) to $3,200 (graduate), so they are far from adequate to fully support a student. But they are very important aids to needy students. Now is your chance to get twice the bang for your scholarship buck!

Carl Norman, *Chairman, Calvert Scholarship Fund*
John Adamick, *Chairman, Undergraduate Scholarship Foundation*

# Remembrances

*continued from page 56.*

**Robert James Palmer**, 80, an independent geologist in Simonton, Texas, since 1970 and a former student in the Searcy Public School system, died May 14, 2005, from pulmonary fibrosis, aggravated by an automobile accident injuries sustained April 27 in which he suffered several broken ribs in the back near the spine. During his youth he had worked in a coal mine for a limited period but apparently suffered some lung damage.

Palmer was born June 18, 1924, in Herrin, Illinois, the son of Bill and Marge Palmer. His father was manager of the J.C. Penney store in Searcy for many years in the 1940s and 1950s. During this period, Palmer served in the 15th U.S. Air Force in Africa and southern Europe as a radio operator on B-17s. He completed 71 missions and received the Air Medal with nine oak leaf clusters and three presidential unit citations.

As an independent geologist, Palmer took his family from west Texas to Houston several times as well as Corpus Christi and El Paso before moving to Calgary, Alberta, Canada, and Tripoli, Libya. After 1970, the family lived in the Houston area.

Palmer is survived by his wife, Leona Mae Price Palmer; a son, James Hommeyer; three daughters, Jamie Deniese Palmer-Huggins, Deeann Le Palmer-Petty and Danni Helenmary Palmer; a stepson, Donald L. Riggs; and a stepdaughter, Dolli Scott Thomason, later adopted by Palmer. His six grandchildren are Nicholas William Pilcik, Jason Palmer Huggins, Hayley Noelle Pilcik, Aron Phillip Petty, Matthew Hommeyer and Adam Hommeyer.

Palmer was buried in the Houston National Cemetery for Veterans following funerals rites on May 17, 2005.

The family expressed thanks for all the kindnesses of his friends and colleagues during his final illness and since his death.

*Report on*

# 5th Annual GSH/HGS Saltwater Fishing Tournament 2005 June 25, 2005

*by* ***Robert D. Perez,*** *Tournament Chairman*

This year's Saltwater Fishing Tournament was a Big Success for both the Houston Geological Society and the Geophysical Society of Houston. Everyone had a great time. The tournament took place at Teakwood Marina, Village of Tiki Island, Galveston, Texas. We had 52 Anglers fishing the entire Galveston Bay Complex trying their fishing skills on Redfish, Speckled Trout, and Flounder.

**This year's winners are:**

**Heaviest Speckled Trout:**

| | |
|---|---|
| First Place: | Dale Shipley, 4 lb. 8 oz. |
| Second Place: | John Cumming, 3 lb. 7 oz. |
| Third Place: | Robert Tannehill, 3 lb. 4 oz. |

**Heaviest Redfish:**

| | |
|---|---|
| First Place: | Dale Shipley, 4 lb. 14 oz. |
| Second Place: | Robert Tannehill, 4 lb. 5 oz. |

**Heaviest Flounder:**

| | |
|---|---|
| First Place: | Dave Felti, 2 lb. 11 oz. |
| Second Place: | Jack Kramberger, 2 lb. 4 oz. |
| Third Place: | Dan Doss, 2 lb. 2 oz. |

**Heaviest Stringer:**

| | |
|---|---|
| First Place: | Dale Shipley, 16 lb. 2 oz. |
| Second Place: | Robert Tannehill, 10 lb. 4 oz. |
| Third Place: | John Cumming, 8 lb. 1 oz. |

A "Special Thank You" to the volunteers of the event: Joan Henshaw, Lilly Hargrave, Tom Parsons, Tom Ayers, Deb Martin, Pat Perez and Jeff Autrey for helping with the registration and preparation of the event.

We can't praise our sponsors enough for their support and generosity for this event. We want to give a "Special Thank You" to Kenneth Baucum, Jr. (Diversified Well Logging) for sponsoring the Fish Fry, Bill Enyart (GX Technology) for sponsoring the Marina, David Orchard (Manzanita Alliance) for sponsoring the Awards. Jeff Autrey (Seismic Exchange) for sponsoring the Fishing Caps.

BIG "6" Drilling Company, Geovision, Roff Oil & Gas, Seismic Ventures, Southwest Canoe & Kayak, Veritas Geophysical - Hampson & Russell Software Services, Geological Services, Indel-Davis, American Shooting Centers, Polaris E&E Services, Dawson Geophysical Company, J.L. Allen Exploration Ventures, Unique Digital Technology, Western Geco, Iron Mountain, Jack Nadel, Copy Dr., Tyrrell Data Services, Ovation Data Services, M-W Solutions, eSeis, Fairfield Industries, Fugro Multi Client Services, and Fugro Robertson / LCT Division for sponsoring the Saltwater Fishing Tournament. We wish to thank everyone again involved with the 5th Annual GSH/HGS Saltwater Tournament. The best advertisement is word of month, so please spread the word to your friends about the next fishing tournament. ■

*Tight lines to everyone until next year.*

*The names of the Trophy Winners from left to right are: Robert Tannehill, R.E.M. Solutions; John Cumming, Consultant/Geophysicist; Dale Shipley, Consultant/Geologist/BP; Dave Felti, Geological Services, Inc.; Jack Kramberger, Nearburg Producing; Dan Doss, Rimco Production Company*

# 22nd Annual Skeet Shoot—June 18, 2005

*by* ***Tom McCarroll, 2005 Skeet Shoot chairman***

On Saturday, June 18, 2005, the HGS's 22nd Annual Skeet Shoot at the Greater Houston Gun Club in Missouri City hosted 99 participating shooters. They enjoyed perfect weather, 50 challenging targets, a delicious barbecue lunch (generously furnished by Kenny Baucum of Diversified Well Logging) and lots of camaraderie. The gun club grounds were groomed to perfection and the targets flew straight and true all day. The first shooters took the field at 9:00 a.m. and by 2:30 we had given away all the trophies and door prizes and the contestants were headed home.

There were no losers, but the winners and their scores were:

High Overall Champ: Paul Quin, with a score of 49
High Overall Runner-up: Tom McCarroll, 48
AA Class Champ: Drake Davis, 48
AA Class Runner-up: Danny Davis, 47
A Class Champ: Mike Globe, 42
A Class Runner-up: Charles Burleyson, 42
B Class Champ: John Crawford, 38
B Class Runner-up: Lance Dunn, 38
C Class Champ: John Carr, 31
C Class Runner-up, Matt Burleyson, 31

Winners of the major door prizes were: John Macomber and Jay Petrus, Beretta 3901 shotguns, Troy Spencer and Gary Arrington, Remington 11-87 shotguns, and Ed Fiffick and Rich Adams won Remington 870 shotguns. We also raffled off a dozen $100 gift cards from Academy Sporting Goods, as well as several cases of shotgun shells.

Without the support provided by our sponsors, our shoot would not include food, beverages and door prizes for such a low price. We gratefully acknowledge the contributions, financial and otherwise, of our sponsors: Diversified Well Logging, Landmark, Energy Graphics, Schlumberger, Seitel Data, Petrolog International, Continental Land & Fur, Apex Oil & Gas, ATP Oil and Gas, Cheyenne Petroleum, Hilcorp Energy, Live Oak Environmental, PGS Geophysical, Exploration Data Services, The Mudlogging Company, Output Exploration, John Warner, WesternGeco, Geological Consulting Services, and Digital Relay.

The Skeet Shoot Committee also thanks all the shooters who came out to support this year's event. Be sure to come out next year—look for the ad in the *HGS Bulletin*! ■


As we start a new year, the HGS Website team wants to remind our members and those who visit our site that there are many features available:

- A calendar of HGS and other related meetings, courses and field trips
- The option to register and pay online for HGS events
- Articles from the Bulletin and other sources
- Geoscience and related Job postings
- A place to post a resume for HGS members seeking jobs
- List of HGS publications for sale
- An online Forum where you can initiate or participate in discussions on various topics

Current and past HGS and GSH members already have an account set up for them on the HGS Website. Please use the account we set up for you; do not create a new account. Your existing account was set up using your email address on record in the HGS office. If you changed your email address or need any other help determining your HGS Website account, please contact the HGS Webmaster by clicking on the "Webmaster" link on the HGS Website.

Now that the HSG Website offers online payments for the monthly dinner and lunch meetings and other events, we encourage you to use this feature often. Advance online payments for HGS events will reduce the required office staff overhead and help make the HGS a more efficient organization.

We encourage you to use the various features available on the HGS Website. We also solicit your comments and suggestions for improvements. We want the HGS Website to be an easy to use, informative place on the Internet and, with your help, we will continue to get better. ■

# Government Update

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

### Texas Board of Professional Geoscientists News

As of September 1, 2005, all Professional Geoscientist licenses with expiration dates of August 31, 2004, or before will become permanently expired. Each license holder's file will be sealed, P.G. number reassigned and he or she will be required to take an exam in his or her discipline before reapplying for licensure. All standard exam and application fees will apply. If you wish to renew your license, please verify your status on the Licensee Roster on the Texas Board of Professional Geologists (TBPG) homepage (http://www.tbpg.state.tx.us/) and contact the TBPG office for details on how to bring your license to a current status.

The TBPG has approved the Continuing Education Program. It will take effect on September 1, 2006. You can read the program at http://lamb.sos.state.tx.us/texreg/sos/adopted/22.EXAMINING%20BOARDS.html#359.

The new chairman of the TBPG is Gordon Ware, who's with Arcadis in Corpus Christi, and the new vice-chairman is Kelly Krenz-Doe, with Turner, Collie & Braden in Houston.

The TBPG proposes amendments to 22 Texas Administrative Code Chapter 851, §851.80, concerning licensing fees. Proposed amendments to the existing rule establish a $25 examination processing fee for all examinations administered by the Board in addition to proposed language for payment of required fees as set forth by both the National Association of State Board of Geology (ASBOG) and the Council of Soil Science Examiners (CSSE) for administration of their specific examinations. Proposed amendments also establish a $200 one-time temporary licensing fee for all geoscientists to practice in their respective field of geoscience in the State of Texas for no more than the mandated 90-day period as specified in the Geoscience Practice Act. The license renewal fee is now proposed to be $168 and a new proposed verification of license fee will be $15. The Fundamentals and Practice fees for Geophysics are now proposed to be $150 each. Legislation enactment in 2001 of Senate Bill 405 Subchapter D, §4.01 granted the Board general rulemaking authority to adopt and enforce rules consistent with this act necessary for the performance of its duties and §4.02 granted authority for the Board to set reasonable and necessary fees to be charged to all applicants and license holders, including fees for applications, examinations, licensur, and renewal of a license including basing a fee for an examination in a discipline of geoscience on the costs associated with preparation, administration and the grading of the examination. The proposed amendments to the rule provide language clarity to the fee requirement for administration of each of the agency's examinations taken relevant to the applicant's geoscience discipline(s) as well as amend the licensing fee structure through the inclusion of additional language to the existent licensing fee requirement as set by the Board in order to establish both new fee requirements and an increase to the renewal fee to allow the Board attainment of its appropriated general revenue funding level. These proposed changes can be found at http://lamb.sos.state.tx.us/texreg/sos/PROPOSED/22.EXAMINING%20BOARDS.html#197.

### TCEQ News

The TCEQ Affected Property Assessment Report (APAR) form has been revised based on stakeholders' comments and is available on the Texas Risk Reduction Program (TRRP) web page at http://www.tnrcc.state.tx.us/permitting/trrp.htm. After September 1, 2005, the TCEQ will accept only the May 2005 form for new reports. If you submit an APAR using the August 2001 version prior to September 1, you may continue using the form for amendments until the TCEQ approves your APAR. Do not mix the two forms in one report. In addition to the full report that includes the instructions and prescribed tables, a second file of just the APAR tables is also available. The May 2005 form is more of a text-based report rather than the fill-in-the-blank format of the August 2001 version. Read the instructions carefully.

On May 4, 2005, the PST Reimbursement Section web page at http://home.tnrcc.state.tx.us/permitting/r_e/reimb/index.html was updated. In the section titled Application for Reimbursement, you will be able to access the following:

1) New application form (effective March 1, 2005) with recent changes on the following pages: language tied to Title 30 TAC § 37.311 has been removed from pages 3 and 5; and on page 3 the words "prime contractor" were replaced with "sub-contractors" in the paragraph regarding RCAS rights to reimbursement;
2) Interoffice memorandums that discuss the new application process;
3) A draft of the payment bond the agency is going to require as a form of proof of payment;
4) The assignment contract that will be required for all applicants to use beginning June 1, 2005.

The human health surface water RBEL table under the heading "PCL Tables" at http://www.tnrcc.state.tx.us/permitting/trrp.htm#topic3 has been updated primarily to reflect changes to the federal water quality criteria in 2003 and to correct errors and omissions in the table overall. Footnotes in the table were generally reordered to accommodate this addition. The aquatic life surface water RBEL table has not been changed. For additional information on the surface water RBEL tables, contact Vickie Reat at vreat@tceq.state.tx.us.

Note that the aquatic life and surface water RBEL tables will be updated periodically to reflect new state or federal criteria and/or other information (e.g., toxicological data, persistence information).

# Government Update

TRRP requires (see §350.74 (h)(1)) that the aquatic life RBEL be based on the lower of the acute or chronic criteria to protect aquatic life as provided in §307.6 of the Texas Surface Water Quality Standards (TSWQS), and requires (see §350.74 (h)(2)) that the human health RBEL be based on the human health criteria to protect drinking water and fisheries as provided in §307.6 of the TSWQS. When criteria for a COC are not provided in §307.6, TRRP requires that persons apply federal criteria where these are available (see §350.74 (h)(4)).

Thus, if a state or federal standard is developed in the future for any of the COCs on the RBEL tables, persons should use the new criteria. Note that the state standard will always have precedence over any federal criterion. The RBEL tables are provided as a convenience and will be updated as soon as practical whenever a standard changes. The TCEQ Remediation Division anticipates that this will be infrequent, because the updates are usually in reaction to a standard change by the TCEQ Water Quality Division or the U.S. EPA. The updates will not necessarily occur in March every year similar to the annual PCL updates.

On June 10th, the PST Reimbursement Section's web site was updated. The following are the latest updates to the PST reimbursement application process:

1) As of July 1, 2005, all claims must be submitted with proof of payment. Acceptable proof of payment to be submitted with the claim will be the notarized signature on the Reimbursement Affidavit (page 3) or a payment bond. It will no longer be necessary to submit the supporting documentation (e.g., canceled checks or other documentation indicating transfer of funds) with the claim. However, if audited, a company will need to have supporting documents on file.
2) On the PST web site at http://www.tnrcc.state.tx.us/permitting/r_e/reimb/index.html under the section titled "Application for Reimbursement," the following documents were updated:

a) Implementation of New Reimbursement Application: updated the Frequently Asked Questions
b) Implementation of New PST Reimbursement Application Assignments and Acceptable Proof of Payments: clarified the proof payment issue
c) Payment Bond: this is the agency-approved form
d) Payment Bond Guidance Document: this document provides guidelines for an alternate payment bond
e) Reimbursment Application: the Reimbursement Affidavit (page 3) and the Application Checklist (page 5) were updated.

3) Also, if the Responsible Party has assigned reimbursement to another eligible recipient, the Assignment Contract must be on file with the agency. As of June 1, 2005, the document on the web page must be used.

### New ASTM Phase I ESA Standards

In April 2005, Wayne Turner from Banks Information Solutions attended the ASTM E-50 Committee meetings. Following is his summary of the Phase I ESA subcommittee meeting and the Transaction Screen subcommittee meeting.

ASTM E 1527 Phase I ESA subcommittee meeting: Sven Kaiser, of the Environmental Protection Agency, reported that the EPA received approximately 400 written comments during the comment phase of the proposed AAI regulations. Sven said the EPA is still reviewing the comments and is working to finalize the new standards by late 2005 and that the regulations are projected to go into effect 6 to 12 months later. He restated that, for now, the appropriate standard to use for Phase I ESAs is the existing ASTM E 1527-00.

The following are some additional points about the new standards:
**Appraisals**-Although the Engineering Professional (EP) must compare the sales price of the real estate against its market price, an appraisal is not specifically required.
**Data Gaps**-The way an EP addresses data gaps is still being considered, but it is most likely that the EP will be required to comment on the significance of data gaps (and how they affect the EP's ability to identify recognized environmental conditions) as well as on the significance of any information (or lack thereof) reported by the user. A data gap will not automatically require sampling.
**Environmental Liens**-Proposed guidelines for the research of environmental liens would stipulate the following: (1) The search for environmental liens must be done or updated within 6 months of closing. (2) Lien research is not to be expanded beyond where title companies normally look for liens. Liens recorded anywhere else are not considered reasonably ascertainable. (3) Searching local liens will cover the research for EPA liens because they would be recorded locally.

Search Distances-Proposed database search distances are:

NPL 1.0
Delisted NPL sites 0.5
CERCLIS list 0.5
CERCLIS NFRAP list 0.5
RCRA CORRACTS list 1.0
RCRA non-CORRACTS TSD facilities 0.5
RCRA generators list Property and adjoining properties
ERNS Property only
State & Tribal lists of hazardous waste sites Identified for investigation or remediation:
State and Tribal equivalent NPL 1.0

State and Tribal equivalent CERCLIS 0.5
State & Tribal landfill and/or solid waste disposal 0.5
State & Tribal leaking storage tank lists 0.5
State & Tribal registered storage tanks lists
Property and adjoining properties
State & Tribal engineering control registries 0.5
State & Tribal institutional control registries 0.5
State & Tribal voluntary cleanup sites 0.5
State & Tribal Brownfield sites 0.5

The next E1527 Committee meeting will be on October 19, 2005, in Dallas, Texas.

ASTM E 1528 Transaction Screen sub-committee meeting: Some EPs in the subcommittee meeting expressed concern that their clients often use a lower priced Transaction Screen in place of a Phase I. In some cases this is acceptable, but when the subject property has had petroleum products or hazardous substances on it, a Transaction Screen is inappropriate. The subcommittee discussed adding new cautionary language to the Transaction Screen regulations in an attempt to discourage the use of Transaction Screens on properties with a history of petroleum products or hazardous substances.

A major discussion point in this meeting concerned historical research on Transaction Screens. Many people believe that a Transaction Screen is not designed to be a historical research report. If clients want historical research included in a report, they need a Phase I ESA. But the current guidelines for Transaction Screens say "one of two sources of data should be examined…fire insurance maps showing the property or the local fire department serving the property." Aerial photos, city directories and historic topos are not currently included as potential sources for historical research on Transaction Screens.

A point was made that historical research may not be an appropriate component of a Transaction Screen. But if the standards do continue to retain historic research as part of a Transaction Screen, shouldn't other sources of historical research be allowed? Fire Insurance Maps cover far less than 1% of the land mass of the United States. Some discussion was given to allowing the EP the choice of using aerial photos, city directories or historic topos if appropriate for a particular project. In the end, the subcommittee decided to postpone immediate action on this discussion.

### Study Shows Most MTBE Cleanup Costs Already Covered

On July 6, 2005, the American Petroleum Institute (API) published the results of a new study that concludes that costs of cleaning up gasoline spills containing MTBE are almost completely covered by federal/state government clean-up funds, insurance or responsible parties. This study estimated that $1.5 billion in costs that may not be accounted for from established funds that are already cleaning up MTBE from underground storage tank sites or public wells. This study present data collected by the USEPA, USGS and state agencies that shows that MTBE is rarely present in public or private wells in concentrations that require clean-up.

The issue of MTBE clean-up costs has been a source of debate. The American Water Works Association and the Association of Metropolitan Water Agencies have estimated that MTBE clean-up costs will run between $25 and $85 billion.

This study may not have properly accounted for potential MTBE clean-ups in Texas. Gasoline releases prior to September 1, 2003, were regulated by 30 TAC 334, which did not regulate the clean-up of MTBE. Gasoline releases after September 1, 2003, are regulated by 30 TAC 350 (Texas Risk Reduction Program, TRRP) which regulates the investigation and clean-up of MTBE. There may be instances where releases that occurred prior to September 1, 2003, may not be covered by federal or state clean-up funds and may be considered as preexisting conditions by insurance companies. ■

# HGA *and* GeoWives **News**

## HGA

*by Norma Jean Jones, President*

Vacations are over and summer is past. I hope that you all have a bag of memories to take you through the 2005–2006 "business year." The Houston Geological Auxiliary Executive Board has been busy planning a year that will be exceptional.

First Vice President Winona Labrandt Smith has done an amazing job of bringing together a wonderful event agenda and committee chairs eager to bring this agenda to the membership. I am so impressed with the enthusiasm and energy she has thrown into the planning of what I believe is going to be one of the best program years we have experienced.

Our first event is Tuesday, September 13, at Maggiano's Little Italy. Program will be presented by Jan Hargrave, professional speaker, educator, consultant and author of *Let Me See Your Body Talk*. Ms. Hargrave has been a guest on "The Montel Williams Show,"

*Front: Left to right: Norma Jean Jones, Pres.; Sally Blackhall, Pres-Elect; Winona LaBrandt Smith, 1st VP; Back Row: Left to right: Gwinn Lewis, Yearbook; Edie Bishop, 3rd VP; Anne Rogers, Dir./Eclectic Log; Millie Tonn, Dir.; Betty Alfred, Treas.; Mary Harle, Dir./Courtesy; Norma Jean Bacho, 2nd VP; Margaret Jones, Dir.; Vicky Pickering, Sec.; Margery Ambrose, Courtesy; Myrtis Trowbridge, Dir. Not in photo: Shirley Gordon, Notification*

## *You are invited to become a member of*
## **Houston Geological Auxiliary**
### 2005–2006 dues are $20.00

**make check payable to *Houston Geological Auxiliary* and mail to: Norma Jean Jones • 14302 Appletree • Houston, Texas 77079**

### HGA YEARBOOK INFORMATION

| Last Name | First Name | Name Tag |
|---|---|---|
| Spouse Name | Name Tag | HGS Members Company |
| Home Phone ( ) | Business Phone ( ) | Business Fax ( ) |
| Street Address | City | Zip |
| Birthday, Month, Day ONLY | Email Address | Home Fax ( ) |

"Maury" (hosted by Maury Povich), "Ricky Lake Show," The Learning Channel, et al. She speaks on the hidden messages we send and the power and effect nonverbal communication has on success in corporate America and education in America. This will be a special treat for HGA members and their spouses and guests.

Edie Bishop worked diligently to bring together a fine group of HGA volunteers to work at Summer NAPE in August.

Sadly, Marilyn Conley a long-time member of HGA, died suddenly on June 17. Marilyn will be greatly missed by her friends in HGA.

Please submit articles of news of your family's trips and cruises, births, graduations, new assignments, new homes, etc., to our Eclectic Log Editor, Anne Rogers. In these busy times it is difficult to keep up with what's going on with our friends, but this does help a little and it just takes a moment. There will be pads and pencils on the tables at our events to make notes as well.

Don't forget send your membership applications in while there is still time to get into the yearbook.

*As a member you are invited to join*

# GeoWives

**2005–2006 dues are $7.50**

make check payable to *GeoWives* and mail to:

Dene Grove
12715 Pebblebrook
Houston, Texas 77024

*Please provide the following*

Name: _____

Sreet Address: _____

_____

City/State/Zip: _____

Telephone: _____

email: _____

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 ☐

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|---|---|---|
| **September, 2005** | | |
| 13 | Maps, Positions & Grids | Houston, TX |
| 14-15 | Quick Look Techniques From Prospect Evaluation to Reserves Estimation | Houston, TX |
| 19-23 | Seismic Fundamentals for Exploration and Development | Houston, TX |
| 29-30 | Logbust™ Computer Application of Multiple Bischke Plot Analysis (Seismic and Well Log Correlation Validation/Growth Analysis) | Houston, TX |
| **October, 2005** | | |
| 3-7 | Applied Subsurface Geological Mapping | New Orleans, LA |
| 13-14 | AVO, Rock Physics and Inversion | Houston, TX |
| 24-28 | Development Geophysics | Houston, TX |
| 24-28 | Hydrocarbon Exploration in Extensional Systems | Houston, TX |
| 31-11/04 | Basin Analysis and Hydrocarbon Potential | Houston, TX |
| **November, 2005** | | |
| 7-11 | Sequence Stratigraphy in Exploration and Production Geology | Houston, TX |
| 14-18 | Integration of Log and Seismic Data for Exploration, Exploitation and Production | Houston, TX |

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New Address, Effective October 1, 2005

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