HGS Bulletin
Houston Geological Society
Volume 55 Number 7
March 2013

4D Understanding of the Evolution of the Penal Barrackpore Anticline, Southern Sub-Basin, Trinidad.

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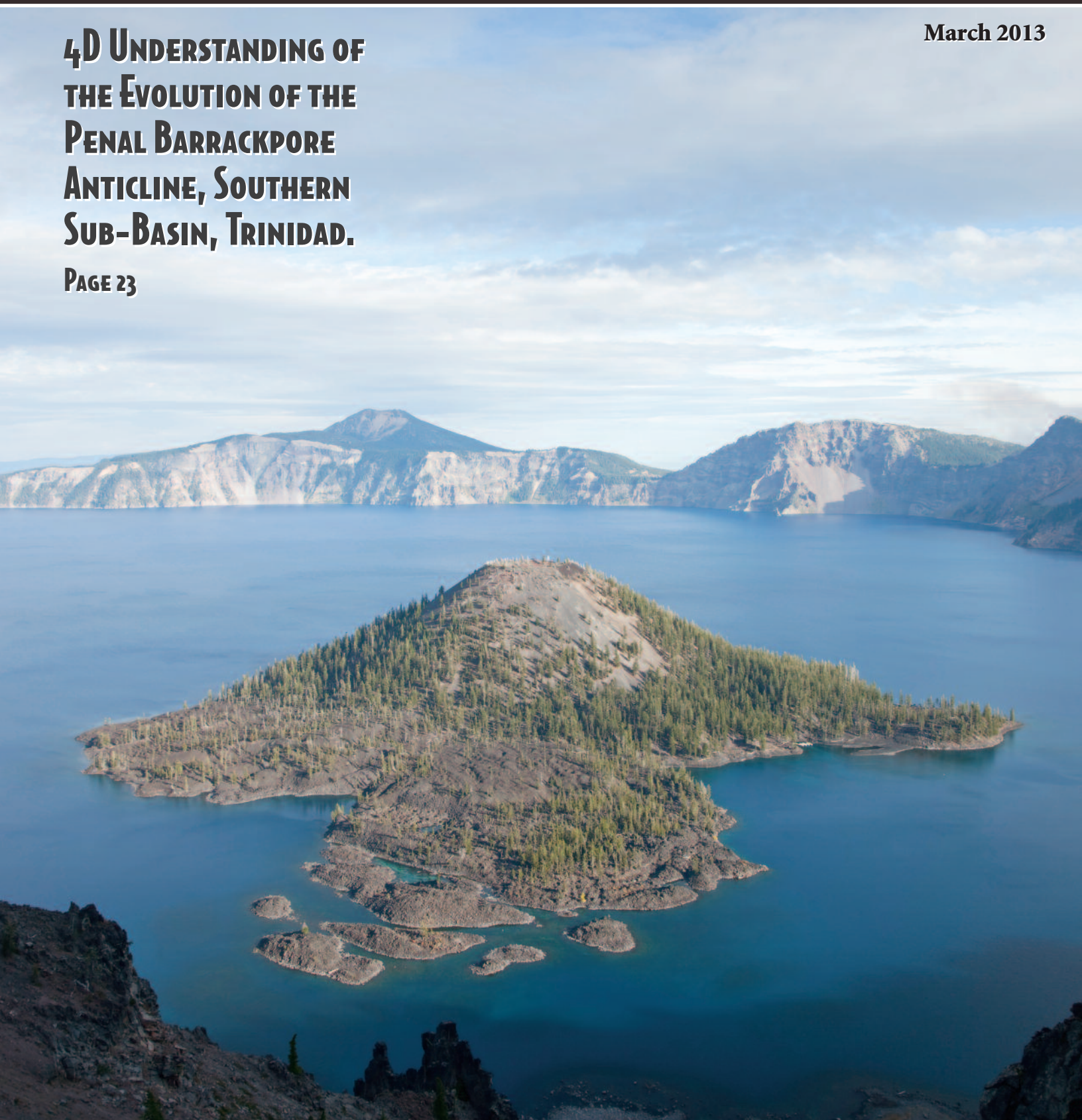

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The Bulletin
Houston Geological Society

Volume 55, Number 7 March 2013

In Every Issue

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Technical Meetings

Other Features

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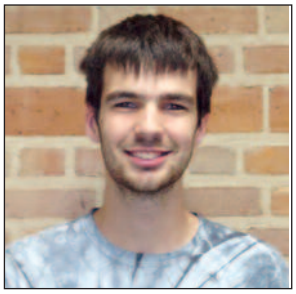

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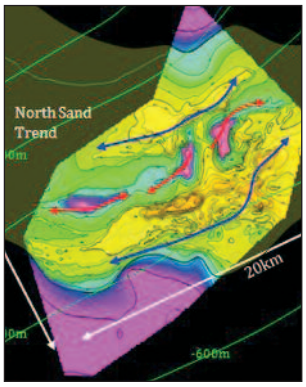

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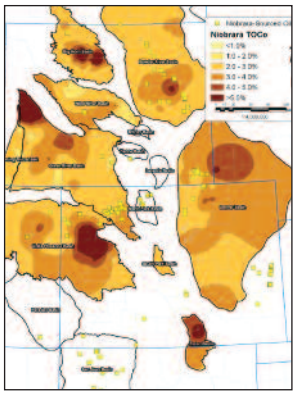

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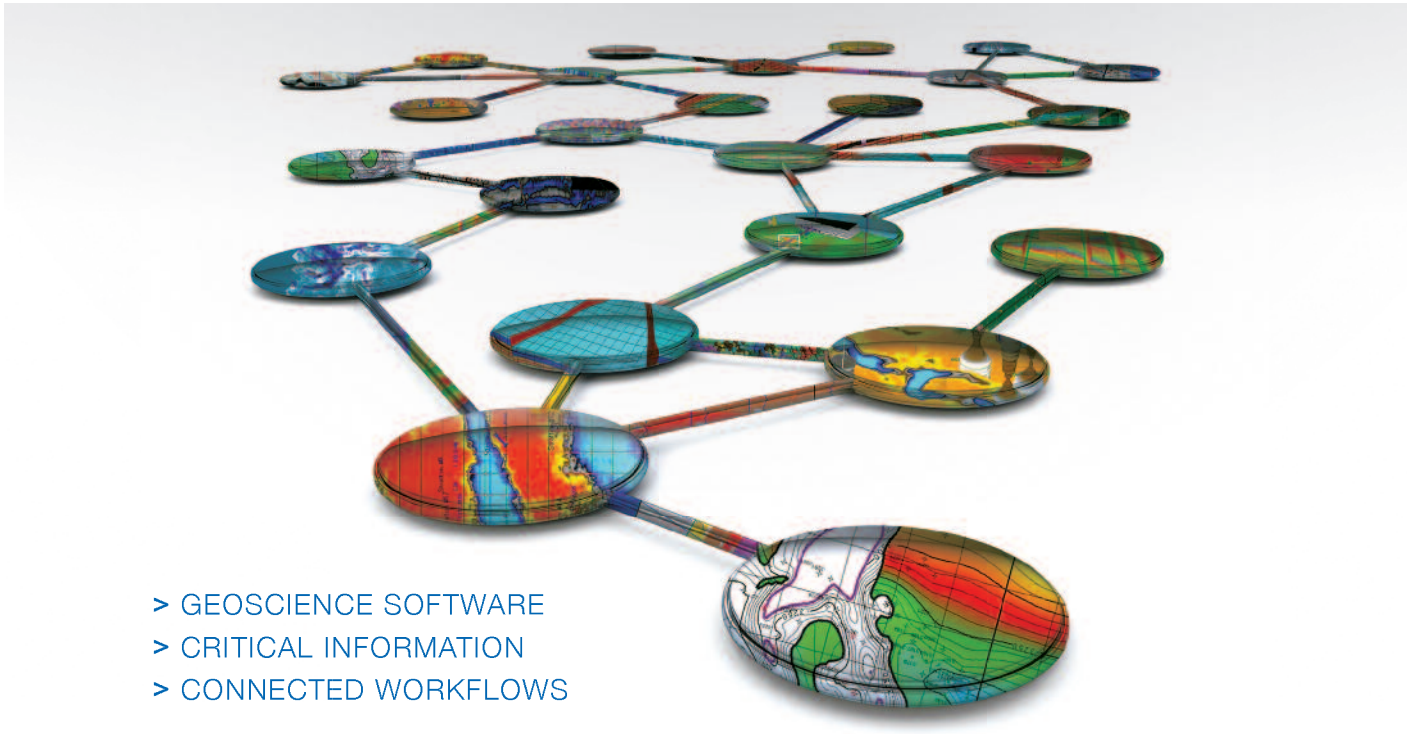
About the Cover: Crater Lake is like no place else on earth. A caldera lake located in south-central Oregon, Crater Lake is famous for its deep blue color and water clarity, its sheer surrounding cliffs; two picturesque islands; and a violent volcanic past. *Our cover by Marli Miller, marlimillerphoto.com*, is of the larger, Wizard Island. See page 9 for a Crater Lake One Hundred Word Wonder.



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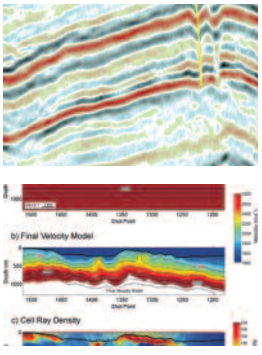

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HGS Tennis Tournament

Friday, April 5th, 2013

Houston Racquet Club
10709 Memorial Drive
11:30 a.m. until 5:00 p.m.

Registration Fee is $55. Registration Deadline is March 29th.
This will be a round-robin tournament, doubles only, no elimination. Partners determined by random draw in each round. Players with the four highest individual scores will advance to finals. Trophies awarded for first and second place in each division. Divisions may be combined based upon number of players. Door prizes will be awarded by blind drawing. All competitors are automatically entered into the door prize drawing, but you must be present to win.

Lunch will be provided prior to the event. Refreshments will be available throughout the day.

For more information, contact: Steve Brachman at 713-268-8810 off, 713-562-8415 cell or sbrachma@petrohunt.com

HGS TENNIS TOURNAMENT REGISTRATION FORM

Name:_____ Company:_____

Email:_____ Phone:_____

Division (Circle one): **A** **B** USTA Rating (if known)_____

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Attn: Steve Brachman, HGS Tennis Tournament

Martin Cassidy
mcassidy.hgs@gmail.com

Early Spring Awakening Time to Renew

'Round about March 1, the normal high temperature in Houston usually gets above 70 degrees as we leave winter and begin the relentless climb to 90 degrees and above for June to September. This trend is documented in "Houston's Year in Weather" in the January 1 issue of the *Houston Chronicle* that contains a fun graph of daily temperatures, records, and rainfalls of all of 2012 on page B6.

Nature begins to renew itself, and so does our Houston Geological Society organization. All of our 49+ committees will have revealed at MidFest 22 Jan 2013 what they want to accomplish before the summer break, and what they envision for next year. Specifically they will be asked how many additional members they would like, what additional resources they can use, and what they expect to budget for next year's activities. Most of our activities are planned to break even, some will make money for the HGS in general, or for special goals, and others will spend money to accomplish their worthy goals on behalf of the HGS.

Quality face-to-face communication is more important now than ever.

An example of a special fund raising event for scholarship funds is Legends Night. Put together this year by John Tubb, with help from the office and others, the event went quite well this January 14th. There will be a story on the event in this issue of the *Bulletin*. Two hundred and twenty guests filled a large dining room at the Westchase Hilton to honor special geologists, our Legends of Sedimentology, Dr. George Devries Klein, Dr. James Colman, Dr. Miles O. Hayes, and Dr. Robert L. Folk. Dr. Coleman was unable to attend, but each of the other three spoke eloquently of the paths they followed to their success in discovery and education about sedimentation. Sponsorship funds raised allowed John Adamick to present $2500 scholarships for from the HGS Foundation to outstanding undergraduate geoscience students from each of six different universities and $3000 to a seventh as the winner of the Maby prize.

This event is related to all three of the HGS general goals, Technical Training, Networking, and Outreach to the community, which comprise our mission to serve our members and geoscientists at all career stages in the Houston area.

Technical training was shared in the information that each speaker gave about his life's progress in science investigation and teaching. Networking occurred as the registrants met around excellent hors d'oeuvres before a sit-down dinner. Outreach was accomplished by grants of scholarships to honor and help develop promising young geoscientists.

More about training in general and our HGS training in particular will be described next month along with several of our outreach programs.

Now I wish to concentrate on meeting and greeting. Note that I do not just use the term Networking. It is a valuable idea but it implies to me an emphasis upon extracting, from the parties involved, information about their skills, the organization in which they are involved, and their position in the organization. Afterwards, the exchange of business cards that may be filed for later possible use of the "contact" may occur.

HGS meetings should lead to more just this. As computer and workstations separate people from one another, and as the internet and social media expand, communication becomes more condensed and more telegraphic. That which is lost is subtle and may include relevant details and real friendliness.

Quality face-to-face communication is more important now than ever. People from different companies can share general information. Stories told and discussions about attitudes and cultures of companies allow us to learn what we do not personally experience. Hearing about the culture of different companies can encourage us to say internally, "Well, when I am manager I'll never do that" or "What a clever idea!". That is, we learn what works and what doesn't; a skill we might like to add to our toolkit. When someone relates "I dodged a bullet today" it is time to listen. Their close call can be a lesson that can save you or your fellow worker pain or injury later.

An instructive incident is that of a green teenager at his first job as a roustabout at a lab. His final job of the day was to close the rolling warehouse door at the back of the office. Finding it open when the front of the building was already locked, and not wanting to go all around to the front to unlock and go in to shut

From The President *continued on page 9*

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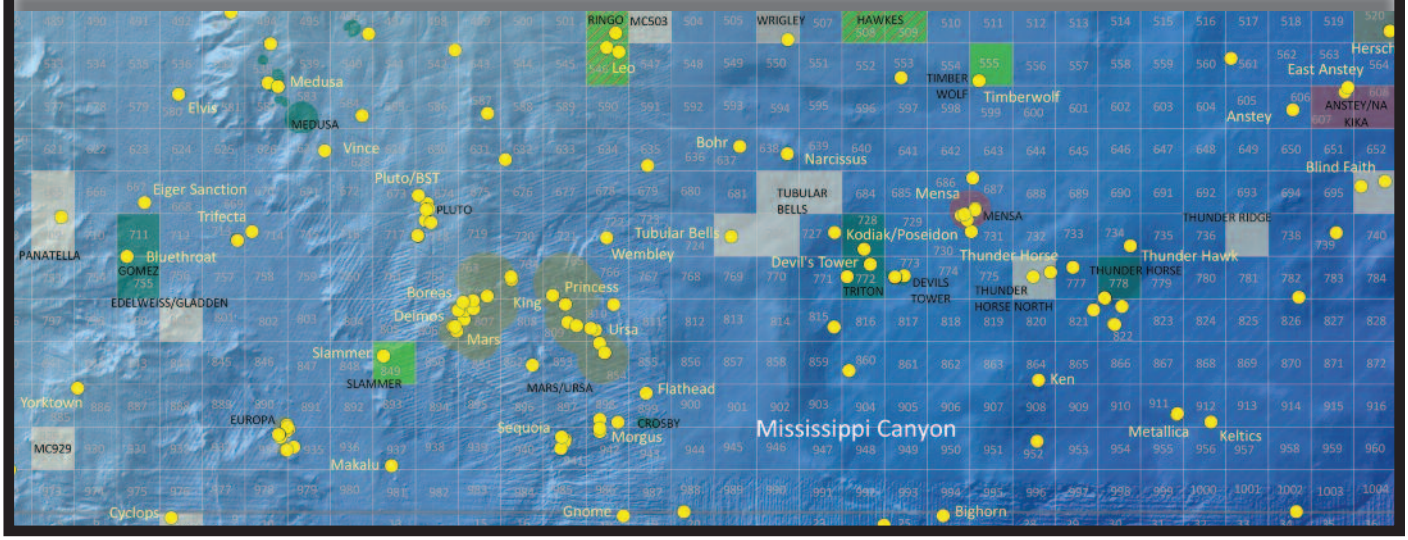


Patricia Santogrossi
editor@hgs.org

Citations

When I work with presenters in any arena, I usually get around to reminding presenters and authors to use proper citation. For the *Bulletin*, that usually takes the form of reminding authors to help us place their figures in the context of whatever they have sent us even though it may only be an abstract, and to give us descriptive figure captions for the benefit of our readers. About half do not.

In various company settings, I try to remind presenters that if they cite a source verbally, they should also do it on the slide that contains the material. Our presentations are often stored on sites where others may see and use them. Not only is it important to give credit for the work of others, but also for the inspiration that one found to apply to the conclusions made in new work. Though original authors may never know, we have to take care not to appear to be passing off the work of others as our own. Way more importantly, what we are doing with proper citation is to share our learnings with others in an open and honest way.

For a recent publication in the December issue, the right to use all of the figures was sought officially. All were granted. For two of the figures a fee of $30 plus tax had to be paid to satisfy the copyrights since the items were to be published.

Many times I may find that conclusions are based on exposure to some presentation that the presenter and maybe others have seen or read and it is assumed or implied that everyone in the audience knows to whose material a conclusion refers. That is seldom the case. I recall an HGS lecturer of excellent reputation who cited a bit of nomenclature, in a field I had some likelihood of knowing, that was completely unfamiliar to me. He neither defined the term in his talk, owned the term as of his own coining, nor did he cite the source for the term. I asked him about it afterward and he told me individually that the term was from a well-known source, but from a less well-known publication date. If it flew by me, how many others in that audience were also "left out" by the in-speak I wonder?

It is not so difficult to add "From so and so," "Modified after so and so," and a date to the bottom of a PowerPoint slide.

I first learned this useful move at Shell. There I called it the "imprimatur effect." From the Latin meaning "Let it be printed", an imprimatur is a declaration that authorizes publication, but is also loosely used, as in this case by me, as a metaphor to apply to any mark of approval or endorsement. The citation in this regard suggests, that this authority has seen something similar to what I have described. In Shell, citing the approval of an authority, an advising colleague, specialist, or supervisor said that you had placed your work under their scrutiny and found some agreement. This usually had the effect of making the managers or audience feel that you had done your homework, were plugged into the network, and were credible.

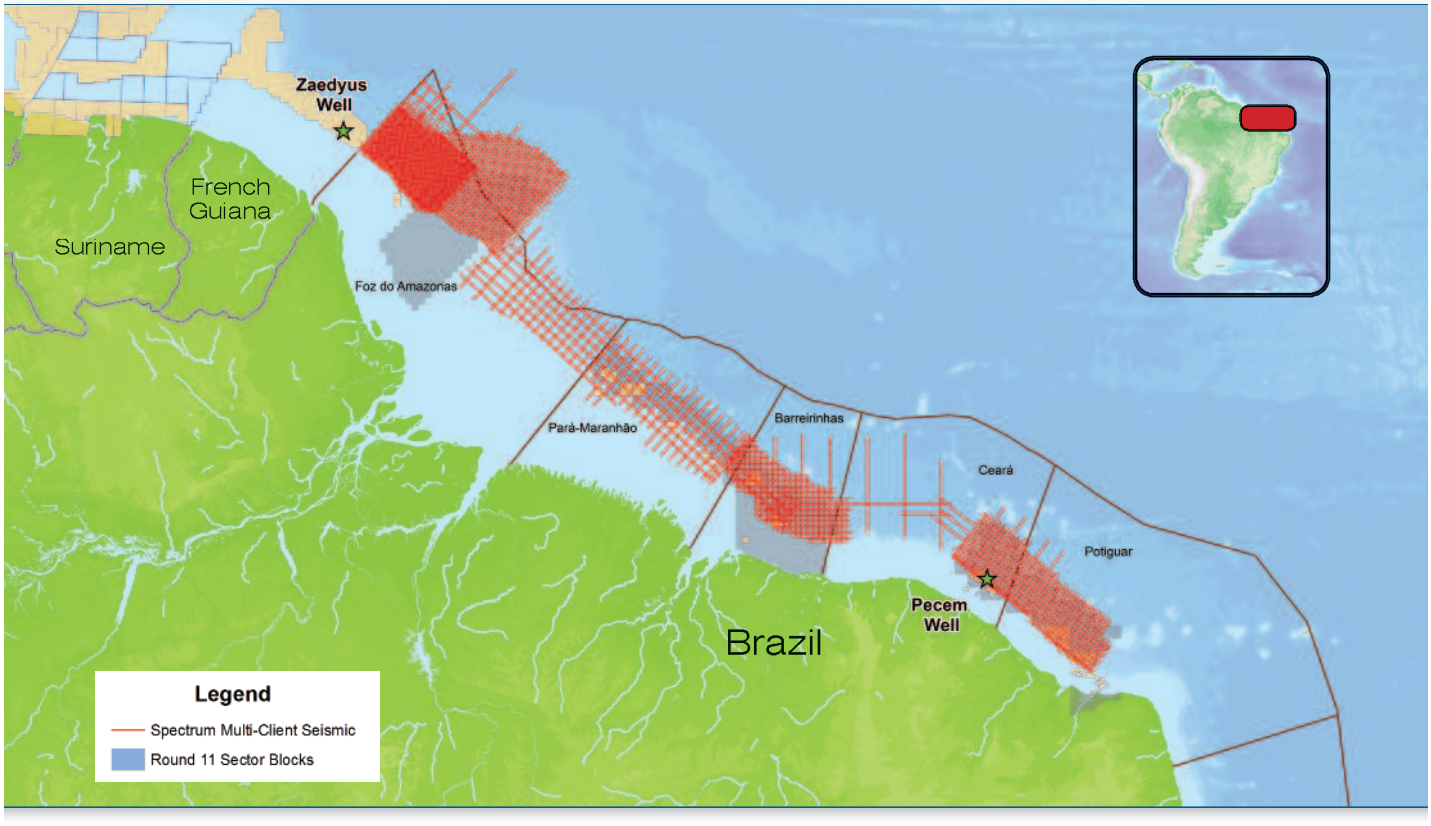
Credibility has always been important to me. I grew up in the industry when it could be said that there were two kinds of geoscientists – the artsy kind, sometimes called "arm wavers" and the scientific kind. I was determined to be the kind that backed up my conclusions with compelling observations so that my audience had the same chance I had to see if a conclusion was reasonable. If that meant that you'd get beaten with the "detail-oriented" stick once in a while, then so be it. I seldom worried about that as I knew there were far more detail oriented types than I.

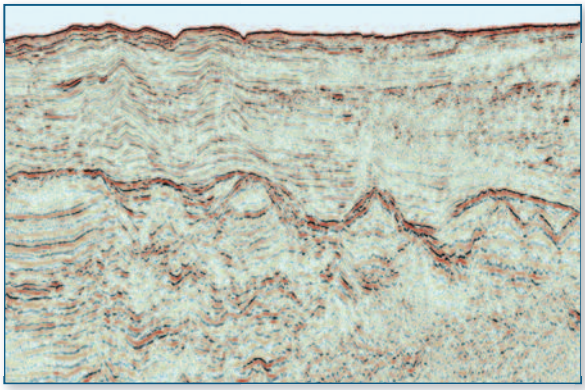
This lesson also stemmed from an early Chief Geologist's influence. He was fond of reminding us that we seldom had all of the facts to be sure; he'd say that we might only know "85%" of the story. I remember that seemed high to me at the time. I fear that his optimism has been superceded by today's "80/20 rule" which implies it is OK to settle for less. I don't think so. How about you? ■

[Editor's note regarding delivery of the January issue of the *Bulletin*: The *Bulletin* was delivered to the mailhouse on Dec 21st and recorded as delivered on the 22nd. With the Christmas holidays, it did not leave the mailhouse until the 26th. After that we can only speculate that, as a periodical, some issues seemed to have been mailed and others may have been "rat holed" by the Post Office and were delayed. I and two others, who personally contacted me, received their January issues on January 22nd. If you are among those, we on the Editorial staff are heartily sorry. You can only imagine how hard we tried to get that one out on time regardless of the Thanksgiving and Christmas holidays. So also with the February and March issues despite holidays, illness (2) and surgeries (1).]

Equatorial Margins Brazil

Multi-Client Seismic - Amazonas, Ceara and Barreirinhas Basins





Canyon Features from Foz do Amazonas Survey (Phase I)

Spectrum is active in five basins along the Equatorial Margins of Brazil. We have PSTM and PSDM data available for each of the Foz do Amazonas, Barreirinhas and Ceara surveys all of which were acquired with 10,000m offsets and 13 second record lengths. In addition we have completed acquisition of a 4,200 km survey in the Potiguar basin and fast track migrated stacks are now available for this survey. Final data from the Potiguar survey will be available in April.

Spectrum has also started reprocessing 26,000 km of recently released public domain data from the Foz do Amazonas, Para-Maranhao, and Barreirinhas basins which will be available in Q2 2013.

Our Multi-Client team is committed to delivering high quality data in advance of the upcoming Round 11. Companies participating in Spectrum's programs will have a competitive advantage in this round.

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From the President continued from page 5

it from the inside, he decided to shut it from the outside. It hung up partway down so he put his fingers in the open crack in the horizontal panels to encourage it down. All too suddenly, the door descended and pinched all eight of his fingers in the crack. There he crouched, the door almost down, with two thumbs free trying to raise the door on the backs of the ends of his fingers. Can you imagine his pain? His efforts were unsuccessful. Fortunately, his calls for help did raise a late departing coworker to raise the door and free his fingers.

The good news was that no bones were broken. The only evidence of the near disaster was a blood blister on the end of each finger. I never see a rolling door going down but that I do not pull my fingers to my palms. Yes, I was that young man.

How often have you heard of near blowouts from people who were on wells? Our Pan American geologist years ago helped save a well because he knew what cuttings shaped like fingernail clippings indicated. It is extremely instructive to hear the signs of a blowout and learn what was done to control the well. It is truer than ever now that some geologists have never sat a well.

So what is all this discussion about? It is a call to come to HGS luncheon or evening meetings at least once a month. At such meetings there is time to meet, greet, and discuss. It is more than Networking; it is learning from each other. You can make friends for life there. It is a call to participate! Come and bring a friend. Any meeting can be instructive, perhaps even provide the key to something you are puzzling about. Keep listening! ■

Letter to the Editor

Dear Editor,

Your cover photo for the January, 2013 is definitely far better than any favorite I could have provided. It's a stunning backdrop.

Thank you for writing a useful column on seismic stratigraphy and workflows. Great stuff. Regarding your last comment by a colleague who didn't distinguish between sedimentology and seismic stratigraphy, let me add a thought.

During the late 1970's, I realized process sedimentology and depositional systems sedimentology was plateauing off and it was time to move into other fields of research. So my research moved into basin analysis, tectonic uplift rates controlling sediment flux in active margins,cratonic basin evolution, and Pennsylvanian cyclothems.

However, other academic sedimentologists were moving very slowly to change. When John Van Wagoner gave his presentation about parasequences and outcrop sequence stratigraphy at the 1985 summer SEPM meeting, it gave many sedimentologists, if not most, a "new research life" of something new and different to do. They moved quickly into outcrop sequence stratigraphy. At least seven people come to mind I did some of that with cyclothems also.

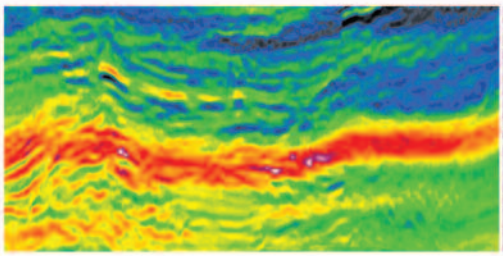
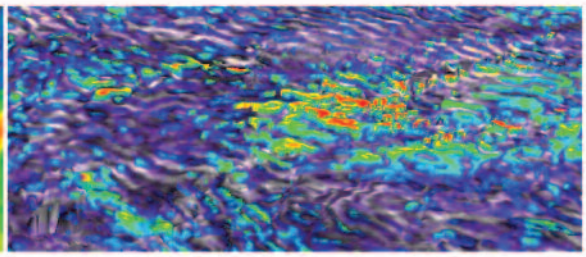
Perhaps your colleague earned his/her degree around that time and came to that conclusion because s/he saw these people make the jump from sedimentology to sequence stratigraphy. As you correctly stated, that conclusion is plainly incorrect, but its heritage is the transition I mentioned.

Sincerely

George Devries Klein

One Hundred Word Wonder

The Crater Lake partly fills a nearly 2,148-foot (655 m) deep caldera that was formed around 7,700 years ago by the collapse of the volcano Mount Mazama (1896). No rivers flow into or out of the lake; the water's evaporation is compensated for by rain and snowfall at a rate such that the total amount of water is replaced every 250 years. While having no indigenous fish population, the lake was stocked from 1888 to 1941 with a variety of fish. Several species have formed self-sustaining populations. Crater Lake has two islands within it, Wizard Island and "Phantom Ship" (inset) which is an exposure of the oldest rock of Mount Mazama in Crater Lake caldera.

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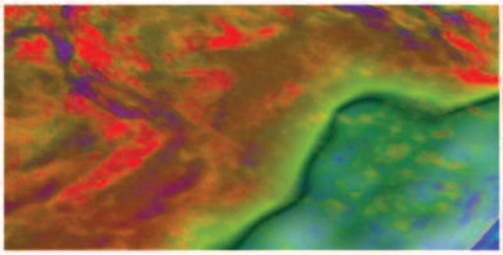
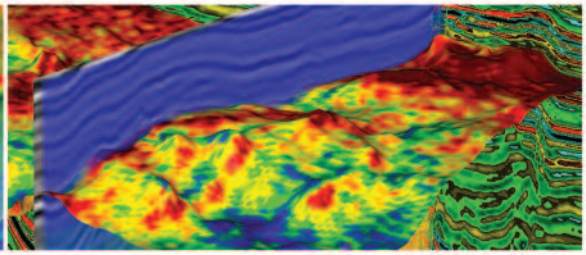

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As a senior member of our R&D team, this geophysicist will make major contributions to our need-driven research in the areas of seismic and electromagnetic reservoir characterization, and interact regularly with our services group. With a working knowledge of signal and seismic processing, seismic inversion algorithm processes and practice, and seismic attribute analysis, the successful candidate will have an intuitive feel for seismic data. A wide degree of creativity and latitude is expected.

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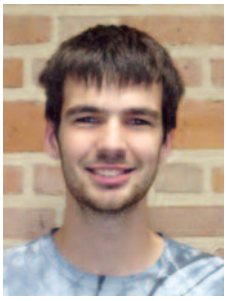
HGS Undergraduate Scholarship Foundation Presents Seven Scholarships

The HGS Undergraduate Scholarship Foundation has provided over $220,000 in scholarships to deserving geoscience students since 1984. This year the Foundation awarded scholarships totaling $18,000 to students from all seven universities that participate in our program. Frasier Liljestrand of Rice University was awarded the Maby Scholarship which is presented each year to the Foundation's top applicant. Foundation Chairman John Adamick presented the scholarships to the recipients at the January 14th HGS dinner meeting.

Vitae for our scholarship winners are listed below. These students are to be commended for their accomplishments.



Frasier Liljestrand
Maby Scholarship recipient
Rice University

Frasier Liljestrand is a senior earth science student at Rice University. He has done research in Carrie Masiello's biogeochemistry lab since the summer of 2011. His research currently focuses on carbon sequestration in temperate forests and the effect of agriculture on this flux. He has been successful in his studies, has been on the Dean's List every semester, and tries to help other students as an Academic Fellow tutor. In his free time he plays ultimate frisbee, teaches origami at Rice, and practices karate. Frazier plans to attend graduate school after he graduates in May 2013. ■

William "Joey" Durkin
Texas A&M University

Joey Durkin is a junior at Texas A&M where he majors in geophysics and double minors in mathematics and oceanography. He has worked as a student researcher for Dr. Sager since the summer of 2011. In the spring of 2012, Mr. Durkin worked on a research cruise in the northwest Pacific where he processed the ship's multibeam sonar data and generated seafloor topography maps of the large Shatsky Rise igneous province. He is currently working with Dr. Sager on a project using the bathymetric data collected on the cruise. Mr. Durkin has a strong fascination with the polar regions of the earth and looks forward to their study in graduate school. ■

Daniel Sutton
Stephen F. Austin State University

Daniel Sutton is a senior at Stephen F. Austin State University, who majors in geology with a minor in mathematics. He has consistently received honors on the President's List and Dean's List and will graduate with a dual degree from the SFASU School of Honors. Mr. Sutton is an active member in the SFASU geology student organizations including the Geological Society of America, Sigma Gamma Epsilon, and American Association of Petroleum Geologists in which he is the student chapter president. For the past year, he has worked on a research project that concerns the source of subsurface sulfur irregularity seen as sulphur migrates through shallow reservoirs, regional fractures, and in groundwater systems near Lampasas, Texas. This project will be presented at both the South Central GSA meeting and AAPG Student Expo in the spring. After he graduates, he plans to attend graduate school and pursue a career in the petroleum industry. ■

Tiffany Kocis
University of Texas

Tiffany Kocis is a junior geology student who majors in hydrogeology in the Jackson School of Geosciences at the University of Texas at Austin. During the first two years of her undergraduate career, Tiffany worked as a research assistant and studied geomicrobiology. She is now in the honors program at the Jackson School and is currently set to define a senior research project with Dr. Jack Sharp — one that may possibly focus either on the effects of storm surges or on aquifer storage, recharge, and recovery. In her free time, Tiffany enjoys reading, cooking, and astronomy. After she graduates, Tiffany plans to attend graduate school to study hydrogeology. ■

Undergraduate Scholarships *continued on page 13*

HGS Undergraduate Scholarships *continued from page 11*

Marshall Davis
Sam Houston State University

Marshall Davis is a senior geology major and geography minor at Sam Houston State University. Marshall's collegiate career began at Paris Jr. College as a kinesiology major and a baseball player. After taking a year off from school due to an injury, Marshall returned to the classroom and baseball field at Navarro College in 2010. At Navarro College, Marshall received Dean's List and President's List honors as well as Academic All-Conference Honors, all while being a member of the 2011 Junior College National Championship team. After Marshall completed an Associates of Science degree at Navarro, he was offered the opportunity to play baseball and study geology at Sam Houston State University. In his first year as a Bearkat, Marshall was a member of the 2012 Southland Conference Championship baseball team while he achieved Dean's List and Academic All-Conference honors standings. For Marshall's senior year at Sam Houston, he decided to focus strictly on geology in hopes he would eventually attend graduate school. Marshall is currently a historical geology teaching assistant and an intern geologist for Bass Oil and Petroleum Company, where he works on projects in the Permian Basin. Marshall plans to continue work in the petroleum industry and to attend graduate school in hopes he will one day become an Exploration Geologist. ■

Johnathon Osmond
University of Houston

Johnathon Osmond is a senior at the University of Houston, where he seeks a bachelor's degree in geology and a minor in geophysics. Currently, he is an undergraduate researcher for Dr. Paul Mann's Caribbean Basins, Tectonics, and Hydrocarbons consortium at University of Houston. His Senior Honors Thesis involves cross-section reconstructions of Hispaniola Island throughout the Cenozoic. He will present his results at the 2013 AAPG Annual Convention and Exposition in Pittsburgh. In the summer of 2012, he attended the Applied Geophysical Experience (SAGE) program, which is a NSF-supported research group that is linked to Los Alamos National Laboratory but has been based in Santa Fe, NM for over 30 years. At University of Houston, he serves as the Secretary for the AAPG student chapter and is also actively involved in the SEG and GeoSociety chapters. He was awarded the AAPG Foundation's L. Austin Weeks Undergraduate Grant in 2012 and has also received Dean's List honors at University of Houston. In his spare time, he likes to travel, snowboard, and play lacrosse. Starting this February, Mr. Osmond will be an intern at Mertz Energy until the fall, when he will begin his graduate career in the study of structural and petroleum geology, and subsequently, a career in petroleum exploration. ■

Chelsea Horn
Lamar University

Chelsea Horn is a junior at Lamar University who majors in geology. She is an active member of Lamar University Geological Society. She will map the Big Bend area in West Texas in March of 2013. Chelsea will attend field camp in the summer of 2013 at the University of Southern Utah. She is looks forward to graduate school and plans to pursue a career in the petroleum industry. ■

Legends of Sedimentology Program Delivers Life Stories, Wisdom, and Inspiration

*By **John Tubb, Jr. and Linda Sternbach.** Photos by **Wayne Xu.***

The "Legends in Sedimentology" dinner program January 14, 2013, featured Dr. George Devries Klein, Dr. Miles O. Hayes and Dr. Robert L Folk, who entertained and inspired 225 HGS members and friends. Dr James Coleman was also to be featured, but was unable attend due to a family obligaton. HGS President Martin Cassidy introduced meeting organizer John Tubb, who opened with an introduction to the eighth HGS Legends program, the continuation of a series that began in 2000. After a brief program of student awards from the undergraduate scholarship fund by John Adamick, HGS Board member and Foundation Fund chair, the audience enjoyed flawless presentations from three speakers.

Dr George Klein networks at meeting

Dr George D. Klein, former professor of geology at the University of Illinois at Urbana-Champaign and well known consultant here in Houston, recounted growing up in the Netherlands and moving around the world, eventually arriving in the United States as still a young man. Dr Klein credited timing and luck, including chance comments by and meetings with other geologists as a key factor in his career as a geologist/sedimentologist. His advice to the academic community is that they should tie their research to the main themes of geology. Klein thinks the world continues to need educated geologists who are both generalists and who can solve problems.

Dr. Miles O. Hayes is a former professor of geology at the Universities of Massachusetts and South Carolina and is now CEO of Research Planning, Inc. a science technology company located in Columbia, South Carolina. Dr Hayes turned on folksy charm in his talk, saying. "I'm a hillbilly from the mountains of western North Carolina;" he emphasized his teaching theme that "Research is a Team Sport." His love of the coastal shores was clear in the images he presented of lifetime research on the eastern and southern coasts of the United States, as well as coastal environments affected by oil spills in the Middle East. He has authored more than

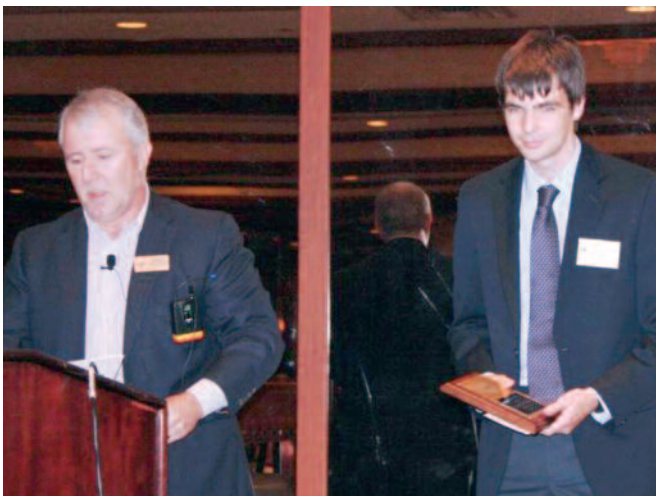
Dr. Miles Hayes

Dr. Robert Folk

Among the crowd at table – Patricia Santogrossi in red, Ed Marks, Winona LaBrant Smith, Marvin Smith, Martin Cassidy, Linda Sternbach, Mike Allison, and Roger Palomino

250 articles and reports and three books on a range of topics relating to tidal hydraulics, river morphology and processes, beach erosion, barrier island morphology, oil pollution, and petroleum exploration. Hayes showed a video movie set to music depicting his hard working students on the beaches of Kuwait in 2002, as they performed research and bonded into multinational teams.

Robert L Folk, retired professor of geology at University of Texas at Austin, entertained the audience with jokes about former students and stories of his travels to Italy doing research into travertine and other rocks. He is widely known for "the Folk classification" a technical descriptive classification of sedimentary rocks based in abundance of quartz, feldspar and rock fragments. Many of Dr. Folk's former students attended the meeting in his honor, laughing and clapping at his jokes and upbeat stories. Folk talked about his philosophy of being intellectually curious throughout life. He talked about his involvement with the controversy about a possible nannobacterial fossil found in an SEM image inside a Martian meteorite. Folk published a study of mineralized nannobacteria (dwarf bacterial forms) in the carbonate hot springs of Viterbo, Italy and is open to the possibility that the crystal structure seen on SEM in the Martian meteorite could be a interplanetary fossil.



John Adamick and HGS Foundation Maby Scholarship winner Frasier Liljestrand, Rice University

Sponsorships exceeded $21,000 from companies and other donations were made by some individuals. HGS' sincere thanks go to the 225 attendees and 14 sponsors. Their support means that HGS can continue to give financial gifts to promising young geoscientists such as these awarded to Frasier Liljestrand, Rice University ($3000); Tiffany Kocis, University of Texas; Marshall Davis, Sam Houston State University; William Durkin, Texas A&M University; Johnathon Osmond, University of Houston; Chelsea Horn, Lamar University; and Daniel Sutton, Stephen F. Austin University ($2500 each). ■

Legends of Sedimentology Program *continued on pag 17*

Marcellus Fairway Program

Exploring Boldly

To date over 1,000 square miles, of the proposed 1,500, have been acquired of the multi-client data consisting of four high quality 3D surveys in the heart of the Marcellus. The CGGVeritas programs will be completed next year with imaging objectives ideal for the Marcellus Shale. Explore boldly with high-quality data in the right location.

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Legends of Sedimentology Program continued from page 15

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HGS Foundation Scholarship winners (standing left to right) Joey Durkin, Texas A&M University; Marshall Davis, Sam Houston State University; Frasier Liljestrand, Rice University (Maby Scholarship winner); Chelsea Horn, Lamar University; Daniel Sutton, Stephen F. Austin University; Tiffany Kocis, University of Texas; Johnathon Osmond, University of Houston. Seated in front: John Tubb, Jr., Legends Night organizer and Martin Cassidy, HGS President.

Monday, March 11, 2013

Westchase Hilton • 9999 Westheimer
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

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

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.
Pre-registration without payment will not be accepted.
Walk-ups may pay at the door if extra seats are available.

HGS General Dinner Meeting

Edward M. Emmett
Harris County Judge

The New Panama Canal Project and Its Implications on the Unconventional Resource Industry in Texas

Biographical Sketch

Edward M. Emmett became a Harris County Judge on March 6, 2007.

A member of the Texas House of Representatives from 1979 to 1987, Judge Emmett was chairman of the Committee on Energy, a member of the Transportation Committee, and represented the state on numerous national committees relating to energy and transportation policy.

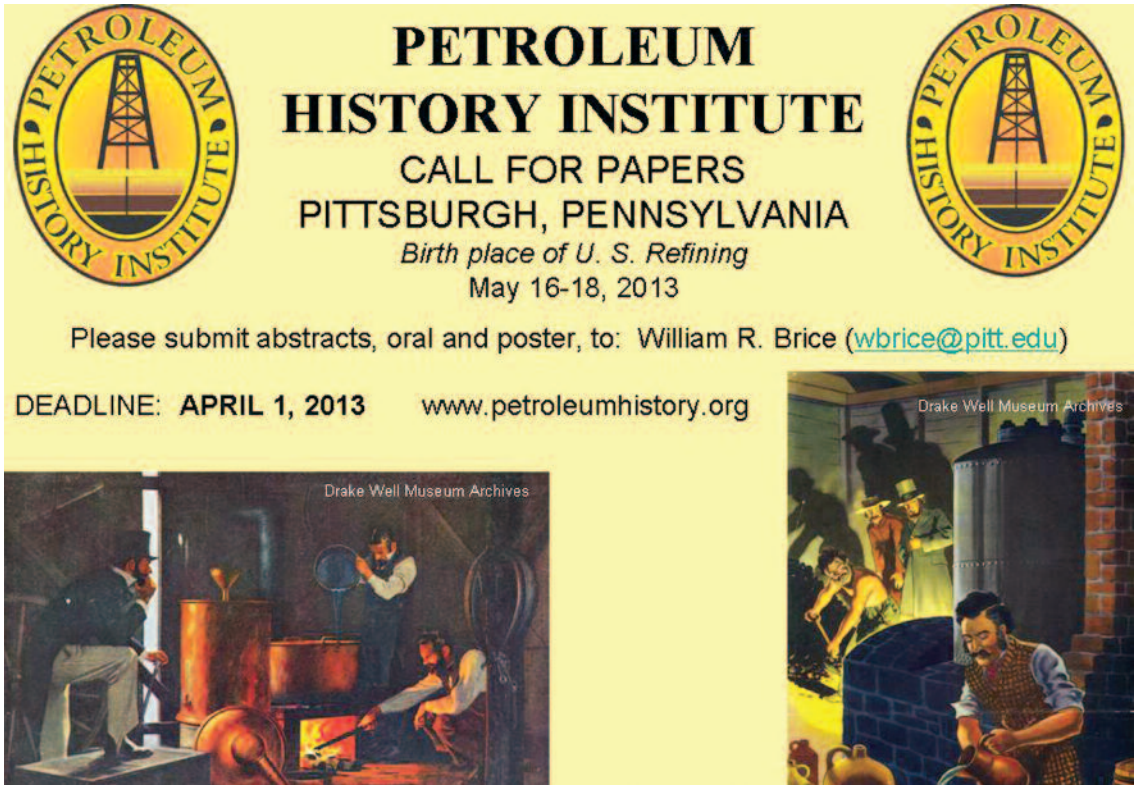
In 1989, President George H. W. Bush nominated Emmett as a Commissioner at the Interstate Commerce Commission. After being confirmed unanimously by the United States Senate, Judge Emmett served on the commission for three years.

Prior to becoming a county judge, he received international recognition for his work in transportation and logistics policy.

Among his many other activities, Judge Emmett is director of Harris County's Office of Homeland Security and Emergency Management, chairman of the Houston-Galveston Area Council's Transportation Policy Council, and chairman of the Harris County Juvenile Board.

Judge Emmett attended Bellaire High School. He graduated from Rice University in 1971 with a Bachelor of Arts degree in Economics and from the University of Texas at Austin in 1974 with a Master of Public Affairs degree.

Judge Emmett and his wife, Gwen, have been married for 37 years and have four children and nine grandchildren. ■



Wednesday, March 13, 2013

Black Lab Pub, Churchill Room • 4100 Montrose Blvd.

Social 5:30 p.m., Dinner 6:30 p.m.

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

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
Pre-registration without payment will not be accepted.
You may still walk up and pay at the door, if extra seats are available.

Michael Campbell
I2M Associates, LLC
Houston, TX

A Review of Liability and Loss Prevention in the Geological Consulting Business

Mr. Campbell has served as a member of senior management for a number of international engineering and environmental consulting firms such as Law Engineering and ERM; for industry, such as DuPont and the Institute of Environmental Technology; and as a consultant to management. He has been responsible for training programs designed to protect the professional and the company for whom he or she works from legal liability and loss derived by actions of the professional, particularly the consulting geologist. In this presentation, Mr. Campbell will discuss the factors that may lead to litigation and actions that will allow the professional to avoid litigation. He will speak in terms of risk avoidance through client assessment; and how to maintain project quality creation through process execution, management communications, management of client expectations, and appropriate reporting. The goal is to balance professional standards and standards of care.

In private practice, there are two types of liability that must be considered, tort liability and contractual liability. These involve the consultant's duties by contract, warranty, and safety, errors and omissions, and related issues such as professional liability insurance. In reducing liability, the consultant must evaluate and maintain client communications, preserve the project records via a document retention policy, and manage QC/QA issues related to scope of work, plans and reports and word selection and usage. Management issues also involve the status of the report, whether owned or product, and interdisciplinary relations involving non-geologists, and the vagaries of the Courts.

…training programs designed to protect the professional and the company for whom he or she works from legal liability and loss derived by actions of … the consulting geologist.

It should be noted that Mr. Campbell does not, and cannot, speak to matters of law involved in any issue discussed in his presentation and only presents his opinions on such matters as a lay-person based on his many years as a consultant. He reserves the right to change his views as new information becomes available, and they may not necessarily reflect the views of the I2M Associates, LLC. for which he is an employee. ■

Biographical Sketch

Mr. Campbell holds a Bachelor's Degree in geology and hydrogeology from The Ohio State University (1966) and a Master's Degree from Rice University in geology and geophysics (1976) via the Mills Bennett Fellowship. He has worked in the United States and overseas in Australia, Southeast Asia, and Africa working for American companies on natural resource development and environmental projects. In the United States, he has been involved in a range of mining and associated environmental projects that have included uranium exploration and mining, and precious metal exploration and mining projects.

Over the past 40 years, he also produced a number of EPA-sponsored guidance documents and associated reports that involve groundwater resource development and associated contamination assessment and abatement. He has produced three technical books, many papers and reports, and has served on a number of editorial boards of the major technical journals in his field. He is a Fellow in the Geological Society of America, a Fellow in the Society of Economic Geologists and has been a member of other societies such as HGS and EMD-AAPG for more than 40 years. He is a licensed professional geologist/geoscientist and hydrogeologist in Texas, Washington, Wyoming, Mississippi, and Alaska, and serves as Chairman of the Uranium Committee of the Energy Minerals Division of the AAPG. He also has served the legal community over the years as an Expert Witness or Consulting Expert on more than 40 cases.

PESGB

The 12th PESGB/HGS Conference on African E&P
Wembley Stadium, London, September 11th-12th 2013

The 12th PESGB/HGS Conference on African E&P

Africa: Success in Rift, Sag and Passive Margin Settings

Wembley Stadium, London,
September 11th-12th, 2013

This annual conference, alternating between London and Houston has established itself as the primary technical E & P conference on Africa, with an attendance regularly exceeding 400. There will be about 25 high quality talks plus a large poster session covering E & P in all regions of Africa. Keynote presentations already confirmed include:

Origin of Palaeozoic Sag Basins - Mike Daly (BP)
Cretaceous Fan Fairway of West Africa - Paul Dailly (Kosmos) and Robin Sutherland (Tullow)
Exploring giant turbiditic reservoirs offshore Mozambique - the ENI experience - F. Fonnesu
African Rifts and Source Rocks - Alain Huc

Details of sponsorship opportunities and display booths will be available from Rebecca Dibley at PESGB office: Email: rebecca@pesgb.org.uk or Tel: +44(0)20 7408 2000

Main Conference on 11th-12th. Additional events on Tuesday 10th include a course 'Petroleum Basins of Sub-Saharan Africa' by D. Macgregor, stadium tours, an evening talk and an icebreaker reception. For details see website www.pesgb.org.uk

Registration will open on 1 April 2013 – Early Bird rates will be available

PESGB

Background basins image courtesy of the Exploration Fabric of Africa project compiled in memory of Ed Purdy, a former contributor to many African conferences.

Monday, March 18, 2013

Westchase Hilton • 9999 Westheimer
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

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

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.
Pre-registration without payment will not be accepted.
Walk-ups may pay at the door if extra seats are available.

Xavier Moonan
Petrotrin

4D Understanding of the Evolution of the Penal Barrackpore Anticline, Southern Sub-Basin, Trinidad

The Penal/Barrackpore Anticline is a sub-surface southeasterly verging detached Middle Miocene frontal fold within the Southern Basin Trinidad. The feature was generated by the southeastward-directed oblique collision of the Caribbean Plate/accretionary prism with the northward-subducting South American continental crust. The oblique collision generated foredeep settings in the Southern Basin, into which the Middle Miocene primary reservoirs, upper bathyal syn-kinematic Herrera sand turbidites, were deposited in synclinal lows. The Penal/Barrackpore Oilfield spans an area at least 17km long by 5km wide, with the anticline possessed of a structural relief of greater than 6000 feet (Hosein, 1990; Dyer, 1992; Telemaque, 1996). The integration of well data and semi-regional 2D seismic lines across the Southern Basin, coupled to surface geology, revealed at least three structural levels within the Penal/Barrackpore Anticline, namely the overthrust, the intermediate or overturned limb, and the subthrust (Bitterli, 1958; Dyer, 1992; Ramlackhansingh, 2007). Pliocene gravity-driven extensional tectonics produced numerous northwest to southeast-trending, eastward-facing, curvilinear, detached normal faults which further dissected the structure by re-activation of Middle Miocene syn-thrust extensional faults (Pindell 2005). However, seismic data confirm that the westward-facing, curvilinear syn-thrust extensional fault, the so-called Main Extensional 2 (ME2), was not reactivated during the Pliocene and as such serves as a migration pathway for hydrocarbons into the Middle Miocene reservoirs. More importantly, ME2 separates the developed field from the relatively unexplored south-western

HGS International Dinner *continued on page 25*

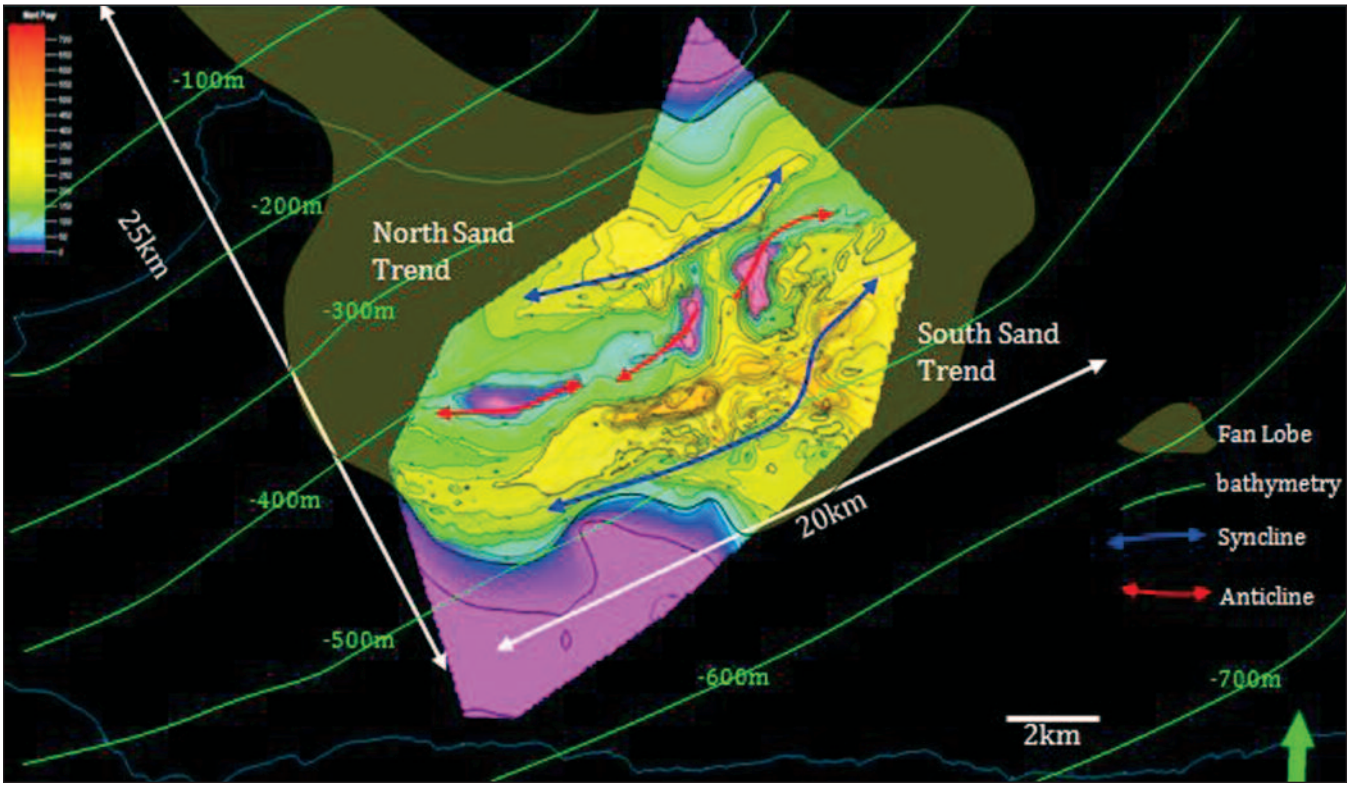


Figure 1: *Simulated Middle Miocene Herrera turbidite sands (primary reservoir) restored Net Sand Map and comparison with regional provenance fan lobe models and associated bathymetry.*

PESGB

The 12th PESGB/HGS Conference on African E&P
Wembley Stadium, London, September 11th-12th 2013

Second Announcement and Call for Papers

Africa: Success in Rift, Sag and Passive Margin Settings

Wembley Stadium, London,
September 11th-12th, 2013

If you wish to submit an abstract for the conference: abstracts (circa 200 words) should be sent as soon as possible and no later than 13 March 2013 to Duncan Macgregor at duncan.macgregor2@ntlworld.com or to a designated Session Chair (see list below). Extended abstracts are normally written once your paper is accepted and are issued on a conference CD.

Session Chairs: Richard Dixon (BP), Shane Cowley (Tullow), Richard Moody, Andrei Belopolsky (Premier), Fabio Lottaroli (ENI), Jon Argent (BG Group), Frank Love (BHP-Billiton)
Other Committee: Ray Bate (Chairman), Al Danforth and Ian Poyntz (HGS, Houston)

There will be about 25 high quality talks plus a large poster session covering E & P in all regions of Africa. Keynote presentations already confirmed include:

Origin of Palaeozoic Sag Basins - Mike Daly (BP)
Cretaceous Fan Fairway of West Africa - Paul Dailly (Kosmos) and Robin Sutherland (Tullow)
Exploring giant turbiditic reservoirs offshore Mozambique - the ENI experience - F. Fonnesu
African Rifts and Source Rocks - Alain Huc

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Background basins image courtesy of the Exploration Fabric of Africa project compiled in memory of Ed Purdy, a former contributor to many African conferences.

HGS International Dinner continued from page 23

plunging nose of the anticline. Pleistocene near-normal contractional / transpressional deformation resulted in re-folding and re-tightening of structures, produced out-of-sequence thrusts, backthrusts, and mud diapirism (Pindell 2005, Ramlackhansingh et al 2009). The style of deformation during the Pleistocene may be directly related to the effectiveness of the underlying Lower Cretaceous / Jurassic(?) evaporite decollement as it thins out towards the present day south coast of Trinidad.

However, seismic data confirm that the westward-facing, curvilinear syn-thrust extensional fault, the so-called Main Extensional 2 (ME2), was not reactivated during the Pliocene and as such serves as a migration pathway for hydrocarbons into the Middle Miocene reservoirs.

4D evaluation of the anticline, acquired by integrated restorations of 2D seismic lines and infill wells, revealed the growth of the sructure from a Lower Miocene detachment fold through to a Middle to Upper Miocene tri-shear fault propagation fold. Restoration data, presented in the form of a Middle Miocene vector map, demonstrates the disparities in the distribution of shortening over the Study Area from east to west. An observed northwest-southeast trending narrow elongated zone of reduced shortening, labeled Z, separates zones of more shortening (A & B), and coincides with the syn-thrust extensional fault, a possible tear fault, named Main Extensional 2, and represents the in-plane impact of the fault on the distribution of shortening, that amounts to a relative decrease of 1500 meters within the Penal / Barrackpore Anticline. By combining the restored Middle Miocene topography, restored net sand values, and palaeo-bathymetry, sand depositional modeling

HGS International Dinner *continued on page 27*

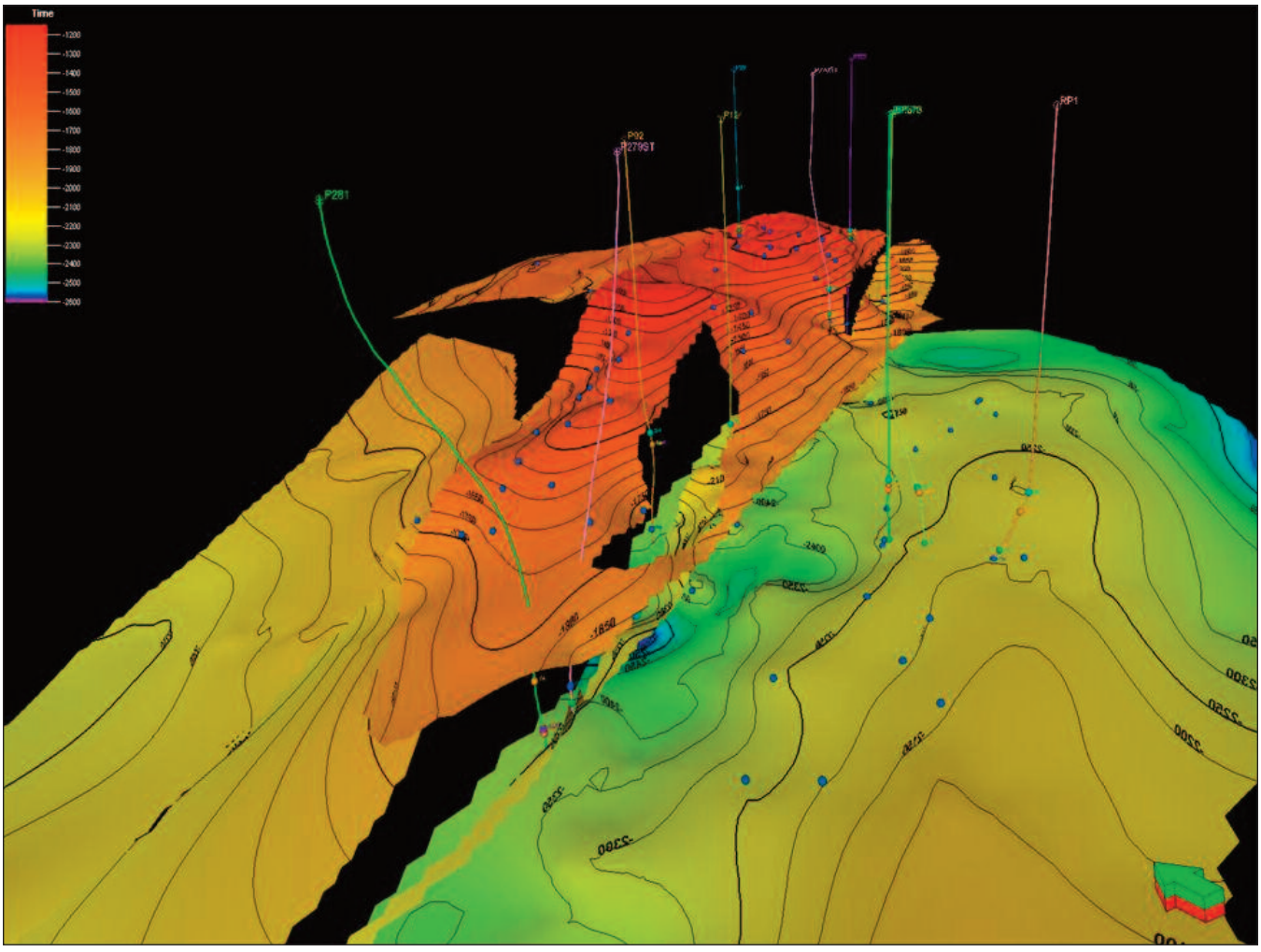

Figure 2: *The 3D static model of the developed region on the WSW plunging Penal Barrackpore field at Middle Miocene Herrera turbidite sands (primary reservoir) level, and its relationship to the ENE plunging Solomon/Rocky Palace Anticline to the south.*

PESGB

Petroleum Basins of Sub-Saharan Africa
Wembley Stadium, London, September 10th 2013

Petroleum Basins of Sub-Saharan Africa

This one day course presented in conjunction with the PESGB/HGS Africa conference but available for separate registration, aims to provide an overview of the tectonic, climatic and topographic controls exerted on Sub-Saharan petroleum systems and resulting hydrocarbon distribution.

The course will concentrate on two main settings, rifts and deepwater turbidite plays, examining the various influences on charge and reservoir in these settings. Short exercises on play cross-sections and petroleum systems charts will be used to segment the lectures on each set of basins, ordered as follows:

Overviews - Plate and Intraplate Tectonic History, Play Development and Exploration History
Pan - African Foreland Settings
Rifts - Karroo, Jurassic, Cretaceous, Neogene
Marginal and Deepwater Plays - SW Africa, Equatorial Margin, NW Africa, East Africa

PESGB Tanqua Karroo field trip, 2007 outcropping turbidite fan systems in foreland setting

Target Audience:
Young Geoscientists working on Africa & experienced staff working within licences and requiring a regional overview or refresher.

The course fee includes:
Lunch and refreshments, USB memory-stick containing non-copyright course material and all stationery.

Registration:
Registration will open early next year and is limited to 50 places.
Registration cost £250 or £75 students*

Please check the website for more information.

www.pesgb.org.uk

*Limited to 5 places, proof of status required

Petroleum Exploration Society of Great Britain, 5th Floor, 9 Berkeley Street, London, W1J 8DW
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of the primary reservoir was undertaken. This revealed two major northeast to southwest sand trends and their unique relationship to growing structures. Zones of absence of Middle Miocene Herrera sands coincided with palaeo-highs on the restored Middle Miocene topography. The northern sand trend averaged 150 feet thick. It was areally more confined (12km long x 2km wide) with higher net-to-gross ratios compared to the southern sand trend (an area 9km long x 3km wide) which averaged ~300-400 feet thick, thinning southward to ~200-150 feet. A narrow sand trend area (2.0km long x 0.8km wide) orthogonal to the anticlinal axis appears to connect the northern and southern perched sand bodies. Zones with a high probability of thick sand deposits were forward-modeled to their present day locations, evaluated, and ranked based on the geometry and nature of the structural or stratigraphic trap, as well as on the possibility of tertiary hydrocarbon migration due to Pleistocene deformation, in an attempt to de-risk future exploration drilling. ■

Biographical Sketch

Xavier Moonan read his Bachelor of Science degree in Geology at University of West Indies at Mona, Jamaica from 2003 to 2006, at which time he participated in Petrotrin's Undergraduate Training Programme during the school vacation. He worked on geological mapping of the Rancho Quemado oilfield, Palo Seco, for the Morne L'Enfer sandstone. After graduation, he worked from June 2006 to July 2007 as a mudlogging Geologist and Data Engineer for Geoservices S.A., at Talisman's exploratory wellsites (Zaboca, Shandon Beni, Shandilay, Tamarind) in the Eastern Block. He joined Petrotrin in July 2007 in the Exploration & Geophysics department in Pointe-a-Pierre. In 2009 he was awarded a Petrotrin Corporate Scholarship to pursue an Master of Science degree in Structural Geology and Geophysics at the University of Leeds, UK from 2009 to 2010.

Since his return to Trinidad, Mr. Moonan has interpreted the SBC 2D Seismic throughout Petrotrin's acreage, mapped the Lower Cruse formation in the South Quarry/Morne Diablo Block and the Middle Cruse within the Fyzabad Syncline/Skinner Fault, and served as Petrotrin client representative onboard the Western Geco Continental Shelf Seismic Survey. In October 2011, Xavier presented his Master's Thesis titled "4D Understanding of the Evolution of the Penal Barrackpore anticline, Southern Sub-Basin Trinidad" at the AAPG ICE Conference, Milan Italy. His work earned a Top 10 Presentation citation.

Recently Mr Moonan served as wellsite geologist for Soldado wells S904 & S905 in February to March 2012. He is working on an interpretation of the subthrust and overthrust Herrera formation in the Penal Barrackpore anticline as well as exploration mapping of the Debe Wellington anticline based on Petrotrin's NWD 3D seismic survey. His reinterpretation of Penal/Barrackpore anticline has resulted in 52 new prospects for step-out exploration, infill development, and replacement wells that target the Herrera sands within the Intermediate Limb.

Aside from his professional work activities, he also serves as a Director of the Geological Society of Trinidad and Tobago, primarily as host and coordinator of field trips and geo-tours. He is an active member of AAPG and EAGE and currently serves as the Trinidad representative on the Technical Programme Committee for the AAPG ICE Conference 2013 to be held in Cartagena, Colombia.

2013 GSH-SEG Spring Symposium

Unconventional Geophysics

Honoring Peter Duncan

March 5-6, 2013
Westchase Hilton, Houston Texas
Technical Chairman: Phil Schultz

PRE-REGISTRATION: $250 **DEADLINE: Feb. 22 , 2013**

Symposium Sessions

- Microseismic Technology – *Understanding the Data*
- Microseismic Cases and Examples – *How and what we learn from the data*
- Microseismic Data Interpretation and Sweet Spot Identification
- Geophysical support for Fracture Staging and Production Planning

Speakers

Craig Cipolla, *Hess*
Bill Ellsworth, *USGS*
Vladimir Grechka, *Marathon*
Werner Heigl, *Apache*
Bob Langan, *Chevron*
Christophe Maisons, *Magnitude*
Shawn Maxwell, *Schlumberger*
Mike Thornton, *Microseismic*
Serge Shapiro, *Freie Univ. Berlin*
Ted Urbancic, *ESG Solutions*
Anu Venkataraman, *ExxonMobil*
Eric von Lunen, *Nexen*
Norm Warpinski, *Pinnacle*

A Challenge Bowl competition will be held during lunch on Tuesday, March 5th

EXHIBITORS will have booths in the Breakout space adjacent to the Meeting Room (Contact GSH)

A banquet toasting and roasting Peter will be held during lunch on Wednesday, March 6th

THANK YOU to: **CGG, BP, Chevron, Shell, Statoil, MicroSeismic, geoInteriors, SES**, Devon, ExxonMobil, Seitel, Wireless Seismic, Katalyst, neos and PGS

Tuesday, March 19, 2013

Hyatt North Houston (former Crowne Plaza Hotel - Greenspoint)
425 North Sam Houston Pkwy E

Social 11:15 AM, Luncheon 11:30 AM

Cost: $31 pre-registered members; $35 for non-members

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
Pre-registration without payment will not be accepted.
You may still walk up and pay at the door, if extra seats are available.

HGS Northsiders Luncheon Meeting

Laura A. Banfield, Ron Brogdon, and Mitchell C. Graff
BP America, Houston TX

Addressing Key Questions within an Integrated Reservoir Framework to Optimize the Location of Horizontal Shale Wells

Integrated conventional reservoir characterization has been conducted on several unconventional United States shales which include the Woodford, Fayetteville, Haynesville, and Eagle Ford. Key components include description of the play fairway, understanding of the controls on high-TOC deposition, and sequence stratigraphic frameworks. Further work on the Woodford Shale has focused on optimization of the location of lateral wells within the vertical reservoir architecture with answers to such questions as:

- Where is the gas located?
- Where is the porosity?
- How does brittleness vary?
- What rock types drill quickly?
- How do natural fractures affect stimulated rock volume?

Integration of recent drilling results with the existing reservoir framework helps to answer these questions. 3D visualization has also been useful for rapidly evaluation of different models and efficient communication with multi-disciplinary groups.

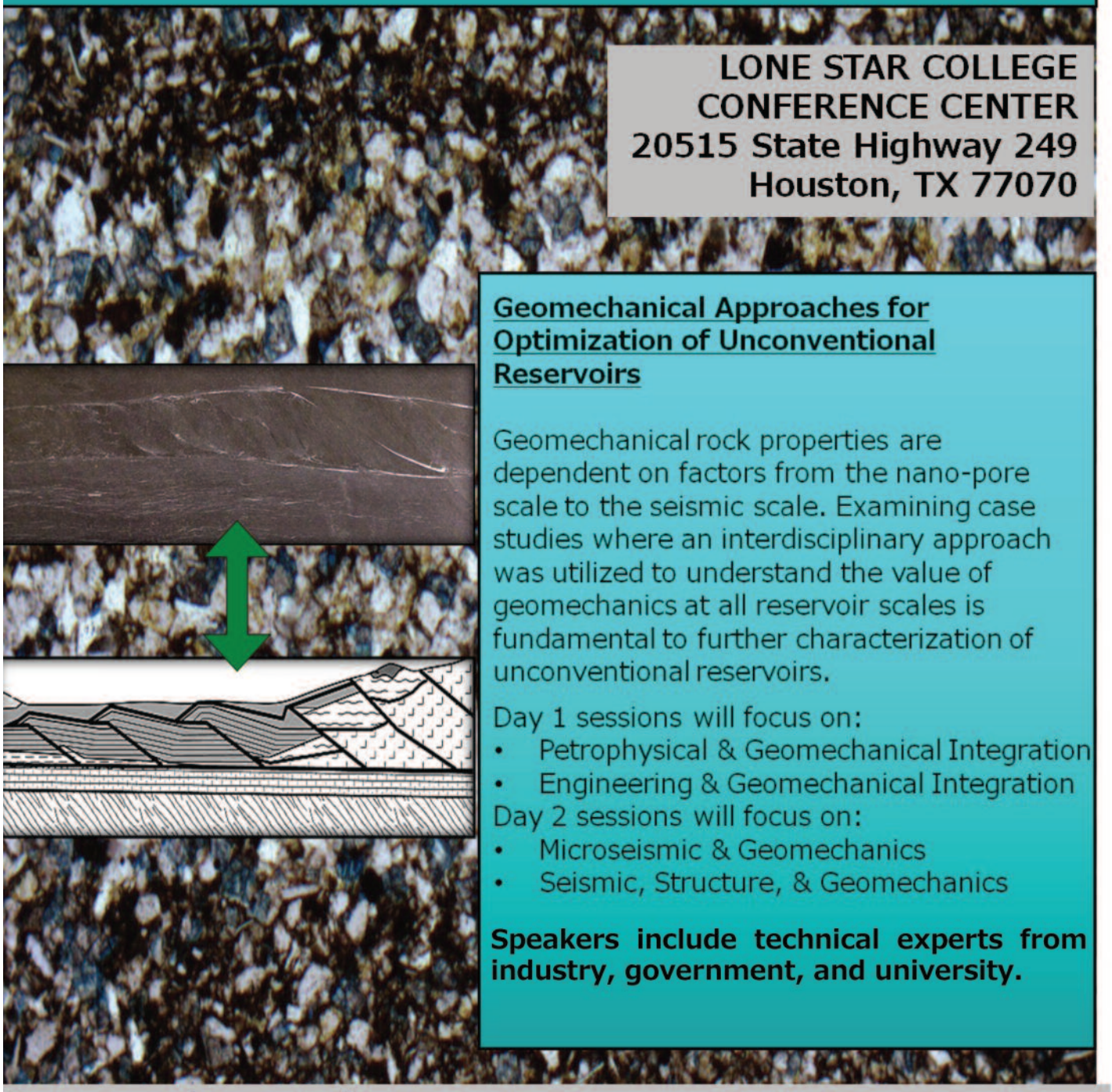
Biographical Sketch

Laura Banfield has worked for BP for 15 years and currently leads their Access and Exploration teams in North America Gas. Laura worked on exploration and appraisal projects in the Gulf of Mexico and North Sea and the No Reservoir Surprises technology group before moving to the North America Gas group in 2005. Since then, she has focused on unconventional plays, first in tight gas with the Almond in Wamsutter and the Frontier and Dakota in Moxa, and then to shale appraisal of the Woodford, Fayetteville, Eagle Ford, Mancos, Haynesville, and Utica shales. Laura is a clastic sedimentologist and stratigrapher by training with a Bachelor of Arts degree in geology from Amherst College and a Master of Arts and Ph.D. degrees in geology from Rice University.

Applied Geoscience Conference

Interdisciplinary Micro to Macroscale Geomechanics

November 6-7, 2013



LONE STAR COLLEGE CONFERENCE CENTER
20515 State Highway 249
Houston, TX 77070

Geomechanical Approaches for Optimization of Unconventional Reservoirs

Geomechanical rock properties are dependent on factors from the nano-pore scale to the seismic scale. Examining case studies where an interdisciplinary approach was utilized to understand the value of geomechanics at all reservoir scales is fundamental to further characterization of unconventional reservoirs.

Day 1 sessions will focus on:

- Petrophysical & Geomechanical Integration
- Engineering & Geomechanical Integration

Day 2 sessions will focus on:

- Microseismic & Geomechanics
- Seismic, Structure, & Geomechanics

Speakers include technical experts from industry, government, and university.

Be a corporate sponsor!

More information on registration, sponsorship, and the speaker line-up can be found at www.hgs.org

HOSTED BY THE HOUSTON GEOLOGICAL SOCIETY

Monday, March 25, 2013

Westchase Hilton • 9999 Westheimer
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

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

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.
Pre-registration without payment will not be accepted.
Walk-ups may pay at the door if extra seats are available.

HGS North American Dinner Meeting

John B. Curtis
Colorado School of Mines, Golden, CO
John E. Zumberge and Stephen W. Brown
GeoMark Research, Ltd., Houston, TX

Evaluation of Niobrara and Mowry Formation Petroleum Systems in the Powder River, Denver and Central Basins of the Rocky Mountains, Colorado and Wyoming, USA

Potential Niobrara and Mowry formation source rocks and produced oils from multiple Cretaceous reservoirs were characterized from seven Rocky Mountain basins to evaluate generation and migration of shale oil from these two petroleum systems. This is a subset of a comprehensive study of 14 Rocky Mountain basins.

Total organic carbon, Rock_Eval™ pyrolysis and vitrinite reflectance analyses of rock samples were coupled with a complete characterization of the produced oils, including saturate and aromatic carbon isotope compositions and sterane and terpane biomarkers.

HGS North American Dinner *continued on page 33*

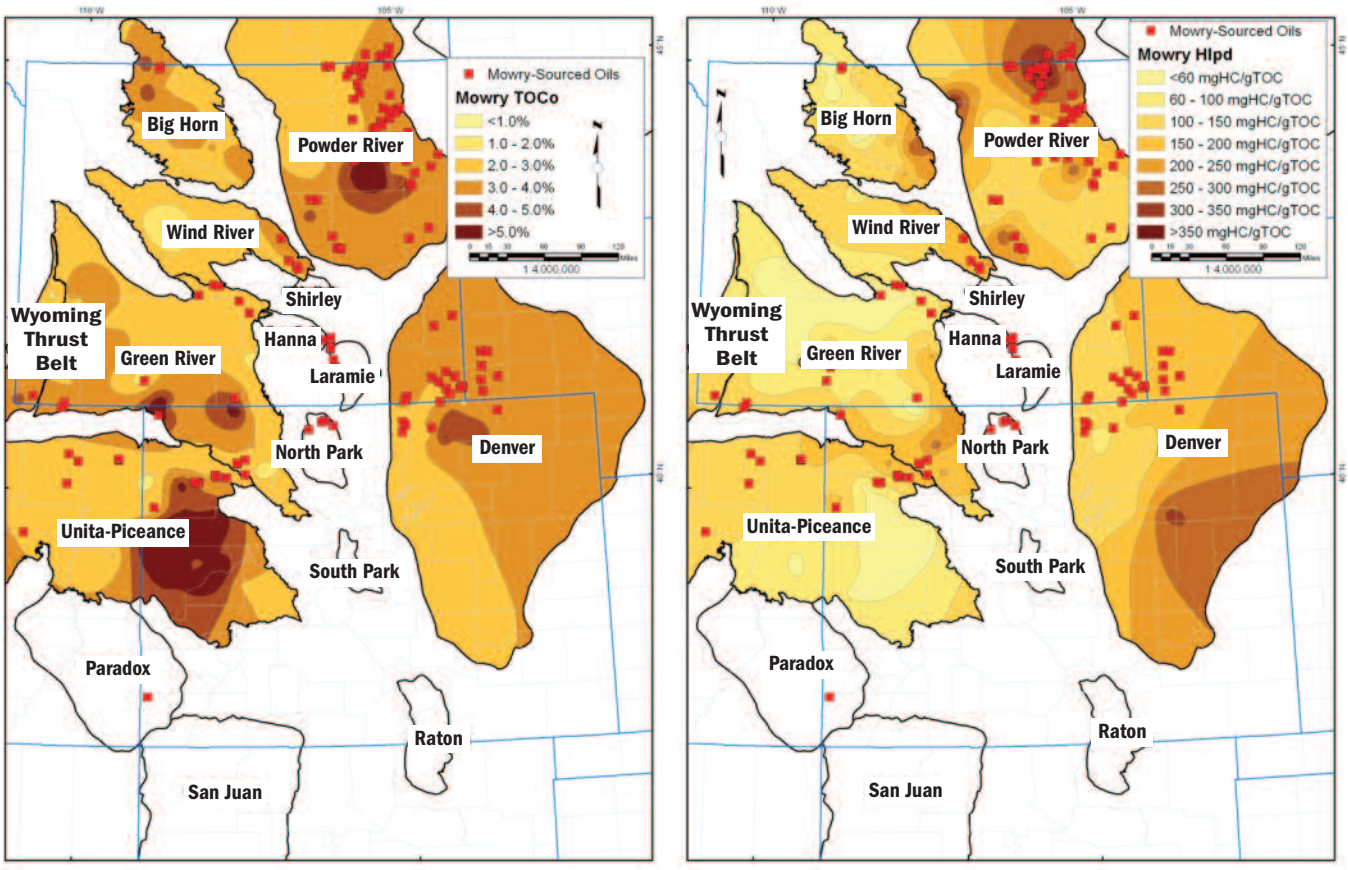


Figure 1: *Preliminary Oil Family Maps, Mowry System*

Applied Geoscience Conference

Interdisciplinary Micro to Macroscale Geomechanics

November 6-7, 2013

Main Conference - $15,000

Availability: 2 of 2

- 4 complimentary Conference registrations
- Company name & logo prominently displayed at event, online event website and related HGS communications
- Dedicated directional signage & logo laynards
- Complimentary vendor table

Student Technical Poster Session - $10,000

Availability: 2 of 2

- All sponsored student Conference registrations
- Company name & logo prominently displayed at event, online website event and related HGS communications
- Dedicated signage at student technical poster session
- Complimentary vendor table

Reception - $5,000

Availability: 5 of 5

- 2 complimentary Conference registrations
- Company name & logo displayed at event, online event website, and related HGS communication
- Dedicated signage during Conference reception
- Complimentary vendor table

Program - $5,000

Availability: 5 of 5

- 2 complimentary Conference registrations
- Company name & logo displayed at event, online event website and related HGS communications
- Dedicated signage during Conference

Speaker Reception - $3,500

Availability: 2 of 2

- Company name & logo displayed at event, online event website, and related HGS communication
- 10 complimentary passes for speaker reception

Lunch - $2,500

Availability: 5 of 5

- Company name & logo displayed at event, online event website, and related HGS communications
- Dedicated signage during Conference lunch

Coffee - $1,000

Availability: 4 of 4

- Company name & logo displayed at event, online event website, and related HGS communications
- Dedicated signage at Conference break stations

General - $500

Availability: Unlimited

- Company name & logo displayed at event, online event website, and related HGS communications

To sponsor, please indicate your sponsorship level _____ with payment (payable to HGS) to:
HGS - 14811 St. Mary's Lane, Ste. #250 - Houston, Texas 77079 - Attn: Nina, or you can email your sponsorship form to Nina@hgs.org

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Approved by_____ Date_____

Please email your company logo to Nina@hgs.org. **Note: Please send only company logos at 300+ dpi**

If there are any questions, please contact Heather Davey @ hedavey.mymail.mines.edu or Lans Taylor @lxtaylor@talismanusa.com

HGS - 14811 St. Mary's Lane #250 - Houston, TX 77079 Office: 713-463-9476 Fax: 281-679-5504

HGS North American Dinner continued from page 31

Systematic variations in source rock quality and thermal maturity for both formations were noted and mapped in the seven basins. These variations are due to differences in depositional environments, water-column anoxia, and Laramide evolution within the studied basins. Determination of differences in depositional environments between the Niobrara and Mowry was based solely on biomarker interpretations. The Niobrara is an effective source rock due predominantly to enhanced productivity in the water column, in contrast to the Mowry, where enhanced preservation played the major role.

Three oil families were identified:

- Mowry Family 1.1 member oils (**Figure 1**) are mostly found in the Lower Cretaceous Muddy formation, stratigraphically just below the Mowry source. Conversely, Niobrara Family 1.2 member oils (**Figure 2**) are mostly found in the Upper Cretaceous Niobrara formation. and Upper Cretaceous sands.
- Many of the Cretaceous sub-family 1.3 oils occur in both Upper and Lower Cretaceous reservoirs and are slightly separated statistically from either the Mowry or Niobrara sub-families because many were generated at a higher level of thermal maturity. Some of the sub-family 1.3 oils that are of moderate maturity appear to have another marine shale source, perhaps the Upper Cretaceous Carlile/Greenhorn formations.

In the Powder River basin, Mowry-sourced oils occur mostly in the eastern half while Niobrara oils are more centrally located.

Light oils / condensates with no biomarkers produced from Cretaceous reservoirs in the Denver basin correspond to the 'Wattenberg Thermal Anomaly.' Just to the west and north of these, are low to moderately mature Niobrara oils. In the northwest corner of the Denver basin, where both Mowry and Niobrara-sourced oils are present, the deeper Mowry oils are somewhat more mature.

Low to moderately mature Mowry oils exist in both the Laramie and North Park basins while Niobrara oils occur only in the North Park basin.

Characterization of the oils allowed calibration of the source rock data and prediction of hydrocarbon generation. Comparison of oil maturity with source rock maturity aids in determination of probable oil migration extent and directions. ■

HGS North American Dinner *continued on page 35*

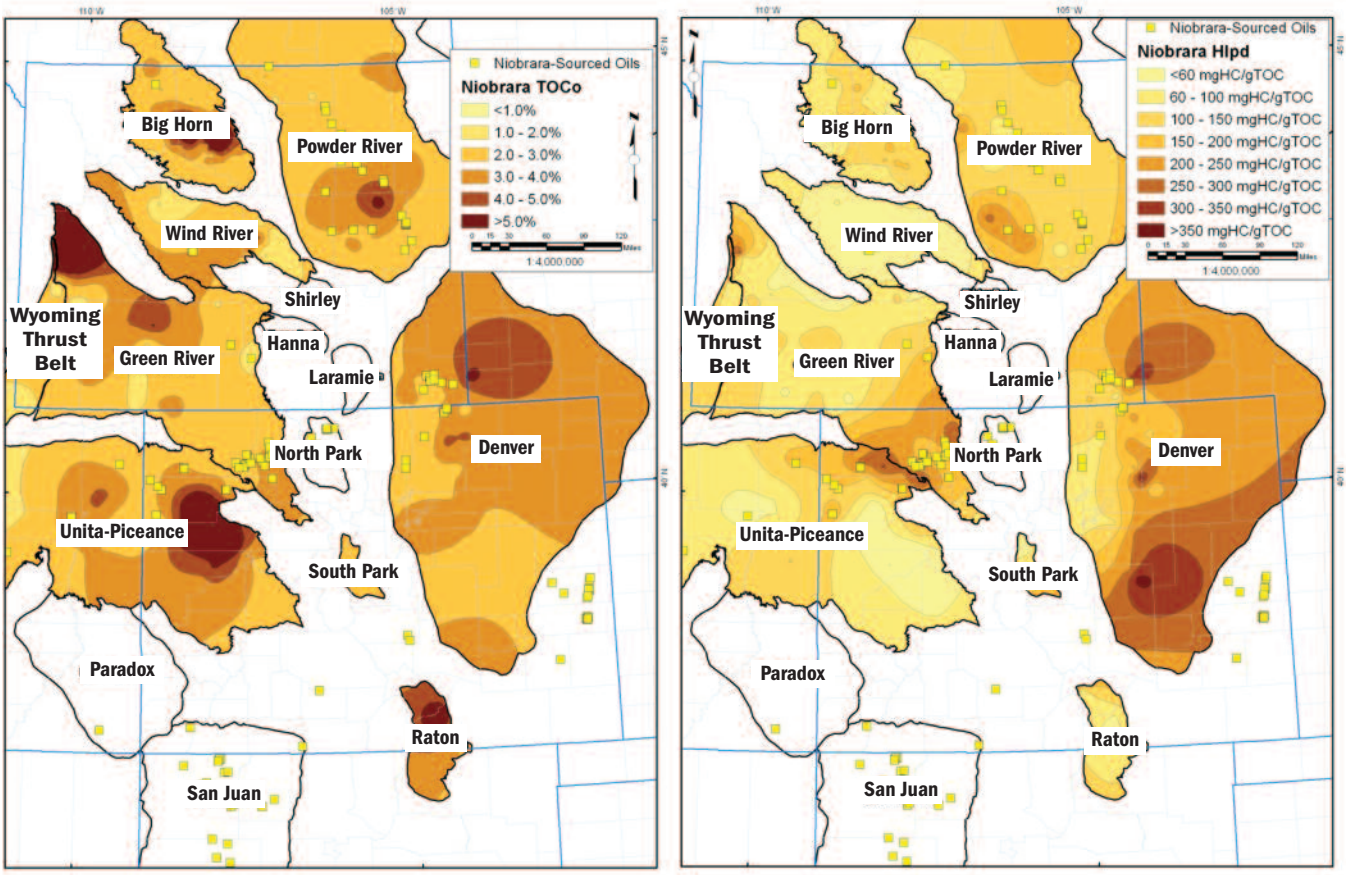

Figure 2: *Preliminary Oil Family Maps, Niobrara System*

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HGS North American Dinner continued from page 33

Biographical Sketch

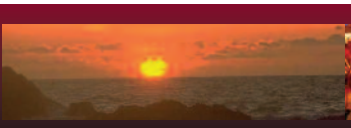
John B. Curtis is Professor Emeritus of Geology and Geological Engineering and Director, Potential Gas Agency at the Colorado School of Mines. He received a Bachelor of Arts (1970) and Master of Science (1972) in geology from Miami University, and a Ph.D. (1989) in geology from The Ohio State University. He is a licensed Professional Geologist in Wyoming. Dr. Curtis was a Minuteman Missile Launch Officer and Instructor Launch Officer in the United States Air Force from 1972–1975.

Dr. Curtis has been at the Colorado School of Mines since July 1990. He had 15 years' prior experience in the petroleum industry with Texaco, Inc., SAIC, Columbia Gas, and Brown & Root Laboratories / Baker-Hughes. He serves on and has chaired several professional society and natural gas industry committees, which previously included the Supply Panel, Research Coordination Council, and the Science and Technology Committee of the Gas Technology Institute aka Gas Research Institute. He co-chaired the American Association of Petroleum Geologists (AAPG) Committee on Unconventional Petroleum Systems from 1999–2004 and is an invited member of the AAPG Committee on Resource Evaluation. He was a Counselor to the Rocky Mountain Association of Geologists from 2002–2004.

Dr Curtis was an Associate Editor of the *AAPG Bulletin* from 1998–2010. Curtis has published studies and given numerous invited talks that concern hydrocarbon source rocks, exploration for unconventional reservoirs, and the size and distribution of United States, Canadian and Mexican natural gas resources with comparisons of resource assessment methodologies. As Director of the Potential Gas Agency, he directs a team of 100 geologists, geophysicists and petroleum engineers for the Potential Gas Committee's biennial assessment of remaining United States natural gas resources. Prior to beginning transitional retirement, he taught petroleum geology, petroleum geochemistry and petroleum design at the Colorado School of Mines, where he continues to supervise graduate student research.

March 2013


Sunday	Monday	Tuesday	Wednesday
	Members Pre-registered Prices: General Dinner Meeting..... $28 Nonmembers & walk-ups ..... $35 Env. & Eng. ..... $25 Luncheon Meeting ..... $30 Nonmembers & walk-ups ..... $35 International Explorationists ..... $28 North American Explorationists $28	**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.**	
3	4	5 **HGS Board Meeting** *6 p.m.*	6
10	11 **HGS General Dinner Meeting** *"The New Panama Canal Project and Its Implications on the Unconventional Resource Industry in Texas", Edward M. Emmett, Westchase Hilton, Houston, TX, Page 19*	12	13 **HGS Environmental & Engineering Dinner Meeting** *"A Review of Liability and Loss Prevention in the Geological Consulting Business", Michael D. Campbell, Black Lab Pub, Houston, TX, Page 21*
17	18 **HGS International Dinner Meeting** *"4D Understanding of the Evolution of the Penal Barrackpore Anticline, Southern Sub-Basin, Trinidad", Xavier Moonan, Westchase Hilton, Houston, TX, Page 23*	19 **HGS Northsiders Luncheon Meeting** *"Addressing Key Questions within an Integrated Reservoir Framework to Optimize the Location of Horizontal Shale Wells", Laura A. Banfield, Hyatt North Houston, Houston, TX, Page 29*	20
24 31	25 **HGS North American Dinner Meeting** *"Evaluation of Niobrara and Mowry Formation Petroleum Systems in the Powder River, Denver and Central Basins of the Rocky Mountains, Colorado and Wyoming, USA", John B. Curtis, Westchase Hilton, Houston, TX, Page 31*	26	27 **HGS General Luncheon Meeting** *"Statoil's International Efforts 2002 until Today", William Maloney, Petroleum Club, Houston, TX, Page 39*



GeoEvents

Thursday Friday Saturday

You can make your reservations NOW online at ww.hgs.org	1	2
7	8	9
14	15	16
21 **SIPES Luncheon Meeting** *"Shale Plays' Newest Tool to Reduce Risk Using High Resolution Maximum Flooding Surfaces and Genetic Sequences In Exploration and Development Programs", Walter W. Wornardt, Houston Petroleum Club, Houston, TX, Page 41*	22	23
28	29	30

Upcoming GeoEvents

April 14-19
SEPM GSL Penrose (GSA) / Chapman (AGU) Conference
Galveston, Texas
Attendance closed.

May 6-10, 2013
The 13th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst
Carlsbad, NM

May 16-18, 2013
Petroleum History Institute
Pittsburgh, PA

May 19-22, 2013
AAPG Annual Convention & Exhibition
David L. Lawrence Convention Center, Pittsburgh, PA

August 12-14, 2013
Unconventional Resources Technology Conference
Colorado Convention Center Denver, CO

September 11-12, 2013
12th PESGB / HGS Conference on African E & P
London, UK

November 6-7, 2013
Applied Geoscience Conference Interdisciplinary Micro to Macroscale Geomechanics
LoneStar College Convention Center Houston, TX

April 6-9, 2014
AAPG Annual Convention & Exhibition
Houston, TX

Wednesday, March 27, 2013

Petroleum Club • 800 Bell (downtown)
Social 11:15 AM, Luncheon 11:30 AM

Cost: $30 pre-registered members; $35 for non-members/walk-ups; Emeritus/Life/Honorary: $15; Students: FREE

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.
Pre-registration without payment will not be accepted.
Walk ups may pay at the door if extra seats are available.

HGS General Luncheon Meeting

William Maloney
Statoil North America

Statoil's International Efforts 2002 until Today

Since the successful alliance with BP in the 1990's, Statoil's management and staff have been working diligently to expand their international presence. Re-entry into the deep water Gulf of Mexico (GoM) in 2004 was one of the first building blocks. Today, Statoil NA GoM produces oil and gas from four deepwater GoM fields, it has seven ongoing development projects, and maintains an active exploration program.

Entry into the onshore of the United States began with the Marcellus in 2008, followed by the Eagle Ford in 2010, and the Bakken in 2011. The United States onshore activities provide much of the overall production and growth for Statoil in North America. Statoil entered Canadian oil sands in 2008 and they have quickly ramped up production at their Leismer demonstration plant. Statoil is now actively seeking to advance new production areas within their acreage holdings in Alberta. The company's ventures also include activities on the Canadian East Coast. There, Statoil acts as partner in producing fields and new field developments, and as an operator for exploration activities.

Outside North America expansion has come both via exploration and business development. Angola, Azerbaijan, and Algeria are key production areas, while substantial production growth is expected from countries like Brazil, Tanzania, and the United Kingdom. In total, Statoil now have activities in 36 countries around the world. Today's luncheon talk will discuss strategies and execution challenges faced by Statoil in building their international upstream portfolio. ■

Biographical Sketch

William "Bill" Maloney, an Executive Vice President in Statoil, heads the business area's Development and Production North America. In this capacity, he plays a key role in Statoil's Corporate Executive Committee and he is Statoil's senior executive in North America. Mr. Maloney previously held the position of Senior Vice President, Global Exploration (GEX) for Statoil from February 2002 until December 2008. In that role, he was responsible for all of Statoil's international exploration activity.

Bill serves on AAPG's corporate advisory board and on the National Petroleum Council and is a member of the board of API.

Prior to joining Statoil in February 2002, Bill held the position of Vice President, Exploration and New Ventures for Texaco, based in London. Before that, he served as Director of International E&P for Davis Petroleum from 1995-1996.

Bill began his career with Shell Oil Company in Houston in 1981. His first role was a geologist in the Rocky Mountain Division. Over time, he took on positions of increasing responsibility in the United States and international arena.

Bill received a Masters of Science in geology at Syracuse University. He is an avid tennis player and still maintains an active interest in music. *[I have seen Bill perform as drummer for the GEX Pistols. Own their CD! – Ed.]*

SIPES March Luncheon Meeting

Shale Plays' Newest Tool to Reduce Risk Using High Resolution Maximum Flooding Surfaces and Genetic Sequences In Exploration and Development Programs

by ***Walter W. Wornardt Ph.D.,*** *MICRO-STRAT INC*

Recognition of maximum flooding surfaces (MFS) and genetic sequences provides for accurate correlation of the Eagle Ford and Austin formations in South Texas and of the Bossier Shale and Haynesville formations in South Louisiana. Age datable marker species of planktonic foraminifera and calcareous nannofossils within the context of high resolution biostratigraphy and fossil abundance peaks provide time lines in the form of age dateable maximum flooding surfaces. These surfaces, sequences and relative sea level cycles are recognized on a modified sequence stratigraphic cycle chart after Gradstein, 2012.

The above mentioned formations can be divided into a series of nine maximum flooding surfaces and thirteen chronostratigraphic genetic sequences. These sequences are defined by Stage/Age and numerical age datable maximum flooding surfaces from the base of the top of the Bud, the Cenomanian (Ce3) sequence boundary to the top of the Austin formation, the Santonian (Sa3) maximum flooding surface, and from the base of the Haynesville — top of Smackover (Ox7) SB to the approximate top of the Bossier formation (Ti5) MFS. Within these sequences are depositional expression of the MFS or a condensed section that is associated with fossil abundance peaks, a transgressive systems tract, high Total Organic Ccarbon (TOC), and increased organic richness.

When various reservoir shales are drilled, it is important to accurately and consistently identify and correlate the same richness zone in two or more wells. In addition to logs and seismic ties to the the maximum flooding surfaces identified in each well, continuous reflectors on seismic provide additional identification of the same richness zone in each well. This zone is located in-between the same age datable time lines, the maximum flooding surfaces. This methodology reduces risk in these expensive shale wells as it helps verify that the lateral well that is to be drilled or has been drilled is in the correct richness zone.

MFSs provide the geologic time-based mapping surfaces necessary to make various types of maps — TOC, carbonate, Hydrocarbon Indicators, isopach, structural, biofacies, brittleness, and fracture. They also permit recognition of unconformities with time missing, timing of faults, and geologic time-based data for more accurate burial and thermal histories. ■

Biographical Sketch

Dr Walter Wornardt Jr. is president of Micro Strat Inc, a privately held company located in Houston. He worked with Dr. Peter Vail to develop the seismic sequence stratigraphy technology used in his business. The company specializes in integrating Vail-type seismic sequence stratigraphic principles with both well-log sequence stratigraphy and high resolution biostratigraphy.

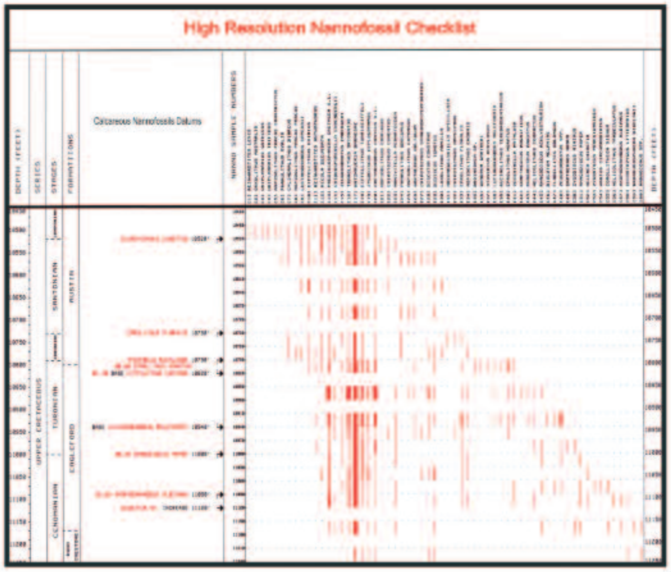
He has applied these principles to delineate the micro-stratigraphy ranging from Cambrian to Recent sediments in wells from over 80 countries including the United States. The company has produced reports from over one thousand wells in the deep water and the shelf of the Gulf of Mexico, in West and East Africa, in the Bossier shale of Texas and Louisiana, in the Overthrust Belt in Wyoming, Idaho, and Montana, as well as the Talara Basin and other regions of Peru. These are listed on the company's website. The company is currently active in domestic Eagle Ford, Haynesville-Bossier, and Utica shale plays as well as in Poland, Brazil, Columbia, Namibia, Nicaragua, Peru, and Senegal.

Dr. Wornardt graduated with Bachelors and Masters degrees in Geology from the University of Wisconsin and a Ph.D. in Paleontology/Geology from the University of California at Berkeley. He has held professorships at the University of Redlands and at Humboldt State University. His industry employment includes positions at Chevron, Exxon Production Research, and Unocal.

SIPES Luncheon *continued on page 43*

Thursday, March 21, 2013

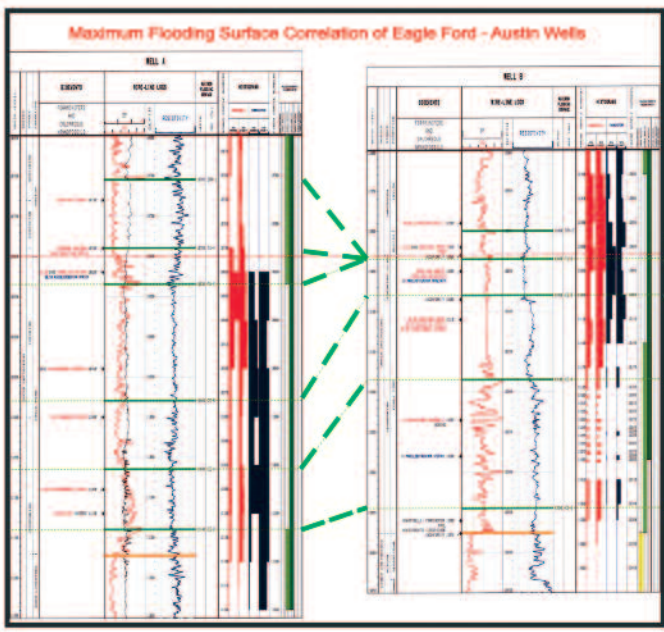
Houston Petroleum Club in the Discovery Room, 800 Bell St. (downtown Houston). Social 11:15 AM, Luncheon 12 noon
Reservations Required: *Make reservations by telephone (713-651-1639), fax (713-951-9659), website (www.sipeshouston.org), or e-mail bkspee@aol.com to B. K. Starbuck-Buongiorno by 12:00 noon on Tuesday preceding the meeting. You can now sign up for the meeting online at www.sipes-houston.org, but payment is still required by regular mail or at the door.*
Cost: *$30 for SIPES Members and Chapter Affiliates who register by 12:00 Noon Tuesday; $35 for new registrations at the door. The price for guests, non-members and walk-ins is $35. No-shows will be billed.*

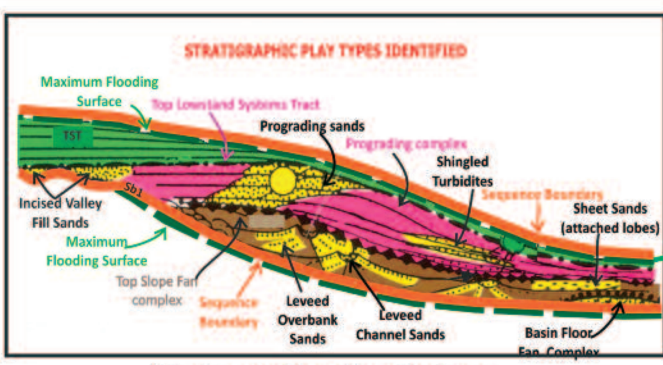


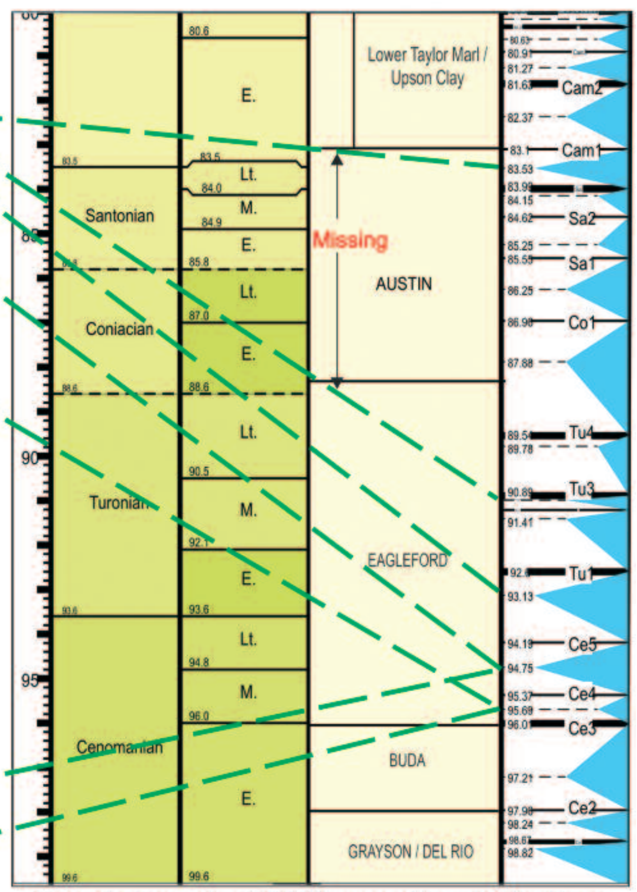
HIGH RESOLUTION BIOSTRATIGRAPHIC, MAXIMUM FLOODING SURFACE AND PALEOENVIRONMENTAL SUMMARY

TABLE 1
DEMO WELL

Depth (FEET)	First Downhole Occurrence of Stratigraphically Significant Foraminifera and Calcareous Nannofossils	Age (Ma)	Letter Designation	Formations	Series / Stages	Paleoenvironment (Generalized)
10450				Austin	Campanian	Outer Neritic Ecozone 3 300-600
10510	Maximum Flooding surface	83.53	SAN3			
10520	[illegible]				Santonian	Middle to Outer Neritic Ecozones 2-3 100-600
10705	Maximum Flooding surface	85.25	SAN1			
10730	[illegible]				Coniacian	
10790	Maximum Flooding surface	87.88	TU4		Turonian	
10790	[illegible]	88.60				
10790	[illegible]					
10800				Eagle Ford		
10820	*RUGOGLOBIGERINA APRICA*	88.58				
10820	base [illegible]	91.23				
10835	Maximum Flooding surface	89.78	TU3			Outer Neritic Ecozone 3 300-600
10900	Maximum Flooding surface	93.13	CE5			
10940	base [illegible]					
11000	[illegible]	93.95				
11065	Maximum Flooding surface	94.75	CE4		Cenomanian	
11090	[illegible]	93.95				
11090	[illegible] (increase)	93.95				
11140	Maximum Flooding surface	95.69	CE3			
11170	Sequence Boundary	96.00	CE3			
11170				Buda		Middle to Outer Neritic Ecozones 2-3 100-600
11250						







Maximum Flooding Surfaces
The key to time correlation of "sweet spots"

Correlation using MFS from well to Cycle Chart

Sampling of Dr. Wornardt's products

Government Update

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

If you'd like the most up-to-date Texas rules, regulations, and governmental meeting information, we direct you to the HGS website to review The Wise Report. *This report, which comes out as needed but not more often than once a week, offers the most up-to-date information that may be of interest to Texas geologists.*

AGI Government Affairs Monthly Review (December 2012)

Coast Guard and Defense Reauthorization Bills Passed in December

Congress sent the Coast Guard and Maritime Transportation Act of 2012 (P.L. 112-213) and the National Defense Authorization Act for Fiscal Year 2013 (H.R. 4310) to the President's desk in December, 2012. The Coast Guard reauthorization act had passed the House in November, 2011 but was stuck in the Senate over disagreements on funding and the fate of the *Polar Sea* icebreaker. The defense authorization act authorizes $552.21 billion for defense programs and includes provisions related to rare earth materials.

The Coast Guard reauthorization act will require a business-case analysis for reactivation of the *Polar Sea* icebreaker and temporarily prohibit its dismantling. The same day the bill was presented to the President for his signature, the Coast Guard reactivated its other heavy icebreaker, the Polar Star, after a $56 million refurbishment in Seattle, Washington.

The reauthorization extends, for one year, an existing moratorium that prevents the Environmental Protection Agency (EPA) and any state from issuance of a requirement for vessels that are smaller than 79 feet to obtain permits for discharge of engine fluids or certain wastewater.

The final defense authorization act was the product of a conference committee. The conferees stripped out a provision added in the Senate bill by Senators Jon Kyl (R-AZ), Dean Heller (R-NV), and Jim Risch (R-ID) to make it official United States policy to promote the domestic supply and production of materials necessary for economic growth and defense needs. They also stripped out a provision added by Senator Bob Casey (D-PA) which would have required the Pentagon to prepare a report on the feasibility of recycling rare earth elements from fluorescent light bulbs. While the final version of the bill did not contain Casey's original language, the conferees did ask for a similar report to be submitted to the House and Senate Armed Services committees. The conferees required the deputy assistant secretary of Defense for manufacturing and industrial base policy to "provide relevant policy guidance and oversight of matters that pertain to ensuring reliable resource availability of materials critical to national security."

Senator Barbara Boxer to Begin Climate Change Caucus in 113th Congress

Senator Barbara Boxer (D-CA) announced on December 11, 2012 that she intended to create a congressional caucus to address climate change.

Senator Boxer is the chairwoman of the Senate Environment and Public Works Committee and has been a long-time advocate for action on climate change. In 2009, Boxer and Senator John Kerry (D-MA) introduced the Clean Energy Jobs and American Power Act (S. 1733) that would create a cap and trade system to address greenhouse gas emissions, but the bill did not pass the Senate.

EPA and NOAA Administrators will Step Down in Early 2013

In December, 2012, Administrator Jane Lubchenco of the National Oceanic and Atmospheric Administration (NOAA) and Administrator Lisa Jackson of the Environmental Protection Agency (EPA) announced their resignations. Lubchenco and Jackson have served as administrators of their agencies since their Senate confirmations in early 2009.

Lubchenco, who will step down in February, 2013, will return to the faculty of Oregon State University where she began teaching in 1977. Her resignation comes at a time when NOAA experienced shrinking budgets at the same time as ballooning costs for several satellites. NOAA faces the possibility of a weather data gap due to the expected delays between the launch of the first Joint Polar Satellite System (JPSS-1) and the limited lifespan of the currently operating Suomi National Polar-orbiting Partnership (Suomi-NPP) satellite.

Jackson, who will resign after the President's State of the Union speech, has not announced her plans after departure from the EPA. Major accomplishments during Jackson's tenure include the first greenhouse gas regulations, new vehicle fuel economy standards, and new air standards for industrial boilers, incinerators, and cement kilns.

NOAA Releases Sixth Annual Arctic Report Card

The National Oceanic and Atmospheric Administration (NOAA) released its sixth annual "Arctic report card." The "report card" tracks observations throughout the Arctic in the atmosphere, sea ice and ocean, the terrestrial cryosphere, and marine and terrestrial ecosystems. The report finds that even though the Arctic experienced a relatively "unremarkable year" for surface air temperatures, numerous record-breaking melting events occurred.

The report notes that record low snow extent occurred in June and record low sea ice extent occurred in September. NOAA reports the

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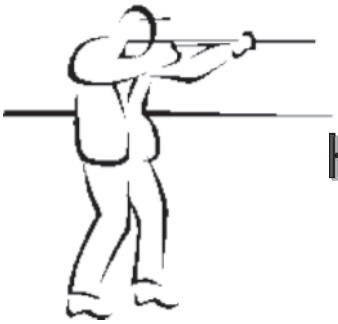
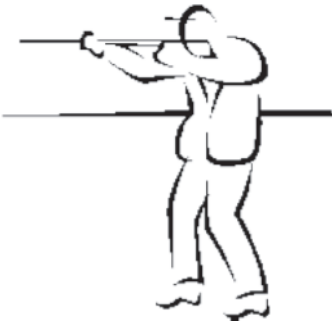


30th Annual
HGS SKEET SHOOT



Saturday, June 22, 2013
Greater Houston Gun Club
6702 McHard Road, Missouri City

This tournament is a 50 target event. Shells are provided, however **you must bring eye and ear protection**. Greater Houston Gun Club and National Skeet Shooting Association safety rules will be in effect. Trophy winning shooters will be determined by the Lewis class system. Door prizes will be awarded by blind drawing after the conclusion of shooting. All competitors are automatically entered into the door prize drawing, but you must be present at the time of the drawing to win. BBQ lunch will be provided from 11:30 until 1:30. Refreshments will be available throughout the day.

IMPORTANT!!

WE ARE LIMITED TO 160 SHOOTERS IN FOUR ROTATIONS. ENTRY FEE IS $80 PER SHOOTER FOR REGISTRATIONS RECEIVED BY FRIDAY, JUNE 14. AFTER JUNE 14, REGISTRATION WILL BE STRICTLY ON A "SPACE AVAILABLE" BASIS AND THE ENTRY FEE WILL BE $95 PER SHOOTER. REGISTER EARLY!!

For more information, contact: Tom McCarroll at (713) 419-9414 or tom_mccarroll@yahoo.com.

For directions to the club, visit www.greaterhoustongunclub.com.

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ONLINE REGISTRATION INFORMATION AT: http://www.hgs.org/eventskeetshoot

If you prefer to pay by credit card, please call the HGS office, (713) 463-9476.

If you prefer to pay by check, mail this form with a check made out to HGS to:

Tom McCarroll, 2668 HWY 36S #329, Brenham, TX 77833

Name: _____ Company: _____

Email: _____ Phone: _____

Preferred time: (circle one) 9:00 10:00 11:00 12:00 Ammo: (circle one) 12 gauge 20 gauge

Registration Fee: $ _____ + Sponsor Contribution: $ _____ = Total: $_____

If you wish to register as a squad, please return forms for all squad members together.

ALL SHOOTERS WILL BE REQUIRED TO SIGN A DISCLAIMER OF RESPONSIBILTY BEFORE THEY WILL BE ALLOWED TO SHOOT!

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longest-observed-yet duration of melting on the Greenland ice sheet and that a rare, nearly ice sheet-wide melt event occurred in July. Below the tundra, record high permafrost temperatures were measured in northernmost Alaska in 2012.

Key Reports and Publications

National Academy of Sciences (NAS)

Himalayan Glaciers: Climate Change, Water Resources, and Water Security (http://www.nap.edu/catalog.php?record_id=13449)
Though scientific evidence has shown that glaciers in South Asia's Hindu Kush mountain range are retreating, the consequences for the region's water supply are unclear, according to this report. The Hindu Kush mountain range's river systems provide water for drinking, irrigation, and other uses for about 1.5 billion people. Glacial retreat could significantly impact regional water supplies. This report makes recommendations and sets guidelines for the future of climate change and water security in the Himalayan region.

Government Accountability Office (GAO)

Mineral Resources: Mineral Volume, Value, and Revenue (http://www.gao.gov/products/GAO-13-45R)
Congress asked the Government Accountability Office (GAO) to review minerals extracted from federal lands and to provide information on the volume and dollar value of leasable minerals in fiscal years 2010 and 2011, the amount the federal government collected for leasable minerals in royalties, rents, bonuses, and other revenue and how this amount was calculated, and availability of data on the volume and dollar value of hard rock minerals extracted from federal lands in fiscal years 2010 and 2011. Leasable minerals, including oil, gas, and coal, are available through leases that require payment to the federal government, and royalties are paid based on the value of the minerals extracted. Hard rock minerals are governed by the General Mining Act of 1872, which makes these minerals available to operators through a federal claim-patent system that provides the right to explore, extract, and develop the federal mineral deposit without having to pay a royalty.

GAO found that there were nearly 70 different types of leasable minerals extracted from federal lands and waters in FY2010-2011 though their volume cannot be calculated because they use different units of measure. According to the Office of Natural Resource Revenue (ONRR), a new agency within the Department of the Interior (DOI) created after the breakup of the former Minerals Management Service, the total value of all leasable minerals extracted from federal lands and sold in FY 2010 and FY 2011 was $92.3 billion and $98.6 billion, respectively. The resulting revenue to the federal government from mineral leasing was $11.3 billion in FY 2010 and $11.4 billion in FY 2011.

GAO found that federal agencies do not generally collect data on the amount and value of hard Government Update continued on page 49

UPCOMING
EDUCATION SCHEDULE

LAST CHANCE

Field Safety Course for Field Trip Leaders **Houston, TX**	**March 27-28, 2013**
Deep-Water Siliciclastic Reservoirs **Northern California**	**April 14-19, 2013** *Earlybird rates end March 15!*
Basic Well Log Analysis **Austin, TX**	**April 15-19, 2013** *Earlybird rates end March 18!*
Petrophysical Analysis and Integrated Approaches to the Study of Carbonate Reservoirs **Austin, TX**	**April 16-18, 2013** *Earlybird rates end March 18!*
Clastic Reservoir Facies and Sequence Stratigraphic Analysis of Alluvial-Plain, Shoreface, Deltaic, and Shelf Depositional Systems **Utah**	**April 20-26, 2013** *Earlybird rates end March 22!*

SHORT COURSES

Basic Tools for Shale Exploration **Pittsburgh, PA (with AAPG Annual Meeting)**	**May 18, 2013**
Integrating Data to Evaluate Shale Resources **Pittsburgh, PA (with AAPG Annual Meeting)**	**May 18-19, 2013**
Faults in the Northern Appalachian Basin and Their Effects on Black Shale **Pittsburgh, PA (with AAPG Annual Meeting)**	**May 19, 2013**
Application of Organic Petrology for Shale Resource Evaluation **Pittsburgh, PA (with AAPG Annual Meeting)**	**May 23, 2013**
Summer Education Conference – 11 courses over 5 days! **Fort Worth, TX**	**June 10-14, 2013**

SHORT COURSES

Geology of Grand Canyon, Bryce Canyon and Zion National Park **Nevada**	**June 1-7, 2013**
Play Concepts and Controls on Porosity in Carbonate Reservoir Analogs **Almeria, Spain**	**June 2-7, 2013**
Folding, Thrusting & Syntectonic Sedimentation **Central Pyrenees, Spain**	**June 3-7, 2013**
Lacustrine Basin Exploration **Utah**	**June 9-16, 2013**

Registration and Information:

Toll-free (U.S. and Canada) (888) 338.3387, or (918) 560.2650 • Fax: (918) 560.2678 • email: educate@aapg.org
Download a registration form at http://www.aapg.org/education/index.cfm

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rock minerals extracted from federal lands because there is no federal royalty that would necessitate doing so. DOI will work to implement an international initiative to promote openness and accountability in the oil, gas, and mining sectors called the Extractive Industries Transparency Initiative.

James Webb Space Telescope: Actions Needed to Improve Cost Estimate and Oversight of Test and Integration

The James Webb Space Telescope (JWST) is one of the National Aeronautics and Space Administration's (NASA) most expensive science projects and, once deployed, will be capable of detecting the first galaxies that formed in the early Universe. JWST's instruments will work primarily in the infrared range of the electromagnetic spectrum, with some capability in the visible range. NASA has spent significantly more money and time on the project than previously planned.

This report was requested by the conferees of the Consolidated and Further Continuing Appropriations Act of 2012 and assesses the extent to which NASA's revised cost and schedule estimates are reliable based on best practices, the major risks and technological challenges JWST faces, and the extent to which NASA has improved oversight of JWST.

One Hundred Word Wonder

Underground hard rock mining refers to various mining techniques used to excavate hard minerals, mainly those containing metals such as ore containing gold, silver, iron, copper, zinc, nickel, tin and lead, but also involves using the same techniques for excavating ores of gems such as diamonds. In contrast, soft rock mining refers to excavation of softer minerals such as salt, coal, or tar sands.

Hard rock minerals are governed by the General Mining Act of 1872, which makes these minerals available to operators through a federal claim-patent system that provides the right to explore, extract, and develop the federal mineral deposit without having to pay a royalty as operators do for oil rights leasing.

AAPG GEOSCIENCES TECHNOLOGY WORKSHOP

Focused Workshops to Enhance Your Career

Hydrocarbon Exploration in Fold and Thrust Belts

3-5 March 2013 • Lima, Peru

The fold and thrust belt in Perú is a very interesting place to explore for hydrocarbons, not only because of the significant number of structures present but also due to proximity to the proven petroleum systems in giant Camisea field. Currently, several major oil companies are involved in hydrocarbon exploration in the fold and thrust belt extending to the north and south of Camisea. This massive feature spanning nearly six thousand kilometers from Argentina to Venezuela may contain several more giant accumulations. GTW Peru attendees will have the opportunity to discuss reservoir characteristics of this field, as well as case studies from other similar structures in Latin America.

Eagle Ford Shale

18-20 March 2013 • San Antonio, TX

The Eagle Ford Shale is one of the "Big Four" shale plays in the U.S., and the fact it contains both liquids and gas makes it economically viable when other plays are not. Further, the Eagle Ford is paradigmatic and often referred to as the key model for other plays and formations in Mexico and South America.

Join us as we look at the latest lessons learned and bring together presentations from geology, geophysics, geochemistry, and engineering perspectives to gain insight into productivity in the Eagle Ford.

INFORM – DISCUSS – LEARN – SHARE • THE AAPG GTW EXPERIENCE

For information on these AAPG GTW's, please log on to our website at http://www.aapg.org/gtw.

AAPG House of Delegates Candidates

We are providing a brief informational summary of 40 candidates for the HGS delegation to the AAPG House of Delegates. A formal ballot will be sent to those eligible to vote by AAPG. Each voting member will be asked to vote for 30 individuals.

The House of Delegates of the AAPG is made up of delegates from affiliated societies and international regions throughout the world. They are selected by popular vote from within their respective areas and serve a three year term.

Requirements of the delegates include:

- Familiarity with AAPG's Constitution and Bylaws
- Acquaintance with AAPG's current policies and programs
- Wiilingness to inform the leaders of their society or region regarding AAPG's program of activities, particularly as it relates to cooperative participation and service
- Ability to process requests from the AAPG Executive Committee for information regarding eligibility of applicants for membership in the Association
- Availability to serve as local certification committeemen to process requests from the Board of Certification for information regarding applicants for Certification by AAPG
- Willingness to actively solicit applications from eligible geologists for membership in AAPG

RIYAD A. ALI-ADEEB

Candidate's bio and picture not received before press time.

ROBERT ARCHER

With 25 years of E&P industry experience, Robert is the Vice President responsible for Business Development and Engineering at Zone Energy, LLC, a producing company with assets in the East Texas oil field. He holds a Bachelor of Science in Geological Geophysics from the University of Reading and a Master of Science in Petroleum Engineering from the University of Houston. He is a licensed Professional Geoscientist in the State of Texas.

Prior to Zone Energy, Robert was an Executive Vice President with Knowledge Reservoir where his responsibilities included North American business development and the delivery of reservoir studies. His expertise is in the field of subsurface uncertainty quantification and integrated reservoir field studies with a focus on dynamic reservoir performance prediction.

ROBERT ARDELL

Candidate's bio and picture not received before press time.

PAUL BABCOCK

Paul E. Babcock has been a geologist since 1976 who has worked for The Superior Oil Company, Mobil Oil, Burlington Resources, Peoples Energy Production and currently — Sabine Oil & Gas LLC, formerly NFR Energy. Paul has served the local geological society in committee Chairman positions since 1997and has served as a Director and Vice President of the HGS. Paul is completing 15 years of service as an AAPG delegate. He was a member of the AAPG Advisory Council 2005-2008..

MARTHA CREAGER BARNES

I am a Certified Petroleum Geologist currently working as the Managing Partner of Santa Clara Minerals which provides management services for holders of oil, gas and other mineral rights in North American conventional and unconventional plays. I spent almost 29 years as a petroleum geologist for Marathon Oil Company in both exploration and production: offshore and onshore, domestic and international, carbonates and deep water clastics. In my spare time, I have volunteered for over 25 years with both Girl Scouts and Boy Scouts to promote science, technology, engineering and math (STEM) education and careers in grades K-12. I have also mentored Graduate Geoscience Students through internships at Marathon, Rice University and the University of Oklahoma. I was a corporate counselor for three years for the University of Texas GEOFORCE outreach program.

Professional Affiliations:

AAPG, HGS, National Association of Royalty Owners
Certified Petroleum Geologist #5865, Texas Professional Geoscientist #4335
Rice University Board Member Affiliate Professional Science and Engineering Master's Programs

Education:

B.A., Geology and Managerial Studies, Rice University, 1981
M.S., Geology, University of South Carolina, 1983

AAPG House of Delegates Candidates *continued on page 53*

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KATHLEEN BENNETT

Kara Bennett earned her M.S. in geology at University of Florida, then worked briefly in the environmental industry before she came to Houston to work in oil and gas. She has been an exploration geoscientist for over 25 years, first with Gulf and Amoco; she became an exploration consultant in 1995. Kara is a long-time volunteer with HGS who has served as editor, VP, and President She has served three prior terms as a member of the House of Delegates. She enjoys her work with other volunteers for HGS, appreciates the honor and opportunity to represent the Houston region in the House of Delegates, and hopes to continue to serve in the future.

PAUL BRITT

Candidate's bio and picture not received before press time.

MARTIN CASSIDY

Born in New York City, educated in Moses Brown School, Providence, Rhode Island and graduated in 1955 from Harvard University, with a B.S. cum Laude in Geology. Mr. Cassidy married Jo Reeser, worked a year for Standard of Texas Oil Company in Texas and then served three years in the United States Air Force as an ammunitions officer.

In 1958 he earned a MS degree in petroleum geology at the University of Oklahoma, then spent two years in a Ph. D. program at Harvard University leaving with all but dissertation assignments completed in 1962 to accept employment as petroleum geologist with Pan American Petroleum Corporation, later Amoco, where he worked in production geology, new ventures, and operations in increasing levels of responsibility. He worked in South Texas, and then primarily in international exploration in Libya, the Middle East, Far East, Indonesia and the North Sea. After he served as Exploration Manager of Amoco UK in London, he returned to the USA in 1986 as senior technical advisor primarily in International new ventures. In 1994 Mr. Cassidy retired from Amoco after 32 years and entered a Ph.D. program at the University of Houston while he also consulted, primarily about natural CO_2 deposits in the subsurface. After he graduated with a Ph.D. in geology in 2005 from The University of Houston he has continued as a research scientist at the University of Houston and also continued writing and consulting about natural CO_2 deposits and their relation to domestic and international exploration for oil and gas.

In addition to those activities, Mr. Cassidy is at present the President of the Houston Geological Society 2012-13. He is an AAPG Certified Petroleum Geologist, has been a member of the AAPG for over 45 years, and received an AAPG Distinguished Service award in 2010.

Mr. Cassidy been an AAPG delegate for three terms and wishes to continue to help guide the AAPG in the directions that a majority of the Houston members wish.

CHERYL DESFORGES

Candidate's bio and picture not received before press time.

CRAIG DINGLER

Craig is a hydrogeologist for Clean Harbors Environmental Services with previous experience in the petroleum industry and academia. He is a past-president of the HGS and has served as treasurer, *Bulletin* editor, and chairman of the environmental and engineering geologists group. He also was chairman of the HGS Constitution and Bylaws Committee 2008–2009. In AAPG, he has served the DEG as vice president and member of the advisory board. He was DEG technical chairman for the Houston 2006 AAPG annual convention and DEG vice chairman for the Houston 2011 meeting. He has B.S. and M.S. degrees in geology from SUNY-Oneonta and the Univ. of Idaho, respectively.

JOHN DOMBROWSKI

John is a petroleum geologist with over 30 years of industry experience. He began his career with Texaco in Los Angeles where he explored the onshore and offshore basins of the Pacific coast and Alaska. Increasing positions of responsibility led to assignments in Bakersfield, Denver and New Orleans. In New Orleans he managed a Lease Sale Team charged with evaluation and acquisition of properties for the exploration portfolio in the OCS waters of the Gulf of Mexico.

In 1999 John left Texaco to redirect his focus towards international exploration projects, primarily in Africa. During the past seven years he has been involved in projects in Mauritania, Senegal, Guinea Bissau, Namibia as well as Panama in Central America.

Currently he is a partner and Vice President of Project Management for the Peace River Group. His strengths and experience are in the fields of oil and gas exploration, project management and opportunity evaluation. He is an active member of several industry and professional organizations.

AAPG House of Delegates Candidates *continued on page 55*

HGS Welcomes New Members

New Members Effective February 2013

ACTIVE MEMBERS

Terry Belsher
Maria Bengert
Aimee Bichler
Rebecca Boon
Katie Boyle
David Brown
Alan Brown
Mark Campbell
Tiffany DeLeon
Brad Didericksen
Justin Fitch
Plamen Ganev
Paul Gifford
Rana Gogoi
Jack Grippi
Paolo Grossi
Joel Guttormsen
Jim Hager
Gang Han
Gilles Hennenfent
Guadelupe Hernandez
Robert Hofer
Dave Johnson
Adrian Kahn
Randy Keller
Andrew Langley
Nicole Lewczynski
Ryan Lewis
Janice Leyden
Wenguo Li
Joseph McClenahan
Jessica Mercer
Phillip Miller
Elmar Moser
Bill Overman
Jessica Poeschl
Chris Rybowiak
Michelle Saquet
Colin Sayers
Timothy Seeley
Darsel Seepersad
Vic Smith
Christopher Smith
John Smoot
Owen Stephens
Aimee Taylor
Joshua Turner
Paul Waldo
Casey Warshauer

ASSOCIATE MEMBERS

Zach Jones
Enrique Guasch
Justin Ott
Ben Rimmer
Nadia Veleva
Derrick Whiting

EMERITUS MEMBER

Paul Winchester

STUDENT MEMBERS

Laura Carter
Marshall Davis
Naila Dowla
William Durkin
Chelsea Horn
Tiffany Kocis
Frasier Liljestrand
Kathleen Presley
Erik Slotsve
Miao Wang

Welcome New Members

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STEVEN ANDREW EARLE

Steve Earle received his B.S. degree in Geophysics from the University of Arizona in 1974. He started at Amoco Production Company in Denver and Amoco International. He then joined ARCO Oil & Gas where he spent 20 years with ARCO and Vastar in Anchorage, Tyler, Dallas and Houston. A short stint at BP after the merger was followed by one at Sabco Oil & Gas. He is currently a Senior Explorationist at Carrizo Oil & Gas where he works on development of unconventional resource plays.

Mr. Earle was Chair of the North American Explorationists group before serving as Editor for the HGS *Bulletin* and as HGS President during 2011-12 term. He currently leads the HGS Grand Canyon Field Trips. He has been a Delegate to the House for 10 years.

MIKE ERPENBECK

Education:

B.S. Geology, San Diego State University 1977

M.S. Geology, Texas Tech University 1979

M.B.A., Finance, University of Houston 1990

Experience:

1997- current Ziff Energy Group Senior Analyst, Project Manager, Manager U.S. Studies, Consultant Senior Associate

1990-1997 UMC Petroleum, Revenue/Gas Balancing Accountant, Special Projects Accounting Analyst

1987-1990 Various Firms Consulting Geologist / pursued Business Degree

1983-1987 Hemus Oil & Gas, Manager of Geology

1981-1983 Pilgrim Exploration, Geologist

1979-1981 Texas Oil & Gas (TXO), Geologist

Summary of Relevant Experience for this Position:

I have performed various geological and engineering functions throughout my 30 year oil and gas career. Most recently, I have conducted and led a wide range of technical and economic analyses in upstream oil and gas as a benchmarking expert for a well-regarded international management consulting firm.

I am currently on the Board of Directors of HGS as Treasurer to the Society. I recently oversaw the administrative, personnel, and financial functions of the Society's office as Chair of the Office Management Committee. In the past I have worked with the Academic Liaison committee of HGS and Arrangements Committee to GCAGS.

I would welcome the opportunity to represent the interests of the Houston area geologists as Delegate to the AAPG.

STEVEN GETZ

Steven L. Getz is a professional geologist and geophysicist who worked more than nine years with Cities Service Oil Company and then became an oil and gas geoscience consultant for twenty-six years. He has generated prospects that led to large oil and gas discoveries in Equatorial Guinea, Guatemala, and in Trinidad, where he held the title of Chief Geophysicist for Trinmar Limited for two staggered six-month contracts. He has also generated prospects that became commercial oil and gas discoveries in Indonesia, China, the Permian Basin, and onshore Gulf of Mexico. From 2005 through 2010, he held the title of Chief Geologist with Allen Hoffman Exploration. Since 2011, he has consulted with Fortesa International on their onshore Senegal acreage, where he has served as their Chief Geophysicist and Exploration Manager of Senegal.

Mr. Getz is currently the Chairman of the AAPG Geophysical Integration Group and the HGS North American Interests Group. He is also an active member of the SEG and is active in the IQEarth field studies group.

TAREK GHAZI

Tarek Y. Ghazi graduated from Stanford University with a B.S. and M.S. in geology, after which he enjoyed a long and diverse career with Conoco, that included stints in uranium exploration and production, oil and gas exploration research, and global new ventures in Casper, San Antonio, Ponca City, Dubai, and Houston. After Conoco, Tarek has held various positions in geoscience software and consulting services that have culminated in his current post as IT and Geoscience Technology Manager for Canadian International Oil (USA) Corp. Tarek has also been an active volunteer for the SPE, AAPG and the HGS in a wide variety of elected and appointed roles.

GRETCHEN GILLIS

Gretchen Gillis joined Aramco Services Company in Houston as Geological Specialist in 2010. In this role, she participates in the identification, analysis, and implementation of new technology for upstream exploration and production. She began her career as exploration geologist with Maxus Exploration Company and as development geologist with Oryx Energy Company in Dallas. Ms. Gillis joined Schlumberger in 1997 as founding coordinator of the Schlumberger Oilfield Glossary. During 13 years at Schlumberger,

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AAPG House of Delegates Candidates

continued from page 55

she served as Oilfield Review Editor, Editorial Manager and Advisory Editor for oilfield marketing communications, and writer of "80 Years of Innovation," a book about the history of Schlumberger. Ms. Gillis served as Elected Editor of the AAPG Bulletin from 2007 to 2010, for which she received the AAPG Distinguished Service Award in 2011. She co-chairs the AAPG Technical Advisory Committee, serves as member society representative to the American Geological Institute, and has served in the AAPG House of Delegates since 2010. Ms. Gillis earned a B.A. in geology from Bryn Mawr College, Pennsylvania, and a M.A. in geological sciences from the University of Texas at Austin.

KAREN GLASER

Karen Glaser is a Geological Advisor and a Geoscience Director of Curriculum at Schlumberger. She is a stratigrapher with experience in a variety of depositional environments which include black shales, carbonates, and deep water facies. Before Schlumberger she worked for Amoco Production Company, Exxon Production Research, and as an independent consultant. Dr. Glaser obtained a Ph.D. in geology from Rice University, a M.S. in petroleum geochemistry from the University of Oklahoma, and a B.A. in geology from Colgate University in New York. Karen has been a member of AAPG since 1981 as member of a variety of committees, committee manager for Sections and Geosciences, and is currently serving as the Secretary/Editor of the House of Delegates. She has been a registered Professional Geologist in the State of Texas since 2003.

LISA GOETZ

I have always wanted to be a geologist. I earned a B.A. in Geology from Lafayette College ('75) and a M.A. in Geology from The University of Texas at Austin ('77). Since then, I have worked 30 years with Conoco/ConocoPhillips and over 5 years with Marathon Oil Company. My experience includes 5 years in uranium / metals exploration / development and my 30+ years petroleum experience is divided equally between North America and International.

Trained as a regional geologist, my petroleum expertise includes CBM, CO_2, and conventional and unconventional oil and gas exploration / development / production. I currently hold the position of Chief Geologist, North America Onshore Exploration at Marathon. Through marriage, I also have owned / operated for over 25 years a very small oil and gas production company in southern Oklahoma and have a firsthand understanding of the difficulties and joys faced by small operators.

I have been a member of the AAPG for more than 30 years and a member of the EMD since its inception. I have presented papers and helped to coordinate AAPG sectional meetings. I have also served as Secretary for the Albuquerque Geological Society, and Program Committee Chairman for the West Texas Geological Society. For many years I have been deeply involved in mentoring both within the petroleum industry and in high school, undergraduate, and graduate settings. This year it is my pleasure to be able to continue as an industry mentor for a third year in the AAPG Gulf Coast Imperial Barrel Competition.

I look forward to the opportunity to work more closely with AAPG delegates and with HGS members to make our science more attractive to high school and undergraduate / graduate students and to help make our industry more responsive to the public and industry needs.

PAUL HOFFMAN

Paul Hoffman received a B.S. in Geology from the University of Texas at Austin in 1975. He began his career with Cities Service in Houston, where he worked in development and exploration assignments, principally in the federal waters of Texas and Louisiana, and in onshore Alaska. He joined Intercomp in 1979, where he conducted detailed reservoir mapping for 3D reservoir simulation in several fields in the Middle East, onshore and offshore California, Texas, and Louisiana. From 1981 to 1990, Paul was employed in the Gulf Coast Region of Ladd Petroleum where he progressed through positions as Exploration Geologist, Manager of Geology, General Manager of Exploration, and Vice President, E&P. There he contributed to the growth of the Gulf Coast Region from its infancy to Ladd's highest valued region in 1990. In 1991, he established a Gulf Coast Region office for Duncan Energy and eventually attained the position of Executive Vice President and Chief Operating Officer of Duncan Oil. In 2003, he joined Cox & Perkins Exploration and became its Chief Operating Officer. Paul accepted the position of President of the Allen-Hoffman Exploration Company in 2008, where he directs exploration activities in the Gulf Coast and beyond. Paul is a member of the Houston Geological Society and the American Association of Petroleum Geologists. He is an AAPG Certified Petroleum Geologist and a Licensed Professional Geologist in the State of Texas.

Mr. Hoffman has served his seventh term in the AAPG House of Delegates and was elected Foreman of the Houston delegation for 2005 – 2006. He chaired the Alumni Activities Committee for the 1988 AAPG Annual Meeting. In addition, he served as Vice Chairman of the AAPG Prospect and Property Expo (APPEX) in 2001 and 2002, and as General Co-Chair of APPEX in 2003. He has

served four years on the AAPG Constitution and Bylaws Committee, which he chaired in 2007–2008; and in 2011–12, he served on the HOD Nominations and Elections Committee. Beginning in 1989, Paul served in four different elected offices for the Houston Geological Society, ultimately as President 2001–02. He currently chairs the HGS Ballot Committee and serves on the Board of the Houston Geology Society Foundation.

WILLIAM HOWELL
Candidate's bio and picture not received before press time.

BARRY KATZ
Barry Katz received his B.S. in geology from Brooklyn College in 1974 and his Ph.D. from the University of Miami in 1979 in marine geology and geophysics. After he received his doctorate he joined Texaco's Bellaire Research Center where he held numerous technical and supervisory positions. He continued with Chevron after the merger in 2001, where he has been part of Chevron's Energy Technology Company. He currently serves as a team leader for hydrocarbon charge. His work has focused on the applications of geochemistry. He has been engaged in research and technical support activities and has worked in approximately 50 onshore and offshore basins on six continents. Barry has authored more than 75 papers and has edited five books. He serves as editor and reviewer for 10 journals, including editor-in-chief of *The Open Geology Journal*, and as a senior associate editor of the *AAPG Bulletin.* Barry has been chairman of IODP's Environmental Protection and Safety Panel for the past decade. His honors include being named a Chevron Fellow and being named an Honorary AAPG Member. He served as Elected Editor for HGS and currently serves as President-Elect.

ROSEMARY LAIDACKER
Ms. Laidacker is an independent geophysical contractor currently working for Chevron. She has specialized in oil and gas prospect generation and development in the Gulf Coast area, onshore and offshore, and has worked on many discoveries in Texas and Louisiana. She started her career with Cities Service Oil and spent time at Total Petroleum where she was District Geophysicist. Before work as a contractor at Chevron she was an employee at Greystone Oil and Gas. She obtained a B.S. degree in Mathematics and Physics at Lamar University and a Master of Science degree in Geology / Geophysics from the University of Houston.

Rosemary is a long time member of the AAPG and has been an active volunteer for the HGS. As Chairman of the Continuing Education Committee she has won the HGS President's Award in 2012 and the Rising Star Award in 2011. Ms. Laidacker will be serving on the Field Trip Committee for the 2014 AAPG Convention to be held in Houston. She is also a member of the SEG and local GSH, and a Texas Licensed Petroluem Geophysicist.

As a member of the AAPG House of Delegates, I will actively work to increase the local HGS membership and the AAPG membership. I enjoy being involved with the HGS and AAPG organizations and would like to expand my involvement so I can contribute more to both. I want to represent the HGS local needs as member of the AAPG House of Delegates. I ask for your support.

CLAUDIA LUDWIG
Education:
B. S. in Geology from Lamar University
M. S. in Geological Oceanography from Texas A&M University

Companies:
Michigan Wisconsin Pipeline, Worldwide Energy, Phillips, Currently Independent / Consultant

Awards:
HGS President's Award, HGS Distinguished Service Award, HGS Honorary Lifetime Membership Award, HGS Gerald Cooley Award

Memberships:
AAPG, MTS, SME, HGS, HGS's representative to ECH, former ECH Vice President

Other Activities:
HMNS Volunteer Houston, Galveston Orchid Society, HAL-PC

EVELYN MEDVIN
Education: B.S. University of Oklahoma 1980

Companies I've worked for in my 29 year career:
Cities Service
Occidental Petroleum
Schlumberger
Coherence Technology Company
Core Laboratories

Locations:
Tulsa, Ok
Houston, Tx

AAPG House of Delegates Candidates *continued on page 58*

AAPG House of Delegates Candidates

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Bakersfield, Ca
Houston, Tx
A lot of international travel along the way!

Geo-Specialties:
Geophysics
Geology & Engineering applications

Basins worked:
Too many in South America to mention
On-shore Gulf Coast
Gulf of Mexico
Now, in any basins where our customers works

My career:
Exploration Geophyscisist 1980–1995
Geophysical Marketing Specialist
Vice President of Business Development

Society affiliations:
AAPG, SPE, IPAA, HGS: AAPG member since 1980
Various convention committees over the past 10 years

RON MEERS

Ron Meers is the Southeast Asia Exploration Manager for BHP Billiton Petroleum. During his 28-year career at BHPB, Ron has held exploration and appraisal positions in numerous areas including the Gulf of Mexico, Atlantic Margin, Southeast Asia, and the Permian Basin. Prior to BHPB, he worked for Gulf Oil Corp. and Northern Natural Gas Co., both in Midland, Texas. Ron has a B.S. degree in geology from West Texas A&M University and an M.S. degree in geology from Texas Tech University. He is a Licensed Professional Geoscientist (#17) in the State of Texas and also an AAPG Certified Petroleum Geologist (#3308).

Over the past several years, Ron has served as a member of the Houston House of Delegates in both active and alternate roles. He would like to continue his association with the House of Delegates in support of the local membership of the AAPG and HGS.

KENNETH MOHN

Kenneth W. Mohn was born in Port Arthur, Texas and moved around the globe as a Chemical Engineer's son in the oil industry. He holds an M.Sc. in Geology. Currently he is Exploration Vice President for Fugro Multi-Client Services, Inc. in Houston Texas. He has served in the HOD in the past. He worked for a year for a couple of small independent oil companies in his early career. He spent the past 25 years working for private and public service companies on various aspects of Multi-Client Seismic surveys and Business Development.

Statement: I am interested in the current status of our industry and want to ensure that we support the needs and growth of our members in the Society. I am currently a member of the Houston Geological Society, Houston Geophysical Society and the Society of Exploration Geophysicists.

DWIGHT McCLINTOCK (CLINT) MOORE

Clint Moore has been an HOD Delegate since 1989, has written many Bylaw amendments for the HOD which improved the workings of the Association, and advanced fairness through reform of our governing documents. He received the HOD's "Distinguished Member of the House" Award in 2001, a special HOD Chairman's service appreciation award in 2011, the HOD's "Long Service Award" in 2012, and has served on the Constitution & Bylaws Committee many times (past Chairman), as well as on other HOD committees. He is past Treasurer of AAPG (2004-06), past President of HGS (1994-95), and elected to the AAPG Advisory Council (1999-2002). He's been awarded four AAPG Certificates of Merit, the AAPG Distinguished Service Award (2010), the AAPG Search & Discovery Award (2011), and the DPA Distinguished Service Award (2001). He currently serves as Chairman of the AAPG Investment Committee, Vice-chairman of the AAPG Career Service Committee, and Co-chairman of the AAPG Foundation's new Military Veterans Scholarship Program. He would be honored to continue to serve his fellow members in this important role as an HOD Delegate.

RICHARD NAGY

I am a geologist with 33 years of industry experience, and have been a AAPG member since 1978. I have a Bachelor of Science in Geology (1976) from San Diego State University and started my career with Phillips Petroleum in 1980. I have worked mostly in exploration in the Gulf Coast but also have experience in Alaska and California, and offshore West Africa. I am currently employed by Noble Energy in their Deepwater Gulf of Mexico Business Unit as a Geological Advisor.

I have held the position of delegate in the Houston Delegation for many years and have been a past Chairman so I am very familiar

with the duties and responsibilities. I have been a DPA member since 1995 (CPG #5364). In addition to my involvement with the House of Delegates, I have served two terms (2005–2011) on the DPA Advisory Council and represented the Gulf Coast Section. From 2011 to 2012, I served as the DPA Council Vice President. I currently serve on the Resolutions Committee of the House of Delegates of the AAPG.

WILLIAM DON NEVILLE

Education:

B.A. Geology St. Joseph's College, 1957

M.S. Geology University of Wisconsin-Madison,1959

Experience:

1997-Present President, Ginger Oil Company, Woodlands, TX, Gulf Coast E&P

1995–97 Partner, A&D, Inc., Houston, TX Acquisitions

1987–95 Exploration Manager, Gulfstar Energy, Houston, TX, Offshore E&P

1985–87 Consultant, Various, Houston, TX, Gulf Coast Area

1979–85 Geologist, Lear Petroleum, Houston, TX Gulf Coast Area

1979 Geologist, Mitchell Energy, Houston, TX, Gulf Coast Area

1974–79 International Geologist, Union Texas Petroleum, Singapore, Far East Area

1972-74 Geophysicist, Caltex Petroleum, Sumatra,Indonesia

1960-72 Geologist/Geophysicist, Chevron, Wyoming and Rockies; Gulf Coast E&P, New Orleans, LA

ROBERT PLEDGER

Mr. Pledger is currently an oil and gas consultant engaged in prospect generation and evaluation and is President of Ashford Oil and Gas Company, LLC. Prior to 2008, he was President of Benchmark Oil and Gas AB, a Swedish public company and served on their Board of Directors. His wide range of areas of experience include the Gulf Coast, Alaska, West Texas, Kansas, Oklahoma, New Mexico, California, and many countries internationally. Prior employment includes Sun Oil Company, May Petroleum Company, General American Oil Company of Texas, and Shenandoah Oil Corporation. He has served twice as Chairman of the Houston Chapter of Society of Independent Professional Earth Scientists (SIPES) and on the National Board of Directors, District 4 Representative for the American Institute of Professional Geologists (AIPG), and as a Director of the Houston Geological Society, as Vice-President, and as Chairman of the Continuing Education Committee. He is active in the American Association of Petroleum Geologists and is a former member of the House of Delegates and was Chairman of the Short Course Committee for the AAPG 2002 Convention.

He is a certified geologist by the AAPG, the AIPG and the SIPES and is a Licensed Professional Geoscientist with the State of Texas. He is a member of the Board of Trustees and Chairman of the Advisory Committee for the Department of Space and Earth Sciences at Lamar University.

I have been an active member of both the HGS and AAPG throughout my career and am especially interested to continue to serve as a volunteer representing the membership of the AAPG as a delegate for the next three years.

RUSTY RIESE

Dr. W.C. Rusty Riese is a geoscientist based in Houston, Texas. He is widely experienced, having worked in both minerals and petroleum as a geologist, geochemist, and manager during more than 39 years in industry. He participated in the National Petroleum Council evaluation of natural gas supply and demand for North America which was conducted at the request of the Secretary of Energy; in the more recent analysis of global supply and demand requested by the same agency; and in the National Research Council analysis of coalbed produced waters and their management in the western United States. He is currently a member of the AAPG Committee on Resource Evaluations, and a member of the House of Delegates.

Dr. Riese has written and lectured extensively on various topics in economic geology including biogeochemistry, isotope geochemistry, uranium ore deposits, sequence stratigraphy, and coalbed methane petroleum systems; and he holds numerous domestic and international patents. He has more than thirty years of teaching experience including twenty-five years at Rice University where he developed the curricula in petroleum geology and industry risk and economic evaluation, as well as several other courses. He is currently an Adjunct Professor at Rice University, the Colorado State University, and the University of New Mexico, where he sits on the Caswell Silver Endowment advisory board. He is a fellow in the GSA and the Society of Economic Geologists and a member of the AAPG and several other professional organizations.

He earned his Ph.D. from the University of New Mexico in 1980; his M.S. in geology from the same university in 1977; and his B.S. in geology from the New Mexico Institute of Mining and Technology in 1973. He is a Certified Professional Geologist, a Certified Petroleum Geologist, and is a Licensed and Registered Geologist in the states of Texas and South Carolina, respectively.

AAPG House of Delegates Candidates *continued on page 60*

AAPG House of Delegates Candidates

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TOM RILEY

Education:
M.S. in Geology, Stanford University
B.A. in Geology, Carleton College

Experience:
IHS Global, Inc.
Kelman Technology, Inc.
Sun Microsystems
Western Atlas Software
Landmark Graphics, Inc.
Shell Western Exploration & Production, Inc.

Professional Affliations:
AAPG
Houston Geologic Society
Geophysical Society of Houston, Past Board Member

Awards:
Sales Manager of the Year, IHS Global, Inc.
Sales Rookie of the Year, Sun Microsystems

Statement:
My desire is to better serve our local society. Born in Hawaii, raised in Minnesota, educated in California, I moved to Texas in 1988 with a Master of Science in Geology to explore for oil and gas with Shell Oil. In 1993, I joined Landmark Graphics as a software trainer and soon transitioned into technical sales. The past 18 years have been focused selling software, hardware and services for Landmark Graphics, Western Atlas Software, Sun Microsystems, Kelman Technologies and I currently serve as Senior Director Sales for Petra and Kingdom suites for IHS. Sales and serving others are my passions! I am an active member of the Houston Golf Association (HGA) having served the past three years as Chairman Hospitality of the Champions Pavilion 18 for the Shell Houston Open Golf Tournament.

PATRICIA SANTOGROSSI

Patricia Santogrossi is geoscientist who has enjoyed nearly 37 years in the oil business. She is currently a Leading Reservoir Geoscientist and Non-operated Projects Manager with Statoil, an international arm of the state oil company of Norway. She has been engaged for the last eight years in its Gulf of Mexico business development, corporate integration, prospect maturation, and multiple appraisal projects.

Patricia has previously worked with domestic and international Shell Companies, Marathon Oil Company, Vastar Resources till the parent Arco's acquisition by BP — in research, exploration, leasehold and field appraisal as well as staff development. Subsequently, Patricia became Chief Geologist for Chroma Energy, who possessed proprietary 3D voxel vizualization technology, and for Knowledge Reservoir, a reservoir characterization and simulation firm that specialized in Deepwater project evaluations.

Patricia has been a member of SEPM for 38 years, of AAPG for nearly 30 years, and has recently begun her second term as a Trustee for GCSSEPM's Foundation. She received a GCSSEPM Distinguished Service Award in 2011. She served HGS last year as *Bulletin* co-editor and now serves as HGS *Bulletin* Editor 2012-2013. Patricia is a Licensed Professional Geoscientist (#856) in the State of Texas

Patricia was born, raised and educated in Illinois, and first headed to Texas after she received her M.S. in Geology from the University of Illinois, Champaign-Urbana. Her other 'foreign assignments' have included New Orleans and London.

SHARIE SARTAIN

Sharie Sartain is a Consultant with 31 years of industry experience. She started her career with Phillips Petroleum, where she worked on exploration and production projects in the Gulf of Mexico and Lower 48 States. Since 2002 she has worked as a consultant in the Deepwater Gulf of Mexico, and on international projects. She has a B.S degree in Geology from the University of Akron and a M.S degree in Geology from Kent State University.

Sharie has previously served on the HGS Executive Board as Director 1999-2001 and Secretary 2001-2002 and is currently the HGS Membership Chairman. In 2010 she received the HGS President's Award. She has also served several terms in the AAPG House of Delegates, including one year as the Houston Delegation Foreman. Sharie is a Licensed Professional Geoscientist in the State of Texas and an AAPG Certified Petroleum Geologist.

MARTIN SHIELDS

Candidate's bio and picture not received before press time.

CARL STEFFENSEN

Geologist Carl Steffensen (B.S. Geology '80, Illinois; M.S. Geology '82, Texas A&M) has over 30 years industry experience with ARCO, Vastar, and currently BP America, Inc. During this time he has worked a variety of Tertiary, Mesozoic, Paleozoic, and Pre-Cambrian exploration and production projects in the Gulf of Mexico (shelf and deepwater), onshore Gulf Coast, Midcontinent, Midwest, southeastern United States, and

Latin America, with a focus on carbonate sedimentology /stratigraphy and petroleum systems. Carl has served in many positions with both the HGS and AAPG, and is currently a member of the AAPG Distinguished Lecturer Committee and an AAPG Associate Editor.

CHARLES STERNBACH

Charles Sternbach is a Ph.D. geologist, former staff geologist at Shell, and currently president Star Creek Energy Company, Inc. Charles has been a member of AAPG since 1980, held chair or leadership roles on ten AAPG or HGS committees, and is an Honorary Member HGS. Among his AAPG activities are founding chair of AAPG 100th Anniversary Committee and four terms in the HOD. He was General Chairman for the 2006 Annual Convention, Houston, General Vice Chairman for the 2002 Annual Convention, Houston, and officer candidate for AAPG Vice President Sections 2009–2010. AAPG Awards include three Certificates of Merit, a Distinguished Service Award in 2005, and Honorary Membership in 2011.

Charles served as President of HGS and President of DPA. He looks forward to service as the President of GCAGS in 2015. Other key accomplishments include founding the HGS Legends Program, the Discovery Thinking Forums, and the Playmaker Forum. He is still working on something good for GCAGS.

JUSTIN VANDENBRINK

Education:

B.Sc. Geology, University of British Columbia, 1994

Diploma Communications/PR, B.C.I.T, 1998

Experience:

2012–present Weatherford, Global Manager Wellsite Geology and Geopressure

2001–2011 RPS Energy, Geological Operations Manager

1998–2001 Netherlands TV, Broadcasting / PR

1995–1996 Inmet Mining, Exploration Geologist

1994–1995 Rennaissance Energy, Exploration Geologist

Professional Affiliations:

AAPG, HGS, GSH, SPWLA, DGS, CSPG

APEGGA Professional Geologist #80794

Professional Awards and Activites:

2012 current HGS Vice President

2012 HGS Africa Committee

2009 HGS Career Day Speaker

2008–present HGS International Exploratonists Chairman

2008–2009 HGS Holiday Party Organiser

2006–2008 APEGGA, Emcee for Graduates Workshop and Ring ceremony

Statement:

I am a professional geologist who currently works as the Global Manager for Wellsite Geology and Pore Pressure Consulting with Weatherford. I have worked as a geologist and in business development for the past 18 years in domestic and international geological exploration. During this time I have found some of the best memories have come from my interaction with colleagues in the various Oil and Gas societies. In particular, memberships in the HGS and AAPG have been extremely rewarding and have helped me develop professionally and personally. The past year as the Vice President for the Houston Geological Society has given me excellent insight into how our society is run and the demands involved in an operation of its magnitude. This has made me want to reach out more. I now want to expand my service to include national and international society needs. As a delegate for the AAPG I can be that link in the delegation for Houston.

KEN WILLIAMS

Ken Williams has been a member of AAPG since he joined as a masters student at the University of Florida in 1974. He spent 28 years with Texaco as an exploration geologist, geological manager and basin analyst in both domestic and international areas. For the last 10 years, he has worked on the study of overpressures for Knowledge Systems, Inc. and on trying to figure out how to model the geology and production of tight basin-centered gas sands and source rock reservoirs (SRRs) for Halliburton. He has been a House of Delegates member or alternate since 2001. He was the chairman of the Geologic Modeling Society of Houston for 4 years and is a member of GSA, SEPM, SPWLA, SEG and SPE and maintains his membership in the RMAG and WTGS. He is interested in the question of why SRRs work, and how to improve their deliverability and recovery. He has 21 publications and 2 patents (with 7 pending).

MIRIAM WINSTEN

Candidate's bio and picture not received before press time.

Full Color Ads Now Available!

HGS *Bulletin* Instructions to Authors

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

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

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

Photographs may be digital or hard copy. Hard copies must be printed on glossy paper with the author's name, photo or figure number and caption on the back. Digital files must be submitted in .tif, .jpg or .eps format with 300-DPI or greater resolution at the printing size and be accompanied by figure captions that are linked by the file name of the image. The images should be submitted as individual email attachments (if less than 1 MB) or on CD or DVD.

Advertising

The *Bulletin* is printed digitally using QuarkXPress. We no longer use negatives or camera-ready advertising material. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email nina@hgs.org. Advertising is accepted on a space-available basis. **Deadline for submitting material is 6 weeks prior to the first of the month in which the ad appears.**

Random Inside (Black & White)					Page 2 (B&W)	Inside Front Cover (Full Color)	Inside Back Cover (Full Color)	Outside Back Cover (Full Color)	Calendar Back (Full Color)	Calendar Page (Full Color)
No. of Issues	Random* Eighth	Random* Quarter	Random* Half	Random* Full	Full	Full	Full	Half	Full	Quarter
10	$823	$1,387	$2,488	$4,734	$5,680	$7,830	$7,560	$6,858	$6,750	$2,700
9	$823	$1,387	$2,488	$4,734	$5,680					
8	$750	$1,260	$2,242	$4,307	$5,169					
7	$665	$1,123	$2,014	$3,834	$4,600					
6	$590	$990	$1,782	$3,392	$4,069					$1,890
5	$497	$837	$1,503	$2,860	$3,432	$4,698	$4,536	$4,104		
4	$405	$683	$1,223	$2,326	$2,792					
3	$327	$550	$990	$1,886	$2,262					$1,080
2	$232	$392	$704	$1,339	$1,607					
1	$146	$246	$443	$842	$1,010	$1,404	$1,296	$1,080		$810

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BUSINESS CARD
$160 per 10 Issues – Send two cards
($30 for each additional name on same card)

Website Advertising Opportunities

HGS has multiple website advertising opportunities for your company! We've expanded our offerings to include a 275 x 800 pixel, rotating banner ad on the front page of the website. We have kept the popular Event Calendar and Geo-Job Postings advertisement locations!

	Home page Banner	Home Page (200 x 400 pixels)	Event Calendar (200 x 400 pixels)	Geo-Jobs (120 x 90 pixels)	Website Business Card (Members Only)	Personal Resumes (Members Only)
One year	$3,000.00	$2,800.00	$2,500.00	$1,400.00	Free	Free
6 months	$2,000.00	$1,800.00	$1,500.00	$750.00	Free	Free
3 months	$1,500.00	$1,300.00	$1,000.00	$450.00	Free	Free
Monthly	$ 700.00	$500.00	$ 400.00	$200.00	Free	Free

We still offer Geo-Jobs - where your company can post job openings for 14 days at $50.00 or 30 days at $100.00.

For more information regarding website advertising visit HGS.org or email nina@hgs.org.

Application to Become a Member of the Houston Geological Society

Qualifications for Active Membership

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

Qualifications for Associate Membership (including students)

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

Apply online at www.hgs.org and click on Join HGS

Annual Dues Expire Each June 30. (Late renewals – $5 re-instatement fee)
Annual dues are $24.00; emeritus members pay $12.00; students are free.

Mail this application and payment to:
Houston Geological Society
14811 St. Mary's Lane, Suite 250 • Houston, TX 77079-2916
Telephone: 713-463-9476 Fax: 281-679-5504

Payment method:

☐ Check, ☐ VISA, ☐ MasterCard, ☐ American Express, ☐ Discover

Card # _____

Expiration Date: _____ Card I.D. _____

(Card I.D. – 3 or 4 digit number on front or back of card)

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

Name: _____

Address: _____

_____

Home Phone: _____ *Spouse's Name:* _____

Email: _____

Job Title: _____

Company: _____

Company Address: _____

_____

Work Phone: _____ *Fax Number:* _____

Circle Preferred Mailing Address: Home Office

Professional Affiliations: _____

❑ AAPG member No.: _____

Professional Interest:

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

❑ International E&P ❑ Gulf Coast E&P (onshore & offshore)

School _____

Degree _____ *Major* _____ *Year* _____

_____

School _____

Degree _____ *Major* _____ *Year* _____

_____

Earth Science Work Experience _____

_____

_____

_____

Applicant's Signature _____ *Date* _____

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

Name: _____

Signature _____ *Date* _____

Membership Chairman _____ *HGS Secretary* _____

revised 8/6/10

Houston Petroleum Auxiliary Council News

Edie Bishop, *HGS Liaison* 713-467-8706 or ewbishop@bishorb.com

A friend from "over the pond" recently remarked that when they asked visitors from the United States - "where are they from?" – they may answer "The States" except for Texans who always say "Texas!" I don't know how accurate this is but it does seem that we are appropriately proud of our state and its rich history.

Given that pride, HPAC's President **Mickey Murrell** and First Vice President **Barbara Peck** have planned a Spring Luncheon guaranteed to please us Texas aficionados. On March 11, 2013, General Sam Houston will roam the halls of the Houston Junior League from 10:30am to 1:30pm. General Sam Houston, aka Charlie Fogarty, will share his knowledge of Texas history with our HPAC members. Mr. Fogarty, a treasure of Texas history, has been a business owner for over 50 years. He is most famous for opening, in 2005, Steamboat House, an award winning steakhouse and Texas history museum. It is on America's Top Ten Club's list of "Texas Hall of Fame Steakhouses", and their list of "America's Top Ten Steakhouses." In 2006, Mr. Fogarty was made an honorary member of the Sam Houston Chapter of the Sons of the Republic of Texas. For his Texas historical work, Mr. Fogarty was inducted into the Sons of the Republic of Texas national organization in 2009 as an honorary member, not only for the Texas history that is displayed in the Steamboat House, but also for the numerous speaking engagements that Mr. Fogarty does for schools, community groups, and various civic organizations; many times he plays the part of his hero, Sam Houston. In 2011, Mr Fogarty made 78 presentations of Texas History to various groups from Houston to McKinney. Texas. In appreciation of Mr. Fogarty's work in the presentation and preservation of Texas History, the San Jacinto Descendants presented him with their highest award, the "San Jacinto Award," that same year.

With the flowers in bloom, March at the Junior League is the loveliest time of the year. Chairmen **Millie Tonn** and **Dianna Gittelman** along with their committee **Sally Blackhall, Lois Matuszak, Donna Parrish, Helen Thomas, Cherry Yvette**, and **Ruby Wagner** have planned a delicious luncheon to share with old and new friends. Don't miss this wonderful lunch, in the beautiful setting, with the added pleasure of a presentation by Mr. Fogarty on March 11; it will be an event that you won't soon forget! ***Remember spouses and guests are always welcome to attend these events.***

Plans are being made for the *Spring Bus Tour by the HPAC Exploring Group*. In April they will travel to Columbus, which was first settled in 1823 as part of Austin's original Colony. There are numerous restored Victorian homes and buildings with heritage medallions. Look for more information in the April column or contact **Martha Lou Broussard** at mlbrou@rice.edu.

Remember that in addition to our regular luncheon programs and these special interest groups, we have other interest groups: **Cinco Mas Bridge**: **Audrey Tompkins**, 713-868-0005, and **HPAC Exploring Houston**: **Martha Lou Broussard**, 713-665-4428 or **Linnie Edwards**, 713-785-7115. *Spouses and guests are also welcome to attend these events.*

Geologists, please encourage your spouses to join HPAC, where they will have the opportunity to meet other spouses of Geologists, Geophysicists, Engineers, and Landmen. They will participate in informative and entertaining programs, delicious lunches, and welcoming fellowship. The HPAC membership form is included in the HGS *Bulletin*. Please contact **Edie Bishop** at 713-467-8707 or at ewbishop@bishorb.com. ■

You are invited to become a member of

HPAC

2012–2013 dues are $20.00 Mail dues payment along with the completed yearbook information to **Winona LaBrant,** 10123 Valley Forge Drive, Houston, Texas 77042

YEARBOOK INFORMATION

Last Name	First Name	Name Tag
Spouse Name	Name Tag	HGS Member's Company
Home Phone	Business Phone	Business Fax
Street Address	City	Zip
Email Address	Home Fax	

Please choose a committee assignment if you are interested.

☐ Fall Event ☐ Yearbook ☐ SOS ☐ Membership

☐ Christmas Event ☐ Spring Event ☐ Notification ☐ Game Day

☐ May Luncheon ☐ Courtesy

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