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In Every Issue

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Houston Geological Society

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  - Houston Waters Seeking the Sea
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About the Cover: Bedouin children of the Moors’ nomadic tribes at their parents’ tent camp in the Spanish Sahara, not far from the Atlantic coast. (1963) Photograph by Charles E. Revilla
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September 2010
Houston Geological Society Bulletin
It’s Time to Renew Your HGS Membership
Your membership expired June 30, 2010

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Emeritus members pay $12.00, Full-time students free

Check your email for a reminder notice and renew online at www.hgs.org

Alternately, you may fill out this form and return with your remittance—include your CURRENT EMAIL (important)

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From the President

John Tubb, Jr.
jbttjr@sbcglobal.net

A New Start…A New HGS Year.

By the time that you read this Bulletin we will be two months into my term in office. I am looking forward to this year as we are planning on it being a very active one!

We started off with TechnoFest on July 22nd. Deborah Sacrey and her committee of Jim Grubb, Bonnie Milne, and Rene Mott put together an expanded program this year. In the past TechnoFest had exhibits on display from 3:30-7:00 p.m. This year TechnoFest had a luncheon with a guest speaker, morning and early afternoon oral sessions, and ended with a late afternoon exhibit session. This will be the model for future TechnoFest conferences.

On September 8-9 HGS — PESGB will hold their 9th International Conference on African E&P at the Westchase Marriott. Al Danforth and his committee have worked hard to put together this two-day program of talks along with technical posters and exhibits from sponsoring companies. This conference alternates yearly between Houston and the PESGB of Great Britain. All booths for this event were sold out by June!

Frank Walles and his committee will present their Applied Geoscience Mudstones Conference on February 7-8, 2011. This conference has been hugely successful in the past and promises to be again next year. It centers on mudstone system characterization to help improve exploitation of U. S. Gulf Region mudstone “Shale Gas/Oil” reservoirs. Make sure and save the date for this one.

In addition to the above major events, we will have our usual technical talks (4-6 times per month), continuing education offerings, and social events (Guest Night, Skeet Shoot, Golf, Tennis, and Shrimp Peel). The national AAPG Convention will be in Houston in April 2011. Steve Levine and his committees are hard at work on convention planning.

All of the above activities are made possible by the large number of dedicated volunteers. We have 47 committees manned by about 125 volunteers. We are always in need of new volunteers. If you would like to participate, contact Sue Pritchett, Volunteer Coordinator, at pritchettsue@gmail.com.

Increasing the HGS membership is a goal for this year. Increasing the membership is easy to say, but it is devilishly difficult to accomplish. We have approximately 3626 members at the present time, down from a high of 5500 members in 1991. Encourage your friends and coworkers to join HGS. The dues for the year are only $24 which is a tremendous bargain. My wife and I cannot go to the movies for less. Our society is the best networking tool in the industry. We don’t want you to miss a thing!

The HGS sponsors two scholarship funds: the Calvert Memorial for graduate students and the HGS Foundation Fund for undergraduate students. At the GCAGS Directors’ meeting this spring, the Directors approved a $10,000 matching fund for both of these scholarships. The HGS Board has also approved to match $10,000 for each of these funds. The scholarship funds have until June 30, 2011 to raise the $10,000 in order to be eligible to receive both matching funds. This means that if you donate $100 to either scholarship fund, they will receive $300. This is a tremendous way for the scholarship funds to increase their total endowment. This can be achieved by going to the HGS Webpage and clicking on Donate to the HGS Scholarship Funds. In this section you can donate money to either or both of the scholarship funds. Let’s all get behind this very worthwhile endeavor of making more money available for scholarships.

Laissez les bon temps rouler
HGS GOLF TOURNAMENT
Monday – October 25, 2010
Kingwood Country Club

DUE TO THE OVERWHELMING
POSITIVE FEEDBACK ABOUT
THE EARLIER START TIME LAST YEAR,
WE’RE STICKING WITH A 10:00AM START.

Come out and join us for golf, food, friends and fun at the annual HGS Golf Tournament at Kingwood Country Club. This year’s format will be a four man scramble, with three flights determined by handicap. First, second, and third place awards (blind draw for 3rd place) will be awarded for each flight. There will be prizes awarded for closest to the pin (4 holes per course) and long drive (3 holes per course) as well as many great door prizes and raffle prizes for participants.

The entry fee is $125.00 per person or $500.00 per team on entries received before October 15th and $150.00 per person or $600.00 per team on entries received after October 15th. Individual entries will be grouped with other individual golfers to make a foursome. Entries are limited and will be accepted on a first-in basis.

Companies or individuals interested in sponsoring the event should contact Mark Dennis at 281-494-2522 (office), 281-705-4346 (cell) or by email at mdennis@petrolog.com.

To enter, please fill out the entry form and email (office@hgs.org), fax or mail with your entry fee (payable to HGS Entertainment Fund) to:

HGS Office
14811 St Mary’s Lane, Suite 250 • Houston, TX 77079
713-463-9476 (office), 281-679-5504 (fax)

SCHEDULE OF EVENTS
8:00 – 9:45 a.m. Registration and free use of driving range
(Breakfast will be available at KCC)
10:00 a.m. Shotgun start
3:00 p.m. Cash bar, open buffet
3:30 p.m. Door prizes and awards presentation

Team Captain ________________________ Phone ______________________ Amount Enclosed ______________
Company ____________________________________ Email __________________________________________
Billing Address ______________________________________________________________________________
Credit card #_____________________________________________________________________________________
Exp. Date __________ Code# _________

Please Provide Email Addresses For All Team Members. All Communications Will Be Done Via Email.

Foursome Members (Please Print) Company Name Phone Number/Email Hdcp/Avg. Score
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3. ________________________ ____________________ ____________________ ______________
4. ________________________ ____________________ ____________________ ______________
This summer is proving to be very productive. My goal was to develop a plan for the 2010-11 HGS Bulletin. I believe that my time has been well spent. I have met with my editorial team, discussed some ideas with colleagues and family members, and also reviewed some of the other geosciences news magazines. After some thought, I have decided that my musings this year will cover a broad range of topics including the education of our children and grandchildren, changes in our science and business over the past thirty years (i.e., what has happened over my career), individual professional development, and the events of 2010, which appears to be a year to remember.

This month I will acquaint readers with the processes that transform a few articles and advertisements into a high quality, professional journal. The Bulletin is posted monthly on the HGS website, but it remains available to all members in hard copy; a service which has become less common. The income generated from advertisers helps enable HGS to provide this service.

The editorial and production teams work on a very tight production schedule during the last two weeks of each month to produce the 64+ pages of monthly content. The timeline was developed to ensure a targeted delivery by the first of each month for the greater Houston-based membership. For those who live outside of Houston and overseas, the HGS staff hopes that delivery remains timely enough for the material to be useful.

Mechanics are important but I continue to believe that content is the key to the success of the Bulletin. The backbone for each monthly issue remains the extended technical abstracts for the six HGS monthly meetings. Each month we target to include abstracts for two General Meetings (a luncheon and dinner meeting), an International Meeting, a North America Meeting, a Northsiders Meeting, and an Environmental and Engineering Meeting. It is our aim to ensure, along with those responsible for each of the monthly meetings, that the topics are timely and that there is sufficient technical content in the abstract and associated figures to standalone and provide value to those members unable to attend. The Bulletin also publishes the extended abstract each month for the Houston Chapter of SIPES.

In addition, the Bulletin will publish technical notes that are considered of potential interest to the membership. When a note is received, a rapid technical review is undertaken, normally by someone other than the editorial team. If no fatal flaw is detected in the manuscript, it is copy-edited and published typically in the next issue to be assembled. So if there is something technically interesting that you would like to share with the membership, please feel free to forward your manuscript to the Editor.

The Bulletin publishes two editorials each month, one prepared by the HGS President and a second by the Editor. Strictly speaking there are no clear rules as to content or length of these editorials. They tend to address topics that are of concern and interest to both the individual at the keyboard and, we hope, the general membership. The editorials may focus on issues facing HGS members, as well as the profession in general, or may simply highlight an interesting professional or personal event. The board encourages each of our members to let us know your thoughts and whether we have hit or missed the target. Please remember that letters to the editor can expand beyond commenting on the thoughts of the President and the Editor.

We are also open to publishing member news, as long as it does not represent a business advertisement. The Bulletin continues to highlight news and events important to members and their spouses. This is reflected in part in two monthly columns, the Government Update and the Houston Petroleum Auxiliary Council (HPAC) News, a monthly calendar and listing of geo-events. These regular items are supplemented with detailed announcements of events sponsored by HGS and associated organizations, such as Guest Night, the various tournaments, and major national or regional meetings to be held in the greater Houston area. Following these various events, reviews and
Welcome back to San Antonio! Our theme this year is “Weathering the Cycles” — a challenge that resource geologists have faced and overcome in the past. How do we weather the economic cycles? We…

✓ Network with our community
✓ Experience the latest technology in the technical exhibition
✓ Take a course or a trip and grow new and diverse skills
✓ Listen to special presentations on strategies to endure and prosper during an economic downturn and prepare for the inevitable rebound.

By celebrating our successes, facing our challenges, and learning from the research results of our peers, we are paid back many fold by sharing ideas and experiences among our professional community. So come and share your experiences!

PROPOSED SYMPOSIUM TALKS INCLUDE…

- Rifting and Opening of the GOM Basin
- Models for Gulf of Mexico Basin Opening and Sedimentation
- Petroleum systems of the GOM Basin
- Jurassic Depositional Systems, Facies and Reservoirs of the Northern Gulf of Mexico
- Cretaceous Stratigraphy and Plays
- Salt Tectonics and Petroleum Systems
- The Opening of the GOM-Source Rocks and Petroleum Plays
- Jurassic and Cretaceous in south Texas: Rifting and Foredeeps
- Mesozoic Basins in Eastern Mexico
- Mesozoic Source Rocks and Petroleum Systems, Offshore GOM Basin
- Mesozoic Source Rocks and Petroleum Systems, Onshore GOM Basin
reports are sought and published. We also attempt to keep the membership informed of the major actions and activities of the various HGS committees.

Every year the HGS honors individuals for their service and achievements. Citations for HGS awards (Honorary Memberships, President’s Awards, Outstanding Service Awards, and HGS outstanding student awards and scholarship winners) are published annually.

An issue of the Bulletin is also dedicated to inform the membership about the candidates for the HGS Board and now the AAPG House of Delegates. The staff hopes that sufficient information is provided so that you, the members, can make intelligent decisions when selecting our future leaders. Let us know if this helps or if more information is needed.

Other items that are considered for publication include book reviews, photographs, and cartoons. We are always looking for reviews of geology related books, including geologist’s memoirs, new technical publications (compilation volumes and monographs), and field guides. So if you have recently read something that you would like to comment on or share your opinion with HGS members, please send the information to the office or the Editor.

Photographs with geologic appeal are in great demand for use on the covers of the Bulletin and throughout as fillers. In addition, photographs from all of the society’s meetings and socials are welcome. Are there any hidden artists out there? Original cartoons would also be appreciated.

So what goes into the Bulletin? In simplest terms it contains news and technical information. However, our journal can include anything that you, the members, are interested in and willing to help create.

Until next month…

Vendor Corner Recognition and Thanks

The Houston Geological Society would like to recognize and thank its many vendors who demonstrated their financial support of the HGS by providing “Vendor Corners” for our 2009-2010 evening technical meetings. These are the folks who present poster session displays of their company’s products, studies or services. They provided a great focal point for the attendees, during the social period, prior to the meetings. The fees that the Vendors pay are donated to the HGS Scholarship Fund (undergraduate geosciences students) and the HGS Student Membership Initiative.

The HGS would like to thank the following:
AOA Geophysics* – Dan McConnell, Jim Gharib
Dickson International Geosciences (DIGO)* – Bill Dickson
Drilling Info (DI) – Roger Edmondson
Drilling Info International (DI)* – Scott Thornton
Fugro Gravity & Magnetic Services* – Dave Schwartz, Alex Blacque
Fugro Robertson* – Lucy Plant, Claire Glover
Geochemical Solutions International (GSI)* – Craig Schiefelbein
ION Geophysical* – Menno Dinkelman
Micro-Strat Inc.* – Walter Wornardt, Bernie Schaeffer
Prospectors Services International – Kosta Zamfres, John Folnovic
Seabird Exploration – Matthew Padon
Seismic Micro-Technology (SMT) – Jerry Donalson
Seiswave Inc. – Doug Paul
*Hosted more than one vendor corner

If you would like to host a Vendor Corner during the upcoming 2010-2011 HGS year, please contact Paul Babcock at (832) 242 9650 or paul.babcock@nfrenergy.com
This annual conference has become established as the primary technical E & P conference on Africa. Scheduled for 8-9 September 2010 in Houston, a two-day program of talks is planned along with technical posters and exhibits from sponsoring companies. Opening reception will be Tuesday evening September 7th.

The conference series, organized by members of the International Group of Houston Geological Society (HGS) and Petroleum Exploration Society of Great Britain (PESGB) covers all aspects of African E&P, with particular emphasis on new ideas for plays and prospects, the geology of the continent and its conjugate margins, and application of emerging technologies.

**Preliminary Program Highlights**

**Case Histories of Discoveries:** Jubilee, Venus, Uganda  
**Basin Studies:** Equatorial Atlantic, East Africa, Ghadames, Melut, N. Red Sea, NW Ethiopia  
**Technology:** Migration Pathways, Predicting Deepwater Reservoirs, Imaging challenges of Cretaceous Reservoirs

**Special thanks to the many exhibitors and sponsors:** CGG Veritas, Chariot Oil&Gas, ChemoStrat, Core Lab, Deloitte, dGB Earth Sciences, ENVOI, Fugro Gravity & Magnetics Services, Fugro Multiclient Services, Fugro NPA, Fugro Robertson, GeoInternational, GETECH, Infoterra and Spot Image Corp, ION-GX Technology, LYNX, Microstrat, OHM, PGS, Seabird, Senergy, TGS-Nopec, Weinman Geoscience, Wellstrat Services, WesternGeco, WL Gore and Zebra Data Sciences.

See [www.HGS.org](http://www.HGS.org) for:

- latest details of program
- on-line Registration
- Special Rate for hotel rooms

**Conference Committee for 2010** includes Al Danforth, Ian Poyntz, Martin Cassidy, Dave Schwartz, Justin Vanden Brink, Tarek Ghazi, Claudia Lopez and Donna Davis (Houston), Ray Bate and Duncan Macgregor (London).
Preliminary Timetable

Tuesday 7 September:

Special HGS International Explorationist Dinner
Westchase Hilton, 9999 Westheimer (Across the street from the Africa Conference)
not included in Registration Fee for Africa Conference – Register on-line at www.HGS.org
5:30 – 6:30 Social Hour
6:30 – 7:30 Dinner
7:30 – 8:30 Main Talk

Speaker: Duncan Macgregor, Neftex Petroleum Consultants and Surestream Petroleum

Topic: “The past and future development of Africa’s play systems: why regional geology is more important than ever.”
(See page 29 for details)

HGS/PESGB
9th International Conference on African E&P
Africa: A Multi-faceted Promise
Marriott Houston Westchase Hotel • 2900 Briarpark Drive, Houston, Texas

Tuesday 7 September
in Exhibits area – Grand Pavilion, Marriott Houston Westchase Hotel
Registration opens 4:00 PM
Opening Reception: 4:00-5:30 PM
Special Event (see sidebar at top of page): 5:30-8:30 PM

Day 1 – Wednesday 8 September
Registration opens 8:00 AM
Talks and Poster Presentations 9 AM – 5 PM
Lunch provided
Reception 5 – 7 PM

Day 2 – Thursday 9 September
Registration opens 8:00 AM
Talks and Poster Presentations 9 AM – 5 PM
Lunch provided
# Preliminary Program Day 1

## Regional and Overview

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter(s)</th>
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</thead>
<tbody>
<tr>
<td>Searching for Diversification in Africa - New Plays and Opportunities</td>
<td>Bob Fryklund, IHS Energy</td>
</tr>
<tr>
<td>The Monetary Value of Expectation in Exploration and why Africa is the natural playground for Independents</td>
<td>Stefano Santoni, Bayfield Energy Ltd</td>
</tr>
<tr>
<td>Understanding Africa's Evolving Topography and Drainage Systems, Implications for Predicting Deepwater Reservoirs and Source Rock Burial History</td>
<td>Duncan Macgregor, Sunstream Petroleum and Netflix Petroleum Consultants</td>
</tr>
<tr>
<td>Exploration Fabric Of Africa; Edward G. Purdy Memorial Map &amp; GIS</td>
<td>Peter Wigley, Lynn</td>
</tr>
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## North Africa

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter(s)</th>
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</thead>
<tbody>
<tr>
<td>The relationship of Sub-Aerial Basins below Sea Level to Oil &amp; Gas Prospects of North Africa</td>
<td>Martin Cassidy, University of Houston, Dept of Earth and Atmospheric Sciences</td>
</tr>
<tr>
<td>Prospectivity in the North Red Sea Egypt - New Data, New Challenges, New Opportunities</td>
<td>Graeme Gordon, Benn Hansen, Jennifer Scott, Clare Hirst, Rod Graham, Tim Grow, Andrew Speeding, Stuart Fairhead, Josh Miller, David Pocknell, Lisa Fullerton and Dean Griffin, Hess</td>
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## East Africa

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter(s)</th>
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</table>
| Initial Exploration results in Exploration Area 4B, Lake Edward Basin, Albertine Rift, Uganda | M.D. Thomas, J, Newth, C, Nicholas, - Domination and P, Nabbaj - BEP
| Implications of AVO and Geochemical Modeling for Deepwater Block 7, Offshore Tanzania | M.D. Thomas, J, Chamberlain, T, Newth, A.Faux, P, Copesblake, A.Carr, - Domination |
| Tectonic evolution and potential hydrocarbon habitat of the Davie Ridge Fossil Transform Zone, Mozambique Channel, East Africa Offshore | Scott E Thornton - School of Geosciences, the University of Sydney, and Donald C. Rusk, Rusk, Bertagne and Associates |

## POSTERS: North and East Africa

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter(s)</th>
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</thead>
<tbody>
<tr>
<td>Seismic Sequence Stratigraphic Analysis of Eleven Wells in The North Guelm Field, Gulf Of Suez</td>
<td>Walter W. Womratt, MICRO-STRAT</td>
</tr>
<tr>
<td>Discovery of a new Cretaceous-Jurassic basin NW Ethiopia</td>
<td>Daniel Ward, Epsilon Energy Ltd</td>
</tr>
<tr>
<td>The re-evaluation of vintage Madagascar offshore seismic datasets.</td>
<td>Gary Scalf (Spectrum GEO Ltd), Richard Spooner (Spectrum GEO Ltd), Greg Hatch (Spectrum GEO Houston Ltd)</td>
</tr>
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</table>
## Preliminary Program Day 2

### West Africa - South Atlantic

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>Albion and Upper Cretaceous Hydrocarbon System of the South Atlantic; Examples for West Africa and Brazil</td>
<td>Ken Niboiseux</td>
</tr>
<tr>
<td>Combined rigid/deformable plate kinematic modeling of the passive margins of the South Atlantic</td>
<td>Alberto Munoz, Claire Gioen, Jim Harris, Mike Godditch, Lynne Hudson - Fugro and Bridget Ady, -GeoArctic</td>
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### West Africa - Equatorial Margin

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jubilee Field: A Step Change for Ghana</td>
<td>Dave Hanley Tullow, Development Mgmt</td>
</tr>
<tr>
<td>Variation in structural deformation and timing along the northern West African margin from Sierra Leone to western Nigeria</td>
<td>Gima Eisenstein, Philip Brathwaite, Lee Russell, Alfred Bernoleran, Gailen Threadgold - Wemman GeoScience, William Dean -Alen PLC, Alan Jostop - Oranto Petroleum Ltd</td>
</tr>
</tbody>
</table>

### Benin Ultradeep seismic study reveals transform margin and potential hydrocarbon prospectivity

- Petroleum systems modeling of an Upper Cretaceous source rock sequence, western offshore Nigeria
- POSTERS: West Africa
- Another Jubilee Field? Frontier Exploration Case Studies from Liberia and Sierra Leone
- The Prospectivity of Offshore Sierra Leone Using Newly Acquired 3-D Data
- Going Round the Bend: African Margin Play Elements from Sierra Leone to Ghana and Inferences from Brazilian Conjugates
- Pre-Albian Rifting in the Equatorial Atlantic: Implications for sub-basin scale variability in Hydrocarbon Potential
- Palaeogeographic evolution and petroleum potential of the Equatorial Atlantic Margins
- Detecting Hydrocarbon Migration Pathways In The Cote d’Ivoire Deepwater
- Syn-Rift vs Syn-Transform Cretaceous Reservoirs of the Cote d’Ivoire Margin, West Africa
- Potential-field, 2D Seismic and Maturation History Analysis of the Orange Basin: Implications for future deep water exploration.

Note: some additional talks and posters are not published pending approvals
5TH ANNUAL
FALL EDUCATION CONFERENCE
HOUSTON, TX • OCTOBER 4-8, 2010

FOCUSING ON
UNCONVENTIONAL
RESOURCES

Hosted by the NRG Conference Center
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Courses will include:
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- Origins of Heavy Oil & Biogenic Gas
- Risk, Uncertainty and Decision Making in Unconventional Resource Plays
- Organic Facies, Maturity and 3D Modeling in Unconventionals
- Log Analysis of Shaly Sands
- The Varying Role of Natural Fractures in Unconventional Reservoirs
- The Application of Geomechanics in Unconventional Resources
- Recognizing Unconventional Play from Wireline Logs: Case Studies

Tuition for the week is only $1595 for AAPG Members
or $1695 for Non-members.∗
or $400/day for individual courses.

∗(Price increases to $1695/1795 respectively after September 6, 2010;
individual course prices increase by $50/course day after Sept. 6, 2010)

SIGN UP TODAY!!!

Registration and Information:
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Download a registration form at http://www.aapg.org/education/fec.cfm
Volunteering for HGS
by Sue Pritchett – HGS Volunteer Coordinator

The Houston Geological Society offers much for its members by stimulating interests and promoting advances in geology, disseminating and facilitating geological information, offering discussions and relationships in the spirit of geology, and fun. Through the year, the many meetings, conferences, conventions, short courses, and social activities could not happen without the leadership of volunteers. Our Society works because of the many motivated, talented, and hard-working volunteers who run for office, chair committees, and volunteer to do all the work for HGS.

As we enter the 2010-11 year, we want more of our members to join in that unselfish giving of their time and individual expertise in support of the Houston Geological Society.

We have a few committee chairmanships to fill: Academic Liaison, Publication Sales, Membership Growth, and Out-of-Town Exhibits. In addition to chairmen, each committee always needs more volunteers who can devote some time to committee events; and we’ll need hundreds of extra volunteers to support Houston’s hosting the annual AAPG Convention in April, 2011.

Each month there is an opportunity for you, your colleagues, and friends to pitch in for the future of the HGS and those young people who may not yet have been introduced to geology. We aid and encourage academic training not only to members but also to the youth of our communities through various activities. HGS increasingly plays a vital role in partnering with the GSH to promote the advancements of the mission of the future of geology to K-12 students. Consider volunteering for the HGS-GSH GeoScience Day that will be held at the local Bureau of Economic Geology office on September 30th or next March at the Science and Engineering Fair, where HGS will provide judges to determine winners as well as summer interns for the HMNS. Volunteers will also be needed for the Scouts Expo in April and throughout the school year as we distribute USGS maps to classrooms. Please feel free to volunteer for any of these great opportunities to interact with students.

I cannot say in words just how important is the generosity of the volunteers who come out in the spirit of geology, to give their time and their individuality in the advancement of the mission and future of the Houston Geological Society. Thank you volunteers, past and present, and if you like the idea of being an active part of HGS group, call or email me or the relevant committee chair.

Reward yourself and others — there’s always something to do such as: GeoScience Day, Lunch and Dinner meetings, Golf Tournament, African E&P Conference, GCAGS, SEG, Short courses and Continued Education Classes, Holiday Party, International Mudstone Conference February 2011, Shrimp Peel, Science Fair Judges, Scouts Expo, AAPG in Houston April 2011, Tennis Tournament, ECH Banquet, Guest Night, Skeet Shoot, EnergyVenture Camp, TechnoFest, Field Trips and more. Come have fun as a volunteer!

West Texas Geological Society
2010 FALL SYMPOSIUM: September 15-17, 2010
Midland, Texas
Leveraging Conventional and Unconventional Play Concepts in the Permian Basin – The Value of Stratigraphy and Technology

Please plan to attend the 22nd West Texas Geological Society Fall Symposium! The two and one-half days of technical sessions will feature 80 new papers and discussion presented by outstanding authors addressing current research, field studies, and other aspects of the Permian Basin and analogous areas. The symposium provides attendees with a chance to network with their peers in a technical setting that also provides opportunities for social interaction.

Core Workshop: Wolfberry Reservoirs of the Permian Basin

Discovery Forum: Top explorers tell the stories behind their Permian Basin field discoveries

Call for Paper Topics:
- Permian Basin Shale to Basin Transition
- Wolfcamp and Leonard Reservoirs
- Chemical & Mechanical Stratigraphy of Fine-Gained Sequences
- Permian Basin Petroleum Systems
- Modern Techniques & Old School Methods
- Paleoecology – The Key to Finding New Oil in Mature Areas
- Geologic and Geophysical Studies for Enhanced Recovery, or Sequestration
- Onshore US Play Concepts and Field Analyses

An Ethics Luncheon Presentation will take place apart from the symposium and will be held on Thursday at the Midland Petroleum Club. For more information on the symposium, please contact Executive Director Paula Mitchell at the WTGS office at (432) 885-1573, wtgs@wtgs.org or General Chairman Rocky Cox (rocco@conchoresources.com) (432) 688-4387.
Big Wave
Eastern Gulf Of Mexico Multi-Client Program
...even **bigger** in 2010

Survey map showing new Phase 4 Infill

**Extensive New Infill Survey for 2010**

- Spectrum Eastern Gulf of Mexico Library: 65,000 km of modern seismic and growing
- Phase 4 program 12,000 km of acquisition in-process
- New survey infills existing programs to provide a prospect level grid density over a highly prospective area
- Long offset, long record length, high fold
- Processing sequence includes SRME, PSTM and PSDM
- PSDM (Wave Equation and Kirchhoff)
- AVO, Gathers, Angle Stacks
- Gravity and Magnetics

**Contact:** Spectrum Geo Inc, Tel: +1 281-647-0602
Email: mc-us@spectrumasa.com, www.spectrumasa.com
HGS Meet the Geoblogosphere.
Geoblogosphere Meet the HGS.

by Dianna Phu, HGS Social Media Chairperson,
Senior Geoscientist/Project Manager at Geoscience Earth & Marine Services, Inc. (GEMS)

HGS is embarking on new territory, a venture into the realm of Facebook and Twitter. Through the efforts of a newly established committee, the Social Media Committee, the Society will have some new venues to spread the word of events, opportunities, and news. These venues will not in any way replace the main HGS website, but will allow the member base and general public additional access to the offerings of the Society.

Facebook’s popularity makes it today’s standard in social networking. There are presently more than 400 million active users of Facebook, with explosive growth in just this last year. According to iStrategyLabs, a company that’s been tracking Facebook’s demographics and growth since 2007, “The 35+ demographic now represents more than 30% of the entire user base” and the “55+ audience grew a whopping 922.7% in 2009.” The data indicate that more than 1.3 million active users are based in Houston. It would be a natural progression for HGS members to connect through this medium.

To encourage such connections, HGS has established a non-profit page on Facebook, accessible via www.facebook.com/hgs or by searching Facebook for “Houston Geological Society”. Following HGS on Facebook will allow you to get real-time updates on events, comments, and information posted by the Society and your peers.

Young professionals may also be interested to connect with the NeoGeos, via the HGS NeoGeos Group. The HGS NeoGeos Group was established under Past-Chairpersons Timothy Gibbons, Rachael Czechowskyj, and Cecelia Baum, and it now has over 200 followers. It is presently administered by current Chairperson Carrie Kidd. Similarly, Environmental and Engineering Geologists may be interested in joining the HGS E&E Group, currently maintained by Chairperson Matthew Cowan.

We are also testing the use of Twitter as another form of outreach for our Society. You can visit and follow our feed at www.twitter.com/HouGeoSoc. Twitter updates are short messages (called “tweets”), no more than 140 characters long. Twitter’s built-in functionality tracks the words used in all of the tweets and calculates statistics on the topics being discussed. The top-most commonly used words/phrases are called “Trending Topics” and are generally a good pulse of major news and entertainment for the U.S. and global society. For an example of the powerful nature and possible use of tools like Twitter, the USGS is currently researching Twitter’s role in gathering accounts of earthquake events from the public through the Twitter Earthquake Detection (TED) project. For more info check out the USGS CoreCast posted here: http://www.usgs.gov/corecast/details.asp?ep=113. For the HGS, the goal of Twitter is to branch our network out to the rest of the “geoblogosphere”. There is a growing geoscience community accessible through venues such as Twitter, and we hope that the HGS and its members will be able to join that community, contribute, and see mutual benefits.

So what will all these forms of communication do for the HGS? Besides the obvious increase in connections to our members, there are other possibilities, including increased awareness of the society by non-members and the general public. Perhaps at the least some visiting professionals will hear about HGS events through Twitter or Facebook and take advantage of their time in town to stop by and say hello. Perhaps a technical session or conference stirs discussion about best practices or great leaders or suggestions for future events. The possibilities for growth offered by these venues abound and could enrich your benefits as a member. One form of communication does not replace the other.

The HGS website, Facebook, Twitter, email, word-of-mouth, the Bulletin are all means by which to reach different groups within the membership (or potential membership).

To follow the HGS on Facebook, you will need to have an account on Facebook, be logged into that account, and you would need to “like” the HGS Page. If you choose not to become a formal follower of the page, you will still be able to enter the web address (www.facebook.com/hgs) and see the postings, event listings, and other features. However, you won’t receive any type of notification when there are updates or comments to the site.

To check out the HGS Twitter feed, visit www.twitter.com/HouGeoSoc. If you have a Twitter account and are logged in, simply click the “follow” button on our feed page. To search for us, or to send us a message, our username is @HouGeoSoc. If you are an active member in the HGS and you follow us, send us a note letting us know you’re a member and we’ll follow you back. (Something along the lines of “@HouGeoSoc, I’m a member” would work just fine.)

Want to share your thoughts or comments? Interested in joining the Social Media Committee and want to help be the voice of the HGS? Visit us on Facebook, Twitter, or send us an email at HGS.socialmedia@gmail.com. ■
CALL FOR PAPERS
61th Annual Convention
October 16-18, 2011
Veracruz, Mexico
Hosted by the Asociación Mexicana de Geólogos Petroleros

The Asociación Mexicana de Geólogos Petroleros (AMGP) is proud to host the 2011 GCAGS Annual Convention to be held in Veracruz, Mexico. The meeting will be running from October 16th-18th and will gather geoscientists from more than 15 geological societies from around the Gulf of Mexico.

Our theme, “Sharing knowledge to add value”, highlights the importance of sharing knowledge to maximize the value of the resources lying in the subsurface. GCAGS Transactions derived from annual conventions have long been recognized for gathering the best geoscience from the Gulf Coast. We invite geoscientists from all around the Gulf of Mexico to submit their contributions to the technical program as oral or poster presentations. This will be a great opportunity to exchange ideas. Veracruz and AMGP are looking forward to have you in an unforgettable Convention.

PROPOSED TECHNICAL SESSIONS INCLUDE
✓ Remaining potential in circum-Gulf of Mexico Petroleum Provinces
✓ Cenozoic sequence stratigraphic framework of the deep Gulf of Mexico and adjacent areas
✓ Climate change, environmental challenges and sustainable development
✓ Learning and teaching in the geosciences to meet new challenges
✓ New perspectives in fractured reservoirs
✓ New concepts and methods in biostratigraphy
✓ The Gulf of Mexico deepwater setting - Geology, economics, and technology
✓ Interaction between salt tectonics and sedimentation
✓ Seismic imaging and interpretation of geologically complex areas
✓ Petroleum systems and oil quality controls in the Gulf of Mexico
✓ New approaches in sandstone reservoirs characterization and diagenetic modeling
✓ New insights into the geodynamic evolution of the Gulf of Mexico

SYMPOSIUM
Jurassic Reservoirs of the Gulf Region: Stratigraphy, sedimentology, diagenesis and modeling

HOW TO SUBMIT:
Abstracts (not more than 250 words) should be submitted for review online or via e-mail to the technical program chair. Papers should have application to Gulf Coast and Gulf of Mexico geology. Include your full mailing address, telephone and FAX numbers, e-mail address, and whether you are submitting for oral, poster or either (preferred).

Submit abstracts by February 4, 2011 as instructed on the website www.gcags2011.com

Notification of acceptance by March 4, 2011. All presenters, both oral or poster, must submit either a paper (10 to 12 pages) or an extended abstract with key figures for review by April 22, 2011 for inclusion in the Transactions. Full instructions for authors will be posted at www.gcags2011.com.

ABSTRACT DEADLINE: FEBRUARY 4, 2011

Questions or ideas for the technical program should be directed to:

Antonio Cuevas Lerec
Technical Program chair
juan.antonio.cuevas@permex.com. Tel.: 52(993) 316-4588
Houston Geological Society Field Trip
Microbial Carbonates in the Upper Cambrian of Central Texas
October 15 – 17, 2010
Trip Leaders: Wayne Ahr and Andre Droxler

What are microbes?
Microbes are defined as microorganisms visible only under a microscope. Some examples are bacteria, fungi, molds, algae, and protozoa. Microbial sediments have always attracted the attention of sedimentologists and paleontologists, but in recent years the discovery of large oilfields in microbial carbonate reservoirs has generated renewed interest in these rocks, especially in the environments in which microbial carbonates form and the characteristics that make them good reservoirs. What used to be classified as “algal” is now classified as microbial or calcimicrobial.

The older classification of living things that included kingdoms of animals and plants has been supplanted by a scheme that puts all living things into three main branches called “domains” of life — Bacteria, Archaea, and Eukarya. Bacteria, including cyanobacteria, and Eukarya, including red and green algae and fungi, are the principal “actors” involved in the formation and diagenesis of microbial carbonates.

Microbial Carbonates in Central Texas
Most microbial sediments and rocks are carbonates, with some of the most spectacular examples being found in Upper Cambrian carbonates of Central Texas — microbial buildups and associated facies in the Point Peak and San Saba members of the Wilberns Formation. Point Peak and San Saba outcrops in Central Texas expose some of the best preserved Cambrian microbial carbonates anywhere. These microbial limestones have not been tectonized and their depositional fabrics and textures have been remarkably well preserved with only minor dolomitization in some stromatolitic and oolitic facies. Thin section study of the microbialites reveals four different calcimicrobes, including *Girvanella*, *Epiphyton*, *Renalcis*, and *Nuia*.

Point Peak and San Saba rocks outcrop around much of the Llano Uplift (a structural dome with its cover removed to form a topographic basin). The best exposures are in the western part of the area in Gillespie and McCulloch Counties, extending from the Doss settlement in the southwest to the San Saba River in the north. Because it is not always easy to get access to outcrops on private land in the Texas Hill Country, our field trip will take advantage of excellent exposures along segments of the Llano and San Saba Rivers, where we do have access. And making it even more interesting and exciting, the Llano River portion of our trip will be done from kayaks.

Field Trip Day One
The first day trip by kayak will start at White’s Crossing near Mason, Texas. We will see famous exposures of microbial buildups in the Point Peak Member, Wilberns Formation. As we paddle downstream, we will have close-up views of microbial carbonates...
# GEOSCIENCE DAY 2010

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**Event date:** Thursday, September 30, 2010  
(Registration is limited to 100 participants)  
*Please complete a form for each attendee.*

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Field Trip Microbial Carbonates continued from page 19

bioherms that have fallen into the river from cliffs alongside. As we pass gradually up-section through the Point Peak, we will have a chance to get out on the riverbank to see a variety of sedimentary structures, including mud cracks and flat-pebble conglomerates, some of which are “edgewise” conglomerates formed by strong eddy currents that spun the flat pebbles into accumulations that look like “pinwheels.” Our lunch stop will provide an opportunity to walk over a continuous exposure of stromatolitic and thrombolitic microbialites. After lunch we will see microbial bioherms with superb stromatolite accumulations at water level. This location offers a chance for close-up photos of stromatolites in cross-section. As we near the end of our float, we will be passing out of the Point Peak and through the San Saba Member of the Wilberns Formation.

Field Trip Day 2
Day 2 of our trip is a half-day excursion to the US Highway 87 crossing on the San Saba River. After arriving by car, we will walk along the river on both sides of the bridge to examine large ripple marks in grainstones of trilobite-brachiopod hash and microbial bioherms in vertical succession, some with well-developed stromatolitic “capping sequences”. Thrombolitic and laminar macrostructures also occur in the buildsups at this location.

Notes
Sampling is allowed on both days and photography is encouraged! (Waterproof cameras are preferable for Day 1). Some physical fitness is required for paddling kayaks on the Day 1 float trip. Your trip leaders will be pleased to discuss microbial carbonates and especially microbial carbonate reservoirs of other ages and locations and how the Texas Cambrian microbialites are relevant for comparison. Participants may be interested in a new CD that will be available by the date of our field trip. It is part of the AAPG “Getting Started” series and is titled “Getting Started with Microbial Carbonate Reservoirs” by E.A. Mancini, W.M. Ahr, W.C. Parcell, and W.A. Morgan.

Registration
Send a check for $250, payable to the Houston Geological Society at 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916, or pay on-line on the HGS website by credit card. The registration fee covers van transportation, hotel accommodations in Mason for two nights, kayak rentals, and lunch on Saturday (all other meals are the responsibility of the participants). Vans will depart Houston at 12:00 P.M. Friday afternoon, October 15th, and return to Houston Sunday afternoon, October 17th. For more information, call Gary Moore at 713-466-8960 or Richard Howe at 281-788-8340.

This field trip is limited to a maximum of 24 participants.
Outstanding Student Awards

These students have been selected by faculty for outstanding academic achievements and contributions to geology.

Shannon Cavanaugh
Texas A&M University

Shannon Cavanaugh will graduate from Texas A&M University in May 2010 with a Bachelor of Science degree in geophysics. During her time at Texas A&M University, she has been the recipient of several scholarships from the university, the College of Geosciences, and outside organizations. Ms. Cavanaugh has obtained valuable internship experience in the oil and gas exploration industry, which she will continue to expand upon this coming summer with another internship. She plans to attend graduate school this coming fall in pursuit of a master’s degree in geophysics at the University of Texas, Jackson School of Geoscience.

Peyton Lisenby
Sam Houston State University

Peyton Lisenby is a senior geology major at Sam Houston State University; he will graduate in August 2010. Mr. Lisenby has been accepted into the geological sciences graduate program at the University of Missouri at Columbia, where he has received a scholarship to pursue an M.S. degree in geomorphology. While studying at Sam Houston State, he has received the university’s Cannon Geological Scholarship, the ExxonMobil Science Scholarship, the National Association of Geoscience Teachers Field Study Scholarship, and the Elliot T. Bowers Honors Scholarship. He has also enjoyed teaching freshman Physical Geology and Geologic Hazards labs since the spring semester of 2009. Mr. Lisenby is a member of the Sam Houston Association of Geology Students as well as Golden Key International Honor Society. This summer he plans to attend field camp with the University of Wyoming.

Ananya Mallik
Rice University

Ananya Mallik has a record of outstanding achievement that began well before she began her doctoral studies at Rice. She had a stellar GPA for her bachelor’s and master’s degrees from Jadavpur University, and she was the only Earth Science student in India to win the extremely prestigious Shyama Prasad Mukherjee Fellowship in 2008. The Fellowship is awarded by the Council of Scientific and Industrial Research in India to only the very top candidates who qualify in the national level eligibility test for research. She was also ranked All India 8th in the Graduate Aptitude Test for Engineering (Geology and Geophysics) organized by the Ministry of Human Resource Development, Government of India. Since she arrived at Rice in the fall of 2009, she was one of only 21 graduate students from throughout the university to receive the President’s Graduate Fellowship.

Sandra Marek
Stephen F. Austin State University

Sandra Marek is a Senior Honors student at Stephen F. Austin State University with a double major in Geology and Political Science. She graduated from Cy-Fair High School in 2006. Ms. Marek is actively involved in several student organizations including: Swingin’ Jacks, WRHA, Honor Student Association, Orchestra in the Pines, and Sigma Gamma Epsilon (Geology Honor Student Organization). In her free time, she enjoys swing dancing, playing the violin and piano, and drawing.

Aziz Ozyavas
University of Houston

Aziz Ozyavas received his B.Sc. degree in geological engineering at Istanbul Technical University, Istanbul, Turkey, in 1998. His undergraduate thesis was on the geology of the Ikiztepeler granites in the vicinity of the Balaban district in the city of Kirklareli, Turkey. Mr. Ozyavas then attended Texas Tech University Lubbock, Texas, where he received a master’s degree, investigating the lower crust and Mohorovicic Discontinuity beneath the Texas High Plains. Since August 2005, he has been working towards his Ph.D. degree in geology under the guidance of Dr. Shuhab Khan at the University of Houston in the Earth and Atmospheric Science Department. The goal of his research has been to understand the underlying reasons for sea-level variations in the Caspian Sea using remote-sensing techniques and GIS. His analysis, indicates that although climate has a strong impact on these sea-level fluctuations, strong earthquakes also have considerable effects.
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Professional Geoscientist Notes
by Charles Knobloch, ID, PG

NOTE: Mr. Knobloch is a geophysicist and attorney with nearly thirty years experience in the oil industry. He is partner at the technology development law firm of Arnold & Knobloch, LLP. He currently sits on the Texas Board of Professional Geoscientists and is Chairman of the Oil and Gas Workgroup. You may contact Mr. Knobloch at Charles@aklaw.com, www.aklaw.com.

There have been a number of happenings worthy of mention concerning the Texas Board of Professional Geoscientists. I would like to introduce you to my personal comments on some of these happenings.

Advisory Opinion availability. The rules are now in place to allow you to request Advisory Opinions from the Board. To do this, please go to http://www.tbpg.state.tx.us/Advisory-Opinions.html.

Texas Register. Over the summer there have been a number of matters that have been recently issued for public comment. Such notices are posted in the Texas Register and the general public is given typically thirty days to submit comments. The typical public comment period is relatively short, so it is worthwhile for you to act quickly. You can find these postings at http://www.sos.tx.us/texreg/sos/index.html. Board meetings and agendas are also publicly posted. I’m also happy to send notices to anyone interested; just send me your email information and I’ll subscribe you to any notices I send out from my office.

Proposed changes in Chapter 850 include improvements to existing definitions, new definitions, and other improvements in language. Proposed changes in Chapter 851 include: improvements to existing definitions; new definitions; clarification of the requirements of licensure and firm registration and new application and renewal procedures; expansion of the professional code of conduct, including language that makes the code of conduct apply to firms and Geoscientists-in-Training where applicable; clarification of required reporting to the Board (contact info changes, business changes, etc.); clarification of complaint/disciplinary rules and procedures; clarifications that the Board may take disciplinary action against registered Geoscience Firms and Geoscientists-in-Training and other improvements in language and technical corrections.

Oil & Gas Workgroup. In May 2010, the Oil and Gas Workgroup met to learn about CO2 sequestration and discuss the role of professional geoscientists in carbon capture and storage. Consideration of several other matters and goals for the workgroup is currently underway; please contact Gary Coburn or me for further details regarding the workgroup mission.

These are just a few of the recent developments of interest. To access the minutes of the Board and/or Board Committee, go to http://www.tbpg.state.tx.us/meetings.html with your question or comment. Any formal questions or comments regarding the Board should be directed to the Board at (512) 936-4400.

27th Annual Skeet Shoot
by Tom McCarroll

101 shooters participated on June 19th in HGS’ 27th Annual Skeet Shoot at the Greater Houston Gun Club in Missouri City. Gun club Manager Kevin Dougherty and his staff had the fields and grounds in top shape, and made sure the registration and scoring went off without a hitch. The weather cooperated, with no rain to speak of and some cloud cover to break the worst of the heat. The targets were perfect, the BBQ was excellent, the beer was cold and nobody got shot—can’t ask for much more than that!

This year’s winners taking home beautiful trophy belt buckles:

Ladies Class Runner-up: Helen Sellers (Shooting 41 out of 50 on her 82nd birthday!)
Ladies Class Champ: Gail Sisco (43 out of 50)
Class “C” Runner-up: John Pike (21)
Class “C” Champ: John Vance (22)
Class “B” Runner-up: Kayleen Robinson (34)
Class “B” Champ: Taylor Wharton (34)
Class “A” Runner-up: Steve Mitchell (39)
Class “A” Champ: Eric Rathke (40)
Class “AA” Runner-up: John Walker (48)
Class “AA” Champ: Tom McCarroll (48)

The High Over All (HOA) Champion was Clark Walraven, and the runner-up was Drake Davis with identical 49’s.

Two-man Flurry winners: John Walker and Tom McCarroll

We also raffled off 16 gift cards from Academy Sporting Goods ranging in value from $50 to $100. Huge thanks are due to our generous sponsors: Halliburton, for the BBQ lunch, Drake Directional Drilling and Geokinetics for sponsoring the Two-Man Flurry, ATP Oil and Gas, Core Lab and INEXS sponsored the caps. Beverage Sponsors were Cross Creek Energy, LLC, and Merrick Mainster of FaultSeal, Ltd. — Merrick personally selected and delivered the keg beer which was greatly appreciated on a hot afternoon once the guns were in the racks. CLF Resources, Mariner Energy, and Alan Warwick sponsored the ammunition. FairfieldNodal, Seisware, Wesgold and the Vanderhill family also contributed sponsorship. Thanks again to all the participants for making this year’s Skeet Shoot a safe and fun event, and to our sponsors for supporting HGS and the event in a year when things aren’t really all that great in the oil patch!
The Houston Geological Society will be hosting the 2011 AAPG Annual Convention, April 11-13, 2011. The Convention will be held at George R Brown Convention Center, downtown Houston. The 2011 upcoming convention is under the direction of Steve Levine, General Chairman and past HGS President. The convention slogan is “Making the Next Giant Leap in Geosciences”, a nod to our home town as “space city” and honoring the 50th anniversary of the Moon landing agenda set in 1961 by President John Kennedy.

Thinking of submitting an abstract for an oral paper or a poster session to this convention? The 2011 Technical Program has eleven themes ready to accept papers using an online website. The themes cover popular aspects of the oil and gas energy and environmental topics, both domestic and international. The deadline for submitting online oral and poster abstracts is September 23, 2010. The abstract site is accessible on the AAPG Convention home page at www.aapg.org/houston2011 or directly at http://aapg2011ace.abstractcentral.com/login.

The 2011 Houston technical program has eleven themes. Geoscientists can select the theme closest to their topic. Submissions will be organized by the theme chairs into sessions later in the fall. The advantage is that the resulting session titles will be more descriptive of their actual content and there will be greater flexibility in the program to accept valuable oral sessions and posters.

The 2011 technical program is headed by Technical Program Chair Linda Sternbach, and Carl Steffensen, Vice Chair. AAPG organizers include Andrea Reynolds (AAPG oral sessions), Tom Bulling (AAPG poster sessions). The SEPM Vice Chair for the 2011 convention is Morgan Sullivan; EMD Vice Chair: Paul Basinski; DEG Vice Chair: Craig Dingler; and DPA Vice Chair: Deborah Sacrey. The theme chairs can be contacted with ideas and questions via email on the AAPG call for abstracts page at www.aapg.org/houston2011.

To submit an oral paper or poster, log onto the 2011 abstract website and create a user name and password. The site will direct you to enter in the authors and company information of your paper. A descriptive page will explain the different themes and the author can use the selection at the bottom to submit to the theme would be the best venue. Continue on inside the site and copy and paste your abstract (no more than 2500 characters) into website entry form inside the theme of choice. The site will give instructions on final entry, or you can save a draft and return later to finish the submission. Notice of final acceptance of papers will be mailed from AAPG early in 2011.

Questions about the Houston AAPG convention technical program can be answered by e-mail to Linda Sternbach, linda.sternbach@gmail.com, or by Carl Steffensen Carl.Steffensen@bp.com.

![2011 Annual AAPG Convention in Houston Countdown 7 Months](image)

Submit your abstract soon before the deadline of September 23, 2010.
CALL FOR ABSTRACTS
Submit your abstract online before 23 September 2010

AAPG 2011 Annual Convention & Exhibition
American Association of Petroleum Geologists with SEPM (Society for Sedimentary Geology)
10–13 April 2011 | George R. Brown Convention Center | Houston, Texas, USA

Industry professionals and students are invited to submit abstracts to the AAPG 2011 Annual Convention & Exhibition. The technical program committee encourages abstracts that relate to any of the topics listed below. Plenary sessions and tutorials (oral or poster) may be modified depending on actual submissions.

THEME 1: Materials to Marketplace: The Business of Energy
This theme will include business energy experts from domestic and international companies who will discuss active oil and gas trends, price, demand and advice on what might happen in the future.

THEME 2: Global Deepwater Reservoirs: Giant Leaps in E&P
This theme will present state-of-the-art geoscience investigating deepwater reservoir studies and deepwater depositional environments in fields located offshore the Gulf of Mexico and Africa.

THEME 3: Worldwide E&P: Opportunities in the New Decade
This theme will cover exploration and production onshore or offshore. It will include significant new plays and studies of geological trends from countries of the world including Americas, Brazil, Middle East and Asia.

THEME 4: Challenged Resource Frontiers
Challenged Reservoirs will cover multidisciplinary aspects related to the characterization, assessment and understanding of gas and oil resources from less-than-conventional reservoir systems in both the U.S. and international arena. We encourage contributions ranging in scale from “core-to-shore to basin”.

THEME 5: Unconventional Reservoirs: Unlocking the Promise
This comprehensive theme will include U.S. and international gas- and oil-productive mudstone case studies, systems geology and petrochemistry, exploration, assessment and ranking techniques, reservoir characterization and evaluation, and drilling and completion technologies.

THEME 6: Seismic: Advancing Research to Resource
This theme covers all aspects of seismic research and reservoir characterization including, fluvial, shelfal marine and deepwater settings, diagnostics and reservoir modeling.

THEME 7: Insight Into Carbonates and Evaporites
This theme will include oral and poster sessions about carbonate and evaporite research ancient and modern, carbonate reservoirs, reservoir modeling, seismic interpretation and oil and gas studies of carbonates.

THEME 8: Breakthroughs: Tectonics, Salt and Basin Analysis
This theme will hold sessions concentrating on tectonics, salt and basin studies of structure and tectonics worldwide, including faulting styles and salt tectonics.

THEME 9: Integrating New Technology: Geophysics and Subsurface Data
This theme will have abstracts and sessions relating to geology integrated with geophysics and applied to exploration and production, including surface and subsurface GS mapping technology.

THEME 10: Energy and Environmental Horizons
This theme will have energy and environmental sessions important to today’s natural resource and environmental geologists. Papers coordinated by the AAPG’s Energy Minerals Division (EMD) will address alternative energy resources. The Division of Environmental Geologists (DEG) will coordinate papers on environmental geology.

This theme will explore the trends and dynamics of young professionals (1–10 years) in the energy industry through an exciting speaker program and poster sessions. Covered topics will include managing career development, attracting and retaining geoscience staff and forecasting career pathways.

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This talk reviews the new plays that have been identified in onshore and offshore Africa in the past 15 years, the messages that these play breakers have for explorers in the region, and speculates on some of the themes which will categorize future new discoveries.

Historically, the oil and gas reserves of Africa have been found to be heavily concentrated in just five countries: Algeria, Libya, Egypt, Nigeria, and Angola, and these have been the focus of the majors’ exploration efforts. Many of the basins of these countries are now creaming, with the notable exception of the Eastern Mediterranean portions of Libya and Egypt, where there have been recent discoveries in “new” plays that have partial analogs to shelfal and onshore petroleum systems. Clearer play breakers, in comparison, have come from new countries such as Ghana, Israel (geologically Africa!), and Uganda, with the exploration effort led by independents such as Tullow, Kosmos, Hardman, Heritage, and Noble. These companies have seemed to be more willing to take on the risks of frontier exploration, often being willing to carry one significant technical risk into a drilling phase. Many of their results have challenged established geological paradigms on trap styles and reservoirs, though few of them are truly in new petroleum systems, most forming extensions of or strong analogs to the main source rock systems of the continent (Figure 1).

Key learnings and themes from these play breakers include:

1. the high stratigraphic-trapping potential of turbidite systems on slopes and bypass zones, as particularly seen in Ghana, Mauritania, and Equatorial Guinea. Such potential almost undoubtedly extends to other regions of the West African and other African margins. The most successful strategy appears to have been to use regional geology to focus on regions of former sand input close to kitchens on the main African source rocks and then conduct 3D seismic to look for subtle traps with DHI expression (e.g. Ghana, Figure 2).

2. exploration moving further out onto basin floors, as testified by Noble’s report of over 100 m of gas pay in the pre-salt on the Levantine basin floor. This and outcrop analogs from São Tomé challenge existing sedimentological models for such distal settings.

3. a surprisingly large contribution from non-marine systems amongst the new play breakers, especially if recent discoveries on the conjugate margin of Brazil and the Falklands are included. (Both were attached to Africa at the time of formation of their key elements.) This is accompanied by an untraditionally low contribution from shallow marine systems. Both Cretaceous and Neogene graben systems are contributing here, which show some striking similarities (Figure 3), from which explorers in both systems could benefit.

4. the impact of a highly dynamic petroleum system in the Albertine basin of Uganda in making effective trap styles that conventionally would be considered as very high risk.

Figure 1. Main African petroleum systems and recent play-breakers. Source: Burke et al, 2003.
Your success increasingly depends upon a better understanding of your reservoir. At Weatherford Laboratories, we provide a single source for comprehensive laboratory analyses, creating a synergy previously unknown in laboratory services. This single source includes distinguished geologists, geochemists, analysts, engineers, technicians and software developers, 38 worldwide laboratories, and the broadest portfolio of services for acquiring and interpreting data from physical samples. The end result is an unsurpassed combination of intellectual capital and technical resources — all working together to help you enhance development planning and reduce reservoir uncertainty.

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5. learning from systems such as the Murzuk basin and onshore Congo that many, if not most, African onshore basins contain source rocks that underwent greater burial and maturation than is apparent from present-day burial depths. This conclusion, which opens up plays in relatively shallow basins, can be very much tied to Africa’s recent tectonic history and the frequency of Miocene plume uplifts responsible for the ‘basin and swell’ topography of the continent.

So where will be the next new petroleum province of Africa? We can hazard a guess it will again lie along the trend of one of the major source rock systems and that there is one element of it that we do not fully understand and therefore currently over-risk. The new play breakers help us considerably, especially if we fit them to an ever-updating model of African tectonics, climate, drainage systems, and source rock distributions in order to accurately identify analogs. None of the five learnings and themes listed above are likely to be one-offs.

**Key challenges are to:**

1. reconstruct the palaeogeography of Africa as it influenced the regional supply of turbidites to Cretaceous margins and thus high-grade basins and regions for 3D/DHI risk reduction.
2. develop technologies for exploring for stratigraphic traps below the DHI floor.
3. identify additional “sweet spots” for exploration in the East African rift system with minimal direct data on these basins’ sediment fills.
4. identify regions of maximum trap-preservation potential in basins with complex structural histories, particularly on the East African margin.
5. accurately reconstruct the burial history of onshore basins containing developments of the major African source rocks (Figure 1) to identify where maturity has been underestimated.

Africa’s petroleum geology has surprised us on many aspects of these recent play breakers and will continue in future to challenge the paradigms we have established from the basins we are most familiar with. Success may, however, come to those who best integrate the regional geology to reduce their exposure to risk, but still make allowance for Africa’s petroleum geology to surprise them, positively or otherwise. ■

**Biographical Sketch**

**Duncan Macgregor** is a regional petroleum geologist specializing in the African continent. Following a 20-year career with BP, working largely in the Far East, he has worked and consulted for a number of independent companies and consultancies, including PGS, Mossgas, Sasol, Neftex, Noble, Richmond, and BG, mainly on new ventures and play-fairway-scale studies in Africa. His current main role is working frontier plays in the East African Rift System for Surestream Petroleum. He also has extensive research interests on the evolution of the African continent, as presented in this paper. Duncan has been the technical chair of the London PESGB/HGS African conferences for some years, has written over 20 papers, presents a number of courses, and has edited two books on African petroleum geology.
Gulf Coast/North Louisiana Region

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Figure 3. Evolving petroleum plays in Central Africa. Source Surestream Petroleum

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Revisiting the Subsalt Trap Archetype Classification Scheme After Nine More Years of Gulf of Mexico Subsalt Drilling

William H. Hart and Martin L. Albertin
BP America Inc.

Subsalt exploration in the Gulf of Mexico (GOM) remains an area of intense focus by the oil and gas industry. Finding economic hydrocarbon accumulations beneath the extensive allochthonous salt sheets in the northern GOM basin requires solving a number of geophysical, geological, and drilling challenges. In 2001, we presented a subsalt trap classification which, given seismic imaging challenges associated with complex allochthonous salt, could be used for qualitatively ranking subsalt exploration prospects according to their structural attributes (Hart and Albertin, 2001 GCSSEPM).

This classification is comprised of a collection of subsalt trap archetypes, with each archetype representing an important structural variation carrying specific trap and hydrocarbon charge risks. These archetypes are grouped into four genetic play families, calibrated for overall prospectivity by a statistical analysis of subsalt well results. Our original 2001 analysis used a calibrating database of 67 subsalt tests; since then, at least 121 new subsalt traps have been tested by industry. We used these new subsalt well data to revisit the classification scheme and answer two basic questions: (1) is the overall trap family ranking corroborated by drilling results of the past nine years, and (2) are any revisions to the classification scheme warranted?

Overall, the subsalt trap family prioritization remains valid. All but three of the 44 subsalt discoveries drilled since 2001 can be attributed to the top-ranked autochthon-rooted trap family. Of the three exceptions, only one discovery could be positively attributed to one of the other subsalt trap families. Analysis of the new drilling results does, however, suggest the following descriptive and statistical updates to the top-tier autochthon-rooted trap family:

1. the cumulative success rate for autochthon-rooted traps,

Deep Water Gulf of Mexico Subsalt Structural Framework

Bill Kilsdonk, Rod Graham, and Robin Pilcher
Hess Corporation

Structural styles in the deep water Gulf of Mexico are largely a function of the distribution of salt, its interaction with sedimentary depocenters, the specific Gulf of Mexico linked system involved, and position in that linked system. Nearly basin-wide coverage of high-quality 3D seismic data coupled with existing regional 2D data has allowed interpretation of subsalt structural features and their assembly into a broad regional framework. We identify and characterize the following provinces and subsalt structural elements: 1) A deep salt basin and frontal salt napppe; 2) Perdido Foldbelt and Alaminos Canyon gravity minima; 3) Eocene and Miocene regional welds; 4) an “egg crate” province of isolated primary depocenters separated by older salt and younger mini-basins; 5) an area of amalgamated salt and linked primary depocenters; 6) Mississippi Canyon/Atwater and Spirit foldbelts; 7) Sigsbee salt lobe and allochthonous carapace basins; and 8) “ramps” between weld and canopy levels.
Crystal III, East Breaks MultiClient Wide Azimuth

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- **Focus** - Sub-Salt Miocene & Paleogene
- **Technology** - TTI Beam and RTM Imaging
- **Delivery** - Available Q4 2010

Houston Geological Society Bulletin
September 2010
HGS General Dinner

- William Hart continued from page 35

currently at 41%, has been favorably impacted by the emergence of the Paleogene (Wilcox) play trend;
2. the autochthon-rooted trap family has been broadened to include all subsalt traps directly underlain by deep Mesozoic salt, whether in the form of Cretaceous allochthons, crept autochthonous salt on younger basement, or true in-situ autochthonous salt;
3. the top-tier autochthon-rooted trap family can be usefully subdivided into sub-families which are, in turn, ranked for overall trap and hydrocarbon charge risk;
4. a large, calibrating database of 188 subsalt prospect tests from across the GOM affirms the new sub-family rankings,
5. drilling results suggest that the industry will be challenged to maintain its historically high success rate for autochthon-rooted subsalt traps, as exploration focus shifts from simpler traps of the lower slope to more complex traps of the middle and upper slope subsalt trends.

Biographical Sketch

BILL HART is a geologist in BP’s Deepwater Gulf of Mexico Exploration Business Unit, where he serves as a subsurface advisor specializing in subsalt interpretation and salt tectonics. Upon joining Amoco in 1980, he became an ardent student of salt-sediment dynamics, a natural result of his early assignments exploring and appraising numerous Louisiana salt domes. Since the late 1980s, he has leveraged this experience in the varied Gulf of Mexico subsalt play trends, generating and testing prospect inventories from coastal Louisiana to the deep water protraction areas.

Mr. Hart holds a Master of Science degree in geology from the University of Massachusetts and a Bachelor of Science degree in geology from San Francisco State University. He is an active member of HGS, NOGS, and GCSSEPM.
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### Upcoming GeoEvents

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<td>October 4-7, 2010</td>
<td>Geology of Unconventional Gas Plays</td>
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<td>October 10-12, 2010</td>
<td>GCAGS GCSEPM Convention</td>
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<td>October 31 – November, 2010</td>
<td>Geological Society of America Annual Meeting</td>
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<td>Denver, CO</td>
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<td>November 4-5, 2010</td>
<td>Advances in Carbonate Exploration and Reservoir Analysis</td>
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<td>November 14-19, 2010</td>
<td>Deepwater Offshore West Africa Conference &amp; Exhibition</td>
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<td>Abuja, Nigeria</td>
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<td>February 7-8, 2011</td>
<td>Applied Geoscience Mudstones Conference</td>
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<td>Houston, Texas</td>
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<td>April 10-13, 2011</td>
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<td>July 21, 2011</td>
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<td>October 16-18, 2011</td>
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<td>Veracruz, México</td>
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<tr>
<td>October 23-26, 2011</td>
<td>AAPG International Conference &amp; Exhibition</td>
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### 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.**
We have made significant improvements to the previously published methods for geochemical allocation of commingled oil production and/or commingled gas production. This new method has allowed allocation of commingled production from wells at less than 2-5% of the cost of production logging. Four case studies are shown here. In the first two studies, commingling of the wells was subject to approval by the Alaska Oil and Gas Conservation Commission (AOGCC). Before agreeing to the use of geochemical allocation, the AOGCC required the well operator to perform multi-month trial studies in which the wells were monitored both by geochemical allocation and by production logging. The scientists performing the geochemical allocation were kept blind to the results of the production logging until the studies were completed. Close agreements between the geochemistry-based allocation values and the production-logging-based allocation values resulted in AOGCC approval of continued use of the geochemical method for oil production monitoring of these two wells. Two additional case studies presented here illustrate how geochemical allocation can be used to monitor the effects on production of (1) changes in water injection into nearby wells and (2) closing or opening perforations within a well.

Biographical Sketch

MARK McCAFFREY received his B.A. degree from Harvard University in geological sciences, and his Ph.D. in chemical oceanography in the area of organic geochemistry from the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program. He is a California Registered Geologist, a Texas Professional Geoscientist, and an AAPG Certified Petroleum Geologist. He is a senior or co-author of numerous papers on the application of geochemistry to petroleum exploration, petroleum reservoir management, oil biodegradation, hazardous waste remediation, paleoenvironmental reconstruction, and marine chemistry. Mark was the 1995 recipient of the Pieter Schenck Award from the European Association of Organic Geochemists. Dr. McCaffrey spent 10 years at Chevron and Arco integrating geochemistry, geology, and engineering data to solve a variety of oil and gas exploration and production problems. In 1999, he co-founded OilTracers LLC, a firm specializing in this type of work. In 2010, OilTracers was acquired by Weatherford Laboratories. He was a 2001-2002 distinguished Lecturer for the Society of Petroleum Engineers, and was the Chairman of the 2002 Organic Geochemistry Gordon Conference. Mark was Chairman (2006-2007) of the Geochemical Society Organic Geochemistry Division and is a PetroSkills instructor. Dr. McCaffrey has testified in federal and state court as an expert witness.
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Biographical Sketch

JOHN H. LIENHARD, author and voice of The Engines of Our Ingenuity, is Professor Emeritus of Mechanical Engineering and History at the University of Houston. He received B.S. and M.S. degrees from Oregon State College and the University of Washington, his Ph.D. from the University of California at Berkeley, and he holds two honorary doctorates. He is known for his research in the thermal sciences as well as in cultural history. He is an Honorary Member of the American Society of Mechanical Engineers and a member of the National Academy of Engineering.

In addition to many awards for his technical contributions, Dr. Lienhard has received, for his work on Engines, the ASME Ralph Coates Roe Medal for contributions to the public understanding of technology, the 1991 Portrait Division Award from the American Women in Radio and Television, and the 1998 American Society of Mechanical Engineers Engineer-Historian Award, other ASME honors, and two 2005 Crystal Microphone Awards.
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Over the past decade there have been many Miocene Cristellaria I and Cibicides opima discoveries resulting from integration of detailed geology and advanced geophysical techniques. These discoveries, typically in a depth range of 13,000 to 15,000 ft, are in a geopressed environment, have excellent productive capabilities, high liquid content, and can pay out in a few months. Many are so-called AVO class 2 anomalies with a complete phase reversal from wet sand to pay. This phase reversal complicates the interpretation due to the effect on apparent dip and that observed amplitudes can vary, with tuning providing the highest amplitudes in the 70 to 110 ft. pay thickness range.

In the same general area there have been a number of deeper discoveries. These are typically in excess of 18,000 ft. but still have excellent sand quality and have proven capability. An example is the UPR/Cabot Etouffee Field find that has produced 25 MM bbl and over 100 Bcfg from a few hundred acres. A large recent discovery at 15,000 ft. is in Contango’s Eugene Island Block 10 with 150 ft. of pay in the first well. With additional wells, this field is now producing well over 100 MM cfg/d. McMoran’s Flatrock production in South Marsh Island blocks 212/217 has six successful wells as of late 2009 with more than 250 ft. of pay in some of the wells. Production is over 200 MM cfg/d. The McMoran Davy Jones discovery at 29,000 ft. adds a new dimension to the hunt. The production capability of the ultra-deep pays is unproven, but there is ample evidence for excellent sand quality below 20,000 ft.

The authors will discuss a number of the discoveries with the techniques and procedures used and will present a view of future exploration in the area going into even deeper targets, where there are a large number of untested structures.

Biographical Sketches

DON FRYE and partner GAR WILLIS have been working the South Louisiana Miocene for the last 12 years, concentrating on Terrebonne and St. Mary Parishes.

MR. FRYE graduated from the University of Texas with a B.S. in geology, but he has worked primarily as a geophysicist. His early experience was with Conoco in the Rocky Mountains and Ponca City, Oklahoma, and Seiscom Delta as area manager in London, and VP in Singapore and Houston. He later joined Houston Oil & Minerals and was Geophysical Manager when the company merged with Tenneco. He was Manager of Geophysical Data processing when Tenneco sold off their oil and gas interests. Since that time he has been generating prospects along the Gulf Coast. Mr. Frye is a member of AAPG and SEG. He has served as treasurer and President of the Geophysical Society of Houston and as First Vice President of the SEG.

GAR C. WILLIS has a B.A. in Geology from San Diego State and an M. A. from the University of California. Mr. Willis first joined Shell Oil Company where he worked a variety of projects, both domestic and international. After Shell he concentrated on exploration in the Gulf Coast Tertiary with Pend Oreille Oil & Gas and Realm Resources. In 1992 he became an independent consultant and in 1998 teamed with Frye to generate prospects exploring the Middle and Lower Miocene of South Louisiana.

The Frye-Willis team has generated prospects for Cabot Oil & Gas and Palace Exploration and currently is with Magnum Producing.
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Evaluation of the Structure, Stratigraphy and Hydrocarbon Play Types of Offshore Florida Using Seismic Reflection Data

Offshore western Florida is one of the last frontier exploration areas in the U.S. Gulf of Mexico. This presentation analyzes 11,000 km of recent 2-D seismic data to evaluate the hydrocarbon potential of the area.

The presentation examines future areas of exploration by 1) identification of plays located on trend with existing play types, and 2) proposal of conceptual plays for future exploration.

Exploration play types can be further subdivided into; 1) shallow water, shelf opportunities, 2) moderate water depth, escarpment plays, and 3) deepwater play types.

Play types on the platform include: James Lime, Norphlet sandstone, and Cretaceous reefs and shelf edge fans. Deep water traps would include Oligocene and Miocene clastic plays and Jurassic/Cretaceous plays associated with salt tectonics.

The extensive seismic data set analyzed provides valuable information that can be used to assess the number and size of undiscovered accumulations in this frontier petroleum province.

Biographical Sketch
Greg Hatch is presently Geological Advisor for Spectrum Geo Inc. in their Houston office. He began his career with Sun Oil in Dallas Texas and subsequently worked for Oryx Energy, Seagull Energy, Unocal, Cabot Oil and Gas, Noble Energy, and El Paso Exploration and Production. He has 25 years experience as a prospect generator with an emphasis utilizing proven, applied geophysical techniques to successfully explore, exploit, and develop oil and gas resources worldwide.

Mr. Hatch is an active member of the Society of Exploration Geophysicists, the American Association of Petroleum Geologists, and the Houston Geological Society. His education includes a Bachelor of Science and Master of Science degree in geology, with a geophysics thesis, both from Northern Illinois University.
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Reservoir geometry and volume can be determined early in the life of a well using a wave-based pressure measurement and deconvolution technique. The geometry is detected by discrete events evident in constant rate pressure data during the initial production from a well. The events are produced by energy reflection from individual portions of the reservoir boundary as the cone of influence reaches it. These contact shapes can be assembled into an image of the reservoir using angle calculations from the radiating capillary arrays and accumulated elastic energy computations.

Wave mechanics have been a long-neglected area of reservoir engineering theory. Energy and mass are transported by wave mechanics. There are various kinds of wave energy that pass through a reservoir. We think of seismic imaging where we supply energy from the surface that passes through successive layers of formation. Some of the energy is reflected back to the surface and recorded then processed. But what if we used the energy of well production to generate waves that can be detected by a sensitive pressure gauge to see waves of a different form reflected off the walls of the reservoir? In other words we would observe the reservoir from the inside out rather than from the topside down.

If we see features from a well bore in such circumstances then we see the connected geometry and volume of that reservoir compartment. Think of this process as a means for establishing geometry that can be compared with seismic but derived from a different geophysical process. The wave model “sees” the connected reservoir laterally. Think of a production log that has a depth of investigation of hundreds and yes, even thousands of feet. The interactions between two different types of waves interact to produce singularities in the pressure decline that can be used to produce an energy image of the reservoir during the initiation of production from a zone.

Figure 1 shows a typical drawdown data set. The three colored lines in red, green, and blue mark pressure decline segmentation that is associated with reservoir limits. Even though the rate does not change, the pressure decay rate does and does so abruptly. The red and green triangles mark the singularities in the data that mark a reservoir limit contact. At each contact we have two pieces of information. First is the time to the contact and the second is the new decay rate after the singularity or break in the data. The red contact is at 3 hours and the green contact is at 5.6 hours. Not shown is a third contact. These two pieces of information can be used to calculate the distance to the individual limit contact and the angular shape of the contact. These can be laid out along concentric circles and assembled into a series of relative limit dispositions. A decision tree is used to rank all of the possible maps.
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using elastic energy integration for inplace volumes as encountered by the cone of influence. This is shown in yellow and appears as a cam follower type of diagram.

Figure 2 shows the most probable assemblage of relative limit positions around the well. Note that direction or orientation is not part of the solution. Everything is placed relative to the first limit contact then constructed relative to that position. Figure 2 is the most probable configuration based upon points of conformity system. Part of that process is calculating a down-range energy width for the reservoir boundary.

Some examples of the energy map determination process will be shown. The method produces a snapshot image of the reservoir at the time of the test on a blind basis. There is no reference to the geologic map. The purpose of the method is to produce an energy image of the reservoir without reference to a geologic map or seismic amplitude. The utility comes from performing a blind overlay of the geologic map to confirm the structure and general shape of the reservoir.

Figure 3 shows the results when compared with a seismic-based structure map. Although the images are not exactly the same, they provide enough conformance to enhance the certainty of the reservoir and the reserves being there as described independently by two different disciplines. The details of developing the energy image will be presented from the alternatives available. Other blind energy map examples will be shown and compared with seismic images to complement the explanation of the wave model.

**Biographical Sketch**

**FRED GOLDSBERRY** is a 1968 Honors graduate of Texas A&M University in mechanical engineering. He also earned M.S.M.E. (1969) and Ph.D. (1971) degrees from Texas A&M as well as an M.B.A. in 1992 from the University of St. Thomas. He was elected to the Academy of Distinguished Graduates of Mechanical Engineering at Texas A&M in 1996.

Dr. Goldsberry holds eleven U.S. patents in control systems, energy conversion systems, geopressed secondary oil recovery, nuclear waste storage, and transient well testing. He has worked in the E&P chemical processing, electric generation, rocket motor, geothermal, and nuclear industries. The bulk of his career has been spent in the geothermal, oil and gas drilling and development business. Since 1979, he has been employed successively as the director of the US DOE Geopressure Projects Office in Houston and the Vice President of Operations for Zapata Exploration Company. He has functioned in every aspect of oil and gas exploration, drilling, completions, production, and pipelines, both onshore and offshore.

Dr. Goldsberry formed WAVEX®, Inc. in 1995 based upon his long-standing interest in the engineering mechanics of pressure-transient phenomena and has practiced wave mechanics-based reservoir mapping since that time as an independent engineering consultant. He is a member of the ASME, SPE, SIPES, and the Society of Petroleum Evaluation Engineers. He was Houston Chapter President in 1999 and served on the SPEE Board 2005 to 2007.
Shale gas and shale oil are the hottest industry buzz words, but that doesn’t mean they always inspire delight. In fact, the incredibly rapid and important changes in the world of exploration have left some at the station wondering what happened. There is a huge fault line between conventional and unconventional players caused by the profoundly different skill sets and economics of the two exploration models.

The technology that spawned this revolution started when George Mitchell developed a specialized frac for the Barnett Shale, and was perfected when Devon incorporated horizontal drilling and stage fracs on those same properties. This recipe of horizontal drilling plus multi-stage frac technologies or “geococktail” has transformed exploration and is rewarding the companies who best put it to use with stellar growth. It was developed by independents, but the majors have seen the light and are buying in through companies with the know-how, technology, and lease holdings.

Wall Street has fallen head-over-heels for shale plays and the profit-enabling geococktail technology. The low risk and extensible results are irresistible to capital providers. Companies that secured early lease positions are on top and those that moved too slowly are constantly reminded by the huge new tests, TCF-size reserve reports, multi-billion dollar sales and joint ventures being announced on a steady basis. The economic formula is simple: companies book new reserves for every shale well drilled (there are almost no dry holes), then leverage their tumescent balance sheets to raise additional drilling funds in a never-ending cycle. The success has spawned a new gas bubble, but if shale-based companies can maintain their momentum until prices rise they will rule the planet. The wild cards are punitive taxes and regulations that could constrain the use of fracs. Additional benefits are the environmental advantages and smaller footprint of horizontal drilling.

On the other hand Wall Street has pretty much abandoned conventional players and their access to capital is severely constrained. Most now have trouble even climbing up on the shale band wagon due to the technical and economic barriers. Their problems began with the diminishing returns of conventional exploration in the highly developed onshore provinces and didn’t end with the high shale-driven lease and drilling costs. The latest indignities are their exclusion from shale areas by skyrocketing lease costs and plunging gas prices, and the suspension of offshore drilling after the BP spill.

On a career level, the skills and practices of shale exploration are quite different than for conventional exploration. Terms like “vitrinite reflectance, TOC, and thermal maturation” are Greek to conventional players who use jargon like “fault-seal, up-dip, and oil-water contact”. Shale exploration and the geococktail require highly specialized and multi-disciplinary teamwork, much of which is not crucial or even applicable in conventional exploration. Considering the lack of common expertise and the economic barriers to joining the shale club, some believe there is little incentive to try. This bi-polar gulf between conventional and unconventional players is to some extent irreconcilable.
But while the world is focused on the ascendance of shale plays and the demise of conventional exploration, another choice offers salvation. Tight sands (and other tight rocks) are a different type of resource play but they share more attributes of conventional exploration. The geococktail is an ideal application for revitalizing tight sands and the transformation of that sector may turn out to be as important as shale. The early adaptors may be tomorrow’s biggest winners.

Tight sand resources have one foot in the conventional world and another in the unconventional, but thanks to the geococktail they can now claim the best of both. Although not as big as shale reservoirs, tight sand fields tend to cover larger areas than conventional ones, mainly as a result of migration issues. During primary migration hydrocarbons exit the source rocks across all common boundaries. In conventional reservoirs expelled oil and gas enter a water environment and migrate up-dip into compressed traps, but in tight sands, migration is limited and reserves are more likely to remain locked in place across broader areas, based on rock properties. There is negligible migration within shales.

Also, although flow rates and drainage areas have always been restricted in tight sand reservoirs, however geococktail technology has changed the game. It is not unusual for extended-reach, multi-stage-fracked horizontal wells to deliver over 10 times the flow rates and EURs of vertical wells. Although they often display hyperbolic declines like shales, tight sand declines are flatter and likely to be much longer. Tight sands are also more likely to contain producible oil than shales, although there are exceptions, such as the Bakken.

A huge opportunity exists for tight sands. Many tight reservoirs have been historically underdeveloped and even prematurely abandoned due to pre-geococktail economics. Tight sands exploration also shares more traits with conventional exploration than with shales, providing an opening for transitioning conventional players. Of course everyone, including those already there, must learn to use the essential new technologies.

In summary, the geococktail (combination of horizontal drilling and multi-stage frac technology) is the white knight of the exploration world, enabling new plays and reviving old ones with a mix of risk factors and economics. Resource production is able to respond more quickly to increased demand due to its greater concentration of wells and infrastructure. There is a serious schism in exploration and specific skills are not transportable across all plays. Shale plays are the hottest but not all shale wells are commercial at today’s prices and it is critical to recognize the difference. Conventional exploration has higher risk, is difficult to fund, and has turned in the direction of oil. Tight sand exploration shares the lower risk and larger extent of shale plays and may have the best economics of all as geococktail technology continues to improve.
Seismic Imaging of Depositional and Geomorphic Systems

30th Annual GCSSEPM Foundation Bob F. Perkins Research Conference

Houston, Texas
December 5-8, 2010
Houston Marriott Westchase Hotel

Conference information and online registration available on our new Web site:
www.gcssepm.org

Houston Chapter of the Society of Independent Professional Earth Scientists Presents:

Oil Resource Plays – Examples and Technology

SIPES Continuing Education Seminar
Friday September 24th, 2010

This full-day seminar will focus on proven and emerging oil-based resource plays. These will include reviews of the Niobrara, Wolfcamp, Eagleford and others. Associated technology presentations on shear waves, inversion, geocell and drilling:

- Overview of active oil-based resource plays.
- Activity and players in the Niobrara.
- Wolfcamp oil shale play.
- Other plays potentially including the Bakken, Eagleford and Smackover.
- Shear wave applications both acquired and derived.
- Drilling issues associated with unconventional oil plays.
- Inversion of seismic data to reveal underlying geology.
- Use of aeromagnetic data in mapping fractures.

The seminar will be held at the Marathon Oil Corporation Conference Center, 10th Floor 5555 San Felipe (at Yorktown). Registration includes a binder and CD of the Proceedings, a Continental Breakfast (7:30-8:30 a.m.), Seminar (8:30-4:30 p.m.), Luncheon, Refreshments and Parking. Attendance can count toward professional development hours (PDH) required for licensed Texas Professional Geoscientists. Membership in SIPES not required. Details can be found at www.sipeshouston.org
This is an autobiography that concentrates on HGS-member George Devries Klein’s career in geology. The book is divided into two parts. After a brief review of his childhood, the balance of Part I is devoted to a chronology of his professional career from student (Wesleyan University B.S., University of Kansas M.A., Yale University Ph.D.) to industrial researcher (Sinclair Research) to academia (University of Pittsburg, University of Pennsylvania, University of Illinois) to the New Jersey Marine Science Consortium and finally to consulting in Houston. Part II covers additional events that did not fit into Part I.

The author utilizes what he calls “Lessons Learned” at the end of each chapter. It basically reviews what he considers the most important portion of each chapter. This makes a good summary that is useful for any later review of the book. Whenever he introduces a person in the book, he includes a brief career description of that person. For me this was generally interesting information because I knew of a majority of these people. However, when several people were introduced at the same time, these descriptions made it difficult to follow the story line. It would have been better to use footnotes or place the information in an appendix.

Following the events and politics involved in the author’s student days through his different academic endeavors and government work to finally becoming a consulting geologist was interesting reading for me. Present-day students would gain a lot by reading the book. The section on what it takes to become a consulting geologist is very accurate based on my personal experience.

I would recommend reading the book. ■

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**Book Review** by John Tubb, Jr.

Klein, George Devries; *Rocknocker: A Geologist’s Memoir*  
2009 CCB Publishing, 431 p $21.95

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**Biographical Sketch**

Phil Martin is a fourth-generation earth scientist with B.S and M.S. degrees in Geology from LSU and the University of Louisiana at Lafayette. He started his career at Union Texas Petroleum before forming his own independent company.

Mr. Martin is President of New Century Exploration, Inc., a privately-held company with operations from prospect through pipeline in Texas and Louisiana. He is a Certified Petroleum Geologist, Certified Earth Scientist in SIPES, and a Licensed Professional Geoscientist in Texas. He is a member of AAPG, HGS, SEG, Onshore Exploration Independents, and Houston Producers Forum. He is Chairman of True Electric, LLC and Geological Data Library. He is on the board of the Houston Energy Council and the Houston Chapter of SIPES and is Vice President of the SIPES National Board. He is also a member of the AAPG Trustees Foundation, the LSU Foundation, and the European Association of Geoscientists & Engineers.

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**NOW AVAILABLE**

**Directory of Oil Company Name Changes**  
20th Edition (May 2010)

A new edition (20th), of the HGS publication, *Directory of Oil Company Name Changes*, is now available through the Bureau of Economic Geology. This publication is a cross-referenced list of domestic oil and gas, exploration and production companies that have sold major assets or have changed their names due to a merger, acquisition or reorganization. The purpose of this directory is to provide an oil company road map that may assist geologists in tracking down logs, samples, cores, paleo, drilling reports, production histories and other well data that may be obscured by these numerous name changes.

The cost of the directory is $15.00 and it can be obtained from the BEG. The contact information is as follows:

Bureau of Economic Geology  
University of Texas in Austin  
Attn: Publication Sales  
University Station, Box X  
Austin, Texas 78713-8924  
Phone: (888) 839-4365  
www.beg.utexas.edu

OR: Purchase one during the GCAGS in San Antonio at the BEG exhibit (save shipping costs).
Guest Night 2010—Explores Big Bend and the Rio Grande Valley, Texas, from Underground and Outer Space

by Linda Sternbach and Bonnie Milne-Andrews

HGS Guest Night, May 22, 2010, at the Houston Museum of Natural Science was a fantastic event for HGS members, their families and friends. After dining with the dinosaurs and minerals in the museum, attendees learned about the geology of Big Bend National Park from Dr. Patricia Wood Dickerson of the Jackson School of Geosciences, UT Austin. Dr. Dickerson’s talk was titled, “Big Bend—Where the Rockies Meet the Appalachians—Discoveries and Enigmas.” She described the geology of the Big Bend area in Texas, which contains Paleozoic to Tertiary rocks, as being basically unexplored, with a few known localities much like the Apollo landing sites on the moon. She talked about the oldest rocks, which are Ordovician, and described how plate tectonic reconstructions reunite Big Bend with South America during that time. Dr. Dickerson showed satellite and outcrop photos of volcanic features known to have deformed the landscape of the Big Bend region during the Tertiary, 30 million years ago.

Don Corrick, Big Bend geologist, who is usually stationed in Big Bend National Park, was present at Guest Night handing out park information. The park, run by the Department of the Interior, has a website for interested people at www.nps.gov/bibe. The park phone number is 432-477-2251 for people planning visits.

The audience packed the HMNS IMAX theatre for Dr Dickerson’s talk, and stayed for a special IMAX movie called “3D Arabia” which showed a young film maker from Saudi Arabia’s documentation of present day Bedouins and the trade of frankincense spice in the Middle Ages. The movie showed present-day Mecca, Riyadh, and sites and towns inside Saudi Arabia.
HGS Shrimp Peel

WELCOME To The 2010 HGS Shrimp Peel

Lee Shelton

Nancy Lowery

Dave and Carol Rensink

Bill Price

Jeannie Perrott

John Hessenbruck and Milky Crowe

Charles Sternbach

Ken Nemeth
2009–2010 President’s Night

Gary Coburn’s gift of a mineral specimen

John Tubb, Jr. is passed the President’s hammer

Ken Nemeth, Honorary Life Award

Joe Lynch, President’s Award

Sharie Sartain, President’s Award

Ianthe Sarrazin, Distinguished Service Award

Carrie Kidd, Rising Star Award

David Tonner, Rising Star Award

Barry Katz, Bulletin editor, Jim Ragsdale
Editor’s Award

Barry Katz, Bulletin editor, Charles Revilla
Editor’s Award

Amy Sullivan, Secretary Award

Matt Boyd, Treasurer Award

Barry Katz, Editor Award

Board members: Walter Light, Ianthe Sarrazin, Amy Sullivan, Matt Boyd
Houston Geological Society Awards

Walter Light, Director Award

AOA Geophysics, Corporate Star Award

BHP Billiton, Corporate Star Award

Core Laboratories, Corporate Star Award

Devon Energy, Corporate Star Award

Fugro Robertson, Corporate Star Award

Shell Corporate, Star Award

Swift Energy, Corporate Star Award

TGS-NOPEC, Corporate Star Award

Weatherford Laboratories, Corporate Star Award

Special Award, to Donna for HR

Janet Combes and Mike Deming

Steve Levine, Stephanie Levine, Sandi Barber, Jim Ragsdale and Mike Deming

Linda Sternbach, Bulletin cover
HGS Welcomes New Members

ACTIVE MEMBERS
Tim Brown
Lindsey Chandler
Charles (Chip) Feazel
Thomas Griffith
Megan Hansen
Stephen Hubbard
Ozzie Ilaboya
Joe Jacquot
James Keller
David Koenig
David Little
Matthew Martin

EMERITUS MEMBERS
Mike Barnes
John Byrne
William Gafford
Dr. David Lammlein
William Lefler
Thomas Moon
Joe Siegmund

ASSOCIATE MEMBERS
Edgar Pinzon
Emily Poorvin
Daniel Ragona
Edward Roy
Gary Thompson
Adriana Valerio
Duane Wagner
Gareth Williams
Roy Wilty

Welcome New Members

Statement of Financial Position as of June 30, 2009
Submitted by Matt Boyd

Assets
Current Assets .................................................................$388,681
Other Assets (Charles Schwab Investments) ......................$707,768
Total Assets ........................................................................$1,096,449

Liabilities and Net Assets
Liabilities
Deferred Income (Bulletin ads and Dues), etc .................$145,891
Net Assets
Unrestrictive .......................................................................$950,558
Total Liabilities and Net Assets ........................................$1,096,449

The above information has been summarized from the audited financial statements of the Houston Geological Society as of the fiscal year ended June 30, 2009. 2009 financial statements were prepared by Robert Sims & Associated, P. C., report dated December 31, 2009.

If you are interested in presenting at one of the upcoming HGS meetings or have a suggestion for a meeting topic please contact
Amy Sullivan (Vice President) at amy.e.sullivan@mindspring.com.
Louisiana Passes Professional Geologist Registration

The state of Louisiana has passed legislation to register geologists practicing in Louisiana. Their PG board has yet to be set up, so there are currently no forms or rules set up, but the act is to take effect January 1, 2011. The grandfather period will end January 1, 2012. The legislation can be found at http://www.legis.state.la.us/billdata/streamdocument.asp?did=720117 and appears to be similar to the Texas PG act.


Hearing Held on Arctic Mapping Bill

The House Natural Resources Committee is discussing a new bill to map the Arctic to delineate the extent of the U.S. continental shelf and for safe navigation of the Arctic Ocean. H.R. 2864, introduced by Representative Don Young (R-AK), amends the Hydrographic Services Improvement Act of 1998 to fund the National Oceanic and Atmospheric Administration (NOAA) to acquire hydrographic data, provide hydrographic services, and conduct coastal change analyses as necessary to reach those goals. $10 million over the next two years would be dedicated to new hydrographic data and $5 million towards mapping the continental shelf.

With diminished sea ice extent, the Arctic Ocean is becoming more accessible to those looking for natural resources and new shipping lanes. Knowing the extent of the U.S. continental shelf will help the U.S. lay claim to potentially resource-rich territory in the Arctic. The data collection funded by the bill will help create a baseline map for any new energy development and safe navigation routes.

For more information go to: http://thomas.loc.gov/cgi-bin/bdquery/z?d111:h.r.02864:

MMS Rewrites Gas Flaring and Production Rates from Offshore Wells

The Minerals Management Service (MMS) published a final rule that limits natural gas flaring and production rates from offshore gas wells. The goal of the rule is for MMS to better monitor the amount of gas flaring or venting that occurs in offshore oil and gas production to ultimately reduce the amount of greenhouse gases (GHGs) emitted. This rule will continue to allow flaring for safety reasons, but will require accurate measurement of total gas emitted to monitor volume of GHGs released.

EPA Reports on Climate Change Indicators

The Environmental Protection Agency (EPA) released a report on April 27 on environmental indicators that show measurable signs of climate change. Some of the key findings listed in an EPA press release include:

- Greenhouse gas emissions from human activities are increasing. Between 1990 and 2008, there has been about a 14 percent increase in emissions in the United States.
- Average temperatures are rising. Seven of the top 10 warmest years on record for the continental United States have occurred since 1990.
- Tropical cyclone intensity has increased in recent decades. Six of the 10 most active hurricane seasons have occurred since the mid-1990s.
- Sea levels are rising. From 1993 to 2008, sea level rose twice as fast as the long-term trend.
- Glaciers are melting. Loss of glacier volume appears to have accelerated over the last decade.
- The frequency of heat waves has risen steadily since the 1960s. The percentage of the U.S. population impacted by heat waves has also increased.

Research Paper Claims Carbon Capture and Geologic Storage Is Not Feasible

A research paper by Christine Ehlig-Economides (Texas A&M University) and Michael Economides (University of Houston) and published in the Journal of Petroleum Science and Engineering is causing controversy among scientists, policymakers, and other stakeholders. The research suggests that carbon capture and geologic sequestration is not a practical solution to substantially reduce carbon dioxide emissions and mitigate climate change.

The Pacific Northwest National Laboratory, the American Petroleum Institute, Lawrence Berkeley National Laboratory, the Natural Resources Defense Council, other organizations, geoscientists and engineers have issued public responses disagreeing with the methods, analyses and/or conclusions of the research.

More study and discussion is certainly warranted. Federal agencies with a major role in carbon capture and geologic sequestration with web pages that contain more information include Carbon Sequestration-Department of Energy, Geologic CO₂ Sequestration-U.S. Geological Survey and Underground Injection Control Program-Environmental Protection Agency.

Karst Portal Has a New Look

The Karst Information Portal (http://www.karstportal.org/) is a

Government Update continued on page 66
digital library linking scientists, managers, and explorers with quality information and resources concerning caves and karst environments that has recently been upgraded. Visit the portal for more information and updates about caves and karst.

AGI Government Affairs Monthly Review (May 2010) on President’s Nuclear Waste Commission Holds Public Meeting
The President’s Blue Ribbon Commission on America’s Nuclear Future, comprised of leading scientists, former public policy officials, and experts from the private sector and NGOs, met to discuss the best path forward on how to deal with existing and future nuclear waste. The commission heard many opposing arguments on the viability of reprocessing spent nuclear fuel, the requirements for a geologic repository, and how waste should be stored and transported in the interim.

There was general agreement from the commission and witnesses that there is a need for a geologic repository, whether we move forward with fuel reprocessing or not. Harvard scientist Dr. Matthew Bunn suggested the U.S. follow the lead of Finland and Sweden, that have selected sites for waste repositories with the support of the local communities. Bunn and other witnesses, such as Corey Hinderstein, VP of the Nuclear Threat Initiative, stressed the fact that dry-cast storage is a safe solution for interim storage and there is no need to act hastily on a long-term solution. Information about the commission members, a video archive of the entire hearing, and copies of the witnesses’ presentations can be found at: http://brc.gov/.

EPA Releases Final Rule on GHG Emissions
On May 13, 2010 the Environmental Protection Agency (EPA) released a final rule to regulate greenhouse gas (GHG) emissions from large stationary source emitters. Under the rule, starting in January 2011, facilities currently regulated by the Clean Air Act will be required to include GHG emissions in their permits if they increase emissions by 75,000 tons per year (tpy). Starting July 2010, the rule will expand to cover all new facilities with GHG emissions over 100,000 tpy, and will require the facilities to use the “best available control technologies” to limit emissions.

The final rule comes after the EPA reviewed comments on the proposed thresholds released in October 2009, which proposed requiring facilities that emit 25,000 tons of GHG per year to obtain permits. The significantly higher threshold would exempt farms, schools, and other small facilities from having to obtain permits.

The final rule has received criticism from industry representatives, who maintain that the EPA is overstepping its legal bounds and the final rule is expected to be challenged in court.

Group Tries to Block Teaching of Global Warming in Colorado
Balanced Education for Everyone (BEE), a non-profit devoted to ensuring public schools take a balanced approach to teaching global warming and creators of the video Not Evil Just Wrong to “confront the erroneous claims of environmental extremists,” is partnering with former school board candidate Rose Pugliese to bring “balanced” education to Mesa County Schools in Colorado. Pugliese presented two petitions to the school board: one asking for science teachers to stop giving lessons on global warming, and another asking that political views be kept out of the classroom.

BEE is making Mesa County a test case for a national movement to keep teaching the human influence on global warming out of science classes. Local scientists and college professors have spoken up against BEE, saying the petitions amount to censoring science. Other communities in Colorado as well as in Las Vegas, Nevada have started petition campaigns of their own.

For more information go to: http://www.denverpost.com/news/ci_15161879

AGI Government Affairs Monthly Review (June 2010)
Senate Introduces Outer Continental Shelf Management Reform Act
Senator Jeff Bingaman (D-NM) is sponsoring legislation (S. 3516) that will reform management and oversight of offshore drilling on the outer continental shelf (OCS). The bill is cosponsored by Senator Lisa Murkowski (R-AK). The bill is meant to correct the issues with offshore drilling management that were raised after the Gulf Coast spill. In addition the bill would authorize more research and development on offshore drilling and safety and would require more training for employees.

The bill would create legislation implementing the changes Interior Secretary Salazar made to the Minerals Management Service (MMS). Additionally, it would create an Outer Continental Shelf Safety and Environmental Advisory Board to provide independent assessment and advice. The legislation would examine drilling plans more closely, including engineering reviews of blowout prevention systems, and would extend the current 30-day timeline for federal approval of exploration plans to 90 days. Enforcement would be increased, with required investigations for employee allegations of safety risks and more frequent Department of the Interior inspections and reviews

Committee Passes Arctic Mapping Bill
The House Natural Resources committee unanimously approved H.R. 2864, designed to increase the National Oceanic and Atmospheric Administration’s (NOAA) mapping efforts in the Arctic to delineate the extent of the U.S. continental shelf and ensure safe navigation of the Arctic Ocean. The bill, introduced by Representative Don Young (R-AK), amends the Hydrographic Services Improvement Act of 1998 to NOAA to acquire hydrographic data, provide hydrographic services, and conduct
coastal change analyses as necessary to reach those goals. $10 million over the next two years would be dedicated to new hydrographic data and $5 million towards mapping the continental shelf.

Though NOAA can currently complete Arctic mapping, Young thinks the legislation is necessary to push NOAA forward more quickly. With a diminishing extent of sea ice, the Arctic Ocean is becoming more accessible to those looking for natural resources and new shipping lanes. Knowing the extent of the U.S. continental shelf will help the U.S. lay claim to potentially resource-rich territory in the Arctic. The data collection funded by the bill will help create a baseline map for any new energy development and safe navigation routes.

Abandoned Mine Clean-Up Amendment Passes Committee
On June 21, 2010, the Senate Energy and Natural Resources committee passed legislation (S. 2830) that would amend the Surface Mining Control and Reclamation Act of 1977 to broaden the uses of cleanup funds. The 1977 act established the Abandoned Mine Fund, which collects royalties from coal production to cleanup abandoned coal mines. Some states also use the money to restore abandoned hardrock mines, which do not have a comparable cleanup program. It was unclear if the funds could legally be used for programs other than coal mine cleanup. S. 2830, sponsored by Energy and Natural Resources Chair Jeff Bingaman (D-NM), amends the act to clearly allow states to use these funds for abandoned gold, copper, and uranium mines.

MMS Gets a Name Change, Just Call it “BOE”
As of June 21, 2010, the Minerals Management Service (MMS) has been re-organized. The Bureau of Ocean Energy, Reform and Management, or Bureau of Energy (BOE) for short, comes with reforms that attempt to remedy the problems of MMS uncovered by the Deepwater Horizon oil spill. A new director accompanies the name change. Michael Bromwich, the former Justice Department Inspector General, will head BOE as it initiates multiple reforms.

The reforms include separating the conflicting missions of BOE into three different departments: the Bureau of Ocean Energy Management, the Bureau of Safety and Environmental Enforcement, and the Office of Natural Resource Revenue. Stronger safety requirements will be issued to outer continental shelf (OCS) operators, including new blowout prevention requirements. A six-month moratorium on drilling in the Gulf is a part of the reforms. The Department of the Interior (DOI) maintains the necessity of the moratorium in order to implement the new safety regulations in the Gulf of Mexico. A recent court ruling struck down the moratorium and DOI is currently considering next steps.

EPA Sets Stricter Sulfur Dioxide Limits
On June 3, 2010, the Environmental Protection Agency (EPA) issued a new health standard for sulfur dioxide (SO$_2$) emissions for the first time in nearly forty years. SO$_2$ emissions have been linked to emphysema, asthma, respiratory distress, and bronchitis. The new one-hour standard is set at 75 parts per billion (ppb) of SO$_2$. This level is designed to protect against short-term exposure because research indicates that short-term exposure poses the greatest risk to human health. As a result of this, the EPA revoked the previous standard, which allowed 140 ppb SO$_2$ averaged over a twenty-four-hour period. The EPA is also increasing monitoring of sulfur dioxide, requiring that monitoring stations be implemented where emissions affect largely populated areas, and changing the Air Quality Index to reflect the new standards.

The new rule only addresses the primary standards affected by SO$_2$: protection of public health. Secondary standards—those protecting public welfare and the environment—will be addressed in a separate review set for completion in 2012.

EPA Supports Reinstating “Polluter Pays” Tax
The Obama administration and the Environmental Protection Agency (EPA) have asked Congress to reinstate the “polluter pays” tax on petroleum and chemical companies that once helped pay for Superfund site cleanup. The tax expired in 1995 and was never renewed by Congress. Since 1995, the fund has dwindled from $5 billion to $65 million, and since 2003, cleanup of so-called “orphaned” sites, where no responsible party can be found, has depended on congressional appropriations. EPA Administrator Lisa Jackson estimated that reinstating the Superfund tax—four fees on crude oil, imported petroleum and chemical products, and corporate taxable income—would raise $18.9 billion over 10 years and help speed the rate of site cleanups.

On June 22, 2010 the Senate Environment and Public Works Subcommittee on Superfund, Toxics, and Environmental Health held a hearing to discuss the Polluter Pays Restoration Act (S.3164), legislation introduced by Frank Lautenberg (D-NJ) that closely follows the EPA’s proposal. A full summary of this hearing along with testimony from the chair, ranking member, and panelists, as well as a video archive of the entire hearing, can be found at: http://epw.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=4131d0ea-802a-23ad-43f3-336b1cfa0526

Successful Private Rocket Launch and New Plans for Mars
Space Exploration Technologies Corporation, or SpaceX, launched its first successful rocket from the Cape Canaveral Air Force Station in Florida on June 3, 2010. The rocket, a 154-foot
and 735,000-pound Falcon 9, reached its target orbit of 155 miles above the Earth’s surface. Elon Musk, SpaceX’s founder and chief executive, called the launch a great success that achieved 100 percent of their objectives.

The launch success comes as President Obama touts commercial spaceflight as the replacement for the NASA human spaceflight program cut in his fiscal year 2011 budget request. Obama’s budget discontinues the Constellation program, which was working on future manned missions to the moon and eventually Mars, and instead increases reliance on commercial spaceflight, especially for more immediate access to the International Space Station (ISS). The cuts have forced NASA to develop a new strategic plan for getting to Mars that emphasizes a nuclear-powered engine and in-orbit refueling stations to reduce the size of the rockets.

Many members of Congress fear that the cancellation of NASA’s manned missions and a shift to research, Earth observations, and development on heavy lift shuttles and robotics signals the end of U.S. dominance in human spaceflight. They also worry commercial spaceflight is not a safe or capable replacement. The success of the SpaceX rocket may help assuage these fears. SpaceX plans on launching more test rockets in the next year, and hopes to eventually get a contract with NASA to bring cargo to the ISS.

IEA Releases New Study on Global Fossil Fuel Subsidies
The International Energy Agency (IEA) released the report Energy Subsidies: Getting the Prices Right on June 7, 2010. It identifies thirty-seven countries that offer subsidies to reduce the price of fossil fuels to levels lower than what they would be in an unadjusted market, leading to higher consumption of fossil fuels. It reports that governments spent $557 billion on fossil fuel subsidies in 2008, but since then some countries have made reforms to reduce subsidies.

The Group of 20 (G-20) nations decided to phase out oil and gas subsidies last year. The report states that this would decrease greenhouse-gas emissions along with energy consumption. The IEA’s study acknowledges the political obstacles of eliminating fossil fuel subsidies, citing governments’ dedication to providing citizens with low-cost energy.

Marcellus Well Explodes, Renews Push for Fracing Regulations
On June 3, 2010, operators lost control of a natural gas well in Pennsylvania. The well, operated by EOG Resources, Inc., was tapping the Marcellus Shale, a rock formation believed to contain a large supply of natural gas. The ensuing blowout caused 35,000 gallons of drilling fluid to be released. On June 7, 2010 the Pennsylvania Department of Environmental Protection ordered EOG to halt all drilling until the incident could be investigated.

The explosion increased the pressure for legislation regulating hydraulic fracturing, or “fracing.” Fracing is a process used in oil and gas production to release hydrocarbons in compact rocks by pumping water, chemicals, and sand to crack the rocks open. The process has gained attention due to concerns that the hydraulic fracturing drilling fluids may be contaminating groundwater. Currently, regulations on hydraulic fracturing are managed by individual states, but there is demand for the federal government to step in. The proposed Fracturing Responsibility and Awareness Act of 2009 (H.R.2766), introduced by Representative Diana DeGette (D-CO), would require drilling operators to disclose the chemicals used in fracturing fluids. It is currently stalled in committee while the Environmental Protection Agency (EPA) conducts a study on fracturing fluids’ impact on water supplies. A similar senate bill (S.1215) introduced by Senator Bob Casey (D-PA) and Senator Chuck Schumer (D-NY) is waiting in committee.

Superfund: EPA’s Costs to Remediate Existing and Future Sites Will Likely Exceed Current Funding Levels
Released June 22, 2010. This testimony summarizes the findings of the GAO’s report on funding issues related to the Environmental Protection Agency’s (EPA) Superfund program. To protect human health and the environment from the effects of hazardous substances, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980, which established the Superfund program. As of the end of fiscal year 2009, 1,269 of the most seriously contaminated sites were included on EPA’s National Priorities List (NPL). The majority of the sites with unknown human exposure for which that have all of the work remains to complete construction are in the remedial investigation phase, which is when EPA usually determines a site’s human exposure status.

For more information go to: http://www.gao.gov/products/ GAO-10-857T
September Crossword of Minerals

ACROSS
1 Mercury sulfide
9 Monoclinic copper carbonate
10 Iron sulfide
11 An extremely soft mineral
13 Lead sulfide
19 Manganese carbonate
21 Monoclinic copper mineral
22 Lead carbonate
23 Hydrate calcium phosphate
25 Magnesium aluminum oxide
27 Variety of siderite containing manganese
28 Variety of asbestos
29 Common clay mineral of the kaolin group
31 Rare-earth phosphate
32 Uranium oxide
36 Magnesium hexagonal mineral

37 Common mineral in clinopyroxene group - basaltine
38 Zinc sulfide
43 Ore mineral for uranium and vanadium
44 Sodium feldspar
45 Calcium-magnesium carbonate
46 Magnesium orthopyroxene
47 Calcium phosphate
48 Antimony sulfide
49 High-temperature polymorph of quartz
50 Unstable form of calcium carbonate

DOWN
2 Three-layer mica-like clay minerals
3 Alkali feldspar group
4 Sodium chloride
5 Silica

September Crossword continued on page 70
September Crossword

6 Expanding-lattice clay minerals
7 Iron carbonate
8 Zinc carbonate
12 Monoclinic manganese-iron aluminosilicate
14 Zirconium oxide
15 Hydrous calcium sulfate
16 Hydrous nickel carbonate
17 Sodium aluminum carbonate
18 Common rock forming carbonate mineral
20 Nickel arsenide
24 Gem variety of beryl
26 Sodium borate
30 Barium sulfate
33 Orthorhombic form of calcium carbonate
34 Beryllium-aluminum silicate
35 Manganese borate
36 General term for ferromagnesium micas
39 Zirconium silicate
40 Strongly magnetic iron oxide
41 Chromium ore
42 Iron oxide

June Crossword Puzzle Answers
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.

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)

Applicant's Signature __________________ Date ___________
Endorsement by HGS member (not required if active AAPG member)

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:
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Membership Chairman ______________________________________
HGS Secretary ____________________________________________

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**HGS Bulletin Instructions to Authors**

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

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

Figures, maps, diagrams, etc., should be digital files using Adobe Illustrator, Canvas or CorelDraw. Files should be saved and submitted in .eps (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 .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 zip disk.

**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 to ads@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.

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**FULL COLOR AD**

* add 30% to B&W charge for full (4) color ad

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<td>$135 per 10 Issues – Send two cards (30% for each additional name on same card)</td>
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**Be a web page Sponsor**

Effective June 1, 2009 you can now have your company logo picture posted on the Website. To have an ad posted, you must provide us with the graphic and give us the URL it should link to when clicked.

All ads appear in the “Our Sponsors” box in the upper left of the page. Each ad is displayed for a short time and replaced by the next ad in the list. Each ad will be randomly displayed on each page.

**Logo Strip**

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**Calendar Logo Only 2 Available**

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All Sponsor logo images must be 120 W x 90 H pixels and be no more than 8 bits per pixel with a maximum of 256 colors. The format can be either GIF or JPG, preferably interlaced or progressive. It is important to make the image file size as small as possible so that it will transfer to the users’ browser quickly.

To arrange to become a web page Sponsor, contact the webmaster@hgs.org

Example Sponsor Logo

Size in Pixels: 120wx90h
In 1987 Vicky and John created a database of paleontological information from over 3,000 wells in 22 counties in the south half of the Texas Gulf Coast. They currently have this information in a computer database and license the data to the oil industry. They have recently added Matagorda County and are now working on the north half of the TGC as well as Offshore Texas. www.southtexaspaleo.com .

In addition to their oil business, they own a record company called Pick Records, Inc. which licenses songs by John’s trio called “The Picks” who vocally backed Buddy Holly in 1957 on several of his biggest “Crickets” hits. Later, as Buddy Holly’s primary backup singers John developed and released “Buddy Holly and The Picks” recordings, worldwide.

In 1957, Buddy Holly and The Picks won the “Best Vocal Group Awards” in both the USA and Great Britain as “The Crickets”. In 1969-70, John and his brother Bill had several hits in country music as “The Pickering Brothers”. In 2009, a resolution was read into the Texas State Senate honoring “The Picks” for their musical and artistic contributions to the state of Texas for over 50 years.

Vicky and John are currently working on a book about the music adventures of their lives. Vicky enjoys promotional work for their music business. They travel to record shows and music conventions and were guests at Clear Lake, Iowa in February of 2009 at the 50th anniversary commemoration of the tragic plane crash that killed Buddy Holly, Ritchie Valens, and the Big Bopper.

You are invited to visit their web site: www.pickrecords.com, and also www.myspace.com/thepicksbuddyholly and www.facebook.com under “Vicky John Pickering” and www.rockabillyhall.com/thepicks.html .

Remember that HPAC has several Interest Groups including: Bridge (contacts: Audrey Thompkins, 713-686-0005 or Daisy Wood, 713-977-7319) and/or Book Club (contacts: Martha Lou Broussard, 713-665-4428 or Phyllis Carter, 281-397-9888).

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, enjoy delicious lunches and welcoming fellowship.

For your convenience, an HPAC membership form is included on page 74. If you have any questions, please contact Winona LaBrant Smith at 713-952-2007.
You are invited to become a member of

HPAC

2010–2011 dues are $20.00 Mail dues payment along with the completed yearbook information to Carol Gafford, 13323 Misty Hills Drive, Cypress, TX 77429

YEARBOOK INFORMATION

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Please choose a committee assignment if you are interested.

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

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E-mail: hunter3d@wt.net
Website: www.hunter3dinc.com

Victor H. Abagie III
CONSULTING GEOLOGY

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

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It’s Time to Renew Your HGS Membership
Your membership expired June 30, 2010
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