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Technical Meetings

15 HGS Joint General and North American Dinner Meeting
Crustal Extension and Salt: Comparing the South Atlantic and the Gulf of Mexico

19 HGS Environmental and Engineering Dinner Meeting
Seismoelectric Ground-Flow DC-4500 Locators

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29 HGS Northsiders Luncheon Meeting
Correlation of High Hydrogen Sulfide Concentration to Deep Features in Eagle Ford Shale Wells, McMullen County, Texas

Other Features

39 A Day at the Museum
Jennifer Burton

43 A Look Back in Time
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47 The Results of the Houston Geological Society General Lunch Meeting Survey
John Jordan

49 Government Update
Henry M. Wise and Arlin Howles

About the Cover: The Hermitage Cave of Olleros de Pisuerga is located in northern Spain in the province of Palencia, near Aguilar de Campoo. Although the church points to a Romanesque work of the XI century, its construction began in the VI or VII centuries, and it was excavated and enlarged over the succeeding centuries. The area belongs to the Basque-Cantabrian Basin, which is formed by a thick succession of Mesozoic sediments deposited in the late Jurassic-early Cretaceous rift stage. The basin has been subsequently inverted during the Tertiary Alpine compression. The chapel is carved into fluvial (braided bars and channels) sandstones of the Utrillas Formation of late Albian-early Cenomanian age. In the front of the chapel, exemplary planar cross-striations and accretion surfaces are shown, which can be observed in 3D. Photo by Pedro Camara.
First Announcement & Call For Papers

This annual conference, alternating between London and Houston has established itself as the primary technical E & P conference on Africa, with attendances in recent years reaching over 600, including operators, consultants, governments and academia. There will be a large poster programme in addition to the oral programme of about 25 high quality talks covering E & P in all regions of Africa.

Abstracts (up to 2 pages and can include diagrams) should be sent as soon as possible and no later than 15 March 2015 to Duncan Macgregor at duncan.macgregor2@ntlworld.com or to a designated Session Chair to be announced in the next circular. Extended abstracts are normally written once your paper is accepted and are issued on a conference CD. Details of sponsorship opportunities and display booths are available from the PESGB office ‘Africa Conference 15’ at bethany@pesgb.org.uk.

The main conference committee for the 2015 London event will include Ray Bate (Chairman), Duncan Macgregor, Richard Dixon, Kevin Dale, Sean Akinwale, Martin Cassidy, Jim Tucker and Ian Poyntz.

Currently, volunteers are being sought from a range of backgrounds and levels of experience to join a Technical Sub-Committee and be proactive Session Chairs. Please contact a member of the main committee or the PESGB Office.

“Always Something New Coming Out of Africa”

Aristotle, ‘History of Animals’, 300BC
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We are in the middle of October. UT has snatched defeat from the jaws of victory in Dallas; Baylor won the basketball game against TCU with 24 unanswered points in the last 11 minutes; Ole Miss and Mississippi State are angling for a showdown at the end of the season. It has been a strange fall sports season as even my alma mater (Albion College, Michigan) played basketball, winning 77-22 this past weekend (October 11)! But October means that it is time for the December Bulletin and allows me some more time to ponder.

There is much to write about as the season for giving approaches. There was the GCAGS Convention the first week in October; the Earth Science Week and Whiskey Bridge Field Trip after that; and by the time this is published there will have been the Fall Education Conferences and the Sally Ride Festival. I hope that you were able to attend and enjoy some of these events.

Christmas is a time for giving. HGS is fortunate to be able to give. The society gives to its foundations; the Gulf Coast IBA (Imperial Barrel Award) event; Outstanding Students; HMNS Summer Interns; and a recognized K-12 earth science teacher. We have agreed to commit $50,000 over five years to help establish a foundation to guarantee the financial future of the Houston Earth Science Fair. We are fortunate to be able to do these things because a dedicated group of long-serving volunteers have made such events as the African Conference, Mudrocks Symposium, Legends Night, and AAPG Annual Conventions financially very profitable and rewarding for HGS. It’s time to give those volunteers a rest and to give the next generation of leaders a chance to develop. I urge the young professionals and NeoGeos to discuss these career development opportunities with your managers and work with them to allow you to participate in a bigger way inside HGS. It’s never too late (or too early) to give now so that you can receive later.

AAPG/SEG held their Student Expo in Houston at the same time as the Africa Conference in September. I haven’t seen a report on its success. However, it has been growing each year and has attracted students from as far away as Hawaii in the past!

I mentioned the GCAGS Convention in early October. This meeting took place in Lafayette and was well attended. There were several interesting sessions and John Jordan has returned with several possible talks for future HGS events. The Ethics session was well attended and several HGS speakers (Matt Cowan, Glenn Lowenstein, and Rusty Riese) made presentations. There was a highly condensed (maximum flooding surface??) presentation on fracking from AAPG Distinguished Lecturer Don Clarke that should attract a large crowd if we could have it in Houston.

As HGS President, I represent the society at the GCAGS Board meetings held twice each year. In addition to conducting Board business, the presidents from the 13 Affiliated Societies present reports about their recent activities. HGS is fortunate to have a longer “corporate” memory with GCAGS than many of the smaller societies. I am always surprised when I attend one of the GCAGS Board meetings and an Affiliated Society president states that he “didn’t know that” or “no one told me”. In many respects GCAGS is a multi-society version of HGS. If you don’t actively participate you don’t know what is going on. And GCAGS is undergoing some changes just like HGS has experienced this year. For the next portion of this month’s column I’d like to review some significant information that came out of this year’s annual GCAGS Board meeting.

- AAPG has 15 Affiliated Societies in the Gulf Coast. AAPG includes the Everglades Geological Society (which failed to complete the requirements for GCAGS affiliation by never attending a Board meeting) and the Florida Association of Professional Geologists (which to my knowledge has never sought affiliation with GCAGS). GCAGS recognizes 13 Affiliated Societies.
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Now Explore
Making the Sausage

A few months ago, during a discussion of various things with Lisa Krueger, our Design Editor, the conversation turned to the printing of the Bulletin. She suggested that I visit the printers and take a look at exactly how the Bulletin is prepared. As I am always interested to learn something about which I know virtually nothing, I jumped at the opportunity. This month, I’d like to share a bit about the company and people responsible for taking the digits that we provide and transforming them into the Bulletin that we look forward to receiving early each month.

Prime Source Office Solutions, located just east of I-45, north of the intersection of I-45 and I-10, was formed in 1987. It occupies a relatively modest building and provides a variety of printing and office-related services. Prime Source has been printing the HGS Bulletin since 2002. During my tour of the shop, I had the opportunity to meet three very special people and witness the printing press in operation while it was printing the coming month’s Bulletin.

Kendra Williams, the President of Prime Source, joined the company about 25 years ago and has seen it grow by acquisition, merging in over 30 businesses over the years. Her original career was as a teacher, using her degrees in Math and English from Texas A&M. According to Kendra, she quickly realized that teaching wasn’t for her and she switched careers, working for 15 years as a Pension Actuary with clients and building retirement plans prior to joining Prime Source. She takes a great deal of pride in owning and running a company that is “large enough to tackle almost anything and small enough to still give personal service in a highly competitive environment.”

Bill Aveck, the Print Shop Manager, attended high school at Houston Technical Institute to learn a trade. Not knowing what course to take, he “just closed my eyes and put my finger on PRINTING.” He graduated in 1979, top in

The printing press used by Prime Source is a Heidelberg MOV, made in Germany. The maximum print sheet is 19 x 26 inches. The press can print 11,000 sheets of this size per hour or 44,000 8.5 x 11 pages per hour.
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which are located in Florida (1), Alabama (1), Mississippi (1), Louisiana (4), Texas (5), and Mexico (1). The Mexican Society, AMGP, comprises 8 local societies of its own.

• Any member of an affiliated society is a member of GCAGS. AAPG members can claim membership in a section other than where they receive their mail. GCAGS elections are carried out by AAPG. Therefore if you are a GCAGS member, but not an AAPG member, you may miss out on voting and announcements. The differences in membership reported by AAPG for the Affiliated Societies and what the Affiliated Societies claim can vary by a few hundred people and they are definitely not one for one. I don’t know if the Everglades and FAPG vote for Advisory Council representatives, but perhaps they do.

• As we have learned since 2005, GCAGS has had some "minor" difficulties with its convention schedule. These conventions are the primary source of income for the Section. Profits from the convention are split 35% for the host society and 65% for the Section. The host society does not bear any loss if such should occur. HGS has been the beneficiary of many successful conferences and conventions. Unfortunately because of the recent convention attendance and cancellation issues that have occurred along with the “wonderful” certificate of deposit rates, GCAGS has had to make some difficult financial decisions. They are cutting back on the faculty and student grant programs. There may be some difficult decisions to make about grants next April. They have done away with several travel grant or support programs that Affiliated Societies and grant winners were not using. They have had to reduce the support that they provided to the IBA contest. They are still supporting the Owen R. Hopkins Outstanding Earth Science Teacher Award. The winner of this award is typically the GCAGS candidate for the AAPG Teacher of the Year Award.

• Three years ago GCAGS began producing a peer-reviewed publication (the GCAGS Journal) with papers solicited from those submitted in the “Call for Papers” for the convention. Barry Katz will be the editor for the Journal for 2014-17. GCAGS is considering separating the Journal from the convention to increase the number of papers that might be submitted and allowing more time for the review process. I will see if Barry will write something for the HGS membership after he completes his Nominations Committee duties.

• Steve Hill, the long-time GCAGS Treasurer, has announced that he is stepping down after the 2015 convention in Houston. Steve has served as GCAGS Treasurer for more than 10 years. The primary bank accounts have been handled out of Houston and the associated Finance Committee members are here in Houston. Although the treasurer does not have to come from Houston that seems to be how it has worked. (SWAAPG’s treasurer always seems to be from Midland for similar reasons.) This is a tremendous opportunity for an HGS member to step forward and make an impression on the Gulf Coast Section.

• Kate Kipper will be stepping down by year’s end as Executive Director for GCAGS. Kate has served GCAGS for 10 years. Dallas Dunlap, Chairman of the Continuity Committee, has begun a search. Currently the Director resides in Austin because of the available facility space in the BEG. However, as with Steve, this is not necessarily carved in stone. Unlike Steve’s office, this is a salaried position.

• Affiliated Societies present their reports during the lunch period at the Board meetings. I always find it intriguing to learn what the societies do for scholarship and community outreach. Back in 2009 when I was conducting surveys for the GCAGS Continuity Committee I was struck by the amount of money given for scholarships, teacher support, and faculty and student grants. As a group, more than $134,000 is annually provided to students by the GCAGS and its Affiliated Societies. Houston has outstanding programs for community outreach, but we are lagging behind several of the
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**AVATAR®**

**Seismic Data Conditioning**

**Challenge**

Most seismic data are processed to optimize image quality for structural interpretation, with little regard to preserving characteristics for successful pre-stack and post-stack interpretation, whether qualitative or quantitative. The result:

- Poorly imaged faults
- Unreliable horizon picking
- Erroneous AVO and impedance attributes
- Poor well ties

**Solution**

AVATAR: a sophisticated toolkit of pre and post stack data conditioning steps designed to improve the robustness and reliability of automatic interpretation algorithms, seismic attribute analysis, AVO, pre-stack or post-stack inversion and seismic facies classification.

**AVATAR advantages**

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- Improved horizon auto-tracking
- Robust AVO and impedance results
- Superior stratigraphic models
- Optimum well tie
- Improved property prediction

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other societies in our furthering of the Maps and Bones in the Schools programs. If you’ve got a penchant for organization and education, these HGS programs could sure use your leadership and participation.

I sometimes wonder if writing about something causes change. In my October “Look Back in Time” I recounted our office locations and staff history. It was quite a surprise to receive letters of resignation from our Office Director Sandra Babcock and Web Master Troy Fernow after that issue went to press. As President of the Houston Geological Society I want to wish them both success in their future endeavors. Their efforts in support of HGS operations are greatly appreciated.

The Board welcomes Andrea Peoples as our New Office Director. Andrea started on October 20. HGS has also hired Brittany Davis-Morris as our Web Manager effective November 10. She will be handling web questions, password resets, helping with reservations, and examining ways for us to make better use of Dianna Phu’s social media information. Please welcome Andi and Brittany to HGS. Stop by the HGS office to introduce yourself and say hello. HGS is now up to 15 employees in its history. To my knowledge we don’t have any plans to move offices even though I wrote about those locations in October also.

The General Lunch meeting is coming back for the spring. All the meetings will be at the Petroleum Club.

I hope that you had a chance to participate in the NeoGeo Etiquette Dinner in October. It offered HGS members a final look at the Houston skyline from the club before it moves to its new location. Speaking of skylines, you have to get an HGS mouse pad! It displays the Houston skyline across the top with space for notes at the bottom. When the notes are full, tear off the page and use a “fresh” mouse-notes pad! I picked mine up at the HGS booth in Lafayette.

Don’t forget Legends Night next month! Not only will we be honoring HGS scholarship winners; we will also have a chance to mingle with participants from past IBA events. This is the perfect opportunity to “corner” your favorite young professional and share a dinner with them.

Remember, giving now enables you to receive more later in return. Participation in HGS is an investment in your professional development and ensures the future of our Society.

### From the Editor

his printing class, and then worked for mostly small printing companies until 1990 when he and his wife and opened their own printing company, BB&R Printing. After about 3 years of hard work and long hours, they merged with Prime Source, and after 21 years, he reports that he is “still printing and having fun.”

Tim Wright, the Large Press Operator (prints the Bulletin) started out in the family printing business with his father. According to Tim “I have enjoyed a 48-year career in the printing industry. In 2006, we sold our company to Prime Source and I have been employed by them ever since.

It’s nice to still feel like I’m working for a family business. From pre-press, press room and bindery, I have learned many aspects of the printing process, but find that I still learn something new almost every week.” Of geological interest, Tim uses a hand lens to check the alignment on the prints.

In his October column Ken mentioned that one of the characteristics of geologists was passion for their science. I think that we also appreciate passion in any profession. The passion of the team at Prime Source is impressive. The commitment and passion for their profession that I witnessed when they were answering my questions and showing me around their shop left me with a very strong positive impression. I’d like to thank all of them for this. It is a real pleasure to meet people doing what they love, doing it well, and having fun in the process.

Of course, after printing, the Bulletin still has to be bound and shipped. I hope to be able to see these operations in the future and am looking forward to sharing the experience.

Until next month…Take care.
HOUSTON GEOLOGICAL SOCIETY presents

Legends Night 2015
Honoring the Legends That Mold the Geoscientists of Tomorrow

SAVE THE DATE
Monday, January 19, 2015
5:30pm – 9:00pm
Cash bar starts at 5:30pm

Hilton Westchase
9999 Westheimer Rd
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HGS invites you to join us for the next of these memorable dinner events honoring two university professors and Geology Department faculty advisors who have dedicated their time and energy to produce winning teams of the AAPG Imperial Barrel Award.

Brian Lock University of Louisiana at Lafayette

Brian Lock has served on the faculty of the School of Geosciences at the University of Louisiana at Lafayette (UL LFT) since 1977. He has been UL LFT’s Imperial Barrel Award (IBA) Team Advisor since its inception in 2008. Over the following years, the UL LFT team has won the Gulf Coast Section competition in 2008, 2010, 2012 and 2014, and the global IBA competition in 2012 and 2014. Before joining UL LFT, Dr. Lock was a faculty member at Rhodes University in South Africa, and worked as a field geologist with a consulting group for Norsk Fina in Svalbard. He received his Ph.D. at Cambridge University in 1969.

Chris Zahm University of Texas

Chris Zahm is a Research Scientist at the Bureau of Economic Geology (BEG) and Adjunct Professor in the Department of Geological Sciences at the Jackson School of Geosciences at the University of Texas at Austin. Chris has taught Petroleum Basin Evaluation for six years and has been the UT’s Imperial Barrel Award (IBA) Team Advisor since 2009. Prior to joining the BEG in 2007, Chris worked 5 years at ConocoPhillips in Houston. Dr. Zahm received his BS in Geology from the University of Wisconsin-Madison in 1993, MS from The University of Texas at Austin in 1998 and PhD from the Colorado School of Mines in 2002.

This HGS special event has limited seating. Please make your reservations online at www.hgs.org. Tickets are $50 per person.

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Legends Night 2015  AAPG Imperial Barrel Award

Honoring the Legends That Mold the Geoscientists of Tomorrow

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1. An inner domain of only slightly thinned continental crust, relatively steep pre-salt faults, and thin to absent salt above a prominent unconformity;
2. A central domain of highly to hyperextended continental crust, lower-angle pre-salt faults, and a mainly unfaulted 'sag' sequence beneath thicker salt;
3. An outer domain of complex structure, including some combination of upper and lower continental crust blocks, exhumed continental mantle, and possible areas of oceanic

---

**Figure 1. Regional seismic profiles showing domains defined by the interaction between crustal architecture and salt: (A) South Atlantic (from Lentini et al., 2010); (B) northern Gulf of Mexico (data courtesy of Dynamic Data Services).**
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crust, having the thickest salt with significant offset of the base salt;
4. An oceanic domain with normal oceanic crust and, at most, only allochthonous salt.

The geometries are often asymmetric between conjugate margins and there may, of course be complications such as abandoned rifts where the locus of extension jumped outboard. Along strike in both the South Atlantic and the GoM the salt thins and onlaps onto SDRs (Seaward Dipping Reflectors) probably representing subaerial volcanic highlands. The observations are compatible with published models of syn-exhumation salt on magma-poor, hyperextended margins, and have important implications for both pre-salt hydrocarbon plays and variable heat-flow histories that have impacted the timing of hydrocarbon maturation and migration.

Biographical Sketch

Mark Rowan received degrees from CalTech, Berkeley, and the University of Colorado, Boulder. After stints as an exploration geologist for Sohio Petroleum, a consultant for Geologic Systems and Alastair Beach Associates and a research professor at the University of Colorado; he has been an independent consultant, teacher, and researcher for the petroleum industry since 1998. Mark’s primary interests are salt tectonics, salt-sediment interaction, passive margins, fold-and-thrust belts, and petroleum exploration/production in salt basins. He has published over 80 papers and 160 abstracts and has been an AAPG Distinguished Lecturer and AAPG International Distinguished Instructor.
Brazil: Sergipe Alagoas

New 2D Multi-Client Seismic Data Available

Spectrum has commenced a 16,000 km Multi-Client 2D seismic survey offshore Brazil in the Sergipe and Alagoas Basins along the Eastern Margin of Brazil. The new acquisition program will tie key wells in the Basins including the recent Barra, Muriu, and Farfan discoveries. PreSTM data will be available in Q4 2014.

To supplement the new acquisition in this active exploration area, Spectrum has completed the reprocessing of 8,130 km of data through both PreSTM and PreSDM and is offering this data to industry in order to gain a head start on the expected upcoming round in 2015.
This talk describes a seismic wave-generated electrokinetic potential method and geophysical technology for directly locating a groundwater aquifer to deduce the associated petroleum hydrocarbon reservoir fluids with high accuracy, low cost, site access, portability, and simple operational procedures in the field.

The DC-4500 Seismoelectric Ground-Flow Locator receives both a seismic signal and a seismoelectric signal generated by the same seismic source. The seismoelectric survey depth of investigation depends on the power of seismic source. We have obtained reservoir seismoelectric data up to 7000 feet deep in Louisiana with a Buffalo gun seismic source.

Over the past 3 years, more than 300 commercial ground-flow projects have been performed using the DC-4500 system around the world. The success rate of groundwater location is 90%.

After data processing and interpretation, 2D and 3D models of seismoelectric ground-flow have been constructed for the accurate mapping of ground-flow distribution.

Biographical Sketch

Dong Chi, President of Seismo Electronics LLC, received his B.S. degree in geophysics from the East China Petroleum Institute, his M.S. degree in geophysics from the Colorado School of Mines and is a Ph. D. candidate at the Colorado School of Mines. Prior to forming Seismo Electronics LLC in 2011, Mr. Dong worked as a consulting geophysicist for several companies, both domestically and internationally, during his 40-plus year career.
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The Rio Muni and North Gabon basins are locations of oblique sea floor spreading, resulting in reactivation of fracture zones to produce significant transfer fault zones in oceanic and transitional continental crust. Thick rift (“pre-salt”) sections of up to 12,000 m gross thickness have been locally inverted, resulting in faults penetrating from the Lower Cretaceous to as shallow as the Oligocene. Locations of rift inversions along these transfer faults often coincide with Upper Cretaceous or older folding and faulting resulting in potential traps. Isostatically corrected gravity data, as well as magnetic data, demonstrate the locations of these transfer fault zones. Seismic data in time and depth have evidence of these transfer faults. Demonstrated source rocks in multiple levels of the rift section have probable migration pathways. Timing of faulting in these rift inversions and transfer zones has a wide range of ages, with possible multiple phases of movement. Some of the fault zones appear to have some strike-slip movement, consistent with transpressional structures with right-lateral movement in the shallow shelf and onshore Equatorial Guinea. Understanding of the influence of
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transfer fault zones and the rift inversions associated with them is critical to evaluating petroleum systems and traps in both the Lower Cretaceous rift section and Upper Cretaceous to Paleogene sediments.

The role of transfer faults and the resulting formation of huge anticlinal traps, as well as hydrocarbon migration, is very well documented in onshore Reconcavo Basin, Brazil (Figure 1). The Mata-Catu Transfer Faults produced the anticlinal traps at the giant Agua Grande and Buracica oil fields (Figures 2-3). In the Kwanza Basin, Angola, many transfer faults have been mapped on the sea floor, in the subsurface and in surface mapping. The surface expression of these is well exposed in the Cabo Ledo Fault (Figures 4-5) and numerous transfers are present offshore. It is intriguing to speculate whether these transfer faults are foci for hydrocarbon migration in the Kwanza Basin for the discoveries by Cobalt, ENI and others.
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Figure 3. Reconcavo Basin: Matu-Catu Transfer Fault

Figure 4. Panoramic view of Cabo Ledo beach and example of WSW-ENE strike-slip fault and associated flower structure, related to a deep transfer fault, but still active.
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Biographical Sketches

Scott Thornton is currently Senior Geologist, Equatorial Guinea Assets, for PanAtlantic Exploration Company in Houston. He has over 30 years in international oil and gas exploration, with 2/3 of his experience at Unocal and Shell. For over 16 years of his career Scott has focused on offshore Brazil and West Africa new ventures, regional studies and asset evaluations. He received his B.A. from the University of Wisconsin, Madison, M.S. from Duke University and his Ph.D. from the University of Southern California. Scott has published or presented papers covering coastal sedimentation, shallow marine carbonates, turbidites, basin studies, lacustrine source rocks, Brazil deepwater fold belts, transform margins and pre-salt South Atlantic reservoir plays. He has been active in the PESA, SEPM, HGS and IAS. In the HGS, he has served twice as Chair, International Explorationists Group, and received the President’s Award in 2001. While living in Australia he taught short courses on Petroleum Systems Analysis and Lacustrine Petroleum Systems Analysis for PESA. He was an Honorary Associate with the University of Sydney from 2009-2011.

Hector del Castillo is Senior Geophysicist, Equatorial Guinea Assets for PanAtlantic. Hector is an expert at Paradigm 3D and Skua modeling, which he uses in regional and prospect-specific applications. He received his B.S. from the Universidad Central de Venezuela as a Geologist Engineer, Structural Geology and Tectonics. Most of his early career was at PDVSA, where he was involved in structural interpretation of the El Furrial Trend, geochemistry and field geology. At Paradigm he has worked in projects with many companies, prior to PanAtlantic, as an interpreter and Skua modeling expert. Hector has also consulted to Pemex full time in southern Mexico onshore and offshore as an interpreter.

Gerald Kidd is Visualization Geophysicist, and works on all of PanAtlantic’s assets and regional projects. He received his B.S. and M.S. from Wright State University, and his early career was at Exxon, where he became fascinated with 3D seismic visualization and interpretation. After a career at Paradigm Geophysical starting in 1998 as an expert and global teacher for Voxel Geo, Gerald has worked for Vanco Energy and PanAtlantic on a wide array of assets using VoxelGeo, 3D Canvas, Stratamagic and Spectral Decomposition tools, as well as much basic geology.
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Early development of the Eagle Ford Shale (EFS) indicated the petroleum in the reservoir was relatively sweet, typically being produced with hydrogen sulfide (H\textsubscript{2}S) gas in low concentrations. However in McMullen Co. TX, wells with high concentrations (>1%) are found. Mapping raw untreated H\textsubscript{2}S gas shows a direct correlation to salt domes and subsequent deep faulting. The enigma has been the occurrence of high H\textsubscript{2}S wells offset by low H\textsubscript{2}S wells, not associated with salt domes or faulting. However, micro-seismic and in some cases re-processed seismic data revealed that deep faults do intersect these high H\textsubscript{2}S wellbores. The additional data correlates deep faulting into the Edwards to high H\textsubscript{2}S EFS wells. Deep faulting likely creates a conduit for H\textsubscript{2}S to enter the EFS.

Building on that correlation, deep features were used to predict high H\textsubscript{2}S wells and high H\textsubscript{2}S was used to predict and locate deep features not previously identified. Mapping of these deep features allows for the prediction of areas with high H\textsubscript{2}S and has led to a change in drilling and completion strategies by avoiding features associated with high H\textsubscript{2}S.

Initially, long range plans were made with sweet EFS oil in mind. Encountering wells with large concentrations of H\textsubscript{2}S in an otherwise sweet field has the potential to lead to operating inefficiencies, and higher OPEX and CAPEX as treatment solutions are brought into place after the fact. The best solutions take time to implement, and advance warning of high H\textsubscript{2}S is critical in minimizing the financial impact.

A model was generated, based on the expected H\textsubscript{2}S concentration and production forecast, that is capable of directing long term drilling and completions strategy, as well as to provide expectations for use in the construction of facilities and selection of H\textsubscript{2}S treatment options. Drilling and completion strategies minimized the amount of H\textsubscript{2}S that will be encountered, and the optimization of facilities reduces operating inefficiencies and OPEX and CAPEX outlays.

Biographical Sketch

J. BRANDON ROGERS currently works as a project engineer at Murphy Exploration and Production Company. He holds a degree in Chemical Engineering from Brigham Young University where he studied reservoir engineering. He co-authored Applied Petroleum Reservoir Engineering Third Edition with Dr. Ron Terry from BYU.

Correlation of High Hydrogen Sulfide Concentration to Deep Features in Eagle Ford Shale Wells, McMullen County, Texas

HOUSTON GEOLOGICAL SOCIETY presents

Legends Night 2015

Honoring the Legends That Mold the Geoscientists of Tomorrow
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<td>and North Gabon: Analogs from Kwanza Basin, Angola and Reconcavo Basin, Brazil” Scott</td>
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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.**
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Day 1:

- Integrated Reservoir Characterization Focusing on Macro to Micro to Nano-scale Components
- Natural Fracture Systems & Productivity
- Reservoir Characterization of Lacustrine Mudrock Systems
- Hybrid Unconventional Systems - Tight Targets

Day 2:

- Geologically-driven Completion Techniques in Unconventional Reservoirs
- Mudrock Systems Characterization - Advanced Geophysical Insights
- What's Going on Down There? Clues from Produced Fluids and Proppant
- Bringing It All Together: How Reservoir Characterization Improves Stimulation and Production

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91% Rated the talks as applicable to their every day work

93% Rated the overall quality of the technical presentations as good or exceptional compared to other industry conferences

For more information and to register please visit: www.hgs.org
MONDAY, FEBRUARY 16, 2015

7:00 am  Registration Opens………………………………………Fourth Floor Pine Room
Breaks & Social Hour  Core Displays……………………………………Fourth Floor, Cedar and Cypress Rooms
8:00 am - 5:00 pm  Selected Cores from Emerging and Established Unconventional Reservoirs
11:35 am - 1:00 pm & Poster Sessions……………………………………Fourth Floor, Cypress Room
5:00 pm - 7:00 pm  Social Hour & Poster Sessions from Invited Academic Consortia, ……..Pecan Room

MORNING  DAY 1

INTEGRATIVE RESERVOIR CHARACTERIZATION FOCUSING ON MACRO TO MICRO TO NANO-SCALE
SESSION CHAIRS: FRANK WALLES, BAKER HUGHES & MIKE VAN HORN, INDEPENDENT SESSON 1

8:00 - 8:10  Opening Remarks
8:10 - 8:45  Reservoir characterization of mudrock systems Nano to Macro, with case examples from the Horn River and Western Canadian Basins
  Rene Jonk, Ken Potma, ExxonMobil & Imperial Oil
8:45 - 9:20  Defining the Depositional Sweetspot of a Mudstone Play Fairway: An example from the Utica / Pt. Pleasant
  Jesse Melick, Jesse Koch, BP
9:20 - 9:55  Computed Tomography (CT) Scans: Frameworks for Mudstone Reservoir Characterization
  Joan Spaw, Marathon Petroleum Corporation
9:55 - 10:25  Coffee Break

GEOMECHANICAL CONTROLS & PRODUCIBILITY SESSION 2
SESSION CHAIRS: OBIE DJORDJEVIC, MURPHY OIL & MATT WILLIAMS, SWN

10:25 - 11:00  Control of Mechanical Stratigraphy on Bed-Restricted Jointing and Normal Faulting in the Eagle Ford Formation, South-Central Texas, U.S.A
  David A. Ferrill, Ronald N. McGinnis, Alan P. Morris, Kevin J. Smart et al., Southwest Research Institute
11:00 - 11:35  Limestone Frequency and Well performance, Eagle Ford Shale (Cretaceous). South Texas
  John Breyer, R. H. Wilty et al., Marathon Petroleum Corporation
11:35 - 1:00  Lunch Provided — Third Floor

Poster Sessions—Cypress Room
Invited Presentations from Academic Consortia
View During Lunch - 11:35 am - 1:00 pm & Social Hour 5:00 pm - 7:00 pm
### RESERVOIR CHARACTERIZATION OF LACUSTRINE MUDROCK SYSTEMS

**SESSION CHAIRS:** MICHAEL CAMERON, HESS & CHRISTINA CALVIN, SCHLUMBERGER

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| 1:00 - 1:35 | Basin-Scale Controls on Lacustrine Organic-Rich Mudstone Deposition: Examples from Wyoming & China  
**Alan R. Carroll, Professor, University of Wisconsin** |
| 1:35 - 2:10 | A Depositional model and stratigraphic framework of the Green River Formation, Uinta Basin, Utah  
**Lauren Birgenheier / Cari Johnson, University of Utah** |
| 2:10 - 2:45 | Mineralogical and sedimentological differences between the lacustrine Roseneath Shale in the Cooper Basin, Australia and some marine shales from N-America and implications for well stimulation and completion  
**Raphael Wust, Trican** |
| 2:45 - 3:15 | Coffee Break                                                                               |

### HYBRID UNCONVENTIONAL SYSTEMS - TIGHT TARGETS

**SESSION CHAIRS:** WAYNE CAMP, ANADARKO & SIMON HUGHES, WEATHERFORD

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| 3:15 - 3:50 | From the Arch to the Uplift: Depositional Changes in the Cenomanian-Turonian Interval (Eagle Ford and Woodbine)  
**J.A. Breyer, R.A. Denne and D.A. Bush, Marathon Petroleum Corporation** |
| 3:50 - 4:25 | How mobile is your total oil saturation? SARA analysis implications for bitumen viscosity and UV fluorescence in Niobrara Marls and Bakken Shale, supported by FIB-SEM observations of kerogen, bitumen, and residual oil saturations within Niobrara Marls and Chalks,  
**Mark Sonnenfeld, Whiting Petroleum** |
| 4:25 - 5:00 | Formation Evaluation and Basin Architecture of the Wolfcamp Shale in the Delaware Basin  
**Gilles Hennenfent, Chevron** |

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**Social Hour—Fourth Floor Atrium**

**Monday 5:00 — 7:00 PM**

**With Posters from Invited Academic Consortia—Pecan Room**
TECHNICAL PROGRAM
2015 Applied Geoscience Conference
Westin Memorial City, Houston, Texas

TUESDAY, FEBRUARY 17, 2014

7:00 am  Registration Opens............................................Fourth Floor, Pine Room
Breaks & Social Hour  Core Displays...........................................Fourth Floor, Cedar & Cypress Rooms
8:00 am - 5:00 pm  Technical Talks (Oral) Sessions........................Fourth Floor, Azalea Room
11:35am - 1:00 pm  Poster Sessions..............................................Fourth Floor Pecan Room

Invited Presentations from Academic Consortia

MORNING

MUDROCK SYSTEMS CHARACTERIZATION - ADVANCED GEOPHYSICAL INSIGHTS  SESSION 5
SESSION CHAIRS: PAUL COLLINS & LISA NEELAN, STATOIL

8:00 - 8:10  Opening Remarks
8:10 - 8:45  Microseismic Geomechanics of a Hydraulic Fracture Network
            Shawn Maxwell, IMaGE—Itasca Microseismic and Geomechanics Evaluation
8:45 - 9:20  Geomechanics of hydraulic fracture induced microseismicity
            Dr. Seth Busetti, ConocoPhillips
9:20 - 9:55  The signature of shearing driven by hydraulic opening
            Jim Rutledge, Schlumberger
9:55 - 10:25  Coffee Break

GEOLOGICALLY-DRIVEN COMPLETION TECHNIQUES IN UNCONVENTIONAL RESERVOIRS  SESSION 6
SESSION CHAIRS: GRETCHEN GILLIS, ARAMCO & JOHN BREYER, MARATHON

10:25 - 11:00  Horizontal Well Stress index estimation from Litho Scanner, Sonic Scanner and DRIFTS analysis of cuttings. Mike Herron, Schlumberger
11:00 - 11:35  The Utilization of Reservoir Characterization Data for Optimizing Well Spacing and Completion Techniques in the Eagle Ford Shale Beth McDonald, Neil Basu, Beau Tinnin, Gervasio Barzola, Pioneer Natural Resources
11:35 - 1:00  Lunch Provided — Third Floor

Poster Sessions
Invited Presentations from Academic Consortia
View During Lunch - 11:35 am - 1:00 pm
Cypress Room..............................................Fourth Floor
## AFTERNOON

### WHAT'S GOING ON DOWN THERE? CLUES FROM PRODUCED FLUIDS AND PROPPANT  
**SESSION 7**

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| 1:00 - 1:35   | Controls and Origin of High Salinities in Hydraulic Fracture Flow Back Brines - An example from the Marcellus Gas Shale, USA  
*L. Taras Bryndzia, Shell International Exploration and Production Inc* |
| 1:35 - 2:10   | Proppant Stability in the Downhole Environment  
*Randy LaFollette, Baker Hughes Pressure Pumping* |
| 2:10 - 2:45   | Is that formation water or frac water being produced - what we can learn from ionic and isotopic analyses of produced waters from horizontal wells in the Permian basin?  
*Matthew Laughland, Ph.D., Dave Nelson, and Paul Wilson, Pioneer Natural Resources, USA, Inc.* |
| 2:45 - 3:15   | Coffee Break                                                            |

### BRINGING IT ALL TOGETHER: HOW RESERVOIR CHARACTERIZATION IMPROVES STIMULATION AND PRODUCTION  
**SESSION 8**

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*P.K. Pande, Anadarko Petroleum Corporation* |
| 3:50 - 4:20   | Wolfcamp Completion Optimization  
*Angela Stith, Shell* |
| 4:20 - 4:30   | Closing Comments—Session 8 Chairs                                       |

## 2015 HGS Applied Geoscience Conference Technical Committee

- Casee Lemons—Baker Hughes
- Roberto Suarez Rivera—Van Gonten
- Lisa Neelan—Statoil
- Bruce Martin—BG Group
- Bruce Woodhouse, Conestoga-Rovers
- Joe Macquaker—ExxonMobil
- Crystal Alavarces—Weatherford
- David Tonner—Weatherford
- Edmond Shtepani—Intertek
- Erik Kvale—Devon Energy
- Frank Walles—Baker Hughes
- Greg Getz—Geomark
- Greg Moredock—Core Labs
- Gregory Miller—Schlumberger
- Gretchen Gillis—Aramco
- Harris Cander—BP
- Heather Davey—Wintershall
- Jill Kimble—HGS
- J.H. Macquaker—ExxonMobil
- Andy Benson—Trican
- John Breyer—Marathon
- L. Taras Bryndzia—Shell
- Lisa Neelen—Statoil
- Trevor Brooks—BG Group
- Matt Williams—SWN
- Mike Cameron—Hess
- Mike Erpenbeck—Consultant
- Mike Van Horn—Independent
- Obie Djordjevic—Murphy
- Mike Effler—ExxonMobil (ret.)
- Paul Babcock—Sabine Oil
- Paul Collins—Statoil
- Randy LaFollette—Baker Hughes
- Robert Befus—Petromas
- Roxana Irizarry—BHP
- Sandra Babcock/Andrea Peoples, HGS
- Simon Hughes—Weatherford
- Stacy Hennigh—Devon
- Steve Levine—SK
- Steven Demecs—Oxy
- Steven Macalello—ConocoPhillips
- Christina Calvin—Schlumberger
- Mark Andreason—Sinochem E&P
- Lisa Krueger—Lisa Krueger Design
- Wayne Camp—Anadarko
- Galen Treadgold—Amni Petroleum
- Troy Fearnow—HGS
- Ken Nemeth—Schlumberger
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  - Day One AM - Large Scale Geomechanics
  - Day One PM - Petrophysics
  - Day Two AM - Microseismic
  - Day Two PM - Engineering

- Student posters highlighting industry supported research
- Expert panel comparison discussion after each of the four half day technical sessions

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The Educational Outreach Committee of the Houston Geological Society (HGS), the Independent Petroleum Association of America (IPAA), and the Petroleum Equipment and Services Association (PESA) collaborate to bring geoscience content to the four Petroleum Academies of the Houston Independent School District (HISD). These are selective public school magnet programs aimed at students who have career interests in geoscience or engineering and who are able to handle rigorous academic and professional requirements. In September, a Houston Museum of Natural Sciences (HMNS) day was jointly sponsored for 130 students from Westside High School, Young Women’s College Preparatory Academy and Milby High School. The purpose of the day was to introduce the students to earth science fields in an enriched and exciting setting, which would inspire their curiosity.

The day began with a Geosciences Career panel presentation and question and answer session. Letha Slagle, a geologist (retired, Shell) and member of the HGS Educational Outreach Committee, kicked off the morning with a presentation and a short film on geoscience careers titled “Earth is Calling,” by the Jackson School of Geosciences of the University of Texas. Erik Bartsch, Shell’s Exploration Manager for the Gulf of Mexico, continued with an inspiring talk on his personal journey into a technical career in geology and the need to search for one’s passion in career choices. Jennifer Burton, Chairperson of the HGS Educational Outreach Committee, followed by providing insights into her career experiences and travels.

The students then took docent-led tours of Exhibit Halls, including the Wiess Energy Hall, the Morian Hall of Paleontology and the Cullen Hall of Gems and Minerals. Docents, including several HGS members, provided some truly fascinating insights into geology, engineering and the energy industry. Students were then treated to the 3D movie “Galapagos” on the interactions of geology, the environment, and evolutionary adaptions. One of the student comments was: “I had a great experience at the Museum. Thanks to HGS, I have a better understanding of the different areas we visited… I was very intrigued by the gem exhibit. I saw some of the most beautiful and rare pieces on Earth.”

Special thanks go to Sarah Castro, Associate Director of the IPAA/PESA Energy Education Center, who did a tremendous job of planning and arranging the day, and to IPAA and PESA for co-sponsoring the event with HGS. Mrs. Castro has previously served as Dean of the Westside program as well as a charter school principal. We look forward to continued cooperation with her, which may also be very helpful in delivering the HGS program “Bones in Schools” to HISD.
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- Salt Tectonics and Traps
- Mexico and Caribbean Plays
- Geophysical Technology
- Gulf of Mexico Deepwater
- Environmental Geology
- Coastal Geology
- Geology & Engineering
Overall, this event represents a major step up in the HGS and IPAA/PESA Energy Education Center collaboration to bring geosciences to the schools. Other events have included interview skills training, rock labs, geologic map labs, and even technical support for a Westside High School geologic field trip to the Texas Hill Country. Several students coming out of the Petroleum Academies have already embarked on careers in geology, studying at some of Texas’ top universities. The aspirations of the Petroleum Academy students for great technical careers are a perfect match for the HGS Educational Outreach goals to bring geosciences into the awareness of our scientists of the future!
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Place it in your diary now,

Respectfully Yours,
Peter Woodroof, Chairman

*For talk proposals, please contact peter.woodroof@petrofac.com or chris.howells@tgs.com.
See events and register online at www.seapexconf.org
For this month’s look back in time I decided that I would look at the 1980 directory to see what it holds. I didn’t get a chance to read the Rockhounds of Houston for this article.

The 1980 Membership Directory is our last published photo directory. I am asking the website committee to review our membership rolls and determine how many members have submitted photos. The other thing that I noticed about the 1980 directory, it comes with a plastic cover. This was wonderful as I walked to the restaurant from my car in a downpour while researching this article.

Most noticeable for me were the young (?) faces of former classmates and many early (in my career) HGS leaders. It is really a neat “trip” back in time to see those faces. It makes me want to play “Where are they now?” games. I don’t know that I can find most of them as many had that entrepreneurial spirit and are probably retired and living off of royalties and production. So I thought that I’d look at some other things:

1. Twenty-seven listed advertisers. Do you know how many of them are still in existence today? Do any of them exist in the same name? Can you trace their history as to who they are today?
2. HGS had two Vice Presidents. Does anyone know when that started? When that ended? What was each responsible for on the Board?
3. There were 33 Honorary Life members listed (through 1980). Fifteen of them were deceased. How many of the other 18 are alive today?
4. Dean Grafton provided a little over two pages of history; I’ll mention some of it later.
5. Since I won’t look at where my classmates are, I thought that I’d look at the Directory Committee. It gets difficult to run down some people, especially the female committee members because they could have changed names. And of course time could have taken care of a great many people.

As they say in the Schlumberger melodrama, who were those intrepid people who dared to put the 1980 photo directory together? Where are they now?

- Bruce Archinal, Chairman – Independent Consulting Geoscientist, The Woodlands

A Look Back in Time continued on page 45
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• Bernard Bash – not found in 2014 member rolls; not in 2004 directory, oldest online available.
• Linda Bratlie – not found in 2014 member rolls; not in 2004 directory, oldest online available.
• Susan Congor – not found in 2014 member rolls; not in 2004 directory, oldest online available.
• Frank Holterhoff – not found in 2014 member rolls; not in 2004 directory, oldest online available.
• Charles Lundgren – not found in 2014 member rolls; 2004 worked in Houston, lived in El Paso
• Faroy Simnacher – deceased 1998 according to 2004 online directory
• Allen “Fred” Baker, Advertising – not found in 2014 member rolls; not in 2004 directory, oldest online available.
• John Hefner, Membership – deceased; Honorary Life Member and 2nd Cooley Award recipient
• Charles Overton, Publications – not found in 2014 member rolls; retired living in Houston 2004 online directory.

If anyone can supply some updated information, please let me know.

Some of the answers for those questions.

• #2: HGS elected two Vice Presidents starting in 1950.

The 2004 online directory lists a President-Elect and Vice President. From the record it would appear that the First Vice President was groomed for the Presidency. In fact the 2004 directory would suggest that until 1983 HGS had a progression from Treasurer to Secretary, to 2nd VP to 1st VP to President. A tracking of Bylaws is probably needed to see when the position of President-Elect was created. My guess is 1984. A check of the Bulletins after 1980 will probably clear this up.

• #3: 1 member, Martin M Sheets is listed as an Honorary Life Member on the 1980 rolls. According to my awards list he is still alive. Martin Sheets is still listed as an active member in the July 2014 Directory.

• #4: Dean Grafton writes:
  – HGS was incorporated in 1975 under the state laws of Texas
  – HGS was an active publisher of geological publications
  – HGS provided student loans, scholarship funds and outstanding student awards
  – HGS has been affiliated with AAPG since 1932
  – As of 1980, 17 of the 62 AAPG presidents had been from HGS

![Image of GeoSteering ad](Image)
Cheated, Mistreated, Pushed Around?

Have you been cheated, mistreated or somehow deprived of your share of a deal, working interest or royalty? If so, give me a call. I have twenty-five years experience as a working interest and royalty owner in the oil and gas business to go along with thirty-five years of court room experience. You do not pay anything unless I win.

Robert A. Chaffin
THE CHAFFIN LAW FIRM
4265 San Felipe, Suite 1020
Houston, Texas 77027
(713) 528-1000
robert@chaffinlawfirm.com
The Results of the Houston Geological Society General Lunch Meeting Survey

By John Jordan, Vice President

I published a letter in the September HGS Bulletin explaining why we were not having a General Lunch meeting at the Petroleum Club this year. In the letter I stated that we would run a “Survey Monkey” to establish interest in resuming the General Lunch meeting. We sent the survey to all members of the Houston Geological Society in July and received a 16.4% response (656). This was an excellent response compared to past surveys we have conducted.

Two-thirds of the respondents would like the General Lunch Meeting to resume. 75% of the respondents said they had attended the General Lunch meeting in the past and 80% said that they attended at least one General Lunch meeting in the past year. The most interesting result of the General Lunch survey was that responses were almost equally split on the issue of whether the General Lunch should be held on the west side of Houston vs. downtown, and 26% wanted them to alternate between the west side of and downtown.

Given the results of the General Lunch survey, we are resuming the General Lunch meeting in February at the new Houston Petroleum Club located at 1201 Louisiana Street, which is located on the top floor of the Total Building. We will look into alternate locations and schedules for next year’s General Lunch meeting. The first General Lunch meeting for 2015 will be on February 25; our speaker will be AAPG Distinguished Lecturer Don Clarke. Don will be presenting talk on ethics which will serve as our required continuing education credit on Ethics for maintaining our TBPG Licenses.

Thank you for the opportunity to serve as the Vice President of the Houston Geological Society.
HGS Welcomes New Members

New Members Effective October 2014

ACTIVE MEMBERS
Kyle Barker
Stuart Boyd
Patrick Boyle
Alex Burpee
Daniela Carpio
Kirk Chatawanich
Brian Culp
Meghan Curtis
Mitchell Dan
Sara Ellis
Oyebode Famubode
Eric Faul
Carl Fick
Angela Gerhardt
Carter Graham
Sasha Gumprecht
Paul Heinrich
Sam Henderson
Roger Humphreville
Robert Karlewicz
Doug Kozak
Roger Leavitt
Kathryn Mainwaring
R.P. Major
Gianni Matteucci
Edward Milde
Matteo Molinaro
Amy Morrissey
Lily Pfeifer
Kristina Raley
Kristan Reimann
Frank Rodriguez
Reza Safari
Jose Silvestro
Randolph (Randy) Smith
Raymond Vactor
Siyang Yang

ASSOCIATE MEMBERS
Peter Barrett
Pat Farnell
Alex Holmes
Tyler Kooser
Connor Thompson

EMERITUS MEMBER
James Thigpen

STUDENT MEMBERS
Joshua Bridges
Mark Bulan
Elizabeth Butler
Sarah Dailey
Jose Garcia
Ivette Gonzalez
Melissa Hatch
Chandan Kumar
Mehwish Mahmood
Cameron Nikmard
Gift Ntuli
Franco Perez
Marian Peters
Somaria Sammy
Elizabeth Schlueter
Bernard Smith
Orlando Teran
Jyl Venner
Nastasia Holland
Sebastian Weinand
Jordan Williams
Tengfei Wu
Alma Yesmagambetova

AN AAPG GEOSCIENCES TECHNOLOGY WORKSHOP
Sixth Annual Deepwater and Shelf Reservoirs
27-28 January 2015 – Houston, TX

Determining reservoir connectivity, calculating pore pressure, understanding the structural subtleties, identifying hazards, and developing accurate images (including subsalt), are deeply affected by new multi-disciplinary discoveries in science and technology. New understanding of ways to map shelf deposit and to accurately map zones, correlate, identify remaining or new reserves and to determine connectivity and conductivity will be featured.

The 6th Annual AAPG Deepwater and Shelf Reservoirs Geosciences Technology Workshop will bring together the latest developments in geology, engineering, geophysics and geochemistry in order to determine the best possible ways to understand and develop fields, as well as identify bold new exploration targets.

Focus will be concentrated on the Gulf of Mexico, shelf and deepwater, including Mexico water.

Reserve your space now to learn how and where new knowledge and technology in geology, engineering and geophysics come together to make deepwater and shelf exploration and development more successful.

Visit us for more information:
aapg.to/DeepwaterGTW2015

A JOINT AAPG/EAGE GEOSCIENCES TECHNOLOGY WORKSHOP
Carbonate Plays Around the World – Analogues to Support Exploration and Development
4-5 February 2015 – New Orleans, LA

The goal of the workshop is to improve understanding of carbonate play types around the world, and to optimize efforts by using analogues for poorly understood discoveries, and challenging reservoirs where characterization may be complex. Studies will include microfacies in Brazil, carbonate-dominated unconventionals, and diagenetically altered reservoirs, along with other case studies and research.

By focusing on case studies, we will incorporate the effective technologies that can lead to a better understanding of reservoir behaviors and optimization strategies. We welcome papers that include some of the following topics:

- 3D seismic and sequence stratigraphy
- Imaging / image logs to determine fractures and fracture networks
- Carbonates behaviors in horizontals with induced fracture
- Geochemistry and geochemical processes in generation
- Geomechanical factors and transport mechanisms
- Data mining and analytics
- Petrophysical analyses and modeling
- Depositional environments and connection to reservoir characterization
- Paleontology and biostratigraphic advances

Register now to reserve your seat!
aapg.to/CarbonatePlaysGTW2015
Government Update  
by Henry M. Wise, P.G. and Arlin Howles, P.G.  

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

AGI Geoscience Policy Monthly Review (September 2014)  
House Holds Contentious Hearing on Clean Power Plan  
On September 17, 2014 the House Committee on Science, Space, and Technology held another hearing to discuss the Obama Administration’s Climate Action Plan. Committee members focused their questions on the new Environmental Protection Agency (EPA) Clean Power Plan, which would require power plants to cut carbon dioxide emissions by 30 percent from 2005 levels by 2030. John Holdren, Director of the Office of Science and Technology Policy, and Janet McCabe, Acting Assistant Administrator of the EPA Office of Air and Radiation, acted as witnesses.

The discussion became acrimonious at times. Several members questioned the validity of climate change studies and whether increased carbon dioxide would have a direct effect on human health. Mr. Holdren and Ms. McCabe explained that rising temperatures would have long-term impacts; for example, higher temperatures would increase the risk of heart attack.

Republican committee members expressed further concern that the proposed rule could threaten American jobs and economic growth and lead to higher energy costs for small businesses and low-income or elderly citizens. Chairman Lamar Smith (R-TX) questioned the witnesses on whether regulation would be effective in combatting climate change if nations like China continue polluting at their present rate. Ms. McCabe responded that “it takes many small actions to make an impact.”

Rep. Swalwell (D-CA) pointed to Germany’s success in transitioning to renewable energy, and both witnesses reminded committee members that the economy has tripled since the Clean Air Act was passed in 1970. The witnesses argued that energy costs for consumers are likely to go down due to increasing energy efficiency.

This June, the White House released a report on the status of implementing the Climate Action Plan, which was first introduced on June 25, 2013.


Report Shows BLM Policy is Weak on Illegal Drilling of Federal Lands  
A report released on September 29, 2014 by the Interior Office of Inspector General (OIG) relates the shortcomings of the Bureau of Land Management’s (BLM) policy to detect and deter illegal mineral mining or oil and gas drilling on federal lands.

The inspection was conducted due to the industry’s increasing use of horizontal drilling. Horizontal well bores can extend for miles, allowing unauthorized harvesting of unleased federal minerals or federal minerals leased to another entity. Illegal drilling is also a threat to the environment, since drilling that does not comply with BLM standards increases the risk of hydrocarbons or hydraulic fracturing fluids being released into groundwater, especially in vulnerable areas like wetlands.

According to the report, BLM has no official method for discovering mineral trespassing and unauthorized drilling. As it is, BLM relies on tips from companies or the Interior Office of Natural Resources Revenue. Furthermore, the existing regulations aimed at illegal drilling are ineffective—one includes a fine of a mere $5000, while the other requires unpermitted wells to be shut down completely. Finally, staff shortages and cumbersome procedures prevent the BLM from effectively monitoring and addressing unauthorized drilling.

The report includes recommendations on how to improve the situation, including that the agency review surveys collected by state oil and gas agencies, and report violations to the Office of the Solicitor or the OIG. The BLM has stated its intention to review the recommendations and strengthen its policies.

Governor of Oklahoma Appoints Committee to Study Induced Seismicity  
Oklahoma Governor Mary Fallin has formed a committee to study the recent uptick in earthquakes within her state that researchers have linked to oil and gas development. The Coordinating Council on Seismic Activity includes representatives from the Oklahoma Geological Survey, academia, state regulators, and the oil and gas industry. The council will be led by State Energy and Environment Secretary Michael Teague.

In the past nine months, Oklahoma has experienced abnormally frequent earthquakes with more magnitude 3.0 earthquakes than California and even some magnitude 4.0 earthquakes, which can cause damage to buildings and infrastructure. The U.S. Geological Survey and Oklahoma Geological Survey have
reported that increased oil and gas production, specifically the
disposal of wastewater associated with production, is likely a
contributor to the increased seismic activity.

Critics have expressed concern that Gov. Fallin is not doing
even enough to address the issue. Senator Jerry Ellis (D-OK) called for
the committee to include national experts on induced seismicity,
and argued that there is a lack of urgency in the governor's actions.

More information on induced seismicity can be found in
a recent study by the National Academies at: http://www.
krRTDpXJQ1S0XLpdo-1Ynw.1&record_id=13355&utm_ referrer=https%3A%2F%2Fwww.google.com%2F.

House Passes Tsunami Warning, Education, and Research Act
On September 8, 2014 the House of Representatives passed the
Tsunami Warning, Education, and Research Act (H.R. 5309) by
voice vote. Introduced by Representatives Susan Bonimici (D-OR)
and Dana Rohrabacher (R-CA), H.R. 5309 would reauthorize the
National Tsunami Hazard Mitigation Program and would put extra
emphasis on tsunami detection, forecasts, and warning systems.

The National Tsunami Hazard Mitigation Program, originally
established in 1995, is a coordinated partnership between the
National Oceanic and Atmospheric Administration (NOAA),
the U.S. Geological Survey (USGS), the Federal Emergency
Management Agency (FEMA), and 28 U.S. Coastal States,
Territories, and Commonwealths. The program helps to assess
tsunami threats, prepare community responses, issue timely
and effective warnings, and mitigate damage. The bill will now
be sent to the Senate for consideration. Sources: House Science,
Space, and Technology Committee,

NOAA Launches New Modeling Tool to Track Severe Weather
The National Oceanic and Atmospheric Administration (NOAA)
launched a new modeling tool for meteorologists to study
severe weather and track how it develops at the local level. The
model, known as High-Resolution Rapid Refresh (HRRR), was
developed over five years by researchers in NOAA's Earth System
Research Laboratory.

The model can track individual storms in detail and predict
the movement of weather patterns up to 15 hours in advance.
Increased spatial resolution and faster data processing allow the
model to pinpoint specific neighborhoods that will experience
hail, high winds, heavy rain or snow, or flash flooding.

Data from the new model will be valuable to other government
agencies, including the Federal Aviation Administration, which
can adapt flight paths around storms, and the Department of
Energy, where the new information will be valuable for weather-
dependent alternative energy sources like wind and solar. The
public can track developing storm systems on NOAA's National
Weather Service website (http://www.weather.gov/).

House Passes Bill Blocking Proposed Changes to Clean Water Act
On September 9, 2014 a majority of House Republicans united
with 35 Democrats to successfully pass H.R. 5078, a bill blocking
the Environmental Protection Agency's (EPA) proposed changes
to the Clean Water Act (CWA).

The EPA, together with the U.S. Army Corps of Engineers,
introduced the rule to clarify what types of water are protected
under the current definition of "waters of the U.S." in the CWA.
Despite EPA statements that the proposed change does not
include any waters not already protected under the CWA, critics
have accused the agency of regulatory overreach. Representative
Steve Southerland (R-FL) introduced H.R. 5078, which prohibits
the U.S. Army Corps of Engineers and the EPA from moving
forward with the rule and from using the existing rule as the
basis for any future rulemaking regarding the CWA.

Despite strong opposition from the White House and arguments
from Democrats on the House floor, H.R. 5078 passed 262-152 with
just one Republican, Rep. Chris Smith (R-NJ), voting in opposition.

Loyd Tuttle
loydtuttle@comcast.net

Bob Liska
liska.bob@gmail.com

Jim Thorpe
thorpejim@comcast.net

Paleo Control, Inc.
Houston, Tx 713-849-0044
www.paleocontrol.com

Paleo Consultants
Drilling Wells - Advisors - Coordinators - Evaluators - Paleo Studies - Data Bases
Lower Miocene - Frio - Vicksburg - Yegua - Cook Mountain - Weches through Wilcox
The bill will now move on to the Senate for consideration.

House Natural Resources Committee Approves Bills Supporting Surface Water Storage Projects
On September 18, 2014, Democrats and Republicans on the House Natural Resources Committee approved three bills that help to create and expand surface storage water projects. The bills, which include the Water Supply Permitting Coordination Act (H.R. 3980), the Accelerated Revenue, Repayment, and Surface Water Storage Enhancement Act (H.R. 3981), and the Bureau of Reclamation Surface Water Storage Streamlining Act (H.R. 5412), aim to update and improve the permitting and funding processes for federal and non-federal surface water storage projects.

Surface water storage projects such as dams and reservoirs enable communities to store and control the flow of water. These projects help to provide resources for energy generation, farming, recreation, fisheries, and navigation. The current permitting process for surface water storage projects is “convoluted…[and] a host of federal agencies require a dizzying array of permits, decisions, and approvals,” according to Subcommittee on Water and Power Chairman Tom McClintock (R-CA). The bills streamline this process by coordinating schedules and sharing information between federal agencies and accelerating studies.

The bills will move on for consideration by the full House of Representatives.

President Obama Establishes World’s Largest Marine Reserve
On September 25, 2014 President Obama announced the addition of more than 490,000 square miles of federally protected waters around the Pacific Remote Islands Marine National Monument in the southern Pacific Ocean south and west of Hawaii, making it the largest marine reserve in the world. The Pacific Remote Islands Marine National Monument was established by President George W. Bush in 2009. The new additions will increase the monument to roughly six times its current size.

The region is home to coral reefs and is a valuable stopping place for migratory seabirds. The creation of the reserve will protect these ecosystems from resource extraction activities like commercial fishing and deep-sea mining. Because of this, some conservative lawmakers have criticized the move as an abuse of executive power and an unnecessary burden on economic activity.

The President’s designation is part of an ongoing effort to promote marine conservation in U.S. and international waters, and has strong support from Secretary of State John Kerry and White House adviser John Podesta.
HGS Bulletin Instructions to Authors

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

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

Figures, maps, diagrams, etc., should be digital files using Adobe Illustrator or Adobe Photoshop. Files should be saved and submitted in .ai, .eps, .tif or .jpg format. Send them as separate attachments via email or CD if they are larger than 5 MEGs 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. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

Photographs may be digital or hard copy. Hard copies must be printed on glossy paper with the author’s name, photo or figure number and caption on the back. Digital files must be submitted in .tif, .jpg or .eps format with 300-DPI or greater resolution at the printing size and be accompanied by figure captions that are linked by the file name of the image. The images should be submitted as individual email attachments (if less than 5 MB) or on CD or DVD.

Advertising

The Bulletin is printed digitally using InDesign. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email jill@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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Professional Directory Section Business Card Ad
10 Issues – $160 ($30 for each additional name on same card)

Website Advertising Opportunities

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

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<th>Home Page Event Calendar (200 x 400 pixels)</th>
<th>Geo-Jobs (120 x 90 pixels)</th>
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We still offer Geo-Jobs - where your company can post job openings for 14 days at $50.00 or 30 days at $100.00.

For more information regarding website advertising visit HGS.org or email jill@hgs.org.
### 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 $28.00; emeritus members pay $14.00; students are free.

---

### Application to Become a Member of the Houston Geological Society

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.

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

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Membership Chairman [ ] HGS Secretary [ ]

---

Mail this application and payment to:

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

Payment method:

[ ] Check, [ ] VISA, [ ] MasterCard, [ ] American Express, [ ] Discover

Card # ___________________________

Expiration Date: ___________ Card I.D. ___________

(Card I.D. – 3 or 4 digit number on front or back of card)
The Holiday Season is well underway, and the ladies of HPAC are joining in the spirit. Now is the time to reserve a place at the December Luncheon. Elvis will be there to entertain us in the form of award-winning impersonator, Vince King. We will meet at the Houston Junior League on December 15. Husbands and guests are also invited to enjoy the show. Please call Shirley Gordon, 281-494-1338, for details. Shirley and her committee have planned a very special event.

Our Bridge Groups continue to challenge our brains. Please contact our fearless leaders and join in the fun. Audrey Tompkins, 713-686-0005, heads up Cinco Más on the second Thursday at the Westchase Marriott. The Petroleum Club Bridge Group will resume in February at their new venue when the Petroleum Club moves to the Total Building. Call Daisy Wood, 832-581-3132, for a recent update. We are all waiting with eager anticipation.

The Boys in the Boat by Daniel James Brown was the topic of a lively discussion at the Book Club. We didn’t realize there was so much to know about competitive rowing. The setting during the depression and at the 1936 World Olympics in Berlin made for a fascinating exchange of ideas, thoughts and memories. Everyone had something to share which made for a fascinating morning. Going out for lunch afterwards gave more time to visit. Thanks to Phyllis Carter for hosting. Mark your calendar for February 3, and be sure to read Mrs. Lincoln’s Dressmaker by Jennifer Chiaverini. We look forward to some behind-the-scenes insights.

Upcoming events include Game Day at Braeburn Country Club on March 17. Daisy Wood always goes the extra mile to make sure everyone has a great time and it shows. Our Spring Style Show and Luncheon will be on May 14 at Maggiano’s Little Italy Restaurant on Post Oak Blvd. Mary Ann Cole and Kathi Hilterman are busy already making plans.

Attached are pictures taken at the September Luncheon at Lakeside Country Club. As usual, our members enjoyed the speaker, luncheon, and especially the camaraderie. A good time was had by all.

It’s never too late to join in all the fun. Please complete the membership form on the next page.
You are invited to become a member of

HPAC

2014–2015 dues are $20.00 Mail dues payment along with the completed information
to Susan Bell • 11431 Legend Manor • Houston, Texas 77082

YEARBOOK INFORMATION

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Please choose a committee assignment if you are interested.

- Fall Event
- Christmas Event
- Yearbook
- Spring Event
- Bridge
- Notification
- Exploring Houston
- Membership
- Courtesy
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December 2014
Houston Geological Society Bulletin

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