



HGS Bulletin

Volume 58, Number 5

Houston Geological Society

January 2016

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"GEOPHYSICISTS WHO HAVE IMPACTED GEOLOGISTS"
MONDAY, JANUARY 25TH
PAGE 13



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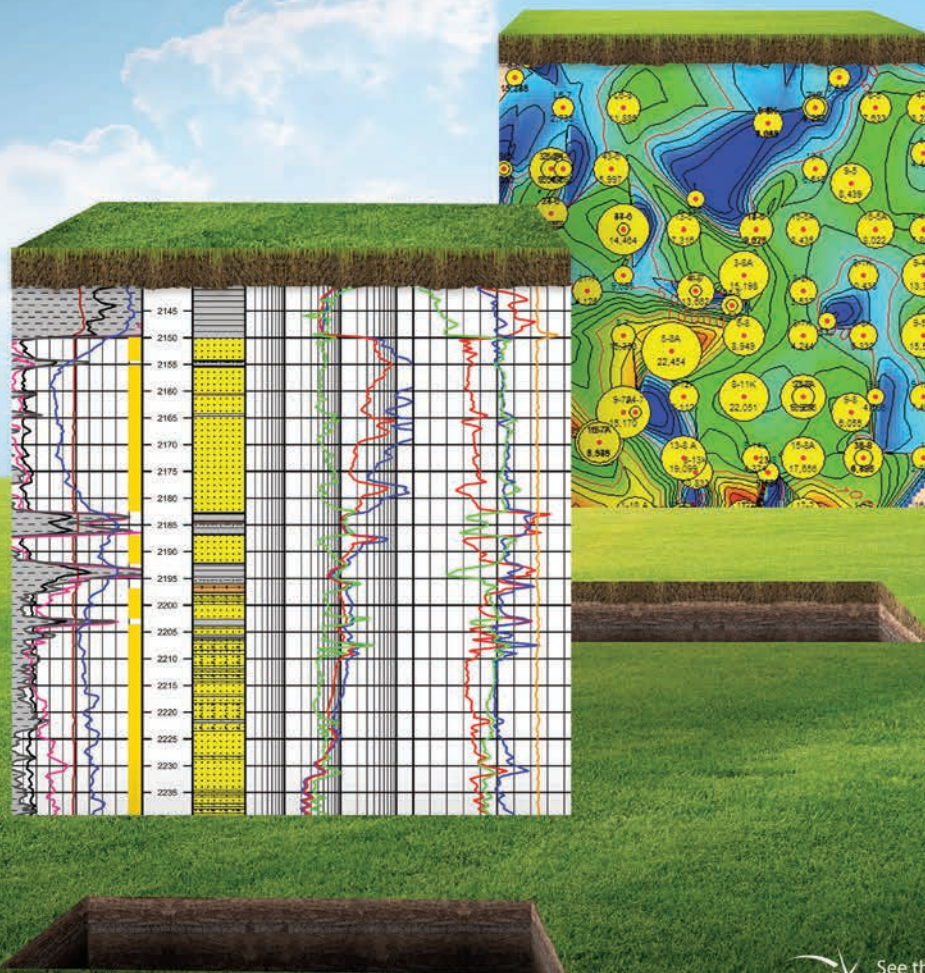
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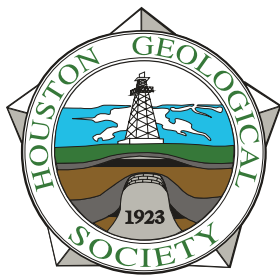
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The Bulletin

Houston Geological Society

Volume 58, Number 5

January 2016

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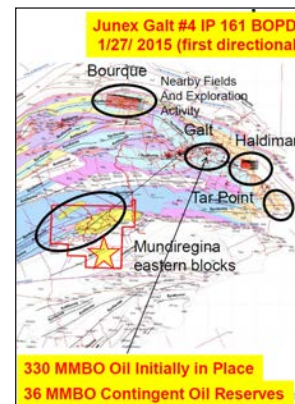
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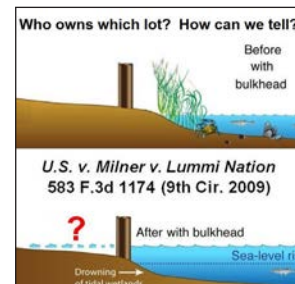
Houston Geological Society presents
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Geophysicists Who Have Impacted Geologists

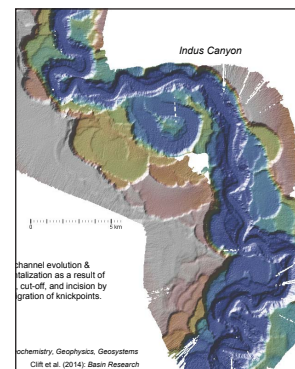
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About the Cover: Sunset at Delicate Arch, Arches National Park, Utah, © Jim Shoemaker. Jim is a fine art photographer whose images depict the nature, landscapes, historic landmarks and people he encounters in the western United States. His work has appeared in numerous publications worldwide and may be seen on his website at www.jimshoemakerphotography.com.

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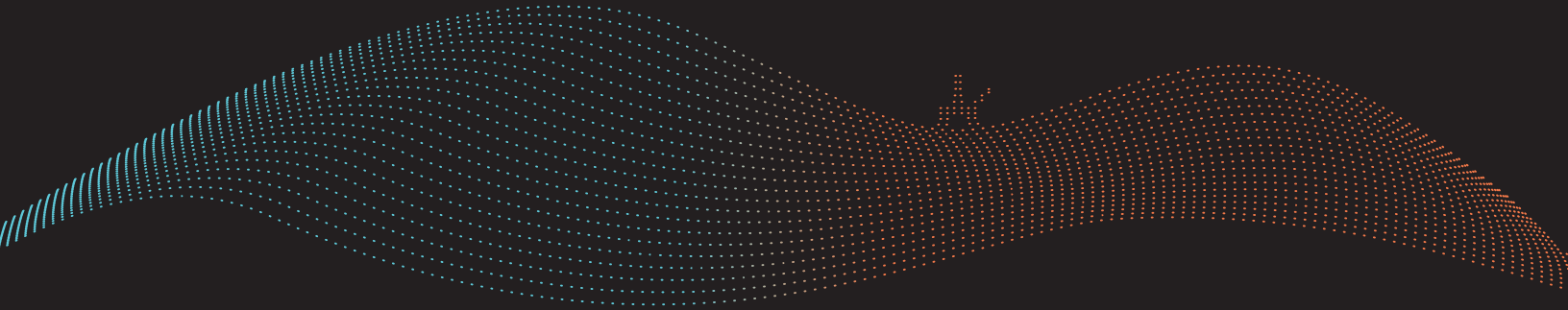


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Tami Shannon
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YOUR Time to Take Action!

I never had any intention of becoming an HGS Board member. I have always loved attending the HGS dinners and events for the camaraderie and casual networking, but to participate as a Board member? It never crossed my mind! I simply preferred to socialize, attend field trips, and surround myself with those who were much more experienced and knowledgeable than myself, hoping to learn by osmosis.

So, when **Barry Katz** emailed me eight months after we had discussed the potential Editor position (at an HGS Guest Night function with cocktails, no less), to say I was hesitant to accept the initial nomination is an understatement. I had no time, I definitely didn't have enough experience, and frankly, I had no idea what the position entailed. It seemed way too challenging to try to fit that responsibility into my already frenzied schedule. Nonetheless, my adventurous spirit couldn't turn down this challenge even if I wanted – so I accepted that nomination. But wait... Editor-elect is actually a two-year term?

So, I am privileged to have been voted into HGS leadership during interesting and uncertain times in our industry – and I'm excited! I know it may seem unsuitable to get enthusiastic about these kinds of changes, but let's be truthful: change is always a good thing. It spices things up; it puts you on a new path – even when you aren't quite ready for it. Consequently, here I am, writing a column that I never dreamed of writing, eager to inspire every HGS member to take just a little bit of action to actively participate – no matter how small the effort seems.

We are each responsible on some level to pass on our passion and remind each other why we decided to embrace this industry. Students, NeoGeos, Legends in industry – we can all help contribute our own passions to inspire our fellow members. I challenge each of you to take some action:

We are each responsible on some level to pass on our passion and remind each other why we decided to embrace this industry.

Students, NeoGeos, Legends in industry – we can all help contribute our own passions to inspire our fellow members.

Get Connected – update your profile on the HGS website. As HGS members, one of the most powerful tools we have at our disposal is our network! **Bonnie Milne** and the Directory Committee are spearheading efforts to modernize and update the HGS Membership Directory (see page 41). The goal is to prepare a robust and searchable database via the HGS website as well as via PDF. This is a great tool to re-connect with or

simply introduce ourselves to each other. Please go on the website <https://www.hgs.org/user> and check out your profile to insure it is accurate and up-to-date so that others can get in touch with you.

Get Inspired – introduce yourself to someone new. We want to invite you to contribute your story – if you are employed, tell us more about what you do. If you are unemployed, tell us about what you did and where you want to go next. Why did you get into the industry? Why do you still want to be in it during this downturn? One of the most rewarding aspects of my

role is that I get to interview the family of HGS members who have passed away and find out how amazing they were and I get inspired all over again! I wish I had known each of them in person so I could carry on their infectious enthusiasm for their work.

Get Involved – give a presentation or volunteer for a committee. Perhaps offer to present on a topic in your area of expertise, or simply just help collect money for an event. Love taking field trips? Why not help lead a committee to coordinate one? There is no better way to learn about the industry than to surround yourself with those who have already done it. For a list of committees and committee chairs contacts, please visit http://www.hgs.org/cmte_contacts.

Get Knowledgeable – attend HGS events. This one speaks for itself – get out there and MEET each other and learn about what is happening (and not by

Your Board in Action *continued on page 9*



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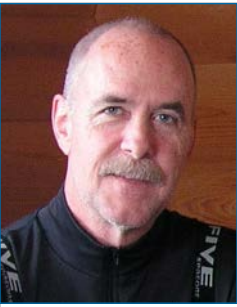
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\$5,000	\$2,500	Breakfast Day One	\$12,000	
\$5,000	\$2,500	Breakfast Day Two	\$12,000	
\$5,000	\$2,500	AV Equipment and Services	\$25,000	
\$5,000	\$2,500	Am & PM Break Food & Beverage Day One	\$5,000	
\$5,000	\$2,500	Am & PM Break Food & Beverage Day Two	\$5,000	
\$2,500	\$1,250	Poster Gallery	\$2,500	
\$2,500	\$1,250	Delegate Bags	\$2,500	
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AAPG's Publication Pipeline: Geoscientists Helping Geoscientists



Geology students and faculty at Yangon University, Myanmar, celebrating the arrival during this past November of 30 tons of used geoscience publications from the AAPG Publication Pipeline Committee, sponsored by AAPG, Myanmar Geosciences Society, Chevron, Schlumberger, and Statoil.

In the *Your Board in Action* column this month, Editor-elect **Tami Shannon** has eloquently outlined some of the key benefits of stepping-up our participation in HGS activities, especially in these uncertain times when maintaining and building our professional networks, and technical knowledge, is so important. Allow me to augment Tami's good message by also encouraging your involvement in volunteering opportunities beyond HGS. I'll highlight one example (among many) of how we Houstonian geoscientists can have a positive impact on our colleagues around the world—befitting Houston's privileged status as the capital of the global petroleum industry.

The American Association of Petroleum Geologists (AAPG) Publication Pipeline Committee's (PPC) primary goal is to be a "pipeline" of donated geoscience publications, both books and journal sets, to requesting and qualified overseas universities. Shipments are made with the assistance of AAPG members and staff, AAPG Student Chapters, affiliated societies, and companies with overseas operations. The PPC's base of operations is right here in Houston, at 6830 North Eldridge Parkway. To date

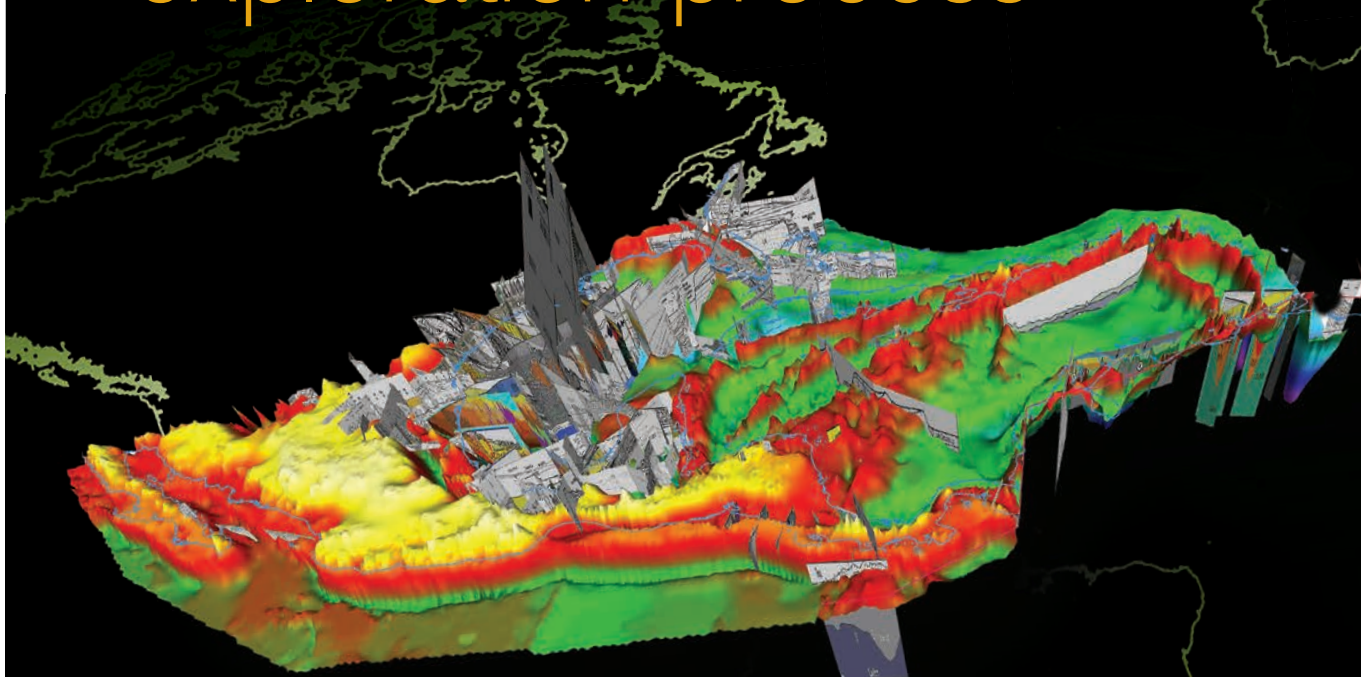
the committee has shipped to more than 50 universities in 18 countries, reaching an untold number of geoscience students and faculty.

Founded in 2000 by my former Amoco colleagues **Martin Cassidy** and **Rick Wall**, the PPC currently has a total of 11 members based in Houston as well as a number of other members and "friends of the PPC" scattered around the world that periodically assist in gathering donated publications, as well as identifying and facilitating contact with potential university recipients. By 2013, the PPC had shipped more than 100 tons of geoscience publications to universities around the world, and the committee is proud to announce it is already approaching the 200 ton milestone (see graph on page 9).

AAPG PPC members have the opportunity to "champion" specific donations/shipments, wherever potential university recipients can be identified. "Championing" involves making sure that the necessary documents formalizing the request are

From The Editor *continued on page 9*

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osmosis) ! If you don't know where to start, I would encourage you to go to HGS Legends Night in January – what a great way to start the New Year! I will be there – come by and introduce yourself. I would love to meet you!

Get Nominated – or Nominate Someone Else. This is where we really need you to take action. HGS Board and AAPG House of Delegates are looking for nominees to participate! The Board is the best place to take what you would like to see improved in HGS and take strides to make it happen. Most people like the idea of being involved, but simply don't think they can make the time, or perhaps they are not aware of how to do so.

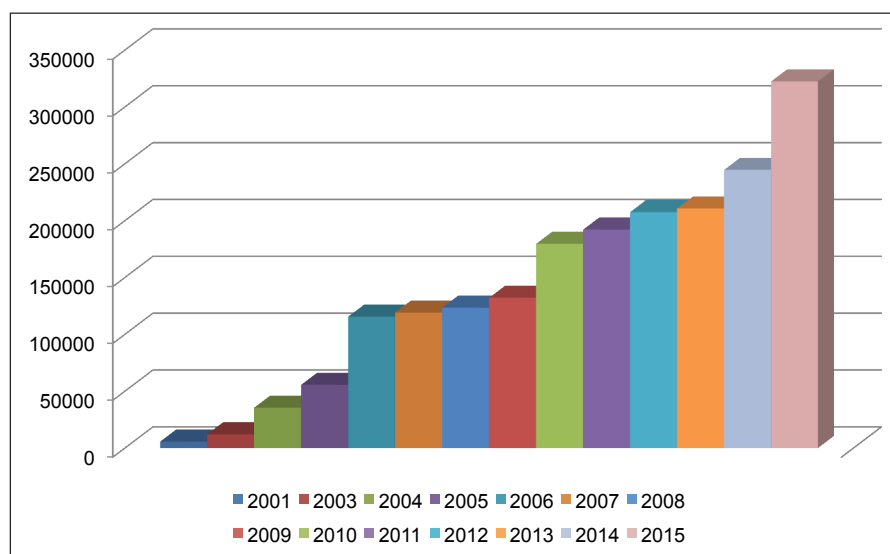
So, once a month, for about 2-3 hours, I get to eat and drink among industry peers with varying levels of age and experience. I get to brainstorm on how to help improve our industry and help our fellow members who might need support and guidance during these trying times. I get to vote, accept, and reject these

initiatives (most of which I would say are accepted) and I get excited to be a part of something a bit bigger than myself – a place where ideas have a possibility of coming to fruition. I get opportunities to meet all different types of interesting people: committee members, families of HGS members who have passed, and HGS members who simply introduce themselves to me and want to tell their story. I hope you come join us!

For more information on becoming the HGS Editor (or some other cool position), please get in touch with me, **Tami Shannon**, at tami.shannon.biz@gmail.com. You may also review the HGS By-Laws at http://www.hgs.org/sites/default/files/HGSConstitutionAndBylaws_approved2010-2.pdf

For more information on the AAPG House of Delegates nominees, please check out <http://www.hgs.org/aboutAAPGdelegates> or contact **Justin Vandenbrink** at justin.vandenbrink@weatherford.com. ■

From the Editor continued from page 7



Cumulative pounds of publications (322,535 lbs = 161 tons) shipped by the AAPG Publication Pipeline Committee (PPC) to universities around the world since the PPC's inception in 2000.

submitted from university officials to the PPC, determining the maximum quantity of publications that the university can shelve in an accessible space protected from the elements, engaging the services of an international shipping company willing and able to ship the inventoried/boxed/palletized publications to locations that are sometimes quite remote, and seeking organizations to serve as sponsors to help facilitate importation and/or underwrite the costs of the shipment.

I've had the pleasure of seeing the successful conclusion to one of our most recent PPC projects, for which I served as "champion,"

to Yangon University and other universities with geoscience departments in Myanmar, Southeast Asia. AAPG, the Myanmar Geosciences Society, Chevron, Schlumberger, and Statoil all kindly offered to co-sponsor a PPC shipment. As Myanmar (formerly Burma) was essentially closed to the outside world for nearly 5 decades, the need for building/modernizing their university library collections in this country is even greater than usual. When I visited the Geology Department at Yangon University back in August 2014, the most recent hardcopy publications in their small library dated from the early 1960's. And like many places, there is still no access, or at best difficult access, to the online publications that many of us now take for granted.

Fortunately, earlier in 2014 the PPC had received a very generous offer of the entire library collection of the UT Austin Bureau of Economic Geology's (BEG) Houston Research Center, which contained the bulk of the former library of Unocal that had been donated to the BEG by Chevron after the merger in 2005. The BEG Houston library ended up filling 60 pallets, the equivalent to almost a kilometer of shelved publications. Normally, a university library would have difficulty accommodating such a large additional volume of books and journals, but in

From The Editor continued on page 11



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Meeting with geology professors and Myanmar Geosciences Society officers, Yangon University, August 2014.



In front of Mandalay Hall (Geology Building), AAPG PPC handover ceremony, Yangon University, November 2015.



AAPG PPC handover ceremony, Yangon, 18 November 2015.



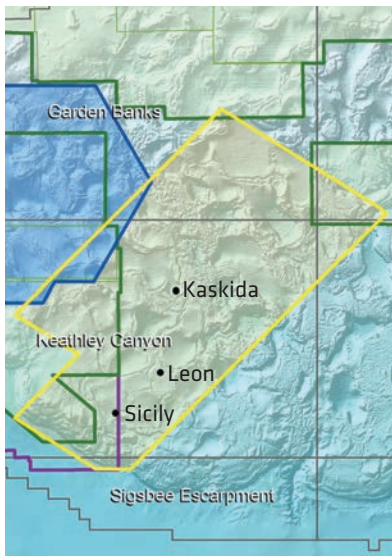
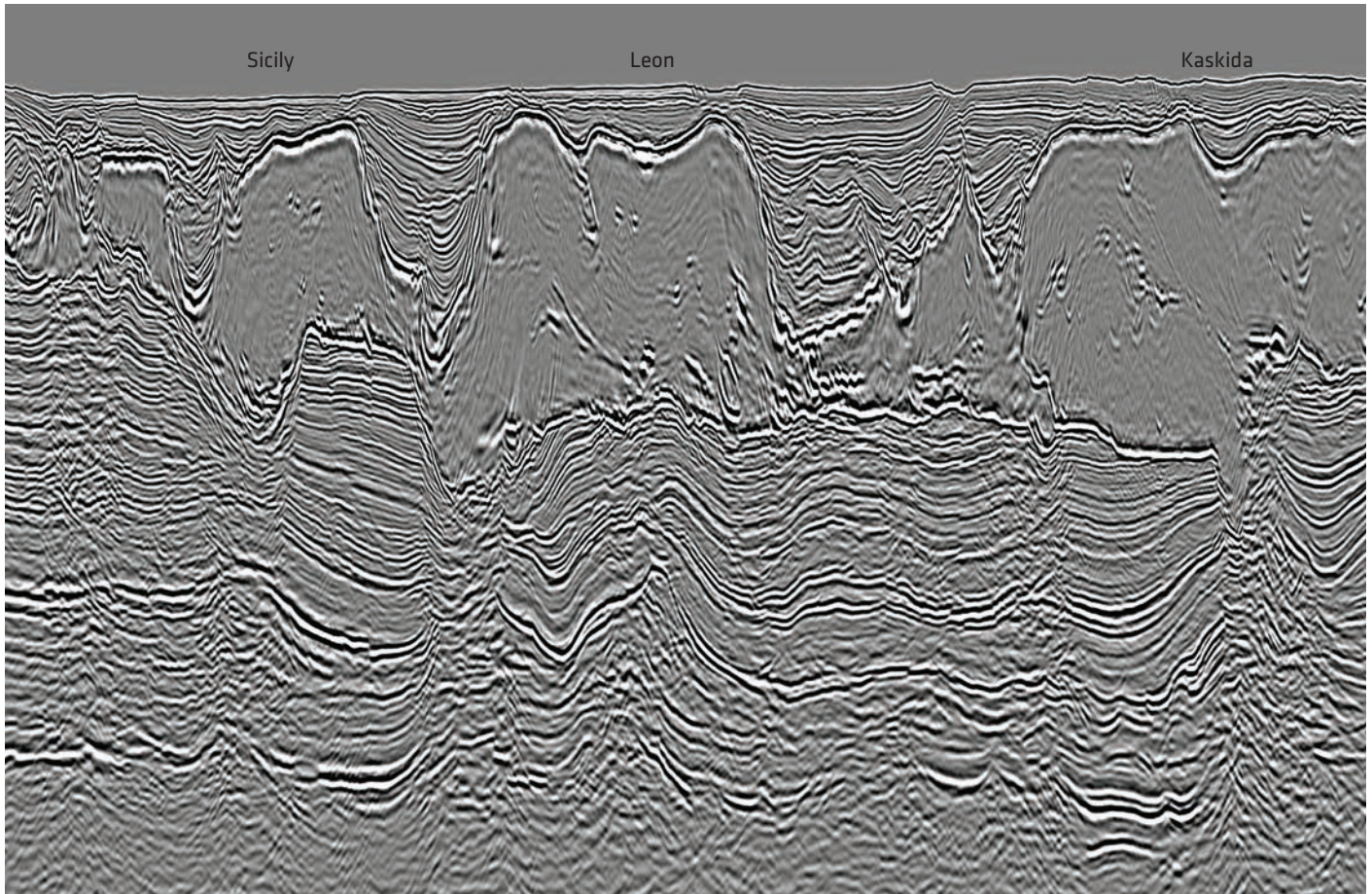
Peter Grant, AAPG Asia Pacific Region President, at AAPG PPC handover ceremony, Yangon, 18 November 2015.

another stroke of good fortune for the project, the Government of Myanmar in recent years had ordered that the Geology Department and other departments at Yangon University be decentralized, and students and professors spread around the country at many different universities outside the capital. This resulted in many spare, unused classrooms in the home of Yangon University's Geology Department, Mandalay Hall, a substantial 3-story building built during the British colonial era. The last challenge in ensuring the collection could be properly housed for use by students and faculty was the need for a significant number of bookshelves for those empty former classrooms, now to be converted to library space. For that, various members of the Myanmar Geosciences Society (an affiliate of AAPG) came to the rescue, and either donated existing bookshelves or offered to fund the construction of new ones. A happy ending, indeed.

Current "core" (Houston-based) members of the PPC are: **Art Browning** (Chairman), **José Guzman** (Treasurer), yours truly (Secretary), **Martin Cassidy**, **Chuck Caughey**, **Elizabeth Desser**, **Dave Drowley**, **Gretchen Gillis**, **Brian Wall**, **Meagan Wall**, and **Gerrit Wind**. As the efforts of the committee continue to grow, we will need more "hands on deck," so we would love to add your name to the PPC members list!

Anyone interested in either 1) becoming a member of the PPC, or 2) donating the part of your personal geoscience library that's gathering dust, please contact me at jonblickwede.hgs@gmail.com or (832) 228-6593. It's a fun and fulfilling way to "pay it forward" to new generations of professional geoscientists around the globe!

All the best to you in 2016! ■



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Geophysicists Who Have Impacted Geologists

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Monday, January 25, 2016

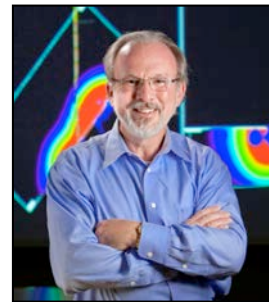
HGS invites you to join us for the next Legends Night dinner event honoring three geophysicists who have made significant contributions to the field of geology. See their biographies on page 15.



Alistair Brown
*Author of
'Interpretation of
Three-Dimensional
Seismic Data'*



Tom Smith
*Founder and former
president of Seismic
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Peter Duncan
*Founder and Co-
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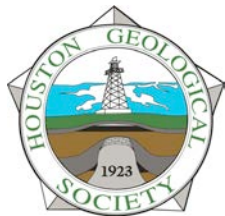
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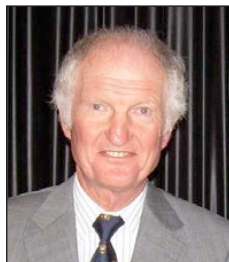
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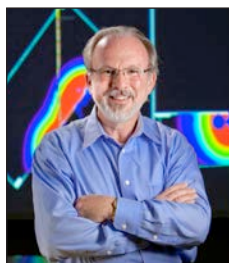
Geophysicists Who Have Impacted Geologists

ALISTAIR R. BROWN is a Consulting Reservoir Geophysicist working out of Dallas, Texas. His specialties are interpretation of three-dimensional seismic data, stratigraphic interpretation, optimum use of interactive workstations, seismic reservoir identification and evaluation, and the meaning of seismic amplitude.



He spends much of his time teaching interpretation methods and advising on interpretation problems worldwide. Alistair graduated from Oxford University in England, having attended The Queen's College, and has over 40 years of geophysical industry experience. He has been using 3D seismic data since 1975 and interactive workstations since 1980. He has developed many new interpretation methods and is a widely published author in his field. The making of the first horizon slice in 1979 was a particular accomplishment. The 7th Edition of his book *Interpretation of Three-Dimensional Seismic Data* (AAPG Memoir 42 / SEG Investigations no. 9) was published in 2011 following previous editions in 2004, 1999, 1997, 1992, 1989, and 1986. He won the SEG Best Presentation Award in 1975, was AAPG Distinguished Lecturer in 1988-89, SEG Distinguished Lecturer in 1991, and Petroleum Exploration Society of Australia Distinguished Lecturer in 1994. Furthermore in 1999-2000 he was the inaugural Joint AAPG/SEG Distinguished Lecturer. In 1998 Alistair was awarded SEG's Special Commendation Award for his work in developing and teaching 3D methods. In 2002 he was awarded Honorary Membership in the Geophysical Society of Houston, and in 2004 Honorary Membership in Dallas Geophysical Society. In 2006 he received his highest honor, namely Honorary Membership of the Society of Exploration Geophysicists. In 2009 AAPG awarded Alistair the Distinguished Service Award. He is also a member of EAGE. He was Chairman of *The Leading Edge* Editorial Board from 1986 to 1988 and editor of the Geophysical Corner in AAPG *Explorer* from 2004 to 2005. ■

PETER M. DUNCAN is Founder and Co-Chairman of MicroSeismic, Inc. a Houston based oil field service company specializing in hydraulic fracture stimulation surveillance and evaluation. He holds a PhD in Geophysics from the University of Toronto. His early career as an exploration geophysicist



was with Shell Canada and then Digicon Geophysical, first in Calgary then in Houston. In 1992 he was one of three founders of 3DX Technologies Inc., a publicly traded independent oil and gas exploration company. Duncan was 2003-04 President of the Society of Exploration Geophysicists (SEG). Duncan was the Fall 2008 SEG/AAPG Distinguished Lecturer speaking on the subject of passive seismic at 45 venues around the world. He is an Honorary Member of SEG, the Canadian Society of Exploration Geophysicists (CSEG), the Geophysical Society of Houston (GSH) and the European Association of Geoscientists and Engineers (EAGE). He received the Enterprise Champion Award from the Houston Business Journal in 2010, the World Oil Innovative Thinker Award in 2011, and was the 2013 EY National Energy Entrepreneur of the Year. In 2014 he received the Virgil Kauffman Gold Medal from SEG. ■

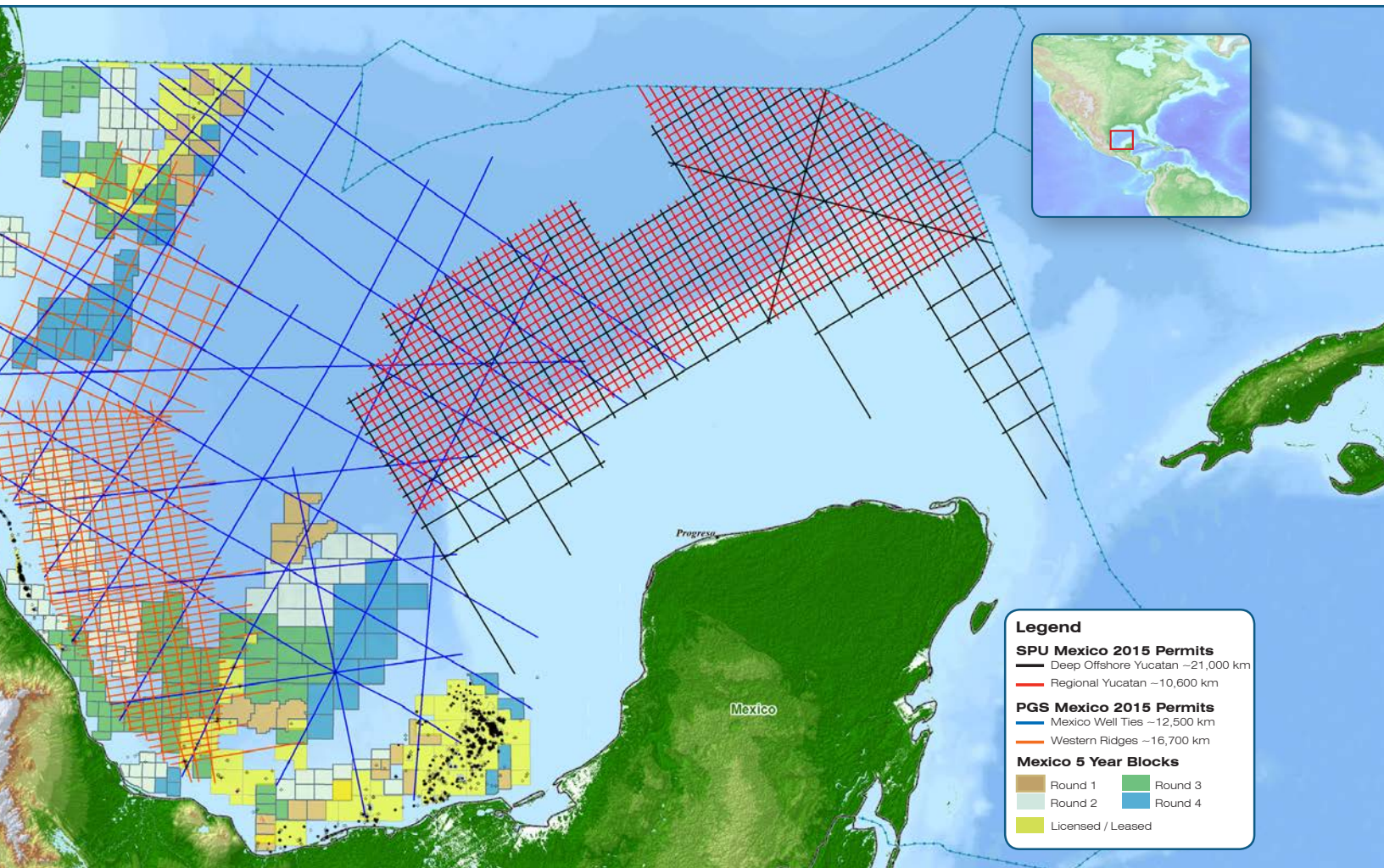
TOM SMITH studied geology, physics and a little geophysics at Iowa State University where he met his wife Evonne. They are recognized as geological pioneers who helped develop KINGDOM, one of the oil and gas industry's most intuitive and cost-effective software for seismic interpretation. At Iowa State, he earned a BS and MS in geology where he determined that the buried Manson meteorite impact structure was 20 miles wide with seismic refraction.



Tom began his career as a data processing geophysicist at Chevron Geophysical, but left that position in 1980. He received a doctorate in geophysics from the University of Houston in 1981. In 1984, the Smiths founded Seismic Micro-Technology to develop KINGDOM which grew into a full-featured integrated geophysical and geological interpretation package used today in more than 80 countries. It was one of the first personal computer-based geophysical software ever created, initiating a global renaissance in oil and gas exploration. The company staff of 150 worked from four international offices when it was sold in 2007. Since then, the Smiths have donated funds to revitalize the ISU Geology Field Camp in Shell, Wyoming. In the last several years, Tom and a small team have been working on neural networks to assist interpretation. He will share a few thoughts on his professional career, explain how KINGDOM evolved, discuss business principles and practices that helped it succeed, and finally, suggest that there are new ideas in interpretation practices that are more compelling than golf. ■

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Linda R. Sternbach, Charles A. Sternbach
Star Creek Energy, Houston

Stephane Sejourne
Consultant, Montreal

Jerry McCullough
Mundiregina Resources Canada

Quebec's New Play for Light Oil in the Gaspé Peninsula: Appalachian-style Thrusted Valley and Ridge Structures — Devonian, Silurian and Ordovician Reservoirs

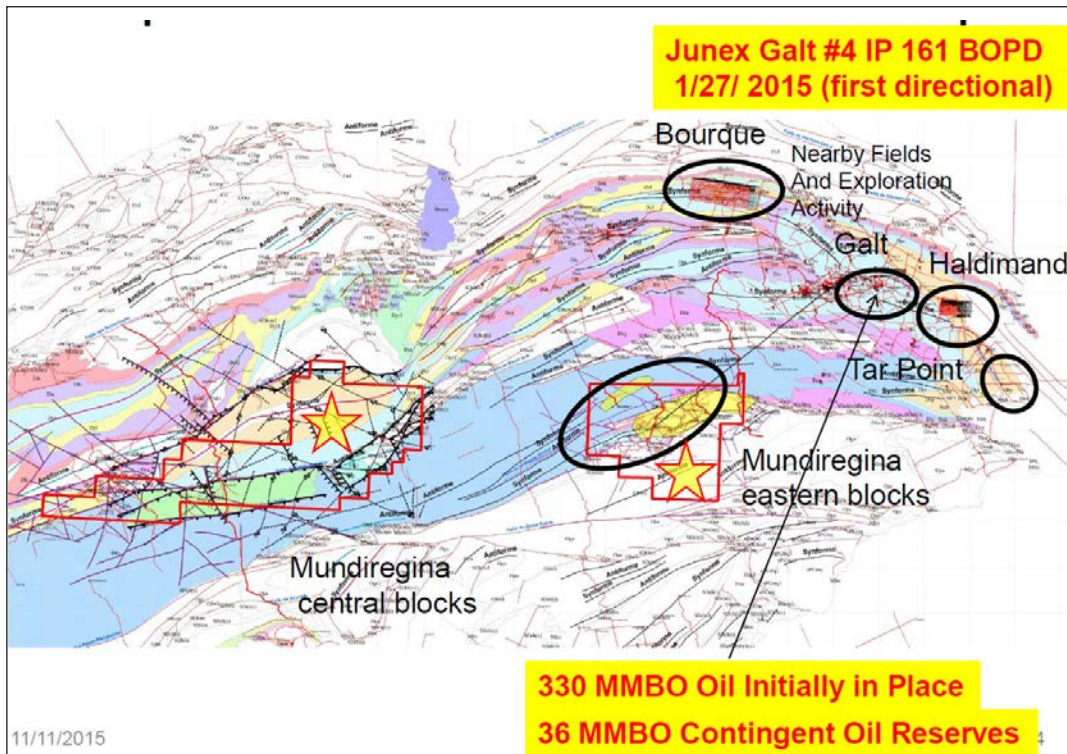


Figure 1

The search for commercial quantities of light oil in the Gaspé Peninsula of Eastern Canada looks promising along trend with the 2014 announced oil discovery in Galt Field by Junex. This discovery required horizontal drilling to maximize the wellbore contact with natural fractures and porosity in the previously non-commercial, Devonian Forillon Formation.

Horizontal drilling is the key to commercial oil production in the Gaspé area. Millions of acres along trend of the Galt Field discovery require a reassessment as to horizontal drilling and exploration potential (Figures 1, 2). This presentation will show where new discoveries could be found in the central Gaspé

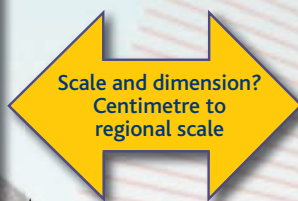
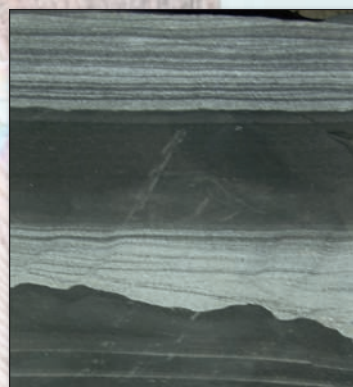
Peninsula, based on reprocessed 2D pre-stack PSTM seismic lines, and surface and subsurface integration of geologic data. Mundiregina Resources Canada reprocessed 2008-vintage 2D lines in 2014–2015 and achieved a significant improvement in data quality. Reprocessed lines now image large thrust anticlines and synclines in central Gaspé. Interpretation of the reprocessed seismic lines will be presented (Figure 3).

The Gaspé area Silurian and Devonian rocks were deformed in an Appalachian-style thrust belt during the Acadian Orogeny. Tectonic forces included syn-sedimentary listric faulting during the Silurian, and

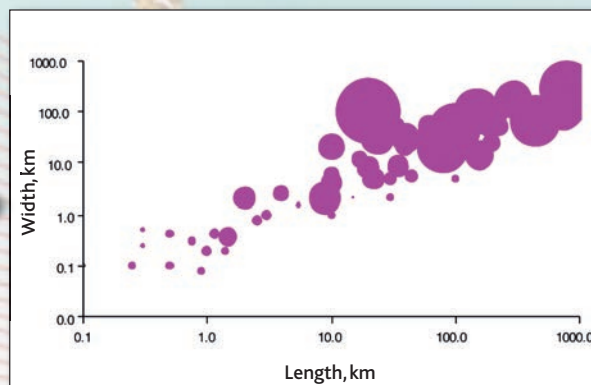
HGS North American Dinner continued on page 19

Getting into Deep Water

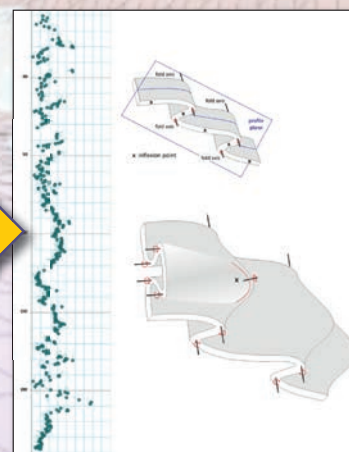
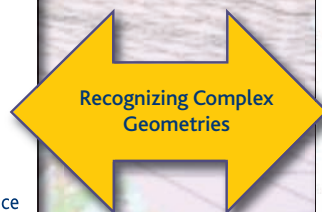
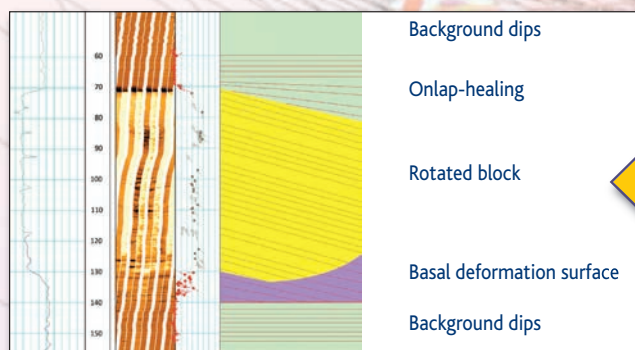
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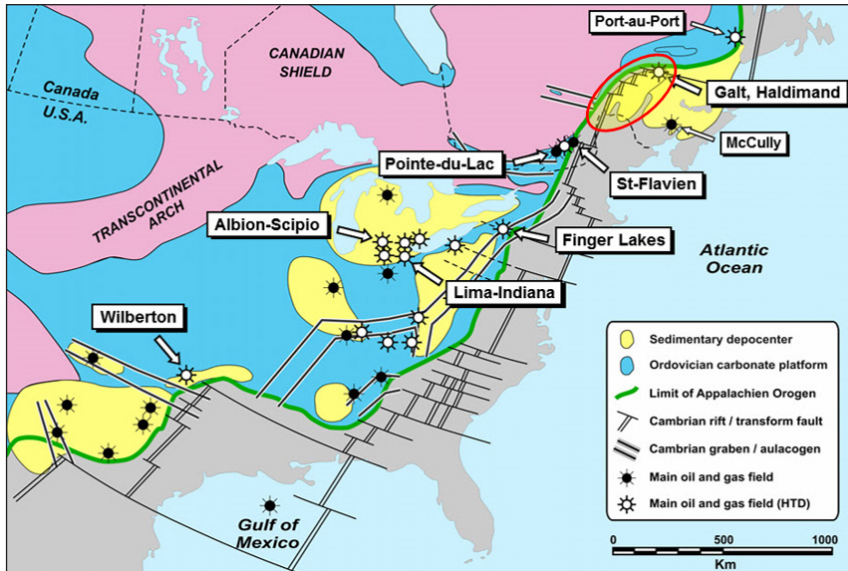


Figure 2: Main Hydrocarbon Fields

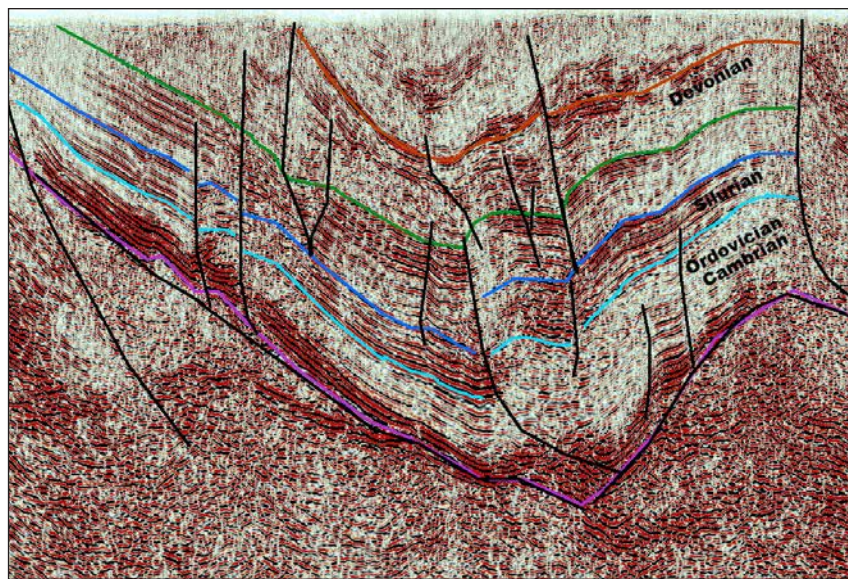


Figure 3: Reprocessed seismic lines imaging large structures



Figure 4: Junex Lemaire H₂Q, Galt No. 3 Well

thrusting and strike-slip movement during the Middle Devonian. Carbonate and siliciclastic rocks were altered by hydrothermal fluids along faults and fractures during structural deformation, enhancing porosity, and Ordovician source rocks charged the overlying Silurian and Devonian section (Figure 4).

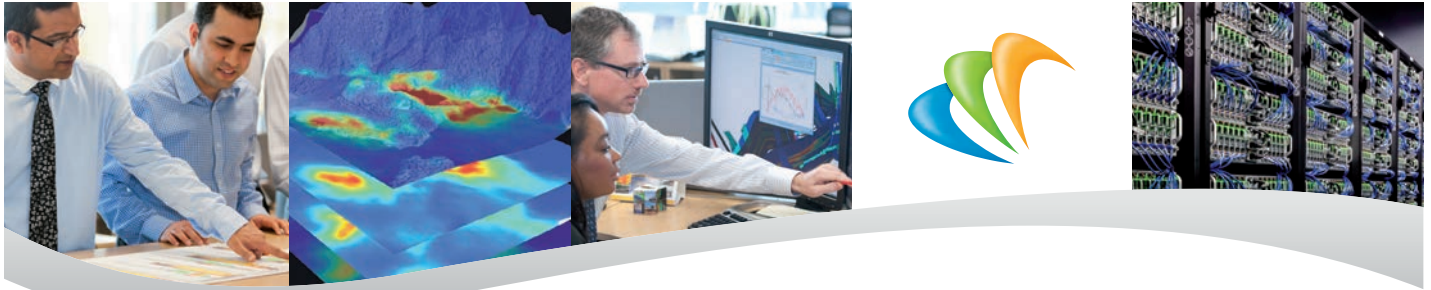
A key well for the area is the Mont Alexandre #1 (2009), which penetrated the Forillon Formation along trend with Galt Field. The key elements of productive Forillon reservoirs, including hydrothermal dolomite in natural fractures, are demonstrated to exist in surface outcrops along trend to Galt Field, and over an extensive area of the Central Gaspe Peninsula. Many older wells in the Central Gaspe were shallow, vertical wells that failed to intersect fractures. Light oil potential was left undiscovered by abandoning these old wells. ■

Biographical Sketch

LINDA R. STERNBACH is Vice President of Star Creek Energy, in Katy, Texas. She integrates 2D and 3D seismic data with geological data from wells, combined with remote sensing, in mid-continent plays in the US and Canada. She joined Star Creek Energy in 2007 as partner with Charles Sternbach, and together they have generated oil and gas prospects in central Illinois, central Texas, and Colombia, South America. She has been

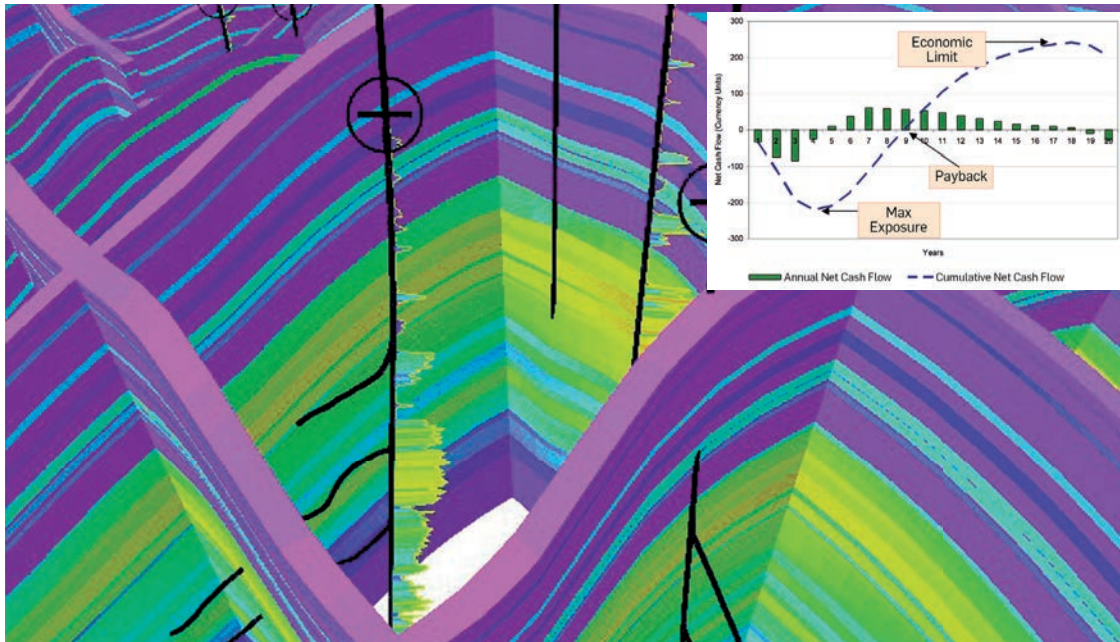


a geophysical interpretation consultant for plays in North Texas, offshore Peru, onshore Senegal, and offshore Texas State waters. Prior to joining Star Creek Energy, Linda worked for ARCO Oil and Gas in Houston (1984-1993), Pennzoil (consulting 1993-95), Globex Energy (1996-2002), Kerr McGee - deepwater GOM (2002-2006), Anadarko, and Oxy International. Linda earned a BS in geology from Syracuse University (1981), and MS in geology from Rensselaer Polytechnic (1984), studying with Dr. Gerald M. Friedman. Linda Sternbach was President of HGS 2007-2008, past Vice President and past *Bulletin* Editor. She was recently Technical Chair of the Houston 2015 GCAGS meeting in Houston and Technical Chair of the 2011 Houston AAPG ACE convention.



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*Kelly M. Haggard
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Geology, Law and Coastal Change

Coastal change is unlikely to require new law but properly dealing with its effects and planning our response to them will require more than just a good understanding of present law. Statutes rest on fundamental — but often unstated — societal assumptions favoring some outcomes and denying others. For example, Western societies presume land should remain in commerce and always be productive.

Virtually all of the major cases and controversies concerning water and/or coastal issues arising around the nation in recent years — property damage and land loss during hurricanes due to exploration and production (E & P) canals, increased expenses to levee boards from a subset of those



FIG. 2.—Goose Creek region before subsidence

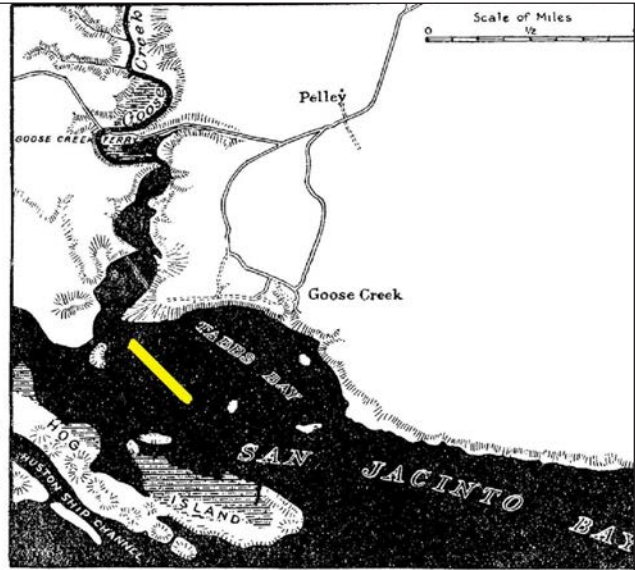


FIG. 3.—Goose Creek region after subsidence

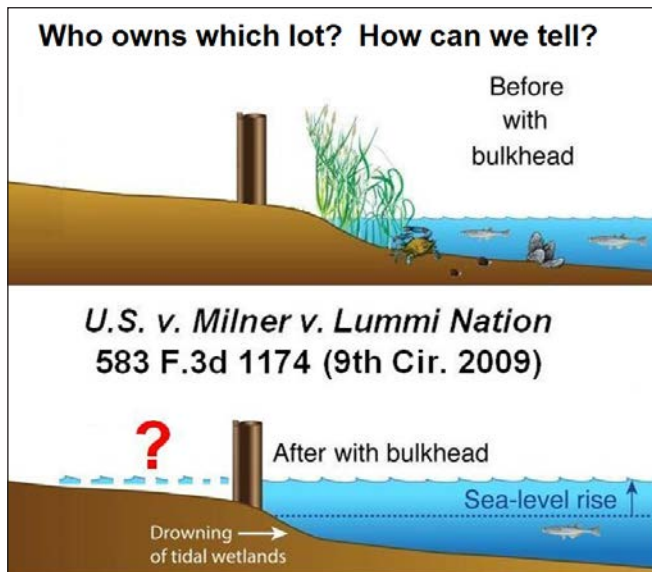
Before Extraction After Extraction
Pratt and Johnson, Local Subsidence of the Goose Creek Oil Field, *The Journal of Geology*, Vol. 34, No. 7, Part 1; (1926)

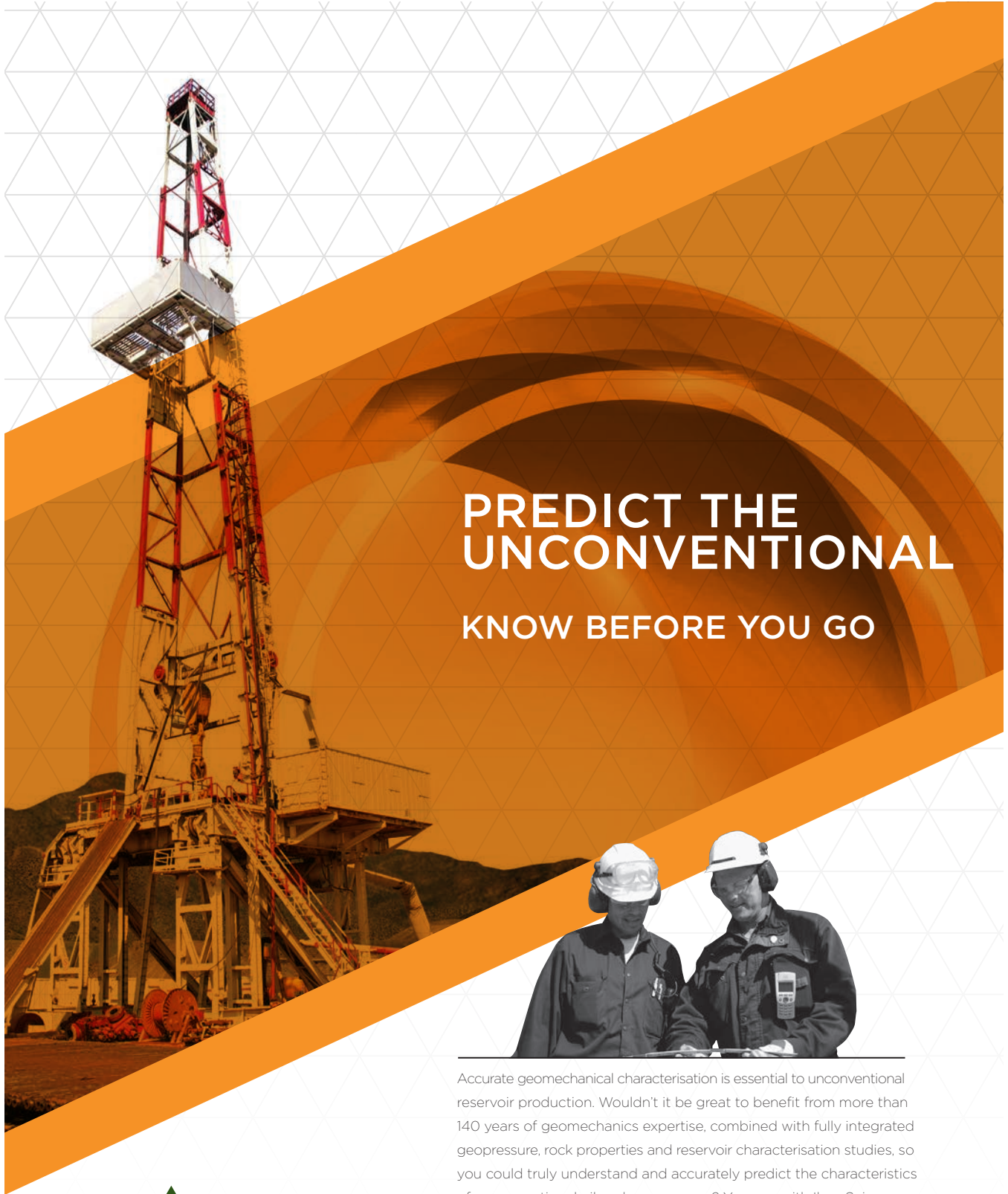
same E & P canals, diversions affecting oyster beds, beach front lot owners objecting to beach restoration projects, Anthropogenic Climate Change causing increasing hurricane damage — were all resolved by applying existing law. Many of those laws are not just based upon Roman laws going back over 2000 years; some are almost word-for-word copies of them.

Unfortunately, much of the general public either does not understand the basic principles of land use and tort or perhaps simply wishes for different outcomes despite existing (and well-settled) laws. Worse, there does not seem to be sufficient appreciation of the underlying geological factors driving changes in and along our coasts, marshes, and swamps.

Law as an institution has never attempted to “control nature” per se but it most assuredly attempts to specify and control who gains and who loses — and why — when a river changes course, when new land forms at the beach, and when a dispute breaks out as to “What is a beach?” and “Who owns it?”

HGS Environmental & Engineering Dinner continued on page 23





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A general overview of the major cases and an explanation of why they turned out as they did will better enable coastal planners to find — and stay within — more realistic limits of what can and cannot be accomplished within the framework of our existing laws. Moreover, if American society does determine a new direction in coastal programs is needed, a more comprehensive understanding of current law will likely allow better choices to be consciously made. However, since law can only help illuminate the choices and assign the risks to various parties, ultimately geology — not law — is the key to future decisions about our coastlines. ■

the USAF, he joined Riparian, Inc., a small wetland services company originally headquartered in Slidell, La. Riparian had been founded by a 19 year veteran of the oil patch (MS Geology, Tulane 1978) who later earned a second MS in Biology. Thus, he operated in a geology-enhanced company environment while helping to delineate and permit thousands of acres of wetlands in Texas, Louisiana, and Mississippi. In 2002, he was admitted to LSU Law School, where he was selected for law review.

Biographical Sketch

MR. KELLY M. HAGGAR earned a Bachelor’s degree in Political Science from Louisiana State University in 1973 and a commission in the USAF on scholarship in the Reserve Officer’s Training Corps. While on active duty, he earned a Master’s in Public Administration from the University of Oklahoma in 1987; his thesis was on the Legal Services Corp. He served in the USAF as a B-52 pilot and flight safety officer from 1974 to 1994. After retiring from



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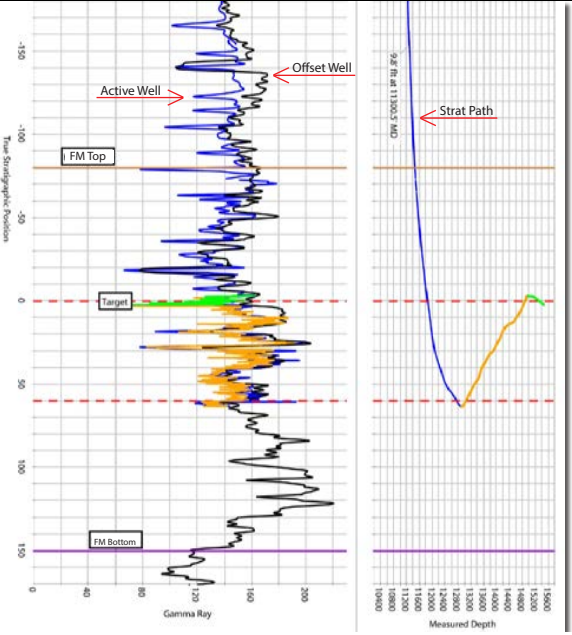
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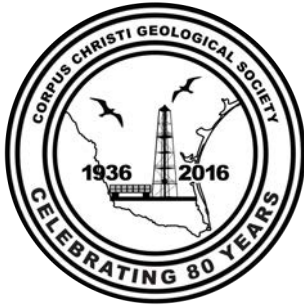
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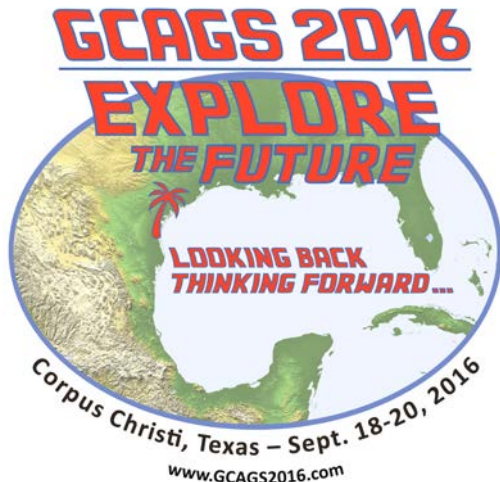


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www.gcags2016.com

Thank you for your participation!

Monday, January 18, 2016

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Dinner 6:30–7:30 p.m.

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Tuesday, January 19, 2016

Southwestern Energy Conference Center, 10000 Energy Drive, Spring, TX 77389
Social 11:15 a.m., Luncheon 11:30 a.m.

HGS Northsiders Luncheon Meeting

Cost: Active/Associate Members - \$30, Emeritus/Life/Honorary - \$25
Students who are members of HGS - \$10, Non-members - \$40

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

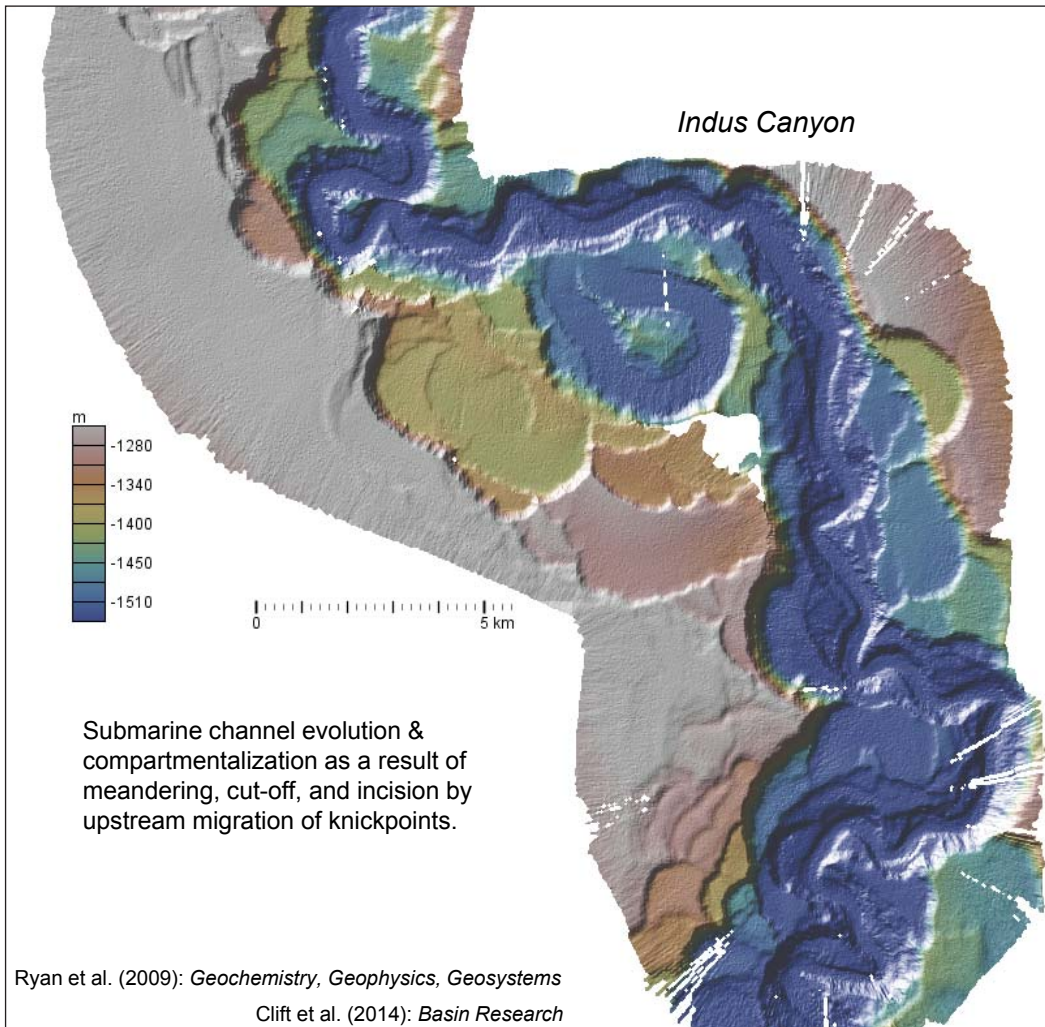
Jacob A. Covault

*Bureau of Economic Geology, University of Texas at
Austin, Austin, TX*

Zoltan Sylvester

Chevron Energy Technology Company, Houston, TX

Submarine Channel Compartmentalization as a Result of Meandering, Cut-off, and Incision



HGS International Dinner and Northsiders Luncheon continued on page 27

HGS International Dinner and Northsiders Luncheon Meetings



- 25 Years Oil & Gas Experience
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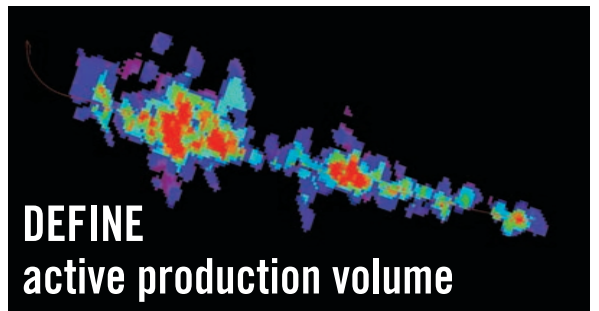
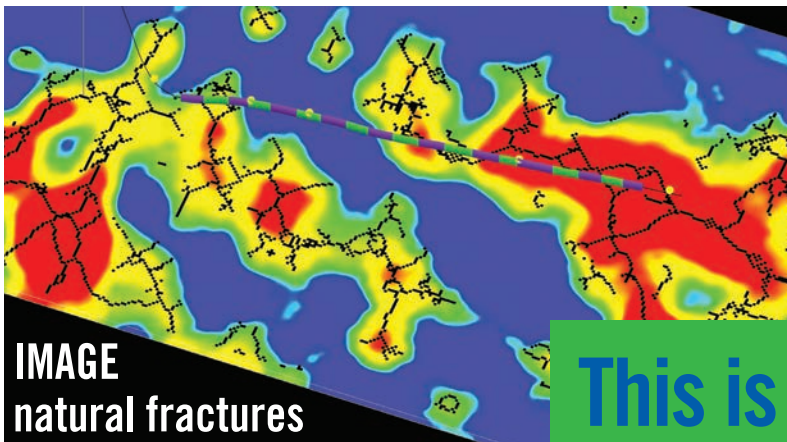
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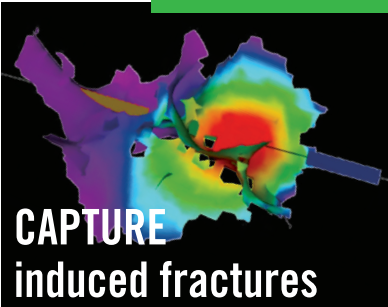
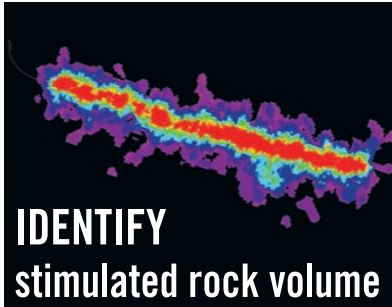
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Submarine channels are conduits through which terrigenous material is transported to the largest sediment accumulations on the planet in deep-sea fans, which can be prolific hosts for hydrocarbons. Submarine channels commonly develop above large-scale erosional surfaces, similar to incised valleys on the continental shelf, which truncate remnant channel deposits in terraces above a more continuous channel thalweg. These erosional surfaces often compartmentalize reservoirs, but a fundamental understanding of their development remains elusive as a result of few direct measurements of the morphodynamic processes that form them. We evaluate the stratigraphic evolution of submarine channels using seafloor and subsurface examples, combined with simple numerical modeling of the kinematics of submarine channel evolution. We show that as a channel strives to achieve an equilibrium condition, in which sediment is transported with minimum aggradation or degradation of the seafloor, large-scale erosional surfaces are created as a result of meandering channel cut-offs and upstream migration of knickpoints, which leave terraces of remnant channel deposits in their wake. The ubiquitous presence of submarine terraces and large-scale erosional surfaces on the seafloor and subsurface of continental margins suggests that processes of meander cut-off and knickpoint migration during incision, with no significant inner-bank deposits left behind might be common in the deep sea. ■

Biographical Sketch

DR. JACOB COVAULT is a Research Scientist and leader of the Quantitative Clastics Laboratory (QCL) at The University of Texas at Austin. His expertise is the sedimentology and stratigraphy of deep-water depositional systems, and source-to-sink sediment dispersal. Jacob aims to address key challenges in the exploration and development of natural resources, namely reservoir presence and quality prediction in frontier basins, and reservoir connectivity and heterogeneity. Prior to his present position at QCL, Jacob was a senior research scientist at Chevron Energy Technology Company, and worked at the U.S. Geological Survey. He received PhD and BS degrees in Geological and Environmental Sciences at Stanford University. Jacob has published peer-reviewed research papers and scientific conference abstracts pertaining to petroleum geology, reservoir characterization, sedimentology, stratigraphy, basin analysis, Earth surface processes, and marine geology.



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Larry Garmezzy
Jan. 9 - Feb. 4

Opening Reception
Jan. 9, 5 - 8 p.m.

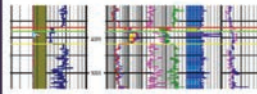


Finding Equilibrium

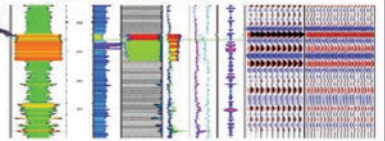


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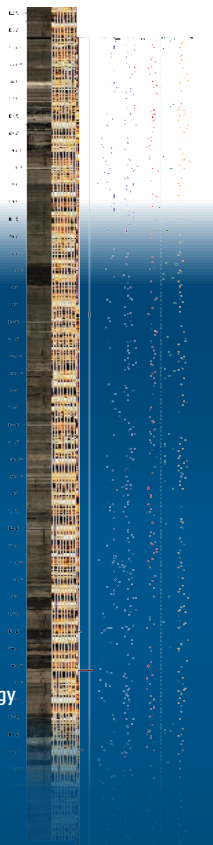
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Wednesday, January 27, 2016

Petroleum Club of Houston • 1201 Louisiana (Total Building)
Social Hour 11:15 a.m.
Luncheon 11:45 a.m.

Cost: \$45 Preregistered members; \$50 non-members/walk-ups

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

HGS General Luncheon Meeting

Julie Garvin
Roxanna Oil Co.
Houston, TX

HGS General Luncheon Meeting

The Search for New Exploration Plays: When Only the Best Will Do

Over the past decade, there has been a rapid evolution of exploration plays that has benefited from new efficiencies in horizontal drilling, beginning with shale gas, later to shale oil and tight oil plays, and today, even conventional reservoirs. As explorationists, we have used our understanding of these technology advancements by developing new plays that were either overlooked or underdeveloped, but can be economic with improved recoveries.

With current oil prices hovering at \$40/barrel (as of late November), our understanding of both the geology and the economic drivers to commercial projects are critical in finding the very best areas to invest. Early entry into the “sweet spots” of these

plays is an important economic driver, thus the ability to quickly screen and execute leasing in the best areas of the plays is a key element of our strategy. We will examine some of our company’s criteria and analytical approaches for exploring new plays, with examples from our New Albany and Woodford shale plays, our Paradox Basin and Las Animas Arch tight carbonate play, and a horizontal development of a conventional carbonate oil field. ■

Biographical Sketch

JULIE GARVIN joined Roxanna as President in 2005, after a 23 year career with Marathon Oil as an explorationist, and later as Area Manager for Gulf of Mexico Exploration. During her tenure at Roxanna, she has been directly involved in generating and executing early entry positions into new and emerging resource plays for Roxanna’s clients and industry partners. Roxanna currently holds over 500,000 acres of working and royalty interests in nine resource plays, including the Woodford, Barnett, Mississippi Lime, Chainman, Gothic and New Albany shale.



Julie holds an honor’s degree in Geophysics from the University of Texas, and currently serves on the Jackson School of Geology Advisory Council.

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January 2016



Sunday


Monday


Tuesday

Wednesday

	Members Pre-registered Prices: Dinner Meetings members..... \$45 Emeritus/Honorary members..... \$40 Student members..... \$10 Nonmembers & walk-ups \$50 Except - Env. & Eng. \$30 Nonmembers & walk-ups \$35 Emeritus/Honorary members..... \$15	Reservations: The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org . If you have no Internet access, you can e-mail reservations@hgs.org , or call the office at 713-463-9476. Reservations for HGS meetings must be made or cancelled by the date shown on the HGS Website calendar, normally that is 24 hours before hand or on the last business day before the event. If you make your reservation on the Website or by email, an email confirmation will be sent to you. If you do not receive a confirmation, check with the Webmaster@hgs.org. Once the meals are ordered and name tags and lists are prepared, no more reservations can be added even if they are sent. No-shows will be billed.	
3	4	5 HGS Board Meeting 6 p.m.	6
10	11 HGS North American Dinner Meeting <i>"Quebec's New Play for Light Oil in the Gaspé Peninsula: Appalachian-style Thrusted Valley and Ridge Structures — Devonian, Silurian and Ordovician Reservoirs," Linda R. Sternbach, Page 17</i>	12	13 HGS Environmental & Engineering Dinner Meeting <i>"Geology, Law and Coastal Change," Mr. Kelly M. Haggar, Page 21</i>
17	18 HGS International Dinner Meeting <i>"Submarine Channel Compartmentalization as a Result of Meandering, Cut-off, and Incision," Jacob A. Covault, Page 25</i>	19 HGS Northsiders Luncheon Meeting <i>"Submarine Channel Compartmentalization as a Result of Meandering, Cut-off, and Incision," Jacob A. Covault, Page 25</i>	20
24	25 HGS Legends Night <i>"Geophysicists Who Have Impacted Geologists," Page 13</i>	26	27 HGS General Luncheon Meeting <i>"The Search for New Exploration Plays: When Only the Best Will Do," Julie Garvin, Page 29</i>
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Thursday

Friday

Saturday



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New Year's Day
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2

7

8

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14

15

16

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February 10-12, 2016

NAPE Summit
Houston, TX

March 1-3, 2016

APPEX Global Conference &
Exhibition
London, UK

March 2-3, 2016

SPE/AAPG Colombia Offshore
Workshop
Bogota, Colombia

March 7-10, 2016

GEO 2016
Manama, Bahrain

March 7-11, 2016

GeoConvention 2016
Calgary, Alberta

March 8-9, 2016

HGS Applied Geoscience
Conference
The Woodlands, TX

April 3-6, 2016

AAPG/SEG ICE
Barcelona, Spain

May 2-5, 2016

Offshore Technology Conference
Houston, TX

May 8-16, 2016

HGS Grand Canyon Field Trip
Grand Canyon

June 19-22, 2016

AAPG ACE
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September 6-9, 2016

AAPG/SEG ICE
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Applied Geoscience Conference

March 8 - 9, 2016

Integrated Approaches of Unconventional Reservoir Assessment and Optimization

Please join us for the Houston Geological Society's premier technical conference, offering the latest breakthroughs, technical perspectives and integrated approaches to unconventional reservoir assessment.

Day 1

- Nano-scale Reservoir Behavior and Observations
- Petroleum System Attribute Integration
- Petrophysical Integration to Optimize Completions
- Hybrid Unconventional Opportunities

Day 2

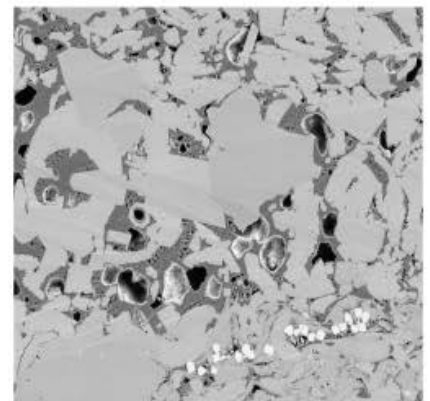
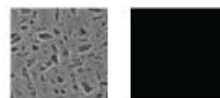
- Unconventional Technology for Tight Reservoirs
- Geophysical Advances for Reservoir Characterization
- Recompletions and Refracturing
- Integrated Reservoir Characterization for Fun and Profit

We will also feature posters highlighting university research, a multi core program supporting the oral technical program and a luncheon keynote address.

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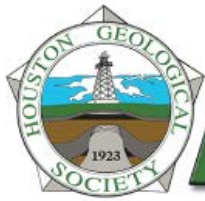
93% Rated the overall quality of the technical presentations as good or exceptional compared to other industry conferences

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Recognition by HGS in Program Book, onsite signage, post show highlights and thank you in HGS Bulletin	✓	✓	✓	✓	✓
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91% Rated the talks as applicable to their every day work

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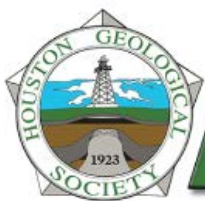
March 8 - 9, 2016

Oral Presentations – Tuesday, March 8, 2016

7:00	Registration and Coffee	
8:00 - 8:10	Welcome and Opening Remarks: Deborah Sacrey , <i>HGS President</i>	
Session 1: Nanoscale Reservoir Behavior and Observations Session Chairs: Joe Macquaker and Avrami Grader		
8:10 - 8:45	Connectivity in Nanoscale Cores	Jap Claver , <i>Guillaume Desbois, RWTH Aachen University, Germany</i>
8:45 - 9:20	Making Geologic Sense of Pore-System Characterizations in Carbonate-Rich Mudrocks: Examples from the Niobrara Formation	David Budd , <i>University of Colorado</i>
9:20 - 9:55	Novel insights from FTIR & LIBS	Kate Washburn , <i>INGRAIN</i>
9:55 - 10:20	Coffee, Core Displays and Exhibitor Presentations	
Session 2: Petroleum Systems Attribute Integration Session Chairs: Neil Fishman and Taras Bryndzia		
10:20 - 10:55	Variations of the Standard Measurement of Maturity (Vro%) in Unconventional Targets	Paul Hackley , <i>USGS</i>
10:55 - 11:30	Improved Assessment of Kerogen Density from Organic-Rich Shales—Impacts on Maturity Estimation and Petrophysical Interpretations	Drew Pombrantz , <i>Schlumberger Reservoir Laboratory Services (DOL)</i>
11:30 - 12:30	Lunch, Poster, Core Displays and Exhibitor Presentations	
12:00 - 12:30	Luncheon Key Note Talk Forward, Backward, Sideways – Market Redux	Dr. Michelle Michot-Foss , <i>University of Texas / BEG - Chief Energy Economist Bureau of Economic Geology's Center for Energy Economics</i>
Session 3: Petrophysical Integration to Optimize Completions Session Chairs: Christina Calvin and Barbara Hill		
12:35 - 1:10	Electrical Properties of Kerogen and Its Impact on Electrical Properties of Organic-Rich Mudrocks	Zoya Heidari , <i>University of Texas</i>
1:10 - 1:45	High Resolution In-situ Elastic Property Characterization of Thin Laminates in Shale Formations	Smaine Zeroug , <i>Schlumberger-Doll Cambridge, MA</i>
1:45 - 2:20	Using Petrophysical Characteristics to Highgrade Prospectivity and Optimize Completions	Lisa Marlow , <i>Scotty Tuttle, Keith Owen, Herman Vacca, Halcon Resources</i>
2:20 - 2:45	Coffee, Core Displays and Exhibitor Presentations	
Session 4: Hybrid Unconventional Opportunities Session Chairs: Gretchen Gillis and Obie Djordjevic		
2:45 - 3:20	Using Advanced Logging Measurements to Develop a Robust Petrophysical Model for the Bakken Petroleum System	Gary Simpson , <i>John Hohman, Hess Corporation</i> ; <i>Iain Pirie, Jack Horkowitz, Schlumberger</i>
3:20 - 3:55	A Tale of Two Three Forks: Unravelling the Intricacies of the Three Forks Using a Hybrid Conventional/Unconventional Toolset	Mark Millard , <i>SM Energy</i> , <i>Riley Brinkerhoff, Sam Fluckiger</i>
3:55 - 4:00	Closing Comments, Invitation to Posters and Core Sessions at Hotel Venue	
4:00 - 6:00	Core, Exhibitor and Poster Presentations	

Poster Session – *Invited Presentations*

Open during Tuesday Social Hour, All Coffee and Lunch Breaks • Allison Hall, Main Conference Room



Applied Geoscience Conference

March 8 - 9, 2016

Oral Presentations – Wednesday, March 9, 2016

7:00	Registration and Coffee	
	Session 5: Unconventional Technology for Tight Reservoirs Session Chairs: Mike Cameron and Mark Andreason	
8:10 - 8:45	A Regional Assessment of the Emerging Marble Falls Play in the Fort Worth Basin: The Effects of a Complex Sequence Stratigraphic Framework on Reservoir Lithofacies Distribution	Beau Berend , Ulysses Hargrove, Craig Adams, <i>Newark E&P Operating, LLC, Fort Worth, TX</i> ; Mike Grace, <i>Independent Consultant, Lake Kiowa, TX</i> ; Mike Mullen, <i>Stimulation Petrophysics Consulting, Denver, CO</i>
8:45 - 9:20	Comparing Gas Shales and Tight Oil Reservoirs	Alton Brown , <i>Independent</i>
9:20 - 9:55	TBA	
9:55 - 10:25	Coffee, Core Displays and Exhibitor Presentations	
	Session 6: Geophysical Advances for Reservoir Characterization Session Chairs: Lisa Neelan and Paul Collins	
10:25 - 11:00	Drilling and Completions Engineers Want More From Seismic	David Paddock , Colin Sayers, Don Lee, Chuck Wagner, <i>WesternGeco Schlumberger</i>
11:00 - 11:35	Marcellus — Geophysical Advances in Characterization	Damian Lynch , <i>Statoil</i>
11:35 - 1:00	Lunch, Poster, Core Displays and Exhibitor Presentations	
	Session 7: Recompletions and Refracturing Session Chairs: Casee Lemons and Arlin Howles	
1:00 - 1:35	Faulty Fracs — Can We Avoid the Need to Refrac with Better Input From Geoscientists?	Mike Vincent , <i>Fracwell</i>
1:35 - 2:10	Insight into Geomechanics of Re-Fracking — A Geomechanically Optimized Treatment Design	Sudhendu Kashikar , <i>MicroSeismic, Inc.</i>
2:10 - 2:45	Well Integrity and Candidate Requirements for Refracturing in Multiple Fractured Horizontal Wells	George King , <i>Apache</i>
2:45 - 3:15	Coffee, Core Displays and Exhibitor Presentations	
	Session 8: Integrated Reservoir Characterization for Fun and Profit Session Chairs: John Breyer and Andy Benson	
3:15 - 3:50	Eagle Ford Reservoir Characterization Integration for Economic Success	Falene Petrik , <i>Marathon Oil</i>
3:50 - 4:20	Advanced Petrophysical, Geological, Geophysical and Geomechanical Reservoir Characterization — Key to the Successful Implementation of a Geo-Engineered Completion Optimization Program in the Eagle Ford Shale	Tie Sun , German Merletti, Hemali Patel, Stephan Cadwallader, Mitchell Graff, Jeff Wampler, Ivan Gil, Herb Sebastian, David Spain, Omar Aguirre, <i>BP America</i>

Core Display Chairs: Bruce Woodhouse and Taras Bryndzia

Core Displays

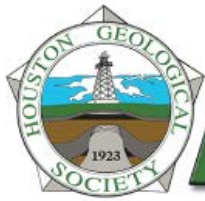
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Applied Geoscience Conference

March 8 - 9, 2016

Student Posters – March 8-9, 2016

Poster Session Chairs: Mike Effler and Steven Macallelo

University	StudentName	Poster Topic
Gdansk University of Technology	Aleksandra Ptaszynska	The Role of Mineral and Organic Matter Constituents in Kerogen Transformation and Hydrocarbons Mobility
University of Alberta	Korhan Ayranci , Tian Dong, Nicholas Harris	Detailed Lithofacies Analysis and Sequence Stratigraphy of the Horn River Group, British Columbia, Canada
University of Calgary	Emma L. Percy , Dr. Per Kent Pedersen	Identifying “Sweet Spots” in Mudstones: Applying Conventional Exploration Methods to Unconventional Reservoirs
University of Houston/ GFZ-German Research Center for Geosciences	Jingqiang Tan , Brian Horsfield	Geological Characterization for the Lower Silurian and Lower Cambrian Shale Gas Systems in South China
University of Oklahoma	Sayantana Ghosh , Caleb P. Bontempi, Roger M. Slatt	Woodford Shale Fracture Distribution from Arbuckle Wilderness and US-77D Outcrops
University of Oklahoma	Jing Zhang , Bryan Turner, Roger Slatt	XRF Chemostratigraphy for Characterizing a Shale Reservoir Along a Horizontal Well Track
University of Oklahoma	Tengfei Wu , Jeremy Boak	Chemostratigraphy and Mineral Evolution of the Green River Formation
University of Texas	Christopher Hendrix , Harry Rowe, Robert G. Loucks	Calcareous Mudrock Chemolithostratigraphy of the Late Cretaceous South Texas Shelf
University of Texas	Lauren Redmond , Robert Loucks, Harry Rowe	Tying Core Descriptions and Optical Petrography with XRF Geochemical Data for a Detailed Characterization of the Mississippian Barnett Formation in the Southern Fort Worth Basin of North-Central Texas
Virginia Polytechnic Institute	T.R. Them II , B.C. Gill	Paleoenvironmental Changes Recorded in an Early Jurassic Mudrock Succession from Western North America

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Allison Hall Main Conference Room

Earth Science Celebration at HMNS

October 10, 2015

by Sharon Choens and Inda Immega

The Houston Geological Society and Houston Museum of Natural Science (HMNS) hosted Houston's sixteenth annual Earth Science Celebration at the Museum on October 10, 2015. This event kicked off Earth Science Week, an international celebration of earth science coordinated by the American Geosciences Institute (AGI).

Over 328 children and their families explored what it means to see our planet through eyes informed by the geosciences. The participants received a "passport" which guided them through the nine "passport stations" located in the HMNS exhibit halls. The participants interacted with experts and asked questions about this year's theme, "Visualizing Earth's Systems."

Teachers attending the event received an AGI Toolkit for their classrooms.

HGS volunteers **Sharon Choens** and **Inda Immega** served as event Chairs. Many thanks to the HMNS staff for their support and to the more than 65 volunteers who assisted with the event. A special thanks to the participating groups who organized and staffed "passport stations": CEA, Oxy Women's Geoscience Group, AWG, GCSSEPM/NAMS, GSH/SEG, HGMS, UH SEG Wavelets,

UH Geosociety and to our college students, HGS and Museum volunteers. ■



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Seventh Annual Deepwater and Shelf Reservoirs

26-27 January 2016

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 7th Annual AAPG Deepwater and Shelf Reservoirs Geoscience 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.



aapg.to/gtw2016deepwater

AN AAPG GEOSCIENCES TECHNOLOGY WORKSHOP

Reality-Based Reservoir Development: New Teams, Techniques, Technologies

24-25 February 2016, Midland, Texas

Building on the success of the Oklahoma City AAPG-SPE joint program on "Reality Based Reservoir Development," the WTGS and AAPG are teaming up to create a workshop that brings together engineers and geologists to give each other new insight and to formulate solutions.

With the recent surge in new techniques and technology, as well as new plays put into production, a tremendous opportunity exists in both U.S. and international reservoirs to apply lessons learned to existing reservoirs in order to economically increase production and recoverable reserves.

What are the geological realities that engineers need to know? What are the engineering realities that geologists need to know?

Come join us in Midland and help find the answers to these questions!



www.aapg.org/career/training/in-person/workshops

HGS Outreach Volunteers at the Houston Gem and Mineral Society Show

by Janet Combes

The annual Houston Gem and Mineral Society Show, held at the Humble Civic Center, is an event in which HGS participates every year; the 2015 event took place on September 25-27. The HGS booth included K-12 student posters, rock displays with hand lenses donated by Occidental Petroleum, 3D maps (supplied by **Jim Flis**), seismic lines (Gulf of Mexico samples from ION), a well log provided by Neuralog, and giveaway samples of rock salt donated by the Hockley Salt Mine. Thursday afternoon was the set-up time when **Jim Flis**, **Janet Combes**, and recent MS graduate **Cameron Stanley** set up the displays. Friday was for school field trips: the 2015 show had 2,172 students, teachers, and chaperones that came through — all with a sheet of TEKS oriented questions that included the HGS as a designated stop. **Jim Flis**, **Donna Davis**, **Ken Green**, **Cameron Stanley**, and **Marsha Bourque** staffed the HGS area on Friday. In addition to the general public, about 100

Boy Scouts and Girl Scouts came through the HGS booth on Saturday working on their geology badges and patches, again with specific questions for an HGS geologist. **Huw James**, **Arthur Ross**, **Sarah Heinlein**, **Laurie Green**, **Ken Williams**, **Larkin Spires**, **Erik** and **Sarah Hoffman**, and **David** and **Amanda Haddad** manned the HGS booth on Saturday. On Sunday, **Janie** and **Jim Schuelke**, **George Chu**, **Elizabeth Baker**, **Daniel Collins**, **Krys Miller-Zelewski**, and **Janet Combes** answered questions from the eager general public and helped the junior college students answer their “scavenger hunt” questions for extra credit. Many of the parents commented on how interesting and informative the HGS displays were and how the children were able to handle the rock specimens. Total attendance at the show was 5,218. Several of the show organizers made a point of telling us how much the HGS effort was appreciated. ■



Recent grad Cameron Stanley and long time volunteer Donna Davis prepping Hockley salt sample give-aways.



Ken Green explaining the 3D maps to visitors.



Some of the Boy Scouts enjoying the 3D glasses.



Neal Immega and Tom DeBoise at the adjacent tables for the Houston Museum of Natural Science with assorted fossils (Inda Immega is behind them with other activities).



Janet Combes showing how to use a hand lens (donated by Occidental).

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FEBRUARY 29-MARCH 4, 2016



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- ▶ Fluvial Sedimentology and Geomorphology
- ▶ Applied Seismic Geomorphology and Seismic Stratigraphy – Extracting Geologic Insights from 2D and 3D Seismic Data
- ▶ Carbonate Reservoir Geology: Understanding Depositional and Diagenetic Factors Controlling Porosity
- ▶ Carbonate Depositional Systems
- ▶ Applying Ideas of Carbonate Sedimentology, Stratigraphy and Depositional Environments to Petroleum Exploration and Production
- ▶ Extracting Geology from Seismic Wiggles: Basic Seismic Interpretation for Non-Geophysicists
- ▶ Integrating Data from Nano- to Macro-Scale: Improving Characterizations of Unconventional Plays
- ▶ Essentials of Production Geology
- ▶ Shale Gas Geomechanics
- ▶ Applications of Stable Isotope Geochemistry in the Petroleum Geosciences
- ▶ Log Analysis of Shaly Sand Reservoirs
- ▶ Log Analysis of Hydrocarbon-Bearing “Shale” Reservoirs

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W: www.aapg.org/career/training/in-person/education-conference



AAPG

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Conference 2016

February 29-March 4, 2016 - Houston, Texas

Upcoming Education Courses

2016 Courses:

E-SYMPOSIA

Fluvial Sedimentology and Geomorphology	Jan. 14, 2016 2 pm, CST
Ambient Seismic Imaging	Jan. 21, 2016 2 pm, CST
A Field Safety Seminar	Feb. 18, 2016 2 pm, CST

SHORT COURSES

World-Class Education Conference	February 29-March 4, 2016 Houston, TX
Basic Well Log Analysis	April 25-29, 2016 Austin, TX
How to Find Bypassed Pay in Old Wells Using DST Data	April 26-28, 2016 Austin, TX
Petroleum Geology for Engineers (with OTC meeting)	May 6, 2016 Houston, TX
Basic Seismic Interpretation	May 17-18, 2016 Tulsa, OK
“Old” (pre 1958) Electric Logs: A Quick Review	May 19, 2016 Tulsa, OK
Quick Guide to Carbonate Well Log Analysis	May 20, 2016 Tulsa, OK

FIELD SEMINARS

Modern Terrigenous Clastic Depositional Systems	May 31 - June 7, 2016 South Carolina
Field Safety Course for Field Trip Leaders	April 6-7, 2016 Houston, TX
Carbonate Reservoir Analogues: Play Concepts & Controls on Porosity (with Barcelona ICE mtg.)	April 7-12, 2016 Almeria, Spain
Reservoir Analogues from Modern & Ancient Turbidite Systems, Tabernas Basin (with Barcelona ICE mtg.)	April 7-10, 2016 Spain
Interp. of Thrust Belts & Foreland Basins: Models from the Spanish Pyrenees (with Barcelona ICE mtg.)	April 7-10, 2016 Spain
Fractured Carbonate Reservoirs Outcrops (with Barcelona ICE mtg.)	April 7-9, 2016 Italy
Sequence Strat., Facies Architecture & Reservoir Characterization	April 30-May 7, 2016 Utah

www.aapg.org/career/training/



AAPG

Education

A Simple Hello Can Lead to a Million Things

by Bonnie Milne

The Houston Geological Society has an astonishing 279 Emeritus, 3,296 Active and 165 Associate Members. Our HGS organization consists of geoscience professionals, educators, students, and interested industry parties throughout the Houston area and beyond. Members of HGS include a cross-section of many disciplines of geology, geophysics, and engineering, with members of all ages and all levels of experience.

An important function of The Houston Geological Society is to enable members to network and interact. Towards this objective, the HGS Membership Directory can be a powerful tool allowing members to find each other and connect. However, the Membership Directory requires updating and improvements to provide the best possible vehicle for networking.

The Directory Committee 2015-2016 is anchored by the following individuals: **John Tubb Jr.**, **Brittany Davis-Morris** and **Bonnie Milne**. Together with cooperation from website chair **Linda Sternbach** and Membership Chair **Sharie Sartain**, the group will spearhead all aspects of the online **Directory Update Initiative** (otherwise known as DUI). The goal of the committee is to prepare a robust and searchable Membership Directory available as a link on the HGS Website as well as a downloadable PDF for those who prefer to do their networking with a printed medium.

Please be aware that members will receive an email blast in the near future with instructions to log on to the hgs.org website for the purpose of updating and augmenting your personal data.

Although the submission of personal data and information will be the personal choice of the Member, the Directory Committee will format the request to add the following updated information to your profile:

- Name and Title
- Company
- Address
- Phone Number
- Email address
- Status of Membership (Active, Associate, Emeritus) and date of joining HGS
- Degree- School- Year Degree Received
- Spouse/Partner Name
- Photo
- Resume (available only if submitted by member and available as a 'drop down' on the Website Directory. The resume will be available for review only online and will not be included in the printable version.

Again, **all personal information submitted will be at the discretion and choice of the member!** ■



Eagle Ford, Depth For New Landing Points, Re-Fracking, Mapping, TOC%Co3, Correlation Study South Texas

- 256 page 11X17" quality paper, spiral bound Folio, All digital
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- 26 wells, 4000 feet Cored Interval, 840+ TOC/%CO3 values, paleobathymetry
- Maps: 2 high TOC depth maps, 7 Structural, 7 Isochore, 7 Cross Sections
- Age dated Maximum Flooding Surface, Up to 7, as mapping horizons
- 26 Well Reports: Age, MFS, well-log, CN, Forams, TOC/%CO3, Histograms

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2015 – 2016 Houston Open Enrollment Course Schedule

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April 25 – 29, 2016
September 26 – 30, 2016

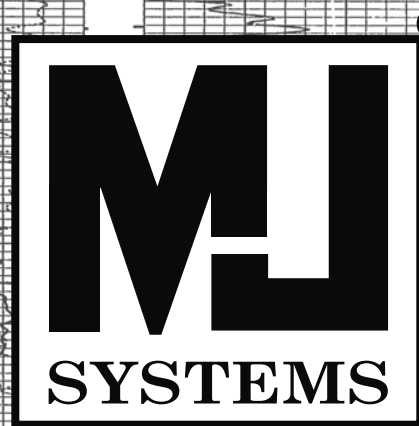
**Evaluating Tight Oil and Gas
Reservoirs**

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October 4 – 6, 2016

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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 2015)

New Bill Would Draw on Citizen Science, Crowdsourcing to Solve National Problems

Senator Chris Coons (D-DE) has introduced a bill that would authorize and promote federal agencies to use citizen science and crowdsourcing to help solve problems within the federal government. The Crowdsourcing and Citizen Science Act of 2015 (S. 2113) will allow citizens to offer their innovation and expertise voluntarily to federal agencies in order to reduce the use of federal resources.

If passed, members of the public would be able to voluntarily participate in the federal scientific process and open calls would be issued for voluntary assistance from large groups of individuals. According to Sen. Coons, the bill would make larger amounts of scientific research available to the federal government.

As Sen. Coons stated, "Open innovation tools like crowdsourcing and citizen science can present solutions to real challenges by drawing on the knowledge, creativity, and expertise of citizens, but it's an approach that is too often underutilized in government

Land Water Conservation Fund Expired September 30, 2015

The Land Water Conservation Fund (LWCF), a conservation program annually funded by royalties from offshore oil and gas production, expired on September 30, 2015. The LWCF provides funding for federal, state, and local governments to purchase land and water and provides funding for conservation projects throughout the United States.

The 50-year-old law was originally authorized for \$900 million in 1965 and was last reauthorized in 1990. As of October 1, 2015, which marked the beginning of the 2016 fiscal year, appropriators will still be able to draw money from the fund until the continuing resolution runs out on December 11, 2015. As of now, oil and gas companies do not have to pay into the fund due to the program's expiration.

Senators Richard Burr (R-NC) and Michael Bennet (D-CO) have introduced a bill to permanently reauthorize the LWCF. The bill, S. 338, was placed on the Senate Legislative Calendar under General Orders in February of 2015.

DOE Releases 2015 Quadrennial Technology Review

The Department of Energy (DOE) released their second

Quadrennial Technology Review (QTR 2015) in September. The QTR 2015, a comprehensive review of the most forward thinking and promising research within the agency, will help inform the DOE's future decisions.

The report addresses the energy needs and usage of the United States, as well as DOE's funding decisions, approaches to partnerships, and other actions with respect to the evolving nature of energy technology and scientific capability. It focuses on the technologies that have commercialization potential, including hydropower technology, geothermal power, fast-spectrum reactors, solar power, and marine and hydrokinetic power. It also reinforces DOE's new push toward de-carbonization. The policies and regulations examined by the DOE are addressed separately in the Quadrennial Energy Review (QER).

The first QTR was released in 2011 in response to a report from the President's Council of Advisors on Science and Technology.

Vice President Biden and DOE Announce Funding for New SunShot Initiative

On September 21, 2015 Vice President Joe Biden in coordination with the Department of Energy (DOE) announced the creation of a new initiative to fund solar research and development in the United States. The SunShot Initiative within DOE's Office of Energy Efficiency and Renewable Energy will receive \$102 million in federal funding for new public-private partnerships and projects to make solar energy more affordable and accessible.

Under the new initiative, \$52 million will be made available to companies, non-profits, universities and national labs for partnerships to make solar energy more widely available. The rest of the funds will go toward new funding for solar photovoltaic research.

The U.S. Department of Agriculture will also receive funds to help implement alternative farming systems for people living in rural areas and communities.

President Obama Plans to Accelerate the Acquisition of a New U.S. Icebreaker

In order to keep up with increasing ship traffic in the Arctic Ocean, President Obama has announced his plan to accelerate the acquisition of a new heavy icebreaker for the United States. The plan would call for faster acquisition of a replacement heavy icebreaker by 2020 instead of 2022 to help with the growth of

Government Update continued on page 45



HGS Welcomes New Members

New Members Effective November 2015

ACTIVE MEMBERS

Gary Acton
 Karl Alfeld
 Stacy Burgess
 Ricky Carroll
 ChingWen Chen
 Dean Gaffney
 Andrea Gregg
 Gary Hampton
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 Andrea Thompson
 Joseph Westrich
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Matt Malouf

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 Prentiss Fatherree
 Corine Prieto
 William Read
 Faris Samuelson
 George Tappan
 Martin Wensrich
 Wm. Feathergail Wilson

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 Yinshuai Ding
 Suoya Fan
 Gultekin Kaya
 Jacob Kratavil
 Aaron Lee
 Ashish Mathur
 Carolina Ramon
 John Reed
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Welcome New Members

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human activity in region. The icebreaker will be used to promote global commerce and scientific research and will be managed by the U.S. Coast Guard. In addition, the National Oceanic and Atmospheric Administration (NOAA) and the Coast Guard would begin to map and chart waters in the Chukchi, Beaufort, and Bering Seas to promote safe maritime transportation under the plan.

Currently, the United States Coast Guard only has two functional polar icebreakers, the *Healy*, a medium icebreaker commissioned in 1999, and the *Polar Star*, a heavy-duty icebreaker commissioned in 1976.

New Executive Order Aims to Improve Federal Programs with Social Science Research

An Executive Order signed by President Obama on September 16 would direct federal agencies to identify programs that could benefit from social and behavioral science insights. The order is based on the new Social and Behavioral Sciences Team's (SBST) first annual report and establishes guidelines simplifying government forms. The SBST is a White House initiative created in 2014 intended to make government programs more effective and efficient.

The SBST's report indicated that successive reforms and improvements to federal agencies increased economic opportunities. For example, the U.S. Department of Agriculture worked with the SBST to better inform farmers on how to obtain microloans. This collaboration resulted in a 22 percent increase in farmers applying for financial aid and a subsequent 22 percent increase in likelihood that farmers would obtain a microloan.

In their second year, the SBST will take on a new project to address energy- and environmental-related challenges. The project will aim to deliver better information to automotive drivers about optimal fuel usage, increase the amount of renewable fuels used in the government fleet, and inform families about energy efficient appliance options to reduce superfluous energy usage and lower costs.

Congress Reauthorizes the National Windstorm Impact Reduction Program

On September 16, 2015 Congress passed the National Windstorm Impact Reduction Act Reauthorization of 2015 (H.R. 23), which now awaits President Obama's signature. The bill, introduced by Rep. Randy Neugebauer (R-TX), would reauthorize the National Windstorm Impact Reduction Program (NWIRP) through fiscal year 2017.

NWIRP is a federal interagency program intended to better characterize the nature of windstorms and to develop measures to lessen the impacts and damages from windstorms. Agencies under NWIRP include the National Institute of Standards and Technology (NIST), which leads the initiative, the National Science Foundation (NSF), the Federal Emergency Management Agency (FEMA), and the National Oceanic and Atmospheric Administration (NOAA).

In addition to more research, H.R.23 also requires the NSF to support research into economic factors that might influence measures taken to reduce the risk and destruction caused by windstorms.

NASA Orbiter May Reveal Liquid Water on Mars

Liquid water may flow intermittently on Mars. In a recent mission, NASA's Mars Reconnaissance Orbiter (MRO) used an imaging spectrometer to detect chemical signatures of hydrated salts concentrated in dark streaks along slopes on Mars's surface.

NASA reported that these streaks, known as recurring slope lineae (RSL), could be related to flowing water, or in this case, flowing liquid brine. The salts could lower the freezing point of the brines, allowing for liquid water to flow. The Orbiter also showed that the RSL darken and lighten in color over time, indicating that these shallow subsurface flows may be seasonally controlled; the streaks darken as the water flows closer to the surface. ■

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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 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. **DO NOT USE POWERPOINT, CLIP ART or Internet images (72-DPI resolution)** as these do not have adequate resolution for the printed page and cannot be accepted. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

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

Random Inside Ad Placement Black & White Prices Shown Color add 30% to prices shown below					Specific Page Color Ad Placement					
No. of Issues	Random Eighth Page	Random Quarter Page	Random Half Page	Random Full Page	Inside Front Cover Full Page	Inside Back Cover Full Page	Page 2 Full Page	Outside Back Cover Half Page	Back of Calendar Full Page	Calendar Quarter Page
10	\$823	\$1,387	\$2,488	\$4,734	\$7,830	\$7,560	\$7,384	\$6,858	\$6,750	\$2,700
9	\$823	\$1,387	\$2,488	\$4,734						
8	\$750	\$1,260	\$2,242	\$4,307						
7	\$665	\$1,123	\$2,014	\$3,834						
6	\$590	\$990	\$1,782	\$3,392						\$1,890
5	\$497	\$837	\$1,503	\$2,860	\$4,698	\$4,536	\$4,466	\$4,104		
4	\$405	\$683	\$1,223	\$2,326						
3	\$327	\$550	\$990	\$1,886						\$1,080
2	\$232	\$392	\$704	\$1,339						
1	\$146	\$246	\$443	\$842	\$1,404	\$1,296	\$1,313	\$1,080	\$1,296	\$810
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!

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

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

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



Application to Become a Member of the Houston Geological Society

Qualifications for Active Membership

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

Qualifications for Associate Membership (including students)

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

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

Annual Dues Expire Each June 30. (Late renewals – \$5 re-instatement fee)
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Telephone: 713-463-9476 Fax: 281-679-5504

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

Name: _____

Address: _____

Home Phone: _____ Spouse's Name: _____

Email: _____

Job Title: _____

Company: _____

Company Address: _____

Work Phone: _____ Fax Number: _____

Circle Preferred Mailing Address: Home Office

Professional Affiliations: _____

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Professional Interest:

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

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School _____

Degree _____ Major _____ Year _____

School _____

Degree _____ Major _____ Year _____

Earth Science Work Experience _____

Applicant's Signature _____ Date _____

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

Name: _____

Signature _____ Date _____

Houston Petroleum Auxiliary Council News

by Shirley Gordon, HPAC-HGS Liaison

Members of the Houston Geological Society, please show this article to your spouse. Spouses of geologists, geophysicists, engineers, and landmen who are current members of their respective professional organizations are eligible for membership in the Houston Petroleum Auxiliary Council, better known as HPAC. HPAC is an organization designed to further friendships and common interests among spouses of HAPL, GSH, SPE and HGS.



HPAC President Norma Jean Jones

On December 15th, we were delighted and royally entertained by the presentation of the Uptown Dance Centre with excerpts from the “Nutcracker Ballet.” As usual, the Racquet Club provided a beautiful venue and delicious food. **Phyllis Carter** and her committee did a superb job of creating a beautiful holiday mood.

On February 23rd from 10:30 am-2:45 pm, we will host our annual **Game Day**. The event will be at Braeburn Country Club, located at 8101 Bissonnet. There will be all sorts of games to play — Chicken Foot Dominoes, Bridge, and Scrabble, and many more. Bring a group of friends and enjoy the day. A lunch will be served around noon, and there will be door prizes, lots of door prizes! **Daisy Wood** is chairman and **Norma Roady** is co-chairman. Committee members are: **Linnie Edwards, Lois Matuszak, Gwenda Scott, Millie Tonn** and **Suzanne Womack**.

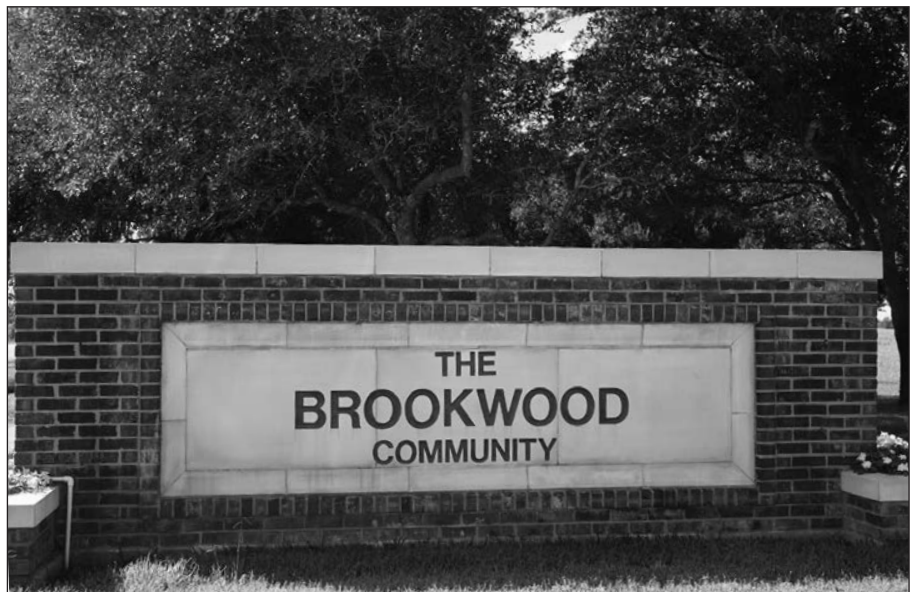
When making your reservation, please indicate your game of choice so the committee can have the necessary number of players. Mark your calendars for February 23rd. It’s a really fun day.

As a reminder, the **Book Club** meets February 1st. **Wanda Shaw** and **Micky Murrell** are hostesses and **Sandra Pazzeta** will be the discussion leader. The book they have chosen is *Isabella, the Warrior Queen*. For all you readers, if this piques your interest, call **Mickey Murrell** at (281) 469-2272 for the time and place of the event. She would love to hear from you. The book list they had to choose from is extensive, so join them to vote for some of the others.

CALLING ALL BRIDGE PLAYERS! There are two bridge groups associated with HPAC. One meets the **third Wednesday** of each month at The Petroleum Club, now at 201 Louisiana Street downtown. **Daisy Wood** is coordinator for that group, so if Wednesday suits your schedule, you can reach her at (832) 571-3132 or (713) 826-7952. The second group, **Cinco Mas**, meets the second Thursday at the Westchase Marriott, 2900 Briarpark. **Audrey Tompkins** coordinates that group and can be reached at (713) 686-0005. Really good Bridge played in both groups!

In the February issue of HGS *Bulletin*, there will be pictures from our December meeting at the Racquet Club. You can then see a great time was enjoyed by all.

Hope you had a wonderful and safe holiday season! ■



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Please choose a committee assignment if you are interested.

- | | | | |
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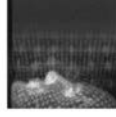


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