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Volume 58, Number 4

Houston Geological Society

December 2015



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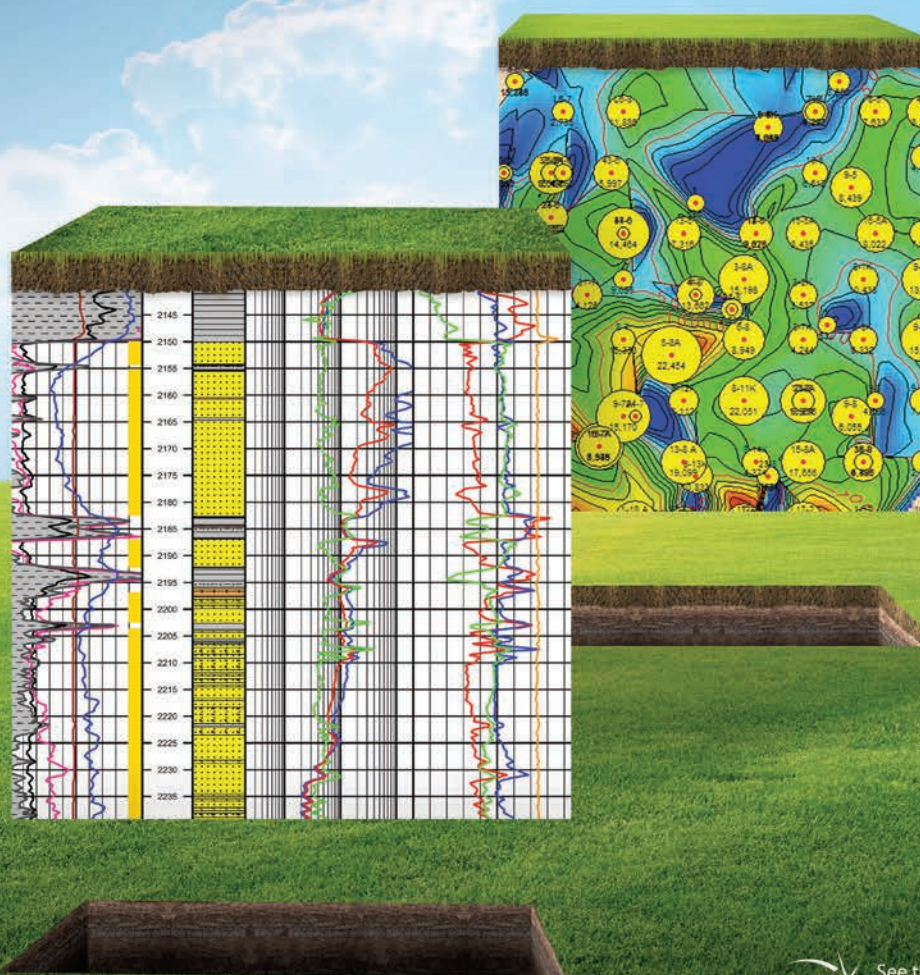
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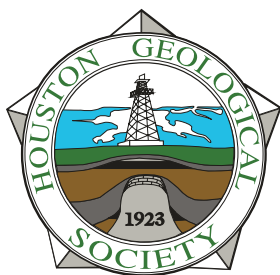
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The Bulletin

Houston Geological Society

Volume 58, Number 4

December 2015

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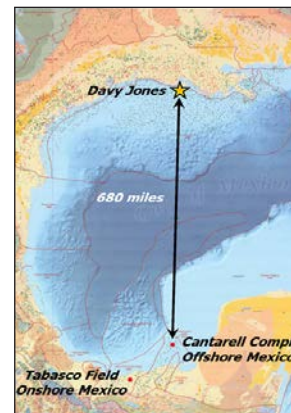
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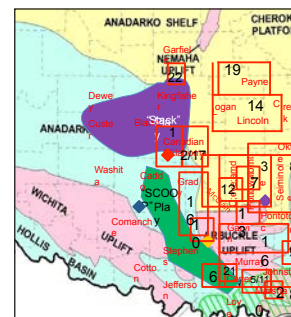
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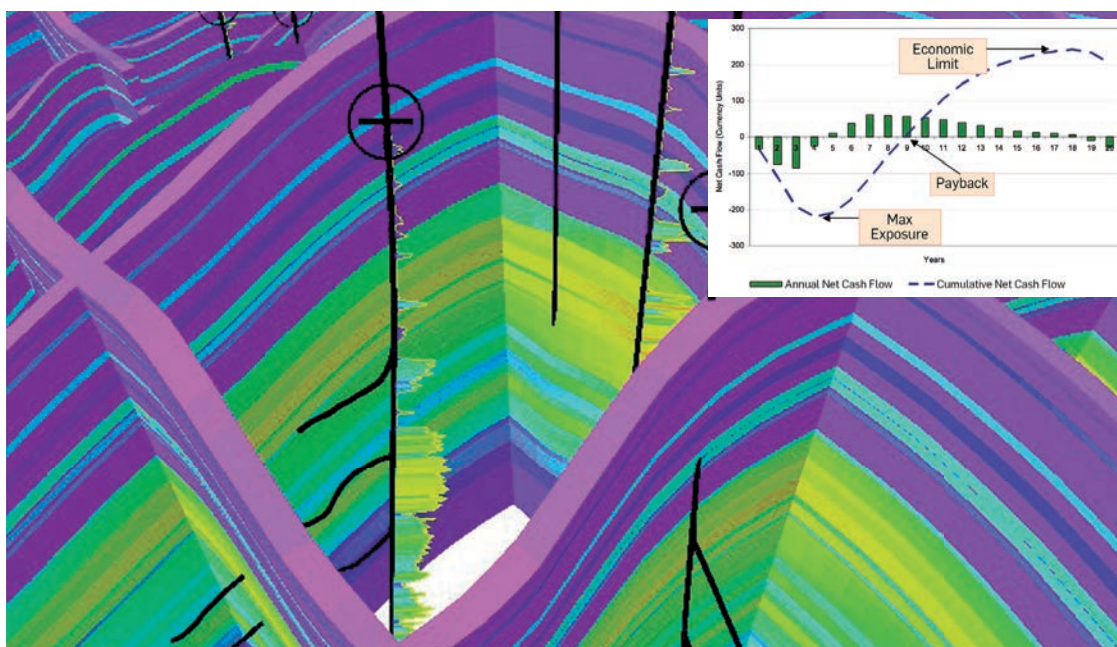
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Deborah Sacrey
HGS President
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Happy Holidays From Your Board!

As I am writing this, I am sitting in a software booth at the ASEG Annual Convention in New Orleans. As one might expect, it is lightly attended — a sign of the times in our industry.

Nevertheless, I am happy to report we had a better than expected turnout at the 2015 GCAGS Convention, with a total attendance of 1,292 attendees. However, not as many people took advantage of the short courses, field trips and luncheons as we had hoped, as I believe people were trying to conserve dollars, and use the event for networking. This tells me that “destination conventions” in the next few years may be difficult for attendance and making extra money for all these organizations may be a challenge.

The HGS Board has been discussing ways in which we can help ease the pain people are feeling during this period of low commodity prices. One thing the Board voted to do is extend student membership status for those who have graduated, but have not yet found a job. Currently students get a significant price break on HGS dinner and luncheon meetings, which helps their budget, while allowing them to gain knowledge from the technical program. AAPG has a policy to help students “transition” to full membership which carries them through two years after graduation. The Board decided to accept this policy as well.

Another way in which we are attempting to help is to offer a discount to members who are unemployed and want to attend luncheons and dinners, but are struggling financially. This process requires calling the HGS office to request such a discount, and is heavily reliant on the honor system... but it is one way the HGS can help mitigate costs for our members.

This continues the theme I started earlier this year for the GCAGS Convention — which is, if you still have a job, please sponsor attendance at a technical presentation for someone who doesn’t! It doesn’t cost much, and you might help someone find a significant contact through networking opportunities, and gain technical knowledge at the same time!

The HGS Board has been discussing ways in which we can help ease the pain people are feeling during this period of low commodity prices. One thing the Board voted to do is extend student membership status for those who have graduated, but have not yet found a job.

So next month is our Legends Dinner! I would like to remind everyone that the Legends Dinner is the primary way the HGS raises funds for both scholarship programs. We expect a full house this year, as the theme is “Geophysicists Who Have Made a Difference in Geologist’s Careers,” and our key speakers are **Tom Smith**, founder of Seismic Micro-Technology, **Alastair Brown**, author of arguably the most popular book on 3-D seismic interpretation, and **Peter Duncan**, who has helped many people understand what is going on with their fracs with micro-seismic data. Sponsorship is a key element to making sure the

Foundations are funded for next year’s students. It is completely tax deductible (for those of you who have that consideration at the end of the year), and definitely goes to a great cause!

The Board is also talking about hosting new social events for next year. This would be to promote networking and trying to help people to make industry contacts outside their normal circle. We are thinking about having “Happy Hour” events at places around town. If you have some good ideas, please let us know!

So, from the Board to our members, we wish you a wonderful holiday season, and stay safe and positive. As with all down cycles, this one too will end. ■

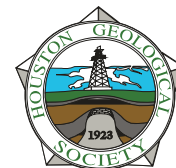
*Respectfully,
Deborah*



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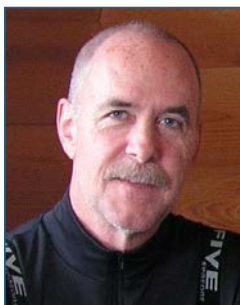
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Jon Blickwede
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The Power of Seeps

With so much emphasis placed on the development of new technology for finding oil & gas, and rightly so, we sometimes forget that there are some old tools and techniques that still retain their usefulness. The most ancient of all methods for petroleum exploration was first applied by early man, who discovered that a sticky black substance (biodegraded oil, or pitch) found in certain places at the Earth's surface, was an effective sealant/caulking material.

During my expatriate assignment for Amoco Venezuela in the 1990's, some of my most memorable experiences were the various excursions I took into the Orinoco Delta, where we understood that the Government was planning to offer two large blocks in the First (and turned out to be the last) Exploration Bid Round scheduled for 1996-97. The delta of the Orinoco River is roughly the same size as Switzerland, but to this day still hasn't a single road or other sort of modern infrastructure within the delta proper. By the 90's, neither had any modern seismic been acquired in the interior of the delta, or oil & gas exploration wells drilled, despite the existence of two significant oil fields on the northern (Pedernales Field) and western (Tucupita Field) delta fringe. Nevertheless, we perceived there was a significant risk that the outer portion of the delta, where one of the blocks had been defined, might be gas-prone — this part of the delta being near to the gas discoveries and producing fields of the Columbus Basin offshore eastern Trinidad. And in those years (and probably to this day), a gas discovery in the remote Orinoco Delta would have been deemed non-commercial.

The main inhabitants of the Orinoco Delta are the people of the Guaraos indigenous group, thought to have settled in this

region thousands of years ago. The delta is not the most easily habitable part of eastern Venezuela, and it's believed that the Guaraos were originally driven into the delta seeking refuge from more belligerent tribes in the region. There is essentially no dry ground, so the Guaraos communities are built on stilts along the banks of the distributary channels. And only a single type of fruit or vegetable, *ocumo chino*, or dasheen, can be cultivated in the perpetually soggy ground. As such, the limited diet of the Guaraos

consists of basically just two foodstuffs: the potato-like dasheen, and fish. The critical importance of the latter as their only significant source of protein means that the Guaraos' fishing technology is paramount to their survival. And an essential material for that technology is pitch from oil seeps, both to seal the ends of sections of bamboo that are used as floats/bobbers set out in the channels with line and hooks on which fish bait is attached, as well as caulk for their main transportation, dugout canoes made from mangrove trees. The Guaraos name for pitch is *oray*. Thus, my primary strategy to search for oil seeps was to travel by boat from one village to another, and inquire if anyone in the community knew of any places nearby where *oray* could be collected. If they claimed to know of such localities, usually a group of men would immediately offer to guide me to the site, which typically would be a



subaqueous spot in the mangrove jungle where they dove underwater and excavated in the mud with their hands and feet, emerging, amazingly, with nodules of pitch. How those hidden seeps might have first been encountered is still a great mystery to me.

I visited the environs of the exploration block in the outer delta, called Punta Pescador, on a few of my excursions. I was armed with a treasure map of sorts, a copy of an old report from a couple of geological expeditions in the 1920's that had

From The Editor continued on page 9

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been passed to me by a friend in Caracas, in which a number of oil seeps/pitch localities were documented in the area. The localities were marked on a series of roughly sketched maps, and using these in conjunction with my usual inquiries at the Guarao communities, I searched and searched for probably a total of three weeks, to no avail. Finally, during early December 1996, just before the bid deadline for Punta Pescador and the other nine blocks in the First Round, we were traversing a small channel where we'd been before, and lo and behold found a ~50 meter stretch of the channel with oil bubbling to the surface in a number of places and spreading out in a sheen. Samples were taken and hot-shotted back to Houston for analysis, which confirmed not only that it was indeed crude oil, but also revealed the chemical composition which correlated to oil produced at the Pedernales Field far to the west. Amoco management ended up deciding to

place a significant bid (something in the neighborhood of USD 100 million, as I recall—a huge bid in those days) on the Punta Pescador block, and won. I don't believe that any bid would have been made by Amoco unless that oil seep had been confirmed.

Later, 3D seismic was acquired in the Punta Pescador block by Amoco, and a wildcat was drilled in another part of the block than the oil seep. Though the well did not reach its ultimate objective, apparently only gas was encountered, and the license was dropped. But I still recall seeing and sampling that oil seep, and the ensuing excitement and impact it created.

You might have been hoping that I'd disclose the location of the seep in Punta Pescador. Well I'm sorry... that information is just too powerful. ☺ ■



Petroleum Systems in "Rift" Basins

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Abstracts @ http://www.gcssepm.org/conference/2015_abstracts4.pdf

Presentations & Papers Addressing:

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Monday, December 7, 2015

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Dinner 6:30–7:30 p.m.

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

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HGS International Explorationists Dinner Meeting

*Walter Wornardt, PhD
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HGS International Meeting

Seismic Sequence Stratigraphic Correlation of Miocene to Cretaceous Section from the Louisiana Continental Shelf to the Deepwater US GoM and the Bay of Campeche, Mexico

Seismic data, maximum flooding surfaces (MFS), marker species, high resolution biostratigraphy and well logs have permitted the correlation of Miocene to Cretaceous sediments from deep wells in South Marsh Island Blocks 222 and 234 to the Davy Jones #1 and #2 wells in South Marsh Island Blocks 230 and 234 of the northern Gulf of Mexico (GoM) shelf. Within the Upper Miocene MFS 7.30 Ma (*Big A*), 8.80 Ma (*Disc 12*) and 10.20 Ma (*Big 2*) MFS were recognized in the South Marsh Island block 222, 230, 234 and 245. Within the middle Miocene the 12.0 Ma (*Text W*), 13.15 Ma (*Big H*) and 14.20 Ma (*Cib Op*) MFS were recognized in the same blocks. Sediments in the Upper Miocene were deposited in ecozones 2 to 3; Middle Miocene sediments were deposited in ecozone 4, mainly as lowstand slope fan sediments.

The MFS's recognized in wells in blocks 222 and 224 were correlated on seismic and well logs to the McMoRan South Marsh Island 230 #1 and 234 #2 Davy Jones wells. The #1 well was placed at the well location along the well trace on Fairfield seismic lines and projected to 35,000 feet. The stratigraphy below the Lower Miocene was interpreted below the salt.

Davy Jones #1 and #2 reported approximately 200 feet of pay in the Wilcox Formation while the Davy Jones #2 well also reported to have penetrated the Tuscaloosa Formation as well as Cretaceous carbonates. The Tuscaloosa sands may be correlated

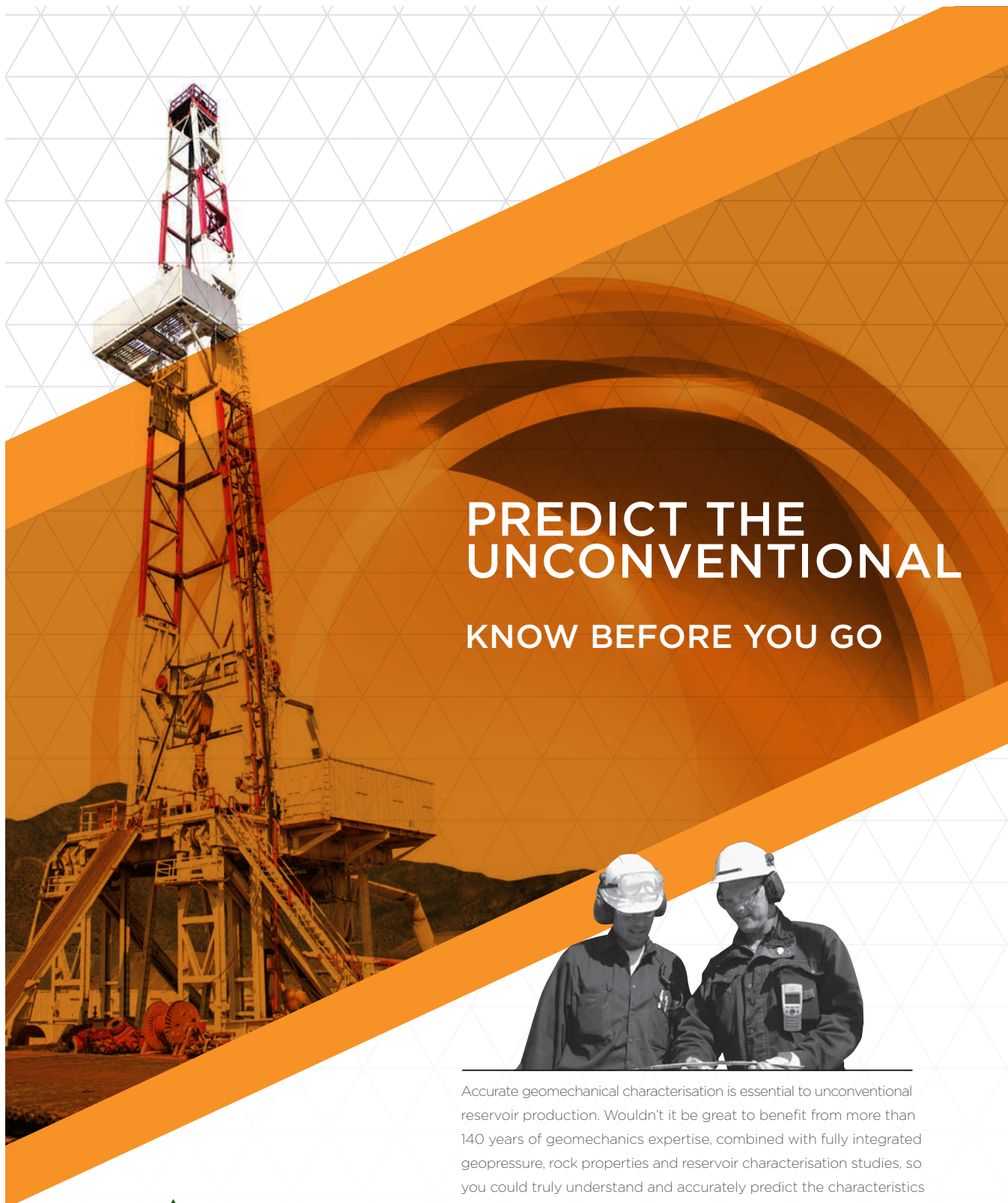
to lower Tuscaloosa sands in several onshore wells in Mississippi and Louisiana.

In the Bay of Campeche of the Mexican GoM, the 4929m Balam-101 well near Cantarell Field penetrated sediments of Pliocene, Miocene, Oligocene, Eocene, Paleocene, and Cretaceous age above the Oxfordian sandstone producing reservoir. At least

SEISMIC SEQUENCE STRATIGRAPHIC SUMMARY		
PEMEX BALAM 101 CAMPECHE BAY, MEXICO		
Sequences Boundaries, Maximum Flooding Surfaces, Systems Tracts	Age (Ma)	Relative Age
Sequence Boundary	5.73	Late Miocene
Maximum Flooding Surface	6.00	
Top Lowstand Prograding Complex		
Sequence Boundary	6.96	
Maximum Flooding Surface	7.65	
Top Lowstand Prograding Complex		
Sequence Boundary	9.26	Middle Miocene
Maximum Flooding Surface	10.21	
Top Lowstand Prograding Complex		
Bottom-Set Turbidites		
Sequence Boundary	11.70	
Maximum Flooding Surface	12.20	
Top Lowstand Prograding Complex		
Sequence Boundary	12.70	
Maximum Flooding Surface	13.15	
Sequence Boundary	13.60	
Maximum Flooding Surface	14.20	
Top Lowstand Prograding Complex		

Figure 1: Sequence Stratigraphy in the Miocene

HGS International Dinner continued on page 13



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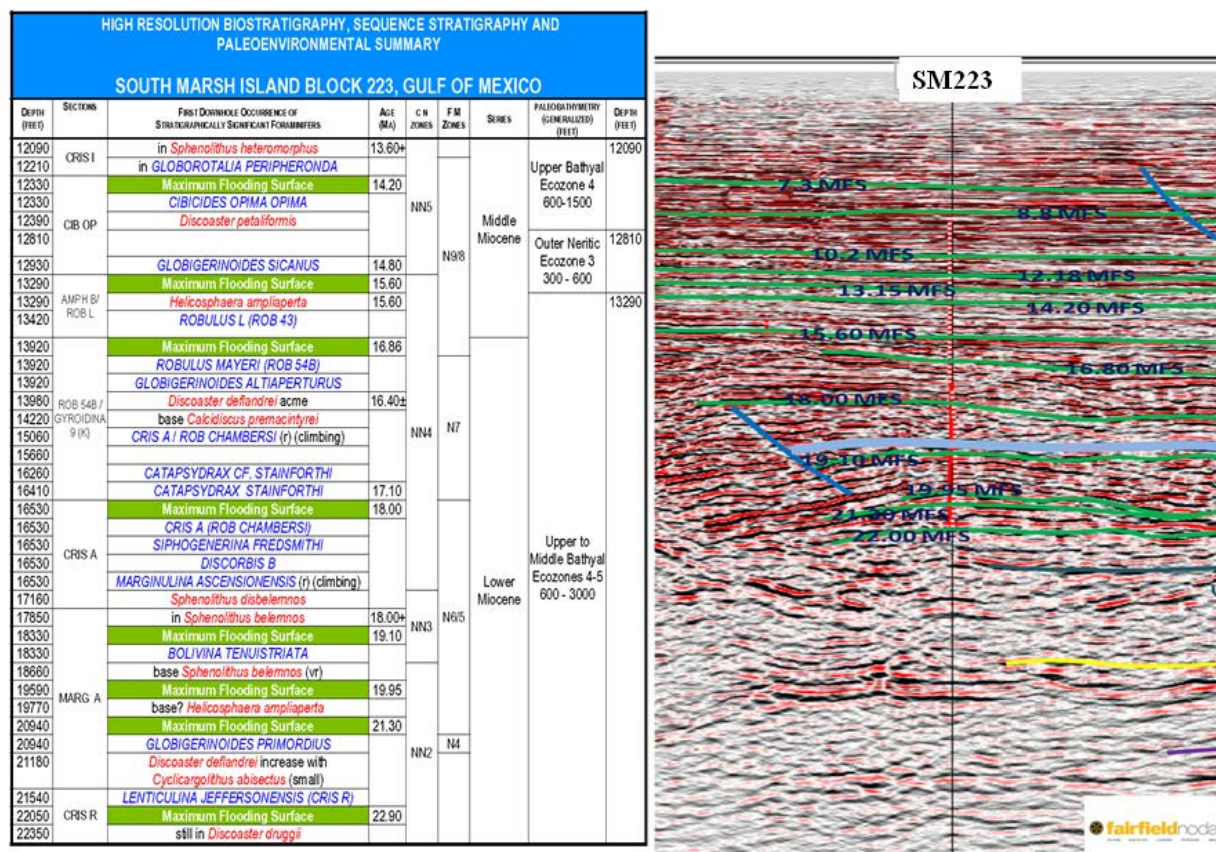


Figure 2: South Marsh Island Block 223, Gulf of Mexico High Resolution Biostratigraphy

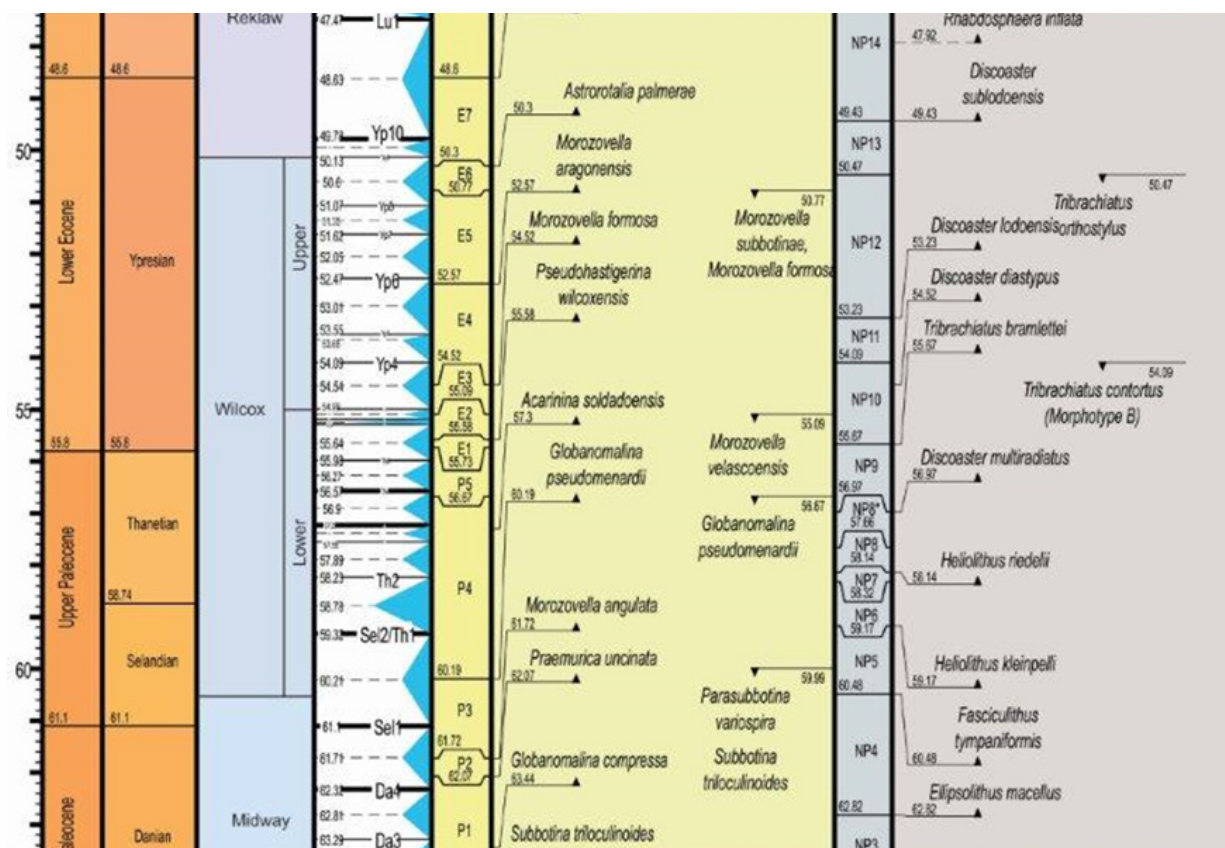
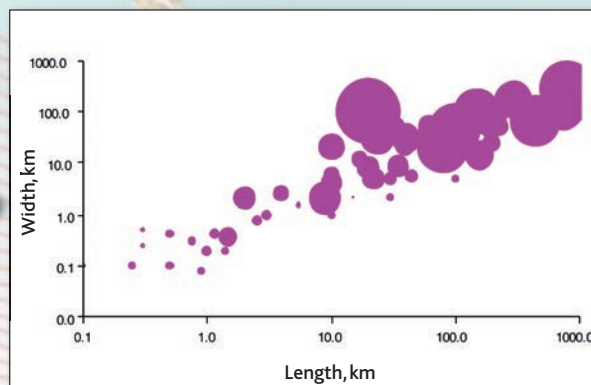
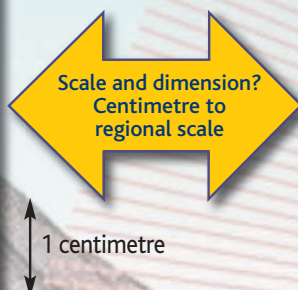
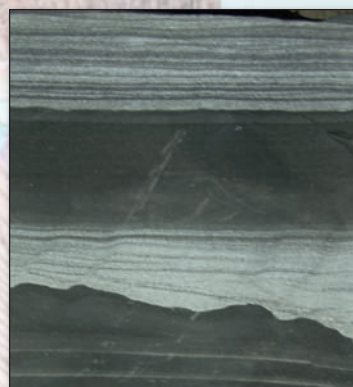


Figure 3: Cycle Chart, Gradstein 2012

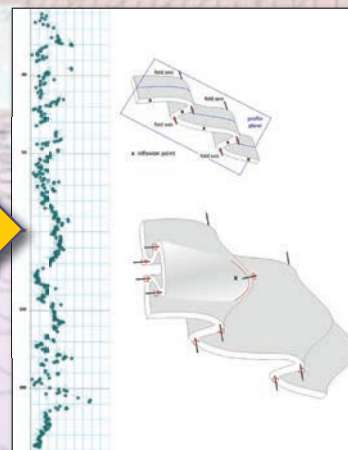
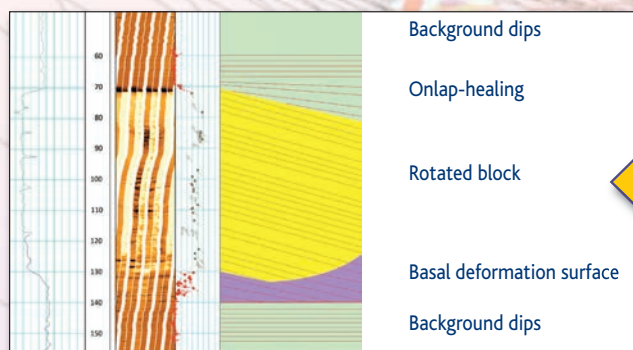
HGS International Dinner continued on page 15

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twenty maximum flooding surfaces are recognized in this well.

The stratigraphic section in the South Marsh Island wells can be correlated with the same 3rd order MFS's in the ultra-deep water Shell Baha #2, Alaminos Canyon 557 well, and to the Pemex

Balam-101 well, Bay of Campeche, Mexico.

This direct line of correlation from the northernmost to the southernmost Gulf of Mexico may aid future exploration in offshore Mexico. ■

SERIES / STAGES	FORMATIONS	ZARRA (2007)	SEQUENCE BOUNDARIES & MAXIMUM FLOODING SURFACES	GRADSTEIN ET AL. 2008	
				LETTER DESIGNATION	AGE (MA)
MIDDLE EOCENE	QUEEN CITY		SEQUENCE BOUNDARY	LU2	45.35
	REKLAW		MAXIMUM FLOODING SURFACE	LU1	47.03
			SEQUENCE BOUNDARY	LU1	47.47
LOWER EOCENE			MAXIMUM FLOODING SURFACE	YP9	49.95
UPPER PALEOCENE	LOWER WILCOX	WILCOX 1B	SEQUENCE BOUNDARY	TH5	56.57
			MAXIMUM FLOODING SURFACE	TH4	56.90
		WILCOX 2	SEQUENCE BOUNDARY	TH4	57.23
			MAXIMUM FLOODING SURFACE	TH2	57.89
		WILCOX 3	SEQUENCE BOUNDARY	TH2	58.23
			MAXIMUM FLOODING SURFACE	SEL2/TH1	58.78
		WILCOX 4	SEQUENCE BOUNDARY	SEL2/TH1	59.32
			MAXIMUM FLOODING SURFACE	SEL1	60.21
LOWER PALEOCENE	MIDWAY	MIDWAY	SEQUENCE BOUNDARY	SEL1	61.10
			MAXIMUM FLOODING SURFACE	DA4	61.71

Figure 4: Sequence Stratigraphy in the Baha-557 well, Alaminos Canyon, GoM

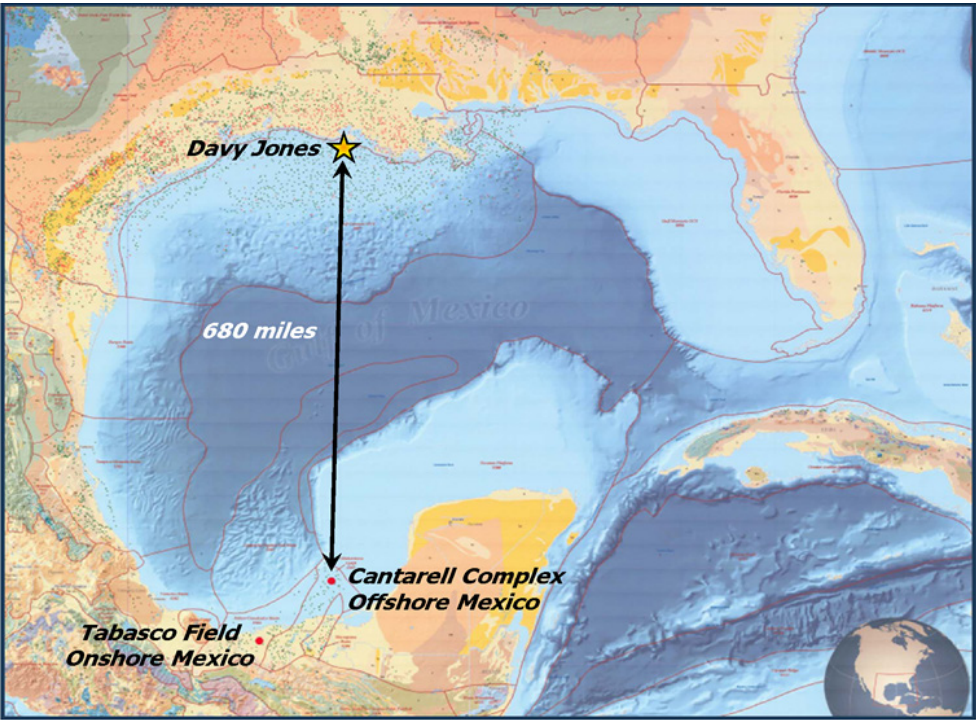


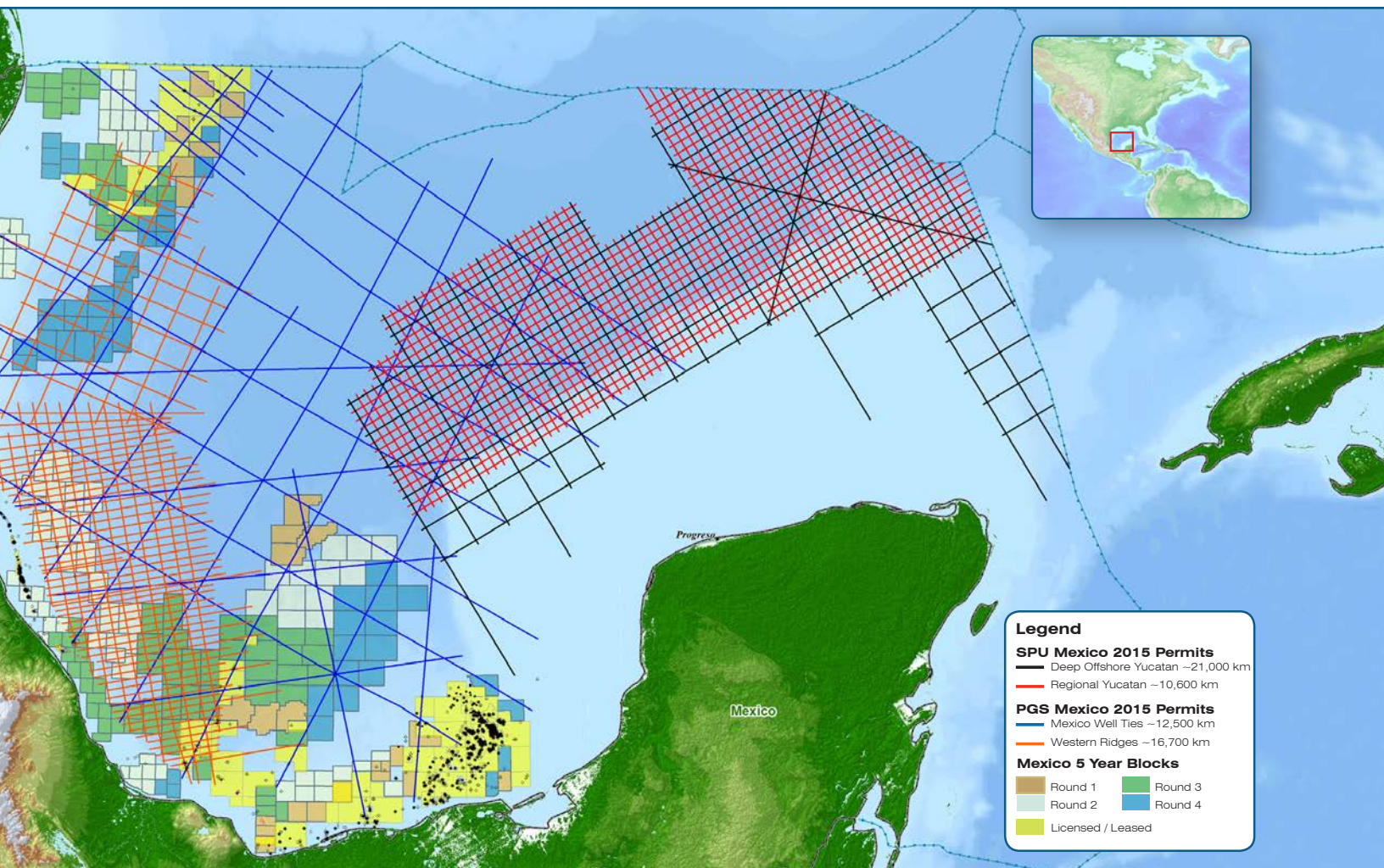
Figure 5: Map Showing Relationship Between Davy Jones Well and Cantarell Wells, GoM

Biographical Sketch

WALTER W. WORNARDT PhD (dw@micro-strat.com) is a professional geologist, practicing seismic sequence stratigraphy and micropaleontology. Beginning with Chevron in drop core analysis offshore Oregon, he subsequently worked at Esso Production Research on palynological correlations in Europe, and performed research on diatoms at Unocal. He was also Chairman of the Department of Geology for three years at University of Redlands, California. In 1983 Dr. Wornardt founded MICRO-STRAT Inc. with offices in Denver, Egypt, and finally Houston, carrying out thousands of biostratigraphic projects. With Dr. Peter Vail he initiated the methodology of well-log/seismic sequence stratigraphic analysis in 1988, followed by more than 30 courses taught in many different countries, solving many complex stratigraphic problems in West Africa (Nigeria, Senegal, Namibia), Egypt, South America and the United States. Recently he has performed similar studies of the deep La Posada well and Vermilion, and unconventionals, Eagle Ford South Texas, East Texas Tuscaloosa, Utica, Saudi Arabia and Poland. A diehard Green Bay Packer fan, Dr. Wornardt has BS and MS degrees in geology from the University of Wisconsin at Madison, and a PhD in geology/paleontology from the University of California at Berkeley.

Mexico GoM

Newly Acquired Multi-Client 2D Seismic



Spectrum's latest long-offset 2D seismic survey offshore Mexico is a collaborative effort with PGS and Schlumberger, spanning approximately 60,000 km. The survey provides seamless broadband seismic coverage across the Gulf of Mexico from the Yucatan Platform in the southeast, to the Perdido Fold Belt in the northwest, tying key wells in producing hydrocarbon basins and sampling emerging pre-salt plays. These strategically placed surveys will help provide greater insight to clients preparing for subsequent licensing rounds.

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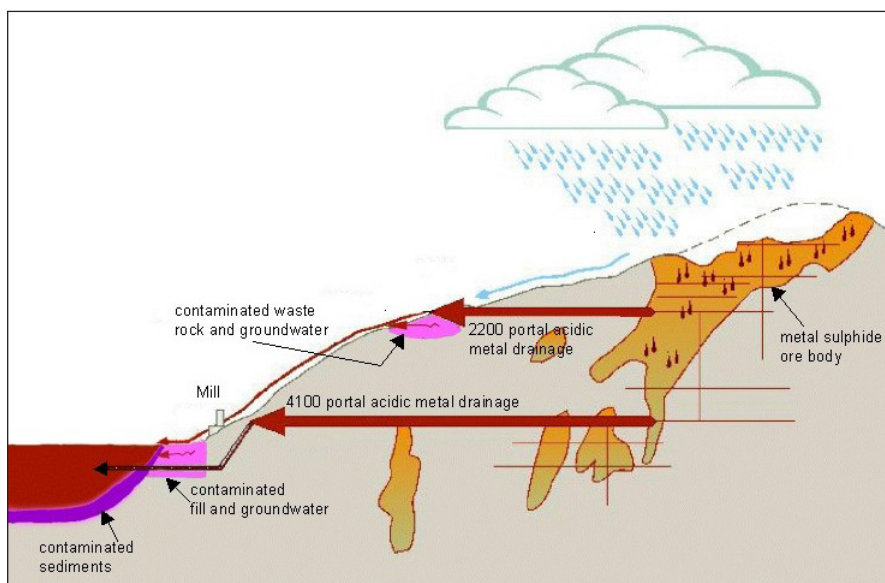
Walk-ups may pay at the door if extra seats are available.

HGS Environmental & Engineering Dinner Meeting

*Matthew R. Cowan, P.G.
Terrain Solutions Inc.*

Acid Mine Drainage: What It Is, Where It Is, and the EPA's Role

Since the Gold King Mine incident in Colorado earlier this year, the spotlight has been on the U.S. Environmental Protection Agency (EPA) and its activities in Colorado. The EPA is addressing the issue of acid mine drainage with a degree of success, but also a degree of failure. Acid mine drainage is the result of a chemical reaction that occurs when water is polluted from contact with the products of mining activity. It is formed when pyrite, an iron sulfide, is exposed and reacts with air and water to form sulfuric acid and dissolved iron. Some or all of this iron can precipitate to form red, orange, or yellow sediments in the bottom of streams containing mine drainage. The acid runoff further dissolves heavy metals such as copper, lead, and mercury into ground or surface water. The negative effects are contaminated drinking water, disrupted growth and reproduction of aquatic plants and animals, and corroding effects of acid on parts of infrastructure such as bridges. From 40 hardrock mines it is estimated that 17-27 billion gallons of polluted water are produced every year. This presentation will focus providing a brief explanation of the chemical reaction, how acid mine drainage forms, and an examination of recent cases. ■

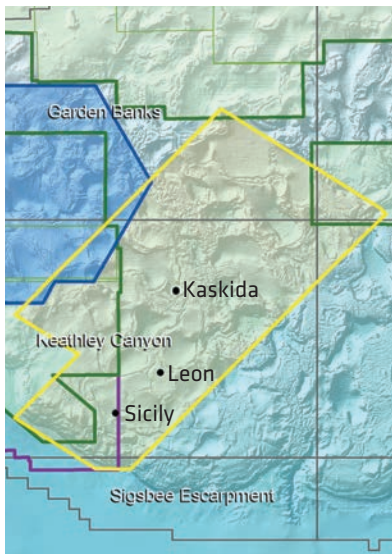
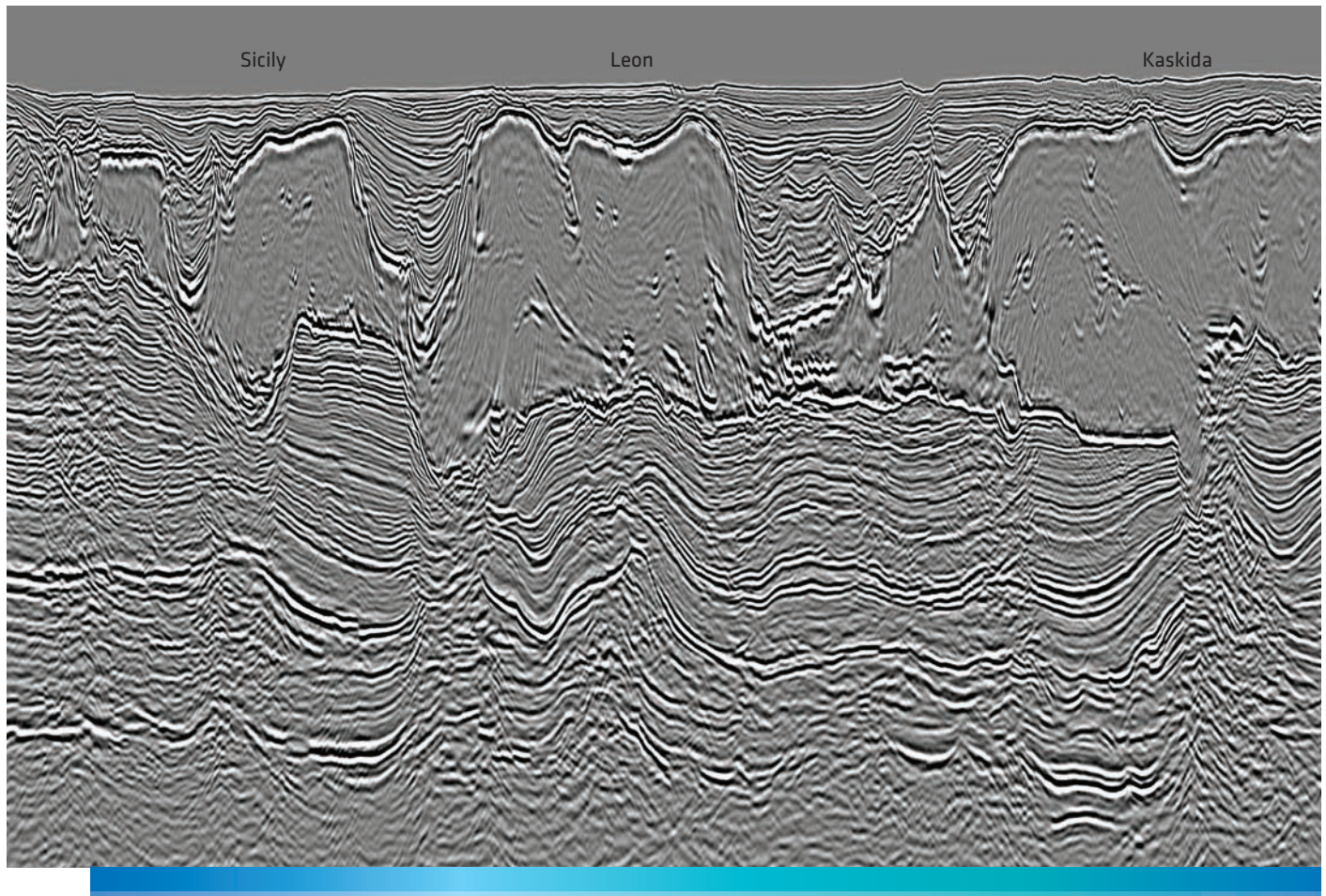


Biographical Sketch

MATTHEW R. COWAN, P.G. has more than 18 years of professional experience in geology, environmental remediation and hydrogeology. Mr. Cowan is currently the Chief Field Geologist for Terrain Solutions Inc., overseeing site investigations and remediations of soil and groundwater. Mr. Cowan is a graduate of Texas A&I University with a Bachelor's Degree in Geology with



a Minor in Mathematics, and obtained his Master's Degree in Geology from Texas A&M University-Kingsville. He is a Licensed Professional Geoscientist in Texas and Louisiana. In addition he is a Licensed Public School Teacher in Texas. Mr. Cowan has been serving as the HGS Environmental and Engineering Group Chairman since 2007, and is a past HGS Secretary. He is also past Treasurer/Secretary and current President of the Texas Association of Professional Geoscientists, and serves on the Board of Directors for AIPG Texas Section. In addition, he is currently Vice President of the Texas A&I Alumni Association.



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Roger M. Slatt

*Institute of Reservoir Characterization, School of Geology and
Geophysics, Sarkeys Energy Center, University of Oklahoma*

Brenton J. McCullough

Devon Energy Co., Oklahoma City, Oklahoma

*Institute of Reservoir Characterization, School of Geology and
Geophysics, Sarkeys Energy Center, University of Oklahoma*

Carlos E. Molinares-Blanco

*Institute of Reservoir Characterization, School of Geology and
Geophysics, Sarkeys Energy Center, University of Oklahoma*

Elizabeth T. Baruch

Origin Energy Co., Brisbane, Australia

*Institute of Reservoir Characterization, School of Geology and
Geophysics, Sarkeys Energy Center, University of Oklahoma*

Paleotopographic and Depositional Environmental Control on “Sweet Spot” Locations in Some Unconventional Resource Shales

Both the Woodford Shale (Oklahoma) and the Barnett Shale (Texas) are prolific unconventional resource shales. Both of them sit atop unconformities on the surface of underlying carbonate rocks. There is variable topographic relief of >300 ft on the unconformity surface in some areas due to incised valley and/or karst formation during periods of subaerial exposure resulting from lowered sea level. Anomalously high thicknesses of the shale can form within these topographic depressions during marine transgression. Also, it is likely that the topographic relief creates areas of restricted marine circulation, and subsequent, localized anoxic depositional environments conducive to preservation of organic matter. The occurrence of basal stratigraphic intervals of high TOC, plus the discontinuous, pod-like distribution of TOC in two 3D seismic areas support this hypothesis. In addition, it is possible that during the time after unconformity formation and prior to marine encroachment into topographically low areas, lacustrine environments may develop, which could be sites for earliest accumulation of organic-rich, mud that would generate Type I, oil-prone kerogen upon burial. Such localized, anomalously thick, TOC-rich zones are potential ‘sweet spots’ for drilling. Similar characteristics might also prevail in other ‘siliceous’ unconventional resource shales, particularly if they are underlain by carbonate rocks. ■

Reference

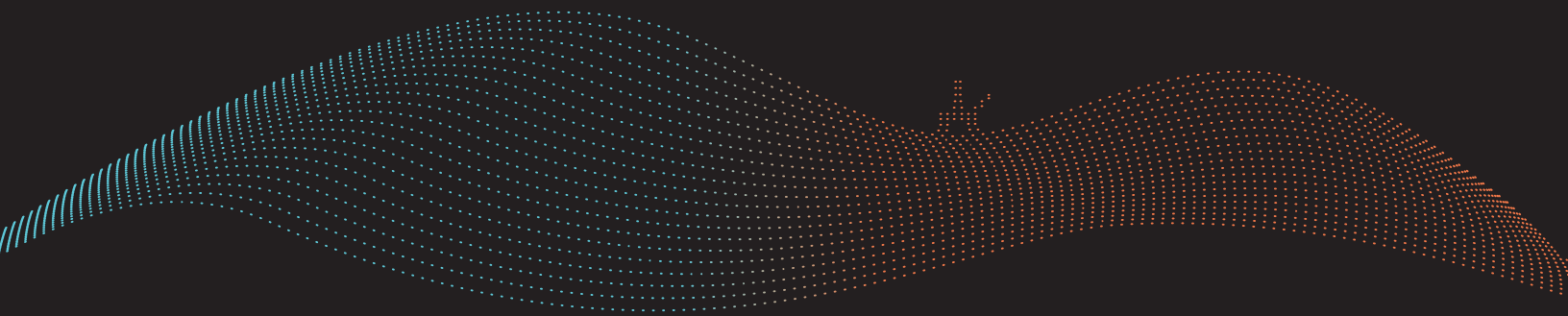
Cardonas, F., 2014, Integrated characterization of the Woodford Shale in the southern Cherokee Platform: unpublished M.S. thesis, University of Oklahoma, 98 pp.

Biographical Sketch

DR. ROGER M. SLATT is currently the Gungoll Family Chair Professor of Petroleum Geology and Geophysics at the University of Oklahoma. He was Director of the School of Geology and Geophysics and Eberly Family Chair Professor at the University of Oklahoma from 2000-2006. He formerly was Head of the Department of Geology and Geological Engineering at the Colorado School of Mines (1992-2000) and Director of the Rocky Mountain Region Petroleum Technology Transfer Council (1995-2000). He earned his PhD in 1970 from the University of Alaska. He has taught geology at Memorial University of Newfoundland, Arizona State University and Colorado School of Mines and worked in the petroleum industry for Cities Service Research, ARCO Research, and ARCO International Oil and Gas Co. He has written more than 150 articles, including presentations made. And he has authored, co-authored or edited six books on petroleum geology, reservoir geology, seismic and sequence stratigraphy, shallow marine and turbidite depositional systems, geology of shale, glacial and Pleistocene-Quaternary geology, and geochemical exploration. He has organized technical conferences for AAPG. Recognition that he has received includes: recipient of the AAPG Distinguished Service Award, AAPG Distinguished Educator and Honorary Member, SEG Distinguished Service Award, SPE Esso Australia Distinguished Lecturer, and both AAPG and SPE Distinguished Lecturer. More than 100 of his graduate students received their degrees during his academic career.



HGS Joint General and North American Dinner continued on page 21

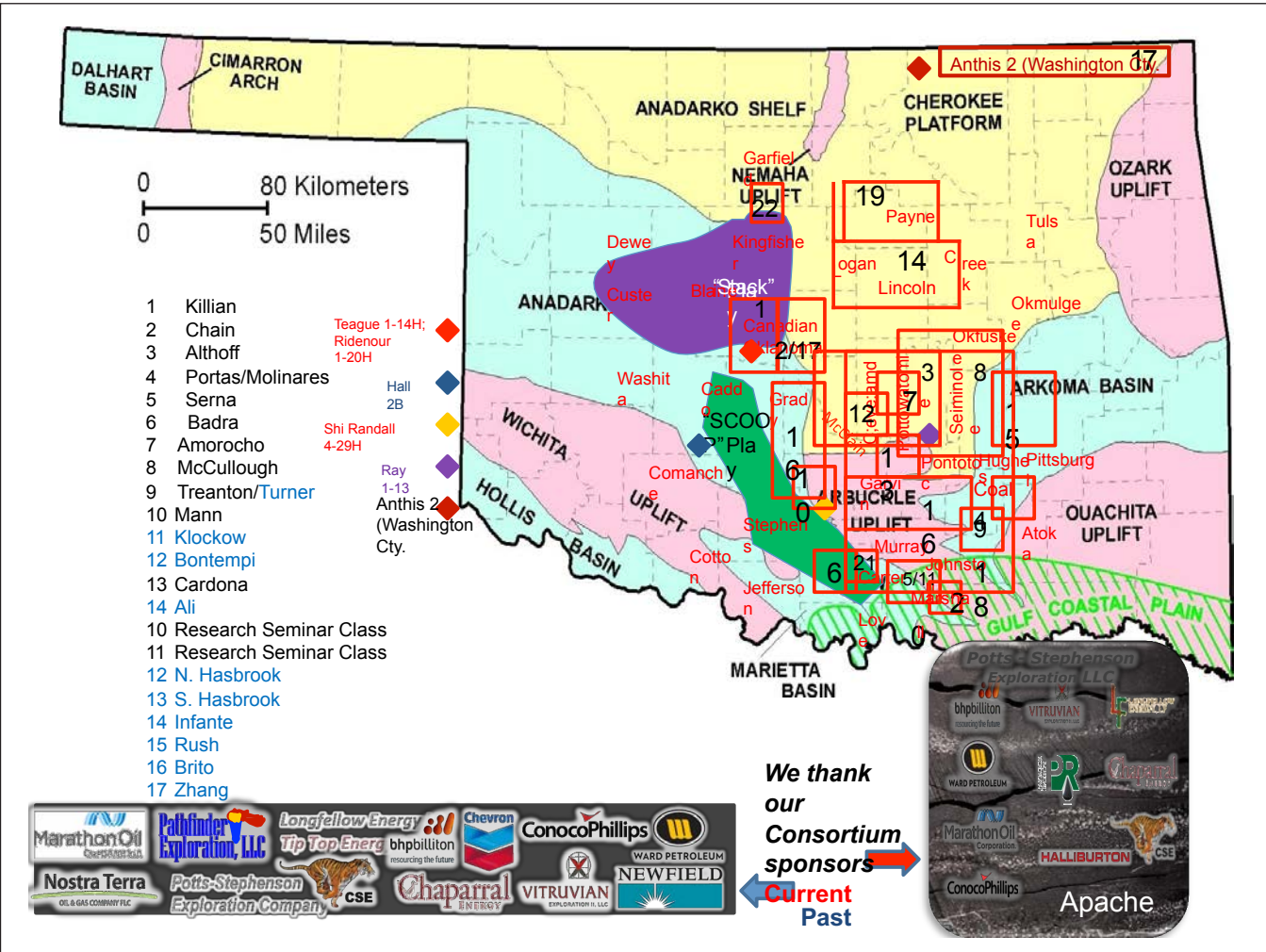


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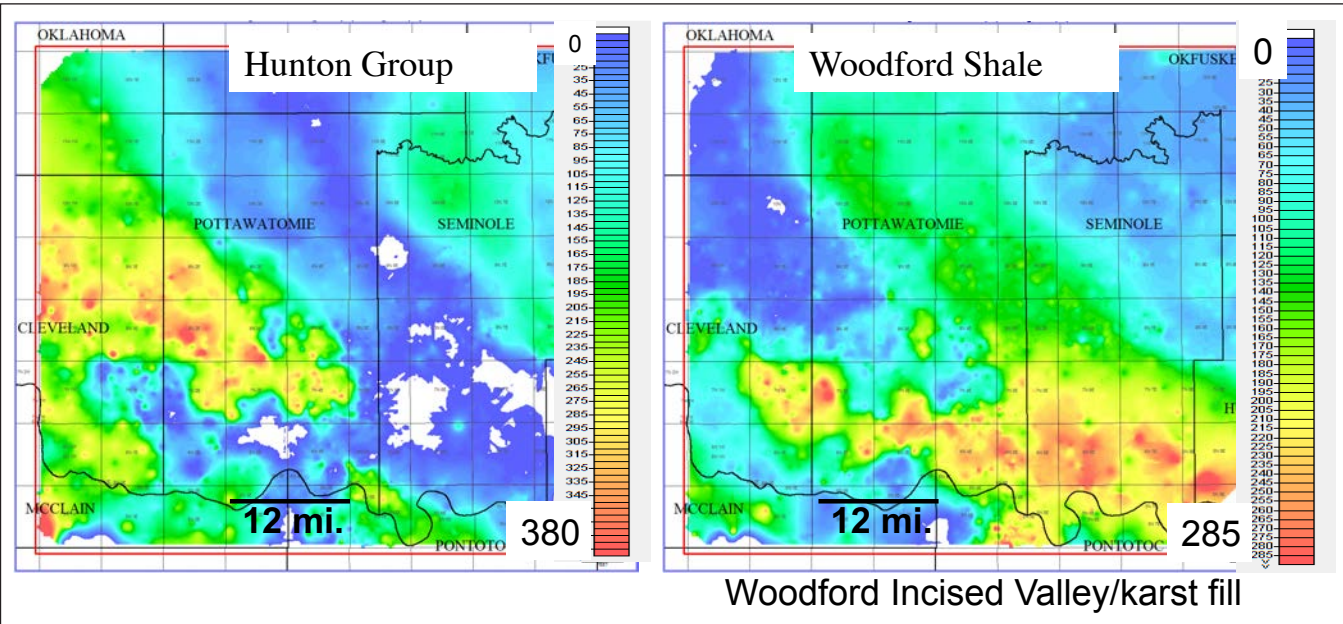
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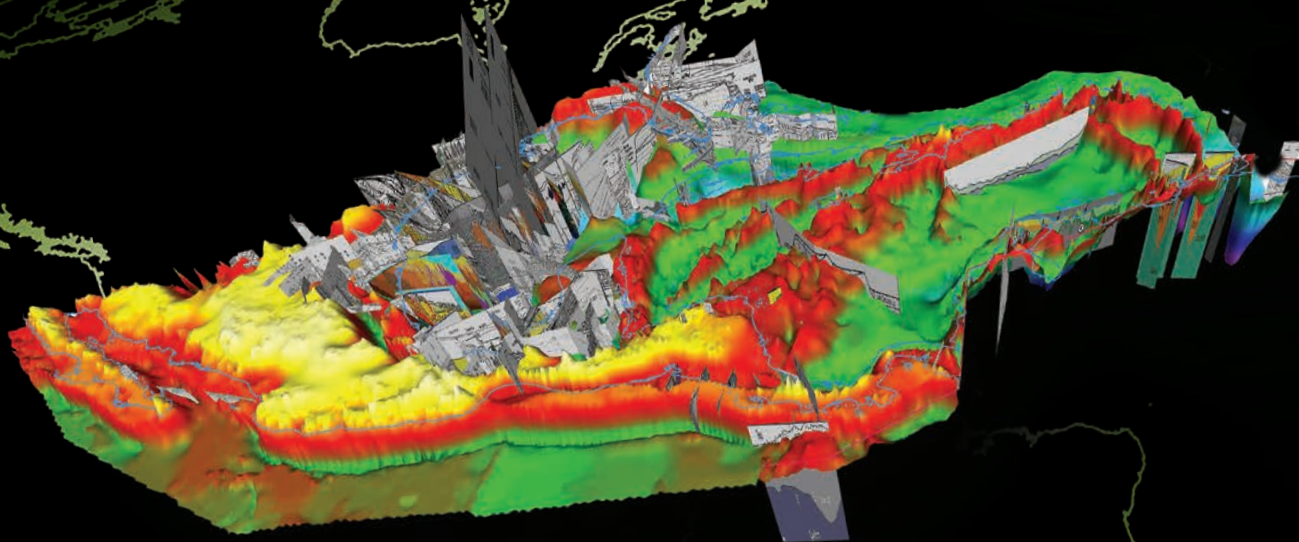
Areas of recently completed (black names) and completing (blue names) student theses on the Woodford. Consortium Sponsors are also shown.



Isopach thicknesses of Hunton Group and overlying Woodford Shale. Valley fill (Woodford) is thin where underlying Hunton is thick and vice versa

HGS Joint General and North American Dinner *continued on page 23*

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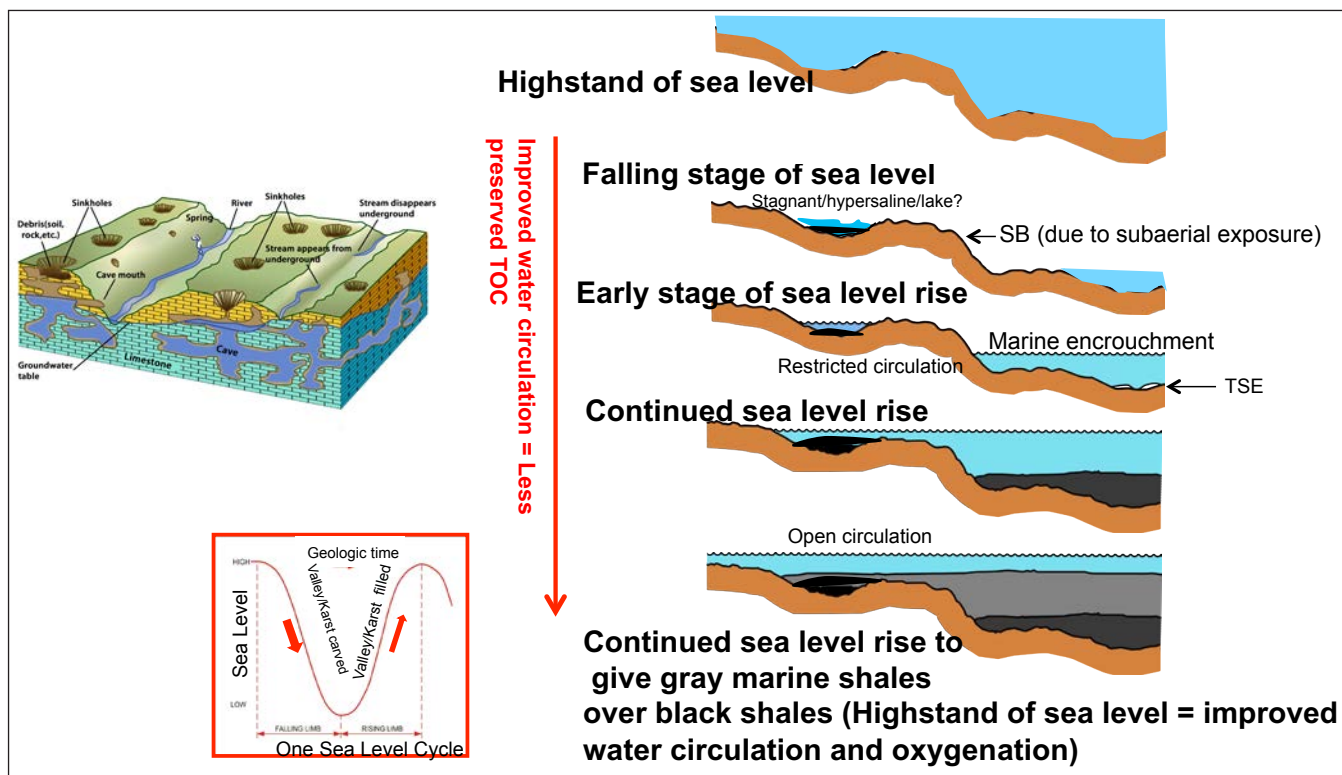
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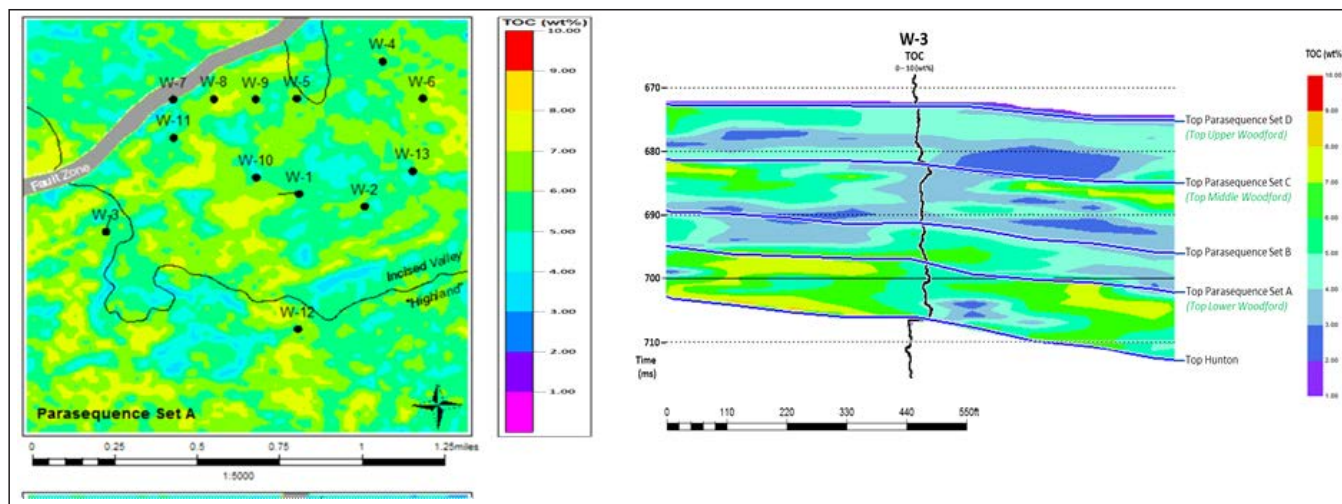
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Depositional model for the Woodford through one Sea Level Cycle showing differential deposition due to irregular topography on the unconformity surface



3D seismic inversion to TOC distribution showing both laterally and vertically discontinuous TOC distributions. After Cardonas, 2014.



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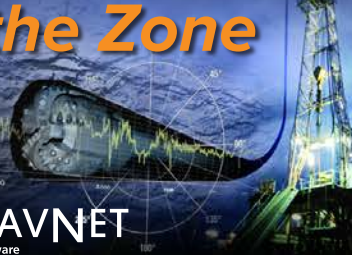


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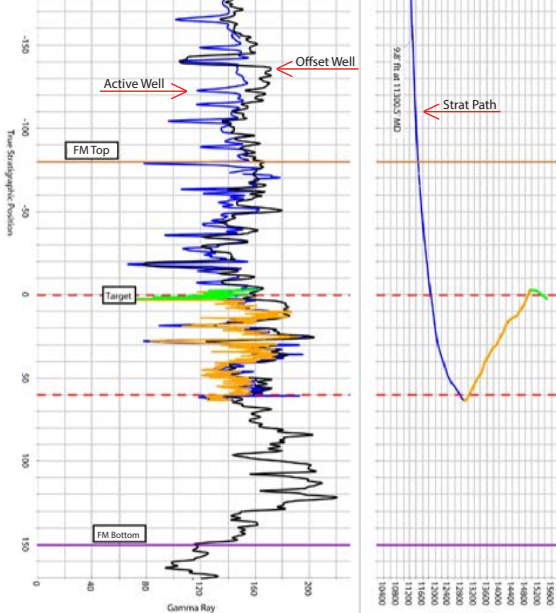
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Susan Smith Nash, PhD
American Association of Petroleum
Geologists, Tulsa, OK

U.S. Shale Plays: Evaluating Opportunities, Optimizing Your Own Operations

The ongoing downturn in oil and gas prices, combined with high costs and steep decline curves has dealt a death blow to many parts of what were once prospering shale plays. Companies have had to take write-downs, and many have put their properties on the selling block. The fact that there is a great deal of inventory turnover in today's U.S. shale plays means that there are significant opportunities for operators who know how to identify sweet spots and to utilize technologies to economically produce.

If you are an operator in a shale play that has converted itself into an uneconomic money sink, there is no doubt that you have already instituted cost-cutting / cost-postponing measures, such as drilling horizontals without completing. You've also gotten a lot more efficient with your frac jobs, and you're conducting geological fracs rather than geometrical fracs. In addition, you've improved your produced water efficiencies and are geosteering with better precision.

But it's not enough. Your costs are still high and your wells are not uniformly productive. So, what next? Do you put it all on the selling block and try to sell as quickly as possible to stop the hemorrhaging? If you do, you're in a "going out of business" mode, and you're not really going to get much for your "fire sale," unless you happen upon a miracle and are able to leverage what you clear in a highly efficient producing property that does not have any unwelcome surprises lurking in the leases. Or, do you keep drilling and completing, but utilizing new technologies to optimize your production, knowing that you're rolling the dice and it's quite possible that your gambles will not pay off, at least in this iteration, as you're still somewhere in the learning curve.

Alternatively, you may optimize your operations to the best of your ability, with a view to grooming your properties for a sale, or you may implement a strategy that will, over time, result in profitability.

Regardless of the strategy you employ, there are a few considerations to keep in mind.

1. **Heterogeneity comes in many different forms.** Know your reservoir and your lithologies. You may have fine-grained sand interbeds, or you may have more mudstone or marly facies. Understanding the nature of the heterogeneity (lithology, fracture density, pore architecture, diagenetic alteration / overgrowths) really does matter.
2. **Fluid migration pathways are more important than you may think.** While it's easy to believe that all shales as essentially self-sourcing ("my source rock is now my reservoir"), that's not actually the case in all shales, and depending on the fracture networks and the pore architecture, you may have differentially enriched sediments which constitute excellent sweet spots. Understanding the source, direction, and geochemistry of the reservoir fluids (including gases) will help you pinpoint the sweet spots.
3. **Connectivity, but for how long?** Knowing how long your induced fractures will stay open, and which proppants seem to live up to their promise can make the difference between a well you'd like to purchase, or one you'd like to run from.
4. **Frac interference, thief zones, and other signs of "over-muscling" the frac design.** Conventional wisdom suggests that the bigger the frac the better, and the more rock you "rubble-ize" the better. But some reservoirs exhibit behavior that deviates dramatically from conventional wisdom. Sometimes it is not easy to determine what exactly went on, but if there is frac interference or thief zones, it is an indication that there are ways to move the hydrocarbons, and that there is a certain level of responsiveness to stimulation. So, these areas bear reconsideration, particularly if there is high TOC. It's important to keep in mind that recovery rates can hover around 10%, which means that there's definitely oil in place.
5. **Geochemistry can give you an edge.** Whether you're looking at kerogen-typing or isotopes which can help you with gas / oil fingerprinting, the more geochemical information you have, the better you can determine where to drill, and also the kinds of fluids to use in drilling and completion.

HGS Northsiders Luncheon continued on page 27



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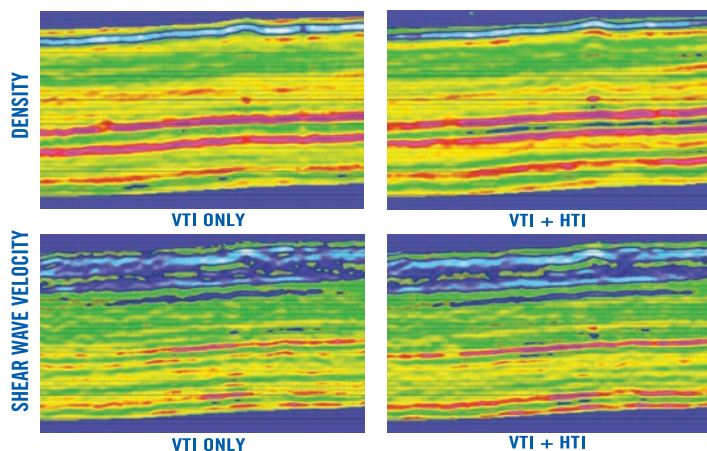
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6. **Stress regimes and pore pressure are potential solutions to “cliff-dive” decline curves.** Understanding the stress regimes, pore pressure, and also the orientation of fractures, along with migration pathways, can help you fine-tune your completions in order to maintain flow and reduce the rapid declines. High IPs can be exhilarating, but it’s not so thrilling when the rates basically drive off a cliff and are flat all too soon. A more tempered approach may be the solution.

There are additional points to consider when evaluating acquisitions or grooming your properties for optimization or sale. Please review my other papers for additional information (forthcoming) or attend my talk at the HGS Northsider’s lunch meeting in December. ■

Biographical Sketch

DR. SUSAN SMITH NASH has organized numerous workshops, forums, educational events and research conferences on the topic of unconventional resources in her capacity of Director of Education and Professional Development of the AAPG. In addition, she has worked with cross-disciplinary teams to work on knowledge transfer, understanding, and research initiatives in optimizing exploration and development of unconventional and mature reservoirs. Her current interests involve supporting new technologies for green development of unconventional. - See more at: <http://www.aapg.org/career/training/instructors/details/articleid/3139/susan-nash-phd#sthash.A5HirKE7.dpuf>



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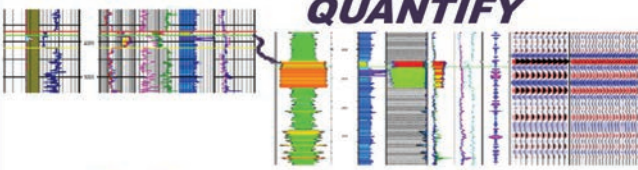
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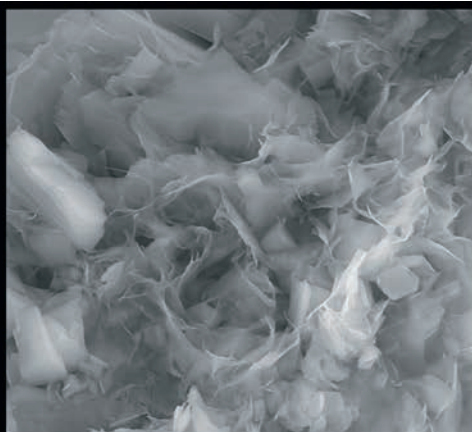
M o n d a y

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	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	1 HGS Board Meeting 6 p.m.	2
6	7 HGS International Dinner Meeting <i>"Seismic Sequence Stratigraphic Correlation of Miocene to Cretaceous Section from the Louisiana Continental Shelf to the Deepwater US GoM and the Bay of Campeche, Mexico,"</i> Walter W. Wornardt, PhD, Page 11	8	9 HGS Environmental & Engineering Dinner Meeting <i>"Acid Mine Drainage: What It Is, Where It Is, and the EPA's Role,"</i> Matthew R. Cowan, Page 17
13 GCSSEPM Perkins Conference Omni Houston Hotel, Westside Houston, TX Page 9	14 HGS Joint General and North American Dinner Meeting <i>"Paleotopographic and Depositional Environmental Control on "Sweet Spot" Locations in Some Unconventional Resource Shales,"</i> Roger M. Slatt, Page 19	15 HGS Northsiders Luncheon Meeting <i>"U.S. Shale Plays: Evaluating Opportunities, Optimizing Your Own Operations,"</i> Susan Smith Nash, PhD, Page 25	16
20	21 HGS Office Closed	22	23
27	28 HGS Office Closed	29	30

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GEOEVENTS

Thursday

Friday

Saturday



3	4 Don't wait, make your reservations online at www.hgs.org	5
10	11	12
17	18	19
24	25 <i>Christmas Day</i>	26
31	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.	

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March 8-9, 2016
HGS Applied Geoscience
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The Woodlands, TX

April 3-6, 2016
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Day 2

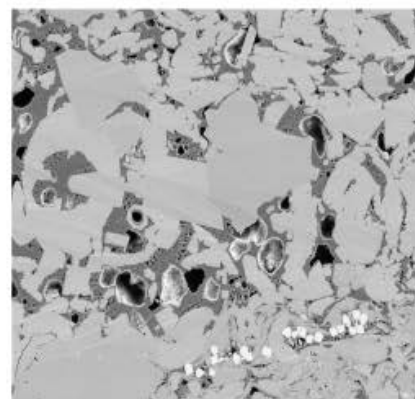
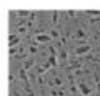
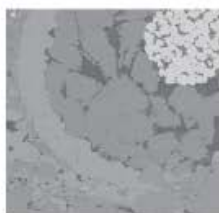
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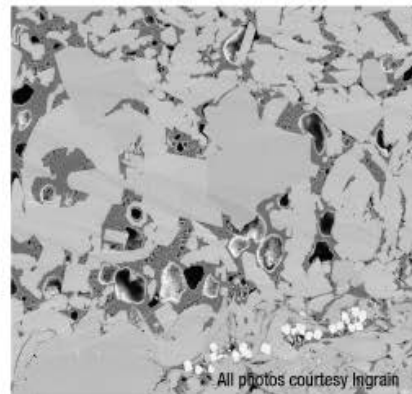
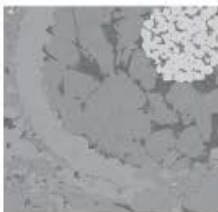
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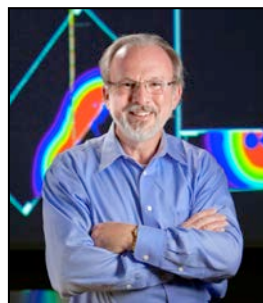
HGS invites you to join us for the next Legends Night dinner event honoring three geophysicists who have made significant contributions to the field of geology. See their biographies on page 35.



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



Tom Smith
*Founder and former
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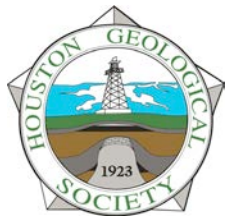
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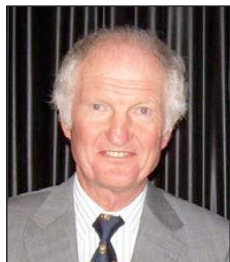


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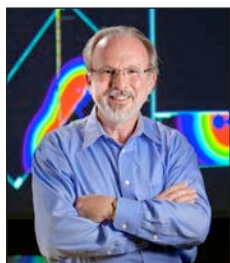
Geophysicists Who Have Impacted Geologists

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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Convention presentations of Journal submissions are encouraged, but not required.

A Good Year for GCAGS

by Charles A. Sternbach, GCAGS President 2014-2015

Fellow GCAGS members, I want update you regarding the progress GCAGS has made this year, and share with you a few highlights. GCAGS was honored to welcome 1,292 attendees to the 65th Annual GCAGS Convention September 20-22, 2015 at the George R. Brown Convention Center. The Houston Geological Society was proud to host our convention this year and to shine brightly among the 13 stars in the GCAGS constellation. Houston serves as headquarters for many energy companies and universities focused on technology, exploration, and innovation. Houston is a gateway of technology and exploration “know how” to the world. We enjoy a great exploration community filled with talented and friendly geoscientists centrally located within the prolific Gulf Coast province. Our convention theme: “Leadership, technology, discovery, and education” captured this dynamic time and place.

GCAGS unites us. When I became GCAGS president, the first thing I did was join all 13 affiliated societies. I wanted to see what each affiliated society was doing, read the publications, newsletters, field trips and technical meeting notifications. I was amazed by the quality and quantity of GCAGS programs available to explorers and scientists interested in Gulf Coast geology. To better share this information monthly events are now posted on GCAGS webpage web link under the Member society news and events <http://www.gcags.org/>

The GCAGS theme this year was ***United We Explore, United We Learn.*** GCAGS societies share a common geology and a special bond. I believe there is strength in unity and all affiliated societies members can benefit from broad participation in GCAGS programs. Please join me in attending GCAGS events outside of your local society.

GCAGS benefits us. Another initiative this year was to inform the approximately 10,000 members of GCAGS about the many benefits and resources from GCAGS. These are also posted on the GCAGS and have been published in many affiliated society publications and web pages.

The benefits of GCAGS membership include:

1. The Annual Convention and Exhibition
2. Society Representation
3. AAPG Advisory Council Representation
4. Student and Faculty Grants
5. The Scholarship Fund (now \$195,500)
6. Student Chapter Leadership
7. Advertising
8. Participation in the Imperial Barrel Award Competition
9. Honors and Awards
10. Teacher of the Year Award
11. *GCAGS Transactions*
12. *GCAGS Journal*
13. www.gcags.org
14. Social Media

We will focus on a few of these benefits below:

Annual Convention and the Awards Ceremony: The Gulf of Mexico remains the ‘go to’ basin for oil companies to deliver a great return on investment. Innovations in drilling and seismic processing, the strong work ethic of its workforce, and most importantly the abounding ingenuity of scientists like you make the Gulf the basin that “keeps on giving.” Every year at the awards ceremony, the GCAGS and GCSSEPM honor those

A Good Year for GCAGS continued on page 38



Teacher of the Year, Ilena Krupala



GCAGS dedicates Transactions to John Amoruso

A Good Year for GCAGS continued from page 37



GCAGS 1st Place IBA Team, University of New Orleans: Christopher (Mark) Johnson, Elijah Ayobami Adedeji, Joshua Flathers, Dr. Royhan Gani (faculty advisor), Joseph Frank, John (Trey) Kramer, and Toby Roesler (industry mentor)

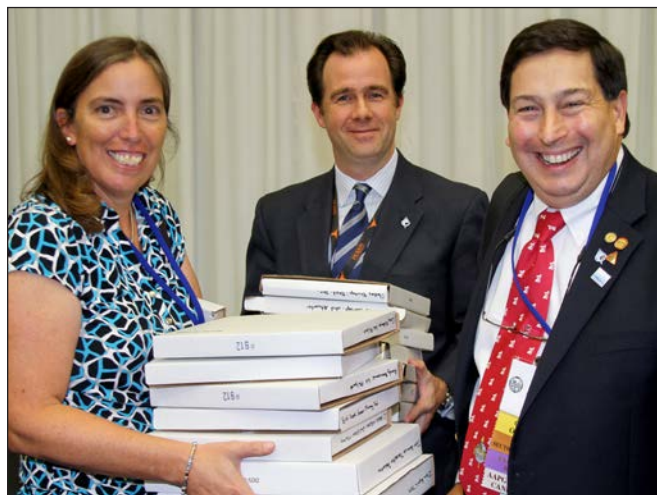
who have shared their research, ideas, and concepts with the rest of the scientific community. The awards ceremony recognizes exemplary individuals whose contributions enable others to build on hard-won technical knowledge and understanding. We owe the awardees great appreciation for their legacy of service and advancement of Gulf Coast geoscience.

The Awards Ceremony recognized the 2015 recipients of GCAGS and GCSSEPM special honors, as well as awardees of the best presentations and best published papers in the 2014 GCAGS *Transactions* and GCAGS *Journal*, all of whose works have made important contributions to GCAGS and the advancement of geosciences. Highlights of GCAGS Awardees follow. A full listing

of awardees can be found in the GCAGS *Transactions*.

This year's GCAGS *Transactions* were dedicated to John Amoruso. Others being honored this year include Steve Hill, receiving GCAGS Honorary membership, Dallas Dunlap, Mike Quinn, and Mike Fein receiving GCAGS Distinguished Service, and Ilena Krupala who will receive the Owen R. Hopkins Outstanding Earth Science Teacher Award.

13 teams competed in the AAPG Imperial Barrel Award competition within the Gulf Coast Section. We are proud to recognize all the teams. The awardees as follows: 1st Place, University of New Orleans; 2nd Place, University of Louisiana at



GCAGS Executive Kate Kipper prepares the awards for the honorees (with assistance from Dallas Dunlap and Charles Sternbach)



Poster Chairman Meredith Faber presents award to Sasha Gumprecht



Charles Sternbach (2014-15 GCAGS President), Linda Sternbach (Technical Program Chair), Larry Bartell (General Chair), and Dianna Phu (Secretary and Convention Web Chair)



"Geo-Generations" panelists: Tom Tinker, Scott Tinker, and Nathan Tinker. Standing behind them is panel moderator Charles Sternbach.

Lafayette; and 3rd Place (tie), University of Texas at Austin and Stephen F. Austin State University.

Convention special programs: In keeping with this year's convention theme, "Leadership, Technology, Discovery, Education," we hosted an "Educational/Leadership Forum 2.0" designed to educate the young and old on core topics concerning Gulf Coast geology. This year we had six globally recognized experts on the Gulf of Mexico: Scott Tinker, John Dribus, Brian Horn, John Snedden, Richard K. Stoneburner and Charlie Kerans. These world renowned scientists shared their expertise on why the Gulf of Mexico is one of the richest hydrocarbon provinces in the world, a "fertile crescent" of resources, technology, and ingenuity. This event was thought provoking and well attended.

Following the forum, we convened a special multi-generational panel of distinguished geologists called "Geo-Generations, 60

Years in the 'Patch' and Counting." This panel discussed where our industry has been, and where we might be going. We will produce a video of this event for future posting on the GCAGS, HGS, and AAPG webpages.

Another popular forum was "Geologists as Leaders in Finance, Banking and A&D" chaired by Steve Brachman and Jeff Lund.

We also had three very popular luncheons:

- All Convention Luncheon: "Chevron's Key Discoveries and Developments in the Deepwater Gulf of Mexico, a Story of Steady Growth," Karl (Ken) Eisenmenger, Exploration General Manager, Chevron Deepwater Exploration and Projects
- DPA Luncheon: "How to Survive and Thrive in Good Times and Bad," Charles Goodson, CEO of PetroQuest

A Good Year for GCAGS continued on page 40



General Chairman Larry Bartell (center) and All Convention Luncheon speaker Ken Eisenmenger (right)





The GCAGS Leadership Team, at our annual meeting in Houston



- GCSSEPM Luncheon: “Model the Rock! Using Diagenesis Simulation for Rock Property Prediction,” Rob Lander, GEOCOSM

Welcoming students to our industry: the GCAGS 2015 Annual Convention committee worked hard to engage the powerhouse known as the SEG/AAPG Student Expo. Both events occurred in contiguous convention space with a day of overlap. GCAGS seasoned professionals got to interact with many BS, MS, and PhD candidates preparing to enter our industry. Numerous students attended the entire convention at a special rate (\$35). Through special funding many students participated in GCAGS programs.

One of the best gifts GCAGS gives the scientific community is its annual publication of the Transactions and GCAGS Journal in conjunction with its annual convention. For those working Gulf Coast geology, these publications have become the number one reference for understanding regional and local geology. After 65 years, there is a cornucopia of research, geologic models, case histories, and ideas captured on these pages. These articles provide the foundation for future generations working Gulf Coast geology. Thanks to all of you who have contributed and shared your ideas.

I would like to give special thanks to Larry Bartell, GCAGS General Chairman 2015, for volunteering his time and talent over the past two years to organize this convention. It is a daunting task and Larry did a superb job! I would also like to recognize Linda Sternbach, our GCAGS Technical Program Chair, for taking on the formidable job of overseeing nearly 100 oral presentations, many posters, judging efforts, short courses, field trips and leading numerous volunteers on her committees. Thanks to Deborah Sacrey for a great job on special events and the many volunteers working with her. Deborah also represented HGS ably



as President during this convention. You can see many volunteers and committee chairs on the committee webpage: <http://www.gcagshouston.com/steering-committee/>

Please join me in thanking them when you see them for a job well done!

The vitality of the Gulf Coast Section would not be possible without the support and dedication of our numerous committee chairs. Special thanks go to our Executive Director Kate Kipper, as well as Treasurer Steve Hill for many years of dedicated service and new treasurer Sean Kimiagar, Managing Editor James Willis, GCAGS webmaster Jill Willis, GCAGS Journal Editor Barry Katz, Continuity Committee Chair Dallas Dunlap, Convention webmaster Dianna Phu and Linda Sternbach, and all the other committee chairs. Special thanks to our GCAGS convention officers: Brent Hopkins, vice president, Mike Erpenbeck, treasurer, and Dianna Phu, Secretary.

The Gulf Coast Section of AAPG has two representatives on the AAPG Advisory Council: John Jordan and William M. Whiting. We thank our representatives for good communication between the Section and the Advisory Council. Martha Lou Broussard and Mary Broussard have distinguished themselves by long term service in Advisory Council roles in prior years. It is a humbling honor to be surrounded by such wonderful and dedicated professionals.

We are particularly pleased to wish Dawn Bissell, General Chairman, Brent Hopkins the new incoming president of GCAGS (2015/2016), the Corpus Christi Geological Society, and the rest of the planning team all the best for a great GCAGS convention planned for Sep 18-20, 2016 in Corpus Christi. See you there! <http://www.gcags2016.com/> ■



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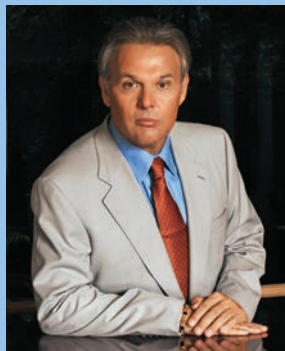


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Help Your Local High School!

Are you interested in supporting your local high school in science and math? If you are, then the HGS is joining a Society of Petroleum Engineers-Gulf Coast Section (SPE-GCS)-led program that will fulfill your aspirations!

Over the past year, the SPE-GCS, with leadership from Dick Murphy (SPE-GCS member and retired Marathon Oil Company engineer) has created a successful science in-class tutoring program at three high schools in Fort Bend ISD. Six SPE members volunteer at the high schools (Austin, Dulles and Clements) one or more days a week, mentoring and tutoring high school students in physics, chemistry or biology. These tutors work closely with the teachers, helping to explain the concepts to the students and giving them more individual attention. We recognize that in the Greater Houston area there are many technical experts who have flexible daytime hours (e.g. retirees, the unemployed or underemployed, self-employed, part-time workers, college students) and might find this a rewarding opportunity. These six volunteers have found the experience personally very rewarding.


The SPE-GCS is seeking to expand this program in Fort Bend ISD and to Katy ISD, and needs volunteer tutors who are willing to commit to a minimum of half a day per week helping in the classroom. Our experience shows that the day does not have to be the same day every week. However, a regular commitment helps to ensure continuity of effort, gaining the trust of the teachers, administration and students and keeping the tutoring program viable.

This opportunity is open to anyone with science and technology skills. You are not required to live in Fort Bend or Katy school districts in order to volunteer within them. But if you would rather volunteer at a high school in another school district, please let me know so that I can gauge the interest of expanding the program elsewhere.

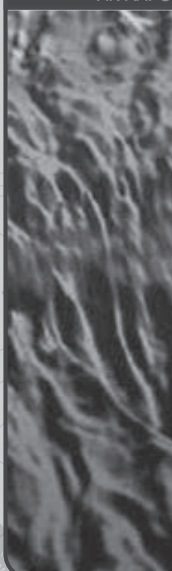
If interested, please contact Dick Murphy at stancal@windstream.net, 281-265-3893 (home), or 832-545-3893 (mobile).

The HGS fully supports this effort and hopes that some of its members will sign up! ■

Two New 2016 GTWs



AN AAPG GEOSCIENCES TECHNOLOGY WORKSHOP




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.





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!



aapg.to/gtw2016deepwater
www.aapg.org/career/training/in-person/workshops

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- ▶ 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
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AAPG

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Upcoming Education Courses

2015-16 Courses:

SHORT COURSES

Last Chance!
Practical Salt Tectonics

Dec. 1-4, 2015
Houston, TX

E-SYMPOSIA

Permian Basin Geologic / Reservoir / Completion Models Dec. 10, 2015
2 pm, CST

Field Safety Webinar Dec. 17, 2015
2 pm, CST

Fluvial Sedimentology and Geomorphology Jan. 14, 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 April 2-9, 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

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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!** ■



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2015 – 2016 Houston Open Enrollment Course Schedule

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October 10 – 14, 2016

Risk Analysis, Prospect Evaluation and Exploration Economics

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

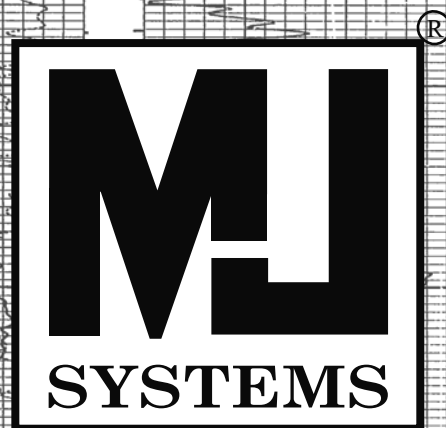
Evaluating Tight Oil and Gas Reservoirs

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October 4 – 6, 2016

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December 6 – 8, 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 (August 2015) Senate Confirms Nominees to Two DOE Posts

The Senate confirmed Monica Regalbuto as Assistant Secretary for Environmental Management and Jonathan Elkind as Assistant Secretary for International Affairs at the Department of Energy (DOE) on August 5, 2015. The voice-vote confirmation ended a lengthy waiting process for the nominees who were originally nominated in late 2013 and early 2014, respectively.

Dr. Regalbuto previously served as head of DOE's Office of Environmental Management, where she oversaw cleanup of nuclear facilities. She has also worked at the DOE Office of Nuclear Energy and Argonne National Laboratory.

Mr. Elkind previously served as the Principal Deputy Assistant Secretary for the Office of Policy and International Affairs. He has also worked at the Brookings Institution, focusing on energy security and foreign policy, and at the U.S. National Security Council.

Administration Releases Final Carbon Rules for Clean Power Plan

President Obama unveiled the U.S. Environmental Protection Agency's (EPA) final carbon rules for the power sector in its Clean Power Plan on August 3, 2015. The plan aims to address drivers of climate change in the U.S. by reducing power emissions by 32 percent compared with 2005 levels by the time it is fully implemented in 2030. The rule includes new standards for vehicle emissions, renewable energies, and fossil fuel-based power plants. The EPA has created targets that vary by state to reflect their unique energy mix; states have the option of developing their own response or using a federal plan.

The rule is contentious among Republican members of Congress who are working to craft legislation that would allow states to opt out of the plan's requirements. Some governors have gone a step further, saying that they will refuse to implement the regulations. Depending on the approach that states take, plans will likely develop over a few years and face challenges in Congress and the courts before being fully implemented.

Administration Announces Nominations for DOE and NSF Posts

President Obama announced the nomination of Cherry Murray as Director of the Department of Energy's (DOE) Office of Science and Richard Buckius as Deputy Director for the National Science Foundation (NSF) on August 5, 2015. Both nominees await confirmation to their posts by the Senate.

Dr. Murray is currently a professor of technology and public policy and physics at Harvard University, and has served on the Secretary of Energy Advisory Board and the Commission to Review the Effectiveness of the National Energy Laboratories at DOE. She is a former president of the American Physical Society.

Mr. Buckius is currently Chief Operating Officer at NSF, a senior science adviser at NSF, and professor of mechanical engineering at Purdue University. He served as Assistant Director for Engineering at NSF from 2006–2008.

Report: USFS Spending More Than Half of its Budget to Fight Wildfires

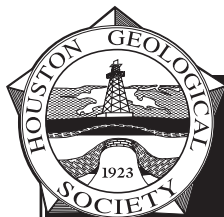
The U.S. Forest Service (USFS) released a report on August 5, 2015 detailing the impacts of increasing costs of fighting wildfires on its non-fire work. Wildfire seasons have become longer, more severe, and more difficult to predict, forcing the USFS to spend over half of its current budget to fight wildfire and shift \$700 million from non-fire programs. The agency predicts that in the next ten years, it will spend two-thirds of its appropriated budget on dealing with rising wildfire costs.

The USFS' non-fire programs provide critical ecological services that help to prevent wildfires, such as protecting watersheds, fighting invasive species, and reducing hazardous fuels. However, the increasing severity of wildfire season—burning twice the acreage it did 30 years ago and lasting 78 days longer than in the 1970s—has crowded out USFS forest stewardship programs.

The report underpins the Administration's proposal to restructure wildfire budgeting to fund roughly 70 percent of anticipated fire suppression costs through the USFS budget, with remaining suppression costs covered by a separate fire suppression cap. This proposal would eliminate "fire borrowing," the practice of dipping into non-fire funds within the USFS budget when suppression funding runs dry. Supporters argue that the proposal would free up funds for wildfire mitigation to help reduce the severity of future fires. Opponents counter that the USFS budget should include the entire cost of suppressing fires and that the proposal allows USFS to circumvent statutory budget caps.

Senators urge Congress to reform budgeting for wildfire suppression. Senators on both sides of the aisle have urged

Government Update continued on page 49



HGS Welcomes New Members

New Members Effective October 2015

ACTIVE MEMBERS

Shelly Alexander
Joseph Boreman
Bradley Cey
Kyle Day
David Dickens
Rachel Johnson
Ronald Kenny
Kunio Kubo
Dhananjay Kumar
Cin-ty Lee
Kandy Lukats
Odudu Ndebbio
Kurt Remington
Justin Robbins
Jim Schneider
Chelsea Toews
Roger Trejo
Donald Yezerski
Joy Young

EMERITUS MEMBERS

Charles Burnette
Clifford Foss
William Gibbs
Maynard Little
Burl McKeel
Paul Potter

STUDENT MEMBERS

Joel Camacho
Chrisopher Hendrix
Jennifer Holley
Scott Leaseburge
Jingxuan Liu
Minh Luong
Maryam Nasizadeh
Devin Thomas
Matthew Vacek

ASSOCIATE MEMBER

Todd Buehlman

Welcome New Members

Loyd Tuttle

loydtuttle@comcast.net

Bob Liska

liska.bob@gmail.com

Jim Thorpe

thorpejim@comcast.net

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Congress to reform the nation's budgeting for wildfire suppression, which currently requires the U.S. Forest Service (USFS) to use funds from fire prevention and non-fire programs when fire suppression funding runs dry. At a field hearing in Seattle, Washington on August 28, 2015, Senators Maria Cantwell (D-WA) and John Barrasso (R-WY) highlighted the importance of maintaining wildfire prevention programs, such as reducing excessive fuel loads, that will diminish the size and severity of future fires. Earlier in the month, a bipartisan group of 11 Western senators pledged to reform wildfire budgeting.

Bills have been introduced that would eliminate "fire borrowing," but Democrats and Republicans have disagreed over the mechanics of a solution. Some senators want the USFS budget to contain all wildfire suppression funding, while others would supplement catastrophic fire seasons with funding from different sources. Still others would make wildfire suppression funding contingent upon hazardous fuels removal, which would reduce long-term costs.

These discussions have occurred amidst the release of a USFS report on the impact of fire borrowing on non-fire programs and USFS Chief Tom Tidwell ordering a freeze in non-fire spending to ensure that funds are available to cope with a catastrophic 2015 wildfire season that has burned more than 7.5 million acres across the Western U.S.

Court Affirms Decision to Strike Down SEC Conflict Mineral Rule

On August 18, 2015, the U.S. Court of Appeals for the District of Columbia Circuit voted 2–1 to affirm its prior decision to strike down a regulation in the U.S. Securities and Exchange Commission's (SEC) conflict mineral rule. The regulation would require companies to disclose on their websites if mineral components in their goods may have originated in conflict areas. The SEC developed the rule under the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act to discourage the use of conflict minerals—gold, tantalum, tin, and tungsten—that are sold to finance militias in war-torn Democratic Republic of the Congo in Africa.

The D.C. Circuit panel struck down the disclosure regulation in April 2014, reasoning that it violated free speech. The SEC and human rights groups petitioned the court to reconsider the decision in light of a later ruling by the same court upholding Department of Agriculture regulations that mandate the disclosure of the country of origin of meat products on labels. The panel ruled that the meat labeling regulation did not require the reversal of its conflict minerals ruling. ■

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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.**

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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

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	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)
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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

December 2015

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

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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: _____

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Home Phone: _____ Spouse's Name: _____

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☐ AAPG member No.: _____

Professional Interest:

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

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

School _____

Degree _____ Major _____ Year _____

School _____

Degree _____ Major _____ Year _____

Earth Science Work Experience _____

Applicant's Signature _____ Date _____

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

Name: _____

Signature _____ Date _____

Membership Chairman _____ HGS Secretary _____

revised 7/30/14

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.

With our function at the Brookwood Community in the past, we are now anticipating our December 15th event. With much eagerness we are looking forward to a delightful and entertaining program presented by the Uptown Dance Centre featuring "Highlights of the Nutcracker Suite." **Phyllis Carter** and her committee have planned a delightful day. This event is very popular, so hopefully you have already made plans. Remember, the Racquet Club has excellent food, so it would be an ideal time to repay people to whom you "owe" a lunch. The time will be 10:30AM-1:00PM. The price is \$45.00, and a cash bar will be available.

The Book Club convenes again on February 1, 2016 with the book *Isabella, the Warrior Queen*. Hostess will be **Wanda Shaw** and **Mickey Murrell**, and our discussion leader will be **Sandra Pezzetta**. The book club currently has 27 members, why not consider becoming member #28? Call **Mickey Murrell** at 281-469-2272 for more information – she would love to hear from you.

Calling All Bridge Players! There are two bridge groups associated with HPAC. One group meets the third Wednesday of each month at the Petroleum Club, now at 201 Louisiana. **Daisy Wood** is the coordinator for that group, so if Wednesdays suit your schedule, contact her at 832-571-3132 or 713-826-7952. The other group, "Cinco Mas," meets the second Thursday at the Westchase Marriott, 2900 Briarpark. **Audrey Tompkins** is coordinator for that group and can be reached at 713-686-0006.

Again, sincere thanks to all of you who volunteered to help with the 2015 GCAGS Convention. Without your support, this convention would not have been nearly as successful. The registration desk was manned by many volunteers, while the hospitality room was hosted by **Mr. (Ray) and Mrs. (Sally) Blackhall**. The self-enrichment programs were enjoyed by all who attended.

This month we are featuring **Margaret Eisenhardt Jones**. Margaret was President of the Houston Geological Auxiliary in 2004-2005. Now, at age 92, she remains an integral part of HPAC. Margaret was born in Calhoun, Louisiana in 1923, and has two brothers aged 72 and 70. The family later moved to West Monroe, Louisiana, where she attended school. According to Margaret, the family had very little money, so she was obliged to go to work after a year in junior college. And work she did. When she retired, she was executive assistant to the Superintendent of Schools for the Houston Independent School District Not bad for a girl from West Monroe, says Margaret.

Margaret met her first husband, **William (Bill) Eisenhardt** on a blind date in New York City in 1947 while there with her cousin Peggy. Margaret says "I caught his eye, and he mine." Seemingly following her mother's footsteps, Margaret's first son Charles (Chuck) was born when she was thirty-six years old, and son Jeff when she was forty. Bill Eisenhardt was a respected geologist contributing much to the field of geology. After his death, Margaret met and married William Case Jones in 1993. They were married five years before his passing in 1998.

Margaret loves to dance, and has been a member of many dance clubs. She vows she will "dance again". She is also a longstanding member of Memorial Drive Presbyterian Church. Though now residing in an assisted living facility, it doesn't slow her down. Since she no longer drives, she has an assistant who *chauffeurs* her to appointments. Of course, visits to the hairdresser are a priority. Margaret is in remarkably good health except for an occasional lapse of memory. You will almost always find her at the HPAC meetings. This year, she volunteered for the December luncheon committee. Margaret, when we grow up we want to be just like you! You have an interesting, exceptional life, and HPAC loves you.

Have a safe and happy holiday season! ■



Mickey Murrell, Norma Jean Jones, and Linnie Edwards



Hospitality Committee Linnie Edwards, Margery Ambrose, and Mary Harle



Sheri McQuinn, Janet Steinmetz, and Edie Bishop

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2015–2016 dues are \$20.00 Mail dues payment along with the completed information

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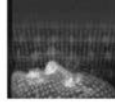
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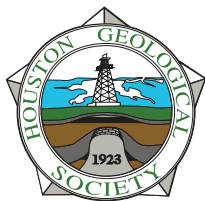
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