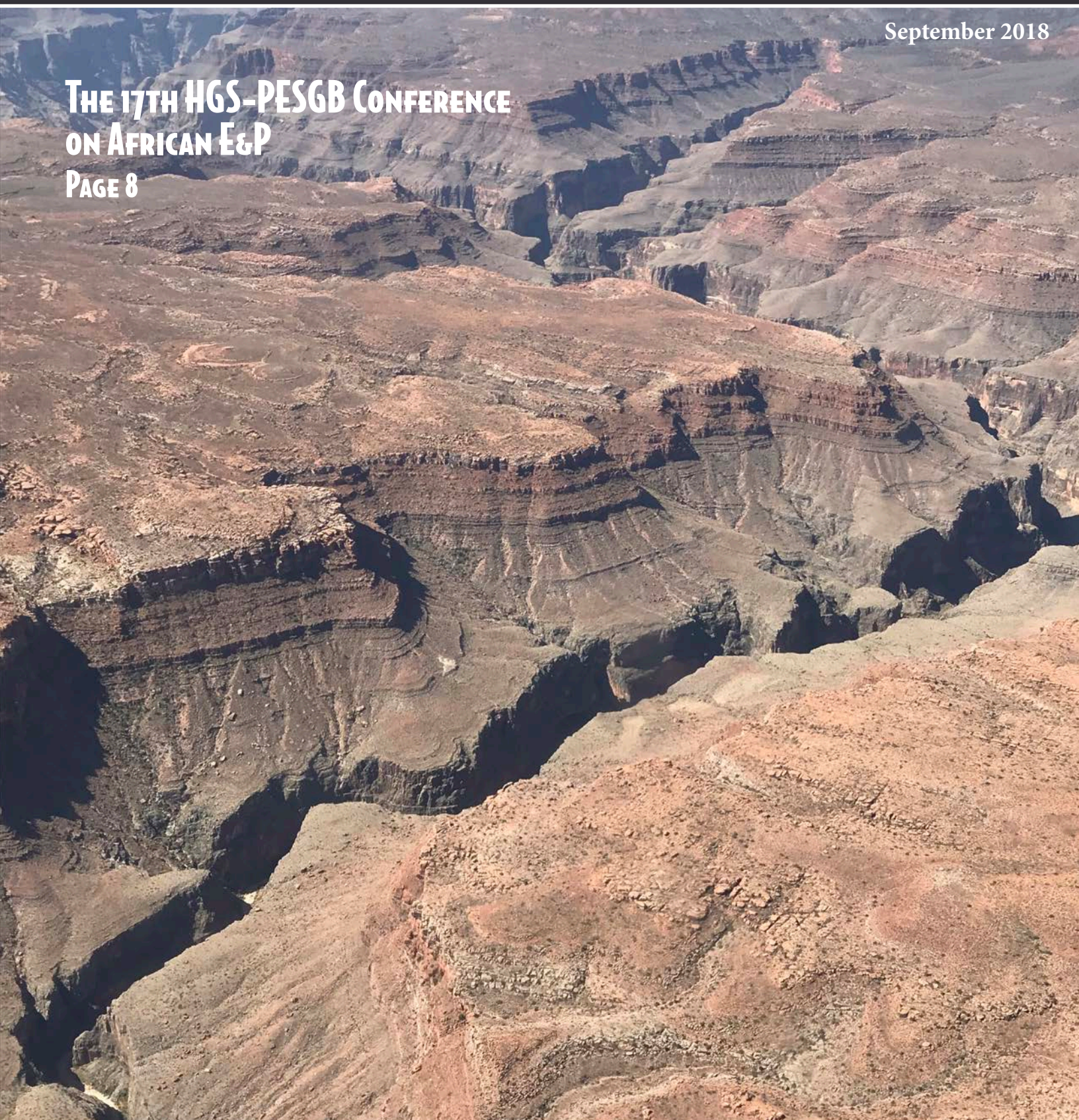
HGS Bulletin
Houston Geological Society
Volume 61, Number 1
September 2018



The 17th HGS-PESGB Conference on African E&P

Page 8

The Bulletin
Houston Geological Society

Volume 61, Number 1 — September 2018

In Every Issue

5 **From the President** *by Cheryl Desforges*

7 **From the Editor** *by jim Tucker*

28 **GeoEvents Calendar**

38 **New Members**

47 **Author Instructions**

48 **HGS Membership Application**

49 **Professional Directory**

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Technical Meetings

16 **HGS International Dinner Meeting**
Towards a Full Tectonostratigraphic Model for the South Atlantic from Conjugate Margin Data: Spanning the End-Member Break-Up Models

20 **HGS Environmental & Engineering Dinner Meeting**
Getting a Grip on the Philosophy of Ethics and Geology

25 **HGS General Dinner Meeting**
Quantifying Nanoporosity: Insights from Parallel and Multiscale Analyses

27 **HGS General Luncheon Meeting**
Geophysical Technology, Improving Returns in the Permian Basin

Other Features

4 **Earth Science Week**

8 **The 17th HGS-PESGB Conference on African E&P**

14 **HGS Golf Tournament**

24 **GSH/HGS 18th Annual Saltwater Tournament**

30 **Houston Geological Society President's Night Award Dinner 2018**

33 **HGS Skeet Shoot**
Gready Hunter

34 **Grand Canyon Field Trip: Classical Geology Exposed**
Steve Earle

39 **Government Update**
Henry M. Wise and Arlin Howles

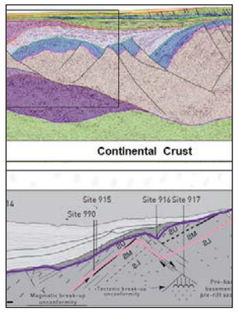
43 **Remembrance**
Thomas Marvin Thompson

44 **Remembrance**
John J. Amoruso

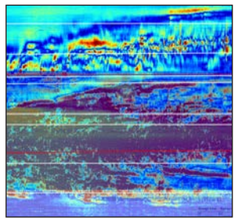
45 **Remembrance**
Kenneth Eugene Nemeth

46 **Remembrance**
George E. Gordon

page 8



page 16



page 27

page 34

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EARTH SCIENCE WEEK

Earth Science Activities for the Whole Family Coming in October!

Earth Science Week, 2018
October 14 – 20

HGS in partnership with the American Geosciences Institute (AGI) is pleased to announce the theme of Earth Science Week 2018

Earth as Inspiration

This year's event emphasizes artistic expression as a unique, powerful opportunity for geoscience education and understanding in the 21st century.

In celebration of Earth Science Week Houston, HGS will be hosting the following exciting events:

Saturday, October 13 (11:00 am – 3:00 pm)

Earth Science Celebration at the Houston Museum of Natural Science
Our popular passport program guides students through hands-on activities and interactive science demonstrations.

Check in at Event Table in the Grand Hall before purchasing tickets.

Special pricing for the event: $3.50 K – 12 students
$3.50 College Students/Teachers/Professors with valid school/college ID

Teachers: 2018 ESW Toolkits free with valid school ID

Sunday, October 21 (12:00 pm – 3:00 pm)

Wiess Energy Hall Field Trip at the Houston Museum of Natural Science
4th Floor Duncan Family Wing
Step onto the Wiess Energy Hall drill floor to start your indoor fieldtrip adventure. Journey from the Big Bang to the Houston of the future.

Check in at Event Table in the Grand Hall before purchasing tickets.

Special pricing for the event: $3.50 K – 12 students
$3.50 College Students/Teachers/Professors with valid school/college ID

For more information, see the HGS Earth Science Week webpage
https://www.hgs.org/earth-science-outreach

Cheryl Desforges
President@HGS.org

What We Did this Summer…

Welcome back to a new year of the HGS *Bulletin* after the summer break! In case you're wondering why I am saying this in September, you will remember from paying your dues that our fiscal year is from July 1 to the end of the next June and our Bulletin takes a break while we change editors. Usually, summer is a fairly slow period for HGS, but this year seems to have been a little busier than most.

The Continuing Education Committee continued the HGS community outreach effort to educate the general public about the causes of flooding in our area and the proactive actions people can consider when considering the purchase of a property. Thanks especially to Dr. Bill Dupre and Thom Tucker for arranging and presenting two more after work, free, public, community outreach education sessions, which were customized to the area of the presentation:

- "Buffalo Bayou Area Flooding and Floodplains in the Houston Area: Past, Present, and Future" on August 17 at the Walnut Bend Recreation Center
- "Kingwood Area Flooding and Floodplains in the Houston Area: Past, Present, and Future" on August 24 at the Kingwood Community Center.

Earlier in the month on August 2, everyone was blindsided by the Texas Sunset Advisory Commission's Staff (hereafter Sunset) recommendation to abolish the Texas Board of Profession Geoscientists (TPBG), by the sunset agency expiration process. This would end Texas licensing of Geologists, Geophysicists, and Soil Scientists. I've tried to bring everyone up to speed on this issue by the 3 email blasts over the past weeks. That action would directly affect 528 (17%) HGS Members, mostly those practicing in the Environmental and Engineering Geology areas, as I mentioned in my August 30 email. Those areas currently require work to be sealed by a licensed geoscientist.

All oil and gas geoscientists are exempt from licensing in the practice their profession, so they're not directly affected. But if they work for production companies, their companies are affected, and the general public is affected. Geoscientists licensed by TBPG play an essential role in the safe and environmentally-responsible development of oil and natural gas in Texas as well as many other economically-important activities, such as construction and geotechnical engineering, developing and managing the state's water resources, and engaging in environmental assessment and remediation projects. TBPG's licensing process provides both regulators and the public the assurance that licensees meet a suitable standard of competence, capability, and ethical behavior for the important work with which they are entrusted. Licensed geoscientists directly support Texas economic growth and public well-being. The need for licensed professional will not go away if Texas abolishes the TBPG, and geoscience licensing. It will just ensure that only geoscientists licensed by other states will receive work in Texas in the areas that protect the public health, safety, welfare, and the state's natural resources.

Because of the importance of this issue, my past 3 weeks – as well as the time of other HGS members, especially Henry Wise and Matthew Cowan, but others – have been consumed in conference calls and meetings with a group of geoscientists from across Texas to devise and implement a plan to convince the Sunset Advisory Commission to reverse their recommendation and keep the TBPG. That interim effort culminated on August 30 with a Sunset Advisory Commission Hearing in Austin. There were 28 oral testimonies of which only one non-geoscientist lawyer was in favor of keeping the recommendation to abolish the TBPG. The testimony and all the written comments will now be reviewed and considered by the Sunset Advisory Commission for their final recommendation to the Legislature, which will be announced on November 14 or 15. I wish I could say all the work was over, but it won't be over until next spring when the Legislature meets. Since the TBPG is up for Sunset, the 2001 Texas Geoscience Practice Act (Texas Occupations Code Chapter 1002) which authorized the establishment of the Texas Board of Professional Geoscientists (TBPG) (http://tbpg.state.tx.us/tbpg/statute/) needs to be re-authorized. HGS has a front row seat and participation in civics in action. I will continue to keep all of HGS informed of what's going on in the process, so even those of you who aren't affected can see the process.

Even though I knew HGS is composed of a diverse group of geoscientists, the Sunset issue has really emphasized how important all our specialties and our experience are to the civilization we inhabit. As the year progresses, I will try to highlight as many of these niches as possible. So, please contact me if you want to be highlighted and tell your professional story ■

Jim Tucker
editor.hgs@hgs.org

The Year Ahead

Greetings from this year's Houston Geological Society *Bulletin*. This will be our second year as primarily an electronic publication. The first year was focused on keeping all the familiar features of the past hardcopies, in a form accessible from your computer.

Since we do not have a restriction on number of page multiples (sort of), we can explore other areas that may be of interest to Members. We will have a quiz directed at early-career colleagues, involving them in the HGS, and passing along familiarity with past tools and practices, and encouraging conversations with more experienced colleagues.

We will be accepting monographs from geoscientists that I'm calling "Lessons from a Career". We have all had experiences that taught us aspects of professional practice and business gained over the years. The focus is on lessons and practices, not just biographies. These will be lightly edited.

One of the most interesting recent radio shows is "How I Built This", where folks discuss businesses and enterprises of all sorts they have started, and developed them into going concerns. Houston likely has more independent petroleum companies and partnerships of a few people, as well as sole operators than anywhere, so this will be a way to share their stories. And many environmental and hydrogeology concerns have also been started by HGS colleagues.

You will see several mentions of recent and upcoming field trips in this issue. The HGS Grand Canyon trip has been held for many years, and is covered in this issue. In addition to other field trips for this year that are still in planning, you will see an announcement for a trip to the Solitario laccolith and other features of the Big Bend State Park, immediately west of the Big Bend National Park, and harder to obtain reservations for (page 6). We will go to Alpine on the train, and return by train, with trucks for the park, and accommodations within the park. As accommodations are limited, you will want to sign up early.

There are discussions of the Texas geoscience licensure elsewhere in this issue, so look for them, watch the "sunset" hearings archived online, and inform yourself on this subject, and contact your legislators, if you feel so moved.

There is a list of HGS committees on page 3 of this *Bulletin*, so look it over and call or email the committee chair of any that look interesting to you. A few hours of your efforts can make a big difference, so volunteer for something this month, either with HGS or in your community.

The 17th HGS-PESGB Conference on African E&P

Oral Presentations – Tuesday, September 11, 2018

7:30	**Registration and Coffee**	
8:15	Welcome and Opening Remarks: **Brian W. Horn**, *General Chair*	
8:20	**Session 1 Chairs: Paul Haryott,** *Rose & Associates* and **Brian W. Horn,** *ION*	
	Theme 1 - African Exploration in the Evolving Business Environment - Above Ground Risks and Rewards	
8:25	**Opening Keynote Address –** African Exploration in the Evolving Business Environment – Above Ground Risks and Rewards	**Tim O'Hanlon** (Tullow)
8:50	The Golden Age of Super Basins - An African Perspective	**Charles Sternbach** (AAPG Past President)
9:15	Entering the Next Phase of the Oil Price Cycle: What It Means for E&P in Sub-Saharan Africa	**Emma Woodward** (Drilling Info)
9:40	**Coffee and Posters**	
10:00	**Theme 2 - New and Emerging Exploration Trendss**	
10:05	Why is Everyone Excited About the Sao Tome and Principe EEZ; the 4 Key Reasons Why This Has Been One of the Hottest Areas for Exploration in 2017	**Matt Tyrrell (**PGS), J. May, E. Mueller, O. D'Abreu
10:30	Compelling Evidence for Oil Offshore Angoche, Mozambique	**Neil Hodgson (**Spectrum), R. MacDonald, P. Hargereaves, K. Rodriguez
10:55	Chasing the TAGI Play into Morocco: Assessing the Contribution of Local Versus Regional Drainage Systems on the Character and Provenance of Upper Triassic Fluvial Deposits	**Jonathan Redfern** (University of Manchester), J. Lovell-Kennedy, J. Argent and J. Canning
11:20	Palaeozoic to Present: Assessing the Petroleum Potential of the Offshore Sirt Basin, Libya, Using Newly Reprocessed Regional-scale 2D Seismic Data	**Lisa Fullarton** (ION), E. C. A. C. Gillbard, K. G. McDermott, N. Clarke, P. Bellingham
11:45	**Special Session: Exploration in Africa Past, Present and Future – Keys to Exploration Success and Disaster Avoidance**	*Moderator:* **Paul Haryott** (Senior Assoc., Rose & Associates)
11:50	Exploration in Africa Past, Present and Future – A Historical Perspective	Bob Fryklund (IHS)
12:05	**Lunch and Special Session: Round Table Panel Discussion**	
	Exploration in Africa Past, Present and Future – Keys to Exploration Success and Disaster Avoidance *Moderator:* **Paul Haryott** (Senior Assoc., Rose & Associates) *Panel:* **Ernie Leyendecker** (former EVP Worldwide Exploration, Anadarko), **Bob Fryklund** (Chief Upstream Strategist, IHS), **Dorie McGuiness** (VP Geology, Kosmos), **Tim O'Hanlon** (VP African Business, Tullow)	
13:30	**Session 2 Chairs: Bill Dickson**, *DIGs* and **Bryan Cronin**, *Tullow Oil Ghana Ltd.*	
	Theme 2 - New and Emerging Exploration Trends (continued)	
13:35	Break-up Processes in the Presence of Plume Magmatism: New Insights into the Tectonostratigraphic Development and Petroleum Potential of the Austral South Atlantic	**Ken G. McDermott** (ION), E. C. A. C. Gillbard, P. Bellingham, B. W. Horn
14:00	The Austral South Atlantic: Early Formation and Crustal Structure of the Orange and Cape Basins	**Dale E. Bird** (Bird Geophysical), S. A. Hall, D. J. McLean, P. J. Towle, J. V. Grant, and H. A. Danque
14:25	Post-rift Potential Source Rock Correlations and Prospectivity of the Deep Atlantic Conjugate Margins South of the Walvis Ridge	**Ian Davison** (Earthmoves), Duncan Wallace
14:50	Offshore Somalia: Source Rock Identification in a Frontier Margin	**Neil Hodgson** (Spectrum), H. Kearns, K. Rodriguez, B. Allen, D. Paton, and A. Abiikar Hussein (Spectrum)
15:15	**Coffee and Posters**	
15:45	Hunting the SNE in Guinea Bissau	**Neil Hodgson** (Spectrum), A. Intawong, and K. Rodriguez
16:10	Gabon's Wild West Frontier Promises a Golden Age of Discovery for the Deep Offshore	**Tony Younis** (Impact Oil & Gas), M. Clutterbuck, P. Birch
16:35	Gabon Deep Offshore: New Petroleum System Insights from the Full Integration of Geology and Geophysics	**Rob Crossley** (CGG) and G. Duval
17:00	**Evening Reception**	

The 17th HGS-PESGB Conference on African E&P

Oral Presentations – Wednesday, September 12, 2018

8:00	**Registration and Coffee**	
8:30	**Session 3 Chairs: Ana Krueger,** *University of Houston* and **Onochie Okonkwo,** *Anadarko*	
	Theme 3 - Developing and Integrating Geological Concepts: Impact on Exploration in Africa	
8:35	Entrenched Slope Channel Complex Systems: Reservoir Opportunities Through Understanding Architectural Element Distribution and Application to West Africa E&P	**Bryan Cronin** (Tullow)
9:00	Towards the Development of an Integrated Central Atlantic Tectono-Stratigraphic Framework	**Max Casson** (University of Manchester), J. Redfern, L. G. Bulot, J. Jeremiah
9:25	Reservoir Modeling of a Deep-Water West African Reservoir: A Fully Integrated, Multi-Scenario Approach	**Monica Miley** (Anadarko), A. Dufournet, J. Villa, M. Bentley
9:50	Sedimentological Characteristics of Deepwater Sandstones Associated with Transgressive-Regressive Cycles Offshore Ghana	**Luisa Man** (CoreLab), Tom Wilson, Simon Greenfield
10:15	**Coffee and Posters**	
10:40	Magmatic Modification of African Crust: Implications for Strain Localization and Basin Subsidence	**Cynthia Ebinger,** SarahJaye Oliva, Ryan Gallacher (Tulane University)
11:05	An Animated Model for the Mesozoic-Recent Tectonic Evolution of Sub-Saharan Africa: From Plates And Structures to Basins and Paleogeography	**Jon Teasdale**, C. Reeves, (Geognostics International Limited, Earthworks BV)
11:30	Tracing the West and Central African Rift and Shear Systems Offshore onto Oceanic Crust: a "Rolling" Triple Junction	**William Dickson** (DIGs) and J. W. Granath
11:55	Influence of Proterozoic Heritage on Development of Rift Segments in the Equatorial Atlantic	**Ana Krueger** (University of Houston), M. Murphy, I. Norton, K. Casey, R. D. de Matos
12:20	**Lunch and Posters**	
13:45	**Session 4 Chairs: Luis Baez** *Shell* and **Ian Davison**, *Earthmoves*	
	Theme 4 - What We Thought We Knew: Exploration Concepts to Production Reality	
13:50	**Keynote** - The Evolution of the Pre-Salt Play in the Kwanza Benguela Basins, Angola	**Andrew Witt** (BP), A. Bump, T. Love and F. Setzer
14:15	A New Beginning: Remaining Potential and the Case for Investment in the Niger Delta	**Paul Bellingham** (ION), J. Deckelman, B. W. Horn
14:40	Play Fairway and Petroleum Systems Analysis of Nigeria's Cretaceous Benin (Dahomey) Basin: Key to Unlocking Additional Hydrocarbon Volumes from an Emerging Exploration Trend	**Olusanmi O. Emmanuel** (Acetop Energy), K. Taiwo, O. Mojisola and E. Enu
15:05	**Coffee and Posters**	
15:30	Jubilee Field: From World Class Exploration Discovery to Producing Asset. Learnings from 7 Years of Production	**Kathryn E. Dawson** (Tullow Ghana Ltd)
15:55	**Closing Keynote/Future Perspective** – Jubilee to Liza: Lessons From a Decade of Exploration in the Central Atlantic	**Keith Myers** (Westwood Energy), E. Zanella, J. Collard, H. Doran
16:20	**Awards and Closing Remarks**	

The 17th HGS-PESGB Conference on African E&P

Poster Session Agenda

Using Generative Adversarial Networks to Improve Deep Learning Fault Prediction Networks	**Matt Morris**, Ping Lu, *Anadarko*
South Gabon's Pre-Salt Revelation	**Neil Hodgson**, Karyan Rodriguez, *Spectrum Geo Multi-Client Seismic Imaging*
Data-Driven Transformation in Geology, Geophysics and Engineering	**Bode Omoboya**, Mik Isernia, Paul Endresen, Ana Krueger, *Bluware, University of Houston*
Is Namibia Really an Oil Province?	**Walter W. Wornardt**, *MICRO-STRAT, Inc.*
The influence of Shale Ridges on Reservoir Development and Implications for Exploration – A Case Study from Onshore Niger Delta, Nigeria	**Syed Dabeer,** Umar Ngala, *PetroVision* and Emmanuel Offor, *ERTON Exploration and Production*
Evolution of East African Rift System (EARS)	**Sadat Sembatya,** *Makerere University – Kampala, Uganda*
The Next Phase of Exploration in Sierra Leone: A Closer Look at the Basinward Cretaceous Plays in the Search for Improved Reservoir Quality	**Magenta McDougall**, *African Petroleum*
An Atlas of Character: A Model For the Control of Passive Margin Development	**Neil Hodgson,** and K. Rodriguez, *Spectrum Geo*
Visualization of Vertical Hydrocarbon Migration Pathways in Seismic Data: Toward the Quantification of Seal and Charge Risk for African Exploration Plays	**David Connolly,** *dGB Earth Sciences USA*
JMA – The Hidden Treasure Below the Basalt	**Neil Hodgson,** K. Rodriguez, J. Watson, *Spectrum Geo*
Hidden Boundary Fault at East African Rift Basin Revealed with FALCON® Airborne Gravity Gradiometry Data	Janine Weber, Ivonne M, Araujo, **R. Yalamanchili,** S. Maduhu, *CGG Multi-Physics, TPDC*
Enhancing Gas Production in Nigeria's Marginal Field. A Case Study of Ughelli-X Field	Kemi Taiwo, O. O. Emmanuel, O. Aworanti, T. Ologun and U. Olorunmola, *ND Western Limited, Acetop Energy*
Cape Fold Belt Fractured Basement Play Fairway	Neil Hodgson, K. Rodriguez, and H. Kearns, *Spectrum Geo*
The Underexplored Shelf-Edge Plays of the West Africa Transform Margin and the Opportunity to De-Risk These on Merged 3D Seismic and Well Datasets Through Togo, Benin and Western Nigeria	Matt Tyrrell, M. Martin, A. Ashfield, A. Maioli and B. Biaou, *PGS, Société Béninoise des Hydrocarbures (Sobeh)*
Hydrocarbon Potential of the Onshore Dahomey Embayment of Benin; Exploration of Devonian, Jurassic, Cretaceous and Tertiary Plays Using Integrated Seismic and High Resolution Airborne Gravity and Magnetic Data	Emma Tyrrell, P. Elliot and M. Lofgran, *Elephant Oil Ltd*
Conjugate Margin Chronostratigraphy – Comparison of Cretaceous-Tertiary Petroleum Systems in Namibia and Uruguay	Katie-Joe McDonough, K. Reuber, B. W. Horn, K. G. McDermott, E. C. Gillbard, **F. Brouwer**, *KJM Consulting, Pine, ION, 3 GEO*
Regional Reservoir Quality Trends in Cretaceous Sandstone Reservoirs in the Transform Margin Basins of Ghana	**Simon Greenfield**, Dr. P. Cox, *Core Laboratories UK*
Using Broadband 3D Seismic to Validate and Upgrade Satellite Seepage Data, Gabon	**Rowan Edwards**, M. King and G. Duval, *CGG*

The 17th HGS-PESGB Conference on African E&P

Student Poster Session Agenda

3-D Crustal Model of Northwest Africa	Naila Dowla, Dale Bird, Mike Murphy, Janusz Grebowicz, *University of Houston*
Geometry and Kinematics of Seismically Active Border and Transfer Fault Systems in the Malawi Rift, Africa	Pham, T.Q., C. Ebinger, S. Oliva, K. Peterson, P. Chindandali, D. Shillington, *Tulane University*
Comparing Controls on the Formation of 27 Passive Margin Fold-belts from the Margins of the Gulf of Mexico, South Atlantic and Africa	Malik Muhammad Alam, *University of Houston*
Compilation of Widespread, Cretaceous OAE1, OAE2, and OAE3 Black Shale Horizons Documented in Wells from the Gulf of Mexico, Caribbean, and Atlantic Passive Margins	Nikola Bjelica, *University of Houston*
New Insights into the Assembly and Breakup of Pangea from a Mega-regional Compilation of 8,672 Detrital Zircon Ages from the Circum-Gulf of Mexico, Northern South America, and West Africa	Marie-Nelsy Kouassi, Paul Mann, Joel Saylor, Kurt Sundell, *University of Houston*
Constraints on Central Atlantic Rifting Based on a Compilation of Low-temperature Thermochronology Ages from Rifted, Conjugate Margins of the East Coast of the USA and Northwestern Africa	Geraldine Tijerina, *University of Houston*
Is Africa Stationary? —A New Look at an Old Question	Daniel Woodworth, Chengzu Wang, Nuhazein Mohamed and Richard G. Gordon, *Rice University*
Rift History of the South Atlantic Ocean from Subsidence Histories of Offshore Wells and Low-temperature Thermochronology (AFT) Cooling Ages from the South American and West African Conjugate Margins	Omar Zavala, *University of Houston*
Plate Tectonic Framework for Petroleum Systems of Atlantic Conjugate Margins: Northwest Africa-Eastern USA and Northeast South America-Equatorial West Africa	Marcus P. Zinecker, Paul Mann, *University of Houston*
Application of Raman Spectroscopy for Determination of Natural Gas Composition	Johnathan Torres, Sage Muttel, Dougles Syzdek, S, Nagy, Janusz Grebowicz, *AGH University of Science and Technology; University of Houston- Downtown*

2019 Applied Geoscience Conference
1st "Subsurface Intelligence and Analytics"

FIRST ANNOUNCEMENT

Houston Geological Society
2019 Applied Geoscience Conference

1st "Subsurface Intelligence and Analytics" Conference

Call for Content (Papers & Posters)

4th – 6th March 2019
Anadarko Petroleum Allison Tower
The Woodlands, TX

HGS Technical Committee
Rebecca Morgan, Co-Chair
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Deadline for Submission: Sept. 14th 2018

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– 1st "Subsurface Intelligence and Analytics"

Guidelines For Abstract Submission

Please submit your abstract for either an oral presentation or poster, by sending it, as an email attachment to AGC2019@hgs.org . Submissions should be sent as soon as possible and no later than September 14th 2018.

Assessment of the abstracts will be based upon the quality and relevance to the suggested topics below:

- **Digital Transformation - The Changing Workforce**
- **Machine Learning and Data Analytics in Exploration and Production**
- **Automation – Reliability and Productivity**
- **Fishing the Data Lake**
- **Digital Transformation of the Geosciences – Hype or Hope**

Abstracts should be:

- Length should be 1 page (8½" x 11"), no more than 300 words, and may include diagrams in color or black and white, and references.
- Submit as MS Word documents with embedded graphics.
- Each file name should include the principle author's surname.
- Include contact information (email address) for the principle author in the abstract
- Indicate the speaker with an asterisk (*) after their name in the author list.

The principle author of submitted abstracts will be notified of the committee's decision no later than **November 9th 2018.**

Accepted Submissions

Each author of an accepted submission is requested to submit an EXTENDED ABSTRACT for their oral presentation by December 14th 2018.

The extended abstract may contain references, appendices, figures and maps.
Please indicate if you **do NOT** wish this to be part of proceedings of the event.

HGS Golf Tournament

Monday – October 22, 2018
Sterling Country Club and
Houston National Golf Club
4-man Scramble

Come join us for golf, food, friends and fun at the annual HGS Golf Tournament at our new location, **Sterling Country Club** and **Houston National Golf Club** (www.sccathn.com). There will be prizes awarded for closest to the pin and long drive as well as many great door prizes for participants.

Entry Fee: $175.00/Golfer or $700.00/Team.
Early Bird Special: Sign up before September 25th to receive a discount of $25.00/Golfer or $100/Team.
Entry Deadline: October 17th.

Individual entries will be grouped with other individual golfers to make a foursome. Entries are limited to and will be accepted on a first-in basis.

Companies or individuals interested in sponsoring the event should contact Elliot Wall at 713-328-2674 or elliot.wall@corelab.com. *Sponsorship deadline is September 30th.*

SCHEDULE OF EVENTS

8:00 – 9:45 a.m.	Registration and free use of driving range and mini games, breakfast provided
10:00 a.m.	Shotgun start
3:00 p.m.	Cash bar, open buffet
3:30 p.m.	Door prizes and awards presentation

REGISTRATION OPTIONS

Online: www.hgs.org/golftournament
Email: office@hgs.org
Fax: 281-679-5504
Mail: Houston Geological Society, 14811 St. Mary's Lane, Suite 250, Houston, TX 77079
If paying by check, please make check payable to HGS Entertainment Fund.

Team Captain _____ Phone _____ Amount Enclosed _____

Company _____ Email _____

Billing Address _____

Credit card # _____ Exp. Date _____ Code# _____

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

Foursome Members ***(Please Print)***	**Company**	**Phone Number/Email**	**Hdcp/ Avg. Score**
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

*Please provide email addresses for **all team members**. All communications will be done via email.*

HGS Golf Tournament

Monday – October 22, 2018
Sterling Country Club and
Houston National Golf Club

Sponsorship Application

Trevino Sponsorship $250.00

- **Sponsor Logo** signs on courses.
- **Company Name** displayed on sponsor recognition board at registration and awards banquet.
- **No Complimentary Registration**

Hogan Sponsorship $500.00

- **Sponsor logo** signs on courses.
- **Company logo** displayed on sponsor recognition board at registration and awards banquet.
- **1 Complimentary Registration**

Nicklaus Sponsorship $1,000.00

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- **Company Logo prominently** displayed on sponsor recognition board at registration and awards banquet.
- **Company logo** displayed on driving range and practice putting green signs.
- **2 Complimentary Registrations**

Title Sponsorship $2,000.00

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- **Company logo** displayed on beverage carts.
- **Sponsorship includes tournament entry for one team (4 people).**

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If paying by check, please make check payable to HGS Entertainment Fund.

Name _____ Phone _____ Amount Enclosed _____

Company _____ Email _____

Billing Address _____

Credit card # _____

Exp. Date _____ Security Code# _____

Please email your company logo to office@hgs.org and elliot.wall@corelab.com.
Note: Company logos (high resolution file) must be received no later than September 30th.
If there are any questions, please contact Elliot Wall at 713-328-2674.

Monday, September 10, 2018

Live Oak Room • Norris Conference Center • 816 Town and Country Blvd #210
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

Cost: $40 Preregistered members; $45 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.

If you are an Active or Associate Member who is unemployed and would like to attend this meeting, please call the HGS office for a discounted registration cost. We are also seeking members to volunteer at the registration desk for this and other events.

HGS International Dinner Meeting

Ken McDermott, Carl McDermott, Stefano Patruno, Neil Hurst, Paul Bellingham, Brian W. Horn
ION E&P Advisors

Towards a Full Tectonostratigraphic Model for the South Atlantic from Conjugate Margin Data: Spanning the End-Member Break-Up Models

The geological history and petroleum prospectivity of rifted continental margins are often considered independently with workers generally focussed on an individual margin or more often a single basin within that margin. This is, in part, due to a paucity of available high-quality conjugate reflection seismic profiles. Here, ION's mega-regional South Atlantic conjugate BasinSPANTM reflection seismic dataset is used to reconstruct the margins, considering them as they once were; a single basin with a shared geological history. Observations from these seismic from both sides of the South Atlantic basin provide new and important insights into the principle mechanisms involved in continental break-up, including variations in the amounts of magmatism and dynamic uplift. The implications of the breakup mechanisms will then be demonstrated in respect of the stratigraphic development and petroleum prospectivity of the margins.

By investigating such a large area and data from both margins, we consider also the classification of rifted margins and whether the traditional definitions remain valuable. Rifted margins are often considered in terms of end-members; magma-poor, and magma-rich. Investigations into magma-poor break-up processes (crustal hyper-extension, partial serpentinisation and exhumation of

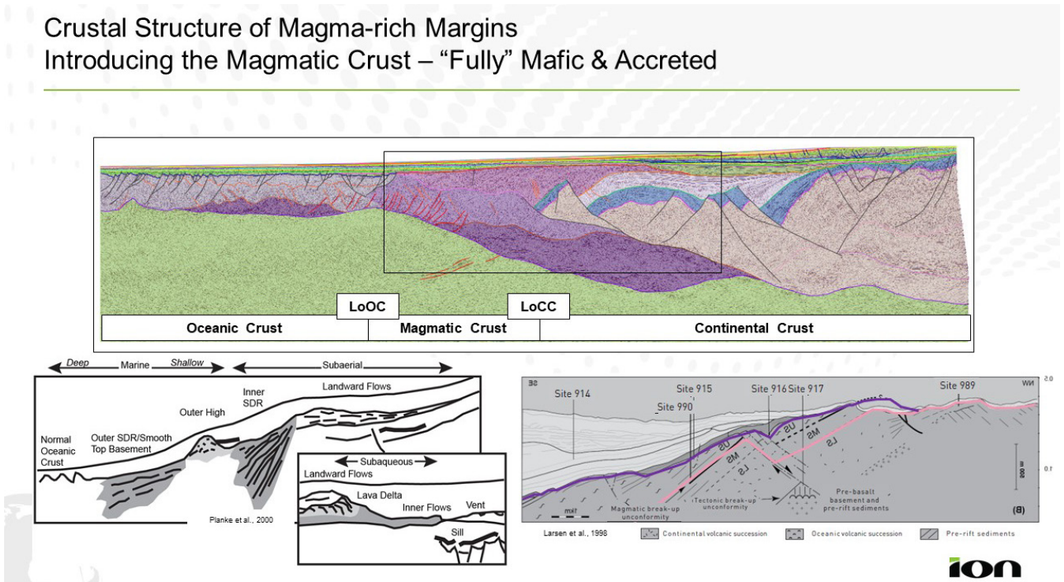

Figure 1. *Conjugate geoseismic sections from the austral South Atlantic, highlighting the typical crustal configuration at End-Aptian times. Note landward dip of major faults on both margins and mafic and intruded crus. Variations in Cenozoic thickness on each margin is due to a combination of sediment supply and differential uplift through time as the margins separated through time.*

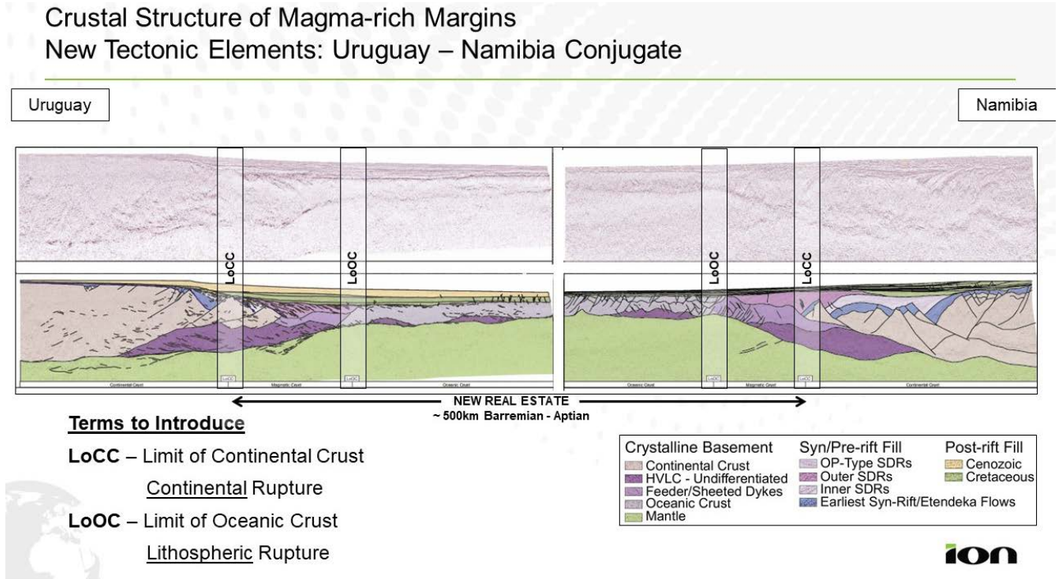

Figure 2. *a) Interpreted BasinSPAN profile from Namibia highlighting the crustal structure. Rectangular overlay signifies area traditionally referred to as the continent – ocean transition. Note dominance of landward dipping faults within the continental crust, and lack of clearly defined faults within the magmatic crust. LoOC: Limit of oceanic crust, LoCC: Limit of continental crust. See Figure 1 for legend.*
b) Volcano-stratigraphic elements as defined by Planke et al., 2000 from the N. Atlantic, variations of which are observable within the austral South Atlantic.
c) Geoseismic section from Larsen et al., based on N. Atlantic data. Pink annotation represents "inner SDR" sequence, purple represents "outer SDR" sequences.

sub-continental mantle) have focused on the North Atlantic (e.g. Iberia – Newfoundland Rift System) and Tethyan rifted margins preserved in the Alps[1,2]. Similarly, the processes of magma-rich breakup (continental crust "replaced" by mafic crust through volumous magmatic addition) and its characteristic SDR sequences have been studied on the North and South Atlantic margins, and onshore Greenland and Mozambique[3,4,5,6]. However, it is becoming clear that in viewing margins as end-members, key developmental stages for many rifted margins are unaccounted for, as is the case for the South Atlantic. Instead, we should consider the rifted margins as forming a spectrum with variations in time, space and temperature/magma supply being considered. This consideration defines the potential for a new class of margin, the hybrid-rifted margin[7].

The conjugate margins of the austral South Atlantic are classically magma-rich (**Figure 1**) with well-developed examples of all typical volcanostratigraphic elements (**Figure 2**) observed on magma-rich margins globally: stretched continental crust, inner and outer SDR packages, outer high, a zone of high-velocity lower crust, and relatively thick early oceanic crust[4,5,8]. Farther north however, in the Central portion of the South Atlantic, the situation changes dramatically and elements of both the end-member magma-poor and magma-rich margins are observed at different times and locations. We consider how the development of the margins changes in space and time.

Magmatism & Tectonostratigraphy

Through well-correlated stratigraphic and crustal structure interpretation, a new tectonostratigraphic model for the formation of the South Atlantic is developed. The model delineates crustal domains along the margins relating to mechanical and magmatic continental stretching and break-up, highlighting diachronous rifting and partitioning of extensional strain across the margin. The model consists of up to five distinct crustal domains (continental, hyper-extended, magmatic, oceanic and oceanic plateau), and two important crustal boundaries; the limit of continental crust, and limit of oceanic crust.

Our model also describes strongly diachronous post-rift and drift phase subsidence and highlights the role the Walvis Ridge – Rio Grande Rise (WRRGR) system played in the separation of the central and austral segments of the South Atlantic Ocean. Detailed analysis of SDR-offlap (**Figure 3**), and subsidence patterns on both conjugate margins, indicate that for much of the Lower Cretaceous the WRRGR system formed a barrier which totally separated the austral and central segments of the South Atlantic basin. However, during Aptian times renewed extension localized on the African Margin, and amagmatic stretching of the WRRGR led to the formation of what we term the "Walvis Straits". Once the straits were formed seawater had a pathway to flow northwards and evaporate, contributing to the development of the Great South Atlantic Salt Basin from Angola to Gabon.

HGS International Dinner *continued on page 18*

HGS International Dinner Meeting

HGS International Dinner continued from page 17

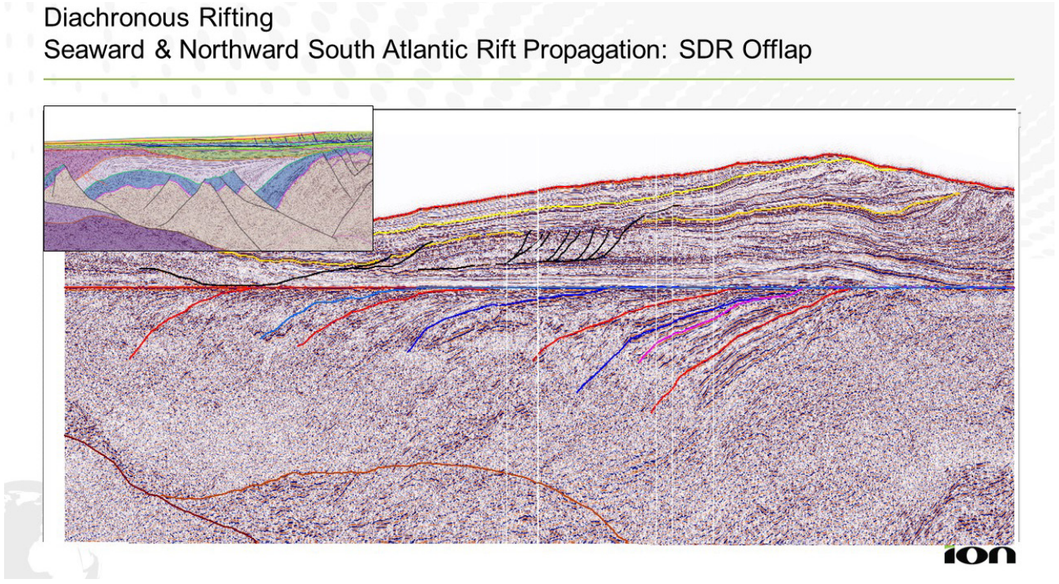

Figure 3. *Oceanward migration of syn-rift concomitant with landward post-rift subsidence. Strong margin diachroneity highlighted on PSTM reflection seismic data (flattened "SDR Offlap" surface) demonstrates younging of SDRs oceanward.*

Our interpretation in the austral South Atlantic reveals an increasingly magmatic rift propagating oceanward concomitantly with passive subsidence landward (**Figures 2** and **3**), and in the central South Atlantic a magma-poor rift beneath the sag-basin transitioning to magma-rich oceanwards. Mapping of the pre-salt sag sequences shows oceanward migration of extension forcing progressively younger strata to become effective syn-rift while their chronostratigraphically equivalents thermally subside (effective post-rift) continentward. We observe an outer high (magmatic construction) at the limit of oceanic crust forming a barrier to autochthonous salt suggesting the switch from magma-poor to a more magma-rich rifting exacted a fundamental control on the boundaries to the S. Atlantic Salt Basin.

The data also show how the central South Atlantic cannot be described in end-member terms, but instead should be considered as a hybrid-rifted margin.

Conclusions

While the austral South Atlantic may be considered in more magma-rich "end-member" terms, we conclude that a model invoking hybrid rifting is most appropriate to describe the central South Atlantic and show that how it has led to significant implications for subsidence and heatflow through time. Understanding the interplay between tectonics and sedimentation across the margins through time is therefore key to reducing exploration risk in the central South Atlantic.

The observations and processes described here underpin the development of a regional petroleum systems model, allowing prediction of regional heatflow through time and space as well the likely location of source and reservoir lithologies across the entire austral South Atlantic Basin reducing exploration uncertainty in the continued search for commercial hydrocarbons. ■

References

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Biographical Sketch

Ken McDermott was awarded his PhD from the University of Birmingham in 2013 for his work on crustal hyper-extension at magma-poor rifted margins; and a BSc in Geology from University College Dublin in 2007.

From 2012 – 2014 Ken held a postdoctoral research position at University College Dublin, working on the tectonostratigraphy of the North Atlantic.

Since 2014, Ken has held the position of Structural Geologist at ION's E & P Advisor service, and is to a large extent focussed on the South Atlantic.

Ken has authored and co-authored numerous papers in internationally regarded peer-reviewed journals focussed on the formation, crustal structure, and tectonostratigraphy of continental margins around the world, and often speaks at national and international industry and academic conferences.

Ken is a member of the PESGB and a fellow of the Geological Society of London.

Wednesday, September 12, 2018

Black Lab Pub, Churchill Room • 4100 Montrose Blvd.
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

Cost: $30 Preregistered members; $35 non-members/walk-ups

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

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Getting a Grip on the Philosophy of Ethics and Geology

Robert J Traylor
Alleged Geologist (thankfully retired)

Disclaimer: *The following are my thoughts alone and I take full responsibility for them. That is not to say that there is any originality to them. (Actually, I do not believe that I have ever had an original thought.) At any rate, no specific references are sited, because I am reluctant to blame others for my distorted view and bias. Also, my having no official expertise or capacity relieves you of the obligation to accept any word of this treatise.*

The ensuing discussion is really about the philosophy of ethics and science, especially the philosophy of geology. It investigates how we think and formulate scientific explanations, and in doing so, it develops an unorthodox comparison to ethics. If, at times, you find everything counterintuitive and that you are totally lost, be assured that I might be right behind you … equally lost. Bear with me and be brave.

Ethics is not a rule. It is a judgement call by oneself and others (observers) on dealing with the many inconsistent, confusing, contradicting and conflicting rules of behavioral conduct, which constitute laws, morals, religious edicts, professional and business rules, cultural mores and customs, and so forth. Ethics does not belong in the binary realm of yes-no reasoning, which is found in those many laws and rules. Ethics resides in a quirky, complex quantum-world of probability where binary (two-dimensional) resolution fails. Trapping ethics in a two-dimensional world is the greatest mistake of ethics philosophy.

As regards to the philosophy of science, binary language is also unsatisfactory because of its limitations in explanation and observation; notwithstanding, it is our primary source of reasoning because we are driven to a "logical answer". Unfortunately, the world is not a two-dimensional place; therefore, binary reasoning is only good up to a point in linking the four dimensions of time and space – an important geological task. Any geologist is quite familiar with this problem. This reasoning quandary is known as the infamous "Gestalt". Science is eternally cursed by the Gestalt, which is the philosophical conundrum, whereby the sum of the parts does not complete the whole.

A good geologist intuitively sees his two-dimensional data in four-dimensional space-time. Upon placing his data into a four-dimensional explanation, the geologist recognizes his breach of the notorious induction gap of the Gestalt and leaps into the nebulous field of probability – a quantum world, philosophically speaking.

Geologists are an exception as scientists, because we always prefer the subjunctive, while others (especially engineers) abhor the subjunctive and insist on the active – either it is or it isn't. We are comfortable with the Gestalt and routinely cross its inherently required induction-gap with our conclusions and predictions. Fearlessly, we make this quantum leap in reasoning, very simply because it is a necessity of reality. Geologists consistently approximate the link of time and space because we are persistently denied most of the parts. For the sake of practicality, we must, at some point, make a determination that is cloaked in subjunctive probability.

Geologists (really, like all scientists) deal with a world best described in terms of probability – like it or not. This a very Quantum Theory idea and, yet, very counterintuitive to conventional thinking. In other words, flying in the face of sound two-dimensional logic, reality is a probability, which is what Quantum Theory is all about. Space and time are not necessarily linked by the speed of light in the subatomic world. Interestingly, in Geology, the speed of light, too, has no relevance for almost the opposite reasons.

Geological time is a very different animal from, say, the precision of Relativity time. Geologists talk about "absolute time" (meaning radiometric measurement), which is a gross approximation or probability at best and certainly a misnomer, because there is nothing "absolute" about radiometric measurements. What's a few million years, plus or minus? Such sloppiness is entirely unacceptable in other methods of time measurement.

Time is merely a measure or concept of change. We like to think of time as an absolute, but our limited ability to measure change complicates our observations. Subatomic behavior contradicts the rigid confines of light as a reference plane of observation. Subatomic behavior duplicates itself and appears simultaneously is the same light-space-time observation plane. Such quixotic properties do not fit in the Relativity world. Niels Bohr developed Quantum Mechanics to specifically deal with these odd phenomena as a probability or approximation to predict their behavior. To me, he is the greatest physicist ever, because he braved the abandonment of two-dimensional (absolute) rationalization in physics.

Niels Bohr, who is now known as the father of Quantum Physics and Quantum Mechanics, and Werner Heisenberg were developing Quantum Theory before Einstein's Relativity. Einstein could never accept Quantum Theory in his famous quote, "God does not roll dice!" Poor old Einstein had buried himself in the fixed dimensions of space-time by insisting on the speed of light as his reference plane. Well, it works until one encounters subatomic behavior - hence, Niels Bohr and Quantum Theory.

In our dauntless pursuit of understanding ethics and keeping in mind the frightening idea that Geology is a quantum science, let us be even more daring and consider how the brain works. Remember we are on a wild pursuit of wrecking two-dimensional logic as a measure of ethics.

Man is a distinctly bilateral organism and a direct descendent of the lowly worm. Hundreds of millions of years of Chordate evolution has given us a marvelous, fat brain that is a bilateral wonder. Its preferred method of sorting out the world is binary processing … after all, it is a bilateral organ. Consequently, we find binary language very comforting. Computer language is binary. The first written language was binary. Regrettably, as I have mentioned, reality is not two-dimensional or satisfactorily described by a binary language. We should view our binary processing in the same context that we view Newtonian (gravity), Relativity (light), and Quantum (probability) worlds. Each has its place and usefulness in explaining observed phenomena.

We cannot consider the brain without advancing to the human mind. So, what constitutes the human mind? The mind is an accumulation of learned or experienced knowledge, which helps us rise above the limits of binary thinking. Another way of looking at the mind is to consider it as an abstract of the brain. The emergence of the human mind is not complete until the brain has acquired judgement skills. According to the "brains-on-brains", judgement skills develop in the last major stages of brain growth from the ages of 18 to 21 years. Essentially, judgement is the ability to see the consequences of one's actions. Most of us think of this process as maturing into adulthood.

Very nice, but what the heck has this got to do with ethics? Ah yes, ethics is the topic of discussion here. So, what is next? Artificial intelligence (AI)! My guess is that AI is the most seriously ethical stumper of our modern times. What is the danger of AI, other than the bad guys using it? It is binary and that limitation prevents it from ever achieving the judgement skills of HI. OMG, what a downer for the geeks!

In consideration of the fact that humanity has a greater faith in technology than in any religion, let us look at some of the more spectacular AI failures. To my mind, self-driving cars are the foremost examples. We find that having enormous "faith" in technology and "believing" that we can create a safe, self-driving vehicle yields no pot of gold at the end of the rainbow. Why? Fatal accidents.

Surely someone has reviewed the statistics of self-driving, vehicle accidents on the open road versus the number of self-driving vehicles on the open road and compared them to similar statistics with human-operated vehicles. The answer may not be encouraging and why the researchers are regrouping on self-driving design.

Why did the technology neglect to detect the obvious in fatal accidents? Blame it on the speed of light. The truth is that the technology did detect the danger, but processing the preventive response was not fast enough due to the limits on binary language and the speed on light. If the software had had sufficient time, it would have likely figured it out. It simply lacked the time to make the split-second decision required. The human mind, on the other hand, makes split-second decisions without binary processing. It is not an absolute call necessary, but an instantaneous judgement call – an act of probability based upon the mind's vast accumulation of learned and experienced knowledge.

The human mind functions like a quantum computer. So OK, what is a quantum computer? The geeks' mecca. Millions of dollars are being spent by the data management community (namely Microsoft, Apple, IMB, Google, Amazon and the like) on top secret research in the quest for a stable quantum computer. Why is this? A quantum computer can take massive amounts of data, much like the human mind, and give an instantaneous resolution; whereas, a regular binary computer would take thousands of years to resolve the same dataset. Remember the binary computer is limited by the speed of light and the quantum computer is not.

What are the problems with quantum computers? Mainly stability. First the electrons must be stabilized in a quantum state, which requires creating a delicate magnetic field to space them and synchronize them. Think of the church choir. The choirmaster must get a group of individual voices to become one voice. Secondly and most importantly, the computer is only stable at or near absolute zero in a vacuum. The slightest external stimulation or energy field, such as heat, causes the computer to crash and fail. Lastly, the quantum resolution is a "probable answer", not "the answer". Given the same dataset on a second try, the quantum computer could, and likely would, give another slightly different, probable resolution.

HGS Environmental & Engineering Dinner *continued on page 22*

HGS Environmental & Engineering Dinner *continued from page 21*

Nonetheless, all resolutions would be in a probable realm of "best fit" relative to the given dataset. Well, good luck there! Creating a reliable and stable quantum computer is going to take a while.

So much for my random discussion on the ethical fallacy of binary thinking (obviously a pet peeve of mine) by dredging up Quantum Theory, the Gestalt, computer functionality, self-driving vehicles, the binary brain, the quantum mind, and so on. In conclusion, what I am trying to say about ethics is that it is not just about breaking rules or laws. Ethics goes further into the murky world of judgement and probability. In other words, ethics is a quantum decision and raises the same reasoning dilemmas as formulating scientific explanations. So, the quantum leap in ethical decisions is much the same as our approach to science, and especially geology. Here is a final thought on the philosophy of ethics and science: precision does not necessarily equal accuracy and accuracy is often mistaken for reality.

For a change, how about looking at some ethical messes that we can relate to? The following examples are taken from my personal experiences and convoluted to protect the guilty.

1. The senior geologist of excellent reputation works for a tightly held, medium-sized environmental firm. There is no chance of the geologist gaining a lucrative partnership, although being well paid. Naturally, our geologist dreams of leaving and forming a company, but our geologist is wisely reluctant to assume the risk. In casual lunch conversation with some of the company's best clients, our geologist learns of rumbling discontent on how the company treats their loyalty. Moreover, the disgruntled clients make it clear, should our geologist choose to leave the company and pursue an independent practice, they would give the geologist all their business. The geologist does just that and takes along some of the old companies biggest and best clients into a very successful practice.
2. An exploration geologist works for a major oil company and generates several prospects. The prospects are flatly turned down by company management. The geologist maintains a "quit box" for all his old prospects. In disgust, the geologist finally leaves the major company, with the quit box, and joins a small independent company for more money. The new company actively pursues the geologist's old, quit box prospects with an overriding royalty added in.
3. An independent environmental geologist is struggling along, eking out a living with help from the spouse's salary. A good client approaches with a problem. The client has high regard for our geologist's work and expertise. They explain that their company cannot trust lesser-qualified geologists to help them, because surely a not-so-savvy geologist will likely screw things up. The problem is that the company wants to give a possibly tainted property a clean bill of health for a quick-flip sale a land speculator only and not to developers. The property was hastily purchased, because of its prime location and low price, without an environmental report or a full review of the title opinion, which showed past ownership of a notorious chemical company. Prospective land-speculator buyers want an environmental report. The client suspects a serious environmental issue could arise, because of the reputation of the noted chemical company. The client feels confident that our geologist will know how to prepare a cursory report, which will paint a nice picture for sale purposes without exposing an unwanted environmental issue. Our good geologist is both shocked and tempted, but responds with a resounding, "No!" at the clear risk of losing a valued client, which could put him in a serious financial bind.
4. A geologist works for a major oil company and is transferred from a comfortable, long-held research position to the highly stressful and political exploration department. Our geologist feels terribly mistreated, while nearing retirement, to have a pleasant career end in dog-eat-dog exploration. The resolve is made to stick it out until early retirement. Surprisingly, the geologist discovers a hidden talent at mastering company politics and quickly secures the position of exploration manager. It dawns on our new exploration manager that every prospect the exploration geologists generate will land on his desk for approval. Surely one of them will eventually produce a really good prospect to bank a very comfortable retirement. Patience pays off and a geologist walks in with gold. Our clever exploration manager immediately rolls up the map, quits the company, gets an independent landman to lease up the prospect in third-party names, and is soon a multimillionaire. The subsequent of denial of company retirement benefits was a small sacrifice. Additionally, professional and scientific organizations expel the former exploration manager for ethics unbecoming of a member. The minor inconvenience of losing professional and scientific publication subscriptions was easily remedied by our new millionaire – after all, one can always read a borrowed publication from an envious colleague.
5. For a particularly difficult environmental problem, an independent environmental geologist has become the expensive go-to-guy to get a good job done. Many other geologists contract to do the same thing for less money. Very often these incompetent low-ballers make a mess of things. Consequently, the cheated clients must open their checkbooks and come to our go-to-geologist to clean up the messes. One day our geologist becomes really disgusted by the shoddy work and extra expense that the bungling, cheapy colleagues are causing innocent clients. Our geologist considers reporting guilty colleagues to the licensing board. Although reporting colleagues for poor practice is probably what should be done, it is quite distasteful and could backfire on one's reputation if such action eventually required public testimony. Moreover, and more importantly, our bright geologist realizes a vast amount of income is generated from cleaning up after sloppy colleagues. Our successful geologist gratefully accepts the blessing of others' incompetence and contemplates sending the guilty colleagues a Thanksgiving turkey and putting them on a Christmas card list. Well anyhow, it is the screwed companies' problem, so let them do the reporting.
6. Lastly, a well-known and extremely successful lawyer has an established motto: "My clients do not pay me to know the law. They pay me to know which judge and how much." Our attorney's advice to clients complaining about high fees is, "Free advice is worth every penny." Also, our honest lawyer is quick to express his take on law and ethics (considering being consistently in the outs with the bar association ethics committee): "The law says you are not to steal or lie. Ethics says what you can steal and lie about." Oh, and by the way, you will find a wrecked Edsel parked in front of the lawyer's office with a sign on it reading: "This is evidence that other people screw up too." ■

Biographical Sketch

Robert J. Traylor is a retired geologist with more than 45 years of experience as a petroleum geologist. The first half of his career was spent in Houston petroleum industry and the last half was spent as a geological advisor to the Texas Railroad Commission, which regulated the Texas Petroleum Industry

GSH / HGS 18th ANNUAL SALTWATER TOURNAMENT

- Friday, October 12, 2018 -

TopWater Grill Marina, 815 Avenue O, San Leon, TX

Galveston Bay Complex and Offshore

We are looking forward to a big event this fall and we encourage full family participation!

Galveston Bay Complex Division

Trophies will be awarded for the heaviest individual Redfish (Non-Tagged), Speckled Trout, and Flounder. Trophies will also be awarded for the heaviest individual Stringer - 1 Redfish, 3 Speckled Trout, and 1 Flounder.

Galveston Offshore Division

Trophies will be awarded for the heaviest individual Ling, King Mackerel, and Mahi-mahi

REGISTRATION OPTIONS

- **Registration** fee of $75 includes: Launch Fee, Refreshments, Seafood Dinner after weigh-in, Trophies, and Door Prizes.
- **Registration on a Guided Boat** for 4 hours in the morning or mid-day is $225. Bait & tackle is included. Check with the GSH Office, 281-741-1624, for times and availability.
- Non-fishing friends and family enjoy a **Seafood Dinner** for $20

For more information, please contact:

Bobby Perez — Cell: 281-787-2106, Home: 281-495-8695, E-mail: rdphtx@gmail.com

Nathan Lenz — Cell: 281-468-5459, Office: 713 576 3371, E-mail: nathaniel.lenz@tgs.com

The Geophysical Society of Houston and the Houston Geological Society are non-profit and not-for-profit organizations serving the Geosciences Community. Corporate and individual contributions are appreciated and will be acknowledged on several sponsor boards and banners at the Weigh-In Station and Marina. All contributors will be recognized in the GSH Journal following the tournament. This is a great way to entertain friends, family, business associates, and clients. So spread the word!

GSH / HGS SALTWATER TOURNAMENT

NAME: _____ COMPANY: _____

ADDRESS: _____

PHONE: (B) _____ (C) _____ _____

E-MAIL ADDRESS: _____

Upon receipt of the Registration form, each participant will be provided with a copy of the specific tournament itinerary and rules sheet by e-mail. Please **REGISTER EARLY!**
Please return this form with your check payable to: **GSH SALTWATER TOURNAMENT** and Mail to:
Geophysical Society of Houston (GSH), 14811 Saint Mary's Lane, Suite 204 • Houston, Texas 77079

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

OR call the GSH office with Credit Card payment at: 281-741-1624

DISCLAIMER:
I acknowledge that the Geophysical Society of Houston will not be held responsible for injuries or accidents during this event.
PRACTICE SAFETY!!!!! Signature: _____

Monday, September 17, 2018

Live Oak Room • Norris Conference Center • 816 Town and Country Blvd #210
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

Cost: $40 Preregistered members; $45 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.

If you are an Active or Associate Member who is unemployed and would like to attend this meeting, please call the HGS office for a discounted registration cost. We are also seeking members to volunteer at the registration desk for this and other events.

Amanda C. Reynolds,
Ron J.M. Bonnie, Shaina Kelly
ConocoPhillips
Robert Krumm, James Howard
Premier Oilfield Group

Joint Meeting with AWG (Association for Women Geoscientists)

Quantifying Nanoporosity: Insights from Parallel and Multiscale Analyses

Over the last decade, multiple studies have outlined the challenges of adapting core analyses to unconventional rocks, from challenges in measuring and modeling very small, high surface area pores to round robin discrepancies among laboratories. In addition, multiple authors have demonstrated the challenges characterizing mobility in nanoporous rocks: including the scale and variability of the pore systems, the change in fluid composition as it re-equilibrates to surface conditions, and uncertainties in wettability states. This study uses several different parallel and multiscale analyses to characterize the relationships between total porosity, pore size distribution, and fluid mobility in a broad variety of West Texas samples.

This study is designed to compare current core analyses for nanoporous rocks, to identify strengths and limitations of each analysis, and to design appropriate upscaling workflows to compare results from these analyses. We examined 50+ samples from West Texas with a broad range in mineralogy and organic matter content. The integration of SEM, N2 adsorption, NMR, GRI, HPMI, and thin section data on each of these samples enabled an understanding of pore size distributions, pore types and connectivity and inferred wettability. Results from the analytical comparisons – both where they agree and disagree – reveal insights into unconventional pore systems. We find that total porosity is well constrained by a tight agreement (± 1 p.u.) between crushed rock helium porosimetry and plug NMR, confirming the validity of both methodologies for measuring total pore volume. Low-field NMR relaxation measurements at several laboratory-controlled liquid saturation states assist in understanding potential liquid volumes at reservoir conditions and the nature of the liquid-pore wall interactions that reflect wettability behavior. High resolution (SEM) imaging is used to calibrate the distribution of pores and organic matter at multiple scales. The wettability state of organic-rich low-permeability unconventional reservoir samples is unclear since many samples spontaneously imbibe both water and light oil. While this may signify a neutral wetting state, another interpretation is that two pore systems, one water-wet and the other oil-wet, reside adjacent to each other in these rocks. This study focuses on whole rock samples rather than mineral/organic isolates and employs parallel and multiscale analyses to pinpoint how each method informs aspects of reservoir quality. Take-aways include a stronger understanding of analytical capabilities and upscaling in organic-rich unconventional reservoirs. ■

Biographical Sketches

Amanda Reynolds is a Geoscience Coordinator for the Unconventional Resources Excellence team at ConocoPhillips. Previous to that role, she worked as a petrophysicist for 10 years in both conventional and unconventional plays first for ExxonMobil and then for ConocoPhillips. She received her PhD in Geosciences from the University of Arizona, her MS in Geosciences from the University of Pittsburgh, and her Bachelors in Geology from Indiana University (Bloomington) in 1998. Her thesis work involved quantifying weathering reactions from hinterland to basin using elemental ratios and strontium and neodymium isotopes to fingerprint climatic versus structural roles on weathering intensity.

Ron J.M. Bonnie has joined ConocoPhillips in 2010 as a Petrophysical Fellow in the Technology organization, where he mainly focusses on unconventional resource plays and "anything NMR". Before, Ron has worked 5+ years for Shell E&P in Houston on unconventional gas reservoirs (tight- and shale-gas) after 6+ years with Halliburton in the USA with positions in R&D for Numar and as Global Product Champion MRILWD for Sperry-Sun. The first 10 years of his O&G career were spent with Royal Dutch Shell in The Netherlands in various assignments in research, petrophysics, geophysics and operations. Ron is an industry-wide recognized expert on NMR technology and provides support for high-profile NMR projects in ConocoPhillips. Ron is very well published and holder of several patents. He has a BSc and MSc in physics from the University of Amsterdam and a PhD in physics from Twente University (both in The Netherlands).

HGS General Dinner *continued on page 26*

HGS General Dinner continued from page 25

Shaina Kelly is a petrophysicist in ConocoPhillips' Subsurface Technology organization currently working on pore-scale/sub-well log characterization and upscaling projects. Shaina received her PhD and MS degrees in petroleum engineering from the University of Texas at Austin and a BS degree in environmental engineering from the University of Florida. Shaina enjoys outdoor activities, especially hiking and running.

Robert Krumm earned his PhD in Chemical Engineering from the University of Utah focusing on the interactions between fluids and micro-porous media as they relate to unconventional reservoirs, gas adsorption, reactive transport, and phase equilibria. His professional background is centered on hands-on laboratory-based research and development. In 2014, Robert joined ConocoPhillips Subsurface Technology in Bartlesville, OK where he investigated methods for characterizing flow through unconventional reservoir rock, specifically using NMR and Micro-CT to quantify saturation changes. Robert has been with Premier Oilfield Labs since January 2017 where he took the role of Area Technical Manager. Robert is actively working the fields of shale petrophysical properties, shale relative permeability, digital rocks, and Special Core Analysis.

Wednesday, September 26, 2018

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

Cost: $35 Preregistered members; $40 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.

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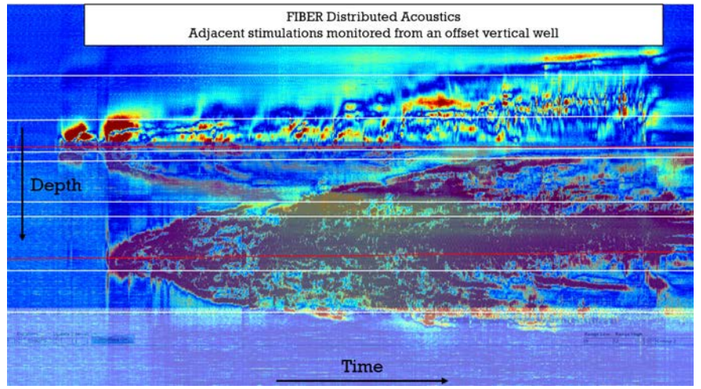
Geophysical Technology, Improving Returns in the Permian Basin

Micah Reasnor
Pioneer Natural Resources

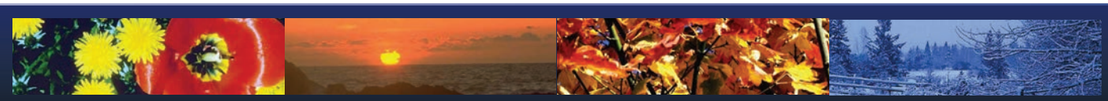


The Permian Basin, currently producing roughly 3 million barrels of oil, is one of the largest hydrocarbon resources in the world. Pioneer Natural Resources holds one of the largest contiguous acreage positions in the Midland Basin side of the Permian. However, shale plays require significant capital to exploit. As scientists, we have two roles to play in improving the economics: reducing the required drilling and completions cost, and improving the production profile. Pioneer is betting on technology advancements to tackle both variables in this equation, and geophysics is providing solutions. This talk will cover various data types and technologies that Pioneer is using to provide these solutions, including examples from surface seismic, vertical seismic profiles, microseismic, and fiber based distributed acoustics. These solutions are being applied to a range of problems including reservoir characterization, waste water injection, shallow hazards identification, and hydraulic stimulation.

Biographical Sketch

Micah Reasnor is currently the Director of Geophysical Technology for Pioneer Natural Resources based in Irving, Texas. He has Bachelor's degree in Geophysics from Oklahoma University and a Masters from the Colorado School of Mines. Micah began his career working with Mewbourne Oil Company and Berexco Inc while attending the University of Oklahoma. Upon graduating from Colorado School of Mines he joined BP in their Houston office working as a geophysicist in the Gulf of Mexico. While at BP Micah gained experience in exploration, appraisal, and production. Micah also taught a course on subsalt imaging, was a member of BP's subsurface review panel, and held a functional leadership position over one of BP's technical communities. Micah joined Pioneer Natural Resources in 2011 as a geophysicist working in their Eagle Ford shale asset. Subsequently, he moved on to hold various leadership roles in their Permian asset including Regional Subsurface Manager, Asset Geoscience Manager, and Field Development Manager before moving to his current role. As Director of Geophysical Technology he oversees a team of senior geophysicists who are responsible for geophysical data acquisition and processing. In addition, his team oversees geophysical technology development and provides geophysical training programs for Pioneer. Outside of work, Micah and his wife Kari, along with their two boys, enjoy the outdoors, spending time boating, fishing, and camping.

September 2018



GeoEvents

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Members Pre-registered Prices: Dinner Meetings members..... $40 Emeritus/Honorary members..... $40 Student members ..... $10 Nonmembers & walk-ups..... $45 Except - Env. & Eng. ..... $30 Nonmembers & walk-ups..... $35 Emeritus/Honorary members..... $15	**Don't wait, make your reservations online at hgs.org**		**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 office@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.**	1
2	3	4 **HGS Board Meeting** *6 p.m.*	5	6	7	8
9	10 **HGS International Dinner Meeting** *"Towards a Full Tectonostratigraphic Model for the South Atlantic from Conjugate Margin Data: Spanning the End-Member Break-Up Models," Ken McDermott, Carl McDermott, Stefano Patruno, Neil Hurst, Paul Bellingham, Brian W. Horn, Page 16*	11 **The 17th HGS-PESGB Conference on African E&P** *Norris Conference Centre, Houston, TX* *Page 8*	12 **HGS Environmental & Engineering Dinner Meeting** *"Getting a Grip on the Philosophy of Ethics and Geology," Robert J Traylor* *Page 20*	13	14	15
16	17 **HGS General Dinner Meeting** *"Quantifying Nanoporosity: Insights from Parallel and Multiscale Analyses," Amanda C. Reynolds, Ron J.M. Bonnie, Shaina Kelly, Robert Krumm, James Howard* *Page 25*	18	19	20	21	22
23 30	24	25	26 **HGS General Luncheon Meeting** *"Geophysical Technology, Improving Returns in the Permian Basin," Micah Reasnor* *Page 27*	27	28	29

September 13 – 14, 2018
AAPG Student Expo 2018
Houston, Texas, USA

September 24 – 26, 2018
SPE Annual Technical Conference and Exhibition
Dallas, Texas, USA

September 30 – October 2, 2018
GCAGS Annual Convention
Shreveport, Louisiana, USA

October 14 – 19, 2018
SEG 2018 Annual Meeting
Anaheim, California, USA

November 4 – 7, 2018
AAPG 2018 International Conference & Exhibition
Cape Town, South Africa

May 19 – 22, 2019
AAPG 2019 Annual Convention & Exhibition
San Antonio, Texas, USA

July 22 – 24, 2019
Unconventional Resources Technology Conference (URTeC 2019)
Denver, Colorado

Houston Geological Society
President's Night Award Dinner 2018

Corporate Star Awards
Anadarko Petroleum Corporation - Platinum
Southwestern Energy - Platinum
Baker Hughes - Gold
Chevron - Gold

Rising Star Awards
Nicole Arres
Judy Schulenberg
Tim Shane
Alicia Staszyc
Lisa Neelen

President's Awards
Stephen Adeniran
Gustavo Carpio
Sean Kimiagar
Walter Light
John Tubb, Jr.

Chairman's Awards
Luis Baez
Diane Britt
Obie Djordjevic
Bryan Guzman
Troy Meinen
Letha Slagle
Arlin Howles

Distinguished Service Awards
Rosemary Laidacker
Evelyn Medvin
Carl Norman

Honorary Life Membership Awards
Sharie Sartain
Thom Tucker

Memorial Moment
John J. Amoruso
Donna Davis
Ken Nemeth
George Klein
Philip Padgett
Tomas Thompson

Teacher of the Year
Jody Gibson

Harvey Clean Up Crew Award
Owen McWhirter
Jace McWhirter

Gerald A. Cooley Award
Richard (Dick) Bishop

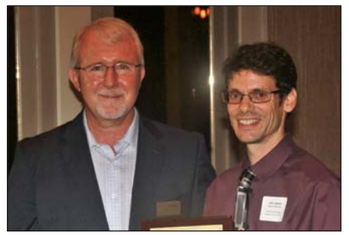
Recognition of Departing Board
John Adamick, President
Bob Wiener, Vice President
Mike Allison, Treasurer
Annie Walker, Secretary
Brian Horn, Editor
Dave Miller, Director
Mike Erpenbeck, Director

Passing of the Rock Hammer
Cheryl Desforges

Gifting of the Bound Bulletin Books & President Gift
Brian Horn, HGS Departing Editor
John Adamick, HGS Departing President

Recognition of Incoming 2018-2019 Board Members
Cheryl Desforges, President
Jon Blickwede, President - Elect
Penny Patterson, Vice President
April Parsons, Secretary
Tarek Ghazi, Treasurer
Annie Walker, Treasurer – Elect
Jim Tucker, Editor
Fang Lin, Editor – Elect
Maggie Dalthorp, Director 1
Brent Boyd, Director 2
Rachel Todkill, Director 3
Steven Shirley, Director 4


















HGS President's Night Award Dinner 2018

2018 HGS Skeet Shoot

By Gready Hunter, *HGS Skeet Shoot Committee Chairman*

The 2018 Skeet Shoot was held on Saturday, June 9th at Greater Houston Gun Club in Missouri City. In spite of the heat, 55 shooters turned out to support HGS and the shoot. Here are the results:

HOA	TJ Baker
HOA RU	Tom McCarroll
LADY CHAMP	Kari Anderson
LADY RU	Rachel Gray
AA	Merrick Mainster
AA RU	Tom McGinty
A	David Zirondelli
A RU	Alan Foley
B	Stephen Peoples
B RU	Adam Nielson
C	Brian Ayers
C RU	John Hatch

Winner of the Red Rider BB Gun - Andrea Peoples

Depressed financial times in the industry made finding sponsorship a challenge this year, but we have some true-blue friends of HGS and the Skeet Shoot that made sure we had the support we needed for the success of the event: Nabors Drilling Solutions, Petrophysical Solutions, Inc., Merrick Mainster of Apache once again provided cold beer once the shooting was over to wash down the excellent barbecue lunch from Charlie's BBQ. Thanks to all of you for supporting the shoot!

The success of this event would not have been possible with the tireless efforts of Andrea Peoples and Jacky Jordan at HGS. Also the professionalism of Kevin Dougherty and his staff at Greater Houston Gun Club. ■

Grand Canyon Field Trip: Classical Geology Exposed

By Steve Earle, *Past HGS President; with additional comments by Phil Salvador, Paul Babcock, and Jeff Lund*

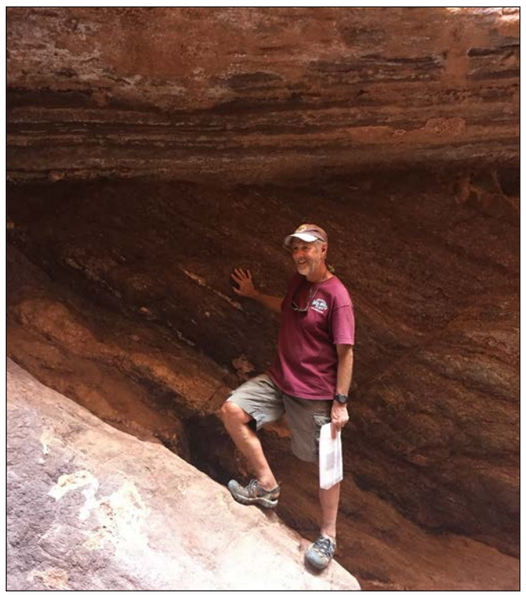
This June, the Houston Geological Society took 28 lucky participants rafting down the Colorado River through the Grand Canyon. This trip of a lifetime gave everyone a chance to explore the geology on view in this most magnificent of settings, including an unconformity representing 1.2 billion years of missing time and the Cambrian formations where transgressive sequences were initially described.

Originally put together by Dave Lazor, the trip was led by HGS Past President Steve Earle and the great staff provided by Hatch River Expeditions. As it always is, the food was terrific and the scenery spectacular. Our hikes included North Canyon, Nankoweap Granaries, the Little Colorado River, Carbon Creek, Elves Chasm, Deer Creek, Havasu Creek, National Canyon and Fern Glen Canyon.

The youngest person on the trip was 7 year old Luke Flores, along with his parents, Sharla and Paul Flores. Our other adventurers were Paul Babcock, Ann and Dennis Bell, Amy and Brent Boyd, Phil Caggiano, Joanne and Wayne Camp, Craig Dingler, Earl Fawcett, Paul Kemp, Stan Lavender, Jeff Lund, Nora and Jim McCullough, Troy Nichols, Michael and Nigel Payne, Christiane and Phil Salvador, brothers Randy, Gordon and August Schott, plus Rachel and Jim Tucker.

Most of the group met in Las Vegas and travelled by motor coach through Zion National Park to our motel at Marble Canyon. We launched from Lee's Ferry the next morning on our 187 mile, eight day/seven night float trip. Between the many rapids, the side trips and the geologic discussion, there was never a dull moment. All too soon, we were flying out by helicopter and then back to civilization.

Here are some comments from a few of the folks included waking each day to the growing canyon light, the fantastic side canyon hikes, Travis' morning prelaunch readings, brilliant stars at night and colorful canyon colors and blue skies during the day, great food, and the pleasant conversations and camaraderie with new and longtime colleagues. And NO news coverage or mobile phone calls for a week!



Please consider joining us in 2020 when the HGS will once again offer this grand adventure. Once we get a launch date, we will post the trip and begin taking reservations. This will be Steve's last time to run the trip. We are looking for a new leader who would be interested in continuing this long-running field trip for HGS. If you would like more information about what is involved, please contact Steve at steve.hgs@gmail.com.

A Grand Canyon Story

Lars, one of our boatmen, was leading us up a trail to Elves Chasm along Royal Arch Creek, between mile 117 and 118. Always close behind, and first up the trail, was the youngest member of our group, 7-year old Luke, accompanied by his mother, father, grandfather and two grand uncles. Always inquisitive, Luke was asking Lars questions.

"Where are we going?"
"To Elves Chasm; it is where elves live."
"What are elves?"
"They are little people who live in the rocks."
"Like Santa's elves?"
"Yes, except they live here where it is warm, and not at the north pole where it is cold."
"What do their houses look like?"
"They live in holes under the rocks, where it is nice and shady. Maybe like there, where the ferns are growing. Keep an eye out, maybe you'll see one."

"No, but other people have told me about them."
"Why can't you see them?"
"They only come out at night."

I wondered to myself how long could Lars keep up this story with the ever persistent inquisition. But before another question could be asked, we entered upon a clearing and heard the roar of the waterfall. Luke raced to be the first into the water and onto the next challenge of jumping from the top of the falls into the plunge pool.
"Come on, Mom!"
"Luke, you be careful!"

As we progressed up the trail, clambering around boulders and inching our way on the steep trail, the canyon narrowed, embracing us with a cool hug as we were comforted and enticed to continue by the canyon's refreshing shade. With every step, Lars's explanation of the mysterious Grand Canyon elves grew deeper and deeper into canyon mythology.
"Are they real? Have you ever seen one?"

Baptized by the cool waters, Luke's questions about the elves faded into memory. As Luke passed into the realm of sleep that night, looking at the stars overhead, I'm sure he finally saw the elves. As did I. They were watching us all. Faces carved into the canyon walls, present for centuries, maybe longer. Keeping a protective watch over us all as we slept, and dreamed about what tomorrow would bring.

Wayne Camp

A Day on the River

After the van shuttle to Lee's Ferry, where we were to put into the river, the HGS group milled around, wondering if we brought the right equipment and personal supplies. It was the first of several bright sunny days, and we had already received our daytime drybags for cameras and incidentals accessed during the day, the larger orange overnight drybags ("pumpkins") for bedding, clothes, and such, our life jackets, and our Hatch River Expeditions drinking cups with our equipment numbers written on them. After a safety lecture, we boarded Rafts #5 and #9, and soon were in our first riffles of minor rapids, exciting, but nothing like the rapids of the coming seven days.

Our days on the river fell into a regular rhythm after we got started. We were on the river the first week of June, so the sun came up around 5AM. People started moving around, packing up their cots, gathering up their equipment, and getting ready for the day. This got easier after the Eggs Benedict and pancakes breakfast the first day, since we could hear our boatman guides preparing breakfast, with anticipation of what the day's starting meal would be like, and

Grand Canyon Field Trip *continued on page 36*

Grand Canyon Field Trip *continued from page 35*

tea and coffee were already prepared. It was never disappointing. Baggage, cots and chairs were piled near the rafts, and when ready, loaded bucket brigade-style onto the rafts at our boatmen's direction. We were fed, dishes washed, and loaded up and on the river close to 7AM most mornings.

We were guided by three boatmen from the outfitters. Lars had been guiding trips for two decades and the overall leader. Travis had guided trips on several rivers, and could be counted on for a regular stream of bad jokes. Jerimiah was newer to the rafting, and was designated "swamper" or all-around helper, and always seemed to be the first cook up in the mornings. All had serious first responder safety and first aid training, in addition to backcountry sanitation training, important when there are few opportunities for evacuation. Before launch, Travis often started our mornings with some sort of inspirational reading about the natural world we were in, or something by Robert Service. To see them scamper around the rafts and hike the canyons in flip-flops indicated their experience on the river. Safety was always paramount.

The river was shaded in early morning and late afternoon, since, after all, we were in a canyon. The river water started off just less than 50 degrees F at the beginning and warmed up only slightly as the week progressed. But when the sun was high, the rapid splashes were welcome, and the prime spots on the bow of the rafts were popular, generally guaranteeing a good soaking. We were scattered around the rafts, on the front, along the sides on the pontoons, or in the small area midraft, near the water coolers, just in front of our boatmen. We could count on at least a couple of substantial rapids every day, and generally more, with smaller ones throughout.

Each day had some sort of side hike, the rafts pulled over and tied, to see the natural features exposed up the canyons. There were stratigraphic traverses and trips to waterfalls. Plus one walk to the small rapids on the Little Colorado River, above where it joined the main river. Everyone had fun floating on their backs through the rapids where the milky alkaline river flowed rapidly over the rocks. We pulled over at midday to sand bars, where a lunch of sandwiches and snacks was laid out. After eating too much lunch, and sometimes a swim or midday washup, it was back to the rafts for the afternoon.

Late afternoon we pulled onto sandbars, and spread out for cotsites, relaxed or washed up and waited for the evenings' supper surprise. This was not the weight loss version of river travel. Whether steaks, grilled pork tenderloin, imaginative pasta, burgers and sides, it was always good, with fresh salads, and a couple of birthday cakes cooked in Dutch ovens. Conversation filled the time before dark, and we were generally in bed around 9PM. Then the amazing abundance of stars came out above, framed by the canyon walls.

Jim Tucker

Grand Canyon Field Trip: **Classical Geology Exposed**

HGS Welcomes New Members

New Members Effective June 2018

ACTIVE MEMBERS
Hunter Allen
Michael Coley
Rick Greiner
Joshua Hardisty
Darin Klewsaat
Peter Ulrich

EMERITUS MEMBERS
Randall Barta
Steve Cossey
Duncan Dubroff
Bill Marshall
Ken Thies

STUDENT MEMBERS
Samantha Espinoza
Michael Fonseca
Luke Fritz
Lucas Myers
Andrea Paris

New Members Effective July 2018

ACTIVE MEMBERS
Adbdelfattah Bakhiet
Mary Barrett
Ken Bernstein
Martin Collier
Christine Cox
Apaolo Dattilo
Robert Davis
Patricio Desjardins
Paulina Geldiyev
Elspeth Hixon
Darin Klewsaat
Carina Lansky
James McCaslin
Jennifer McClarren
Adam McMullen
Felipe Medellin
Daniel Paez
Julia Peacock
Gregg Pyke
Mark Richardson
Nie Shangyou
Bejamin Sloan
Tracy Wulf
Mallory Zelawski

ASSOCIATE MEMBER
Edward Bracewell

EMERITUS MEMBERS
Michael Alexander
John Arbaugh
Richard Baile
Alan Foley
John Gambill
Kim Hemsley
David Keck
Sherjil Khan
Robert Kukowski
Steven Lockwood
Steven Maione
Robert (Bob) Miles
Bret Rothwell
Bernie Schwartz
Gerardo (Jerry) Smith
Fred Taylor
Linda Tollefson
Nels Voldseth
Dave Willis

STUDENT MEMBERS
Isaac Allred
Nawwar Al-Sinawi
Nick Andujo
Sam Bastian
Daniel Basube
Andrew Bean
Daniela Becarra
Sarah Beck
Benjamin Benedict
Tim Brickey
Jacqueline Busker
Alexis Carrillo
Caitlin Carter
Elson Core
Patrick Cullen
Celeste Cunningham
Shae Diehl
Danielle Easley
Neveen Elsayed
Amy Elson
Gerson Fenizardo
Curtis Ferron
Kaylee Frazier
Henry Galvis
Mario Gutienez
Evelin Gutierrez
Susana Herripuiz
Kara Hoppes
Sheyanne Kneedy
Matthew Leurg
Kelsey Lewis
Michael Lis
Andres Lozano
Pablo Luigi
Cameron Manche
Nelson Mateta
Forrest McFarlin
Claire McGhee
Mei Mei
Mianmo Meng
Allison Mrotek
Jhon Munoz
Rachel Nelson
Aleksandra Novak
Johnathon Osmond
Maria Reistroffer
Savannah Rice
Irines Sanchez
Alejandra Santiago-Torres
Arian Sarmiento
Tanisha Sharma
Joel Spansel
Ling Tang
Javier Tellez
Chia Teoh
Ting ting Wang
Wang Wentao
Conn Wetnington
Ronita Williams
Shao Xinhe

New Members Effective August 2018

ACTIVE MEMBERS
Don Kilgore
Yomi Olufowoshe
Manoj Vallikkat Thachaparambil

EMERITUS MEMBERS
Ken Aniess
Gerald Baum
Stephen Blyskal
Arthur (Butch) Butler III
Charles Speh
Dorene West

Welcome New Members

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.*

The Texas Board of Professional Geoscientists (TBPG) has been undergoing its first sunset review by the Texas Sunset Advisory Commission (TSAC) and its recommendations were released the beginning of August. The TSAC Staff Report (https://www.sunset.texas.gov/reviews-and-reports/agencies/texas-board-professional-geoscientists-tbpg) had only one recommendation, the elimination of Professional Geoscientist licensure in Texas. This recommendation was announced to the geoscientific community two weeks before the Sunset Commission's August 16, ,2018 deadline for the TPBG, and everyone else, to respond to it.

As of August 18, 2018 433 comments, including the TBPG Executive Committee's response, had been received by the Sunset Advisory Commission in response to their Staff's recommendation to abolish Geoscience licensure in Texas (www.sunset.texas.gov/reviews-and-reports/agencies/comments/3082). Most of the comments are strongly in favor of the Board's continued existence and are from the environmental field or government agencies. All of the responses against continuing the TBPG's continued existence were from the Oil and Gas or mineral exploration fields, who are exempt in the first place.

There is an open stakeholder's meeting scheduled for August 30, 2018. They will be taking testimony for and against the Staff Report. The TSAC's final recommendation will be released November 14, 2018.

In response, the Texas Geoscience Council (TGC) has been formed to support the protection of health, safety and welfare of all Texans through public education of geoscientific work and advocacy for professional geoscientist licensure in the Lone Star State. Their mission is to unite the geoscientific community so we can work together to accomplish three goals:

1. Immediately protect geoscience licensure and the Texas Board of Professional Geoscientists through the 2018 Sunset review process.
2. Immediately illustrate for the Texas Legislature the many important ways that geoscientists serve Texans and the critical role of geoscience licensure.
3. Long term campaign to educate the Texas public about the various practices of geoscience, and how they impact public health, safety and welfare.

The TGC is in need of funds to support their efforts. They have hired a lobbyist to aid them in the process. You can donate through their website, www.txgeoscience.org.

AGI Geoscience Policy Monthly Review (June 2018)

FERC commissioners recommend against subsidizing coal and nuclear power plants in oversight hearing

The Senate Committee on Energy and Natural Resources held a formal oversight hearing for the Federal Energy Regulatory Commission (FERC) on June 12, 2018, with all five commissioners present for the first time in a decade.

FERC is responsible for regulating the interstate transmission of electricity, oil, and natural gas, and plays an integral role in reviewing proposals to build natural gas pipelines and liquefied natural gas (LNG) terminals and providing licenses for hydroelectric power projects. In her opening statement, Committee Chairman Lisa Murkowski (R-AK) recognized that a full FERC hearing had become essential due to significant changes in the bulk power system over the past decade driven by developments in energy technologies, in addition to four new commissioners serving and an array of consequential issues in the news.

Most of the hearing focused on a leaked draft memo from the Department of Energy (DOE) about the Trump administration's plan to subsidize coal and nuclear power plants nearing retirement. The rationale provided in this memo is that coal and nuclear power plants provide a secure and stable supply of base load power and that, with the replacement of coal and nuclear plants by natural gas and renewables, the national power system is exposed to new cyber and physical security threats. During the hearing, the commissioners recommended that rather than subsidizing retiring coal and nuclear energy plants Congress should consider assigning mandatory security standards for natural gas pipelines. When asked by Chairman Murkowski, all five commissioners agreed that as the United States grid has transitioned to using more natural gas and renewable energy, the quality of service and security has not been compromised. Later in the hearing, Senator Barrasso asked if coal and nuclear sources were still critical for energy reliability, to which FERC Chairman Kevin McIntyre stated that FERC takes an "all of the above" electricity generation approach where coal will remain in the mix as long as energy rates are competitive with other sources. Commissioner Richard Glick noted that

Government Update *continued on page 40*

Government Update continued from page 39

early estimates project that the cost of subsidizing retiring coal and nuclear plants would increase consumer electricity rates by $30 billion to $65 billion annually, which would countervail the commissioners' efforts to keep these rates low.

The hearing also addressed the current state of FERC's policies under the Public Utility Regulatory Policies Act of 1978 (PURPA, P.L. 95-617), which promotes the conservation of electricity and energy efficiency by designating special rates and regulatory treatments for qualifying facilities. Responding to senators' questions about whether regulations for these qualifying facilities reflect the energy state of the country, Chairman McIntyre mentioned that he recently re-initiated a broad review of FERC's policies under PURPA as a starting point to address any issues that may exist. Commissioner Robert Powelson added that this review is particularly important because PURPA is not currently recognizing new or developing energy technologies, such as electricity storage and oxidized fuel cells. Members of Congress have also introduced bills that would update PURPA, including the Update PURPA Act (S. 2776) and the PURPA Modernization Act of 2017 (H.R. 4476).

House Subcommittee Reviews Three Wind Energy Bills

The House Natural Resources Subcommittee on Energy and Mineral Resources held a hearing to discuss three separate wind energy bills on June 26, 2018. A draft bill called the National OCS Renewable Energy Leasing Program Act would amend the Outer Continental Shelf Lands Act (43 U.S.C. 1331) to include a leasing program for offshore renewable energy. Another draft bill, the Offshore Renewable Energies for the Territories Act, would expand the Outer Continental Shelf Lands Act to pertain to United States territories, such as Guam, and establish offshore wind lease sale requirements. The third bill, called the Offshore Wind Jobs and Opportunity Act (H.R. 5291), would create a federal grant program designed to train and transition workers from other industries into wind energy.

In his opening statement at the hearing, Subcommittee Chairman Paul Gosar (R-AZ-4) explained that the current lack of an established schedule for offshore leasing for wind energy has led to uncertainty for the developing industry. Chairman Gosar also noted that many U.S. territories, as islands, are often dependent on imported fuels, and expressed his belief that the three wind bills under consideration at this hearing could provide a means to energy self-sufficiency for U.S. territories. Subcommittee Ranking Member Alan Lowenthal (D-CA-47) added that, due to the United States' consistent offshore winds and expansive continental shelf, our nation has an offshore wind energy potential that is equivalent to twice its current electricity generation capacity. Both members agreed that the U.S. currently lags behind Europe in wind energy by multiple decades and voiced bipartisan support for the industry as a whole.

Jim Bennett of the Bureau of Ocean Energy Management (BOEM) testified at the hearing, expressing his general support for all three bills. However, he stated that a career training program as mandated by H.R. 5291 would not align with BOEM's mission and budget priorities. Bennett also advised that any leasing plan for wind energy should maintain flexibility to allow BOEM to adjust to regional demands and changes in technology. When asked by Ranking Member Lowenthal about BOEM's ability to grow the offshore wind industry with the potential $3 million cut in the proposed FY 2019 budget, Bennett replied that BOEM can maintain the offshore wind energy program at its current budget and that he anticipates the industry will continue to grow regardless. What remains to be determined, according to Bennett, is the speed at which the industry will grow, since any potential expansions of the BOEM program will not happen as quickly without sufficient resources to keep up with the demand for leasing.

"We're at the end of an eight to ten-year period in which the planning has been put in place and we're starting to get the steel in the water," Bennett stated in regard to the prospects of the industry. Randall Luthi, president of the National Ocean Industries Association, testified that offshore wind is projected to support 160,000 jobs in the US by 2050. Luthi affirmed that BOEM has laid down a good framework for the industry to build, but voiced that the industry can and should move faster.

House Energy and Mineral Resources Subcommittee Discusses Oil and Gas Operations Legislation

On June 6, 2018 the House Subcommittee on Energy and Mineral Resources considered four draft bills aimed at streamlining oil and gas production on federal lands. These bills support President Donald Trump's executive order (EO 13783), "Promoting Energy Independence and Economic Growth," to reduce regulations and processes that may hinder domestic energy development. On June 27, the committee approved three of these bills – H.R. 6087, H.R. 6107, and H.R. 6088 – on party line votes.

The first legislative proposal, titled the "Removing Barriers to Energy Independence Act" (H.R. 6087), is sponsored by Representative Liz Cheney (R-WY-At large) and would require a processing fee for individual and organization protests to oil and gas lease sales, applications for drill permits, and right of way applications. Protesters would have to pay a $150 filing fee for each ten-page submission, as well as a $5 charge for each additional page. Majority members of the committee suggested that the fee would allow the Department of the Interior to employ a large enough task force to resolve protests in a more timely manner.

The subcommittee also considered a draft bill offered by Representative Steve Pearce (R-NM-2) that seeks to clarify and extend the categorical exclusions for certain oil and gas exploration activities, as outlined in the Energy Policy Act of 2005, to bypass further review under the National Environmental Policy Act (NEPA) and streamline the permitting process. In addition, Representative Pearce sponsored the Ending Duplicative Permitting Act (H.R. 6107), which would amend the Mineral Leasing Act of 1920 to prohibit the Bureau of Land Management from requiring drilling permits on land that is less than 50 percent federally owned, thus limiting the BLM's jurisdiction over drilling activities.

Another bill, titled the Streamlining Permitting Efficiencies in Energy Development Act (H.R. 6088), sponsored by Representative John Curtis (R-UT-3), would amend the Mineral Leasing Act of 1920 to allow oil and gas operators to bypass the Application of Permit to Drill (APD) and instead simply submit a Notification of Permit to Drill (NPD) under specific circumstances. According to the majority hearing memo, the processing of APDs by the BLM takes an average of 260 days. The amendment is intended to expedite the permitting process by creating the NPD option for certain projects. This option would reduce or eliminate environmental review processes, such as site inspections, if the project meets a specific set of criteria to be determined by the Secretary of the Interior.

Lawmakers discuss the future of the International Space Station

In response to President Donald Trump's request to terminate direct federal funding to the International Space Station (ISS) by 2025, lawmakers in the House and Senate held several hearings to discuss the future of the ISS.

The Senate Subcommittee on Space, Science, and Competitiveness held the first in a series of two hearings on May 16. The hearing, titled "Examining the Future of the International Space Station: Administration Perspectives," focused on the National Aeronautics and Space Administration's (NASA) perspectives on the feasibility of transitioning the ISS into a partially commercial operation by the year 2024. In 2017, the NASA Transition Authorization Act (S. 442) was signed into law, authorizing federal funding for the ISS through 2024, with direction for NASA to pursue international, commercial, and intragovernmental means of ISS logistics, thus alleviating the need for complete federal funding. However, NASA Associate Administrator William Gerstenmaier testified that industries will not be ready to take on ISS investments, or other low earth orbit (LEO) projects and partnerships, by 2025. According to NASA officials, with over $100 billion already devoted to the construction and maintenance of the ISS since its inception, the facility can remain functional until at least 2028. Subcommittee Chairman Ted Cruz (R-TX) and Ranking Member Bill Nelson (D-FL) indicated that there is bipartisan congressional support for continuing federal support for the ISS and its premature cancellation would be a waste of the significant investment made by taxpayers.

On May 17, 2018 the House Committee on Science, Space, and Technology held a hearing titled "America's Human Presence in Low-Earth Orbit," which reflected conversations that took place during the Senate hearing. Representative Brian Babin (R-TX-36), chairman of the Subcommittee on Space, stated that the United States should maintain an LEO presence to support the nation's future journeys to the moon and deep space. Other witnesses expressed their agreement with Representative Babin and further discussed the options for both partial and full transition to commercial usage of the ISS. Committee Chairman Lamar Smith (R-TX-1) recognized that, due to budget constraints, lawmakers would be required to make tough cuts to certain programs such as the ISS to enable these space exploration missions to take place, although he agreed that LEO is essential for these missions and for continued scientific research.

The second Senate subcommittee hearing, titled "Examining the Future of the International Space Station: Stakeholder Perspectives" was held on June 6, 2018. At this hearing, ISS stakeholders shared their perspectives on the proposed 2025 termination date and discussed the value and current state of research in LEO. Witnesses from the Boeing Company and Axiom Space testified that prematurely cancelling the ISS in 2025 would be devastating for scientific advancement, jobs, and the potential of commercial research in LEO. Cynthia Bouthot, a representative from Center for the Advancement of Science in Space, explained that businesses would be hesitant to commit to projects or partnerships if the termination date is unclear.

President Trump Signs Executive Order Implementing a New National Ocean Policy

On June 19, 2018 President Donald Trump signed Executive Order (E.O.) 13840, "Ocean Policy to Advance Economic, Security, and Environmental Interests of the United States," revoking and replacing much of the previous administration's ocean policy. E.O. 13840 seeks to improve interagency coordination on ocean-related matters, public access to data, and engagement with marine industries, the science and technology community, and other stakeholders. On signing this order, President Trump became the third consecutive president to issue an executive order calling for the coordinated and comprehensive management of coastal and ocean resources.

Government Update *continued on page 42*

Government Update

Government Update continued from page 41

Specifically, the new ocean policy calls for federal departments and agencies to coordinate their ocean-related activities to ensure effective management of ocean, coastal, and Great Lakes waters. The order highlights the need to ensure that federal regulations and management decisions do not prevent productive and sustainable use of those resources. It also directs agencies to continue promoting the lawful use of the ocean, facilitate the economic growth of coastal communities and ocean industries, and modernize the acquisition, distribution, and use of the best available ocean-related science and knowledge. In order to accomplish these goals, E.O. 13480 establishes a new interagency Ocean Policy Committee to provide advice regarding ocean-related policy matters.

A group of seven House Democrats quickly objected to the order signed by President Trump, claiming that his decision to revoke the existing National Ocean Policy (NOP) is "short-sighted" and will overturn years of critical ocean planning and policy. Based on recommendations from the Interagency Ocean Policy Task Force, the NOP was implemented in 2010 through President Barack Obama's Executive Order 13547, "Stewardship of the Ocean, Our Coasts, and the Great Lakes," which focused on ensuring the protection, maintenance, and restoration of ocean, coastal, and Great Lakes resources, enhancing our capacity to respond to climate change, and coordinating with our national security and foreign policy interests. In a letter to House Natural Resources Committee Chairman Rob Bishop (R-UT-1), led by Ranking Member Raúl Grijalva (D-AZ-3), the group of Democrats requested an oversight hearing to examine the implications of President Trump's new policy.

AGI Geoscience Policy Monthly Review (May 2018)

House Passes Legislation to Advance Nuclear Waste Storage in New Mexico and Nevada

On May 10, 2018 the House passed the Nuclear Waste Policy Amendments Act of 2018 (H.R. 3053) by a vote of 340 to 72, despite strong opposition from the New Mexico and Nevada delegations. The bill would resume and expedite licensing for the proposed Yucca Mountain nuclear waste repository and authorize the Department of Energy (DOE) to construct an interim storage facility for consolidation and temporary storage of nuclear waste in New Mexico until the completion of a permanent facility. Such interim facilities have long been the favored solution of the Senate when it comes to nuclear waste storage.

In 1987, Congress amended the Nuclear Waste Policy Act of 1982 to investigate Yucca Mountain for a national nuclear waste repository. The site would be the nation's first and only permanent geologic repository for high-level nuclear waste. Due to a litany of complicated issues related to safety, longevity, public opinion, and other aspects of the project, progress on establishing the Yucca Mountain facility since 1987 has been slow to stagnant.

Furthermore, the Nuclear Waste Policy Amendments Act of 2018 seeks to advance the process of permitting the Yucca Mountain project, as well as increase the cap for waste storage by 57 percent – from 70,000 metric tons to 110,000 metric tons. The bill generally carries strong bipartisan support in the House, aside from the Nevada and New Mexico lawmakers who oppose the project due to concerns about the facility's potential impacts on the health and safety of their residents and ask for a consent-based storage solution.

Now that H.R. 3053 has passed the House, it will have to pass the Senate, which may prove more daunting. In particular, Senator Dean Heller (R-NV) has fought against continuing the Yucca Mountain project in the past and stated that he will continue to do so. Heller and fellow Nevada Senator Catherine Cortez Masto (D) cosigned a letter to the Chair and Ranking Member of the Senate Appropriations Subcommittee on Energy urging them to not appropriate funds to Yucca Mountain during the FY 2019 appropriations cycle. The FY 2019 Senate Energy and Water Development Appropriations bill (S.2975) does not include funding for Yucca Mountain storage, but the House bill (H.R.5895) would provide $268 million to restart the adjudication of the Yucca Mountain license application – an increase of $100 million above the president's request.

Department of the Interior Finalizes List of Critical Minerals

On May 18, 2018 the Department of the Interior (DOI) released the final version of the Critical Minerals List (83 FR 23295) in accordance with Executive Order (EO) 13817. Among other directives, the EO directed the Secretary of the Interior, in coordination with the Secretary of Defense and in consultation with the heads of other relevant agencies, to publish a list of critical minerals in the Federal Register. The U.S. Geological Survey (USGS) compiled the list using the methodology described in USGS Open-File Report 2018-1021 and the list was submitted for public comment on February 16 (83 FR 7065).

After reviewing 453 comments, the final list is unchanged from the 35 minerals first proposed in the February draft. The comments included 147 requests to add a total of 13 minerals to the list, with seven minerals (copper, silver, nickel, gold zinc, molybdenum and lead) each receiving over 10 requests for addition to the list. There were 183 requests to delete one mineral (uranium) from the list, largely based on arguments that its primary use as an energy source rather than a non-fuel mineral would preclude its inclusion as a critical mineral as defined in EO 13817. DOI indicated that the list of critical minerals, while "final," is not a permanent list, but will be dynamic and updated periodically to reflect current data on supply, demand, and concentration of production, as well as current policy priorities.

Now, the Department of Commerce is responsible for organizing the interagency responses into a final report for mid-August. The report shall include a strategy to reduce the Nation's reliance on critical minerals by addressing many issues related to critical minerals: status of recycling and reprocessing technologies or technological alternatives to critical minerals; options for accessing critical minerals through investment and trade with allies and partners; recommendations to streamline permitting and review processes related to developing leases; enhancing access to critical mineral resources; increasing domestic discovery, production, and refining of critical minerals; and a plan to improve topographic, geologic, and geophysical mapping of the United States and make the resulting data and metadata electronically accessible.

The minerals on the final list are:

- aluminum (bauxite)
- antimony
- arsenic
- barite
- beryllium
- bismuth
- cesium
- chromium
- cobalt
- fluorspar
- gallium
- germanium
- graphite (natural)
- hafnium
- helium
- indium
- lithium
- magnesium
- manganese
- niobium
- platinum group metals
- potash
- rare earth elements
- rhenium
- rubidium
- scandium
- strontium
- tantalum
- tellurium
- tin
- titanium
- tungsten
- uranium
- vanadium
- zirconium

Remembrance

Thomas Marvin Thompson
1928-2018

Thomas "Tommy" Marvin Thompson died on May 26. Tommy was born in Norfolk, Virginia on June 7, 1928. He grew up and attended the University of Virginia and earned his Bachelor's and Master's Degree in Geoscience. He took a job with Texaco as an exploration geologist in Houston. He was a member of the Houston Geological Society and the American Association of Petroleum Geologist for over 50 years.

Remembrance

John J. Amoruso
1930-2018

John began his career as a geologist with a summer job with Stanolind Oil and Gas in Oklahoma City in 1956. After graduate school, he joined Pan American Petroleum and eventually becoming an independent petroleum geologist in 1969.

As an independent in Houston (Amoruso Petroleum Company), John Amoruso has been active in exploration in Texas, Arkansas, Louisiana, Colorado, Wyoming and Nebraska but his focus has been with the Jurassic and Cretaceous of Texas. In recent years he has taken on the additional role as vice president for exploration for Legends Exploration. John always displays humility and modesty regarding his exploration successes. But that comes from his character; the actual results are anything but modest, in fact, they are fantastic. Certainly, the crowning achievement in his long career was the 2005 discovery of a deep Bossier tight gas sand reservoir in Robertson County, Texas. Here, John with his vast experience with the Texas Mesozoic developed an exploration model, without the benefit of seismic, stipulating the existence of turbidite sands in the Bossier beyond the Cotton Valley carbonate shelf edge. The field was rightfully called the Amoruso Field, one of the largest U. S. gas discoveries in recent years. Other than his family, geology was John's passion! He was often heard saying, that he has never worked a day in his life, because he loved what he did so much. John was devoted and gave a lifetime service to the geologic profession including being the President of the AAPG in 1982-83 and also much involvement and President of GCAGS, SIPES and The Houston Geologic Society.

John Amoruso was a Certified Professional Petroleum Geologist. John has received numerous awards for his contributions and leadership including honorary membership in AAPG, GCAGS, SIPES and the HGS. He has received the Michel T. Halbouty Outstanding Leadership Award from the AAPG (2007), the Don R. Boyd Medal for Excellence in Gulf Coast Geology from GCAGS (2005), Outstanding Explorer Award from AAPG (2010), Outstanding Independent from SIPES (2014) and the colonel Edwin L. Drake Legendary Oilman Award from the Petroleum History Institute (2013). In 2011 he was recognized as one of Houston's great industry legends by the Houston Geological Society. The AAPG Foundation recently advised they awarded John the L. Austin Weeks Memorial Medal for 2018. ■

Remembrance

Kenneth Eugene Nemeth

1951 – 2018

Kenneth "Ken" Eugene Nemeth, 66, passed away June 14, 2018 in Houston, Texas. He was born June 15, 1951 in Hamtramck, Michigan to Eugene and Patricia Anne (Ryder) Nemeth.

He attended St. Rita's in Detroit from first through ninth grade and Clintondale High School for tenth through twelve grade. High school activities and achievements included: basketball, track, captain of the football and wrestling teams, National Honor Society, Quill and Scroll Society, Latin Club, Varsity Club, Key Club, Student Council and Salutatorian. He was inducted into the Clintondale Hall of Fame in 1999 in recognition of outstanding athletic achievement.

At Albion College in Albion, Michigan, he majored in geology and completed a BA degree in 1973. He graduated with honors after surviving Division II NCAA football, where he co-captained the team his senior year. Activities and honors include Sigma Nu fraternity, Sigma Gamma Epsilon, Omicron Delta Kappa Society, All MIAA Honorable Mention Football 1972 (Michigan Intercollegiate Athletic Association), and Albion College Varsity Award.

While completing an MA degree in 1976 at the University of Texas, Ken was a teaching assistant in the Department of Geological Sciences and a research assistant at the Bureau of Economic Geology. He turned in his thesis on a Monday, showed up for work at Shell Oil in New Orleans on Tuesday, and attended his first Mardi Gras the following week. From 1976 to 1980, he worked for Shell and then worked for Louisiana Land & Exploration in New Orleans.

Ken met Sandra Olson in 1976 at the Parc Fontaine Apartments where they both lived. Sandra was a teacher at Archbishop Blenk High School. They married June 11, 1977 at St. Louis Cathedral in New Orleans. By fall 1981, Ken went to work for BlueSky Oil & Gas Company in Houston and later worked for Adobe Resources. In 1991, he moved to Dallas, Texas to work for Browning Oil Company. Schlumberger hired him in Dallas and moved him back to Houston in 1999. Ken joined the Houston Geological Society (HGS) in 1981, the Dallas Geological Society (DGS) in 1991, and reactivated the membership in HGS in 2001.

A few of his activities and honors:
American Association of Petroleum Geologists (AAPG): AAPG Imperial Barrel Award Committee, 2009 – 2018; Candidate for Vice President of Sections, 2011-2012; Vice Chairman, Imperial Barrel Award Committee, 2009 – 2012; Houston Geological Society, Alternate Delegate, 2012; Employment Committee Chairman, 1997 National Convention, Dallas; Dallas Geological Society, Alternate Delegate 1996-1998, 1998-2000; Dallas Geological Society, Delegate Vice-Chairman 1998-2000.

Houston Geological Society (HGS): Nominations Committee, 2015-2018; Past President, 2015-2016; Chairman, Nominations Committee, 2015-2016; President, 2014-15; President-Elect, 2013-2014; Honorary Membership, 2010; Office Committee Chairman, 2007-2010; Outstanding Service Award, 2007; Guest Night Committee, 2005-2007; Treasurer, 2004-2006; Treasurer-Elect, 2004-2005; Finance Committee Chairman, 2001-2005; Website Committee, 2003-2004; President's Award 2005; Rising Star Award, 2003; Entertainment Committee, Annual Shrimp Peel 1981-1985, Chairman 1983-85; Employment Committee, 1986-1991; Publicity Committee 1982 GCAGS Convention.

Dallas Geological Society (DGS): Newsletter Editor, Awards Committee Chairman 1998-1999; Co-Founder and Steering Committee Chairman, 1998; former Board Member, and Instructor, Ellison Miles GeoTechnology Institute, Brookhaven College, Dallas , Texas 1998 – 1999; Outstanding Service Award, 1998; Past President, Nominating Committee Chairman, 1997-1998; President, Newsletter Staff/Editor, 1996-1997, Host Society for AAPG Convention; President-Elect/Secretary 1995-1996; Employment Committee 1991-1995, Chairman, 1992-1995.

Ken Nemeth *continued on page 46*

Ken Nemeth continued from page 45

Gulf Coast Association Geological Society (GCAGS): Continuity Committee Chairman, 2010-2012; Continuity Committee, 2006-2012; Awards Committee, 2008-2011; Past President, 2008-2009; Author of President's Handbook for GCAGS Presidents, Best Practice passed on to AAPG Sections; President, 2007-2008; President-Elect/Vice-President, 2006-2007; Section Point Coordinator and Committee for AAPG Imperial Barrel Award, student exploration contest, 2008.

Southwest Section American Association of Petroleum Geologists (SWAAPG): Candidate for President, 1999; Southwest Section Secretary, 1998-1999; Dallas Geological Society Delegate, 1997-1998; Dallas Geological Society Alternate Delegate, 1996-1997.

Ken loved playing tennis. He attended multiple tennis tournaments across the gulf coast and participated in the World Oilman's Tennis Tournament (WOTT) for over 30 years, held at the Houston Raquet Club.

Surviving him are his wife, Sandra; daughter, Samantha; brother-in-law, Foster Olson; sister, Debbie and her husband, Dan Doyle; nephews, Josh and Kyle Doyle; brother, John and wife, Denise Nemeth; niece Stephanie and her husband, Michael Lee, and niece, Jennifer and her husband, Curtis Ferguson.

The funeral mass was held on Friday, June 22, 2018 at St. Mary's church, St. Clair, Michigan. He was buried in St. Mary's Cemetary in St. Clair, Michigan.

In lieu of flowers, contributions may be made to AAPG's Imperial Barrel Award (IBA), American Heart Association, or the charity of your choice in memory of Ken Nemeth. ■

Remembrance

Remembrance

George E. Gordon

George attended Victoria Junior College (now the Victoria College) on a basketball scholarship and earned an Associate of Arts degree. He then attended Lamar State College of Technology (now Lamar University) on a basketball scholarship. While a junior in mechanical engineering, he took his first course in geology as an elective and changed to a geology major, science being his first love. He graduated with a Bachelor of Science in Geology in 1955. He received a Master of Science degree in Geology with a minor in biology from University of Houston in 1957.

He went to work for The Atlantic Refining Company as a micropaleontologist and stratigrapher. George worked two years with Skelly Oil Co. as an exploration geologist, then he joined Brazos Oil & Gas Division of The Dow Chemical Company. He worked 18 years with Dow and resigned as Southern Region Exploration Manager to form Gordon Exploration Co, Goliad Operating Co, and The Raisin Corporation. He was active in Oil & Gas exploration and production until his death.

George is a past member of Geological Society of America, American Institute of Professional Geologists, Society of Economic Paleontologists and Mineralogists, and current Emeritus member of American Association of Petroleum Geologists, and Emeritus member of Houston Geological Society, and served on the Executive committee of the Board.

George's love for geology never faded. Outside of travel and his family, his passions were with fossils, rocks, bones, or anything else very old that you could find in the ground. He was a master of micropaleontology. In his spare time he enjoyed creating models and replica of fossils.

George is survived by Shirley, his wife of almost 65 years, one son, one daughter, five grandchildren and two great grandchildren. ■

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 hard copy 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.

HGS *Bulletin* 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 ads@hgs.org. Advertising is accepted on a space-available basis. **Deadline for submitting material is 6 weeks prior to the first of the month in which the ad appears.**

	Random Inside Ad Placement Black & White Prices Shown – Color add 30% to prices 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	$950	$1,350	$2,550	$4,750	$8,000	$7,500	$7,050	$6,850	$6,650	$3,000
9	$800	$1,300	$2,500	$4,700						
8	$750	$1,250	$2,250	$4,300						
7	$600	$1,100	$2,200	$3,850						
6	$550	$950	$1,800	$3,500						$2,000
5	$500	$800	$1,600	$3,000	$4,700	$4,500	$4,350	$4,000		
4	$450	$650	$1,300	$2,500						
3	$300	$550	$950	$2,000						$1,000
2	$250	$400	$700	$1,500						
1	$150	$250	$450	$1,000	$1,500	$1,400	$1,250	$1,000	$1,250	$850

Professional Directory Section Business Card Ad: 10 Issues – $160 ($30 for each additional name on same card)

Website Advertising Opportunities

There are currently 5 opportunities to help spread the word about your business or event and generate traffic to your website or campaign. Please submit all ad materials five (5) days prior to the go-live date for testing.

Placement	Rate	Specifications/Description
HGS Website Home Page Banner Ad	$800 – Monthly $1800 – 3 Months $2800 – 6 Months $3600 – 12 Months	275 x 875 pixels; home page top banner ad. All Home Page Banner Ads rotate every 10 seconds.
HGS Website Home Page Column Ad	$700 – Monthly $1500 – 3 Months $2400 – 6 Months $3600 – 12 Months	200 x 400 pixels; home page right column ad
HGS Website Event Page Ad	$600 – Monthly $1200 – 3 Months $1600 – 6 Months $2600 – 12 Months	200 x 400 pixels; calendar page left column ad. All Event Page Ads rotate every 10 seconds.
Geo-Jobs	$50 – 14 days $100 – 30 days $300 – 3 Months $600 – 6 Months $1200 – 12 Months	Posting of job opportunities on HGS website. Click the Geo-Jobs tab to get started. Must be filled out completed and the dates set appropriately.
Vendor Corner	$250 *4 Pack option with 1 FREE bonus event for $1000.00 available. Send request to vendorcorner@hgs.org.	Company logo, company website, and company description will be highlighted on HGS Calendar website event. This is an opportunity to display company wares, gain personnel exposure and hand out product information at HGS dinner meetings.
Event/Short Course Calendar Ad	$100 – Monthly	An event ad posted within the HGS website calendar under the Events tab.
Bundle & Save!	• 30% off website ads when combined with print ads in all 10 HGS *Bulletin* issues. • 20% off website ads when combined with print ads in 5 HGS *Bulletin* issues. • 10% off website ads when combined with print ads in 3 *Bulletin* issues.	

Application to Become a Member of the Houston Geological Society

Qualifications for Active Membership

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

Qualifications for Associate Membership (including students)

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

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

Annual Dues Expire Each June 30. (Late renewals – $5 re-instatement fee)

Annual dues are $30.00; emeritus members pay $15.00; students are free.

Mail this application and payment to:

Houston Geological Society

14811 St. Mary's Lane, Suite 250 • Houston, TX 77079-2916

Telephone: 713-463-9476 Fax: 281-679-5504

Payment method:

❑ Check, ❑ VISA, ❑ MasterCard, ❑ American Express, ❑ Discover

Card # _____

Expiration Date: _____ Card I.D. _____

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

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

Name: _____

Address: _____

_____

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

Email: _____

Job Title: _____

Company: _____

Company Address: _____

_____

Work Phone: _____ ***Fax Number:*** _____

Circle Preferred Mailing Address: Home Office

Professional Affiliations: _____

❑ AAPG member No.: _____

Professional Interest:

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

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

School _____

Degree _____ ***Major*** _____ ***Year*** _____

School _____

Degree _____ ***Major*** _____ ***Year*** _____

Earth Science Work Experience _____

_____

_____

_____

Applicant's Signature _____ ***Date*** _____

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

Name: _____

Signature _____ ***Date*** _____

Membership Chairman _____ ***HGS Secretary*** _____

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