

PLATE 2  
SHEET B

**Volume 55, Number 11**

**Guest Speaker: Kathleen S. "Kathy" Haggard**  
**Dynamic Measurement, LLC • Houston Texas**





See this exceptional science fair exhibit and other  
**Greater New Orleans  
Science and Engineering Fair Winners**  
at our NOGS Luncheon Meeting on May 4th!



Alexis Lang and Joshua Hartley from John Curtis Christian have been selected as finalists to participate in the GENIUS Olympiad 2015, which will be held in Oswego, New York, on June 14-19th.



Published monthly by the New Orleans Geological Society.  
This issue was sent to press on April 24, 2015.

**Interested in contributing to the NOGS LOG?** Please submit items by the 1st Friday of the month to [nogseditor@gmail.com](mailto:nogseditor@gmail.com). Advertising requests should contact the NOGS office at [info@nogs.org](mailto:info@nogs.org).

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## on the cover

**U.S. Army Corps of Engineers, Mississippi River Commission. Plate 22, Sheet 8, to accompany report of Harold N. Fisk, Geological Investigation of the Alluvial Valley of the Lower Mississippi River.**

Harold N. Fisk was born near Medford, Oregon, in 1908. He earned B.S. and M.S. in geology at the University of Oregon. After receiving a Ph.D. in geology at the University of Cincinnati, he joined the Louisiana Geological Survey (LGS), where he mapped and researched the geology of four parishes in central Louisiana, approximately 750 square miles of the Lower Mississippi Valley (LMV). The Mississippi River commission (MRC) in Vicksburg, Mississippi, became aware of Fisk's descriptions of abandoned courses of the Mississippi River and hired Fisk as a consultant in 1941 to map the geology of the LMV over a period of two years. According to Rufus Leblanc, a protégée of Fisk, there was resistance to Fisk's geological studies by some MRC engineers. However, the success of the mapping and research project was so great that Fisk continued their studies for another five years. In 1948, Fisk resigned as Professor of Geology at LSU to become Chief of the Geologic Research Section of Humble Oil Company. Humble allowed Fisk to continue consulting for the MRC and the US Army Engineer Waterways Experiment Station at no cost to the MRC. Harold Fisk died in Houston in 1964. His legacy of bringing geological studies and mapping to engineering projects lives on today. We are at a threshold of his legacy—bringing modern geophysical methods to bear on LMV engineering earthworks and subsurface soils investigations.

Report and complete maps at <http://lmvmapping.erd.c.usace.army.mil/>

## From the Editor

Riding around town in my car a few days ago, I was delighted to hear an audio story discussing mapping the Louisiana coastline dominating the radio. The story discussed the challenges of keeping accurate maps for the marine industry of navigable waterways. The folks interviewed discussed how the map noted an island that was no longer visible, and had been swallowed by the sea. They discussed their frustration and challenges with maps that are out of date and wrong. As I listened, first I felt excited that geology was the topic of the radio but secondly, found it interesting how few people understand the dynamic nature of our world. The moment the map was finalized by the cartographer it became outdated. The map never really had a chance at being an exact representation of the coast, but rather provides reasonable interpretation of what one might encounter as you navigate the waterways. The suggestion of a previous island would key mariners into looking for it. Even as a remnant sandbar, it will aid in navigation as long as frequent remapping is conducted. However, just as the weather man only predicts the weather, we as geologist leave an interpretation for others of the land. In this issue of the *NOGS LOG*, you will notice we have several features highlighting beautiful examples of geologic artistry. We hope you enjoy celebrating the core of our subject and the useful purpose of the map.

*Jana L. Prouhet* - **NOGS LOG Editor**

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## From the President

If April showers bring May flowers, then we should all be in for a treat given the rains we've received last month. April was a social month for NOGS and it was enjoyable to see members, their significant others, guests, and new members attend the many events held. I appreciate the time people took out of their hectic schedules to make all those events successful.

You'll see in this *LOG* issue the bios of our upcoming candidates for the new Board year. Our nominating committee has outdone themselves again because this crew looks amazing! If they have the commitment, passion and dedication that our current Board members possess, they will do great things for you and our organization.

This is also the time when each of us should consider committee opportunities. Whether you want to serve on a committee or be a committee chairman/woman, this is the time to think about how NOGS can use your talents. If you are currently a committee chair and feel you haven't done it justice or don't have time to keep it going, please let us know so that we can find someone who might be anxious to step up. I'll be reaching out to the current committee heads to solicit feedback on your experience.

NOGS isn't the only organization preparing for future Board changes; our auxiliary, NOGA, is also in that process of getting ready for their new Board. For some of our newer members, NOGA is open to any spouse of a NOGS member. The objective of the Auxiliary is to promote fellowship among the wives of the members of the New Orleans Geological Society and to render assistance to NOGS upon request. Although the work dynamics have changed over the past 60 years from NOGA's inception, the concept to provide fellowship and support to the spouse of a NOGS member remains the same. Just like any organization you get out of it what you put into it. NOGS and NOGA work very closely together on many events, so NOGA can be an opportunity for spouses to provide and show support to each other. Please encourage your significant others to reach out to NOGA and become an active member.

Please remember the reason for our holiday and have a happy and safe Memorial Day!

## NOGS Office

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Correspondence and all luncheon reservations should be sent to the above address.



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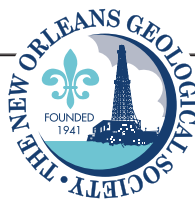
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# May 4 • NOGS Luncheon

**Holiday Inn Downtown Superdome**

\$3.00 validated parking in hotel garage

Presentation:

***Aquifers, Faults, Subsidence, and Lightning Databases***

Guest Speaker:

**Kathleen S. "Kathy" Haggar**

Co-Authors: Les R. Denham and H. Roice Nelson, Jr.

Dynamic Measurement LLC • Houston, Texas

See page 9 for Abstract and Biography

## **HOLIDAY INN DOWNTOWN SUPERDOME**

Check with concierge or  
front desk for location.

Lunch served at 11:30 am

## **ADMISSION:**

**With reservation..... \$30.00**

**Without reservation ..... \$35.00**

**Student Member with reservations..... FREE**

**May 4**

**PLANO Spring Golf Tournament**

Money Hill • Abita Springs, LA

For more information, [www.planoweb.org](http://www.planoweb.org)

**May 12**

**SPE-Delta Annual Awards Banquet**

Sheraton Metairie • Metairie, LA

For more information, [www.spe-delta.org](http://www.spe-delta.org)

**May 4-7**

**Offshore Technology Conference**

NRG Park • Houston, TX

For more information, [www.2015.otcnet.org](http://www.2015.otcnet.org)

**May 13**

**NOGA Installation Luncheon**

Café Adelaide, Loews Hotel • New Orleans, LA

See article in this issue of the *NOGS LOG*, page 13

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*Continued from previous page*

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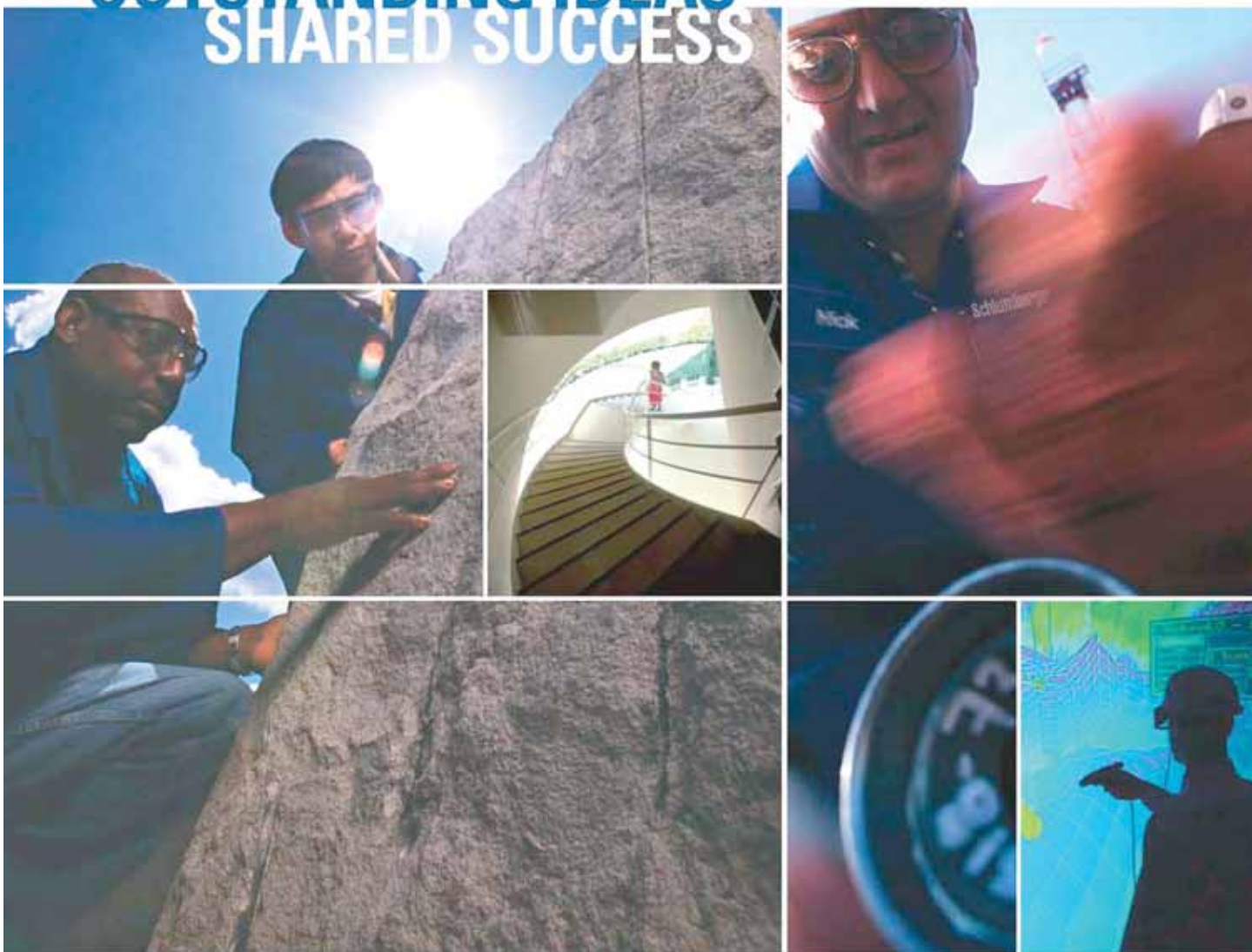
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# May 4 NOGS Luncheon Presentation

☆☆☆ at the Holiday Inn Superdome ☆☆☆

## Aquifers, Faults, Subsidence, and Lightning Databases



*Presented by*

**Kathleen S. "Kathy" Haggar**

**Co-Authors:**

**Les R. Denham and H. Roice Nelson, Jr.**

Dynamic Measurement LLC

Houston, Texas

### ABSTRACT

In discussing characteristics of aquifers, faulting, subsidence, and lightning databases, we recognized similar measurement and monitoring issues and solutions. Lightning data occurs everywhere, covering the spatial extent of aquifers. In this paper, we highlight lightning attribute maps at regional and prospect scales, and relate these maps to aquifer and subsidence maps. Lightning strikes cluster, these clusters are somewhat consistent over time, and the resulting lineaments tie to fault lines. Lightning strikes are impacted by earth tides, and the impact of tides on marshes and swamps increases with increasing subsidence.

Lightning databases open new ways to measure and monitor natural resources, including aquifers, faults, and subsidence. Lightning data are evergreen, in that new lightning strike measurements are added to lightning databases every time there is a thunderstorm. Lightning strikes are primarily controlled by earth currents. Earth currents are modified by aquifers (resistive, if fresh water, and more conductive with increased salinity), faults (disrupting lateral flow of electrons along conductive layers), and subsidence (changes in compaction change conductivity).

### BIOGRAPHY

**Kathy Haggar** is a geologist for Dynamic Measurement, LLC (DML), a small technology company, developing the use of lightning strike data as a new geophysical tool; Natural Source Electromagnetism (NSEM). A native of New Orleans, now residing in Baton Rouge, she earned her geology BS from UNO and her MS in geology from Tulane. Kathy worked for Chevron in New Orleans (1974 – 1990) and Greenhill Petroleum (1990 – 1993). When Greenhill ceased Louisiana operations in the tough O&G year of 1993, she started a wetlands consulting company and in 2000 earned her second MS, in biology with an emphasis on wetlands ecology. As a consultant on wetlands, Kathy and her company delineated thousands of acres for clients throughout Louisiana, Mississippi, Alabama, and Texas. In 2013 she joined DML, returning to geology. Kathy has served NOGS as secretary, field trip chairman, on various committees, an AAPG delegate, and on several GCAGS committees. She maintains membership in AAPG, where she was a charter member of the DEG; she is a member of HGS, and served as VP and President of the BRGS. Her professional interests include imaging near surface geology and active geologic faults. Kathy volunteers for her church tending the "Giving Garden," a project that grows fresh produce for a food bank. She and husband Kelly also frequently care for our grandson Jacob, now 9, a super fan of LSU.

**THE LUNCHEON RESERVATION DEADLINE IS MAY 1 - CONTACT THE NOGS OFFICE**

### *"And Looking Ahead . . ."*

*The next luncheon will be held on June 8. Our guest speaker, Dr. Jacob Covault, Chevron Clastic Stratigraphy R&D, will present "Predictive Organization of Deep-Water Lobes." Contact the NOGS office at 561-8980 or use the PayPal link on the NOGS website ([www.nogs.org](http://www.nogs.org)) to make your reservation.*

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3	4 Luncheon 	5	6	7	8	9
10 Mother's Day OOSA Crawfish Boil	11 PLANO Luncheon	12 SPE Delta Awards Banquet	13  Board Mtg	14	15	16
17	18	19	20	21	22	23
24	25 Memorial Day	26 Subsea Processing Conference, Houston, TX	27	28	29	30
31						

**May 4:** NOGS Luncheon, Holiday Inn Superdome, 330 Loyola Ave. @11:30 am  
**Guest Speaker:** Kathy Haggard, Geologist, Dynamic Measurement, LLC  
**Will Present:** Aquifers, Faults, Subsidence, and Lightning Databases

~ June 2015 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8  Luncheon	9	10	11	12	13
14 Flag Day	15	16	17 Board Mtg 	18 International Picnic Day	19	20
21 Father's Day / Summer Solstice	22 PLANO Luncheon	23	24	25	26	27
28	29	30				

**June 8:** NOGS Luncheon, Holiday Inn Superdome, 330 Loyola Ave. @11:30 am  
**Guest Speaker:** Dr. Jacob Covault, Chevron Clastic Stratigraphy R&D  
**Will Present:** Predictive Organization of Deep-Water Lobes



# New Orleans Geological Auxiliary News

*"The objective of the Auxiliary is to promote fellowship among the wives of the members of the New Orleans Geological Society and to render assistance to NOGS upon request."*

**Celebrating  
60 YEARS!**

As the 2014-2015 festive 60th Anniversary year winds down, plans are underway for equally exciting times for Auxiliary members in 2015-2016. A letter from the president has gone out with a ballot for electing new officers, a request for membership dues and a request for suggestions for events and venues for the

coming year. It won't be long before a new yearbook will be underway. Use the membership application on the bottom of the page if you would enjoy becoming a part of this group.

The 2014-2015 Spring Social this year was April 11th at the Bayou St. John home of Paul & June Perret.

Once again spouses and guests were welcomed. Susie Baker, Jean Jones, Elizabeth Furlong, and hosts the Perrets did the planning. Pictures will follow in next month's *NOGS LOG*. Be sure check out all the fun.

We are looking forward to the last event of our 60th year celebration with the Installation Luncheon, May 13th at the Café Adelaide, Loews Hotel. Debra Fein and MaryEllis Hasseltine will be the committee for this luncheon. A Special Awards committee consisting of Jean Jones, Linda Peirce, Mary Walther, Judy Lemarié and Alma Dunlap may name a new recipient to be presented at this luncheon. This luncheon will wind up our 60 year celebration.

The nominating committee presented a proposed slate of officers at the March 11th Board meeting. They are as follows:

- \* **President: Trudy Corona**
- \* **Member-at-Large: Mary Walther**
- \* **Vice President: Margie Conatser**
- \* **Directors – 2014-2016: Susie Baker, Judy Sabaté**
- \* **Secretary: Peggy Rogers**
- \* **Directors – 2015-2017: Alma Dunlap, Jean Jones**
- \* **Treasurer: Judy Lemarié**

Peggy Rogers, *NOGS LOG*

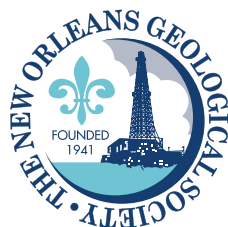


*Officers Elect: Margie Conatser and Trudy Corona*

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## 2015-16 CANDIDATES

### For President Elect: Al Melillo

Al Melillo joined Chevron in New Orleans in 1986 as a foraminiferal biostratigrapher for the GOM, and in 1994 switched over to development geology, working various GOM shelf fields until moving to the Deepwater Geology Group in 2003. He retired from Chevron in 2014. Al received a B.S. (1974) in geology from Montclair State College and stayed another year to obtain teaching certification. He was a 7th and 8th grade science teacher for four years before returning to graduate school. He earned an M.S. (1982) and Ph.D. (1985) from Rutgers University, where he was adjunct professor for 1-1/2 years, and served as a shipboard biostratigrapher for Leg 101 of the Ocean Drilling Program.



Al has been active in NOGS, AAPG, and SEPM. He served as NOGS Vice-President from 2008-2009, and a trustee of NOGS Memorial Foundation from 2009-10. He received the NOGS Distinguished Service Award in 2010. In 1993, he was the SEPM Technical Program Chairman for the AAPG-SEPM Annual Convention held in New Orleans. From 1992-96 he was on the SEPM K-12 Earth Science Education Committee, serving as Chairman for two years. He was a member of the AAPG K-12 Earth Science Education from 1999-2001. He organized the Earth Science Teachers Program which was presented to over 100 Louisiana teachers at the 1998 SEG Convention and presented a similar program at the 2000 AAPG Convention.



### For Vice President: Kathleen Haggar

Kathy Haggar is a geologist for Dynamic Measurement, LLC, a small technology company, developing the use of lightning strike data as a new geophysical tool; Natural Source Electromagnetism (NSEM). A native of New Orleans, now residing in Baton Rouge, she earned her geology B.S. from UNO and her M.S. in geology from Tulane. Kathy worked for Chevron in New Orleans (1974-90) and Greenhill Petroleum (1990-93). When Greenhill ceased Louisiana operations in the tough O&G year of 1993, somewhat like 2015, she started a wetland consulting company and earned her second M.S. in biology (ecological biology) in 2000. Through her consulting company, Kathy delineated thousands of acres of wetlands in Louisiana, Mississippi, Alabama, and Texas. She joined DML and returned to geology in 2013. She has served NOGS as secretary, field trip chairman, on various committees, an AAPG delegate, and on several GCAGS

committees. She is member of AAPG, and charter member of the DEG; HGS, and BRGS where she served as VP and President. Her professional interests include imaging near-surface geology and active geologic faults. Kathy volunteers for her church tending the "Giving Garden," a project that grows fresh produce for a food bank. She and husband Kelly also frequently care for our grandson Jacob, now 9, a super fan of LSU.

### For Secretary: Andrew Thorne

Andrew Thorne is a geologist with Freeport-McMoRan currently working on the ultra-deep development team in New Orleans. He graduated with a B.S. in geology from George Mason University, an M.S. in geology from LSU and an M.B.A. from Tulane. He has previously been employed by the U.S.G.S., Oryx Energy, Texaco, The Shaw Group, Altec, and 2RLLC. Andrew's current and past assignments have focused on south Louisiana exploration.





## For Treasurer: Rhonda Roederer

Rhonda Roederer has been a consultant biostratigrapher with Paleo-Data, Inc. since 2006. Born and raised in Lafayette, LA, she got her start in the oil and gas industry at a very early age working in various capacities within the family's biostratigraphic consulting business. Her father, Ed Roederer, was one of the pioneers in the Gulf Coast industry; a micropaleontologist since 1948. After graduating in geology at University of Southwestern Louisiana (now UL), she worked for 19 years with Bane & Shunick, a paleo consulting firm based in Lafayette. She became part owner and manager of Lafayette Paleo Labs, a sample processing facility (formerly ARCO's paleo lab). Prior to moving to New Orleans, her work involved paleo analysis primarily of onshore Louisiana wells, both onsite and in-office. In 2006, she moved to New Orleans to join Paleo-Data and help with design and management of their lab facility after its destruction from Katrina.

Once the lab was firmly reestablished, she returned to the microscope and has expanded her experience into the offshore deep-water Gulf of Mexico. Rhonda is a member of AAPG, LGS and NOGS.



## For Editor Elect: Laura Sorey



Laura Sorey is a development geologist for Chevron in Covington where she works on the Gulf of Mexico shelf. A native of Jackson, Mississippi, Laura received her M.S. in geology from LSU in 2014 after completing a B.S. in Geology from Millsaps College in 2012. While attending LSU, she was named a Board of Regents Fellow and studied isotope geochemistry of paleotempest sediment records in coastal Belize as a part of the LSU Coastal Studies Institute. Prior to joining Chevron fulltime, Laura completed internships at Chevron's Covington office and with the USGS Water Science Center in Jackson. Laura currently lives in New Orleans and is a member of NOGS, AAPG, and SPE.

## For Director: Brenda Reilly

Brenda Reilly joined Saratoga Resources in 2014. Her current responsibilities are exploitation and field management for Saratoga's fields in the Breton Sound and Main Pass areas. Prior to Saratoga she worked for INEXS, Amromco Energy, EPL and Murphy Oil Corp. (formerly Odeco). She has primarily worked the shelf and deep water Gulf of Mexico, and also has worked projects in Romania, Gabon West Africa and Ecuador.

She received a B.S. in geology from the University of New Orleans in 1982.

In 2007 she was awarded the NOGS Honorary Life Membership. For NOGS she served as Chairman of the Memorial Foundation 2005-06; Chairman of Office Operations 2005-2006; President, 2004-05; AAPG Delegate, 2002-04 and 2012-14; AAPG Alternate Delegate 2009-11; Vice-President 2001-02 and Treasurer 1996-97. Brenda was Entertainment Chairman for the 2000 AAPG Convention in New Orleans. She was a member of the NOGS Entertainment Committee 1994-96, Chairman from 1994-95. She was honored with a President's Award in 1995 for her work for the Society. In addition, she was Chairman of the 1996 SPWLA 37th Annual International Symposium held in New Orleans.

She is a member of NOGS, AAPG and SGS. Brenda is an AAPG Certified Petroleum Geologist and Texas Board Certified Petroleum Geologist.

Outside of the oil industry, Brenda has served the New Orleans Opera Association (NOOA) as member of the Board of Directors, including their Finance, By-Laws and Opera Ball committees. She was also on the Board of Governors for the Women's Guild of the NOOA, co-chaired the Mad Hatters fundraising luncheon and Wine Auction. She was on the Advisory Council of the LA/SPCA and participated as a member of the Visiting Pet Program. For over ten years, she volunteered as a walking scorer on the Zurich Classic PGA Golf Tournament.



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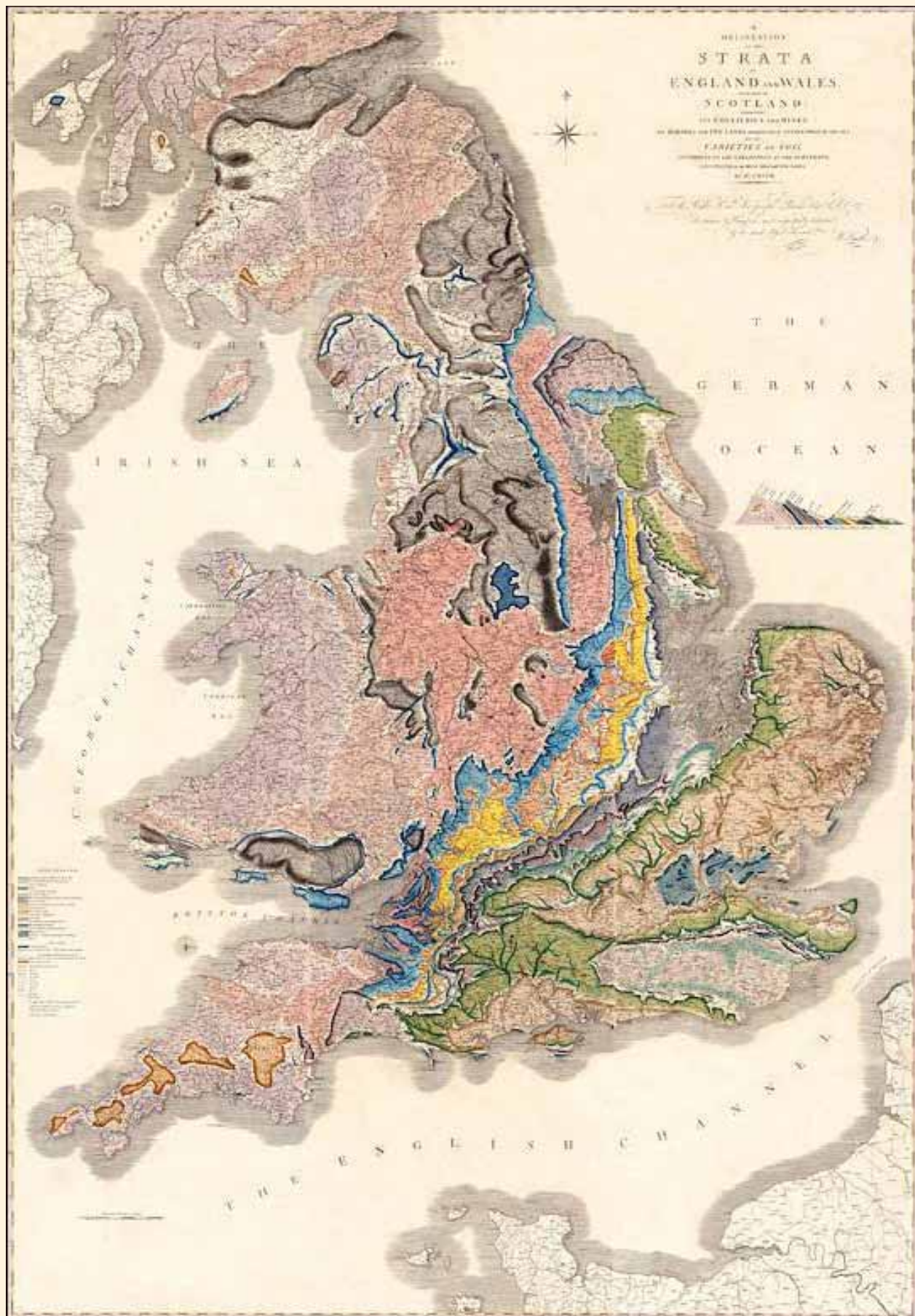


## NOGS New Geoscientist Event at NOLA Tap Room

Last month about 30 folks turned out for the brewery tour and gathering at the New Orleans Lager and Ale (NOLA) Brewery. The Brewery is on Tchoupitoulas Street in New Orleans and offered many seasonal brews for our members. A favorite was "Hog Tied" a beer that had just been tapped the day of our event! Thanks to all who attended the event!







William Smith's first geologic map of 1815. Reproduced by permission of the British Geological Survey. © NERC. All rights reserved. IPR/183-19CN. For further information about BGS, please visit [www.bgs.ac.uk](http://www.bgs.ac.uk) or [www.geologyshop.com](http://www.geologyshop.com), where you can browse and purchase the full range of BGS publications and other products.

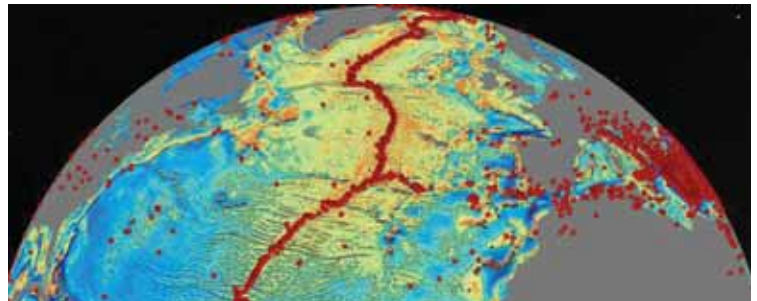


# 200 Years of Geologic Mapping

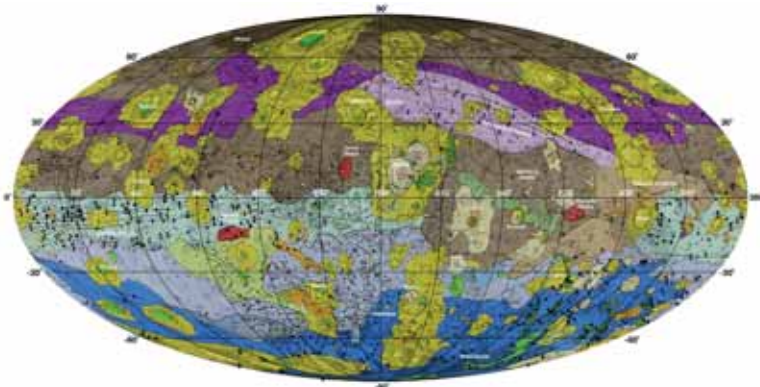
by Tom Klekamp

The advent of the Industrial Revolution left the countryside around London without trees, fuel initially used for firing boilers in stationary and locomotive steam engines. The industrialists turned to coal and went underground to mine it, trenching canals to transport it efficiently. Into this new industry came William Smith, who managed to marry his knowledge of rock layers and the coal seams with his interest in fossils. The outcome was *A Geological Map of England and Wales and Part of Scotland*, first published in 1815. On a scale of 5 miles per inch, the map measured 6 feet by 8 feet 6 inches. Smith was the first to map such a large area in such detail.

In the 200 years since Smith's map, geoscientists have mapped virtually the entire land surface of our planet and its moon, Mercury, Venus, Mars, and most recently Vesta. The Topex satellite has allowed us to map hither-unknown sea floor features. As this issue of the *NOGS LOG* arrives in your mail box, NASA's New Horizons Mission will fly past Pluto and its six satellites. Pluto will no longer be an astronomical object, but a geologic one—and every known significant object in our solar system—rocky planets, moons, satellites, the largest asteroids and a comet—will have been geologically mapped.



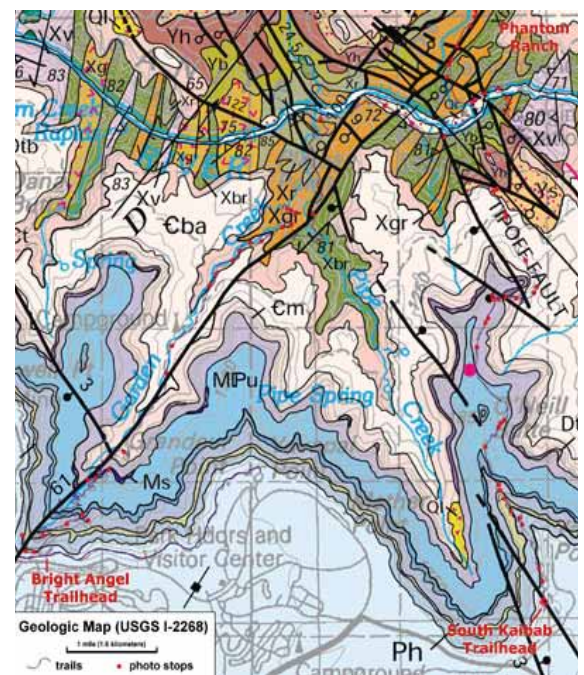
A new seafloor map reveals new details on earthquakes (red dots), seafloor spreading ridges, and faults. Scripps Institution of Oceanography, UC San Diego  
<https://scripps.ucsd.edu/news/new-map-exposes-previously-unseen-details-seafloor>



Geologic Map of Vesta from NASA's Dawn Mission. NASA  
<http://www.nasa.gov/jpl/dawn/pia18788/#.VPkICWTF8zM>

Beyond the obvious utilitarian value of geologic mapping, which began with William Smith, we now need geologic maps of critical areas on our own planet. People suffer and die every year because they live in hazardous flood, tsunami, mudslide, or landslide zones. Far too often we have the geologic information and fail to consider that hazardous geologic events are decadal or even longer in occurrence.

Geophysics provides new data to map hydrocarbon reservoirs and delineate subsurface fault complexities unknown fifty years ago. What will the next 100 years yield—possibly geologic maps of planets beyond our solar system?



Federal Lands of the Southwest.  
 USGS webpage: [http://geomaps.wr.usgs.gov/fed\\_land/task1.html](http://geomaps.wr.usgs.gov/fed_land/task1.html)

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# South Louisiana and Offshore Gulf of Mexico Exploration and Production Activities

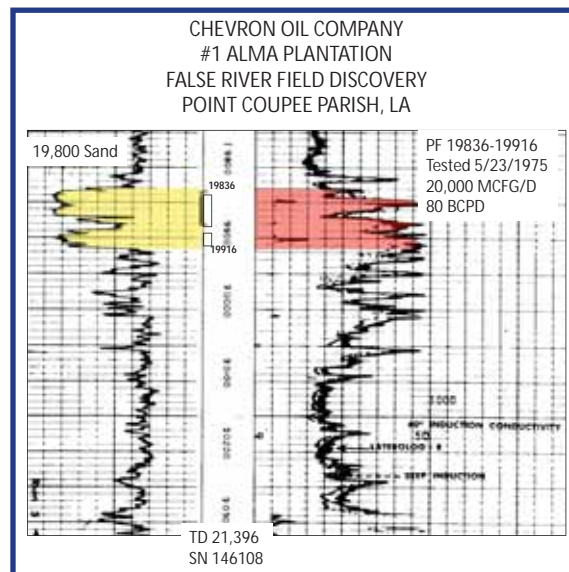
LAFAYETTE DISTRICT, ONSHORE AREA

By Carlo C. Christina

## HAPPY 40th ANNIVERSARY TO ALMA PLANTATION!

Forty years ago, on May 23, 1975, Chevron Oil Company officially completed the #1 Alma Plantation as the discovery well for False River Field, the first of several new discoveries in the Tuscaloosa Trend of South Central Louisiana. The well was drilled to a depth of 21,447 feet and was completed flowing 20 million cubic feet of gas and 80 barrels of distillate per day through perforations 19,836 to 19,916 feet, in the 19,800 Sand. Within the next 31 months, 6 new fields were discovered in St. Bernard, East Baton Rouge, Pointe Coupee, St. Landry, and Avoyelles Parishes. The Tuscaloosa Trend covered an area more than 220 miles long and 30 miles wide.

In August 1977, a well located 8 miles west of the #1 Alma Plantation blew out at a depth of 21,346 feet. It was later brought under control and flowed into the Florida Gas sales line at the rate of 140 million cubic feet of gas per day for 60 days. This production rate clearly established excellent reservoir conditions to compliment the giant structures, and a new deep gas frontier had been established. The discovery was named Judge Digby Field.



By 1993, more than 400 deep wells had been drilled in the trend to an average depth of 18,800 feet. During this period, it was one of the most significant and exciting exploration efforts in the United States.

*The Office of Conservation, Lafayette District, Onshore Area, issued only 12 permits to drill in the month of March. It is interesting to note that several new wells will be drilled in Iberville Parish, not normally a hot spot for drilling activity. Following are the most significant and interesting locations:*

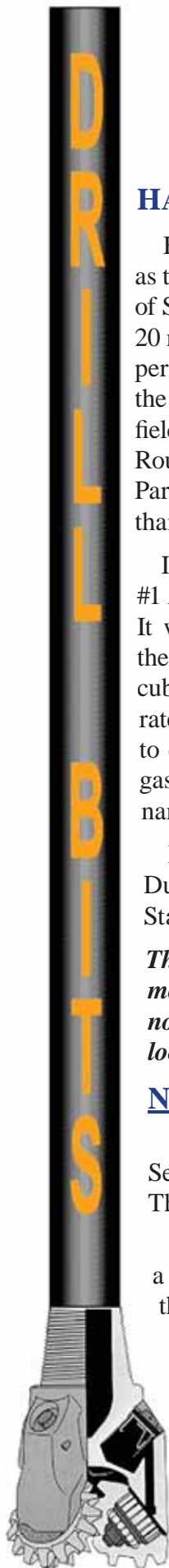
### NEW LOCATIONS

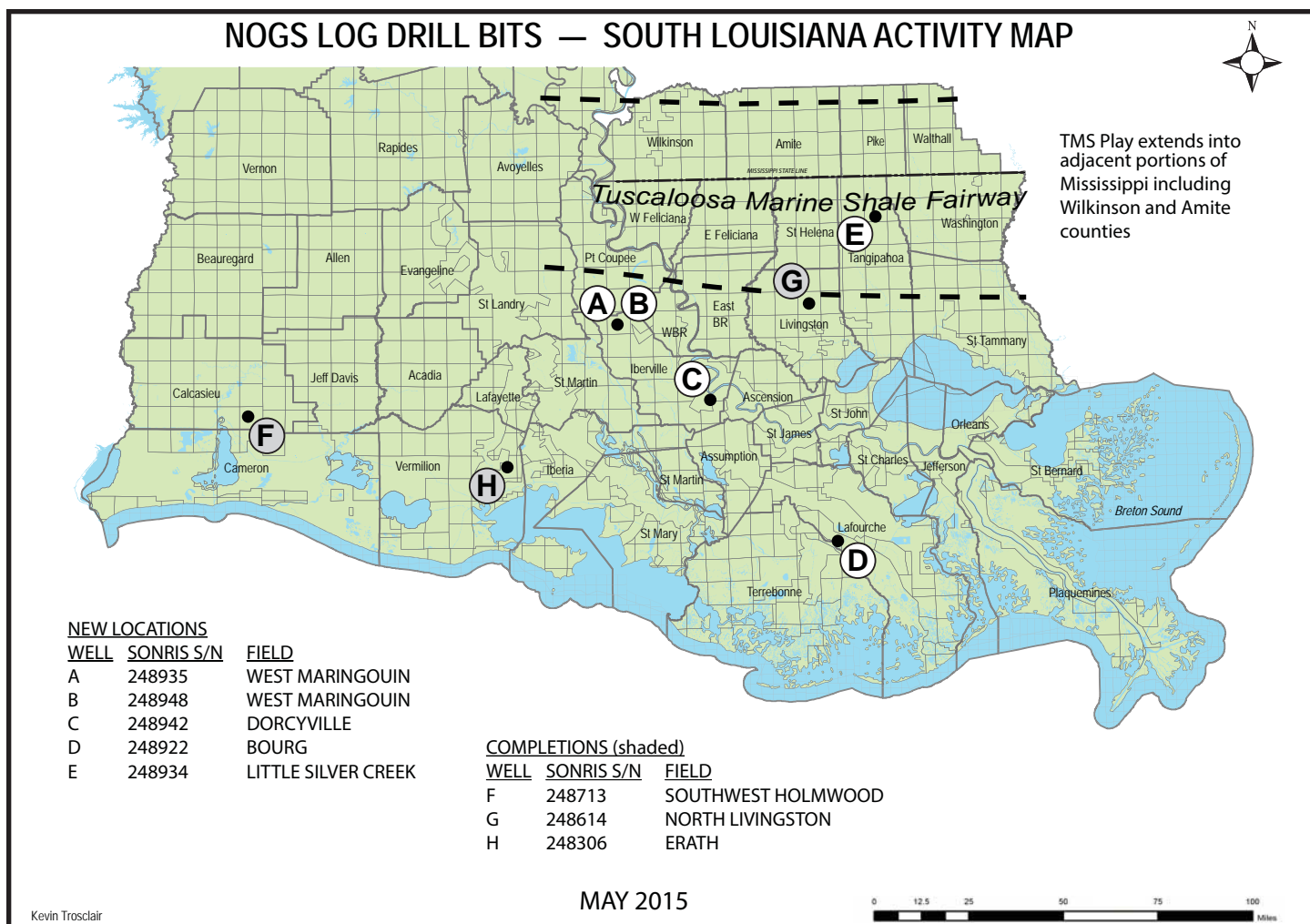
In Iberville Parish, **West Maringouin Field, (A)**, PetroQuest Energy will drill the #1 Cashiola in Sec. 99, 7S-9E to a proposed total depth of 12,100 feet, as a horizontal well to test a Vicksburg sand. The well is located 1 mile southwest of nearest production in the field. (248935)

PetroQuest will also drill the T. H. Farms in **West Maringouin Field, (B)**, in Sec. 99, 7S-9E to a proposed total depth of 10,800 feet to test Camerina sands. Nearest production is found 1 mile to the northeast. (248948)

Ponderosa Oil & Gas has permitted its #1 Babin, also in Iberville Parish, in **Dorcyville Field, (C)**. The well is located in Sec. 31, 10S-13E and will test Marg vag sands at a depth of 12,500 feet. (248942)

Square Mile Energy will drill an interesting well in **Bourg Field, (D)**, Lafourche Parish, in Sec. 48, 17S-18E, 1 mile from the nearest production. The #1 SL 20940 will be drilled to a total depth of 16,550 feet to test Cris I sands. The field was discovered in 1951 and more than 100 wells have been drilled. Only one well has been drilled within the past 6 years and production has rapidly declined. (248922)





In Tangipahoa Parish, Goodrich Petroleum continues to drill Tuscaloosa Marine Shale wells in **Little Silver Creek Field**, (E), Tangipahoa Parish. The #1 Conerly 5 H will be drilled from a surface location in Sec. 48, 2S-8E in a 6,500 foot lateral leg with the bottom hole located in Sec. 5, 2S-8E. (248934)

### \*\*\*\* TUSCALOOSA MARINE SHALE UPDATE—LOUISIANA WELLS \*\*\*\*

To date, 35 Tuscaloosa Marine Shale wells have been drilled in South Louisiana, in the Florida Parishes, namely Washington, (2 wells), Tangipahoa, (13 wells), St. Helena, (7 wells), East Feliciana, (4 wells), West Feliciana, (2 wells), and in Avoyelles, (6 wells), and Rapides, (1 well). Of these 35 wells 24 are classified by the State as producing, 7 are active, 3 are shut in dry hole-future utility, and 1 shut in productive-future utility.

Tangipahoa Parish has witnessed the most activity, having 13 wells drilled in the Parish, of which 9 are in the Little Silver Creek Field. It is not surprising that these wells are concentrated near the discovery well, the #1 Blades, which was completed 36 years ago. It has produced more than 29,000 barrels of oil and is still producing. Of the 9 wells drilled in the field 4 are producing, 3 are waiting on completion rigs, and 2 are active and drilling.

### COMPLETIONS

Fort Apache Energy has plugged and abandoned the #1 Abstack Co. in **Southwest Holmwood Field**, (F), in Calcasieu Parish. The well was drilled in Sec. 13, 11S-8W and was permitted to test the Marg tex sands at 13,000 feet. It was plugged at a depth of 12,000 feet, after setting 7 5/8 inch casing at 11,665 feet. No additional details are available. (248713)

In Livingston Parish, **North Livingston Field**, (G), Yuma E & P Co. has completed the #1 Blackwell in Sec. 39, 6S-5E as an oil well flowing 226 BOPD through perforations 9468 to 9476 feet. (248614)

Hilcorp Energy has drilled the #11 Adelaide in **Erath Field**, (H), Vermilion Parish, to a total depth of 18,800 feet to test Cris R sands in Sec. 28, 13S-4E. The rig was released after receiving approval to perforate the interval 17,304 to 17,334 feet. No additional information has been released. (248306)

# OFFSHORE GULF OF MEXICO SHELF AND DEEPWATER ACTIVITIES

*by Al Baker*

During March 2015, the BOEM approved **88** Gulf of Mexico drilling permits. Of these, **28** were for shelf wells, and **60** were for deepwater wells. Of the total number of permits, there were **7 new well permits** issued: 2 new development wells situated on the shelf and 5 new exploration wells in deepwater.

Both shelf development well permits were issued to **Arena Offshore** for their **High Island A-547 #C-2** and **Eugene Island 314 #C-23** wells. The five deepwater exploration permits were awarded to **Anadarko Petroleum** for their **Green Canyon 859 #4** well, to **Shell Offshore** for their **Walker Ridge 508 #7** well, to **Noble Energy** for their **Mississippi Canyon 948 #4** well, to **Deep Gulf Energy III** for their **Mississippi Canyon 563 #1** well and to **LLOG Exploration Offshore** for their **Mississippi Canyon 816 #2** well.

On March 27th, IHS-Petrodata reported that the Gulf of Mexico mobile offshore rig supply stood at **111**, which is **8** rigs less than last month. The marketed rig supply consisted of **74** rigs, of which **62** were under contract. The contracted versus total rig supply utilization rate is **55.9%**, while the marketed contracted versus marketed supply utilization rate stands at **83.8%**. The marketed rig supply number reflects a decrease of **3** rigs in comparison to the number reported last month, while the contracted rig supply number increased by **1** rig during the same time period. In contrast, the February 2014 fleet utilization rate stood at 71.4% with 80 out of the 112 rigs under contract.

On March 27th, BakerHughes indicated that there were **34** active mobile offshore rigs in the Gulf, which is **54.8%** of the rigs under contract mentioned above. This active rigs number is **17** less than reported last month. The current active rigs count compares to 50 active rigs during the same period last year, representing a dramatic **32.0%** decrease in yearly rig activity.

On March 18th, the BOEM held **OCS Sale 235** in the **Central Gulf of Mexico Planning Area**. **Forty-two companies** submitted **195 bids** on 169 blocks. A total of **\$583.2 million** was **exposed**, and **\$538.8 million** was rendered in **apparent high bids**. Approximately half the bids were on newly available blocks that had been relinquished by previous operators. Once again, interest in the GOM was focused on deepwater acreage. Deepwater blocks garnered 146 bids on 124 blocks (73.4%), whereas the shelf had only 49 bids on 45 blocks (26.6%). Quite obviously, low oil prices suppressed this year's bidding activity. In comparison, the March 2014 sale saw 50 companies submit 380 bids on 326 blocks that netted \$850.8 million in high bids.

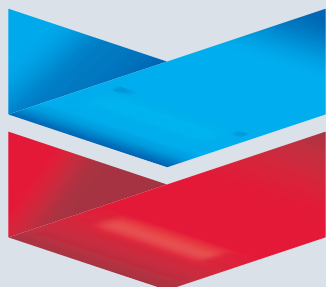
The most sought after territory by companies was in the Green Canyon area, which drew 52 bids. Interest there was tweaked by Chevron's recent Lower Tertiary Wilcox discovery on its Anchor Prospect in Green Canyon 807. The highest single bid block was Walker Ridge 107 where Houston Energy and Red Willow Offshore offered \$52.2 million.

Historically, OCS Sale 235 was the second weakest of all area-wide sales in terms of total blocks bid since 1986 when companies submitted only 129 bids on 114 blocks. Additionally, the number of participants has been declining steadily over the past several years. In March 2010 (pre-Deep Water Horizon blowout), 77 companies participated in Central Gulf OCS Sale 213. No sales were held in 2011 due to the drilling moratorium imposed by the Obama administration as a result of the BP disaster. By 2012, only 56 companies entered bids, followed by 52 companies in 2013. The 42 participating companies at this year's sale represents a **45.5% decline in participants since 2010**.

On March 16th, Chevron announced that its massive **Big Foot** platform was being shipped out of Corpus Christi in route to the **Walker Ridge area**. The floating platform will be stationed in 5,200 feet of water approximately 225 miles south of New Orleans. The \$5.1 billion platform is designed to process 75,000 barrels of oil and 25 million cubic feet of gas per day. Production is anticipated to start this year. Chevron estimates that Big Foot Field, which was discovered in 2006, will have a 35-year production life and will produce more than 200 million barrels of oil equivalent.



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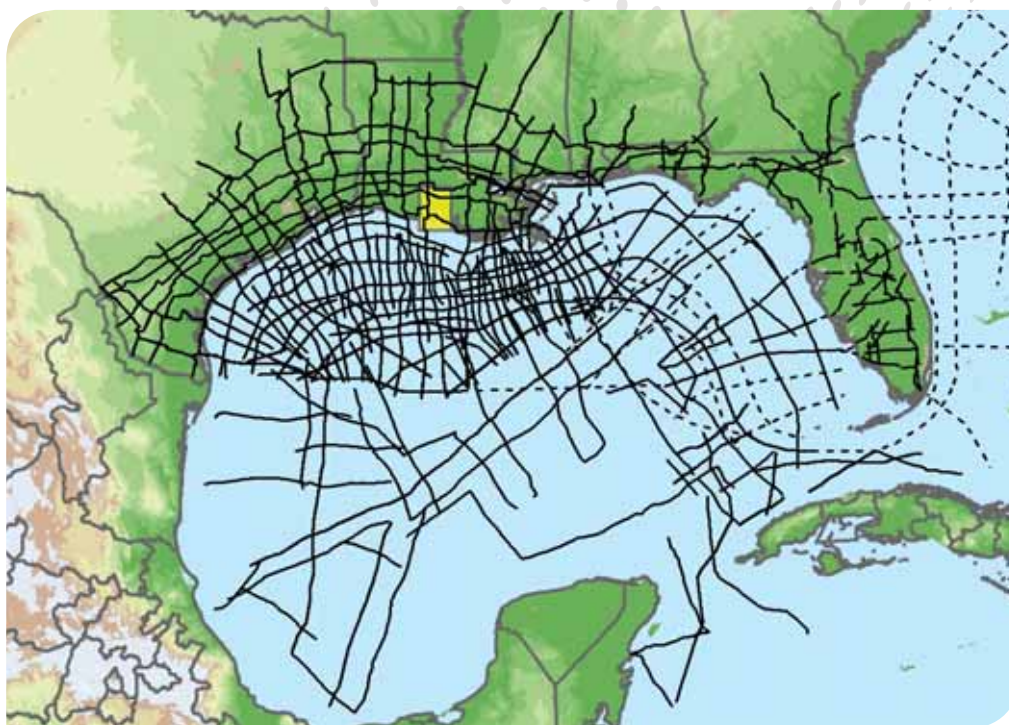
## April 2015 Luncheon



Tavia Prouhet - NOGS Editor, Dr. Zane Jobe - April Speaker, Kelli Hardesty - NOGS President



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# Geophysical Research and Technology Presented Before Mississippi River Commission

by Tom Klekamp, New Orleans Geological Society

Congress established the Mississippi River Commission (MRC) in 1879 to improve the condition of the Mississippi, its navigation, commerce, and prevent flooding—a complex engineering problem that continues today.

The MRC conducted its annual high-water inspection trip with its last stop, March 27, aboard the *M/V Mississippi*, at Baton Rouge. The *M/V Mississippi* serves as a towboat and inspection vessel for the MRC.



The US Army Corps of Engineer's Flagship, *M/V Mississippi*, at Baton Rouge, March 27, 2015

During the high- and low-water seasons, the members of the MRC conduct inspection trips and public meetings at various locations along the length of the river. These gatherings enable the public to bring their views and concerns before the MRC and engage in dialogue with its members on matters affecting the water resources infrastructure, including flood control and the Mississippi River and tributaries, environmental, and other issues, thereby giving interested parties a greater voice in shaping federal policy. This was the first time that members of The New Orleans Geological Society had presented before the MRC.

Maj. Gen. Michael C. Wehr, President of the MRC gave a summary report, which was followed by an overview of current New Orleans District project issues by District Commander, Col. Richard L. Hansen. Other MRC members on the review panel included Rear Admiral Gerd F. Glang, National



Mississippi River Commission members (L-R): MRC Director Mr. Stephen Gambrell and MRC members Brig. Gen. John S. Kem, Rear Admiral Gerd F. Glang, Honorable Sam E. Angel, MRC President-Nominee Maj. Gen. Michael C. Wehr, Honorable R.D. James, Honorable Norma Jean Mattei, Ph.D. and MRC Secretary Col. Torrey A. DiCiro

Oceanic and Atmospheric Administration, Director, Office of Coast Survey; Brigadier General Margaret W. Burcham, Commander, Great Lakes and Ohio River Division and the MRC Commissioner-Emeritus, the Honorable Wm. Clifford Smith Civilian/Civil Engineer, Houma, La.

Following remarks by Gen. Wehr and Col. Hansen, the MRC panel heard presentations by individuals and stakeholders in issues involving Corps projects. There were four presentations by NOGS members and affiliates: the Honorable Michael Merritt, Commissioner, Southeast Louisiana Flood Protection Authority-West (SLFPA-West); Dr. Juan Lorenzo, LSU Dept. of Geology and Geophysics; Arthur H. Johnson, President and Chief of Exploration, Hydrate International, Inc.; and Kathleen S. Haggard, geologist, Dynamic Measurements, LLC. All brought attention to the need for using geophysics and related geoscience applications in addition to geotechnical borings. The panel members seemed extremely interested because geophysical techniques could save money in the Corps budget.



LSU's Dr. Juan Lorenzo before the MRC Commission. Seated (L-R) MRC Emeritus, Hon. Wm. C. Smith, Civil Engineer, Houma, LA; Rear Adm. Gern F. Glang, NOAA; Major Gen. Michael C. Wehr, MRC President; and Brigadier Gen. Margaret W. Burcham, Commander, USACE Great Lakes and Ohio River Division

Commissioner Merritt, of the SLFPA-West, led off the technical presentations with a rationale for using geophysical methods and physical geology studies to assure public safety and avoid waste when building or operating levees.

Merritt noted that the worst Orleans Parish flood, before the Katrina and Rita disasters of 2005, was a levee failure disaster in 1849. The lesson learned, from the disastrous 1849 levee break and echoed 156 years later, is: these recurring disasters illustrate both the challenge of maintaining the levees and addressing the geologic changes resulting from subsurface subsidence, soils compaction, rising waters and weakening of levee defenses.



Flooding on Canal Street, New Orleans, caused by the crevasse, painted in 1849 by Elizabeth Lamoisse

He used Fort Proctor; built in 1856, as an example. Today it is slowly submerging—the geological reasons could easily be defined by modern geology and geophysics methods were they available at the time. Using modern methods now, to find and

control these threats to our levees, will assess each levee's suitability for long-term use, enhance public safety, avoid waste in building or lifting a levee reach, and assure levee recertification to keep flood insurance rates affordable.



Fort Proctor is located on the shore of Lake Borgne, a lagoon in eastern Louisiana that is actually no longer a lake but rather an arm of the Gulf of Mexico due to coastal erosion. The fort was built in the 1850s to protect water routes to New Orleans but was abandoned after the American Civil War. The site is now completely surrounded by water.

Dove-tailing with Commissioner Merritt's talk, Dr. Lorenzo, in his objective approach to strategic monitoring of the Mississippi River levee system, said that tasks that are comparable in cost to the Mississippi levee project include multi-billion dollar, regional-scale projects by the petroleum industry that incorporate geophysics into their work because it is inexpensive and non-invasive. Using a medical analogy, Lorenzo noted the geophysicist is like a radiologist who distinguishes normal from anomalous tissue. Then, the engineer—like the surgeon—can use the geophysical report to decide how and where to intervene. He reiterated, we are not proposing a cure for sick levees, rather proposing a non-invasive, low cost check-up on the levee and its surroundings. Lorenzo concluded that the Mississippi River levee system is entering a phase where long-term strategic maintenance and upgrade of infrastructure will be needed. The scale of this endeavor requires a team approach from different fields of science. It is time for the MRC to consider broadening their multidisciplinary approach by bringing geophysics into their team.





Independent Peer Review Team investigating a West Bank levee. Here, the investigator's thumb is easily pushed into levee clays—the unconfined shear strength of the levee's interior clay was little more than one-half the planned and required design strength. Merritt likens such a levee to a "jelly-filled pastry."

Arthur Johnson, of Hydrate International, talked about maintaining a dependable level of protection for the people of Southeast Louisiana, and those dependent on levees and floodwalls for their safety. He emphasized the ability to identify problems at an early stage. Waiting until problems appear, such as cracks in a levee, and then making repairs can be dangerous if the issues arise when the river is at a high stage or a storm surge is approaching. He concluded that Dr. Lorenzo's technology would allow for a systematic evaluation of levees at a low cost so that problems could be identified, prioritized, and corrected on specific levee sections.



LSU's "Seismeauxbile," atop a West Bank levee. The unit contains the geophysical recording instruments.

The level of protection would be increased and costs lowered. Such technology would allow the Corps to be more proactive and less reactive.

Kathleen Hagggar spoke of using lightning strike data in locating near-surface faults and sedimentary bodies. Where lightning strikes can be influenced by near-surface geology — a kind of natural-sourced electromagnetism. Strikes are recorded and processed into 3-D arrays to reveal additional geological information.

She concluded that shallow seismic and lightning are non-invasive technologies that can provide low cost information in detecting geohazards.



Art Johnson, Dr. Juan Lorenzo, Mike Merritt and Kathy Hagggar. In the background is the US Army Corps of Engineer's flagship, the *M/V Mississippi*.

Following a working-lunch aboard the *M/V Mississippi*, Commissioner Merritt, Dr. Lorenzo, Ms. Hagggar and Mr. Johnson met in an informal session with Corps officials who needed detailed information. The discussion group included General Burcham; Admiral Glang; Dr. Barbara Kleiss, Director, Louisiana Coastal Area Science and Technology Office, USACE, Mississippi Valley Division; Richard Pinner, P.E., Chief of Geotechnical Branch in New Orleans District, and Dr. Joseph Dunbar, P.G., Research Geologist, USACE Engineer and Development Center.

The use of geophysics in earth embankment and geotechnical investigations continues the foresight of General Max Tyler, President of the MRC when, in 1941, he invited Harold Fisk to initiate geologic mapping of the Lower Mississippi Valley.



Mark Johnson, Elijah Adedeji, Joshua Flathers, Royhan Gani, Joe Frank, Trey Kramer, Toby Roesler



## ***UNO Imperial Barrel Team Wins!***

### **2015 Gulf Coast Regional Imperial Barrel Award**

A team of University of New Orleans graduate students won the 2015 Gulf Coast Regional Imperial Barrel Award in Houston, Texas and will advance to the international finals next month in Denver, Colo. The Imperial Barrel program, which is organized by the American Association of Petroleum Geologists, pits geosciences teams from universities around the world against each other in a competition to analyze an oil and gas reservoir.

UNO's team beat out 10 regional competitors during the April 16-17 event from universities including Auburn, University of Alabama, Texas A&M, University of Texas at Austin, University of Houston and LSU.

The team members are John Norbert Kramer, Elijah Ayobami Adedeji, Joshua Flathers, Joseph Paul Frank and Christopher M. Johnson. The faculty adviser is Royhan Gani, associate professor of earth and environmental science, and team is assisted by Toby Roesler of Stone Energy and adjunct faculty member Michael Fitzgerald. The \$3,000 prize will go toward scholarships in the Department of Earth and Environmental Science.

"Winning this high profile competition brings fantastic exposure to the University of New Orleans," Gani said. "For both prospective students and industry recruiters, this shows that UNO has one of the top geoscience programs in the region."

In the regional, teams analyze a dataset in the eight weeks prior to the competition and deliver their results in a 25-minute presentation to a panel of industry experts. The judges select a winner based on technical quality, clarity and originality of presentation as well as team's ability to answer questions.

UNO is one of 12 regional winners that will participate in the international competition held in Denver on May 29-30.





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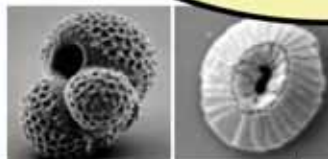
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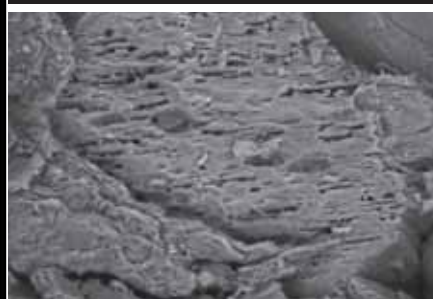
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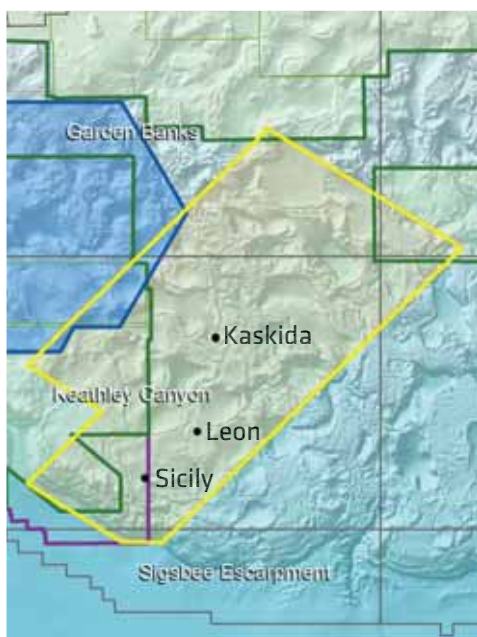
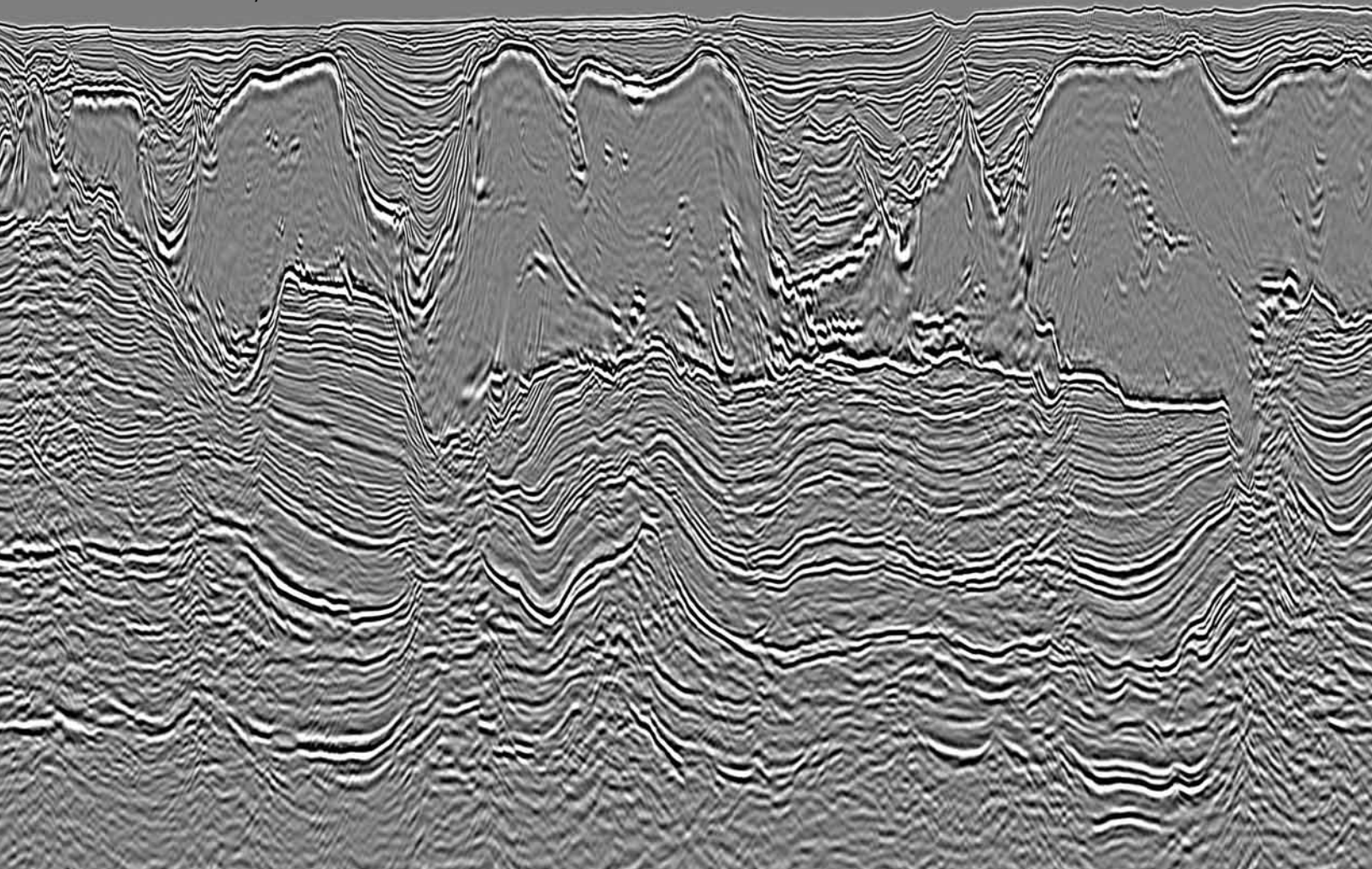
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