

NOGS LOG

AUGUST 2015

Volume 56, Number 2



AUGUST 3 - NOGS LUNCHEON

**Presentation: Allochthonous Triassic Salt Canopies of the
Western Mediterranean: Comparison with the Mexico and US Gulf of Mexico**

**Guest Speaker: Dr. Joan Flinch
Repsol, USA • The Woodlands, Texas**

19th Annual Gulf of Mexico

Deepwater

Technical Symposium

GEOSCIENCE OPENING SEMINAR AUGUST 18

"The Temporal and Spatial Evolution of Reservoirs and
Traps, Northern Deep Water Gulf of Mexico"

Paul Weimer
University of Colorado

This course will summarize the temporal and spatial evolution of the reservoirs for the 220 fields in the northern Deepwater Gulf of Mexico. Lectures and exercises will address the key components of each of the major reservoirs by age. The trap types for all of the fields are reviewed and placed within their regional context and exploration province type.



Tickets for the Geoscience Seminar
are \$225.00 and can be purchased
along with your DWTS registration
at <http://www.deepwaternola.org/>

AUGUST
18th, 19th & 20th
2015

*The Hilton New Orleans
Riverside Hotel*

www.deepwaternola.org





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

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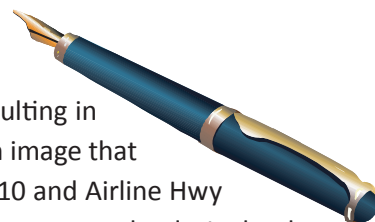
on the cover

Cover Photo Submitted by Tom Klekamp

The Palisades — Cimarron Canyon State Park, New Mexico

The Palisades, the geologic centerpiece of Cimarron Canyon State Park, New Mexico, consists of spectacular, vertically jointed face of hard, dense intrusive rock. Before the canyon existed, a body of magma intruded at a shallow level—perhaps less than 3000 feet below the surface. The magma cooled rapidly, forming fine-grained igneous rocks of the Cimarron pluton. As it cooled and crystallized, it contracted, forming the pervasive, vertical columnar joints. The pluton is a composite of many small, stacked laccoliths. Petrologists call the rock a porphyritic dacite, but there's no agreement on this classification pigeonhole; others say monzonite. The intrusive is approximately 25 Ma, part of the Jemez lineament, a zone of Tertiary igneous rocks that cuts northeasterly across northern New Mexico. Read more at <https://geoinfo.nmt.edu/tour/state/cimarron/home.html>

From the Editor



Our feature story, by Chris McLindon, tells of the progress on NOGS' "Atlas of Surface Faulting in South Louisiana." Oddly, the story began as a Facebook posting by Chris of a Google Earth image that clearly shows the vegetation differences along a surface fault near the intersection of I-310 and Airline Hwy in New Orleans. The change in elevation is drowning the trees and converting the forest to open wetlands. It clearly underscores how surface faulting affects critical infrastructure in this region. Chris brings us up-to-date on this NOGS project that bodes much for informing policymakers, planners, and environmentalists about the geologic factors in coastal restoration.

In this same August issue, we have another article which anticipates McLindon's by about 170 years; Laura Sorey, reports on Sir Charles Lyell's visit to New Orleans, where he discovers subsidence in the marshes and swamps.

Enjoy your summer and stay safe.

Tom
Tom Klekamp, Editor

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From the President

As I write this letter, the NOGS Board is preparing to present at the July 6th luncheon the first of ten donations to the Louisiana Children's Museum's "Early Learning Village," a newly-planned center to explore the wonders of science and technology (see photo of the check presentation in this *NOGS LOG*). NOGS and the NOGS Memorial Foundation have collectively committed \$50,000 to the new museum effort to be paid out over the next 10 years. The new museum will replace the aging and cramped Children's Museum in downtown New Orleans with a beautifully designed facility in City Park located near Christian Brothers Academy. The monies will help support construction of several new exhibits related to geoscience, which should hopefully spark that special interest in young children to want to pursue a career in one of the many geosciences. This helps fulfill one of NOGS' stated goals to "disseminate pertinent geological and technological knowledge," in this case to young scientific minds.

Along with the LCM donations, NOGS and the NOGS Memorial Foundation have also committed to a similar donation of \$50,000 over 10 years to the newly planned Children's Museum of St. Tammany Parish. This new facility will be located along the Tchefuncte River off Interstate 12 between Mandeville and Covington. Presentation of the first donation check will take place at the September 14th NOGS luncheon. Both of these new children's museums are still in the planning stages with expected completion scheduled for late 2017. Special thanks goes to Tom Bergeon and Ed Picou for bringing to the NOGS Board the idea of committing to these projects, and acting as liaisons with the two museum planning organizations. I will endeavor to keep you posted as to the progress of these projects as they get nearer to full implementation and construction.

Two upcoming technical events are of special note. Those of you interested in the new and exciting lightly-explored Mexican Lower Cretaceous and Paleogene plays in the deepwater western Gulf of Mexico should be especially interested in the August 3rd NOGS luncheon technical presentation. Joan Flinch of Repsol is scheduled to present "Allochthonous Triassic Salt Canopies of the Western Mediterranean: Comparison with the Mexico and US Gulf of Mexico." Please make your luncheon reservation early as this talk should garner a lot of interest.

Next in line is the 19th Annual Deepwater Technical Symposium and 2015 NOGS Geoscience Opening Seminar scheduled for the Hilton Riverside Hotel on August 18, 19, and 20. The all-day pre-symposium geoscience seminar on the 18th features Dr. Paul Weimer of the University of Colorado who will discuss "The Temporal and Spatial Evolution of Reservoirs and Traps, Northern Deep Water Gulf of Mexico." The Technical Symposium on the 19th and 20th will include an exhibit hall and two concurrent oral sessions each day, addressing latest technological issues concerning Geoscience, Regulatory/HSE, Production and Reservoir Engineering, and alternative energy sources. Social events include the Charity Gala Silent Auction benefitting the Greater New Orleans STEM Initiative, and the Annual Fin, Feather, and Fur Food Festival. Registration and additional information can be obtained at: www.deepwaternola.org. Sign up early – these events usually sell out early.

Our NOGS September Technical Luncheon will be the second Monday of September, the 14th, due to Labor Day falling on the 7th this year. Mark your calendar – the NOGS Fall Kickoff Party will be held at Rock 'n Bowl on Saturday, September 26 from 4:30 to 7:00 pm. Come meet and greet fellow NOGS members and the new NOGS Board.

Try to stay cool this summer and I'll see you at the August NOGS Luncheon on the 3rd.

David Reiter

NOGS Office

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Phone: 504-561-8980 • Email: info@nogs.org • Website: www.nogs.org

The office is located at 810 Union Street, Suite 300, New Orleans, LA 70112.

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



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August 3 • NOGS Luncheon

Holiday Inn Downtown Superdome

\$3.00 validated parking in hotel garage

Presentation:

Allochthonous Triassic Salt Canopies of the Western Mediterranean: Comparison with the Mexico and US Gulf of Mexico

Guest Speaker:

Dr. Joan Flinch

Repsol, USA • The Woodlands, Texas

See pages 8 and 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

August 18-20

19th Annual Gulf of Mexico Deepwater Technical Symposium

The Hilton N.O. Riverside • New Orleans, LA

For more information, www.deepwaternola.org

September 12

BIG - Believe In Girls Event

Southeastern Louisiana University • Hammond, LA

For more information, see page 15 of this issue.

September 20-22

GCAGS 65th Annual Convention

George R. Brown Convention Center • Houston, TX

For more information, www.gcagshouston.com

September 26

NOGS Kick-Off Party

Mid City Rock 'n Bowl • New Orleans, LA

For more information, see page 23 of this issue.

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Continued from previous page

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August 3 NOGS Luncheon Presentation

☆☆☆ at the Holiday Inn Superdome ☆☆☆

Allochthonous Triassic Salt Canopies of the Western Mediterranean: Comparison with the Mexico and US Gulf of Mexico



Presented by

Dr. Joan Flinch

Repsol USA • The Woodlands, Texas

ABSTRACT

Field, seismic and well-log data along the Betic-Maghrebian fold-and-thrust belts of the Western Mediterranean (i.e., Betic of Southern Spain, Rif of Morocco and Tell Cordilleras of Algeria and Tunisia) indicates the presence of allochthonous Triassic salt canopies that were initially emplaced in the western Tethys passive margin (i.e., Upper Jurassic to Paleogene) and were later deformed by the Alpine tectonics (mostly Miocene).

In the Betic Cordillera of southern Spain, the Guadalquivir Allochthon involves deep-water pelagic facies "Capas Rojas" and deep-water pelagic marls with radiolaria, referred to as "calcaria maiolica" in the Alpine domain. Triassic red-beds, consisting of shale, siltstone and occasional sandstone and evaporate (mainly gypsum and salt) are directly in contact or intermixed with Upper Cretaceous-Paleogene deep-water sediments while the Jurassic is absent. Kilometric-scale Cretaceous slices, between salt sheets, are commonly exposed. Several exploration wells, the Béticas 14-1; Béticas 18-1; Bornos-1, -2, and -3, encountered thick Triassic evaporates. Metric to centimetric salt blocks, slices or boulders are also interbedded with pelagic Cretaceous and/or Paleogene strata. Often, synclinal basins with Upper Cretaceous to Paleogene strata overlie extensive masses of Triassic evaporates. We interpreted them as minibasins emplaced during the passive-margin stage (Tethys passive margin). Three types of compressionally-modified minibasins have been differentiated: detached-from-below, within, and from-the-top-of the allochthonous canopy.

In the Rif Cordillera of Northern Morocco, Triassic shales and evaporates (mainly gypsum) are intermixed with deep-water Cretaceous (Senonian) marl referred to locally as "marnes à gypsum." Well BB-1 (Société Chérifienne des Pétroles, 1952) encountered Triassic breccia levels, that represent the detachment of the Upper Cretaceous and Eocene Prerifaine Nappes (upper imbricates of the Rif Cordillera), along the Rharb Basin of the Western Rif, the most frontal unit, the so-called Prerifaine Nappe, has Triassic evaporates interbedded with Cretaceous marls. In the Tell Cordillera, on the border region between Algeria and Tunisia, (i.e., "Zone des Dômes"), field and exploration well data indicate the presence of Triassic salt glaciers, emplaced during Cenomanian-Turonian time, a significantly older age than in the Betic Cordillera, where most of the canopies emplaced during Late Cretaceous to Paleocene time.



The Triassic evaporates of the South Iberian and Maghrebian domains are interpreted as allochthonous evaporates emplaced during a passive margin stage (before Neogene compression) in similar manner to the allochthonous salt of the Gulf of Mexico (Flinch et al. 1996). Allochthonous Triassic, especially allochthonous canopies, are more abundant in the Guadalquivir Allochthon of the Betic Cordillera than in the Rif of Tell. The emplacement of the Triassic salt of the Western Mediterranean within the Upper Cretaceous-Paleogene section took place during the passive margin stage before Neogene compression, similar to that of the allochthonous salt of the Gulf of Mexico. A present day cross section through the southern Gulf of Mexico, from the Perdido fold belt to the offshore Yucatan would suggest younger age of emplacement in the NW Perdido and Salina del Bravo areas, than in the offshore Campeche area.

A similar situation would have resembled a north to south cross section through the Western Mediterranean, the Iberian northern margin (i.e., Betic Cordillera) with salt emplaced into within the Upper Cretaceous-Paleogene section while in the South (Rif and Tell cordilleras) the salt was mostly emplaced within the Cenomanian-Turonian section. Comparing the GOM with the Western Mediterranean can give clues to understand how a salt-dominated passive margin can behave under compression and its role in the ulterior fold-and-thrust belt. What would happen if the Gulf of Mexico would be incorporated into an orogenic belt? The structure of allochthonous salt of the Western Mediterranean, shows the importance of pre-orogenic structures, especially passive-margin allochthonous evaporates, to restore the deformation in salt-based fold-and-thrust belts with extensive allochthonous evaporates.

BIOGRAPHY

Joan F. Flinch is currently Geology Manager at Repsol USA, stationed in The Woodlands, Texas. His first Repsol assignment was in Madrid as Equatorial Guinea Team Leader; afterwards, he became New Ventures and later, Asset Manager for West Africa. Later on, he was transferred to Houston as Latin America New Ventures Manager. Joan received his B.S. and M.Sc. degrees from the University of Barcelona in Spain in 1988 and 1990. His M.Sc. dissertation included structural mapping in the Southern Pyrenees. He received the Outstanding Student Award from the University of Barcelona in 1992. In 1994, he received his Ph.D. in geology and geophysics from Rice University, Houston with the dissertation "Structural Evolution of the Gibraltar Arc," directed by Professor A. W. Bally. Before joining Repsol, he worked between 1994 to 1997 as a consultant for Lagoven (ancient affiliate of PDVSA) mostly on Eastern Venezuela. From 1997 to 2004, Joan worked for Total in Paris and Pau (France) on numerous exploration projects in Latin America and West Africa.

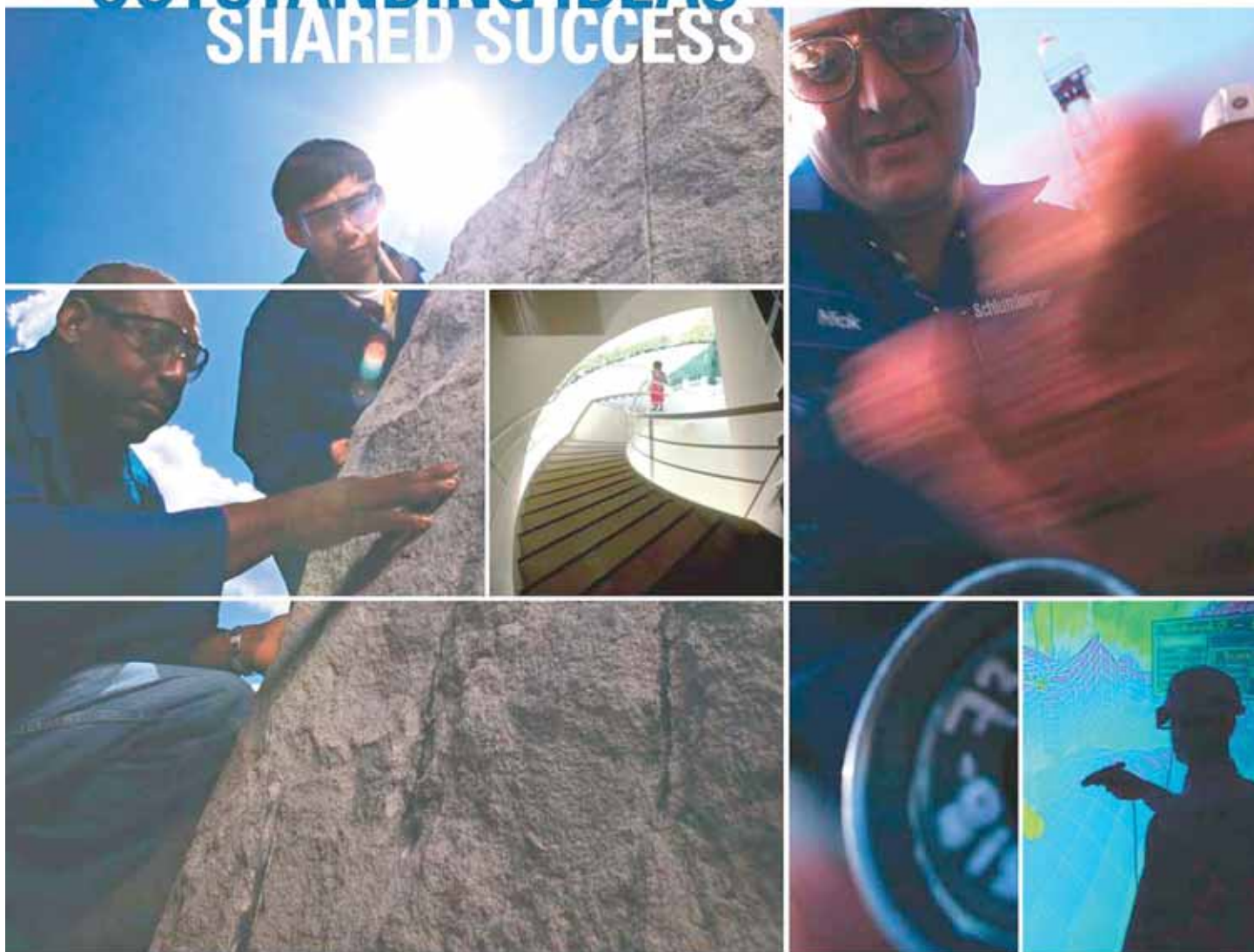
Joan has published several papers on structural geology of the Pyrenees, structural geology and sequence stratigraphy of the Rif in Morocco, the Allochthonous salt of the Betic Cordillera in Spain, the Northern Colombia Accretionary Wedge, the Eastern Venezuelan folded belt, the Gulf of Paria in Trinidad and Venezuela, the Sub-Andean area in Bolivia and the Sierra Leone-Liberia margin in West Africa.

THE LUNCHEON RESERVATION DEADLINE IS JULY 31 - CONTACT THE NOGS OFFICE

"And Looking Ahead . . ."

The next luncheon will be held on September 14. Our guest speaker, Mr. Tom Bergeon, Century Exploration, will present "40 Years of Evolving Gulf of Mexico Exploration Geology: Concepts, Tools and Risk Assessment." Contact the NOGS office at 504-561-8980 or use the PayPal link on the NOGS website (www.nogs.org) to make your reservation.

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August 2015						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
2	3 Luncheon 	4	5	6	7	8
9	10	11	12 Perseid Meteors	13	14	15
16	17	18	19	20	21	22
		19 th Annual Deep Water Symposium		Summer NAPE		
23	24	25	26 Board Mtg 	27	28	29

August 3: NOGS Luncheon, Holiday Inn Superdome, 330 Loyola Ave. @11:30 am

Guest Speaker: Joan Flinch, Repsol USA

Will Present: Allocthonous Triassic Canopies of the Western Mediterranean: Comparison with Mexico and US GoM

September 2015						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7 Labor Day 	8	9	10 SGS Luncheon 	11	12 Believe In Girls Event SLU Campus Hammond
13	14 Luncheon 	15	16	17 SPWLA Luncheon 	18	19
20	21	22	23 Board Mtg 	24	25	26
	65 th Annual GCAGS - Houston					
27	28	29	30			Kick-Off Party Sept 26 4:30-7 Rock-N-Bowl

September 14: NOGS Luncheon, Holiday Inn Superdome, 330 Loyola Ave. @11:30 am

Guest Speaker: Tom Bergeon, Century Exploration

Will Present: 40 Years of Evolving Gulf of Mexico Exploration Geology: Concepts, Tools and Risk Assessment



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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."



*Luncheon Chairpersons
MaryEllis Hasseltine and Debra Fein*

The month of July had the newly elected president, Trudy Corona; vice-president, Margie Conatser and the entire NOGA Board working hard to come up with another year to match our special 60th Anniversary year. Exciting speakers and interesting venues are being considered to entertain and inform the members in 2015-2016. The Auxiliary is happy to have Trudy Corona back in full swing.

The last event of the 2014-2015 year was the May 15th luncheon at Café Adelaide, Lowes Hotel. Debra Fein and MaryEllis Hasseltine organized the very enjoyable luncheon accompanying all the installation ceremonies. The highlight of the day was Elizabeth Furlong's receiving the Outstanding Service Award. Elizabeth has served the Auxiliary in many ways with her special talents. Service

Award chairperson Judy Lemarié presented the award and gift to Elizabeth.

It won't be long before the Auxiliary will be called upon to help with the December NOGS Holiday Christmas Party.

All new members will be very welcome to join in and enjoy all the planned events for the coming year. Please use the application found below.

Peggy Rogers, *NOGS LOG*



*Outstanding Service Award Committee
Chairperson Judy Lemarié presents the
award to Elizabeth Furlong*

New Orleans Geological Auxiliary Membership Application

Name _____ Spouse's Name _____
Address _____ Home Phone _____
City, State, Zip _____ Cell Phone _____
Spouse's Company _____ Email _____

Dues: \$25 payable to New Orleans Geological Auxiliary
Please mail to Judy Lemarié, Treasurer, #2 Yosemite Dr., New Orleans, LA 70131

Our Girls Need You!

Join us on
Saturday, September 12
9:30 a.m. – 3:30 p.m.



for

on the campus of
Southeastern Louisiana University, Hammond



Target Audience:

Nearly 2,000 girls of all ages from across southeast Louisiana are expected to attend B.I.G.! With a come and go, expo atmosphere, troops will explore the various exhibits and presentations throughout the day. You are encouraged to provide information about your organization and any opportunities you have for Girl Scouts throughout the year.

Presenters will provide a hands-on, informative display or activity

with educational aspects relating to Girl Scout Initiatives such as **Healthy Living, Financial Literacy, STEM** (Science, Technology, Engineering & Math), the **Arts**, and **Outdoor Living**. This is the perfect opportunity to showcase these areas and your organization, important role models, and career opportunities that exist, as well as how girls can get involved. *Lunch will be provided to presenters.*

Organization name: _____

Contact name: _____ Contact number: _____

Email address: _____ Number of people from your organization attending: _____

We will participate by hosting:

- ☐ One (1) six-foot table for continuous display/activity inside main exhibit area.
- ☐ A start and stop timed presentation in a classroom setting with desks.
____ Number of presentations
____ Max number of students allowed per presentation
Length of time needed: ☐ 30 min. ☐ 45 min. ☐ 60 min.
- ☐ A start and stop timed presentation in an Lab setting with tables:
____ Number of presentations
____ Max number of students allowed per presentation
Length of time needed: ☐ 45 min. ☐ 60 min. ☐ 90 min.
- ☐ A start & stop timed presentation in a large auditorium setting
____ Number of presentations
Length of time needed: ☐ 30 min. ☐ 45 min. ☐ 60 min.
- ☐ Outdoor space as needed
Please describe: _____

❖ List any specific requests or requirements needed at your table: (electricity, running water, wifi, projector and screen, etc.)

❖ Briefly explain your display and any type of hands on activity you will have available for Girl Scouts to participate in:

Submit this form to Kevin Shipp at kshipp@gsle.org or fax (504) 733-8219 or mail to Girl Scouts Louisiana East, 841 S. Clearview Pkwy, New Orleans, LA 70121, no later than July 15, 2015. Contact Kevin for more information at (504) 733- 8220, ext. 2243 or (800) 644-7571.

The NOGS Fault Atlas of Surface Faults in SE Louisiana

by Chris McLindon

The concept of the SE Louisiana Surface Fault Atlas was born out of the recognition by several geologists, working 3-D surveys in the area, that many faults extended to the surface. These faults often have clear expressions as linear features crossing the marsh surface. As we examine these faults, it has become evident (as it had to several previously published authors) that the vertical movement along these faults is a primary driver of change in the coastal wetlands. NOGS has been enthusiastic about the Fault Atlas from the outset. Art Johnson spearheaded the concept with the NOGS Board. Eric Broadbridge has taken a key interest and reported on surface faults he's seen on seismic data. Kathy Haggar has been involved with shallow surface faulting going back to her research at Goose Point and the Baton Rouge Fault Zone. Surface faulting has had a long history with NOGS. Academic institutions include UNO, Tulane and LSU. Government agencies concerned about surface faults include the US Army Corps of Engineers, NOAA, USGS and the Southeast Louisiana Flood Protection Authority-West.

This geology and geophysical effort is ongoing. After Katrina & Rita, New Orleans area levee districts were reformed to create regional flood authorities. The West Bank authority, SLFPA-W, partnered with NOGS, LGS and other authorities in educating the public with the "Geologic Facts of Life for Flood Protection" symposium series. SLFPA-W Commissioners received Dr. Sherwood Gagliano's fault maps and, with Dr. Juan Lorenzo's LSU shallow geophysical team, were the first to locate and remediate a weak levee foundation using seismic data.

The Atlas is dependent on shallow seismic data; the original concept was envisioned as a patchwork quilt of tiff images of interpreted times slices at 1.000 second. There was an initial pushback to this concept from the seismic companies about placing their intellectual property in the public domain where it would be challenging to control. The success of the project fundamentally depends on having the seismic owners as fully cooperative partners.

Because the Atlas was originally intended to be a springboard for future research in which universities would get research licenses to 3-D surveys for fault studies, we decided to test the waters with a project at the New Orleans East Land Bridge.



The New Orleans East Land Bridge and Proposed Study Area

Don Dubose and Lee Hooper at Western-Geco and Larry Galloway and Jeff Springmeyer at Geophysical Pursuit facilitated getting the first research data licenses under this project to UNO. Mark Kulp, UNO Geology professor and Director of the Coastal Research Laboratory, is envisioning a project involving two MS students and one PhD candidate. Recently, UNO was finalizing the license agreements, and Mark had a student ready to work the data when delivered. If they find faults cutting to the surface, Kulp and his students plan on shooting high-resolution CHIRP (Compressed High-Intensity Radiated Pulse) data over those sites.

This Atlas project may also serve as a testing ground for a concept that may have broad implications across the coast. CHIRP has been used by Kulp and several other authors, including John Lopez of the

Lake Pontchartrain Basin Foundation, in the past to get some high resolution images across surface faults. CHIRP data is limited to acquisition in open bodies of water, meaning that broad swaths of the coast have not been properly imaged for very shallow fault interpretation.

The offshore industry has developed a set of algorithms that allow for the use of 3-D surveys to substitute for shallow hazard surveys. By reprocessing the 3-Ds, they have been able to produce shallow high-resolution data that meets the standards for shallow hazard surveys. Several geophysicists have told me that onshore 3-Ds can be reprocessed to enhance shallow resolution and maybe even approach the resolution of CHIRP data. If we can raise funds to get the donated data reprocessed in this manner, it can be compared to the CHIRP that Mark plans on shooting. If the comparison is positive, it may open the door to a larger scale reprocessing project that could provide CHIRP-like data in areas where it can't be acquired. The estimate for reprocessing the data in the initial project is about \$350,000.

After initial success of the data donation, emphasis shifted to capitalization. Many in the oil and gas industry are understandably cautious due to the ongoing litigation in the Louisiana coastal zone. Some representatives have said that it would be “inappropriate” for the industry to fund coastal research at this time. In order to address this situation, we are working on a revision of the scope of the Fault Atlas project. Most of the major federal agencies are doing assessments of their infrastructure in the coastal zone to evaluate the impacts of relative sea level rise; the oil and gas industry should do the same. With this approach, the project can be strictly defined as an effort by the oil and gas industry to assess its coastal infrastructure for the potential impacts of subsidence using its own knowledge base and data. The academic institutions that the industry employ to do the actual research can do whatever else they want to with the data, but the industry would want to end up with maps of the fault traces, estimates of the subsidence, and predictive models of how that subsidence will affect infrastructure. The UNO project will fit into the overall concept as an initial test case to see if reprocessing 3-D surveys will adequately simulate CHIRP data. If it does, the scope of the project would be expanded across the coast with initial focus on the ports of Fourchon, Empire and Venice.



Infrastructure at stake: transformer station in standing water near Fourchon. Recent photo by Tim Osborn of NOAA.

Toby Roesler has offered some poster board space at the 2015 SEG in New Orleans for this project. Hopefully we can get the UNO student working the data to participate in the presentation. We will present a revised proposal to the boards of NOGS and SGS in the near future. If we can get approval from both boards, it may be possible to present this as a collaborative NOGS-SGS endeavor at the SEG convention.



Chris McLindon is a member of NOGS, where he presented “Rethinking Coastal Restoration” at our March 2014 Luncheon-Meeting. The slide presentation for this talk can be accessed through the NOGS Website. (Click on ‘LINKS,’ then scroll down to ‘Presentations of Interest.’) He gives talks to various groups, including government organizations on the geologic factors in restoring the coast of Louisiana. Chris is a geologist with the Deepwater Exploration Group of Stone Energy in New Orleans. He can be contacted at McLindonCD@StoneEnergy.com.

NOGS WELCOMES

Submitted by Laura Sorey

Don Heider is a senior geophysicist with Freeport-McMoRan Oil & Gas in Houston where he continues to enjoy his four decade study of the earth using geology and geophysics. From outcrops and paper records in the Rockies to 3D cube visualization in the Gulf of Mexico minibasins, the only constant in the study has been change. He is looking forward to depth imaging challenges and drilling successes in the future.

Charles Lapeyre joins NOGS from CCL Consulting in Metairie.

Elise McKelvey is a new member to NOGS. She is originally from Baton Rouge, LA, but has recently moved from Pittsburgh, PA, working the Marcellus Shale as an Operations Geologist for Chevron. Currently she is a Development Geologist for the DW Caesar Tonga asset at Chevron in Covington, LA. She holds a Bachelor Degree in Geology from Northern Illinois University and Master's Degree from West Virginia University. She currently resides in Abita Springs, LA, with her husband Paul.

NOGS PRESENTS CHECK TO NEW ORLEANS CHILDREN'S MUSEUM EARLY LEARNING CENTER

NOGS had a monumental event at the July luncheon. The Society presented checks totaling \$5,000 as part of a ten year commitment of \$50,000 to the Louisiana Children's Museum ('LCM') for their Early Learning Village. On hand to accept the checks were special guests from the LCM including Julia Bland, LCM CEO, Lauren Doussan, the Campaign Manager for the Early Learning Village project, and Allison Stouse, Project Director of the LCM Early Learning Village. This exciting new children's museum will be located in City Park and is slated to begin construction early next year and completed in late 2017. It will serve as an ideal setting and opportunity

for NOGS to reach children and adults to promote learning in geology, oil exploration and science. LCM currently has raised \$31 million of the \$38 million dollar project including a million dollar donation from the Patrick Taylor Foundation.



Kelli Hardesty, Chairman New Orleans Geological Society (NOGS) Memorial Foundation; David Reiter, President, New Orleans Geological Society; Lauren Doussan, Campaign Manager, Louisiana Children's Museum (LCM) Early Learning Village; Allison Stouse, Project Director, LCM Early Learning Village and Julia Bland, CEO, LCM

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South Louisiana and Offshore Gulf of Mexico Exploration and Production Activities

LAFAYETTE DISTRICT, ONSHORE AREA

By Carlo C. Christina

The Office of Conservation, Lafayette District, Onshore Area, issued **only 10 permits** to drill in the month of June.

Currently, there are 862 rigs running nationwide. This week, for the first time in 36 weeks, there was an increase in the number of rigs running. Drilling peaked in October 2014 with 1930 rigs running when the price of oil was \$110 per barrel. Today, Brent oil is \$55 per barrel. On the bright side, capital costs (the price of casing, mud, rig rates and all services) has decreased by approximately 20 percent. Perhaps we will see an increase in drilling in South Louisiana in the following months.

Note: Historic rig counts. There were 4530 rigs running in December 1981 and a low of 488 running in April 1999.

NEW LOCATIONS

Martex Operating will drill the #1 Simon Family in **Cossinade Field, (A)**, Vermilion Parish, in Sec. 28, 11S-2E. The well will be drilled to a depth of 11,750 feet to test the Alliance sand at a location approximately 2000 feet south of the BTA #1 Simon which was completed in a deeper sand flowing 2908 MCFD and 120 BCPD from perforations 12,728 to 12,736 feet. The well produced more than 32,000 barrels of condensate and 567,000 MCFG. The new well will test 3 main objective sands having potential reserves of 6 million barrels of oil. Cossinade Field was discovered in 1959 and went off production in 1994 until the BTA well produced in 2009. There has been no production since 2010. (249100)

Also in Vermilion Parish, **Abbeville Field, (B)**, LKO Operating will drill the #1 Brookshire to 12,100 feet to test Planulina sands in Sec. 67, 12S-3E. Abbeville Field was discovered in 1936 with more than 470 wells drilled in the field. Production has been found from multiple producing horizons, from shallow Miocene sands to deep Camerina sands. The well is located 2000 feet from a producing well which was completed in a sand at 7800 feet. It has produced more than 227,000 barrels of oil over the past 29 years. (249095)

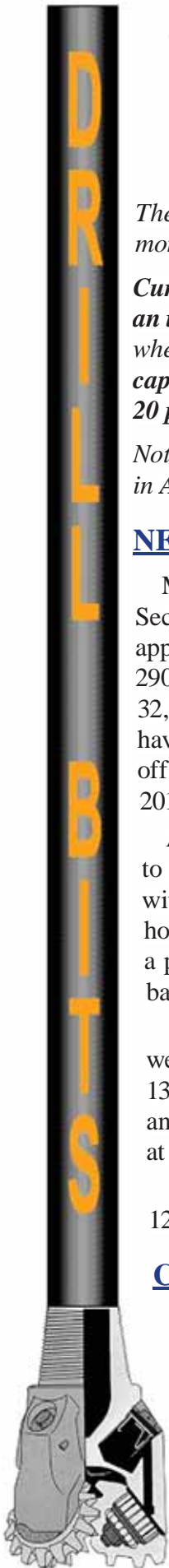
Warhorse Oil & Gas will drill 2 wells in **Fordoché Field, (C & D)**, Pointe Coupee Parish. Both wells are located in Sec. 95, 6S-9E. The first well, the #7 Holloway Property, will be drilled to 13,850 feet to test Wilcox sands which are currently producing in 2 offset wells which were drilled and completed by Texaco in 1971. These wells have produced intermittently over the past 44 years, at times with no production for periods of 7 years or more. (249146)

The second well, the Warhorse #8 Holloway, will be drilled as a directional hole to a depth of 12,400 feet, or a true vertical depth of 10,800 feet, to test a Cockfield sand. (249147)

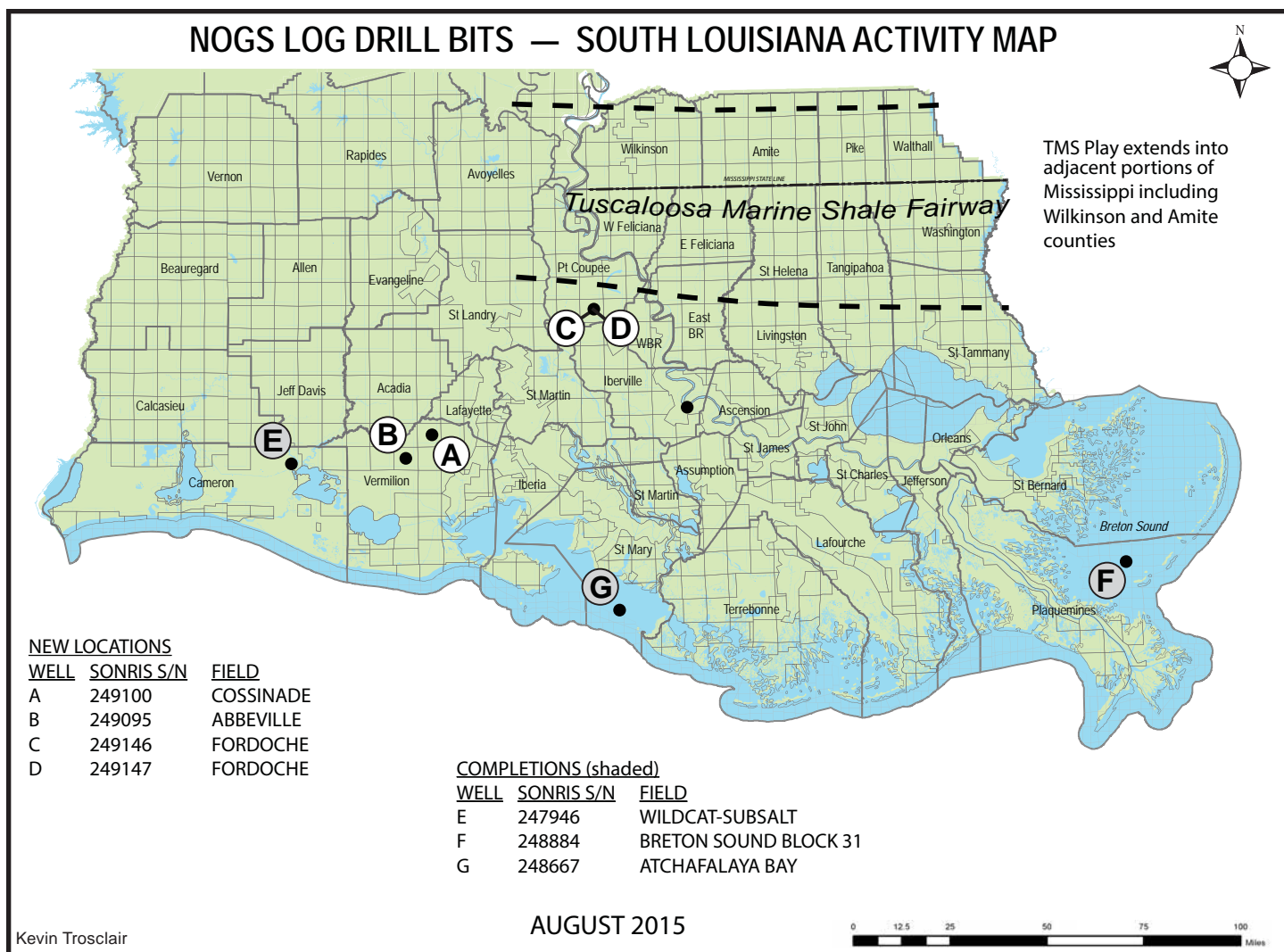
COMPLETIONS

McMoRan has tested its **subsalt well, (E)**, in Cameron Parish and has applied for permission to plug and abandon it. The #1 Lacassane Co. was drilled in Sec. 9, 12S-5W, to a **total depth of 21,979 feet** and tested **perforations 19,318 to 19,544 feet overall, in the Yegua section**. It has been “rumored” that the well flowed **more than 17,800 MCFPD and 200 BCPD with flowing pressure 3970# and shut in pressure 11,560#**. Flowing pressure continued to decline and the request was made to plug and abandon the well. The request was approved on 6/23/2015. (247946)

As previously reported in the February Drill Bits report, McMoRan completed its **subsalt discovery, “Highlander”** in St. Martin Parish, in 13S-11E. The well flowed **43,500 MCFD**



NOGS LOG DRILL BITS — SOUTH LOUISIANA ACTIVITY MAP



through perforations 28,500 feet to 29,150 feet in **Tuscaloosa sands**. It has been **on production more than 5 months** and continues **to flow more than 24 million cubic feet per day**. (245356).

Century Exploration N.O. has completed an excellent deep gas well in the very old, very shallow, **Breton Sound Block 31 Field**, (F). Century Exploration completed its #1 SL 21543 flowing **7605 MCFD** and **706 BCPD** in the **Cris I 6 Sand** through perforations **16,334 to 16,360 feet**. (248884)

Breton Sound Block 31 Field was discovered by Davis Oil in 1966. The discovery well was drilled to 11,500 feet and completed in the 5600 Sand flowing 2000 MCF gas per day. Within the following 20 years only 15 wells were drilled in the field; however no well was drilled deeper than 6800 feet. The field went off production in 2013.

This completion is significant because it occurs 49 years after the discovery of the field and because the completion zone, the Cris I 6 Sand, is 9500 feet deeper than the deepest well in the field. Cris I sands have been found to be productive in other fields in Breton Sound and were then known as the “Hollywood Sand”.

As noted many times in the Drill Bits Reports, “Old fields never die—we just drill deeper”.

In St. Mary Parish, Texas Petroleum Investment Co., (formerly Apache Corporation), has completed another excellent gas well in **Atchafalaya Bay Field**, (G), well flowing **25,446 MCFD** and **681 BCPD** in the Cib op 1 Sand through **perforations 17,208 to 17,505 feet, overall**. The well was drilled to a total depth of 18,680 feet and was drilled for the Cib op 7 Sand. This completion is an extension of old Cris I production from an untested fault trap 1½ miles to the west. (248667)

Atchafalaya Bay Field was discovered in 1951 and is another example of an old field finding new production with deeper drilling within the field. **For the past 4 years Atchafalaya Bay Field has been the largest gas producing field in South Louisiana, Onshore**, currently producing approximately **120 million cubic feet of gas per day from only 8 wells**, or an average of **15 million cubic feet of gas per day per well**.

OFFSHORE GULF OF MEXICO SHELF AND DEEPWATER ACTIVITIES

by Al Baker

During **June 2015**, the BOEM approved **88** Gulf of Mexico drilling permits. Of these, **15** were for shelf wells, and **73** were for deepwater wells. Of the total number of permits, there were **7 new well permits** issued, **1** on the shelf and **6** in deepwater.

The single shelf new well permit was issued for an exploration well, the **Main Pass 270 #3** that will be drilled by **Castex Offshore**.

The four new well exploration permits were awarded to **Chevron U.S.A.** for their **Garden Banks 978 #1** well, **Eni US Operating Co.** for their **Mississippi Canyon 35 #1** well, plus two permits to **Freeport-McMoRan Oil & Gas** for their **Mississippi Canyon 126 #SS-7** and **Mississippi Canyon 127 #SS-1** wells. The two deepwater development new well permits were granted to **ExxonMobil** for their **Walker Ridge 584 #JU-103** well and to **Stone Energy** for their **Mississippi Canyon 29 #6** well.

On June 26th, **IHS-Petrodata** reported that the Gulf of Mexico mobile offshore rig supply stood at **109**, which are **5** fewer rigs than last month. The marketed rig supply consisted of **73** rigs, of which **60** were under contract. The contracted versus total rig supply utilization rate is **55.0%**, while the marketed contracted versus marketed supply utilization rate stands at **82.2%**. The marketed rig supply number is the same as reported last month, whereas the contracted rig supply number is **1** greater than reported last month. In contrast, the June 2014 fleet utilization rate stood at 77.2% with 88 out of the 114 rigs under contract.

On June 26th, **BakerHughes** indicated that there were **28** active mobile offshore rigs in the Gulf, which is **46.7%** of the rigs under contract mentioned above. This active rigs number is **1** less than reported last month. The current active rigs count compares to 59 active rigs during the same period last year, representing a **52.8%** decline in yearly rig activity.

On June 1st, **LLOG Exploration** announced a new discovery at its **Crown & Anchor Prospect** on **Viosca Knoll Block 959**. Their initial exploration well found **greater than 50 net feet of oil-bearing sand in high-quality Miocene reservoir**. LLOG is presently evaluating regional hosts regarding subsea development options for the prospect.

On June 16th, the **BOEM** announced the final results for the Central Gulf of Mexico OCS Sale 235 that was held on March 18, 2015. Of the 169 total bids, 161 bids were deemed acceptable and 8 bids were rejected as insufficient. The rejected bids were for 3 shelf blocks and 5 deepwater tracts.

Transition Meeting of NOGS 2014-15 and 2015-16 Boards

L-R: Jim Zotkiewicz, Director 2016; Jennifer Connolly, Vice-President 2014-15; Kelli Hadesty, President 2014-15; Bill Whiting, Director 2015; Rhonda Roederer, Treasurer 2015-16; Dave Cope, Director 2017; Brenda Reilly, Director 2018; Art Johnson, Treasurer 2014-15; Kathy Hagggar, Vice-President 2015-16; Dave Reiter, President 2015-16; Andrew Thorne, Secretary 2015-16; Al Melillo, President-Elect 2015-16; Tom Klekamp, Editor 2015-16. Not present: Tavia Prouhet, Editor 2014-15 and Bryan Banks, Secretary 2014-15



JULY 2015 NOGS LUNCHEON

Kathy Haggar,
NOGS Program Chairman
and Vice-President,
with July's luncheon speaker,
Richard S. Bishop, Ph.D.,
RSK, Ltd.

Photo by Arthur Christensen

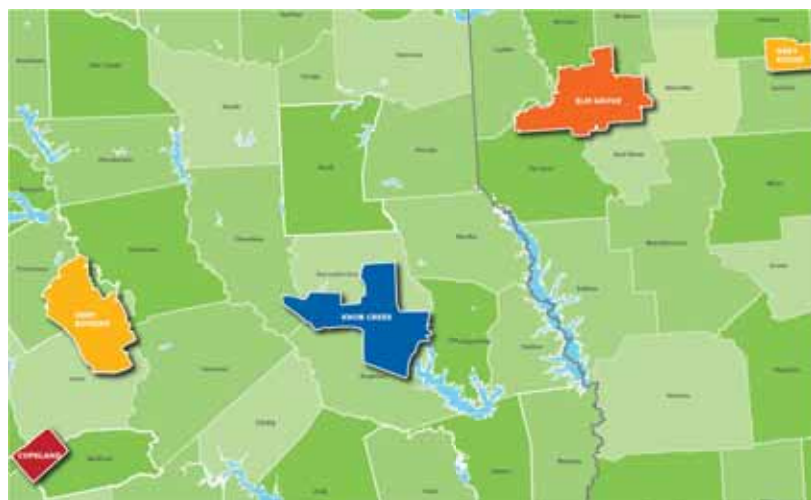


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Dave Reiter and Kelli Hardesty



Mike Fein and Cathy Boucvalt
Honorary Life Membership Award



Ed Picou and Tom Bergeon



Ed Picou, Tom Bergeon
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Rachel Carter
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T-shirt for Tavia Prouhet
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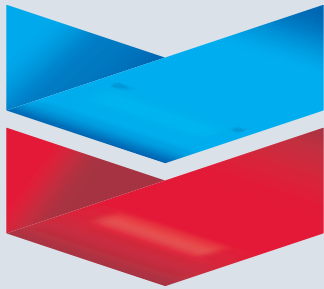
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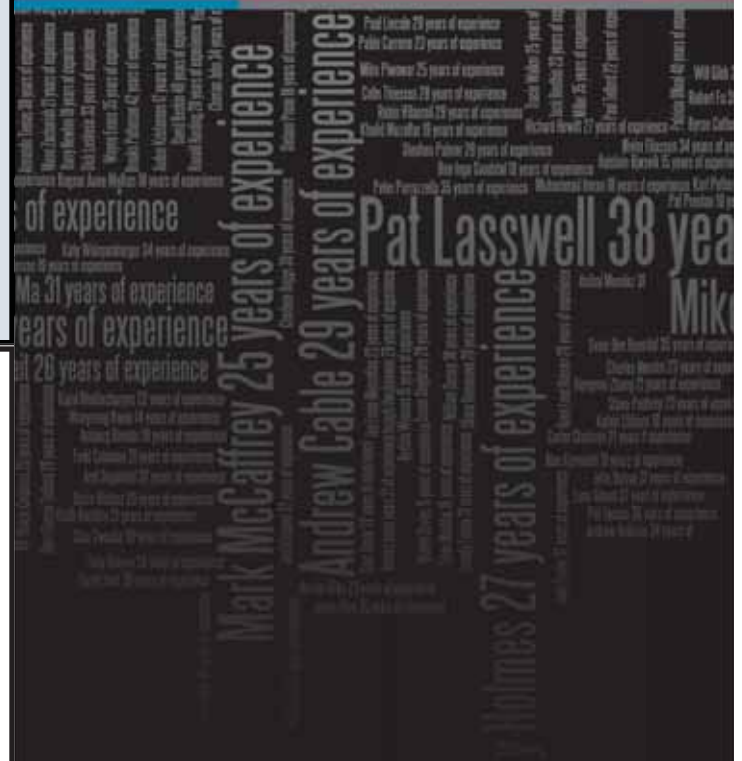
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Submitted by Laura Sorey

Scottish philosopher David Hume posited that “all inferences from experience suppose...that the future will resemble the past.” Rather than being limited to purely philosophical musings, this idea resonates throughout geology primarily through the principle of Uniformitarianism, the premise that modern processes operate much at the same rates throughout geologic time history. This notion remains relevant in modern Louisiana as we continue to examine and grapple with the implications of subsidence and land loss across the region. Sir Charles Lyell, a widely celebrated British geologist largely responsible for the proliferation of Uniformitarianism within the scientific community, made a visit to New Orleans in 1846 on his second visit to the United States. Lyell, a personal friend of and scientific influence on Charles Darwin, documents an early geologic account of New Orleans subsidence as seen in canals, the 19th century equivalent of today's road cuts. [LS]

From **Charles Lyell***, 1850, *A Second Visit to the United States in the years*, 2nd ed., vol. 2, pp. 136-138. Chapter dated March 1846. (Some text has been deleted for brevity.)

When we reached the canal, which connects Lake Pontchartrain with New Orleans, we found its surface enlivened with the sails of vessels laden with merchandise. Many features reminded me of Holland. About a mile from the city we passed a building where there is steam machinery for pumping water up and draining the lowlands.

It is not easy for a geologist who wishes to study the modern deposits in the delta, to find any natural sections. I was therefore glad to learn that, in digging the foundations of the gas-works, an excavation that had been made more than fifteen feet deep, and therefore considerably below the level of the Gulf, for the land of New Orleans is elevated on nine feet above the sea. The contractors had first hired Irishmen to dig this pit; but finding that they had to cut through buried timber, instead of soil, they were compelled to engage, instead, 150 well-practiced axe-men from Kentucky. I am informed that the superintendent of the gas-works estimated the minimum of time required for the growth of the cypress and other trees superimposed one upon the other, in an upright position, with their roots as they grew, and had come to the opinion, that eighteen centuries must have been required for the accumulation. At the time of my visit the section was too obscure to verify these conclusions; the State surveyor, told me, that when the great canal was dug to a depth of nine feet from Lake Pontchartrain, they had cut through a cypress swamp which had evidentially filled up gradually, for there were three tiers of the stumps of trees, some of them very old, ranged one above the other; and some of the trunks must have rotted away to the level of the ground in the swamp before the upper ones grew over them. The stools of these trees, which grew in fresh water, can be traced down to a level below the Gulf of Mexico. Perhaps some part of this subsidence might arise from the gradual decay or compression of large masses of wood slowly changing into lignite, for carbonated hydrogen [methane] is said to be constantly given out from the soil here whenever such masses of vegetable matter are decomposing; and during the excavation of these works much inflammable gas was observed to escape. In the suburbs of New Orleans [possibly the American Sector] a well has been sunk to a depth of twenty-seven feet, and the strata consisted of sandy clay, with only some buried timber and roots.



***Sir Charles Lyell, 1st Baronet, FRS** (14 Nov. 1797 – 22 Feb. 1875) was a British lawyer and the foremost geologist of his day. He is best known as the author of *Principles of Geology*, which popularized James Hutton's concepts of Uniformitarianism—the idea that the Earth was shaped by the same processes still in operation today. (from Wikipedia)

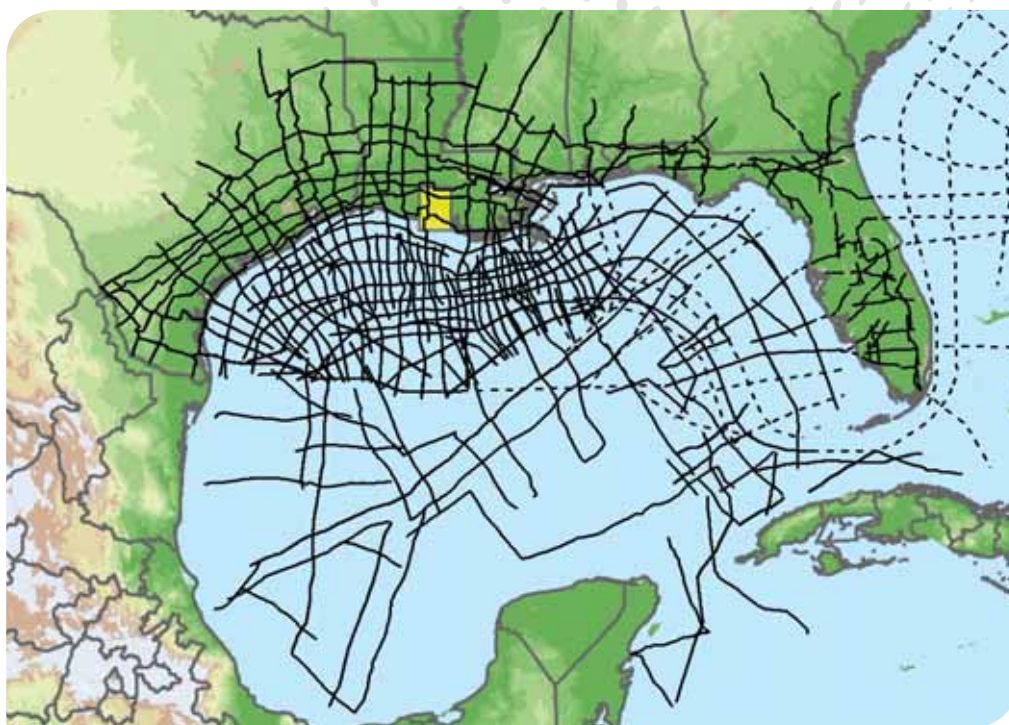


The New Orleans gas plant in New Orleans as it appeared during the Civil War.

Gasworks — an industrial plant for the production of flammable gas. Most of these have been made redundant by the use of natural gas. The manufacture involved burning coal, wood, or oil in a reducing furnace, then collecting the gases (hydrogen, methane, carbon monoxide, and ethylene) and could burnt for heating, lighting and cooking. Coal gas contains unwanted sulfur and ammonia compounds as well as heavy hydrocarbons, so the fuel gases needed to be scrubbed before use. Gasworks were noted for their foul smell and generally located in the poorest areas of metropolitan areas. In New Orleans, it appears to have been situated near the present day Super Dome.

The “great canal” he refers to is likely either the Carondelet Canal (the remnants of which can still be seen in Mid-City) or the New Basin Canal (extending from Lakeview into the Central Business District primarily along the current route of I-10).

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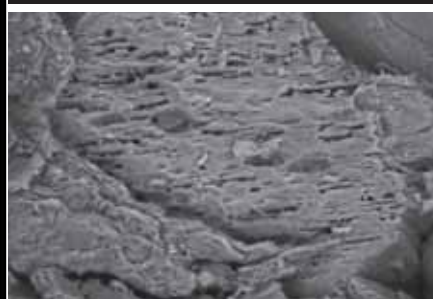
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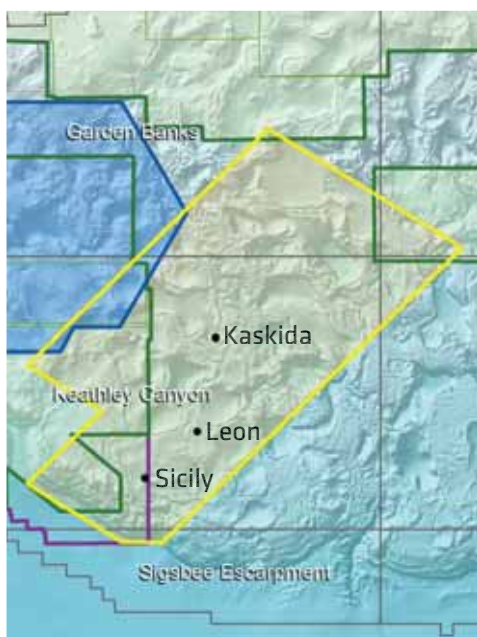
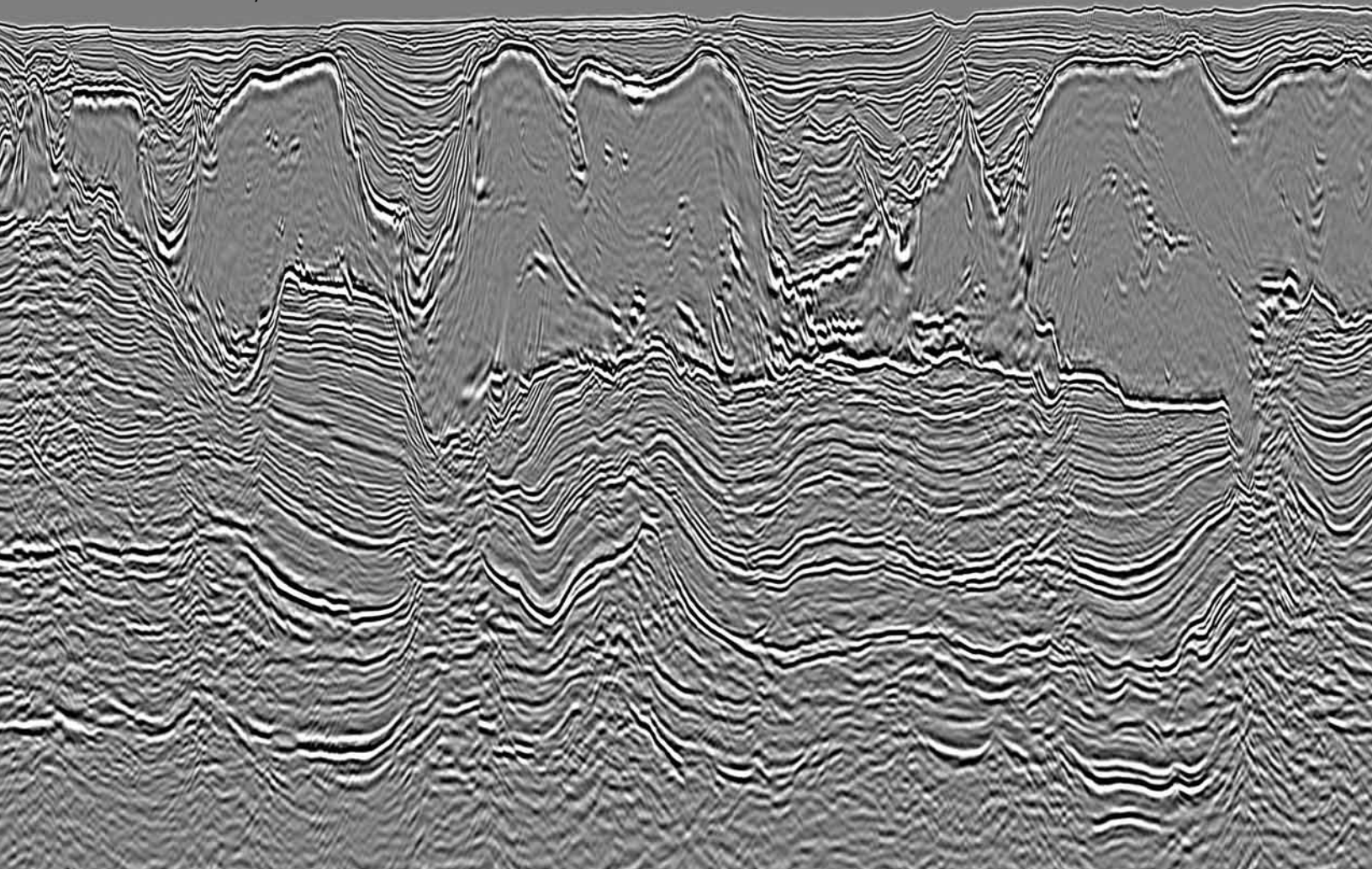


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