

#### On the Cover

The sun peaks through numerous pinnacles, columns, and hoodoos in City of Rocks State Park, located near Silver City in southwestern New Mexico. The rocks are eroded remnants of Late Oligocene to Early Miocene rhyolitic ash flow tuffs deposited as outflow sheets from the nearby Emery Caldera in the southern part of the Mogollon-Datil volcanic field. The park was established in 1953 and attracts nearly 50,000 visitors annualy to its numerous hiking trails and picnic areas.



#### From the Editor...

Greetings Everyone,

Spring has sprung and along with all the outdoor garden activities and local music festivals it's also time for a little Spring cleaning. Yesterday I can across my old Brunton compass that my father gave me when I completed my undergraduate degree in Geology. I practically wore it out during my graduate thesis mapping project in the Alamo Hueco Mountains in southwestern New Mexico. Those were the good ol' days being a poor student and practicing the science of geology in the great outdoors. Amazingly, I still remember how to take a strike and dip with the compass, although there is a distinct lack of dipping outcrop surfaces in southeastern Louisiana. Still, I got to practice on several inclined surfaces around the house and in the yard. I'm sure each of you have fond memories of your early career days as a geologist. If you care to share them with your fellow NOGS members, or if you have anything else that may be of interest please submit to editor@nogs.org and we will get it published.

Thanks, and have a wonderful Jazz Fest.

David Reiter 2022/2023 NOGS LOG Editor

Mare

To all members and friends of the New Orleans Geologic Society:

The NOGS May meeting was at Zea's Restaurant in Covington where Joseph Reilly's presentation focused on stratigraphic traps in the marine deepwater environment. His presentation gave an insightful look into the complexities of exploration in that environment and how they might be managed.

The Deepwater Technical Symposium is scheduled for July 24-26 at the Sheraton Hotel in New Orleans. Registration is now open. The NOGS portion will be all day Monday July 24 and will feature Dr. Michael Hudec's presentation entitled "Introduction to Salt Tectonics". More information about the symposium and registration is available at ttps://www.deepwaternola.org/.

Watch for announcements and consider signing up for our Beau Chene golf tournament at the Beau Chene Country Club in Mandeville later this year. It is co-sponsored by NOGS, PLANO and SPWLA with all proceeds benefiting the Louisiana Children's Museum and the Children's Museum of St. Tammany. There's still time to claim a spot on the green or sponsor a hole. Please register at https://www.nogs.org/events. Watch on the NOGS website for announcements of other events. Volunteers are always needed.

As always, a reminder of dues renewal if you haven't already done so, \$35.00 for Regular membership and \$15 for Student membership. I encourage you to pay your dues and to give consideration to adding a special donation to the Memorial Foundation to help us continue our worthwhile local community, university, and education programs.

Best regards,
Doug Bradford
2022-2023 NOGS President



#### JOSEPH REILLY

Joseph Reilly started his oil & gas career with Mobil in 1980 and has over 41 years of industry experience in addressing Exploration, Development and Production geoscience challenges throughout the world. In his early career he sat wells as both geologist and geophysicist offshore USA East Coast, Morocco, UK and Equatorial Guinea. Similarly, he has been directly involved in countless seismic campaigns throughout the world and has had the good fortune during his career of experiencing numerous exploration successes, as well as failures. He has a BSc in Geology from University of Rochester and an MSc in Geology/Geophysics from Virginia Tech. He has authored/coauthored hundreds of papers and presentations on geophysical applications. He is a long-standing member of AAPG, SEG and EAGE. He has held both technical and management positions and recently retired as ExxonMobil Chief Research Geoscientist. He is currently serving as 1st Vice President, SEG Board of Directors.

#### MAY MEETING



MONDAY, MAY 1, 2023 11:30 AM ZEA'S NORTH SHORE & ONLINE

Geoscientists have been successfully exploring for, and developing, stratigraphic traps for decades. Deepwater clastic "play opening" examples within the greater Atlantic region include Brazil - Marlim (1985), Equatorial Guinea - Zafiro (1995), Angola - Girassol (1996), Ghana - Jubilee (2007), Guyana - Liza (2015) and now Namibia - Graff & Venus (2021 & 2022).

Most of these clastic reservoirs are multi-cycle with varying rock physics responses. Individual reservoir thicknesses challenge the seismic methods ability to separate individual units and not be misled by tuning, overburden and focusing effects. This is particularly difficult in the pre-capture phase of the exploration cycle when 2D seismic, gravity and magnetic data might be the only geophysical data available to support the geologic concepts and models leading to identification, and initial assessment of an opportunity. Accurate DHI/AVO prediction becomes particularly challenging in this situation. Even when 3D seismic is available it will rarely, if ever, be optimized for a specific reservoir interval and calibration to rock physics will likely be poor. It is especially important to emphasize that the most critical decisions (Exploration acreage capture and wildcat drill) are made with significantly lower quality and quantity of data than that typically available during the Appraisal and Development phases. Analogs from these more mature settings are useful but need to be utilized in the context of the data actually available. Good geologic concepts, analogs, integration of all data types, experience, judgement, and good luck all are in play for true frontier exploration ventures.

All the above being true, recent advances in acquisition and processing technology are clearly an enabler for improving the resolution of our seismic images; hence improved identification and characterization of stratigraphic traps whether it be in the Exploration, Appraisal or Development stage. However, care must be taken to ensure these imaging enhancements retain the amplitude fidelity necessary to allow for detailed AVO/DHI analysis. Acquisition, processing, and interpretation all play important and interrelated roles in obtaining the maximum utility from the seismic data. The challenge is to maximize the bandwidth of the seismic data while retaining amplitude fidelity across all offsets/angle ranges with specific attention to what constitutes the irreducible seismic noise floor.

The primary focus of this presentation will be stratigraphic traps in the marine deepwater environment. We will discuss the challenges of data availability and confidence, where resolution and data fidelity can be gained or lost, what factors primarily determine bandwidth recovery, and what decisions still need to be made in a somewhat subjective, target oriented manner. In addition, the importance of visual resolution for interpretation, regardless of the actual data fidelity, will be highlighted. Data from deepwater Guyana is used to demonstrate fundamental principles and the evolution of acquisition, processing, and interpretation workflows over the history of this project.

# PICTURE FROM THE PAST

always smile!





December 1998 - At NOGS Christmas Party at Petroleum Club - (L to R) Ed Picou, Ron Youngblood and Jack Bryant

Submitted by Ed Picou, Chairman - Historical Committee

# advertising rates

The New Orleans Geological Society was organized on October 3, 1941, as a nonprofit organization for the purpose of facilitating the development of the profession
and science of Geology, with specific emphasis to exploration and production of
petroleum and natural gas. Secondary related objectives include the dissemination
of pertinent geological and environmental technological data, and the maintenance
of a high standard of professional conduct of its members. The full history of the
\_Society can be found at nogs.org.

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#### APRIL NOGS MEETING

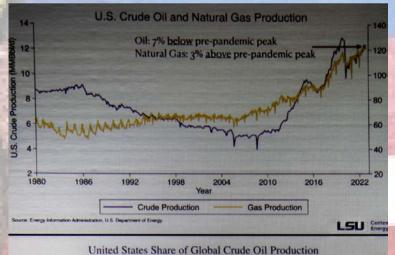


GREGORY B. UPTON, JR.



#### GULF COAST ENERGY OUTLOOK 2023





#### **DRILL BITS**

#### OFFSHORE GULF OF MEXICO SHELF AND DEEPWATER ACTIVITIES BY AL BAKER



During March 2023, the Bureau of Safety and Environmental Enforcement (BSEE) approved 82 Gulf of Mexico (GoM) drilling permits. Twelve of the permits were for shelf wells, and the remaining 70 permits were for deepwater wells. There were 13 new well permits issued; 3 were on the shelf, and 10 were in deepwater.

The three shelf new well permits were for development wells. Byron Energy was granted 2 permits for their South Marsh Island 58 #G-6 and #G-7 wells. Cantium received a permit for their Main Pass #BG-9 well.

Of the 10 deepwater new well permits, 5 were for exploration wells, and 5 were for development wells. Shell Offshore received 4 exploration well permits and 3 development well permits. The 4 exploration well permits included their Alaminos Canyon 728 #WN-102 and #WN-104 wells and their Alaminos Canyon 772 #WN-203 and #WS-401 wells in their Whale Field. The 3 development well permits included their Mississippi Canyon 940 #VA-10, #VA-11 and #VA-12 wells in their Vito Field. Talos Petroleum obtained a permit for their Mississippi Canyon 162 #SS-1 exploration well. BP Exploration & Production obtained 2 development well permits for their Green Canyon 868 #1 well and their Mississippi Canyon 520 #6 well in their Herschel Expansion Field.

On March 31st, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 46, which is one more than last month. The marketed rig supply consisted of 33 rigs, of which 28 were under contract. The marketed rig supply and the contracted rig supply number were also 1 more than last month. The marketed contracted versus total rig supply utilization rate stood at 71.7%, and the marketed contracted versus marketed supply utilization rate stood at 84.8%. By comparison, the March 2022 total fleet utilization rate stood at 82.4% with 34 rigs under contract out of the 46 rigs in the fleet.

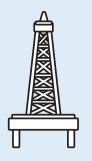
On March 31st, Baker Hughes reported that there are 17 active mobile offshore rigs in the GoM, which is the same as last month and 60.7% of the rigs under contract mentioned above. Currently, one rig is drilling on the shelf, and 16 rigs are drilling in deepwater. The 1 shelf rig is located in the Main Pass Area. The deepwater rigs include 4 rigs in the Mississippi Canyon Area, 3 in the Walker Ridge Area, 2 in the Garden Banks Area, 2 in the Green Canyon Area, 2 in the Keathley Canyon Area and 1 rig each in the Alaminos Canyon, Ewing Bank and Atwater Valley Areas.

On March 31st, the Baker Hughes total U.S. rig count stood at 755 rigs, which is 2 more than reported at the end of February 2023. Of the 755 rigs, 592 (74.8%) are oil rigs and 160 (21.2%) are gas rigs. Three rigs are listed as miscellaneous. A year ago, there were 673 rigs working in the U.S. inferring that the current rig figure represents an 12.2% increase in rigs year over year. Presently, Texas continues to have the largest number of rigs with 376, which is 49.8% of the total number of rigs in the U.S. Louisiana currently has a total of 57 rigs, which are 4 less than last month. Louisiana ranks fourth behind New Mexico, which has 106 rigs and Oklahoma, which has 59 rigs.

The Bureau of Ocean Energy Management (BOEM) announced the results GoM OCS Sale 259 held on March 29, 2023. A total of 353 bids on 313 blocks were submitted by 27 companies with 32 total companies participating in the sale. The sum of the high bids was \$263,801,783. There were 98 bids on the shelf and 255 bids in deepwater. Chevron U.S.A. was the top bidder in the sale exposing \$107,957,492 on 75 tracts. Chevron U.S.A. also submitted the highest bid in the sale, \$15,911,947, on Keathley Canyon Block 96, the second highest bid in the sale, \$10,891,423, on Green Canyon Block 724, and the third highest bid in the sale, \$7,123,712, on Green Canyon Block 160.

#### **DRILL BITS**

NEW WELL PERMITS OFFSHORE GULF OF MEXICO SHELF AND DEEPWATER ACTIVITIES MAP BY KEVIN TROSCLAIR





On March 10th, the BOEM announced that GoM OCS Sale 261 is scheduled to be held in September 2023. The Inflation Reduction Act has mandated that the sale occur no later than September 30, 2023. The BOEM is reportedly proposing to hold the sale on September 27th.

The Biden Administration has still not given final approval to the next 5-Year Leasing Program that was by law due on July 1, 2022. However, they have recently indicated that the expected future date for the approval will occur in December 2023.



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PHOTOGRAPHY BY ARTHUR

Arthur F. Christensen

arthur\_shalimar@yahoo.com

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### NEW ORLEANS GEOLOGICAL SOCIETY MEMORIAL FOUNDATION INC.

Founded March 14, 1978, the mission of the New Orleans Geological Society Memorial Foundation is to promote earth-science related educational or scientific purpose by granting of scholarships to outstanding Geology students at the universities in Southeast Louisiana offering a degree in Geology. The Bill Craig Memorial Fund provides for any earth science related educational or scientific purpose that is a direct benefit to grades K-12 teacher or teachers within the Greater New Orleans Area. This area encompasses New Orleans, Jefferson, Plaquemines, St. Bernard and St. Tammany Parishes.

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#### **Recent Energy Headlines...April 2023 Recap**

4/17/2023 - Mad Dog Phase 2 Centerpiece in Gulf of Mexico Starts Oil Production - BP has announced that it has started oil production at the Argos offshore platform in the Gulf of Mexico. In a statement posted on its website, the company noted that the move delivers "more energy at a critical time" and strengthens BP's position "as a leading producer in the deepwater U.S. Gulf of Mexico". BP highlighted in the statement that Argos is the company's fifth platform in the Gulf of Mexico and its first new operated production facility in the region since 2008. Argos has a gross production capacity of up to 140,000 barrels of oil per day and will increase BP's gross operated production capacity in the Gulf of Mexico by an estimated 20 percent, according to the company, which said it expects to "safely and systematically ramp up production from Argos through 2023". Read Full Article

4/14/2023 - BOEM Adjusts Limit of Liability for Oil Spills in Federal Waters from Offshore Facilities - Increase needed to keep pace with inflation. The Bureau of Ocean Energy Management (BOEM) will administratively increase the limit of liability for oil spill related damages from \$137.66 million to \$167.8 million for offshore oil and gas facilities. The inflation adjustment is mandated by the Oil Pollution Act of 1990 (OPA) and is based on the increase in the Consumer Price Index (CPI) that has occurred over the six years between 2016 and 2022. The increase is needed to keep pace with inflation and will go into effect 30 days after publication in the Federal Register. Read Full Article

4/4/2023 - New OPEC+ Cuts Will Push Oil to \$110 This Summer - If fully delivered, the newly announced OPEC+ cuts would further tighten an already fundamentally tight oil market, drive Brent towards \$100 per barrel sooner than previously expected and push the price to around \$110 per barrel this summer. That's according to Rystad Energy Senior Vice President Jorge Leon, who highlighted in an extraordinary market update sent to Rigzone that the voluntary cut of 1.15 million barrels per day surprised markets, caused oil prices to rise and fed inflationary fears. Read Full Article

4/3/2023 - Biden doubles down on green energy as OPEC cuts production, prices soar - President Biden is doubling down on his push for an economy-wide transition to clean energy sources like wind and solar even as energy prices soar in response to global fossil fuel production cuts. On Monday, after the Organization of the Petroleum Exporting Countries (OPEC) announced massive oil production cuts, the White House issued a joint statement with the European Union reaffirming that clean energy adoption is critical for enhancing energy security. Read Full Article

4/1/2023 - New GOM Lease Sale Reflects Need for Finalized Leasing Program - Gulf of Mexico Lease Sale 259 reflects the need for a finalized leasing program, the National Ocean Industries Association (NOIA) said in a statement sent to Rigzone following the conclusion of the sale. "Lease Sale 259 is the first Gulf of Mexico offshore oil and gas lease sale since November 2021," NOIA President Erik Milito said in the statement. "Mandated by the Inflation Reduction Act, which was signed into law by President Biden, Lease Sale 259 and the resumption of Gulf of Mexico oil and gas lease sales has been needlessly overdue," he added. Read Full Article

#### **Recent Energy Headlines...April 2023 Recap**

#### Shell moves forward on Dover project in US Gulf of Mexico

March 15 (Reuters) - Shell plc (SHELL) said on Wednesday it has taken a final investment decision on the Dover exploration field in the U.S. Gulf of Mexico, which it plans to develop as a below-sea connection to the Appomattox production hub. The Dover project is expected to start production in late 2024 or early 2025 and produce up to 21,000 barrels of oil equivalent per day (boepd) at peak rates. Appomattox is Shell's largest floating platform in the Gulf of Mexico, with a 79% ownership. Shell's investment at Dover underscores the firm's long-term commitment to the U.S. Gulf of Mexico, where oil production has among the lowest greenhouse gas intensity in the world, the energy company said in a statement. Originally discovered in 2018, Dover is located within Mississippi Canyon, about 170 miles offshore southeast of New Orleans, Louisiana in about 7,500 feet of water.

#### **OPEC+ announces surprise oil output cuts**

DUBAI, April 2 (Reuters) - Saudi Arabia and other OPEC+ oil producers on Sunday announced further oil output cuts of around 1.16 million barrels per day, in a surprise move that analysts said would cause an immediate rise in prices and the United States called inadvisable. The pledges bring the total volume of cuts by OPEC+, which groups the Organization of the Petroleum Exporting Countries with Russia and other allies, to 3.66 million bpd according to Reuters calculations, equal to 3.7% of global demand. Sunday's development comes a day before a virtual meeting of an OPEC+ ministerial panel, which includes Saudi Arabia and Russia, and which had been expected to stick to 2 million bpd of cuts already in place until the end of 2023. Oil prices last month fell towards \$70 a barrel, the lowest in 15 months, on concern that a global banking crisis would hit demand. Still, further action by OPEC+ to support the market was not expected after sources downplayed this prospect and crude recovered towards \$80.

#### Gulf of Mexico Oil and Gas Lease 259 Sale Results Announced

As required by Congressional direction in the Inflation Reduction Act of 2022, the Bureau of Ocean Energy Management (BOEM) held Gulf of Mexico Lease Sale 259, which generated \$263,801,783 in high bids for 313 tracts covering 1.6 million acres in federal waters of the Gulf of Mexico. A total of 32 companies participated in the lease sale, submitting \$309,798,397 in total bids. Leases resulting from this sale will include stipulations to mitigate potential adverse effects on protected species and to avoid potential conflicts with other ocean uses in the region. Revenues received from offshore oil and gas leases (including high bids, rental payments, and royalty payments) are directed to the U.S. Treasury, certain Gulf Coast states (Texas, Louisiana, Mississippi and Alabama) and local governments, the Land and Water Conservation Fund and the Historic Preservation Fund. Lease Sale 259 offered approximately 13,600 unleased blocks, approximately 73 million acres, in the Gulf's Western, Central and Eastern Planning Areas. All terms and conditions for Lease Sale 259 are detailed in the Final Notice of Sale information package, which is available at https://www.boem.gov/oil-gas-energy/leasing/lease-sale-259.

#### **TOP 10 REASONS TO JOIN NOGS**

- Proclaim your professionalism
- With an 80 year history and over 300 active members, NOGS is the premier professional organization for geologists in New Orleans. Adding your name to the ranks declares your pride in the profession you have chosen.
- Advance your career

  NOGS members enjoy educational opportunities and top speakers designed to increase knowledge and keep up with the newest trends in geoscience, both on the national and local levels.
- Advertise your integrity

  NOGS has a reputation of over 75 years for upholding high standards. Align yourself with like-minded geologists and related fields.
- Further your cause

  NOGS was organized for the purpose of facilitating the development of the profession and science of Geology, at the time with a focus on production of oil and gas. Since Hurricane Katrina our objectives expanded to include the dissemination of the geological facts of flood control, engineering and environmental geoscience.
- Network with others who do what you do

  Making connections, between people and ideas, is an important part of any scientific endeavor. Meet others who can help you make those connections.
- Advocate for your profession

  Serious-minded professionals know that serving the profession means responding to calls for action from those who represent the profession. NOGS monitors trends in geoscience education, regulation, and practice standards and periodically advises members on required action.
- Serve your profession and community

  Opportunities for individuals to serve on NOGS committees that work on a variety of issues from building educational programs to sharing knowledge with others to providing scholarships to young geologists in our area.
- Don't reinvent the wheel ... use available resources

  NOGS members can provide you with the resources you need to do your job well. Long-time members remain active and are happy to share their knowledge and best practices.
- Play a part in elevating the status of geosciences.

  Your membership in NOGS and your dedication to geoscience elevates the entire profession.
- Do it for YOURSELF!

  It's all about YOU! NOGS' educational, networking, and career planning programs will take you where you want to go!



# UPCOMING

#### 2023 Petroleum History Symposium

#### Illinois Basin

(New Harmony & Mt. Vernon, IN)

May 11-13, 2023

REGISTRATION AND EVENING RECEPTION - Thursday, May 11, 2023

FIELD TRIP - Friday, May 12, 2023

PRESENTATIONS-ORAL AND POSTER - Saturday, May 13, 2023
Proceedings to be published in the 2023 Volume of *Oil-Industry History* 

**HEADQUARTERS HOTEL - New Harmony Inn**, 504 North Street, New Harmony, IN 47631

Contact the hotel directly for reservations (812) 682-4431. For group rate (\$89 plus tax), mention "Petroleum History Institute"

https://petroleumhistory.org/2023-petroleum-history-symposium/



#### **Tulane Grand Canyon Field Trip**



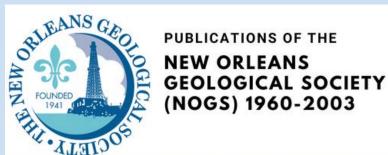
As part of our Tulane University course on the geology, history, biology, and anthropology of the Grand Canyon, we are spending eight days on 188 miles of the Colorado River where it travels through the Marble and Grand Canyons. We are now in our 49th year of the course and raft trip. This year we have some extra seats on the rafts, and we are offering these seats to the NOGS community. Any geologist should be interested, as it is a once in a lifetime experience and an opportunity to visit places fundamental to our understanding of the Earth. Note that if you were to try to schedule a trip like this on your own, the wait list could be up to two or three years.

Our trip runs from May 28 through June 5, departing from Las Vegas (although there is a possibility that one could depart from Lee's Ferry if they were driving out there or happen to be in the area). The cost of the trip is \$3000 per person and includes the raft trip, lodging for the 28th, all meals, helicopter and plane ride out of the canyon, and accommodations (tent, sleeping bag, and camping sites on beaches along the Colorado River). The cost does not include airfare to and from Las Vegas.

We intend to fill the seats in the next two weeks, so anyone who is interested should contact Jeff Agnew as soon as possible. Please feel free to call (225) 252-4173 or write (jagnew@tulane.edu) if you have any questions.

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