

# N O G S L O G

JUNE 2021  
Volume 61 No. 12





# NOGS JUNE 2021 MEETING

MONDAY, JUNE 7, 2021

11:30 AM ZOOM MEETING



## A DIMENSIONLESS FRAMEWORK FOR PREDICTING SUBMARINE FAN MORPHOLOGY

*Presented by:*

***Abdul Wahab***

Abdul Wahab is a fourth Year PhD Student supervised by Dr. Kyle M. Straub at the Department of Earth and Environmental Sciences, Tulane University. Abdul graduated with a Bachelors in Geology from University of Peshawar, Pakistan. He was selected for the Fulbright award to pursue his Masters in Geology from University of Kansas. At Kansas he was supervised by Dr. Paul Enos and Dr. Robert H. Goldstein where he studied the influence of closely-spaced disconformities on porosity and permeability evolution of a mid-Cretaceous isolated carbonate platform (El Abra Formation) in North East Mexico. For his PhD, he is collaborating with Process Stratigraphy Group at Upstream Research Company, ExxonMobil. Abdul's research focuses on understanding the organization of stratigraphy in submarine fans from a wide range of hydraulic and sediment-transport regimes by leveraging a parallel depth-averaged forward numerical model.

A remarkable diversity exists in the morphology and dynamics of submarine fans, which influence the transport of microplastics, storage of organic carbon, subsea geo-hazards, and their potential to house geofluids and high-resolution paleo-environmental records. Like river deltas, submarine fan morphology is a product of evolving fluid and sediment transport fields, but unlike their terrestrial counterparts we lack a unifying theory to predict their morphology. Here, we simplify critical environmental forcings, like regional slopes and sediment properties, through a dimensionless framework defined by the Froude number (ratio of inertial to gravitational forces) and Rouse number (ratio of settling velocity of sediments to shear velocity) of turbidity currents. We explore this framework by leveraging a depth-averaged numerical model and measure fan rugosity as a proxy for their morphological complexity. We show a systematic increase in rugosity by either increasing the Froude number or decreasing the Rouse number of simulated flows. These changes reflect observed gradients in channel migration dynamics in our regime space and help discriminate fans that have the potential to impact global climate through sequestration of organic carbon.

# IN THIS ISSUE

## On the Cover



Grand Canyon National Park in Arizona, with its layered bands of red rock revealing millions of years of geological history, is home to much of the immense Grand Canyon. Viewpoints include Mather Point, Yavapai Observation Station and architect Mary Colter's Lookout Studio and her Desert View Watchtower. Lipan Point has wide views of the canyon and Colorado River, perfect for sunrise and sunset.



## *From the Editor...*

Thanks to all those who continue to contribute to the monthly LOG. If you have any suggestions for future issues or have an article/photo(s) to contribute, please email me at [cmiller@ocsbbs.com](mailto:cmiller@ocsbbs.com). We would certainly love your input and any additional LOG content to be considered that may be of interest to NOGS members.

*Charlie*



Charles Miller III  
NOGS LOG Editor







**JOHN R. DRIBUS**

## **A MESSAGE FROM NOGS PRESIDENT**

To members and friends of the New Orleans Geological Society:

It is with a heaviness of heart that I write my President's letter to you this month as a result of the news of the lives lost and missing during the capsizing of the Seacor lift boat on April 13, 2021 offshore Louisiana. Confirmed dead are David Ledet, Ernest Williams, Anthony Hartford, James Wallingsford, Lawrence Warren and Quinon Pitre. Still missing as of April 20 (according to NOLA.com) are Dylan Daspit, Jay Guevara, Chaz Morales, Gregory Walcott, Jason Krell, Darren Encalade, and Cooper Rozands. As you finish reading these names I invite you to take a moment for prayer for the families of these thirteen men.

In regard to the pandemic, Louisiana continues to see progress in the fight against the coronavirus. Last month there were 325 Covid patients hospitalized across the state, and over 49 on ventilators. Those numbers have dropped to 311 in hospitals and only 27 on ventilators. One month ago, we had about 2,255,000 doses of the vaccines administered across the state, and over 966,000 Louisiana residents had completed the series. Today 2,829,314 doses have been administered, and almost 1,400,000 have completed the series. If you have questions please call the Vaccine Hotline at 1-855-453-0774 or visit the Louisiana Department of Health website at <http://ldh.la.gov/Coronavirus/>. If you have taken the vaccine and experienced severe reactions that required hospitalization you can report your reactions to the office of Public Health at 1-800-256-2748.

Last month NOGS continued our technical webinar series with an excellent presentation from Dr. John Snedden of the University of Texas at Austin who talked about his work on the Gulf of Mexico Superbasin. We have other great talks lined up for the rest of the year, as well. Our election for the new NOGS Board members is in progress and as soon as the new Board is seated they will continue active discussion on a target date to restart in-person NOGS luncheons. Please be reminded to pay your annual dues, and give consideration to adding a special donation to the Memorial Foundation to help us continue our worthwhile local community, university, and education programs.

I want to close by congratulating BP for its commercial Puma West Miocene oil discovery in Green Canyon 821 in over 4,000 feet of water, Shell for their discovery of 600 feet of oil at the Leopard Prospect in Alaminos Canyon 691, and Kosmos and Beacon for their subsalt Winterfell discovery of 85 feet of oil in Green Canyon 944 in over 5,300 feet of water-excellent news.

Regards,  
John Dribus



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# PICTURE FROM THE PAST



**NOGS audience having lunch at Roosevelt Hotel on  
February 2, 1998 prior to speaker presentation.**

*Submitted by*  
***Ed Picou, Chairman - Historical Committee***



# advertising rates

The New Orleans Geological Society was organized on October 3, 1941, as a non-profit 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](http://nogs.org).

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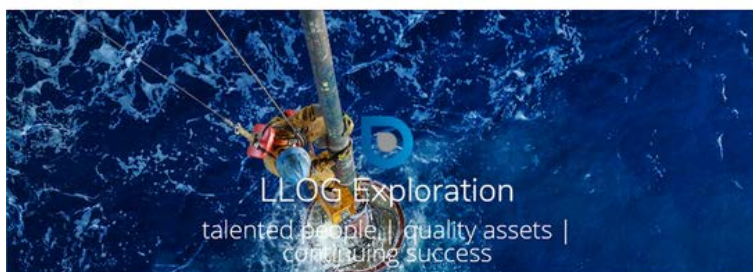
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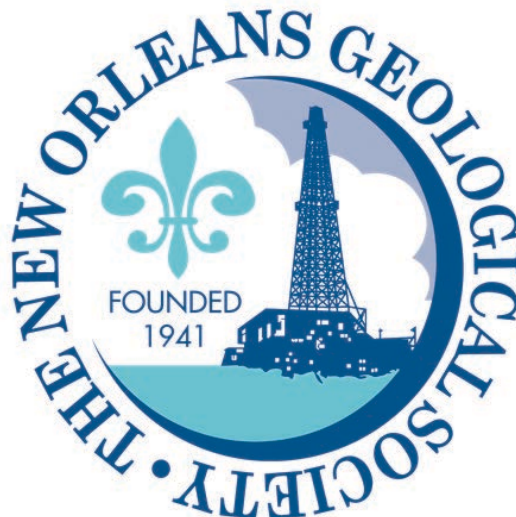
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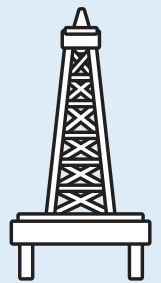


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# DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND  
DEEPWATER ACTIVITIES  
BY AL BAKER



During April 2021, the U.S. Department of the Interior Bureau of Safety and Environmental Enforcement (BSEE) approved 79 Gulf of Mexico (GoM) drilling permits. Eleven of the permits were for shelf wells, and the remaining 68 permits were for deepwater wells. Of the total number of permits, there were 2 new well permits issued in deepwater and none on the shelf.

The two deepwater new well permits were for exploration wells. Anadarko Petroleum was issued a permit for their Mississippi Canyon 37 #1 well, and Shell Offshore received a permit for their Mississippi Canyon 35 #1 well.

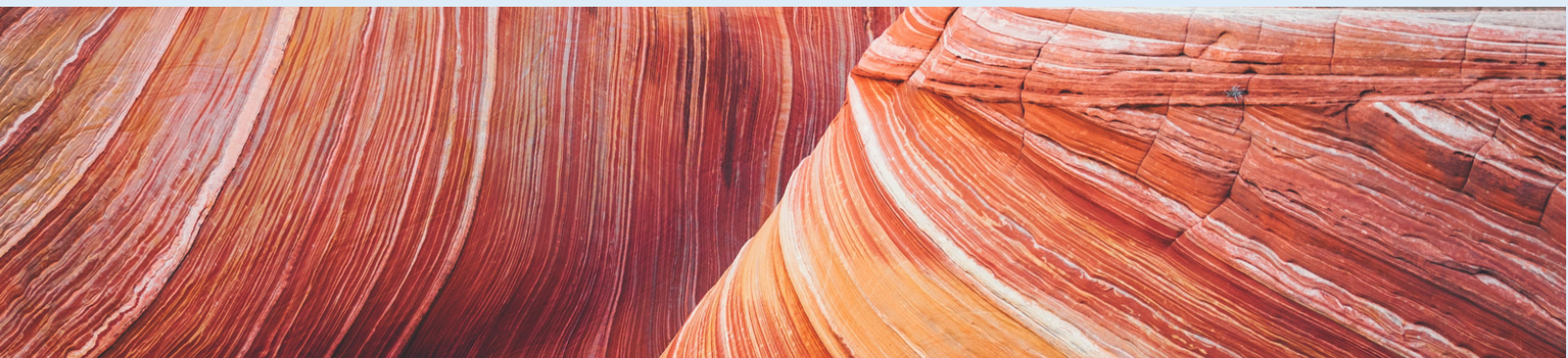
On April 30th, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 57, which is 1 less than last month. The marketed rig supply consisted of 32 rigs, of which 23 were under contract. The marketed rig supply number and the contracted rig supply number are each the same as last month. The marketed contracted versus total rig supply utilization rate was 56.1%, and the marketed contracted versus marketed supply utilization rate remained at 71.9%. By comparison, the April 2020 total fleet utilization rate stood at 58% with 40 rigs under contract out of the 69 rigs in the fleet.

On April 30th, Baker Hughes reported that there are 13 active mobile offshore rigs in the GoM, which is 1 more than last month and 56.5% of the rigs under contract mentioned above. Currently, 3 rigs are drilling on the shelf, and 9 rigs are drilling in deepwater. They include 4 rigs in the Mississippi Canyon Area, 3 rigs in the Green Canyon Area, 2 rigs in the Eugene Island Area and 1 rig each in the Alaminos Canyon, Garden Banks and Main Pass Areas.

On April 30th, the Baker Hughes total U.S. rig count stood at 440 rigs, which is 23 more rigs than reported at the end of March 2021. Of the 440 rigs, 342 (77.7%) are oil rigs and 96 (21.8%) are gas rigs. The remaining 2 rigs are listed as miscellaneous. A year ago, there were 408 rigs working in the U.S. inferring that the current rig figure represents a 7.8% increase in rigs year over year. Presently, Texas continues to have the largest number of rigs with 212, which is 48.2% of the total number of rigs in the U. S. Louisiana currently has a total of 49 rigs, which is 3 more than last month. Nationwide, Louisiana continues to rank third in the rotary rig count. New Mexico ranks second with 70 rigs.

On April 13th, BP reported an oil discovery at its Puma West Prospect on Mississippi Canyon Block 821. The well was drilled approximately 131 miles off the Louisiana coast in 4,108 feet of water, and it is located west of the BP-operated Mad Dog Field. The discovery well was drilled to a total depth of 23,530 feet and encountered high quality oil pay in a Miocene reservoir. BP, as operator, holds a 50 percent working interest in Puma West; their partners, Chevron U.S.A. Inc. and Talos Energy, each hold a 25 percent interest stake.









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# NOGA

On Wednesday, May 19, the New Orleans Geological Auxiliary met for a luncheon at Pascal's Manales restaurant. This was the first such gathering since February 2020. Ten members and their guests were in attendance. President Camille Yeldell with Jim, was happy to welcome members Mary Collier, Elizabeth Furlong and Pat Williamson. Those joined by their spouses included Penny Bryant and Jack, Mary Ellis Hasseltine and George, Linda Peirce and Bill, Mary Walther and Roy. Special guests included Ed Picou, Dan Armstrong and Christy Himel. The luncheon was planned by Alma Dunlap and Trudy Corona with Charlie. Everyone was extremely happy to have the opportunity visit and see each other again after thirteen months of no meetings or gatherings. We learned that Mary Ellis and George are getting ready to leave in early June for their annual summer visit to Vermont. Elizabeth Furlong moved into Lambeth House in April and is extremely happy. She has found some old friends there and made many new ones already. We are all looking forward to being able to have more gatherings in the Fall.



So thankful for these ladies for organizing this great event!







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Founded March 14, 1978, the mission of the New Orleans Geological Society Memorial Foundation is to promote earth science related or scientific purpose by granting of scholarships to outstanding Geology students at the universities in Southeast Louisiana having a comprehensive curriculum and 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 is defined as the area encompassing New Orleans, Jefferson, Plaquemines, St. Bernard and St. Tammany Parishes.

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Dear Members of NOGS, and Donors to The NOGS Memorial Foundation,

On behalf of the NOGS Memorial Foundation Board of Trustees, and your generous contributions to the NOGS Memorial Foundation, we are pleased to have been able to continue our mission as stated in the Foundation's Articles of Incorporation; Article II: This corporation is organized and it shall be operated exclusively for charitable, educational, and scientific purposes, including, for such purposes, the making of distributions to organizations that qualify as exempt organizations under section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States Internal Revenue Law), and to individuals in recognition of their scholastic ability, high moral and ethical conduct, and need.

The NOGS Memorial Foundation's Board of Trustees approved the continuation of our traditional Scholarship offer to 12 qualifying graduate and undergraduate students (4 students from each university) at LSU, Tulane, and UNO for a total of \$30,000. This tradition has resulted in total awards of over \$850,000 over the life of the Foundation. The candidates of the Scholarship awards, once approved by the Board of Trustees, will be formally recognized in October of 2021.

This year, The NOGS Memorial Foundation Board of Trustees also agreed to provide one-time donations of \$15,000 to each of the Earth Science and Geology Departments of LSU, Tulane, and UNO for a total of \$45,000 between the three Universities. The Memorial Foundation is pleased to be in a position to provide this additional assistance to our local Universities during what has been a difficult year for our students.

The Memorial Foundation has also agreed to retire the remaining \$20,000 of our 10-year \$50,000 commitment to the Children's Museum of St. Tammany, and the Louisiana Children's Museum (\$10,000 to each of the two museums). The Foundation has been proud to be able to provide support to these museum's contribution to the children of our community in alignment with the Foundation's mission.

The Foundation's Total contributions for charitable, educational, and scientific purposes (including the October scholarships) are:

Scholarship awards-\$30,000  
University Geology Department donations-\$45,000  
Children's Museum donations-\$20,000  
**Total -\$95,000**

Thank you again to the donors to the NOGS Memorial Foundation. Your contributions are essential to allow the Foundation to continue its important relationships with our Universities, and community educational beneficiaries. Without your generous contributions none of this would be possible.

Robert M. Rooney  
Chairman, NOGS Memorial Foundation





NOGS Memorial Foundation  
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# Recent Oil Industry Headlines .....June 2021

**5/12/2021 - Gasoline demand spikes in several states after pipeline hack** - A growing number of gas stations along the East Coast are without fuel as nervous drivers aggressively fill up their tanks following a ransomware attack that shut down the Colonial Pipeline, a critical artery for gasoline. The panic-buying threatens to exacerbate the supply shock. [Read Full Article](#)

**5/11/2021 - 5/11/2021 - Cyberattack halts fuel movement on Colonial petroleum pipeline** - Colonial Pipeline, a major delivery system spanning from the U.S. Gulf Coast to the East Coast for transportation fuels and other refined petroleum products, halted operations on Friday, May 7, to contain the effects of a cyberattack. As of Monday, May 10, the pipeline had not resumed operations of its main lines, although some smaller lines are operational. The company announced that it hopes to restore service by the end of the week. [Read Full Article](#)

**5/11/2021 - Shell announces deep-water discovery in the U.S. Gulf of Mexico** - Shell Offshore Inc. ("Shell"), a subsidiary of Royal Dutch Shell plc, today announced a significant discovery at the Leopard prospect in the deep-water U.S. Gulf of Mexico (GoM). The Leopard well encountered more than 600 feet (183 meters) net oil pay at multiple levels. Evaluation is ongoing to further define development options. Leopard is an opportunity to increase production in the Perdido Corridor, where Shell's Great White, Silvertip and Tobago fields are already producing. Meanwhile, the Whale discovery, also in the Perdido Corridor, is progressing toward a final investment decision in 2021. [Read Full Article](#)

**5/11/2021 - OPEC Sticking to Strong Global Oil Demand Outlook Through 2021** - The Organization of Petroleum Exporting Countries (OPEC) on Tuesday held to its forecast for relatively robust oil demand in 2021, driven by expectations for increased economic activity and travel in the second half of the year. [Read Full Article](#)

**5/10/2021 - Murphy Oil starts drilling at new sites in Gulf** - The first well in the Khaleesi, Mormont, Samurai drilling program in the Gulf of Mexico, is remaining on track for first oil in mid-2022. The non-operated Silverback exploration well in the Gulf of Mexico, which will test a play-opening trend near existing Murphy-operated assets. [Read Full Article](#)

**5/7/2021 - Chevron Awards GOM Services Contract** - Chevron (NYSE: CVX) has awarded Worley (ASX: WOR) an engineering and procurement services contract to provide brownfield modification services for a subsea tieback to a Gulf of Mexico (GOM) deepwater production facility, Worley reported Thursday. Worley pointed out the project will establish a subsea tieback development scheme for the Ballymore field, located in 6,581 feet (2,006 meters) of water in Block 607 of the GOM's Mississippi Canyon area. [Read Full Article](#)

**4/30/2021 - NOLA.com Staff Editorial: Don't hamstring the energy industry that will fuel our economic recovery** – The oil and gas industry in Louisiana and the Gulf Coast is pressing on to provide for the nation, and the world's, supply of desperately needed energy. One of the counterproductive decisions from President Joe Biden is a "pause," which may be longer than that word applies, on lease sales in the Gulf of Mexico. [Read Full Article](#)



# TOP 10 REASONS TO JOIN NOGS

1

## **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.

2

## **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.

3

## **Advertise your integrity**

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

4

## **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.

5

## **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.

6

## **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.

7

## **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.

8

## **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.

9

## **Play a part in elevating the status of geosciences.**

Your membership in NOGS and your dedication to geoscience elevates the entire profession.

10

## **Do it for YOURSELF!**

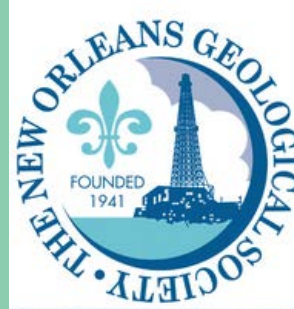
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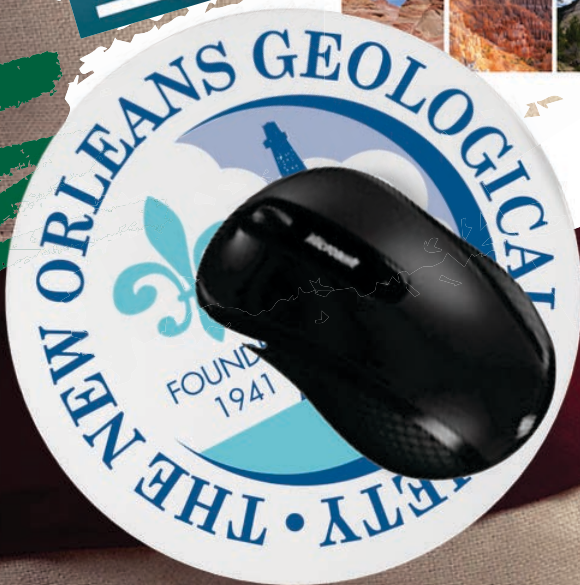
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