

NCGS LOG

DECEMBER 2022

Volume 63 No. 6

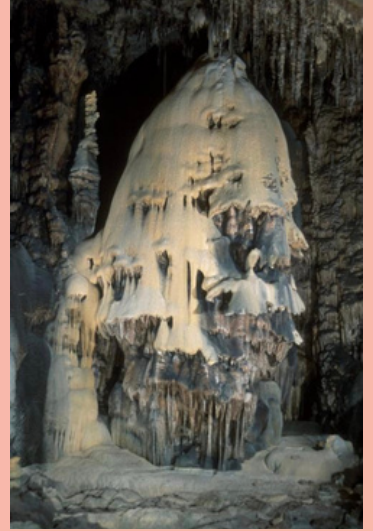


Happy
Holidays

On the Cover

The Christmas Tree Formation, a 30-ft tall speleothem, occurs in Slaughter Canyon Cave in the Carlsbad Caverns National Park. The formation began as a typical stalagmite but later an active flowstone formation coated the surface with a coarsely crystalline variety of calcite. As a result, the surface sparkles brightly in strong light and resembles a snow-capped Christmas tree. The formation can be viewed as part of a "primitive" cave tour by the national park since Slaughter Canyon Cave has no lights or paved trails. Visitors bring their own lights and sturdy boots. This cave and some of its formations were featured in the 1950 film "King Solomon's Mines" starring Stewart Granger and Deborah Kerr.

On behalf of NOGS and Mother Nature, have a very Merry Christmas!



From the Editor...

Holiday Greetings Everyone,

The Christmas holiday season often brings thoughts of giving back to those we appreciate and are in need. This spirit of giving will be quite evident at the December Luncheon when the New Orleans Geological Society and the NOGS Memorial Foundation award \$30,000 in scholarships to 12 well deserving Junior, Senior and Graduate students from UNO, LSU and Tulane. Each of the recipients' short bios are included in this issue of the NOGS Log. Please take a few minutes to read these bios and marvel at their accomplishments, current interests, and plans for their future. If you happen to attend this luncheon, make sure to congratulate these students for their accomplishments. The geologic force is strong in these students!

Have a happy and safe Christmas and New Year



Dave

David Reiter

2022/2023 NOGS LOG Editor



A MESSAGE FROM 2022/2023 NOGS PRESIDENT

DOUGLAS BRADFORD

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

Winter has finally arrived in the New Orleans area and the holiday season is beginning. Overall 2022 has been a good year with a significant continued reduction in Covid outbreaks and cases, increased revenue from oil and gas production, and an upbeat anticipation of in-person gatherings during the Thanksgiving and Christmas Holidays.

Our November meeting was a joint meeting with SGS at the Covington Hilton Garden Inn Hotel. The speaker was Gilles Hennenfent, Ph.D., the Chevron Gulf of Mexico Geophysics Manager, whose presentation was about developments in deep water seismic technology. He explained the changes and showed examples of how these new developments have positively affected development of current exploration prospects and will likely affect the future of deep-water hydrocarbon exploration and production.

Our December in person meeting will be held at The Cannery in New Orleans on, Monday, December 5, 2022. At this luncheon meeting NOGS will be presenting awards to our 2022 scholarship recipients from Tulane University, Louisiana State University and The University of New Orleans. The awards will be presented to 12 graduate and undergraduate students from The NOGS Memorial Foundation investment funds. We give our most sincere congratulations to all of these students for their excellent research and wish them the best on their continued academic and professional journeys.

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.

Thanks everyone, stay safe and well!

**Best regards,
Doug Bradford
2022-2023 NOGS President**



DECEMBER NOGS MEETING

MONDAY, DECEMBER 5, 2022 11:30 AM
THE CANNERY NEW ORLEANS



SÖNKE DANGENDORF, PH.D.

Sönke Dangendorf is Assistant Professor in the Department of River-Coastal Science and Engineering. Dr. Dangendorf has more than 12 years of experience researching mean and extreme sea levels, ocean tides and storm surges and the impact on coastal flooding. He previously held positions as an “Akademischer Rat” at the University of Siegen, Germany, and as an Assistant Professor for Ocean and Earth Science at the Center for Coastal Physical Oceanography at Old Dominion University in Norfolk, VA. Dr. Dangendorf was contributing co-author to the Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) of the Intergovernmental Panel on Climate Change (IPCC). Dr. Dangendorf serves as an Editor of the Nature journal Scientific Data. (2014, 2017, 2018, 2019) in Socorro, New Mexico.

ACCELERATION OF U.S. SOUTHEAST AND GULF COAST SEA-LEVEL RISE AMPLIFIED BY INTERNAL CLIMATE VARIABILITY

ABSTRACT

While there is evidence for an acceleration in global mean sea-level (MSL) since the 1960s, its detection at local levels has been hampered by the considerable influence of natural variability on the rate of MSL change. Here we report an MSL acceleration in tide gauge records along the U.S. Southeast and Gulf coasts that has led to rates (>10 mmyr⁻¹ since 2000) that are unprecedented in at least 120 years. We show that this acceleration is primarily induced by an ocean dynamic signal exceeding the externally forced response from historical climate model simulations. However, when the simulated forced response is removed from observations, the residuals are neither historically unprecedented nor inconsistent with unforced variability in simulations. Furthermore, a large fraction of the residuals can be explained by wind-driven Rossby waves in the tropical North Atlantic. This indicates that the acceleration represents the compounding effects of external forcing and internal climate variability.

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PICTURE FROM THE PAST



Over a hundred NOGS members and guests enjoyed a great Holiday Party on December 19, 2015, in the home of Ed Picou and Dan Armstrong in the Marseilles Condominiums on the Lakefront.

*Submitted by
Ed Picou, Chairman - Historical Committee*

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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.

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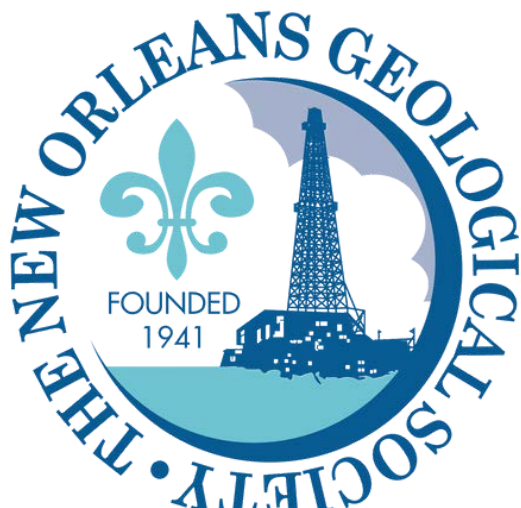
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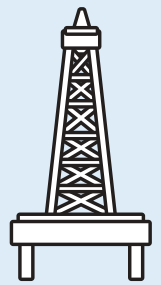


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DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND DEEPWATER ACTIVITIES BY AL BAKER



During October 2022, the Bureau of Safety and Environmental Enforcement (BSEE) approved 82 Gulf of Mexico (GoM) drilling permits. Eleven of the permits were for shelf wells, and the remaining 71 permits were for deepwater wells. There were 8 new well permits issued. Two are on the shelf, and 6 are in deepwater.

The 2 shelf new well permits were for development wells. Arena Energy received a permit for their Main Pass 120 #A-3 well, and Talos Petroleum obtained a permit for their Ship Shoal 112 #11 well.

Of the 6 deepwater new well permits, 3 were for exploration wells, and 3 were for development wells. Shell Offshore received 2 permits for their Walker Ridge 275 #1 and Alaminos Canyon 857 #GD-9 exploration wells. BHP Billiton Petroleum (Deepwater) was granted a permit for their East Breaks 699 #1 exploration well. BOE Exploration & Production was awarded 3 permits for their Walker Ridge 51 #SA-7, #SA-8 and #SA-9 development wells located in their Shenandoah Field.

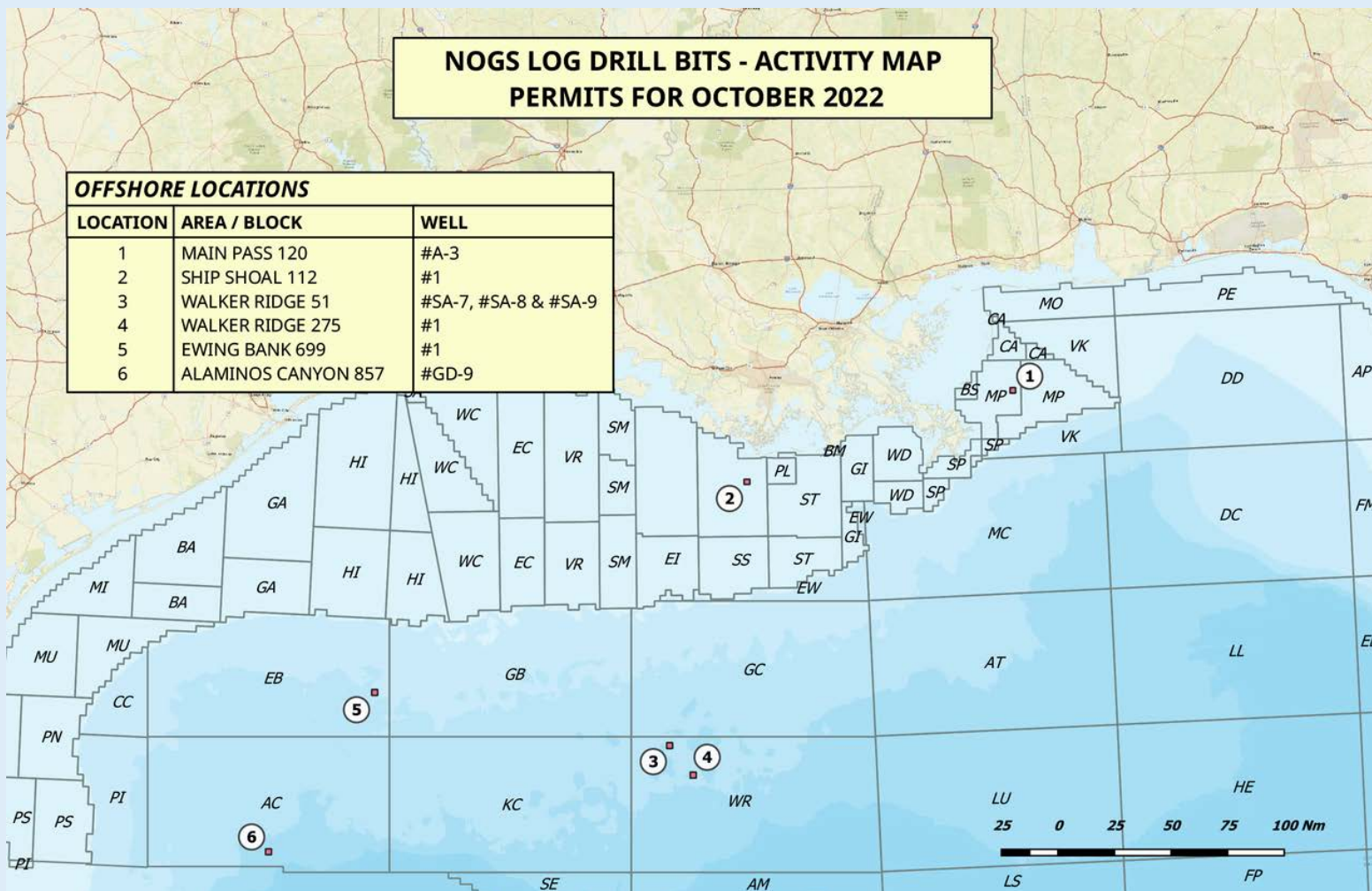
On October 28th, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 47, which is 1 more than last month. The marketed rig supply consisted of 35 rigs, of which 29 were under contract. The marketed rig supply and the contracted rig supply number were also each 1 more than last month. The marketed contracted versus total rig supply utilization rate stood at 74.5%, and the marketed contracted versus marketed supply utilization rate stood at 82.9%. By comparison, the October 2021 total fleet utilization rate stood at 68.9% with 31 rigs under contract out of the 45 rigs in the fleet.

On October 28th, Baker Hughes reported that there are 13 active mobile offshore rigs in the GoM, which is 2 less than last month and 44.8% of the rigs under contract mentioned above. Currently, all 13 rigs are drilling in deepwater. They include 6 rigs in the Mississippi Canyon Area, 3 rigs in the Green Canyon Area and 1 rig each in the Garden Banks, Walker Ridge, Ewing Banks and Alaminos Canton Areas.

On October 28th, the Baker Hughes total U.S. rig count stood at 768 rigs, which is the 3 more than reported at the end of September 2022. Of the 768 rigs, 610 (79.4%) are oil rigs and 156 (20.3%) are gas rigs. Two rigs are listed as miscellaneous. A year ago, there were 544 rigs working in the U.S. inferring that the current rig figure represents an 41.2% increase in rigs year over year. Presently, Texas continues to have the largest number of rigs with 368, which is 47.9% of the total number of rigs in the U. S. Louisiana currently has a total of 60 rigs, which is 6 less than last month. Louisiana ranks fourth behind New Mexico, which has 113 rigs, and Oklahoma, which has 66 rigs.

On October 20th, the Bureau of Ocean Energy Management (BOEM) in compliance with congressional direction in The Inflation Reduction Act announced that OCS Sale 259 will take place on March 29, 2023. As a result of legal battles over oil and gas lease sales, that Act forced the Biden administration to hold OCS Sale 259 and OCS Sale 261 by March and September of next year, respectively.

The Biden administration has yet to issue an updated five-year leasing program after the public comment period on the proposed schedule ended in early October. Once the next draft is issued, Congress and the President will have 60 days to review it. The Biden administration has proposed anywhere from no lease sales up to a total of 11 lease sales in the new program. The original due date for final updated five-year leasing program was on July 1st of this year.





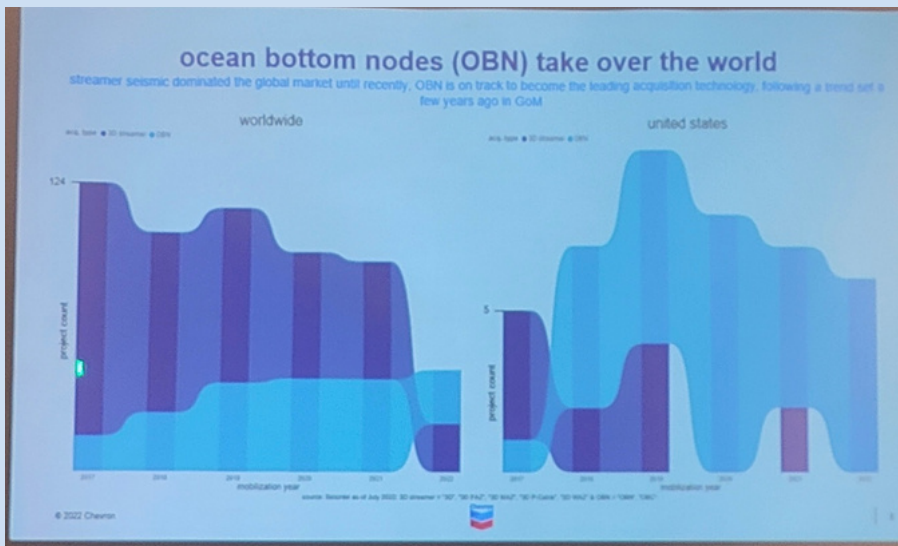
JOINT MEETING NOGS & SGS NOVEMBER



NODE-WORTHY CONTRIBUTIONS TO SHORTEN CYCLE-TIME AND UNLOCK ADDITIONAL BARRELS



Presented by:
Gilles Hennenfent, Ph.D.
Chevron | Gulf of Mexico
Geophysics Manager



NOGS

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NEW ORLEANS
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MEMORIAL
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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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Recent Energy HeadlinesNovember 2022 Recap

10/26/2022 - ExxonMobil Finds Oil Two More Times In Guyana - U.S. supermajor ExxonMobil has made discoveries at the Sailfin-1 and Yarrow-1 wells in the Stabroek block offshore Guyana, adding to its extensive portfolio of development opportunities. ExxonMobil has made more than 30 discoveries on the block since 2015, and it has ramped up offshore development and production at a pace that far exceeds the industry average. [Read Full Article](#)

11/5/2022 - Depleting strategic oil reserves could prove 'painful in the months to come': Saudi energy minister - That's Prince Abdulaziz bin Salman, Saudi Arabia's oil minister, delivering an ominous warning Tuesday. Without identifying the U.S. or other countries by name, the minister said at a conference in Riyadh that "people are depleting their emergency stocks," using them to "manipulate markets" despite their stated purpose being to mitigate supply shortages. [Read Full Article](#)

11/7/2022 - GoM Winterfell oil project moving forward - An affiliate of Beacon Offshore Energy has signed a rig commitment letter to drill and complete three wells for the Winterfell oil development in the Green Canyon area of the US Gulf of Mexico, starting mid-2023. [Read Full Article](#)

11/8/2022 - Can Refracs Boost U.S. Shale Output? - A global oil shortage and high fuel prices has triggered calls from President Joe Biden's administration for U.S. shale producers to spend more of their profits to boost output. However, shale producers have been under pressure to focus more on returning excess cash to shareholders in the form of dividends and buybacks rather than production growth. Luckily, there's a proven technology for U.S. shale oil producers to return to existing wells and give them a second, high-pressure blast to increase output for a fraction of the cost of finishing a new well: shale well refracturing. [Read Full Article](#)

11/14/2022 - USA EIA Raises Oil Price Forecast - The U.S. Energy Information Administration (EIA) slightly raised its Brent oil price forecast for both 2022 and 2023, the organization's latest short term energy outlook (STEO) has revealed. The EIA now sees the Brent crude oil spot price averaging \$102.13 per barrel this year and \$95.33 per barrel next year, according to its November STEO. In its October STEO, the EIA projected that the Brent spot average would come in at \$102.09 per barrel in 2022 and \$94.58 per barrel in 2023. [Read Full Article](#)

11/14/2022 - BOEM sets Gulf sale for March 29, 2023 - The Bureau of Ocean Energy Management (BOEM) will offer all of the available unleased acreage in the Gulf outer continental shelf on March 29, it said in a sale notice posted online. [Read Full Article](#)

11/15/2022 - A return to \$100 oil? - Despite a contentious production cut, it remains to be seen if the drop in oil prices over the past few months will prove to be temporary or if prices will return to earlier 2022 levels. Prices on the Brent benchmark are expected to return to more than \$100/bbl by Christmas, said Norwegian consultancy Rystad Energy, while others predict fears of a recession, accompanied by a drop in demand and increased supply, may keep a handle on prices. [Read Full Article](#)



NEW ORLEANS GEOLOGICAL SOCIETY *Auxiliary*



The New Orleans Geological Auxiliary planned a lunch gathering at Porter & Luke's on Metairie Road on Wednesday, November 9th. Enjoying the food and company were, L to R, Pat Williamson, George and Mary Ellis Hasseltine, Trudy Corona, Alma Dunlap, Camille and Jim Yeldell, Dan Armstrong, Ed Picou, Mary Walther, Louis Lemarie, Amy Longmire and Peggy Rogers. Camille Yeldell is the past, current and future president of the group.

Alma P. Dunlap

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!

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



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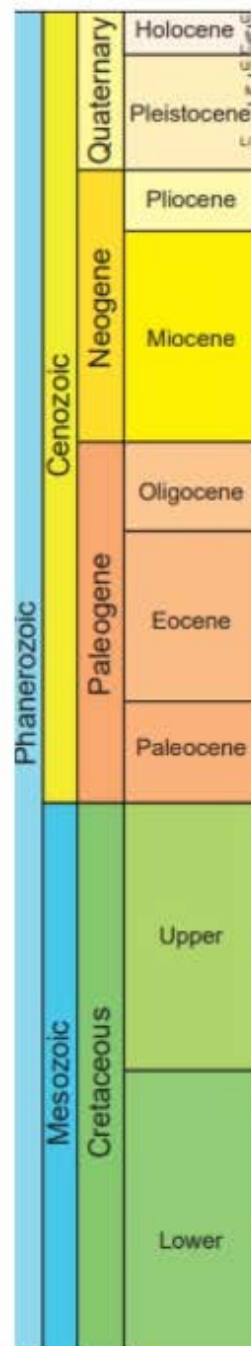
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THE UNIVERSITY of
NEW ORLEANS

2022 Scholarship Recipients

Breanna Roberts

Breanna is a senior undergraduate student working under UNO department chair Dr. Mark Kulp. Notably, she has assisted in a project concentrating on the complete analysis of cores from Sabine Bank, Texas, which ultimately will aid in the beach nourishment of the Texas Point National Refuge. As a Louisiana native, Breanna Roberts has developed a passion for studying the coastal geology of the state. In the future, she intends to use that passion to serve Louisiana and other coastal states experiencing land loss resulting from subsidence, erosion, and saltwater intrusion. To accomplish these goals, she will first pursue a master's degree through the University of New Orleans to further develop and refine her skill set. In the meantime, she has established herself in the Earth and Environmental Science department, serving as President of the American Association of Petroleum Geologists chapter at UNO.

Giancarlo Portocarrero

UNO Senior undergraduate student Giancarlo Portocarrero was born and raised in Nicaragua. He moved to Louisiana in 2018 to pursue studies in environmental engineering. He attended Delgado Community College where he completed his Associate's Degree in Physical Science. There, he found his passion for geology and decided to pursue a bachelor's degree in geoscience from the University of New Orleans. Currently, he holds the position of Secretary in the AAPG Chapter at UNO. His future plans are to attend graduate school to develop his studies in groundwater hydrology, focusing on mapping, modeling, and management of water-based systems.



Brittany Johnson

UNO Earth and Environmental Sciences junior, Brittany Johnson, is from Tickfaw, La., and currently resides in New Orleans. She is fascinated by the Earth and its history and processes. Her study interests include paleoclimatology, climate change adaptation and mitigation, coastal restoration, and geomorphology. Britt enjoys research, lab and field work and pursues opportunities to ensure she can spend her life doing so. In the future, she intends to further her education at UNO through graduate school. When not working on academics, she trains on her aerial hoop, travels, or spends time with loved ones.

Wilke Coleman

Wilke Coleman is currently completing a M.S. degree in Earth & Environmental Sciences at the University of New Orleans. His graduate research focuses on establishing a geospatial framework for Timbalier Bay, noting stratigraphic tendencies in relation to the historic distributary networks responsible for creation of the LaFourche delta complex. Upon graduation, he plans on applying his knowledge of coastal geomorphology to aid in the development, implementation, and monitoring of coastal restoration strategies in southern Louisiana and beyond. Wilke was born and raised in St. Louis, Missouri, with additional familial ties to Sarasota, Florida. He has an inherent love for the river systems of the Ozarks and Gulf coast Florida beaches alike. In his spare time, Wilke is a connoisseur of music, an authentic barbecue enthusiast, and an avid fan of St. Louis Blues hockey.



2022 Scholarship Recipients



Alexa Tullier

Alexa Tullier is currently a Junior at Louisiana State University pursuing a degree in Geophysics. Alexa is from Baton Rouge and graduated with honors from University Laboratory High School in 2021. She first became interested in Geology after attending LSU Introductory Geology Field Camp in the Summer of 2021. She is a member of the Baton Rouge Geological Society, AGU, GSA, LSU Geology Club, LSU Honors Ogden College, and a member of Delta Zeta Sorority. She assists students and faculty on campus as a Science 1001 teacher's assistant. She was awarded the Summer Camp Scholarship in 2021 and the Halliburton Award Scholarship in 2022. Currently, Alexa is conducting research with Dr. Suniti Karunatillake. After graduation she plans on obtaining a master's degree in Geophysics and then hopes to enter the workforce in the energy industry.

Kristoffer Colton Fowler

Kristoffer Colton Fowler grew up in Houston, Texas where he graduated from Jersey Village High School. He attended Lone Star Community College for 3 years and then transferred to the University of Houston to earn his B.S. degree in Geology in 2018. He was accepted into the doctoral program at Louisiana State University where his PhD research is focused on the southern foreland basins of the Greater Caucasus orogen. Kristoffer is interested in assessing the role of tectonics and climate on the development of the young orogen and their effects on late Cenozoic stratigraphy of the southern foreland. Mr. Fowler's research utilizes methods including detrital zircon U-Pb and epsilon Hf geochronology, measurement and correlation of stratigraphic assemblages, facies interpretations, and paleogeographic reconstructions. Upon completion of doctoral studies, he would like to pursue a postdoctoral position and subsequently a faculty position incorporating the methods included above in different tectonic settings.

Ashley Thrower

Ashley Thrower is deeply grateful to the New Orleans Geological Society for selecting her as recipient of the graduate student scholarship at Louisiana State University. Ashley is in her second year as a master's degree student and is currently a teaching assistant for the 2022-2023 academic year. She is a first-generation college graduate having received her B.S. degree in geology from LSU in 2015. Prior to returning to pursue her graduate degree, Ashley held various positions in oil and gas operations in the Delaware and Midland basins.

Under the guidance of Dr. Barbara Dutrow, Ashley's research involves using tourmaline grains to characterize hydrothermal systems and determine temperatures experienced during tourmaline formation. The overall aim of this research is to expand geothermal energy as an alternative source of low carbon energy. Refinement of tourmaline thermometry has potential to aid in assessment of geothermal systems for energy extraction. In the future, Ashley hopes to apply knowledge obtained in her Master's research to a professional position in the geothermal resource industry.

Sarah Seale

Sarah is a fourth-year geology student at Louisiana State University. Her fascination for science began when she was gifted a rock tumbler for Christmas at four years old and began searching for unique rocks and minerals to tumble and identify. This search continued for years and has led her to studies at Louisiana State University. She is now studying the chloritization of abyssal peridotites from the Sui Shinn Megamullion site in the Philippine Sea. Sarah plans to continue this work into graduate school at Louisiana State University under Dr. Loocke's advisement.

Her passion is not only to pursue science, but to lead others into exploration. Sarah has worked as an Ambassador for LSU College of Science for two years and now works for LSU Geology Communication. After graduating with a PhD, she hopes to continue working in the field of academia to encourage students to explore the natural world around them.



2022 Scholarship Recipients



James Lopez

James Lopez is pursuing a Ph.D. in Geology at Tulane University. His goals are to develop a deeper set of research skills as an earth scientist, work on interesting projects where he can leverage his broad experience and produce a body of work that will help further our understanding of planetary processes. He is funded through the U.S. - Israel Energy Center, which aims to improve offshore natural gas production safety, efficiency, and sustainability. His current work is centered on developing a theory to describe how climatic transitions, which influence the amount of water and sediment routed through delta-submarine fan systems, are recorded in strata. He hopes to test that theory using field data from the Levant Basin in the eastern Mediterranean.

In the long run, he aspires to contribute to further engaging research either as a university professor or within a professional industry setting. He was honorably discharged in 2009 from the Army Reserves after eight years of service as a medic. He has a Master's Degree from California State University, Bakersfield, with a focus on petroleum geology. James also has eight years of industry experience working with Chevron and Occidental Petroleum.

Carson Mack

Carson Mack is a native of Baton Rouge and a rising senior at Tulane University. Upon graduation from Catholic High School in 2019, he was sure he wanted to study Geology in college, but currently finds himself pursuing a B.S. in Geology and Chemistry. Carson plans on attending graduate school to complete a master's program specializing in geochemistry. He hopes to find employment in the fields of either minerals exploration or production, and, in the long term, take a leadership role in a mining operation. At the present time, he is the president of Tulane's Earth Science Club, and an undergraduate researcher in Tulane's Cosmogenic Nuclide Lab, under Professor Brent Goehring. Carson loves learning about all topics in Earth Science- and is excited to learn more as his academic career progresses.

Shale Kennedy

Shale Kennedy is a rising Junior at Tulane University majoring in Geology, as well as minoring in Art. She currently works as an assistant for a local New Orleans artist. Shale will be studying abroad in Dublin, Ireland this fall where she hopes to explore local famous geologic formations. She is from St. Louis, Missouri and attended Ladue Horton Watkins High School. From a young age, Shale has been intrigued by the layers, colors, and variety in rock formations she has encountered. Her parents are employed in the mining industry, and she always loved listening to them explain about different kinds of rocks she would collect on her walks home from school. Shale is very excited to be pursuing an education in geology and is considering continuing her studies in graduate school.

Ekanshu Mallick

Ekanshu Mallick is a 2nd year PhD student in the Department of Earth and Environmental Sciences at Tulane University, working under the supervision of Dr. Colin Jackson. He completed his BSc in Geology from Ravenshaw University in India and received his MSc degree from the Indian Institute of Technology Bombay (IITB). At IITB, Ekanshu worked under Dr. Hetu Sheth on the petrogenesis of silicic rocks in the Deccan flood basalts in western India. His research at Tulane uses experimental petrology to understand the geochemical behavior of elements. He is currently working to understand the parameters that control chlorine's retention to sub-arc depths using piston-cylinder experimentation. This study has implications for understanding trace-element transport in arc settings. He is also working on a collaborative project with LSU and ULL to understand the effect of core formation on the distribution of volatile and refractory siderophile elements in the planet. This project seeks to understand proto-earth evolution using experimental constraints, FPMD simulations and fluid dynamics under magma ocean environments.



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Annual Louisiana Water Conference

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