


NCGS LOG

JULY 2022
Volume 63 No. 1

8  **YEARS**


 **Happy**
4TH **OF** **July**

On the Cover

The Iguaza Falls are the border between the Argentine Province of Misiones and the Paraná State of Brazil and have the greatest average annual flow of any waterfall in the world (mean annual flow rate 61,600 ft/sec). The two step falls are formed by the waters of the Iguaza River flowing over three layers of columnar basalt in the 1,000 meter thick Serra Formation within the Paraná Basin.



From the Editor...

I want to begin my final Editor's Note with thanks and praise for the NOGS LOG contributors, LOG reviewers, Ed Picou and Fran Wiseman, and the NOGS Board Members with whom I served. Their contributions and hard work provided the content to keep you informed of industry activity, our history and future trends. I also want to thank the NOGS Auxiliary for the information and photos of their events and for their support of activities of importance to NOGS and the geoscience community.

The members of NOGS deserve a special thanks for their tolerance of my style and dives into what I think are interesting intersections of geology with other scientific disciplines. I had a wonderful time searching for things to share that were off the beaten path and searching for cover photos of places that I hope piqued your interest to learn more about them. I also hope that you enjoyed reading the LOG and that it led you to an idea that you found sufficiently interesting to talk about.

I want to welcome and congratulate NOGS' new Editor, David Reiter, Dave has served NOGS in different roles over the years and without a doubt I know that he's looking forward to serving the members in another role. Welcome Dave!

There is just one more thing before I close, the contribution of earth processes to climate change is becoming better understood as researchers collaborate to better understand global warming that occurred during the Paleocene-Eocene Thermal Maximum(PETM).

Read about how plate movements contribute to climate change.

Please read the excellent companion article about mass extinctions in the Gulf of Mexico during the PETM in this month's Recent Energy Headlines by Charlie Miller.



Emmitt Lockard
2021/2022 NOGS LOG Editor



A MESSAGE FROM 2021/2022 NOGS PRESIDENT

HILLARY SLETTEN

To members and friends of the New Orleans Geological Society:

I feel like this is a bit of a swan song – an end to a short, but sweet 9-month tenure as your NOGS President. Shell relocated me back to Houston, and consequently, I'm taking a step back from NOGS. I think it has been a productive year and I am happy with what we accomplished. We brought in quality speakers each month, celebrated our 80th Anniversary in December, navigated the paths of virtual and in-person meetings, held volunteer and fundraising events, and so much more. Most recently we conducted a survey that has offered wonderful insight into your experience and gives great support to revitalizing how NOGS operates. We had over 50 respondents – a wonderful turnout! I thank everyone involved in planning and making these events happen, the NOGS Board for their oversight and integrated decision making, and all the membership for your continued participation and interest in the Society. Please keep it up and do what you can to help NOGS grow!

I'd also like to give a special thanks to two key supports for NOGS who have shown great dedication to this organization. First, I'd like to show thanks by awarding Mike Fein the 2021-22 Edward Picou Award for Outstanding Service. Mike joined the Awards Committee in 1982 when Doug Holmes was the Chairman. Mike became Chairman in 1987 and has been a mainstay ever since. He has also played an integral role in securing science fair judges and participating in other volunteer events. Mike, we thank you for your 40 years of service and wish you all the best in your future ventures!

I am also extending gratitude to Christy Himel, our NOGS Administrator, through the President's Award. Christy is always behind the scenes running our operations but did go above and beyond this past year to help celebrate our 80th Anniversary at our December speaker event at The Cannery. She designed our celebration logo which we have been enjoying this year on all of our LOG covers, sourced a cake and decorations, secured the venue, tackled the AV setup, and so much more. She also did an excellent job heading the planning committee for the golf tournament in May. These things take a lot of time and her attention to detail often goes beyond her regular duties, so Christy, cheers and salud!

In July we welcome former NOGS President John Dribus as our guest speaker. John will be speaking about "Global Conventional Exploration Hotspots in 2022" and will be sure to give seasoned, detailed insight to current exploration trends. John is an excellent speaker and I hope you can all carve time out for him.

In August NOGS will take a short recess from our regular speaker series and turn all attention towards hosting the Geology Seminar and Virtual Field Trip Day on August 22 at the Gulf of Mexico Deepwater Technical Symposium in New Orleans. A full day seminar and workshop will be run by Dr. John Snedden who will speak about depositional evolution and petroleum applications in the Gulf of Mexico. This is FREE to students with the help of the NOGS Foundation. The API luncheon will be mid-day and then in the afternoon NOGS will run a virtual field trip of Louisiana Salt Mines for those interested in only participating in a 3-hr event. The field trip will be offered in-person at the New Orleans Marriott Convention Center Hotel with live speakers from the Louisiana DNR and will also be broadcast virtually for a wider audience. This will provide an opportunity for attendees to earn CEUs. You can register for any of these events directly on our NOGS website: <https://www.nogs.org/events>. We hope you can attend!

With that, I wish you all the best! I've enjoyed my time supporting NOGS as a Board member. Be safe, stay curious, and continue to show those rocks some love!

Best,

Hillary Sletten
2021-2022 NOGS President



A MESSAGE FROM 2022/2023 NOGS PRESIDENT

DOUGLAS BRADFORD

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

As the incoming President I want to thank our outgoing President Hillary Sletten for her excellent job this last year. We will all miss her at our meetings as she has been transferred to Houston.

I am looking forward to this next year as we continue to have interesting speakers and activities. Hopefully we will be able to have more In-person events.

An upcoming event with NOGS participation is the August Deepwater Technical Symposium in New Orleans. More details will follow later.

Thanks everyone, stay safe and well!

**Best regards,
Doug Bradford**

2022-2023 NOGS President



NOGS JULY 2022 MEETING

MONDAY, JULY 11, 2022

11:30 AM - VIRTUAL PRESENTATION

GLOBAL CONVENTIONAL EXPLORATION HOTSPOTS IN 2022



Presented by:
John R. Dribus

ABSTRACT: The price of oil has taken a very tortuous path over the past decade seriously impacting conventional exploration trends around the world. In addition, the acceleration of “green energy” development has adversely affected petroleum exploration efforts. This talk examines how oil and gas exploration has adjusted during price downturns, and where conventional exploration has been focused and successful. Exploration has shifted away from the distant high-risk Frontier areas to near-infrastructure “Backyard”, and new Discovery Corridors. Several key exploration areas that have received focused attention in the past few years such as Guyana/Suriname, the pre-salt of Brazil and Angola, the carbonate play offshore Egypt and Cyprus, North and South deep water Gulf of Mexico, Senegal/Mauritania/Morocco, Newfoundland/ Nova Scotia offshore eastern Canada, South Africa and Namibia are discussed. The talk concludes with some key learnings gleaned from significant dry holes, and a quick glance into the near future to identify some emerging deep-water areas that may be drilled in the next 12 to 18 months.

BIOGRAPHY: John Dribus is a Global Reservoir Geologist and Advisor who retired from Schlumberger in 2018, and established Dribus Geologic Consulting, LLC. He has over 40 years’ experience as a sedimentologist and exploration geologist, and specializes in deep water depositional systems, below-salt plays, petroleum systems analysis, deep water geologic hazards, and geologic training and development. His current areas of focus include, Guyana and Suriname, the Gulf of Mexico, and South Africa and Namibia.

He initiated his career as a uranium field geologist in the American west and Texas coastal plain. After five years, he worked in the Gulf of Mexico for 18 years for Mobil Oil Corporation, and then the next 18 years as a Global Geologist for Schlumberger. For the past 4 years he has taught several on-line classes on exploration-related subjects, and has been consulting for several clients in the Atlantic basin. He received the Reservoir Description and Dynamics Award from the Society of Petroleum Engineers in 2013. In 2017 he was recognized by the American Association of Petroleum Geologists (AAPG) as a Heritage Geologist, and received the 2017 Best Technical Paper of the Year Award for the New Orleans Geological Society. In 2019 he received the AI Levorsen Award at the Gulf Coast Association of Geologic Societies Convention.

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Opening Geoscience Seminar

Monday, August 22, 2022

25th Annual Gulf of Mexico
Deepwater
Technical Symposium

THE GULF OF MEXICO SEDIMENTARY BASIN: DEPOSITIONAL EVOLUTION AND PETROLEUM APPLICATIONS



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\$170 Seminar and API Luncheon

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registration when registered using
school email address

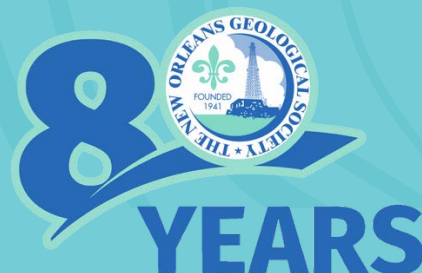
Dr. John W. Snedden
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The New Orleans Geological Society

Virtual Field Trip

Geologic Aspects of Underground Injection Control (UIC) in Louisiana

**Special guest: Louisiana Department of Natural Resources,
Office of Conservation - Injection and Mining Division**

August 22, 2022

1:30-4:30PM | \$20 per person

**Registrants may also attend an in-person group session at
the Marriott Convention Center**

Geologists can earn 3 hours continuing education credit



25th Annual Gulf of Mexico
Deepwater
Technical Symposium



PICTURE FROM THE PAST



1994 – The New Orleans Geological Auxiliary celebrated their 40th anniversary at a luncheon at English Turn Country Club

*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.

The NOGS LOG is now a digital magazine with live links to your site to reach NOGS Members and support your Society. Please contact Christy Himel admin@nogs.org for placement availability. Full page NOGS LOG advertisers will have their Company LOGO posted on the NOGS Website front page. All advertisers are included on the Society's monthly PowerPoint and listed on the website with a link to their home page. Please check out our website www.nogs.org

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HAPPY

4th of July

INDEPENDENCE DAY

Thank You

To our outgoing Board Members



Hillary Sletten
2021/2022 President



Emmitt Lockhard
NOGS LOG Editor



Al Mellilo
Director



Nancye Dawers
Vice President



Dave Culpepper
Director

Welcome

2022/2023 NOGS Board of Directors



President - Douglas Bradford

Doug is an experienced geologist whose career focus has been in environmental and petroleum geology. In his environmental consulting practice, Doug has managed and performed projects for soil and groundwater remediation, drilling and monitoring water and hazardous waste injection wells. Regulatory compliance projects in this practice have included permitting Department of the Army Permit Applications for Modification, Closure and Post-Closure plans. In his oil and gas industry practice, Doug has experience in oil and gas field operations and exploration and production geology.

Doug received a B.S. in Geology from the University of Southern Mississippi and took graduate geology courses at LSU for professional development.

Doug is a Licensed Professional Geoscientist in Louisiana and a Professional Earth Scientist in the Society of Independent Professional Earth Scientists. He is also a member of the New Orleans, Baton Rouge and Philadelphia Geological Societies.

Vice President - Chuck Holman

Chuck Holman received an MS in Geology and Geophysics from the University of Hawaii in 1982 and has worked in the oil industry since graduation as a geophysicist/geologist. He began his career with Mobil Oil in Dallas in 1982, upon completing training in 1983 he was transferred to Mobil in New Orleans, and in 1992 he transferred to Mobil in Dallas in to work in the New Ventures Latin America Team. After Mobil, Chuck consulted for SCA, Tecpetrol, Interactive Interpretation and Training, CGG, Avanti Consulting, Corelab, and Gaffney-Cline and Associates. Chuck returned to New Orleans in 2006 to work as a geophysicist for Dominion Exploration & Production Company, Eni, the Bureau of Safety and Environmental Enforcement (BSEE), and Saratoga Resources, and for BSEE again. He is now retired.

Chuck is a member of AAPG and SEG and has been a member of the local geophysical and geological societies wherever he has lived. Chuck rejoined NOGS in 2006 and since 2009, he has been an active part of NOGS operations: 2009-2010 Treasurer (2009-2010), 2010-2011 Auditor (2010-2011), Secretary (2011-2012), President-Elect (2012-2013), President (2013-2014), Memorial Foundation President (2014-2015), Memorial Foundation Trustee (2015-2018), NOGS Board Director (2018-2021).



2022/2023 NOGS Board of Directors



Treasurer - Jarred Bullock

Jared Bullock is a geologist at Bureau of Ocean Energy Management (BOEM), Gulf of Mexico Regional Office in New Orleans, LA. He started with BOEM in the spring of 2021. Prior to joining BOEM, Jared completed a Master of Science in Geology at the University of New Orleans in 2020 and a Bachelor of Science in Geology at Millsaps College in 2017. During his time in school, he interned at LLOG and BP. Jared has been an active member in NOGS since moving to New Orleans in 2017. He has held previous leadership positions at UNO in the student chapters of AAPG and Sigma Gamma Epsilon - Earth Sciences Honors Society.

Secretary - Michael Merritt

Mike Merritt is a native of the state of Oklahoma where he attended college and earned an A.S. degree from Northern Oklahoma College in Business and Pre-Engineering, a B.S. in Physics from Southwestern Oklahoma State University, a M.S. in Geology, and a M.B.A in Energy Management from the University of Oklahoma.

Mike's extensive professional career began in the oil and gas industry with Baroid where he was a Mud Logging Engineering Laboratory Operator. He later worked for Sun Production Co. as a Development Geologist, for Conoco Inc. as an exploration geologist, and for Halliburton Energy Services as Principal Geologist to the Algerian National Oil Company. Mike's environmental and regulatory compliance experience includes being the Oil and Gas Specialist for Environmental Investigations, and a Petroleum Geologist in the Oklahoma Corporation Commission, and a Revenue Examiner in the Oklahoma Tax Commission. He served as a Commissioner on the Southeast Louisiana Flood Protection Authority-West Bank Board of Commissioners. Mike is an AAPG Certified Petroleum Geologist and Licensed Professional Geoscientist in the state of Louisiana.



Editor - David Reiter



J. David E. Reiter is a retired Geologist with over 38 years experience in exploration and development of petroleum resources primarily in the U.S. Gulf Coast Basin. Mr. Reiter has been an active member of NOGS since 1981 and has served on numerous Board of Director and Committee positions. He has been President, President-Elect, Secretary, and Director of the New Orleans Geological Society, and President, Secretary, and Trustee of the NOGS Memorial Foundation. David has also served as President, Vice President, and Treasurer of the New Orleans Chapter of SPWLA. In the past, Mr. Reiter has served on several organizing committees for AAPG, GCAGS, and SPWLA national conventions held here in New Orleans.

2022/2023 SLATE NOGS BOARD OF DIRECTORS

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Vice President



CHARLES W. HOLMAN

Treasurer



JARED BULLOCK

Secretary



MICHAEL MERRITT

Editor



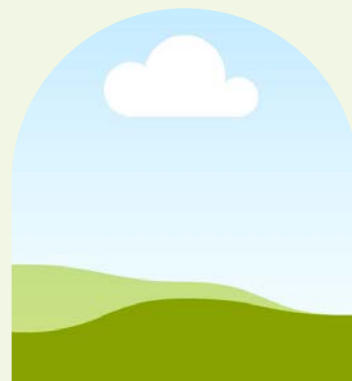
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SECOND PLACE TEAM

The Selley Cup



University of Louisiana at Lafayette

U.S./CANADA REGION

Continental Gets Take Private Proposal from Hamm

Continental Resources Inc (NYSE: CLR) has announced the receipt of a “take private” proposal from the Hamm family.



The company noted that its board of directors has received a non-binding proposal letter, dated June 13, from Harold G. Hamm on behalf of himself, the Harold G. Hamm Trust and certain trusts established for the benefit of Hamm's family members to acquire, for cash, all of the outstanding shares of common stock of Continental, other than shares of common stock owned by the Hamm Family and shares of common stock underlying unvested equity awards issued pursuant to Continental's long-term incentive plans.. said the Hamm family's proposal of \$70 per share represents an approximate nine percent premium over Continental's closing price on June 13, 2022, a premium of approximately 11 percent to its volume weighted average price during the last 30 trading days through June 13, 2022, and a 21 percent premium to the volume weighted average price of the common stock traded during 2022. Continental highlighted that the Hamm family collectively holds approximately 83 percent of the total outstanding shares of common stock.

“The board intends to establish a special committee consisting of independent directors of the board to consider the proposal,” Continental said in a statement posted on its website.

“The board expects that the special committee will retain independent advisors, including independent financial and legal advisors, to assist it in this process,” the company added.

“Continental cautions its shareholders and others considering trading in Continental's securities that Continental has only recently received the Hamm family's proposal and has not had an opportunity to carefully review and evaluate the proposal or make any decision with respect to Continental's response to the proposal,” Continental continued.

The company also noted that the proposal constitutes only an indication of interest by the Hamm family and does not constitute a binding commitment with respect to the proposed transaction or any other transaction.

“No agreement, arrangement or understanding between Continental and the Hamm Family relating to any proposed transaction will be created unless definitive documentation is executed and delivered by the Hamm Family, Continental, and all other appropriate parties,” Continental said in the statement

Continental's stock price closed at \$64.50 on June 13. At the time of writing on June 14, the company's stock price had risen 14.17 percent to \$73.64.

Hamm founded Continental in 1967 and is chairman of the board of directors. The company is a top 10 independent oil producer in the U.S. and a leader in America's energy renaissance, according to Continental's website. Based in Oklahoma City, Continental is the largest leaseholder and the largest producer in the Bakken play of North Dakota and Montana and has "significant" positions in the SCOOP and STACK plays of the Anadarko Basin of Oklahoma, as well as newly acquired positions in the Powder River Basin of Wyoming and Permian Basin of Texas, Continental's website highlights.

Continental reported net income of \$597.8 million, or \$1.65 per diluted share, for the quarter ended March 31, 2022. Adjusted net income for the first quarter was \$960 million, or \$2.65 per diluted share (non-GAAP), net cash provided by operating activities was \$1.50 billion and EBITDAX was \$1.84 billion (non-GAAP), the company revealed in its first quarter results statement last month. Continental also highlighted that it had increased its quarterly dividend to \$0.28 per share.

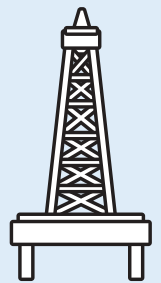
"Continental's outstanding first quarter 2022 results underscore our commitment to both return of capital to shareholders and corporate disciplined return on capital employed," Bill Berry, Continental's president and CEO, said in the company's first quarter results statement back in May.

**To contact the author, email andreas.exarheas@rigzone.com
Submitted by: Jared Bullock**



DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND
DEEPWATER ACTIVITIES
BY AL BAKER



During May 2022, the Bureau of Ocean Energy Management (BOEM) approved 68 Gulf of Mexico (GoM) drilling permits. Fifteen of the permits were for shelf wells, and the remaining 53 permits were for deepwater wells. There was 1 new well permit in deepwater.

The single deepwater new well permit was for a development well. EnVen Energy Ventures received a new well permit for their Ewing Bank 873 #A-3 well.

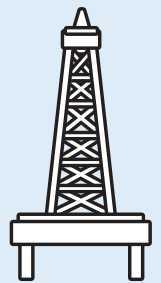
On May 27th, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 46, which is the same as last month. The marketed rig supply consisted of 34 rigs, of which 28 were under contract. The marketed rig supply and the contracted rig supply number were also the same as last month. The marketed contracted versus total rig supply utilization rate remained at 73.9%, and the marketed contracted versus marketed supply utilization rate stayed at 82.4%. By comparison, the May 2021 total fleet utilization rate stood at 55.4% with 31 rigs under contract out of the 56 rigs in the fleet.

On May 27th, Baker Hughes reported that there are 15 active mobile offshore rigs in the GoM, which is 2 more than last month and 53.6% of the rigs under contract mentioned above. Currently, 2 rigs are drilling on the shelf, and 13 rigs are drilling in deepwater. They include 8 rigs in the Green Canyon Area, 4 rigs in the Mississippi Canyon Area and 1 rig each in the Garden Banks, Main Pass and Eugene Island Areas.

On May 27th, the Baker Hughes total U.S. rig count stood at 727 rigs, which are 29 more rigs than reported at the end of April 2022. Of the 727 rigs, 574 (79%) are oil rigs and 151 (20.8%) are gas rigs. Two rigs were listed as miscellaneous. A year ago, there were 457 rigs working in the U.S. inferring that the current rig figure represents an 59.1% increase in rigs year over year. Presently, Texas continues to have the largest number of rigs with 358, which is 49.2% of the total number of rigs in the U. S. Louisiana currently has a total of 61 rigs, which are 3 more than last month. Louisiana is ranked third behind New Mexico, which currently has 98 rigs.

DRILL BITS

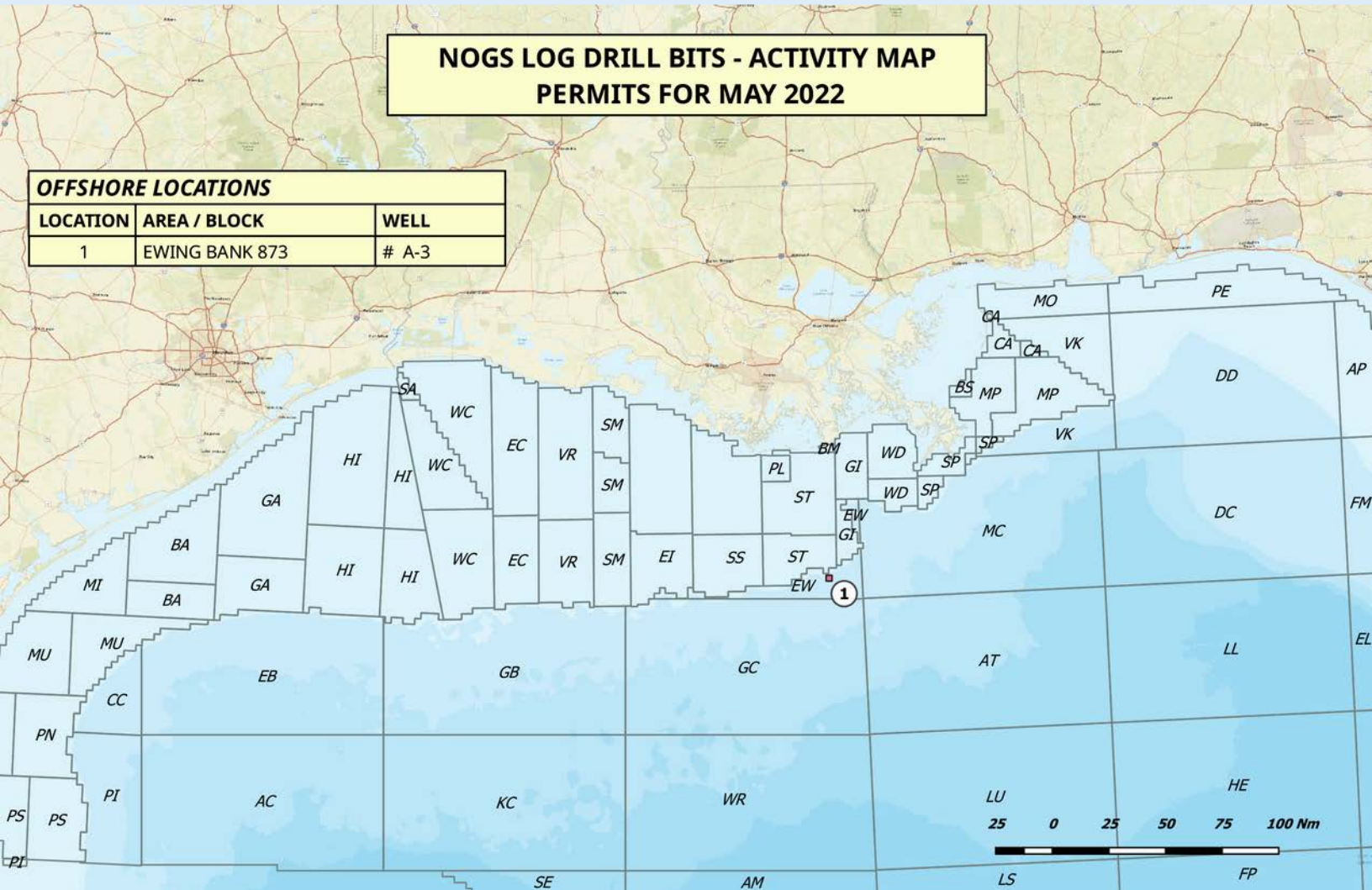
OFFSHORE GULF OF MEXICO SHELF AND
DEEPWATER ACTIVITIES
BY AL BAKER



NOGS LOG DRILL BITS - ACTIVITY MAP PERMITS FOR MAY 2022

OFFSHORE LOCATIONS

LOCATION	AREA / BLOCK	WELL
1	EWING BANK 873	# A-3



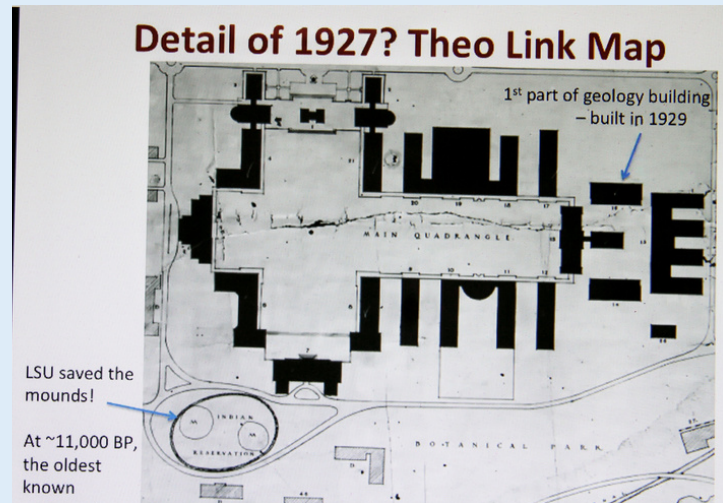
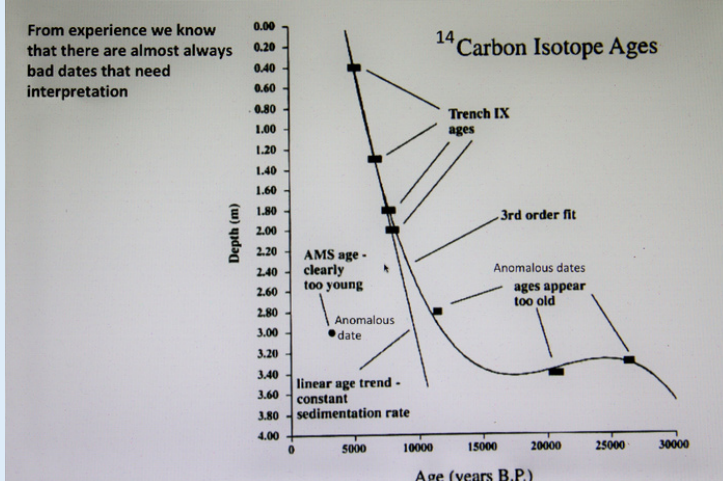
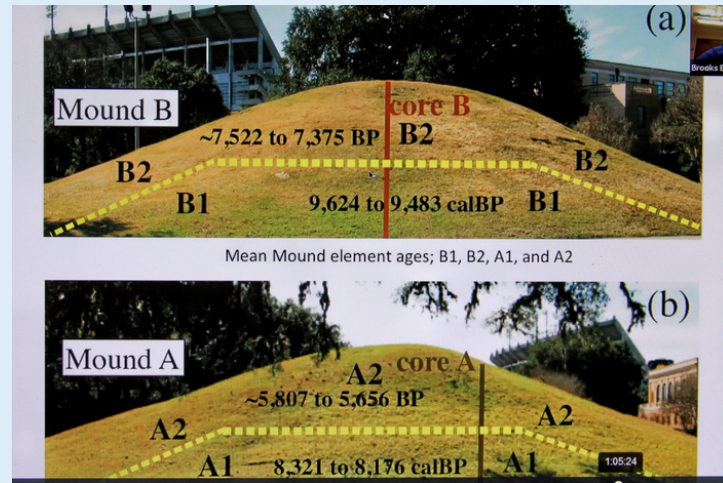
NOGS June 2022 Meeting

LSU Campus Mounds (16EBR6)

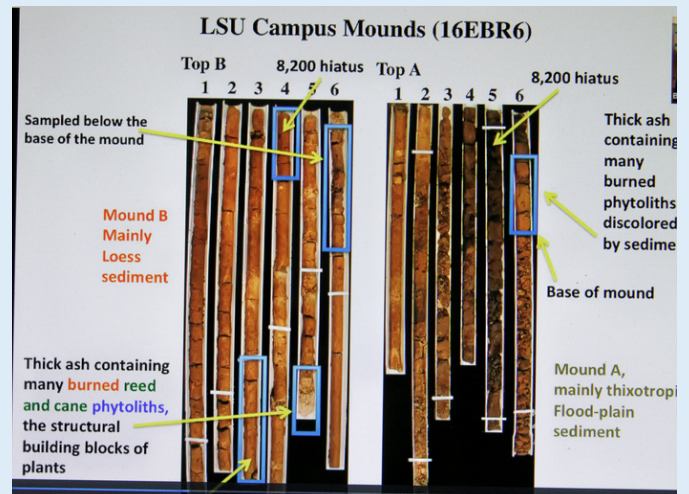
Climate Change's Role in Building the ~11,000 Old LSU Campus Mounds, the Oldest Known Extant Structures in the Americas

Authors on the submitted paper – in press:

Brooks Ellwood, Sophie Warny, Rebecca Hackworth, Padmanabhan Sundar, Nethra Sambarnoorthi, Sam Bentley, Sue Ellwood, Dewitt Brou, Geoff Clayton, Jonathan Tomkin



LSU Mounds B and A in that order



NOGS



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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 HeadlinesJune 2022 Recap

6/22/2022 - Nine New Oil, Gas Fields to Come Online in Gulf of Mexico in 2022, But Production Levels Not Expected to Rise, EIA Reports - Nine new GOM natural gas and crude oil fields are scheduled to come online in 2022, which would account for 5% of gas production and 14% of crude production in the region by the end of 2023, the US Energy Information Administration reported Tuesday. GOM gas production is expected to average 2.1 billion cubic feet per day in 2023, down 0.1 Bcf/d from 2022, while Gulf crude production will average 1.8 million barrels per day in 2023, about same as in 2022, the EIA said. [Read Full Article](#)

6/17/2022 - Chevron, More Oil Companies Push Back on Biden's Warning Letter - Chevron released a statement addressing President Biden's letter to oil companies suggesting he may take executive action. "We understand the significant concerns around higher fuel prices currently faced by consumers around the country, and the world. We share these concerns, and expect the Administration's approach to energy policy will start to better reflect the importance of addressing them," Chevron said in a statement to Biden. [Read Full Article](#)

6/13/2022 - Chevron Completes Acquisition of Renewable Energy Group - Chevron today completed its acquisition of Renewable Energy Group, Inc. following approval by REG stockholders. "We have brought together companies with complementary capabilities, assets, and customer relationships to make Chevron one of the leading renewable fuels companies in the United States," said Mark Nelson, executive vice president of Downstream & Chemicals for Chevron. [Read Full Article](#)

6/6/2022 - The Gulf Of Mexico Is Gearing Up For A Wind Energy Boom - The Biden administration outlined a range of clean energy initiatives, key among them plans to hold the largest-ever sale of offshore wind leases in U.S. history and accelerate the deployment of new power lines to transmit renewable electricity across the country. At the center of the offshore push was the sale of six commercial leases in the New York Bight between Long Island and New Jersey in February, the most successful offshore wind lease auction in history. [Read Full Article](#)

6/6/2022 - TDI-Brooks completes six geotechnical programs in the Gulf of Mexico - TDI-Brooks has completed six geotechnical coring programs in the Gulf of Mexico for numerous operators from its research vessel the RV Gyre, the company announced on Monday. Each of the programs included deployment of TDI-Brooks cone penetrating test (CPT), piston (PC) and jumbo piston corers (PC) and box corers (BC). In some instances, the geotechnical coring supplemented AUV operations. These programs covered a wide range of operations including surveying in channels off the coast of Galveston, surveying LNG export loading facilities, surveying of oil export pipeline routes to name a few. [Read Full Article](#)

6/1/2022 - Research shows how the Gulf of Mexico escaped ancient mass extinction - An ancient bout of global warming 56 million years ago that acidified oceans and wiped-out marine life had a milder effect in the Gulf of Mexico, where life was sheltered by the basin's unique geology—according to research by the University of Texas Institute for Geophysics (UTIG). [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!

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



A Historical Lookback at the Contributions of NOGS and its Members to Flood Protection: Why Geological Considerations are Essential for Improving Flood Protection in the New Orleans Metropolitan Area
By Hon. Mike Merritt (Ret.), Founding Commissioner of the Southeast Louisiana Flood Protection Authority – West Bank Board of Commissioners (SLFPA-W)

Evangeline only waited for Gabriel for a lifetime. Americans have waited for nearly two centuries for federal builders to master the art of building public works projects on fragile coastal soils.

The Washington Monument is the “international poster child” for illustrating what can go wrong when foundation designs are inadequate for local geological circumstances. (“Honorable mention” goes to the leaning tower of Pisa.) Fort Proctor (circa 1856) and the Marrero to Westwego Levee (circa 1997) are local examples of similar blunders in construction.

In the aftermath of the robust 2005 hurricane season, as the inadequacies in the risk reduction levee system became apparent, Louisiana reformed the levee boards’ management system in the greater New Orleans trade area by forming regional flood authorities. The idea was to place experts in charge of making public flood protection policy. The SLFPA-West Bank Board of Commissioners was seated February 23, 2007, as a seven-member board appointed by the governor and approved by the legislature.

These founding Commissioners included myself, a NOGS member, and my presence began to make a difference. Other NOGS members joined with both the east and west regional flood authorities along with the Louisiana Geological Survey (LGS) to sponsor a public symposium about flood public policy issues for four consecutive years. Eventually, the program was aired on public TV statewide. Ed Picou, member, and symposium co-chair, was interviewed on television regarding flood control issues, he attended flood authority meetings, and testified before the SLFPA-W Technical Committee to educate them about geological issues. Dr. Woody Gagliano and Dr. Stephen Nelson also gave presentations to levee board Commissioners.

Dr. Nelson may have been the first NOGS member to open this conversation with the public with his 2006 NOGS field trip examining east bank flood protection issues. I frequently addressed the Southeast Louisiana Flood Protection Authority – East (SLFPA-E) at their meetings and I lead an expert panel at a Corps of Engineers public meeting. The regional flood authority founding commissioners sought and funded a geophysical survey project to assess the condition of the levees. Dr. Juan Lorenzo of Louisiana State University (LSU) and his students began to research simple, inexpensive seismic techniques for locating unhealthy levee conditions. These methods continued to produce innovative, important results that were published in scholarly journals and later, Dr. Lorenzo edited a book on investigation methods of levee research.

By 2010, it was increasingly apparent that New Orleans' levees were precariously placed in localized "special interest" geohazardous areas. I proposed a motion, and the SLFPA-W Board unanimously approved a resolution petitioning the U.S. Department of Interior to support an initiative of the LGS by providing ~\$90,000 of U.S. Geological Survey (USGS) State Map Initiative funding to create the New Orleans and Terrebonne Parishes 1:100000 quad geological maps. With this funding, the LGS produced the most detailed, geological maps to date of New Orleans and the coast. I used these maps to prepare a poster about levee geohazards in 2019, Special Interest Geohazard Areas on the West Bank of New Orleans. NOGS requested that my poster be displayed at its luncheon meetings and they also made a digital image of the poster available online. The new USGS geological maps were available in draft form in 2010 as a resource for emergency responders during the uncontrolled blowout of the Macondo Well.

Also in 2010, Jason Hicks from Harvey, Louisiana and a student of Dr. Lorenzo at LSU, presented the results of the seismic team's refraction technique used to identify geohazard areas in the vicinity of levees in the poster session at the 2010 AAPG Convention in New Orleans.

As years passed without meaningful action by federal project builders to address geohazards affecting public works, many NOGS members, including Tom Klekamp, myself and several others attended Mississippi River Commission (MRC) public hearings in Baton Rouge. NOGS members who spoke on the record included Art Johnson, Kathy Haggard, Dr. Juan Lorenzo, and me. I continued to urge using the local project sponsor's maintenance budget and effort to conduct geological studies and geophysical surveys to identify hazards undermining levees and if located, be mapped. Maintenance efforts could easily be modified or extended to minimize them and strengthen the levee system.

My presentations to the MRC made two points: (1) New Orleans has a system of levees forming a protective ring around the city. Obviously, a leak anywhere floods everywhere. (2) Occasionally testing fundamental assumptions is an important scientific notion.

To illustrate the second point, my presentation included an image of the Titanic resting on the ocean bottom as I asked: "What if the iceberg had been 20 minutes late or the Titanic had been 20 minutes early? They would have passed by each other, and the doomed vessel's design flaws would not have been revealed. Bigger and bigger versions of the flawed ship design would have been produced until a later, even more spectacular failure happened".

By not seeking out and remediating unhealthy levee sections, produced by 200 years of omitting geological expertise from the levee building process, the New Orleans levee system is setting the community up for an even more spectacular flood protection project failure. The latest round of this battle to defend New Orleans was inspired when consulting geology became a licensed profession in Louisiana, to protect the public from malpractice. Perhaps addressing the incompetence of Army sub-contractors as a skilled trade licensing issue would raise public awareness of the danger to the community.

In 2017, there were approximately 1,100 geologists licensed to practice by the state of Louisiana. If each licensee made a careless, \$20,000 mistake in a year this would result in approximately \$22 million in waste. All licensees are subject to disciplinary action by the Louisiana Board of Professional Geoscientists (LBOPG) to protect the public from waste. For example, the Marrero to Westwego Levee Project ("14c.2") produced both an apparent project failure and waste exceeding \$6 million when building the \$28.9 million project. The "14c.2" project was one out of 61 other project designs in a \$1.5 billion West Bank, post-Katrina & Rita, program. The East Bank projects cost ten times as much, \$15 billion, and had leaky levees. Statewide, there were geohazards undermining other flood protection projects in Caddo Parish, the Atchafalaya Basin, and the Tensas area, to name three.

brief, there had been an enormous problem of waste from unlicensed, incompetent geological consulting work by subcontractors in public works construction projects in New Orleans. This raised the question, "What is the role of the LBOPG, in protecting the public from this type of waste?" Several NOGS members grappled with the question and sought an answer.

On April 27, 2017, I visited the LBOPG offices and met with several officials, but not enough were present to have a quorum. Those commissioners present included, The Hon. William Finley (Board Chairman), NOGS members: Hon. Art Johnson, Hon. Tom Klekamp and Hon. Dr. John Johnston III, from the LGS. I did make a two-hour PowerPoint presentation to explain and evaluate the issue.

The LBOPG placed item 9b, "Report on the April 27, 2017, meeting with Michael Merritt, Southeast Levee, and Flood Protection Agency-West (SLFPA-W) board member", on the agenda of their June 13, 2017, open meeting.

Both the agenda and the minutes of the Tuesday, June 13, 2017, meeting at 1:00 pm are a click away on the website of the LBOPG. They are concise, self-explanatory, well-written and could be used as a model for making voices of the geoscience community heard. The board minutes memorializing the discussion is a fascinating read and quotes NOGS Vice President and LBOPG Commissioner Daisy Pate. In the comments recorded in the official minutes of the meeting, the Commissioners noted:

- the federal contractor site geology reports were "subpar"
- in one Parish, none of the 100 known faults had been mapped as geohazards
- construction project officials stated there is no need to study the geology of the region
- Discussion ensued.

Ultimately, the LBOPG was not able to find a legal basis in its statutory authority to allow it to act. Presently, the Corps of Engineers may build billions of dollars of projects using discredited geological site reports when building flood defenses for a major American city, but consulting geologists are relegated to protect the public from mistakes in small matters. The LBOPG did make an instructive observation. It was anecdotally noted that federal project builders do have subjective internal standards to meet, and this may be the focus of the next round confronting flood control issues.

NOGS and its members have given freely of their time through pro-bono contributions to the public discussion to obtain meaningful flood protection reform. It is a proud tradition outlined here. You are invited to join this concerned group of geoscientists, by applying to be appointed a public official, showing up as an expert to testify at a hearing, doing pro-bono work or making a public comment. Please find a way to take your turn in this public conversation about flood protection and extend NOGS' proud record of altruistic public service.

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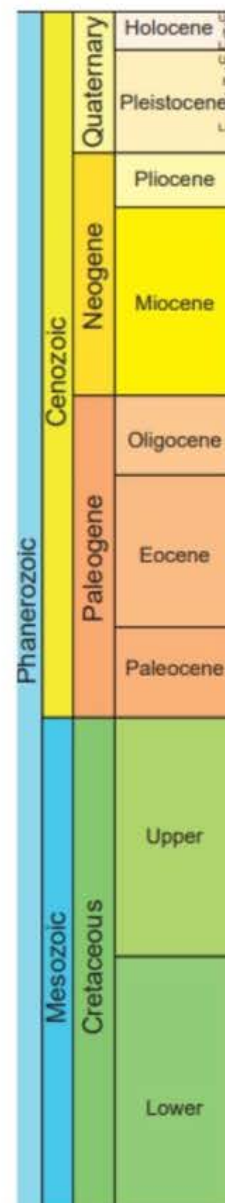
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