BULLETIN Corpus Christi Geological Society



and

Coastal Bend Geophysical Society



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www.ccgeo.org

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Scholarship Chairman	Matt Hammer	361-888-4792 361-563-6137	mhammer@royalcctx.com

Visit the geological web site at www.ccgeo.org

CCGS/CBGS JOINT MEETING SCHEDULE 2022-2023

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Jan. 18 meeting at Joe's Crab Shack Presenters: Bill Maxwell & Steve Emerson "A Follow-up, The Great Texas Freezeout."	

CCGS/CBGS Joint Meeting Schedule 2022-2023

			March	,					ŀ	April						l	May			
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Calendar Of Meetings and Events

Corpus Christi Geological/Geophysical Society	Third Wed.—11:30a.m.
SIPES Corpus Christi Luncheons	Last Tues.—11:30a.m.
South Texas Geological Society Luncheons	Second Wed—noon San Antonio
San Antonio Geophysical Society Meetings	
Austin Geological Society	First Monday
Houston Geological Society Luncheons	Last Wednesday
Central Texas Section of Society of Mining, Metalllurgy & Exp	
	San Antonio



PRESIDENT'S LETTER

Greetings and warm wishes as the holiday season approaches! I am convinced that within ten years, Christmas shopping season will officially open on July 5!

Our industry continues to have its ups and downs as our economy continues its recovery from the pandemic years. As I write this, we are called by President Biden to increase our production while sharing profits with Americans. Like you, I am a bit confused – but that is another discussion.

If you went to the October technical lunch, I hope that you were as gladdened as I was. Not only was the topic of great interest to our community, but we also responded with our presence. By my very nonscientific estimate, that was the best-attended lunch we have held since before the outbreak of Covid. Well done Juan for getting a great speaker, and well done to the membership for coming together!

Also, a shout-out to our student sponsors: Frank Cornish (Imagine Resources), Brent Hopkins (Viper), and Austin Nye (Panex). Their support oftentimes goes unnoticed, so if you see them please tell them "Thank you!" for the students!

As a "newbie" to this position, I would also like to take time to thank my fellow CCGS board members. They have done an incredible job holding the ship afloat during some of the most trying times our society has faced. Whatever the challenge, these volunteers have done their part to ensure that our society remains one that our members and community can depend on. Next time you come to a CCGS function, please thank them. And, maybe you might become interested in volunteering yourself? You just might get more out of it than you think.

Our next technical lunch will be on November 16th. Dr. Mohammed Ahmed will speak on the "Vulnerability of Coastal Systems to Natural and Anthropogenic Interventions." Please mark it on your calendars.

Also, we are going to dip our toes into a Christmas celebration for the CCGS. Nothing dramatic, just an evening to share some spirits at Lazy Beach Brewery on the south side. Mark your calendar for December 8. We will meet to raise a glass or two from 6-8 PM. Please see the notice elsewhere in this bulletin. We hope to see you for some relaxation and fellowship before the activities of the holidays take over.

Have a happy Thanksgiving whether at home or on the road.

Robert Schneider -- President





CCGS Christmas Celebration Get Together (Dutch Treat)

> December 8 6-8 PM (or until?)

Lazy Beach Brewery 7522 Bichon Dr. #100



Lets talk about insurance based financial planning

Tools

S&P 500 Indexed Universal Life – Long Term Care - Medicare Supplement – Life Insurance - Disability income – Annuities – Cancer, Heart Attack & Stroke -Small Business Solutions: Business valuation, Health, Vision & Dental

Jason Downing

361-742-9252 Insurance Representative/Former O&G Professional <u>https://tanconnects.com/jasondowning</u>



CBGS President's Letter

CBGS Board 2021-2022

President- Dr. Subbarao Yelisetti Vice President- Dr. Mohammed Ahmed Secretary/ Treasurer-Charles Benson

CBGS Scholarships

The Coastal Bend Geophysical Society (CBGS) has donated \$10,000 to the Department of Physics and Geosciences, Texas A&M University-Kingsville in support of the multidisciplinary Petrophysics Graduate Program that has been requested. These funds will be used as scholarships in attracting quality graduate students.

The board awarded three scholarships of \$2,000 each to undergraduate geophysics majors from Texas A&M University-College Station, University of Houston and Texas A&M University-Kingsville. We will be awarding the scholarships again this year.

Scholarship Requirements

Criteria for awarding the Scholarship from Coastal Bend Geophysical Society of Corpus Christi, Texas:

- 1. Scholarships are open to undergraduate or graduate students.
- 2. Must have declared major in Geophysics, or Geology with a concentration in Geophysics or Petrophysics.
- 3. Preference is given to students attending Coastal Bend schools (TAMU-K, TAMU-CC and Del Mar College), then to Coastal Bend natives attending other universities.
- 4. Must have a GPA of at least 3.0 and be in good standing with the school.
- 5. Must make effort to attend a Coastal Bend Geophysical Society Meeting in Corpus Christi Texas after being awarded a scholarship to be recognized by the society.

News

- According to Baker Hughes Co, the oil and gas rig count is 769 in the week of October 14, 2022, which is the highest since March 2020.
- According to the U.S. Energy Information Administration (EIA) forecasts, U.S. crude output is expected to increase by 610,000 bpd in 2023 to 12.36 million bpd. Output in 2022 is expected to average 11.75 million bpd as reported by David Gaffen on reuters.com.
- As of October 9, the U.S. crude futures were trading at ~\$97.92 a barrel, as reported by Scott DiSavino on reuters.com.

CBGS Business

CBGS currently has 43 active members, 4 honorary members, and 40 student members. Raised \$1,450 towards student scholarships through membership revenue this past year.

CBGS workshops/talks

CBGS hosted two luncheon meetings in February and April, 2022 featuring international speakers, Dr. Rajesh Vayavur, Canada and Dr. Snons Cheong, South Korea, respectively.

CBGS will be hosting the luncheon meeting in November, 2022 featuring speaker, Dr. Mohammed Ahmed. The title of this talk is "Vulnerability of coastal systems to natural and anthropogenic interventions".

CBGS is looking forward to offer workshops/talks in the future. Topic/speaker suggestions are welcome. Email your suggestions to <u>Subbarao.Yelisetti@tamuk.edu</u>

New Degree Tracks at TAMUK and Graduate Scholarships

- Texas A&M University-Kingsville (TAMUK) started its first cohort of MS Petrophysics program in Fall 2018. If you are interested in joining this program in Spring 2023, please contact the graduate coordinator for MS in Petrophysics, Dr. Subbarao Yelisetti at <u>Subbarao.Yelisetti@tamuk.edu</u>.
- The Department of Physics and Geosciences at TAMUK is offering competitive scholarships for MS Petrophysics students. For additional details about the program and scholarships, please visit the website:

https://www.tamuk.edu/artsci/departments/phge/phys/academics/gp.html

• **BS degree in Geophysics, Minor in Geophysics and Certification in Geophysics** offered at Texas A&M University-Kingsville since Fall 2017. Interested students can contact Dr. Subbarao Yelisetti (<u>Subbarao.Yelisetti@tamuk.edu</u>) for additional information.

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Education/Events

-<u>SEG</u>

SEG 2023 annual meeting will be held in Houston, TX from August 27 – September 1. See <u>https://seg.org/Events/Upcoming-SEG-Annual-Meetings</u> for additional details.

See <u>https://seg.org/Education/Lectures/Distinguished-Lectures</u> for information about upcoming SEG distinguished lecture in Houston and other locations.

See <u>https://seg.org/Education/Lectures/Honorary-Lectures</u> for SEG honorary lecture locations in Texas.

-AGU

2022 Fall AGU annual meeting will be held in Chicago, IL from December 12-16th, 2022. https://www.agu.org/Fall-Meeting

Monthly Saying

"When people think of the oil industry, they think of Rockefeller, much like when people think of the software industry, they think of Bill Gates." – H.W. Brands

Monthly Summary

Texas Oil and Gas Info	Current Month	Last Month	Difference	
Texas Production	MMBO/BCF	MMBO/BCF	MMBO/BCF	
Oil	136.0	144.7	-8.7	June
Condensate	21.1	22.7	-1.6	June
Gas	897.9	950.9	-53	June
	Current Month	Yr to date - 2022	Yr to date - 2021	
Texas Drilling Permits	984	8792	8728	September
Oil wells	244	1983	2026	September
Gas wells	122	835	753	September
Oil and Gas wells	576	5548	5556	September
Other	5	77	82	September
Total Completions	1900	13328	13729	September
Oil Completions	1631	10635	10485	September
Gas Completions	269	2693	3244	September
New Field Discoveries	0	10	26	September
Other	753	5910	6172	September

Subbarao Yelisetti President, CBGS







CORPUS CHRISTI GEOLOGICAL SOCIETY COASTAL BEND GEOPHYSICAL SOCIETY



LUNCHEON MEETING ANNOUNCEMENT

November 16th, 2022

Location:	Joe's Crab Shack, 444 N. Shoreline Blvd. (Downtown)
Student Sponsor:	Viper Exploration, Panex Operating LLC, Imagine Resources. Thank you!
Time:	11:30 AM Bar, Lunch follows at 11:45 AM, Speaker at 12:00 PM
Cost:	\$35.00 (additional \$10.00 surcharge without reservation: NO SHOW may be billed.)
Reservations:	Please RSVP by 11:00 AM on Monday, November 14th before the meeting!
	Email: arrangements@ccgeo.org

Please note that luncheon RSVPs are a commitment to Crawdaddy's Downtown and must be paid even if you can't attend the luncheon.

SPONSORSHIP OPPORTUNITIES ARE AVAILABLE! IF YOU WOULD LIKE TO SPONSOR, PLEASE CONTACT US AT:

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CBGS Luncheon Presentation – Wednesday, November 16, 2022

Vulnerability of coastal systems to natural and anthropogenic interventions

Mohamed Ahmed

Department of Physical and Environmental Sciences

Texas A&M University - Corpus Christi

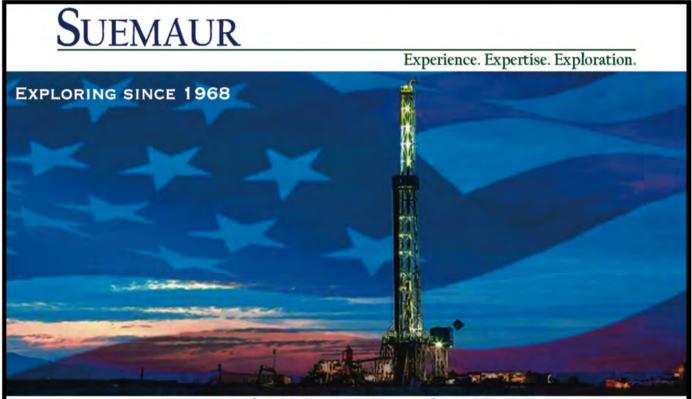


More than one third of the world's population lives in coastal areas. Coastal communities, however, are extremely vulnerable to natural and anthropogenic forces such as flooding, hurricanes, and sea level rise. Barrier island systems provide a first line of defense for these communities by absorbing much of the force of storms and reducing wave energy. The alongshore variation in dune morphology (e.g., height and volume) of these islands controls storm impacts, determines which areas across the island are most likely to experience overwash and/or blowouts, and affects island recovery from tropical storms, hurricanes, and flooding. However, the dune morphology depends on local land subsidence rates as well as the antecedent geological and stratigraphic features. In this talk, we highlight results of our recent research in which we used geophysical surveys (e.g., ground penetrating radar, electric, electromagnetic) as well as remote sensing data and techniques (Interferometric Synthetic Aperture Radar [InSAR]) to investigate how subsurface geologic features and land deformation rates control the dune morphology in coastal Texas.

BIOGRAPHY

Dr. Ahmed received his B.Sc. and M.Sc. degrees in Geophysics from Suez Canal University, Egypt and his PhD degree in Geosciences at Western Michigan University. He applies integrated (geophysics, remote sensing, numerical modeling, GIS) approaches to investigate a wide range of complex geological, and environmental problems. His current research activities address research questions related to current and projected variations in availability of groundwater resources in arid, semi-arid, and coastal environments as well as coastal deformation and geohazards. He offers 15 years of research and teaching experience and an excellent record of publication. His portfolio includes a number of awards and myriad articles published in top-ranked national and international journals. Dr. Ahmed has collaborated in research funded, among others by, SEG, NASA, NOAA, and NATO. He has presented papers and served as a discussant at several national and international conferences and symposia.

SPONSORS



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CALL FOR PAPERS



SUBMIT A TALK OR POSTER ABSTRACT DEADLINE: DECEMBER 15, 2022

Themes include Gulf Coast Exploration and Production, Onshore and Offshore, Mexico and Caribbean, Geoscience Research, and Exploring the Future of Geoscience in the GOM

www.geogulf2023.org

Email <u>linda.sternbach@gmail.com</u> for more information. Be a part of this program. Oral sessions are being organized now.

Sponsors



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2001 Kirby Drive, Suite 950 Houston, Texas 77019 713.522.2733 Contact: Todd Sinex tsinex@stalkerenergy.com

www.stalkerenergy.com



CORPUS CHRISTI GEOLOGICAL SOCIETY COASTAL BEND GEOPHYSICAL SOCIETY



LUNCHEON MEETING ANNOUNCEMENT

January 18th, 2023

Location:	Joe's Crab Shack, 444 N. Shoreline Blvd. (downtown)
Student Sponsor:	Viper Exploration, Panex Operating LLC, Imagine Resources. Thank you!
Time:	11:30 AM Bar, Lunch follows at 11:45 AM, Speaker at 12:00 PM
Cost:	\$35.00 (additional \$10.00 surcharge without reservation: NO SHOW may be billed.)
Reservations:	Please RSVP by 11:00 AM on Monday, January 16th before the meeting!
	Email: arrangements@ccgeo.org

Please note that luncheon RSVPs are a commitment to Crawdaddy's Downtown and must be paid even if you can't attend the luncheon.

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arrangements@ccgeo.org

The Great Texas Freeze of 2021

Steven D. Emerson, PhD, PE* Emerson Technical Analysis, LLC and Robert W. Maxwell, MSc Corpus Christi, TX *Presenter E-mail: <u>Steven.Emerson@EmersonAnalysis.com</u>

Abstract

Early in the morning of Monday, February 15, 2021, lights went out for millions of Texans. Without electricity, furnaces ceased while temperatures plunged to new lows and winds made the cold even more threatening. People were to die of hypothermia. Industry suffered at the same time. Refineries and chemical plants across the state were immediately forced into hazardous emergency shutdowns. Insured losses are predicted to exceed \$18 billion. Historically, Texas has relied on ERCOT (Electrical Reliability Council of Texas) to power almost the entire state, with market-driven incentives for thermal power stations fuelled with coal, natural gas and nuclear fission, and for subsidized windmills and solar photovoltaics. ERCOT has minimal ties to out-of-state grids, evidently to stay outside federal FERC regulation. Generally, the isolated electrical grid worked well, with base loads coming from the nuclear, coal and natural gas combined cycle plants, along with prioritized input from highly-variable wind and solar operations. Lastly, natural gas-fired peaking plants flexibly made-up shortfalls. It worked well, that is until it didn't. During the great freeze, one by one, electricity generators dropped off leading to grid frequency destabilization, and for a brief period the grid came dangerously close to 100% failure across Texas. This paper will examine the structures of the Texas electrical supply, both managerial oversight and physical plant. It will offer insight into the complicated causes of the catastrophic failure, and it will provide guidance on future risk to the Texas chemical and fuels industries due to unexpected power loss.

Keywords: Case histories, reliability, risk from power loss, emergency shutdown, ERCOT, electrical grid.

Biography's

Steven D. Emerson, PhD, PE

President, Emerson Technical Analysis, LLC

- Specialist in safe management of hazardous explosive, energetic, and flammable materials
- American Institute of Chemical Engineers (AIChE) member (especially the Global Congress on Process Safety)
- Texas A&M University Mary Kay O'Connor Process Safety Center (Technical Advisory Committee Member since 2000)
- AIChE Fellow

Robert W. (Bill) Maxwell, MS

Chairman, Suemaur Exploration & Production LLC (Retired)

- Florida State University Leadership Council (College of Arts and Sciences)
- Florida State University Adjunct Professor (Dept of Geology and Geosciences)
 - Instructs graduate students in Energy and the Environment

CHARGER EXPLORATION Michael L. Jones President/Geologist

Onshore Gulf Coast Prospect Generation and Consulting

1001 McKinney Street, Suite 801 Houston, TX 77002 Ofc: 713.654.0080 20Cell: 713.398.3091 Email: mjones@chargerexploration.com www.chargerexploration.com

Landscape of "North Beach" Area Corpus Christi Bay By Randy Bissell

The sandy area of Corpus Christi's downtown referred to as "North Beach," the modern home of the Texas State Aquarium and the USS Lexington Museum has a rich and colorful history as part of the landscape and seascape of downtown Corpus Christi throughout the city's 170 year history.

Gazing upon the bay's largest beach on the other side of a shallow bayou back in the 1840s, you'd have seen a wide barren sand bar extending northeastward of the small Kinney's Trading Post, the future Corpus Christi townsite. That sand spit tapered out against a shallow oyster reef that connected the two sides of the large bay and distinguished the Corpus Christi Bay from the Nueces Bay to the west.

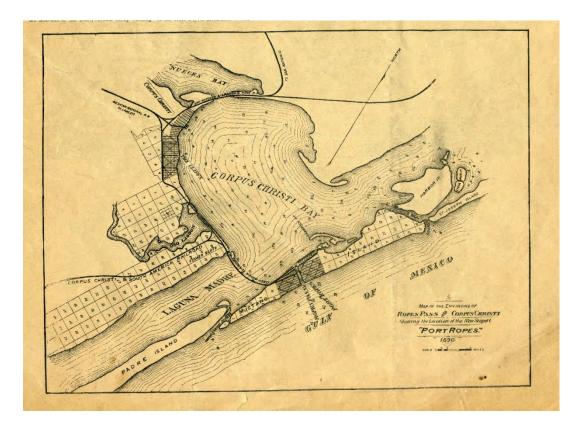
Oysters were abundant in the shallow bays back then, and the water was likely much clearer because of the filtration they provided. Fish, fowl, and game were abundant in this paradise. It made the area a natural draw for native populations dating back thousands of years before the Europeans came and claimed this land.

President Ulysses S. Grant, a young Army officer and his soldiers wintered in Corpus Christi in 1945-46 with General Zachary Taylor, in preparation for the Mexican-American War that would finally settle the boundaries of Texas and complete the Manifest Destiny of a young nation reaching from the Atlantic to the Pacific across the continent.



1845 - Looking southward at the bluffs of Kinney's Trading Post from the vantage on North Beach with General Zachary Taylor's troops encamped.

Although the Port has isolated it today, North Beach is not naturally an island. It is, geologically speaking, a longshore-sediment-sourced "sand spit" that was once connected to downtown. Prevailing winds from the southeast have pushed sand from the bay to be deposited along the old shallow reef. A shoal ran northward towards modern Portland about where the causeway is today. In Nueces Bay, the wild Nueces River advanced and retreated into its own body of water, supplying freshwater and sediment to the back side of the oyster reef and spit that separated Corpus Christi Bay from Nueces Bay. As they are today, the Nueces Delta, Nueces Bay, and Corpus Christi Bay were three distinct ecological areas. With close study, remnants of their uniqueness can still be seen.



1890 – Rope's Grand Plan for developing Corpus Christi Bay and Mustang Island in the vicinity of modern Mustang Island State Park.

The extended downtown shoreline and "North Beach" that we see today have formed in the last 140 years or so due to the construction of the roadways, railways, and causeways that have increasingly connected Corpus Christi and Portland in the last century. It is said that a man could walk across the Bay on the shallow oyster reef that nature provided to connect the two sides – legendarily built up by natives with oyster shells. Wading and walking gave way to wagons on wooden causeways, then a train trestle as shown on the 1890 map above. Today there is a highway. With every new connection came more reinforcement of the landmass making a more substantial trap for the sediments naturally accumulating. Added to that natural accumulative process was the dredging of the Port and ship

channels across the Bay. Is easy to see how that simple sand spit has evolved into the large sandy landmass developed for recreation and habitation in the early 20th and through to the 21st centuries.

The North Beach we see today shows the evidence of its cycles of development, change, and sometimes neglect. When the Bascule Bridge across the port existed through the 1950s, cars drove through a bustling North Beach, not over it like today. Tourist businesses and attractions thrived. Much of the pre-Harbor Bridge development has been lost - abandoned and cleared. With the high 1960s Harbor Bridge and elevated roadway, North Beach struggled to attract tourists and compete with popular Padre Island development. That changed in the 1990s with the construction of the Texas State Aquarium and USS Lexington. Developments of canal-front housing were built on the Nueces Bay side of the highway and causeway. Hotels and restaurants have recently been established and survived. There are people living on North Beach in cottages, condominiums, and RV parks. Things seem ready for a development on the ever-more-popular North Beach.

Over the years, man and nature have constructed, maintained, and modified a new sandy shoreline against the reinforcements of the robust bridge and causeway system. Birds inhabit the new wetlands and roost on the spoil islands. Nature finds a way. People enjoy the beach and tourist sites. The present-day landmass still suffers from a host of issues related to how elements of nature and influence of man converge and intertwine at that location. Tides, rain, wind, and poorly designed drainage conspire to regularly flood North Beach streets and lots. Bulkheads, riprap, groins, seawalls, retaining walls, causeways and concrete "protect" and reinforce some parts of North Beach – but other areas are left to erosion, decay, and subsidence.



Future – A Fly-Through Vision for North Beach, looking south at the

New Harbor Bridge and along a canal to provide access and better drainage.

In 2020, there were substantial proposals to build up the elevation of the land, provide resilient engineering solutions, improve access, and construct canals for better drainage and recreation. Higher and stronger retaining walls might be built to protect the landscape and infrastructure from storms. Through sound geoengineering, it appears that North Beach can be stabilized and protected as an asset to the city.

North Beach has come a long way from the spit north of Kinney's Trading Post, and the sandy campsite of Ulysses S. Grant. A view from the air, it is an area with multiple uses and many challenges to maintain a balance between protection, utility, beauty, and function.



Areal View of North Beach from Google Earth. Note the varied utility of this important landmass and the challenges it may face in the future.



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Hidalgo Canyon and La Popa Valley, Nuevo Leon, Mexico. CCGS 1970 Spring Field Conference. 78 p., 1970. CCGS 103G \$8.00

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Geology of the Llano Uplift, Central Texas, and Geological Features in the Uvalde Area. Corpus Christi Geological Society Annual Spring Field Conference, May 7-9, 1982. Variously paginated. 115 p., 53 p.

<u>CCGS 110G</u> \$15.00

Structure and Mesozoic Stratigraphy of Northeast Mexico, prepared by numerous authors, variously paginated. 76 p., 38 p., 1984. <u>CCGS 1110</u> \$15.00

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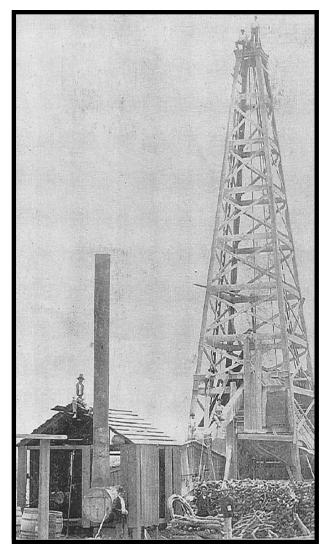
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