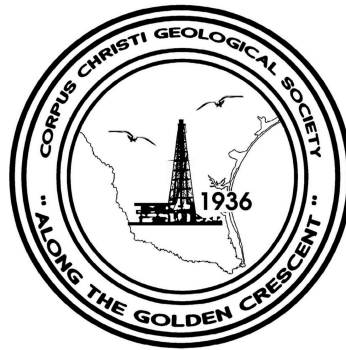


BULLETIN

Corpus Christi Geological Society



and

Coastal Bend Geophysical Society



**October
2019
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2019-2020

www.ccgeo.org

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2017-2018

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**Visit the geological
web site at
www.ccgeo.org**

CCGS/CBGS JOINT MEETING SCHEDULE 2019-2020

September 2019							October 2019							November 2019							
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S	S	M	T	W	Th	F	S	
1	2	3	4	5	6	7			1	2	3	4	5							1	2
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	
29	30						27	28	29	30	31			24	25	26	27	28	29	30	

Thursday, Sept. 26th at 5:30-8:00p.m. Kickoff at Hoegemeyer's Barbeque Barn.

12-1:00pm
 Speakers: Richard Parker
 Geophysicist
 w/Schlumberger
 Edgar Velez geomechanics
 domain champion for the
 western hemisphere

11:30-1:00 pm
 Speaker: Dr. Neil Bockoven

December 2019							January 2020							February 2020						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
1	2	3	4	5	6	7				1	2	3	4							1
8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	19	20	21	22	23	24	25	16	17	18	19	20	21	22
29	30	31					26	27	28	29	30	31		23	24	25	26	27	28	29

CCGS/CBGS Joint Meeting Schedule 2019-2020


March 2020							April 2020							May 2020						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
1	2	3	4	5	6	7				1	2	3	4						1	2
8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
																				31

Calendar of Meetings and Events

Calendar of Area Monthly Meetings

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.....	Fourth Tuesday
Austin Geological Society.....	First Monday
Houston Geological Society Luncheons.....	Last Wednesday
Central Texas Section of Society of Mining, Metallurgy & Exp.....	2 nd Tues every other month in San Antonio

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CCGS President's Letter

Back in the 80's I vividly recall being dragged around the Texas Gulf Coast in dad's suburban to various drill sites, also known as toddler wonderlands, usually with the new Buffett album rocking us along the backroads. It was then that the industry seemed to seep into my blood, fascinating me with the goings on of a drilling rig. Dad working with me and teaching me the proper mechanics of throwing rocks into mud pits, playing with those crummy toys you used to get in cereal boxes in the company man trailer, and lots of coloring on scraps of paper top the list of remembered activities back then...important things to a toddler. The details about the industry aren't as vivid, but I do remember logging trucks being a lot smaller and the company man trailers being a lot bigger.

I was formally borne into the industry in an unconventional way, doing unconventional exploration such as radiometrics, soil gas analysis, microbial analysis, tellurics, etc...“black box” stuff. My uncle and grandfather had an exploration and production company in Dallas, and I started working for them in the industry on November 4, 2002, as a field tech, running the aforementioned surveys. My job was simple, someone would hand me a circle on a map, my job was to locate the circle's surface owners, gain access to run some nonintrusive surveys for however long it would take, go do it, and bring back the data for analysis. My surveys took to me Tennessee, Kentucky, Wyoming, Oklahoma, Kansas, Mississippi, Alabama, Louisiana, and what seemed about 80% of my home state. One of my favorite parts of that job was not having to sit in an office and being able to experience different people and places, especially culinary adventures like steaks in Lowake and enchiladas at Lala's (Buffalo Gap and Mirando City). Six months after my hiring, one of the principals died, and I was thrust into a VP of Operations position, something I knew nothing about. Baptism by fire. I learned a little about geology, but I learned a LOT about the industry from the perception of an operator. This was back when type writers were still necessary to file RRC forms. It was pretty thrilling to type out W-1s, drive to Austin and acquire a water board letter at the old TCEQ headquarters off I 35, then walk through the RRC permitting department, driving way up 183 to Stephens County and spending the next several nights on a rig, sleeping on piperacks until my clothes stood up by themselves. Covering pretty much every aspect of operating that didn't require geology, engineering nor accounting degrees, I found out I wanted to be the guy who understood the rocks and who could draw topos underground and FIND OIL. “Oil is found in the minds of men,” the old saying goes. It brought me back to where it all started: the circle on the map. The desire to use my mind to analyze squiggly lines in wellbores with 120” or less of data, hundreds and sometimes thousands of feet away from each other, connecting dots that

don't exist to draw an intelligent circle a mile or more under your feet to spend seven figures of someone else's money in the hopes of becoming rich overnight sounded like a pretty great job, and it involved lots of coloring! I still get to throw rocks in mud pits, but now I am working on MY toddler's throwing mechanics. He gets a lot more exposure than I did: I make sure to take him to bless the stake, try to make sure he shows up for the drilling, and we usually get to take celebratory photos with wellheads. I took an investor out to see his investment at work and took my son, Paddy, along. He threw an absolute fit when we tried to leave; we had thrown rocks in the mud pit, checked the shakers and mud pumps, peeked at the rig floor from a safe distance, but he demanded we look at the tools in the doghouse. That was the first time I witnessed a three year old throw a fit and demand "to see the tools in the doghouse." He is getting mighty comfy around drilling rigs. The little tyke is 6/6 calling winners and losers. I had an engineer ask to borrow him to bless his upcoming prospect and I'd like everyone to know he is available, for 1% ORRI.

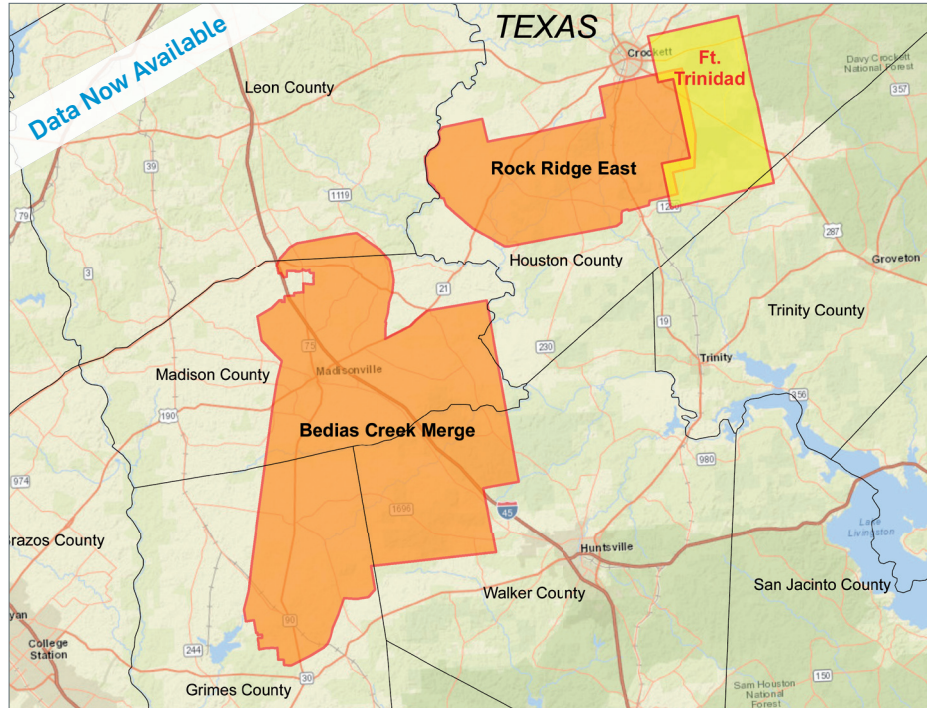
I am looking forward to a fun year with some significant changes: less luncheons, some tech talks, and our usual activities like the Golf Tournaments, Fishing Tournaments, Pub Crawl, Oil Man's Tennis Tournament as well as a few field trips. Hope to see everyone at the next luncheon. Reminder, WE ARE UPSTAIRS NOW AT THE SAME LOCATION. We have some updates to the Water Street menu also that I am hoping everyone will enjoy. The new upstairs venue is fantastic. Plenty of space, some nice tech for us to more easily connect to, and the same great staff and food.

Austin Nye—CCGS President
Vice President, Exploration & Land
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New Ft. Trinidad 3D Survey Houston and Trinity Counties, TX

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CBGS President's Letter

CBGS Board 2019-2020

Dr. Subbarao Yelisetti- President

Samara Omar- Vice President

Erik Scott- Secretary/ Treasurer

Matt Hammer - Scholarship Chair

Mark Wiley - Golf Chair

Education – Robert Schneider

CBGS Scholarships

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 in 2017-2018. 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, U.S. oil drillers cut rigs to lowest since May 2017. The current rig count is 719. There were 866 active rigs in the same week a year ago.
- At the time of writing this report, U.S. crude futures were trading around \$59 a barrel and expected to remain so for the balance of 2019, and \$55 in calendar 2020 as reported by Scott DiSavino on reuters.com.
- The U.S. active oil and gas rig count so far this year has averaged 988.

- According to the analysts at Simmons & Co forecast, the average combined oil and gas rig count will slide from a four-year high of 1,032 in 2018 to 970 in 2019 and 955 in 2020 before rising to 997 in 2021 as reported by Scott DiSavino on reuters.com.
- According to the U.S. Energy Information Administration (EIA) projections, U.S. crude output would rise by 74,000 barrels per day (bpd) in October to a record high of 8.84 million bpd.

CBGS Business

CBGS currently has 52 active members, 4 honorary members, and 60 student members.

CBGS workshops/talks

- As part of the annual Kickoff Bar-B-Q, CBGS hosted Dr. Satinder Chopra on Sep 19, 2018 at the EOG conference center. His talk was entitled “Seismic reservoir characterization of Utica-Point Pleasant shale with efforts at quantitative interpretation – a case study”.
- CBGS offered a land seismic acquisition workshop on Dec 5th in EOG conference center with the following talks.

Talks:

1. A Brief Introduction to Seismic Acquisition (Students & New Professionals Encouraged) by Lonnie Blake, EOG
2. A Comparison of Long, Short, and Slip Sweep 3D Data Image Volumes Acquired And Constrained By Equivalent Source Time (KWP Phase I) by J. W. (Tom) Thomas, Kevin Werth, Tom Phillips, Chris Lindsey Dawson Geophysical Co.
3. A Comparison of 3D Multi-Component (9C) Data Image Volumes Acquired With Conventional and Simultaneous Source Techniques Also With Adequate Spatial Resolution For Compressive Sensing Investigation (KWP Phase 2) by J. W. (Tom) Thomas, Kevin Werth, Tom Phillips, Chris Lindsey Dawson Geophysical Co.
4. SAExporation - More, Recent Advances in Onshore Seismic Data Acquisition Methods by Howard Watt, SAExporation, Houston

CBGS is looking forward to offer many such workshops in the future. Topic/speaker suggestions are welcome. Email your suggestions to Samara_Omar@eogresources.com or Subbarao.Yeliseti@tamuk.edu

Golf Tournament

CBGS organized its annual **Golf Tournament** to fund its scholarship program in the first week of October, 2018 at Northshore Country Club. Raised ~\$4,000 for the scholarship fund.

If you are interested in our next Golf Tournament, please contact Mark Wiley at Mark_Wiley@eogresources.com

New Degree Tracks at TAMUK

- 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 Fall 2019, please contact the graduate coordinator for MS in Petrophysics, Dr. Subbarao Yeliseti at Subbarao.Yeliseti@tamuk.edu.
- **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 Yeliseti (Subbarao.Yeliseti@tamuk.edu) for additional information.

Seismology class

PHYS 5385 Seismology class will be offered in Spring 2020 at Texas A&M University-Kingsville. This is available for the professional community as well as our students. You can sign up as a “transient” student in order to take classes without actually enrolling in the school. If anyone in the professional community wishes to sign up for this, please contact, Dr. Subbarao Yeliseti Subbarao.Yeliseti@tamuk.edu.

SEG Distinguished Lecture

CBGS and TAMUK SEG student chapter organized 2018 SEG Distinguished Lecture in January, 2018. We wish to organize many more lectures in the future.

Ocean Discovery Lecture

The Department of Physics and Geosciences at Texas A&M University—Kingsville is organizing an Ocean Discovery lecture on November 7th, 2019, 4:00-5:30 pm, Peacock Auditorium. The speaker is Dr. Matthew Hornbach from Southern Methodist University. The title of the talk is “Forecasting slope failure and slide-generated tsunami hazards with IODP data”. More information about the talk and the speaker can be found below or at the following link.

<https://usoceandiscovery.org/lecture-series/#1486138175030-dde8fc82-42a5>

Education/Events

-SEG

SEG 2019 annual meeting will be held in San Antonio, TX from Sep 15-20th. Abstract deadline is April 1, 2019. See <https://seg.org/Annual-Meeting-2019> for additional details.

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

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

-AGU

2019 Fall AGU annual meeting will be held in San Francisco, CA from December 9-13th, 2019.
<https://fallmeeting.agu.org/2018/future-meetings/>

-GSA

The Geological Society of America's 131st annual meeting will be held in Phoenix, AZ from 22-25th September 2019.

http://www.geosociety.org/GSA/Events/Annual_Meeting/GSA/Events/gsa2019.aspx

Monthly Saying

"Had it not been for the discovery of coal oil, the race of whales would soon have become extinct. It is estimated that 10 years would have used up the whole family" - Sept 1860 quote from California Fireside Journal.

Monthly Summary

Texas Oil and Gas Info	Current Month	Last Month	Difference	
Texas Production	MMBO/BCF	MMBO/BCF	MMBO/BCF	
Oil	126.9	128.7	-1.8	May
Condensate	16.9	16.9	0.0	May
Gas	770.8	760.7	10.1	May
	Current Month	Yr to date - 2019	Yr to date - 2018	
Texas Drilling Permits	960	8126	9440	August
Oil wells	239	1985	2422	August
Gas wells	49	485	602	August
Oil and Gas wells	605	5021	5764	August
Other	15	84	94	August
Total Completions	578	6327	7297	August
Oil Completions	446	4724	5690	August
Gas Completions	103	1284	1207	August
New Field Discoveries	4	11	16	August
Other	2	20	27	August

Subbarao Yelisetti
 President, CBGS



**COASTAL BEND GEOPHYSICAL SOCIETY
CORPUS CHRISTI GEOLOGICAL SOCIETY**



**LUNCHEON MEETING
ANNOUNCEMENT**

October 17, 2019

- Location:** Conference room in the Basement/Cafeteria
Of the AEP building
- Student Sponsor:** Imagine Resources, Nye Exploration, Viper Exploration, Ltd.
- Bar Sponsor:** Sponsorship Opportunities Available!!!!!!
- Time:** 12:00pm—1:00pm
- Cost:** \$25.00 (additional \$10.00 surcharge without reservation;
NO SHOW may be billed and non-RSVP attendees cannot be
Guaranteed a lunch); FREE for students with reservation
(discounted by our generous sponsors)!
- Reservations:** Please RSVP by 4PM on the FRIDAY before the meeting!
E-Mail: arrangements@ccgeo.org

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

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Coastal Bend Geophysical Society, October Lunchtime Talk, October 17th, 2019

A refresher in the understanding and use of VSPs, checkshots and synthetic seismograms.

The value of any oilfield technology can be expressed in terms of its ability to reduce risk. Borehole seismic surveys deliver considerable value to exploration and production (E&P). First, they provide vital depth and velocity parameters to surface seismic surveys, matching seismically imaged layers to precise borehole depths. Second, they provide high-resolution images that extend hundreds of meters around the wellbore and into the interwell volume. They provide a bridge between the time indexed domain of surface seismic to the real-world depth domain on which planning, and drilling decisions are made.

In addition to providing structural and stratigraphic information, borehole seismic technology can also help to monitor fluid movement and predict lithology and rock or reservoir properties when calibrated with logs, core, production data, or other information. Geological interpretations made from only surface seismic data are limited: the exact velocity, frequency changes, amplitude losses, and phase shifts that occur in the seismic wavefield as it travels through the Earth cannot be determined because only the upgoing waves are recorded.

We will present an over view of Borehole seismic methods, focusing on zero offset VSPs and synthetic seismograms. We will consider the types of sonic logs, review some key acoustic concepts such as log quality control and anisotropy and case studies will be shown utilizing the most common uses of the data.

Richard Parker Biography

Richard Parker is a Principal Geophysicist with Schlumberger and is located in Houston. He is currently assigned to the Western Hemisphere Wireline Domain Center specializing in all aspects of borehole seismic. He has been involved in VSPs, microseismic and crosswell tomography since joining Schlumberger in 1991. He holds a B. Sc.in Geophysics and M.Sc. in Exploration Geophysics from The University of Leeds in the United Kingdom.

Edgar Velez Biography

Edgar Velez is the acoustics geomechanics domain champion for the western hemisphere in Houston, leading the application of acoustics tools in the unconventional market, a position he assumed in 2018. He joined Schlumberger in 2003 as a junior Petrophysicists, in 2008, he was appointed as the acoustics domain champion for the Latin American region. From 2012 through 2014, he was based in Argentina and continued to focus on unconventional reservoirs. Velez graduated with bachelor's degree in Geophysics with honors from the Universidad Nacional Autónoma de Mexico (UNAM) in 2002.

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Applying New Technologies to Old Areas: Relative Geologic Time, Wheeler Diagrams and Near Field Exploration in Faulted Plays -- by Steve Tobias, NearFX, LLC (April 17, 2019)

On April 17, I had the pleasure of enjoying the fine hospitality of the Corpus Christi Geological Society – and some good local cuisine – while I shared stories of some of the newer interpretation technologies that are starting to impact our industry.

Some background first. I started off in this industry in the late 1970’s, doing seismic interpretation in the state waters offshore Texas. Over the years I worked much of the onshore Gulf, as well as the offshore and deep offshore, including subsalt plays.

I also spent about half of my career traipsing around the world, doing exploration in SE Asia, Australia, South America and West Africa. From 2014 through 2017 I worked the North Sea, searching for stratigraphic chalk deposits for Hess. The best part – a three-year stint in beautiful Copenhagen!!

Over the decades, I’ve learned a lot about the differences between the way different nationalities do exploration. What’s probably most relevant to the CCGS is that nobody understands growth faults like we do! Not even close.

And so, the talk I gave was about bringing European technologies to growth fault exploration. This type of cross pollination is really very fruitful, and has served me well over the years. It’s also helped the Europeans, who have recently taken a 65 year old tool from American geologist Harry Wheeler and run with it. Two companies (one Dutch, the other French) have developed very intriguing technologies with which they can turn 3D seismic surveys into 3D Wheeler diagrams!

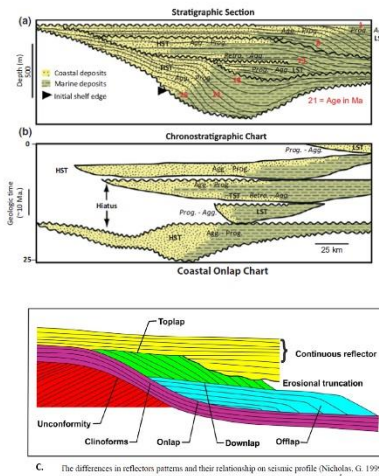
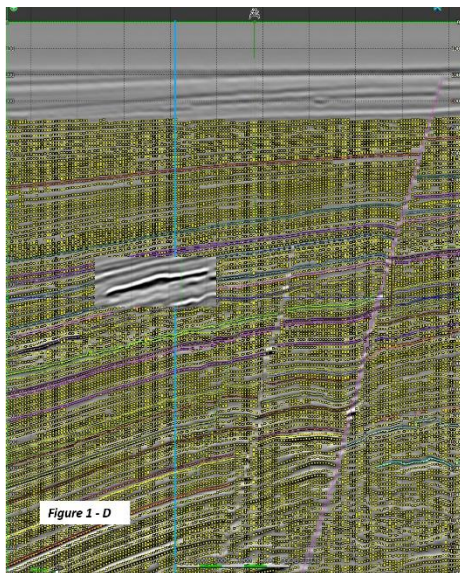


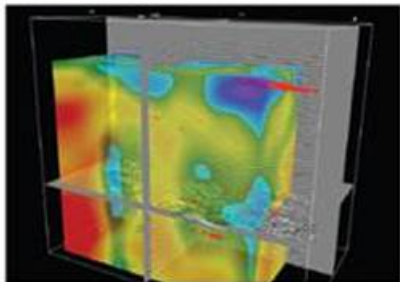
Figure 1 shows what that is all about. The seismic on the left shows a small “clean” rectangle of seismic data, surrounded by hundreds of connected nodes that the computer software used to “autotrack” every single seismic wiggle. This was done through a combination of human supervision and machine learning. The result? Using the software, every single place on the 3D seismic can

now be assigned a “relative” geologic time, or RGT.

Why is this important? Because it enables the user to turn the 3D seismic data into a 3D Wheeler diagram. Figure 1a (upper right) is a cartoon-like representation of a hypothetical piece of the earth, complete with different facies and unconformities. Figure 1b represents the Wheeler diagram that is

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associated with it. Figure 1c (bottom right) shows the “Vail-like” seismic terminations that we normally like to find on the seismic when doing this type of study, since it helps us to draw in all the sequence boundaries with confidence.

The idea here is to use these seismic termination patterns to help break out the different geological facies. This is very important – if you can break out the geology into different packages, it becomes much easier to predict reservoir and seal presence, which is more important now that most of the bumps have been drilled. Figure 2 shows the same idea more or less, only this time with real data.

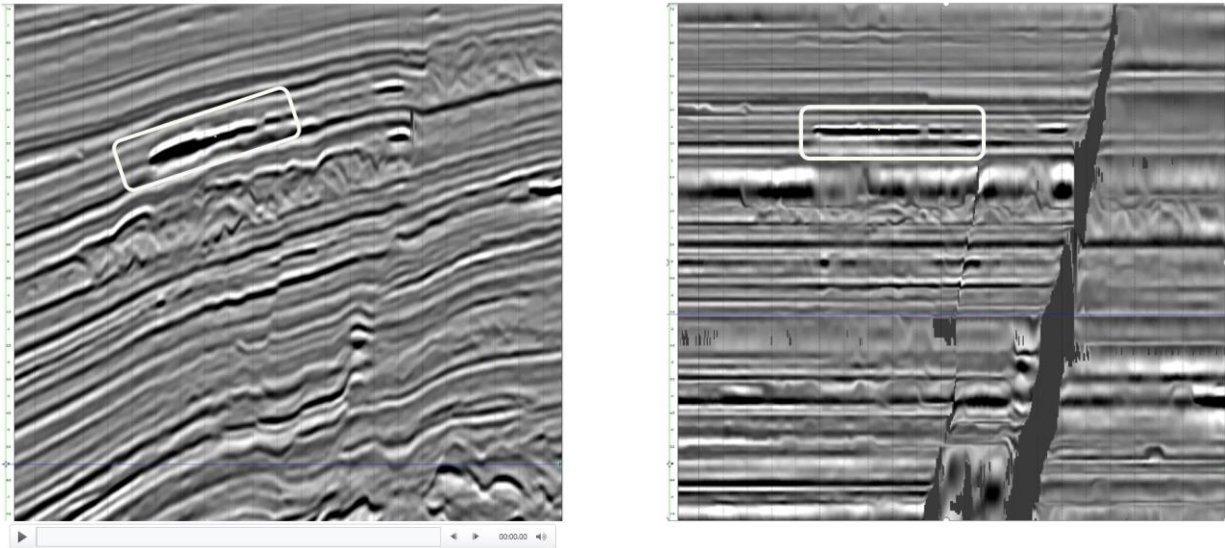


Figure 2: Original seismic, left, versus the same seismic after application of the Wheeler Transform. The vertical axis is now relative geological time (RGT), and all deposits of the same age line up on the same horizontal line.

But let’s get real – how does all this this help find oil and gas? The answer is hinted at in figure 3. This is perhaps a typical seismic vignette from somewhere in Texas or Louisiana that is not subsalt, lying in deep water or on top of a salt dome. What do you see? Faults and reflectors. What don’t you see? You don’t see the type of onlaps, offlaps on downlaps that we saw above, in figure 1d.

Huh? Why not?

The answer is that in the good old GOM, far away from our rigid European colleagues with their more rigid rocks, our growth faults affect our ability to see the “laps” that Vail and his buddies wrote about. They did most of their research on rigid shelf margins like the North Atlantic and West Africa. The GOM is about as rigid as a bowl of jello on a roller coaster. Sure, we also have seismic terminations or “laps” in our data, but ours terminate against the growth faults, and not in plain sight on underlying rocks for everyone to see. To see ours, you need to use expansion profiles, another American invention, but that’s another story. And so the basic techniques of the 40 year old Seismic Stratigraphy revolution had little impact on the every day work habits of the hard working Corpus Christi geoscientist, or their cousins in Houston, New Orleans or elsewhere.

Until now.



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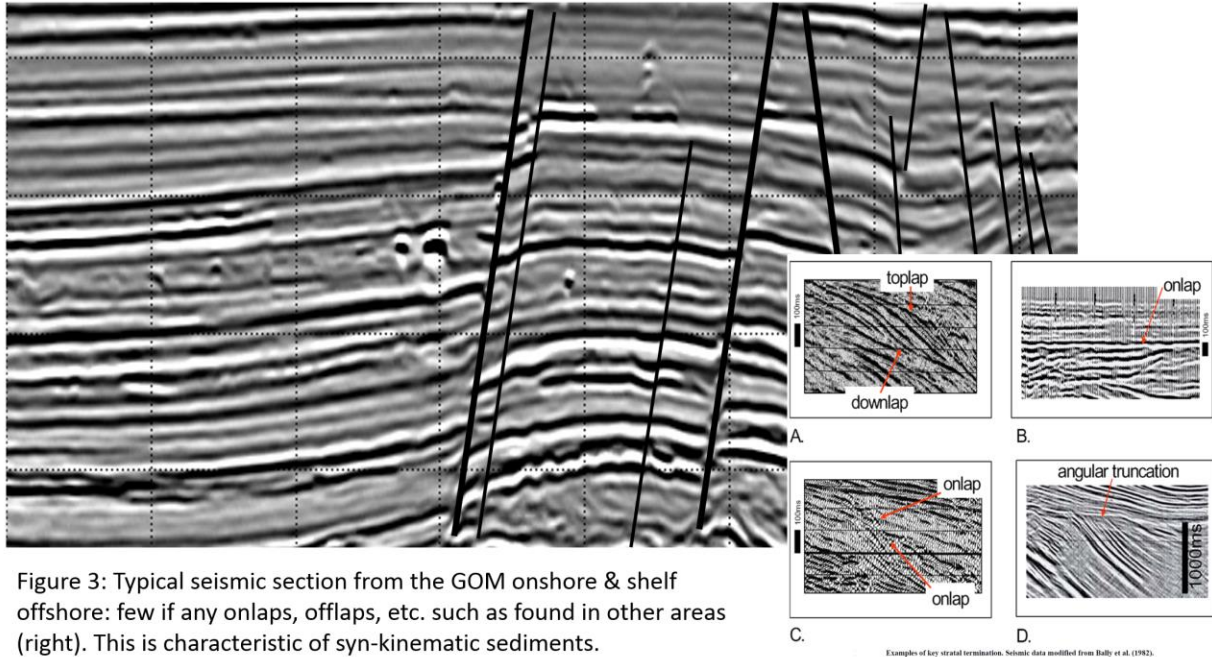
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If you take another look at figure 1b (the Wheeler diagram), it becomes obvious that in “Wheeler space”, all stratigraphic sequences are clearly separated, plain as day. No downlaps need apply. And so if what is holding you back from understanding where that elusive pinch out is in the lower 40, ask the Dutch or the French. They just may have a tool that can help you.

That pretty much sums up the main parts of the talk I gave. What’s pretty cool about this approach is that it is really a geology thing, more than a geophysics thing. You don’t need bright spots, you don’t need a PhD in geophysics. It is the next step in interpretation, and it summons back Harry Wheeler in all his glory. This is healthy—with all the high technology floating around, sometimes GOM’s working the GOM worry that people have lost the big picture when it comes to exploration (the first GOM stands for grumpy old men for those that don’t know). A friend in Canada warns against “Nintendo Geophysics”.

Now don’t get me wrong, I’m a big believer in high tech. I started using neural networks to find oil in Matagorda County and elsewhere when that technology first came out some 20 years ago (Hampson Russell Emerge and GeoQuest SeisClass), and swear by Reverse Time Migration. That stuff really has its place. But so does good solid geological thinking.

Since I’ve moved back from Europe, I’ve been working with a variety of clients to use a variety of technologies to find overlooked oil and gas near existing fields. That’s how I named my company: Near Field Exploration.

Thanks for giving the chance for a GOM GOM to get on his soapbox. And good hunting!

Steve Tobias

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Biography

Steve holds degrees in geology and geophysics and has had a long career in both New Ventures and Near Field Exploration. He started with Mobil, and later worked with Tenneco in the GOM and Colombia and BHP Petroleum in the GOM and Australia. He was Pogo Producing's first international exploration manager during the time that they drilled up the highly prolific Gulf of Thailand. Steve led an international consulting group for seven years, and then co-founded South Bay Resources in 2003. It was extremely successful in using neural networks in the exploration of onshore Texas and Alberta, until it wasn't. Steve then joined Hess where he served in various roles, including subsalt production, Manager of Exploration Excellence and Denmark Exploration manager for three years. For the past year, Steve has provided exploration services for a variety of clients in the GOM and the North Sea. His current area of focus is offshore Gulf of Mexico on the outer shelf and deep water, with emphasis on subsalt plays. Steve also consults in the use of Paleoscan workflows.

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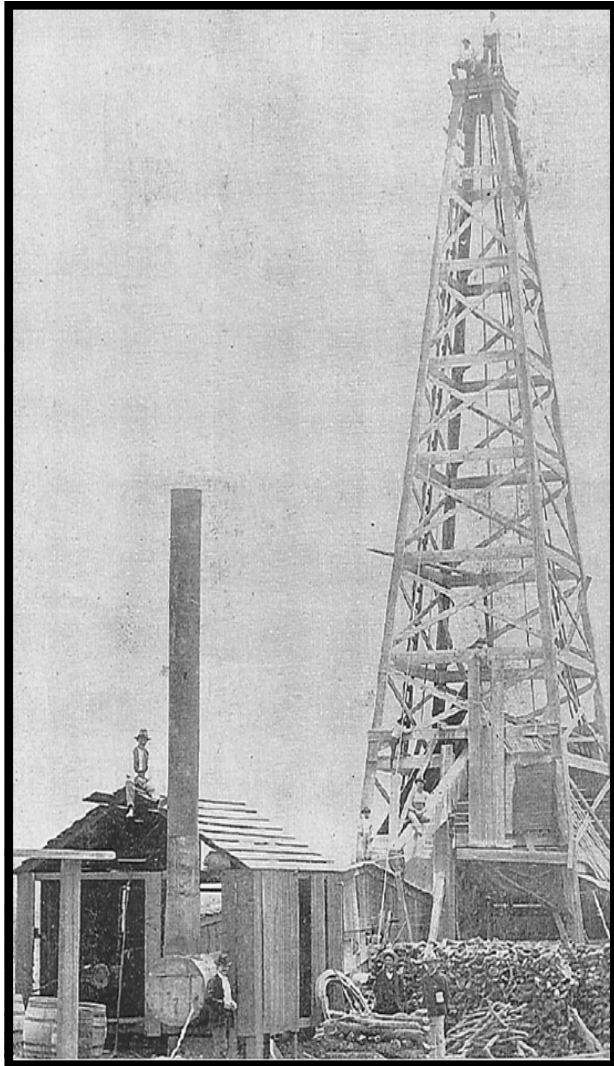
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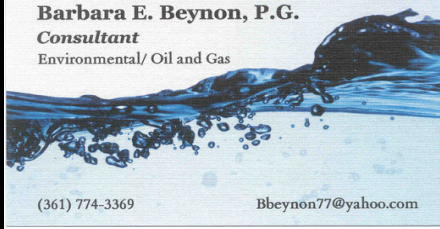
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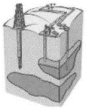
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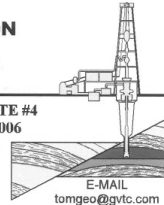
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