BULLETIN

Corpus Christi Geological Society

and

Coastal Bend Geophysical Society

January
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2018-2019
www.ccgeo.org

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2017-2018

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		361-447-2381	

Visit the geological web site at www.ccgeo.org

CCGS/CBGS JOINT MEETING SCHEDULE 2018-2019

September 2018

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

Wednesday Sept. 19th at 5:30 BBQ Kickoff at Hoegemeyers Barbeque Barn. Meet/greet our special guest, Dr. Satinder Chopra*
*One of the most widely published geoscientists of our day.

October 2018

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

November 2018

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

11:30am-1:00pm
Speaker Dr. Jeremy Meyer, Senior Vice President GeoMechanics. "The application of Geomechanics to Unconventional Development"

December 2018

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

No meeting

January 2019

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

11:30am – 1:00pm
Speaker: Hongliu Zeng research scientist Bureau of Eco. Geology, Jackson School of Geosciesnces, The Univ. of Tx. Austin. "Seismic Sedimentology Talk"

February 2019

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

Collegiate Month

CCGS/CBGS Joint Meeting Schedule 2018-2019

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

No meeting

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

To be announced

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

To be announced

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, Metalllurgy & Exp	2nd Tues every other month in San Antonio

SPONSORS

CCGS PRESIDENT'S LETTER

People of the Earth, hear my words. Through several subtle and backhanded channels, I've delved into the political intrigue that surrounds the CCGS Whitehouse. Yes, Trump is not alone. I believe I am surrounded by those that would support and help me, if only they could have their way. I cannot escape their grip. But I've noticed that my band of unindicted co-conspirators and myself share a common flaw that surely will get us all impeached. We suffered from lack of PC.

So in an effort to correct this political flaw, I will attempt to write the first totally PC President's letter where I will not mention Exxon or hydrocarbons, since these are banned words in certain circles. NO, in writing this tome, I want to assure the readers that no plastic straws were used nor did animals die in its creation. I ate responsibly, not at all the way you eat, by gobbling up whatever is put in front of you. I had a totally organic vegetarian or vegan lunch, gluten free, of vegetables that were sustainably raised at a ***local*** farm, brought to market in a caravan of Prius's. Friends at lunch ate meat from cows that were massaged and painlessly euthanized while being read Thoreau's work and gazing at Western vistas of Ansel Adams work. Nitrates were never near the production line. One person had a lobster that had been euthanized before boiling. Eggs in the salad were from non-caged free range chickens. I am wearing ethical clothes, not made in torture chambers of SE Asia. This manufacturer was inclusive and had a diverse staff of well-fed moral workers that cared for each other and the environment and had better health care than we have.

Our luncheon conversation was directed at how we can improve the lot of the less fortunate, *e.g.* - distillery and brewery workers. We fretted about CO2, worried endlessly about humans, discussed how we would never again use BC and AD but BCE, skip the use of Miss, Mrs., refer to that thing in the street as a "Personhole cover." In the spring we will color our Spring Spheres and hide them; and this December we will put up "Holiday Trees."

If you are tired of PC, come back to Earth where I live and watch "One Strange Rock" to learn more about the world I will one day rule.

Frank G Cornish,

Benevolent Overlord

CBGS President's Letter

CBGS Board 2018-2019

Dr. Subbarao Yelisetti- President
Lonnie Blake- Vice President
Matt Hammer- Secretary/ Treasurer
Dr. Robert Schneider- Continuing Education
Lonnie Blake- Golf Chair
Ed Egger- Scholarship Chair

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.

The following criteria is followed in awarding the scholarships.
1. Must be a citizen of the USA
2. Must have declared Major Geophysics at the main campus of the receiving university
3. Must have GPA 3.0
4. Must 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

- At the time of writing this report, the U.S. crude futures were trading around $51 a barrel after falling below $50 earlier this week to their lowest since October 2017 on swelling inventories. Looking ahead, crude futures for calendar 2019 and 2020 were trading around $52 a barrel.
- Year-to-date, the total number of oil and gas rigs active in the United States has averaged 1,028. That keeps the total count for 2018 on track to be the highest since 2014, which averaged 1,862 rigs, as reported by Scott DiSavino on reuters.com.

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- Analysts at Simmons & Co predict that the average oil and natural gas rig count would rise from 876 in 2017 to 1,031 in 2018, 1,092 in 2019 and 1,227 in 2020.

CBGS Business

CBGS currently has 60 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 Lonnie_Blake@eogresources.com or Subbarao.Yelisetti@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 Lonnie Blake at 361-887-2665 or Lonnie_Blake@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 Spring 2019, please

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contact the graduate coordinator for MS in Petrophysics, Dr. Subbarao Yelisetti at Subbarao.Yelisetti@tamuk.edu.

- **BS degree in Geophysics, Minor in Geophysics and Certification in Geophysics** offered at Texas A&M University-Kingsville from Fall 2017.

Interested students can contact Dr. Subbarao Yelisetti (Subbarao.Yelisetti@tamuk.edu) for additional information.

Seismology class

PHYS 5385 Seismology will be offered in Spring 2019 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 the instructor, Dr. Subbarao Yelisetti Subbarao.Yelisetti@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.

Education/Events

-SEG

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

2018 Fall AGU annual meeting will be held in Washington, DC from December 10th-14th, 2018. https://fallmeeting.agu.org/2018/

-GSA

The Geological Society of America's 130th annual meeting will be held in Indianapolis, Indiana from 4-7th November 2018.
https://community.geosociety.org/gsa2018/home

Monthly Saying

"Oil at $100 per barrel will not close a contour that is not there, and gas at $10 per mcf will not take enough clay out of a sandstone to make it reservoir" - J.F.Bookout

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Monthly Summary

Texas Oil and Gas Info	Current Month	Last Month	Difference	
Texas Production	**MMBO/BCF**	**MMBO/BCF**	**MMBO/BCF**	
Oil	111.3	118.9	-7.6	August
Condensate	13.1	14.1	-1.0	August
Gas	695.4	714.1	-18.7	August
	Current Month	**Yr to date - 2018**	**Yr to date - 2017**	
Texas Drilling Permits	1149	11563	10528	October
Oil wells	271	2964	2650	October
Gas wells	64	721	589	October
Oil and Gas wells	729	7069	6619	October
Other	6	110	155	October
Total Completions	1213	9254	5799	October
Oil Completions	987	7230	4492	October
Gas Completions	170	1506	868	October
New Field Discoveries	3	20	26	October
Other	7	36	18	October

Subbarao Yelisetti
President, CBGS

CORPUS CHRISTI GEOLOGICAL SOCIETY
COASTAL BEND GEOPHYSICAL SOCIETY

LUNCHEON MEETING ANNOUNCEMENT

January 16,2019

Location:	**Water Street Events (Previously the Seafood Company Restaurant) 300 Block N. Water Street, CC, TX 78401**
Student Sponsor:	**Imagine Resources, Nye Exploration, Viper Exploration, Ltd.**
Bar Sponsor:	**Sponsorship Opportunities Available!!!!!!**
Time:	**11:30 am Bar, Lunch follows at 11:45 am, Speaker at 12:00 pm**
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 to the Water Street Events and must be paid even if you can't attend the luncheon.

SPONSORSHIPS OPPORTUNITIES ARE AVAILABLE!
IF YOU WOULD LIKETO SPONSOR, PLEASE CONTACT US AT:
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AN ALTERNATIVE NARRATIVE OF SEISMIC SEDIMENTOLOGY FROM A GEOLOGIST'S PERSPECTIVE

ABSTRACT

Seismic sedimentology is a high-resolution supplement for traditional, low-resolution seismic stratigraphy, reflecting the fact that seismic responds to sedimentary bodies differently at low and high resolution. Seismic stratigraphy is a model-driven method that follows the principles of field geology and the well-based study of subsurface sedimentology, and it assumes that seismic reflections can duplicate geologic correlations. Seismic sedimentology is a more data-driven approach based on the understanding of how a seismic signal responds to thin-bedded depositional elements in the context of stratigraphy, which is a function of thickness, lithology-impedance model, wavelet phase, and frequency. Seismic sedimentology is focused on mapping seismic litho-geomorphologic facies, by joint investigation of seismic lithology and seismic geomorphology. I such an investigation, seismic lithology and seismic geomorphology are complementary, making more complete use of seismic information, and they can be more powerful in determining the sedimentary environment and reservoir quality. To reduce the knowledge gap between sedimentary geologists and seismic geophysicists sedimentologists have to learn and master geophysical principles and techniques. To begin with, a simplified four-step workflow is recommended, which can be summarized as select-adjust-decompose-blend. Read More: https://library.sseg.org/doi/abs/10.1190/INT-2017-0145.1

BIOGRAPHY

Hongliu Zeng is a senior research scientist for the Bureau of Economic Geology, Jackson School of Geosciences. The University of Texas at Austin. He earned his B.S. (1982) and M.S. (1985) in Geology from the Petroleum University of China and Ph.D. (1994) in Geophysics from the University of Texas at Austin. His research interests include seismic sedimentology, seismic chronostratigraphy, seismic interpretation and attribute analysis.

CCGS SCHOLARSHIP AWARDS

The Corpus Christi Geological Society awarded $8,500 in scholarships to 13 local students in November 2018 from Del Mar, TAMU-CC, and TAMU-K. These scholarships are to be used for the Spring 2019 semester.

The following are the recipients and their degree plans:

Charles Anderson Del Mar Geology

TAMUCC
Brianna Watkins, BS, Geology
Dominic Baptiste, BS Geology
Zoe Ruben, BS Environmental Science
Joseph Stearns, MS Environmental Science
Ryan Turner, MS GeoChemistry

TAMU-K
Andrew Edlin, BS Geology
Jesus Lemus Bohorquez, BS Geology
Lenora Perkins, BS Geology-Geophysics
Ajibola Sam, MS Petrophysics
Erin Matthys, MS, Petrophysics
Monica Estrada, MS Petrophysics
Toluwalope Bamisile, MS Petrophysics

The CCGS Scholarship fund received donations from member contributions, the CCGS Golf Tournament, the CCGS Fishing Tournament and the Corpus Christi Oilman's Tennis Tournament.

These donations are vital to allow the committee to fund the scholarships for our striving students. Every donation is very much appreciated.

In April 2019 we plan to host the second annual CCGS Golf Tournament on a Friday and then another Pub Crawl on that Saturday. Watch for details and join us in these events to benefit the scholarship fund.

The Scholarship Committee members are:
Brent Hopkins, Treasurer, Frank Cornish, CCGS President
BJ Thompson, Sebastian Wiedmann, and Casey Mibb, Members

Dawn S. Bissell
Scholarship Committee

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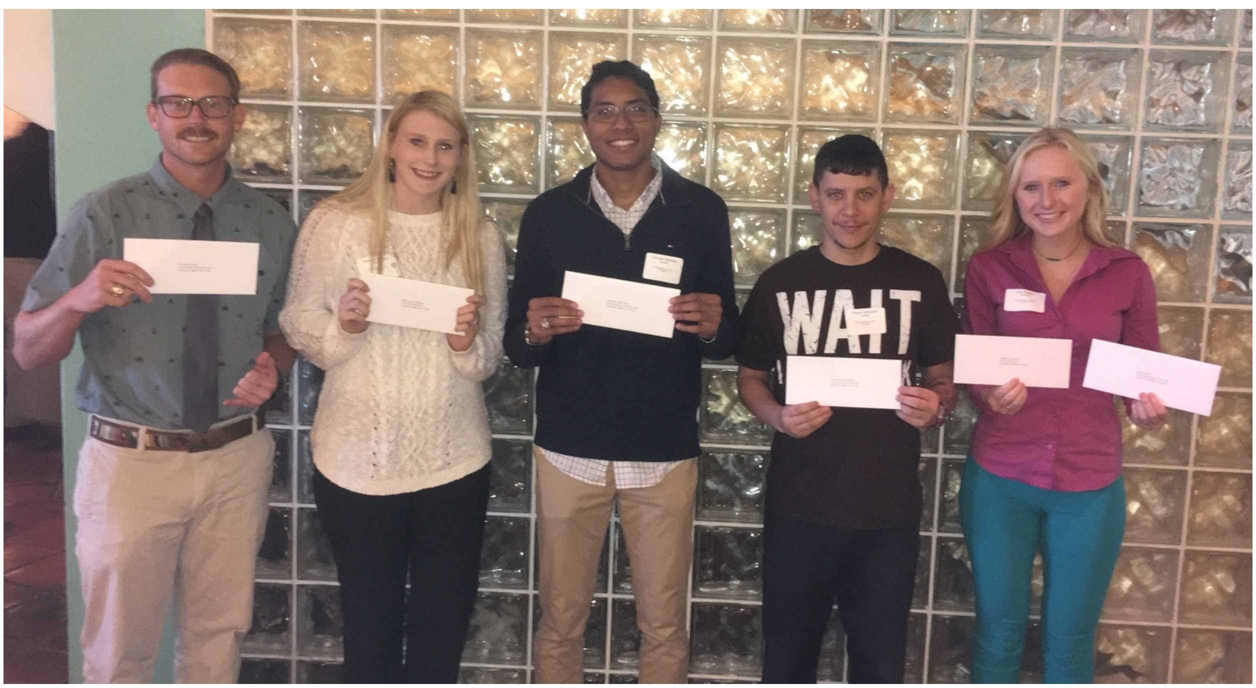
TAMUK STUDENTS

Andrew Edlin, Jesus Lemus Bohorquez, Monica Estrada, Toluwalope Bamisile Ajibola Samo, Lenora Perkins, Erin Matthys

TAMUCC STUDENTS & DEL MAR



Ryan Turner, Brianna Watkins, Dominic Batiste, Charles Anderson (DelMar), Zoe Ruben, Joseph Sterns, not pictured

HYDROCARBON TRAPS ASSOCIATED WITH UPPER WILCOX CANYONS AND SEISMIC RESPONSE, MID GULF COAST, TEXAS

Frank G. Cornish and Louis R. Lambiotte

ABSTRACT

Three types of hydrocarbon traps occur along the predominantly shale filled Upper Wilcox (Early Eocene) canyons in Dewitt, Goliad, Victoria, and Lavaca Counties, TX.: 1) Regional Upper Wilcox sands trapped (unconformably) against the shale filled canyon wall, 2) Sinuous channel sands within the shale canyon fill, and 3) Canyon fill sands associated with the final phase of canyon fill and initial phase of the return to regional deltaic sedimentation (regression). These are listed in economically significant order. Poor production does not eliminate a trap type from consideration in exploration, as these wells indicate hydrocarbon presence. The Anna Barre/Meyersville and Jennie Bell canyons were previously described by the author, occurring in two separate stratigraphic intervals of the Upper Wilcox. These are shelf incised canyons with adjacent slope confined canyons.

The lateral sandstone trap against a shale filled canyon (unconformity) is common along the Middle Wilcox Yoakum canyon. It is the best trap for the Upper Wilcox canyon fields as well. Anna Barre Wilcox J (RRC) Field has produced 38.4 BCFG and 561 MBC from the Middle Wilcox J sand on a rollover anticline of 630 acres with 94' of closure truncated by canyon erosion. The Upper Wilcox Lower Massive 1 and 2 (LM1, LM2, authors designation) have produced 37 BCFG and 730 MBC from the Mission Valley 10220 sandstones and Mission Valley, W. 10600. The trap is a structural rollover anticline with lateral sandstone truncation by deep canyon erosion. These two traps occur in the Anna Barre and Meyersville canyons, respectively.

Sinuous sandstone structural/stratigraphic traps are present in the Jennie Bell canyon and the Anna Barre canyon. Thomaston 8750 (2 BCFG & 19.1 MBC), Anna Barre 8400 (0.6 BCFG & 6.9 MBC), and Rob Welder Wilcox 9100 (1.1 BCFG & 30.5 MBC) are all one well fields from a similar sinuous sandstone in the Jennie Bell canyon. The canyon has as many as seven separate sinuous sands. Within the Meyersville canyon one well has produced a a small amount of gas (0.013 BCFG) from the Meyersville Massive IV sandstone. Anna Barre 8400 and Rob Welder Wilcox 9100 are in structurally high locations on anticlines. Thomaston 8750 and Meyersville Massive IV sandstone traps occur along the north flank of Thomaston and Meyersville E, Fields, respectively.

Sandstones productive from the initial delta filling of the uppermost canyons occur in Anna Barre 8500 (TC 0.8 BCFG and 16 MBC) in a structural anticlinal trap.

Canyons are recognized on some seismic data, using varying color bars and noting reflector termination against canyon walls. Mission Valley 10220 sandstone has an anomalous amplitude and an AVO response. Sinuous sandstone bodies can clearly be seen with seismic data in both canyons. Classic AVO cannot distinguish wet sinuous sandstones from productive reservoirs.

INTRODUCTION

With the discovery of thick Wilcox sand packages in the deepest Gulf of Mexico, a huge petroleum system has been found from 70 miles inland of the Texas coast to 180 miles offshore. Delivery systems of sandstone to the deep gulf have been identified all along the Texas and Louisiana gulf coast consisting of deep canyons of Lower (Devine and Wheeler 1989, Galloway et al 1991; Galloway and Mcgilvery, 1995), Middle (Chuber, 1986, 1987; Dingus and Galloway, 1990), and Upper Wilcox (Cornish 2011, 2013, 2016). We believe the story of the hydrocarbon systems between the two. remains to be told as Wilcox slope sub-basins and in-canyon sands are discovered between the two huge systems on the shelf and in the deep Gulf. Documentation of the slope system is still incomplete. Here, we are documenting shelf systems and upper slope systems in the mid Gulf associated with Upper Wilcox canyons that have previously been shown in poster session (Extended abstracts) and presentations only. Our paper will describe traps that have been discovered and points to conventional traps yet to be found that are associated with these canyons.

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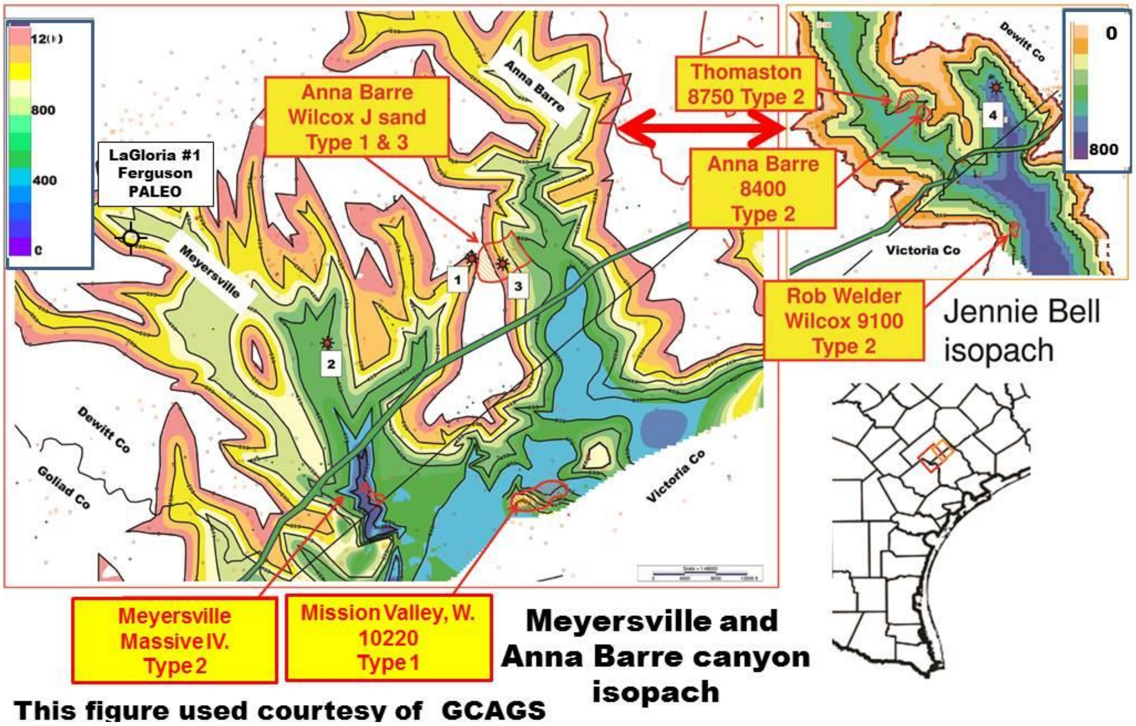

***Figure 1**. Location of hydrocarbon traps discussed: (A) Isopach of Anna Barre/Meyersville canyon (B) Jennie Bell canyon and location of hydrocarbon traps (fields – RRC names) associated with canyons. Numbers are type log wells on Figure 2. Regional green fault is first Upper Wilcox expansion fault system which separates shelf high-stand deltas from upper slope deposition. Black numbers in white squares refer to type logs in Figure 2. Double headed red arrow shows where younger Jennie Bell canyon map (B) fits relative to older Anna Barre canyon. LaGloria 1 Ferguson had well cuttings examined by the BEG for paleo.*

CANYON STRATIGRAPHY AND GEOLOGICAL SETTING

Cornish (2011) identified four deeply incised Upper Wilcox systems. Three of them are associated with hydrocarbon traps. They are located along the central Texas Gulf Coast in Dewitt, Lavaca, Victoria, and Goliad counties. They are incised into the highstand Massive deltas of the Upper Wilcox along the shelf edge incising to a maximum distance of 11.6 mi (19.3 km). The shelf edge was defined by Cornish (2011) as the fault systems across which the Upper Wilcox thickens 1.6–1.9x (Figure 1). The systems are adjacent to, but younger than the Middle Wilcox Yoakum canyon. They are located between two Upper Wilcox depocenters (Miller, 1989), the Massive delta to the southwest and the Columbus delta to the northeast (Fig. 1). The three systems with hydrocarbon traps are identified by type logs (Figure 2). The incised systems have two stratigraphic occurrences, one cutting below the Massive II sands and the other cutting into the Massive IV sandstones. The Massive IV systems were named the Meyersville and Anna Barre systems. The Massive II systems were named the Jennie Bell and Hope systems. The Hope system is not discussed here since it does not trap hydrocarbons to date. These canyons are incised into Upper Wilcox deltaic sandstones that form an upward coarsening highstand parasequence (Fig. 2). The Upper Wilcox Massive sands lie between the Middle Wilcox 'Yoakum Shale' maximum flooding surface below (Xue and Galloway, 1995) and the Reklaw 'Runge Shale' maximum flooding surface above (Hargis, 2009). The Yoakum has been dated at 54.3 Ma (Xue and Galloway, 1995) and the Reklaw at 49 Ma (Miller, 1989). There are no other dates within the Upper Wilcox group. The BEG through the STARR program worked the only well cuttings found within the canyon system for paleo. They were able to determine the poor samples to be "deep water" (personal communication, William Ambrose). With the incision of the canyons into the shelf, a lateral flooding surface above and outside the canyon, and deep marine environment indicated by paleo, a relative sea level rise is indicated.

THREE HYDROCARBON TRAP TYPES

Three trap types have been identified and classified according to current economic value from best to uneconomic:

1) Regional Upper Wilcox sands trapped laterally against the shale filled canyon wall,
2) Sinuous channel sands within the shale canyon fill, and
3) Canyon fill sands associated with the final phase of canyon fill and initial phase of the return to regional deltaic sedimentation (regression).

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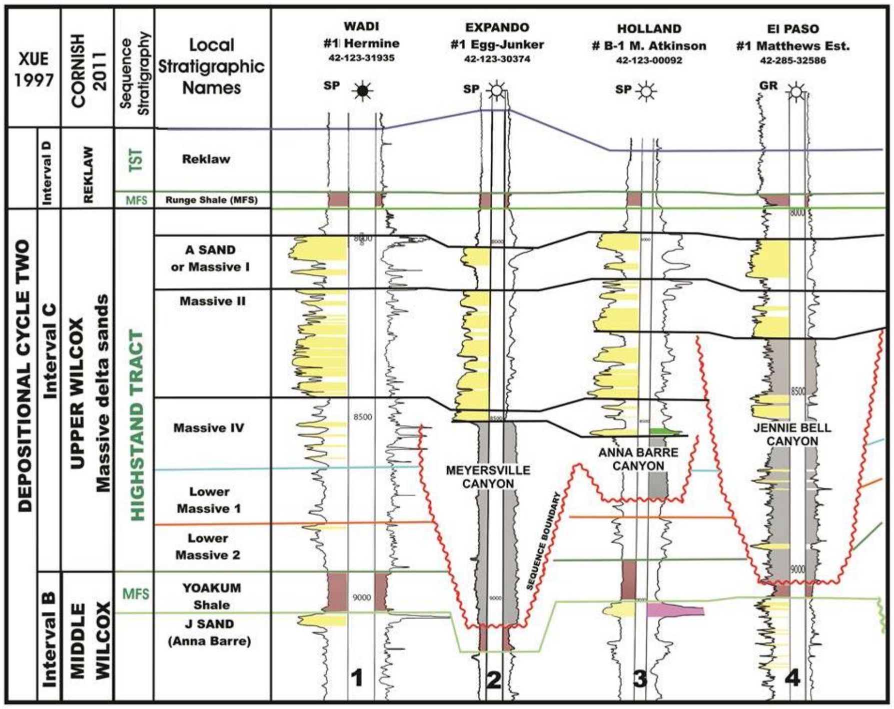

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Figure 2. *Regional and local stratigraphy of the mid-Texas coast Upper Wilcox. Two stratigraphic occurences of canyons incised below the Massive II and Massive IV zones (modified from Cornish (2011). Well locations on Figure 1. Stratigraphy is local subsurface nomenclature within the framework of Xue (1997). Note: type logs are arranged with well #1 (full stratigraphic section) to the left of wells showing canyons.*

The value of the classification is for exploration purposes. A conservative explorationist would say "Lets avoid the noncommercial traps". A less inhibited explorationist would say, "Good! Hydrocarbons in the system. Let's find a better trap or better reservoir."

HYDROCARBON TRAPS AGAINST SHALE FILLED CANYON (LATERAL TRAP)

Two examples of the trap type illustrate the best economic fields: the Mission Valley, W. Field (Victoria Co. Tx) and the Anna Barr J/K Sand Field (Fig. 1, Dewitt Co., Tx). These are traps in the Meyersville and Anna Barre canyon respectively. Figure 3 is a top of Wilcox structure map of the Mission Valley, West Field showing the truncation of two key field sands and location of the structural cross section shown in Figure 4. The productive horizons (LM1, LM2) are below the top Wilcox. The designations are the authors' acronyms for Lower Massive 1 and Lower Massive 2. These are two important regional sands for correlation purposes and help identify canyons on seismic data by their absence. The field is downthrown to the regional Upper Wilcox expansion faults and is in the upper reaches of the slope. The two main sands (LM1 and LM2) of the field are expanded across the fault and believed to be thick slope channel sands. They are truncated across the rollover closure. Railroad Commission (RRC) Field names for these sands are the Mission Valley 10220 sandstones and Mission Valley, W. 10600. The field has produced 37 BCFG and 730 MBC (IHS 5/2018) from these sands.

Seismic data of this trap (Figure 5) shows the truncation of the regional LM1 and LM2 reflections terminating against dipping and onlapping reflections that fill the Meyersville canyon. Both the full prestack migration (PSTM) and phase are shown. The phase attribute display is helpful in finding the canyons because it tends to see sequence boundaries (Chopra and Marfurt, 2007). Hydrocarbon presence is indicated by the occurrence of two seismic attributes in those horizons: the upper sand has amplitude development and the second sand exhibits a phase reversal.

The Anna Barre trap is a canyon truncated rollover similar to Mission Valley, W. (Figure 6). This trap has produced 38 BCF and 561 MBC (IHS 5/2018). Figure 7 shows the trap to be located on a small arm of the main incision. The sands trapped (J and 9100 K, RRC) are Middle Wilcox below the Yoakum MFS. The isopach of the Anna Barre canyon has its greatest thickness of 760' (Figure 7) and outlines the truncation of the J sand. At this horizon, the seismic attributes are not related to sand thickness or to hydrocarbons as shown by the sand isopach map (Figure 8) that does not correlate to amplitudes (Figure 9) or the hydrocarbon column. This is the result of the acoustic impedence of the Yoakum shale being similar to the acoustic impedence of the J sand (Figure 17). Figures 10 and 11 are both flattened on top of the Wilcox and show the canyon seismically and in cross section. The Anna Barre canyon is identified by the termination of the regional sand horizons, the LM2 and Wilcox J sand. The upper reaches of the canyon began to fill with the initial return of deltaic deposition and relative sea level rise (see discussion of Type 3 traps).

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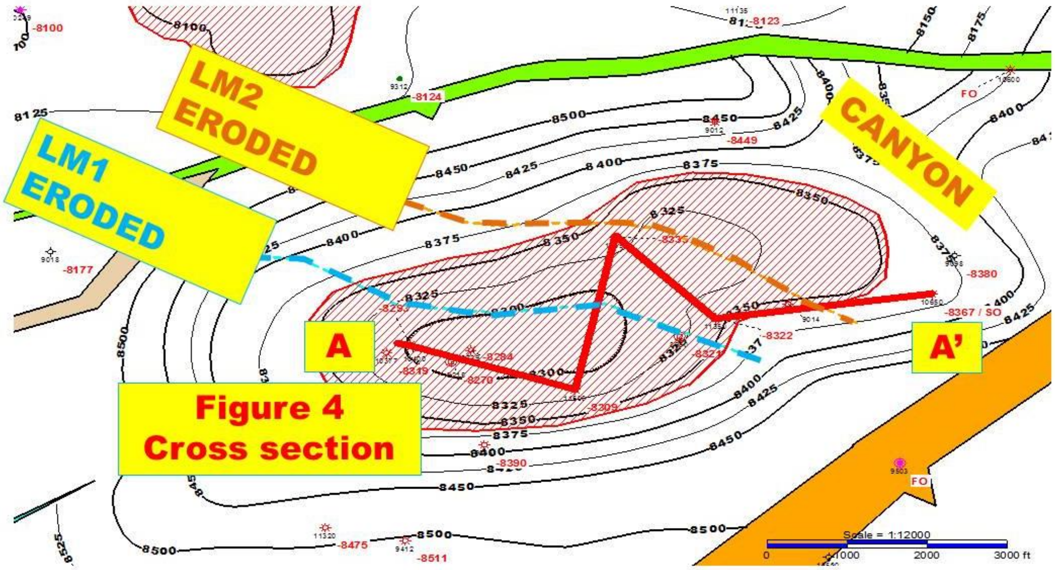


This modified figure used courtesy of GCAGS

Figure 3*. Top Wilcox structure map above the Mission Valley, W. 10220 reservoir (LM1). Dashed lines are erosional boundaries of primary field pay against canyon shale. Canyon cuts out sands to the north. Red polygon is top Wilcox production. Trap is a combination structural-stratigraphic. Location of cross section A-A', Figure 4.*

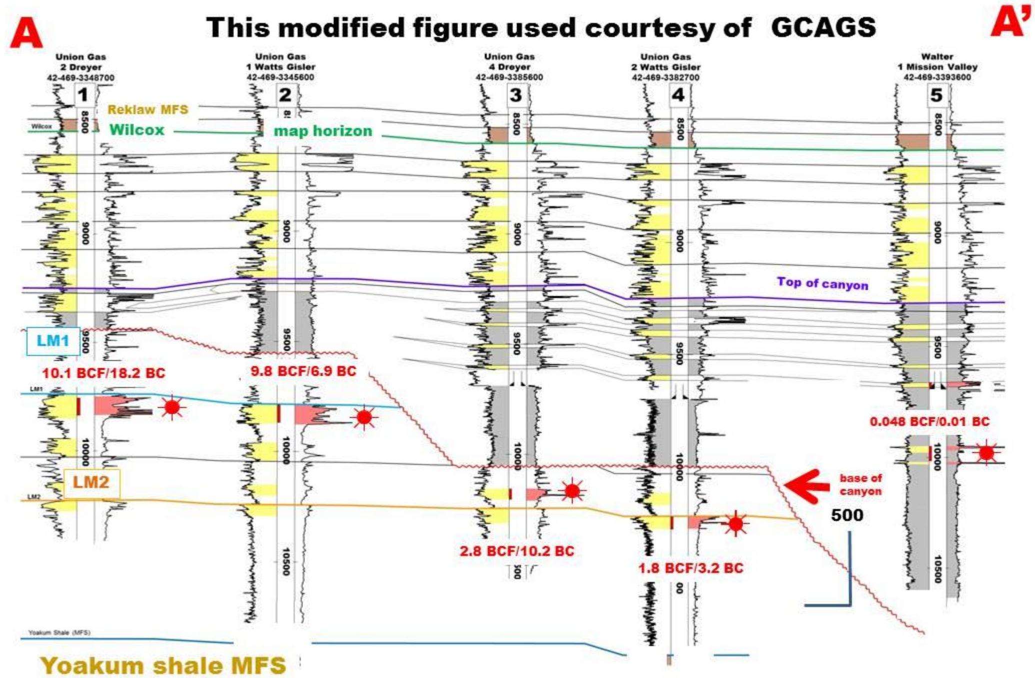
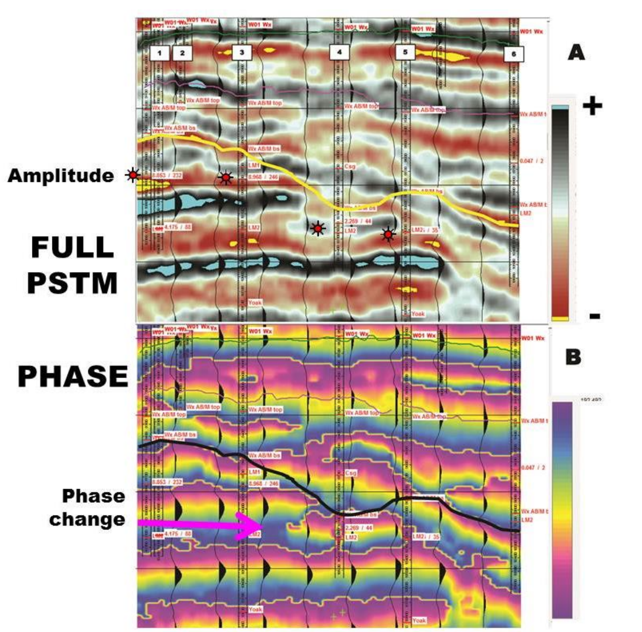


Figure 4*. Structural cross section A-A' illustrating shale filled canyon cutout of regional sandstones trapping hydrocarbons. Figure 3 structure map is from top of Wilcox. The LM1 is the RRC Mission Valley 10220. Production (IHS 12/2015) is highlighted in red and labeled. Log curves are gamma ray (GR) to left, and deep resistivity (Rt) to right. Flooding shales (brown -MFS) are the Middle Wilcox Yoakum at base of figure and Reklaw above the Wilcox. Top of canyon is heavy black line and limit of gray shale. The trap is the shale filled canyon across a structural high illustrated in Figure 3.*



This modified figure used courtesy of GCAGS & WesternGeco

Figure 5. *Arbitrary seismic line along Cross section A-A' (see Figure 4 for well names- numbered squares). Red tags are horizon tops and production (****4.175/88 = 4.175 BCF/ 88 MBO****). The Anna Barre/Meyersville canyon is outlined; black/yellow is base (Wx AB/M bs), purple line is top (Wx AB/M top). Top of Wilcox (W01 Wx) is green line. Yoak is Yoakum shale, the Middle Wilcox MFS. Canyons can be distinguished by truncation of regional beds, Lower Massive 1 (LM1), Lower Massive 2 (LM2) and onlap of tilted canyon fill beds.* ***A****. Pre-stack amplitude (PSTM) with a modified "Landmark" colorbar. Note the high amplitude trough anomaly (yellow) associated with hydrocarbons by well #1 in the upper zone (8.863/232) and no amplitude in the lower zone (4.175/88). High amplitude is an inconsistent hydrocarbon indicator as seen by diminished amplitude in the production in well #4. However, this zone displays a phase change.*
B. *Phase display with standard SEG instantaneous phase colorbar, helps identify sequence boundaries (unconformities, such as canyon wall). Display published with permission from* ***WesternGeco****.*

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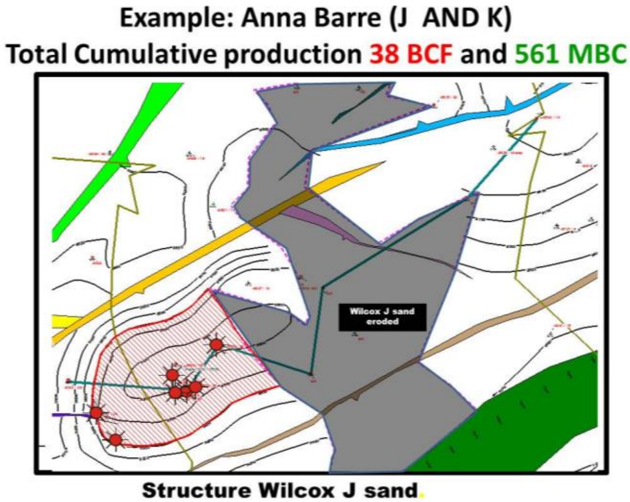


Figure 6. *Structure map of Wilcox J sand with productive area in red , location of Cross section B-B' (Figure 11) and IHS production data (12/2015). J sand eroded by Jennie Bell canyon in gray shade.*

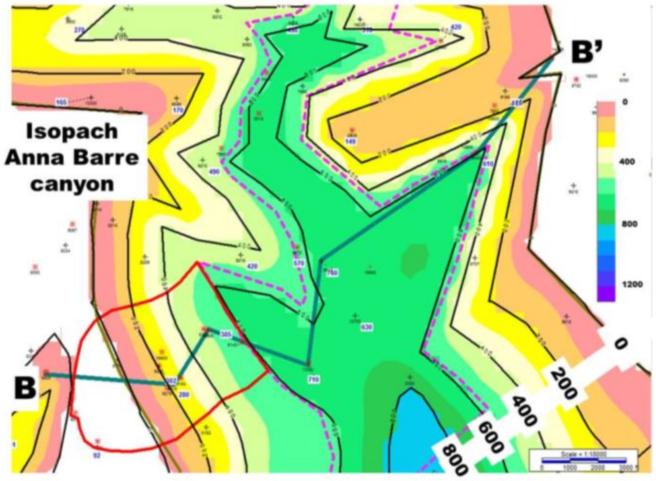


Figure 7. Detail of Anna Barre canyon isopach and isopach values

Figure 8. Isopach of J sand; red numbers are subseas of J sand/thickness, ER – eroded

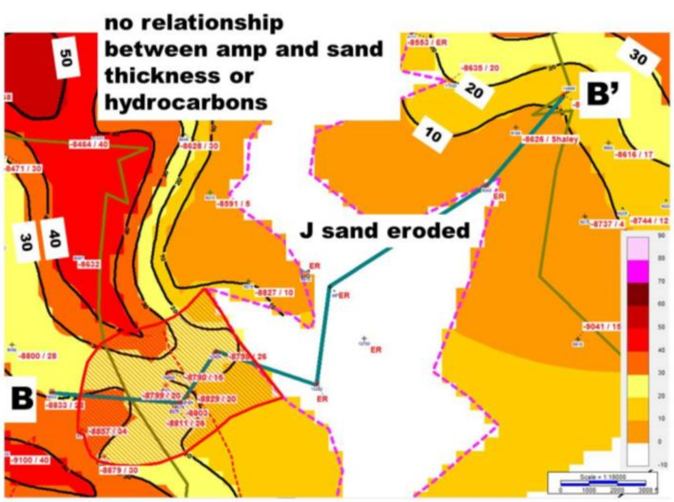
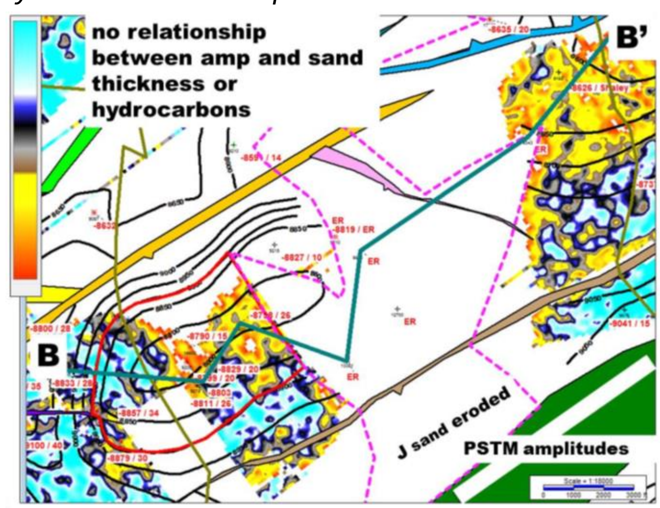


Figure 9. Pre-stack amplitude map of J sand showing little relationship to sand thickness or hydrocarbons; red numbers are subseas of J sand/thickness, ER – eroded. Red outline is hydrocarbon column/production



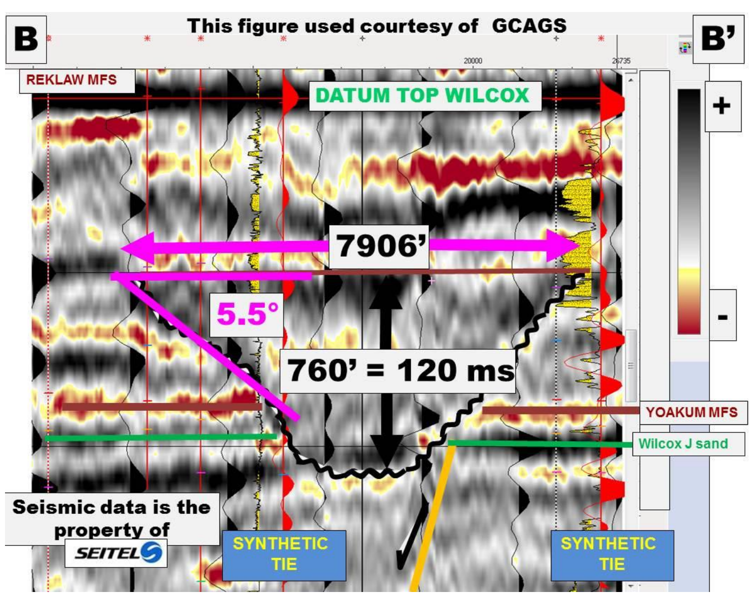


Figure 10. Flattened pre-stack seismic along cross section B-B' Figure 11. A un-interpreted, B. interpreted, modified from Cornish (2013)

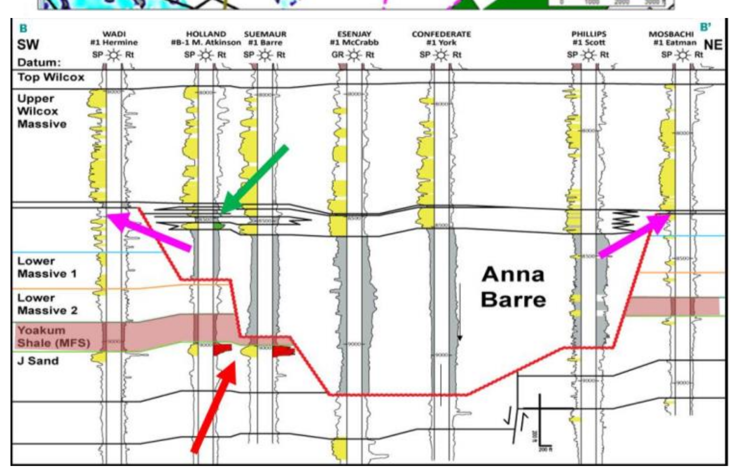


Figure 11. Stratigraphic cross section of Anna Barre canyon along the seismic line Figure 10, modified from Cornish (2011). Red arrow shows J sand productive against canyon edge, pink arrows show overflowing flooding surface of canyon fill suggesting relative sea level rise. Green arrow highlights sand body of Figure 22 and 23.Courtesy of STGS.

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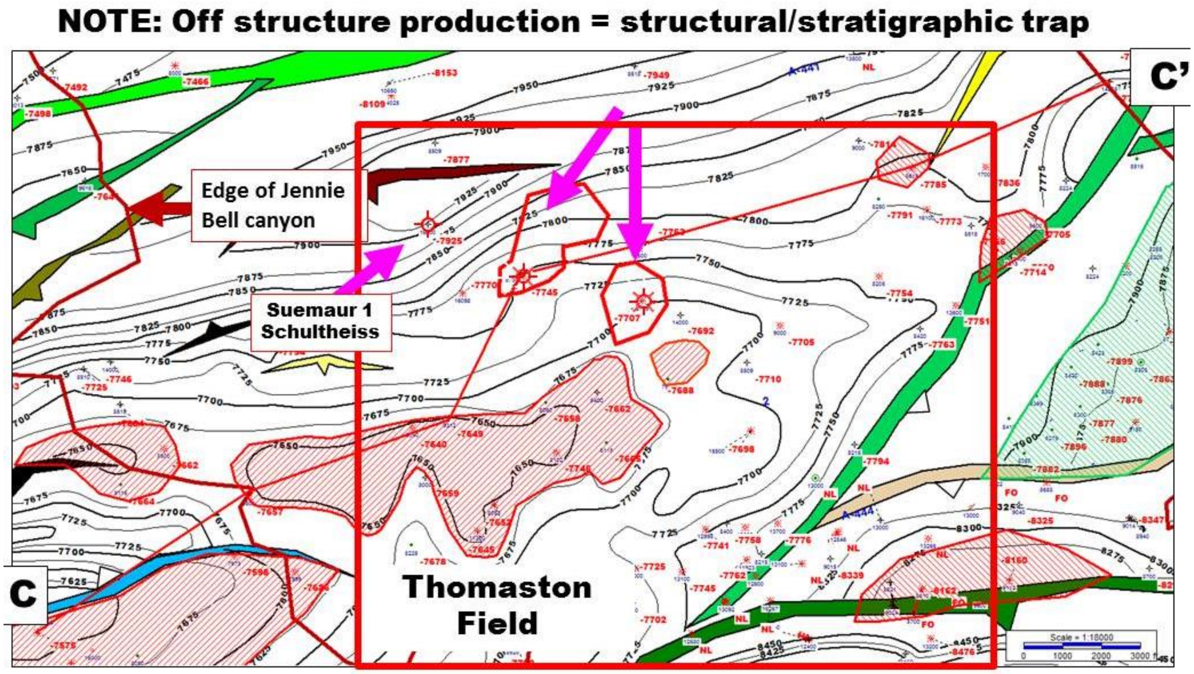

Figure 12. Top Wilcox structure/subseas; striped polygons - top Wilcox production; large gas symbols – Wilcox "Thom" sand production; red box is part of Fig. 14.

Relative sea level rise is supported by a thin flooding surface of shales outside the canyon (pink arrows, Fig. 11).

SINUOUS CHANNEL SANDS WITH THE CANYON

Type two traps are sinuous channel sandstones preserved within the canyon. There are two examples of this trap type, one in the Jennie Bell canyon and another in the Meyersville canyon.

The first example in the Jennie Bell canyon is the "Thom" sand (authors' designation) in Thomaston Field (Figure 12). The pink arrows highlight two productive areas (red polygons) off the top of the Wilcox structural rollover to the north of Thomaston Field proper in Dewitt Co, Tx. These two areas produce from isolated channel bends separated from each other by shale breaks constituting a structural-stratigraphic trap. The production (IHS 5/2018) is from RRC designated Thomaston (8750) sand (4212331791) and the Anna Barre (8400) sand (4212331831). These wells have produced 2 BCF and 19 MBC and 0.6 BCF and 6.9 MBC, respectively. The sand body geometry is shown by the amplitude map (Figure 13). Where no sand to very shaley sand is present on low amplitude blue colors are exhibited. The sandstone is highlighted in the yellow to red amplitude that have a channel from and sinuous geometry. Figure 14 is a vertical seismic section where the Thom sand is tied to the trough that "lights up" in yellow. Notice that the production is low to an amplitude that has been shown to be wet by well control. Classic amplitude vs. offset (AVO) does not separate productive from wet wells. The AVO gather cross plot of angle vs. amplitude does not segregate wet from productive amplitudes (Figure 15). It is recognized that the gather needs to be clipped but was unavailable at preparation time for this paper. The productive cross plot (Fig. 15A) has a flat to decreasing arc, clipping the far noise (red line). The wet cross plot (Fig 15 B) has an increasing amplitude vs. offset; the opposite of what would be anticipated. Figure 16 shows the relative stratigraphic position of the up dip and down dip channel sands within the Jennie Bell canyon. The sands are part of a channel complex but are segregated sinuous sands within that belt.

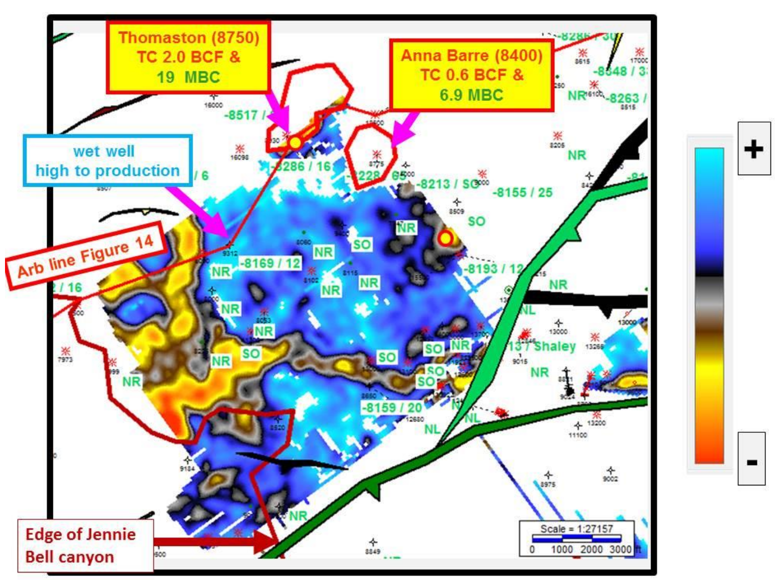

Figure 13. Pre-stack amplitude of sinuous Wilcox "Thom" sand; small red circles with yellow fill are gather areas shown in Figure 15. Black outline of this figure is red outline shown in Fig. 12

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Figure 14. *Pre-stack amplitude section illustrating sinuous "Thom" sand.*

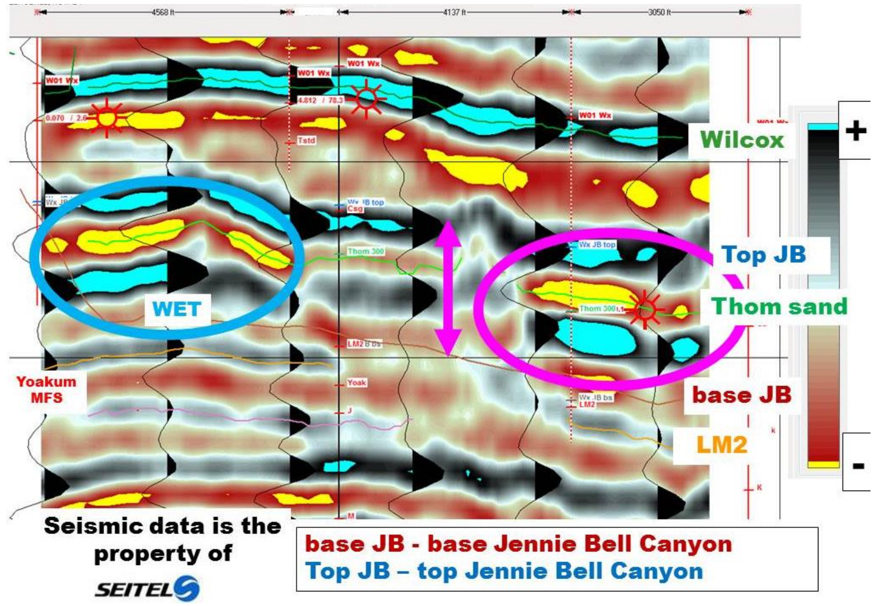

Figure 15 A. *Gathers of productive sand showing little change vs. offset out to red line which clips the far noise*
B. *Gathers of wet sand showing increase with offset; usually a hydrocarbon indicator*
Classic AVO can't distinguish wet sand from productive sand in this area

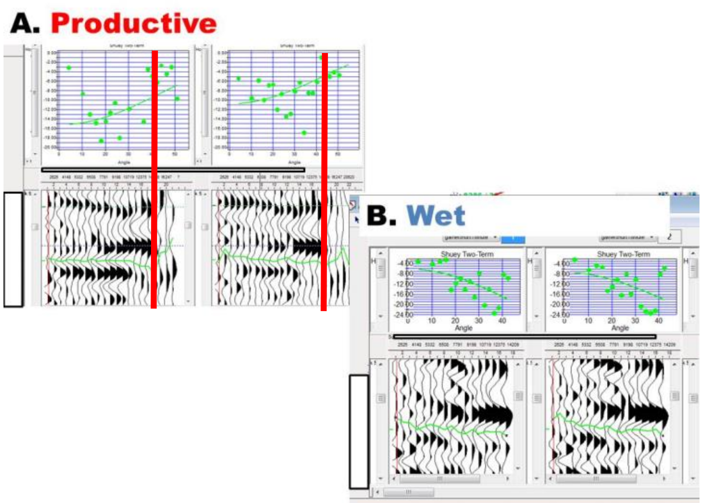

Figure 17 shows the sandstone has significantly lower acoustic impedence than the shales and should display as a trough and class three AVO anomaly. The impedence difference is driven by the density difference between the sand and the shale. The Jennie Bell canyon fill shales have the same bulk density but very different velocity from the Yoakum MFS (blue arrows). The Jennie Bell sands have a higher Rt than the Yoakum, this difference' may be due to more carbonate in the canyon shales.

The second example of this type trap is within the Meyersville canyon (Figure 18-21) from the Rincon #1 Preiss (API 4212331931), Dewitt Co., Tx. Figure 18 shows the top of Wilcox structure and outline of Wilcox production. The trap is a high side fault closure with a

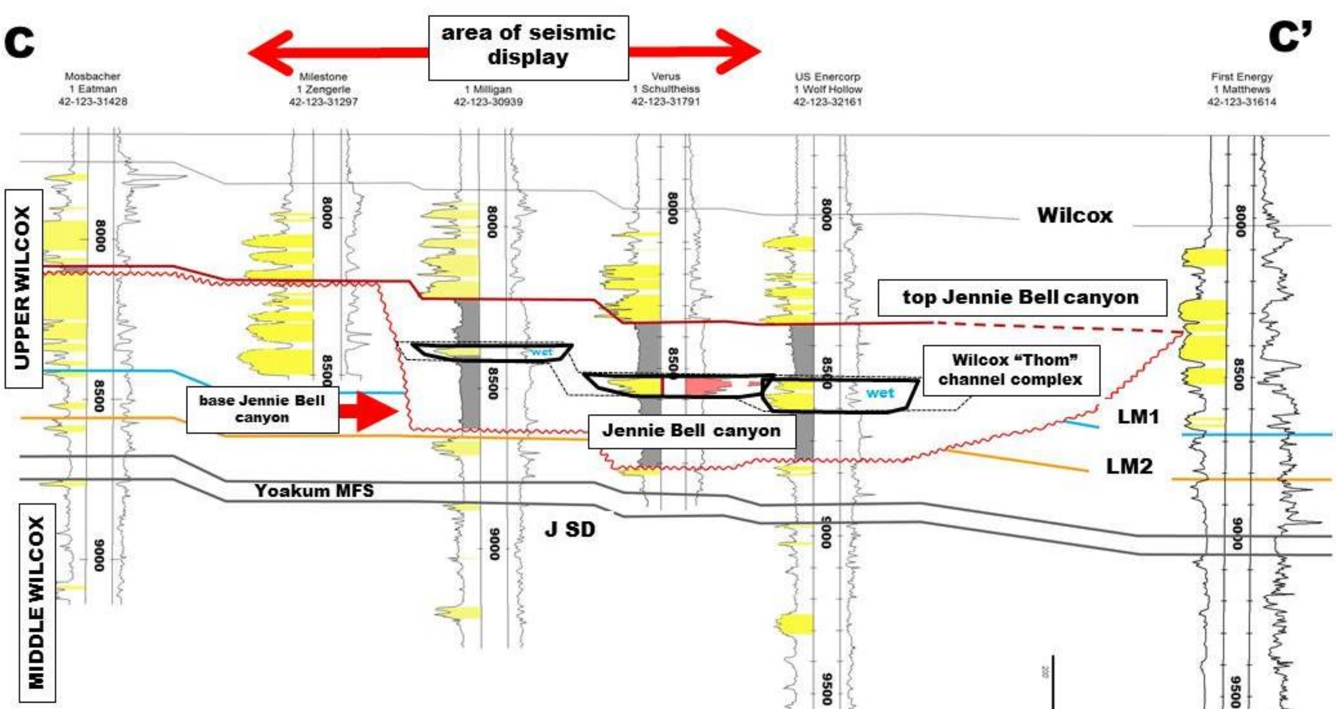

Figure 16. *Structural cross section C-C' of Jennie Bell canyon illustrating sinuous Wilcox "Thom" sand, location Figure 12. Note cut out of LM1 and LM2 by the Jennie Bell canyon.*

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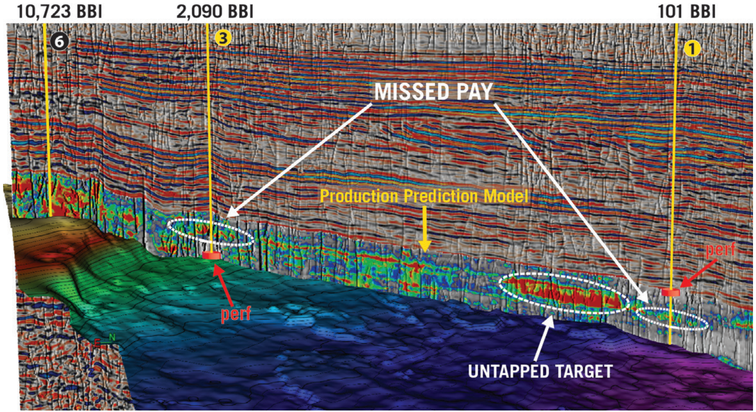
SEISMIC-BASED ANALYTICS



An arbitrary line through 3 vertical wells in the West Texas Permian Basin shows the lateral variations of the Production Prediction Model and reveals refrac potential for Wells 1 and 3 where the red disks indicate the actual completion intervals and the white circles highlight the missed pay. Note the untapped target near Well 1.

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component of roll into the fault. The orange polygon outlines the amplitude of the Meyersville Massive IV sand, which has a sinuous shape and is named the Preiss sand. Figure 19 shows the full PSTM amplitude in map view; the productive area encompasses 28 acres and only produced 0.013 BCFG. Though the production is poor, its shows that hydrocarbons are in the shale filled canyon section and could possibly fill on another structure. Figure 20 illustrates the vertical seismic section (courtesy of WesternGeco) where the sand is expressed as a trough over peak.

The canyon base is picked using well control. Regional sands on the left side terminate against the canyon and beds below the canyon sag underneath as a result of low velocity shale filling of the canyon. The D-D' is the extent of the cross section in Figure 21 with three wells. The cross section shows the key Preiss sand of about 100' thickness with gas on water. The regional sands of the LM1 and LM2 are outside the canyon. The upper part of the canyon has a sand fill that is a strike oriented feature positioned at the canyon mouth opening (Cornish 2013).

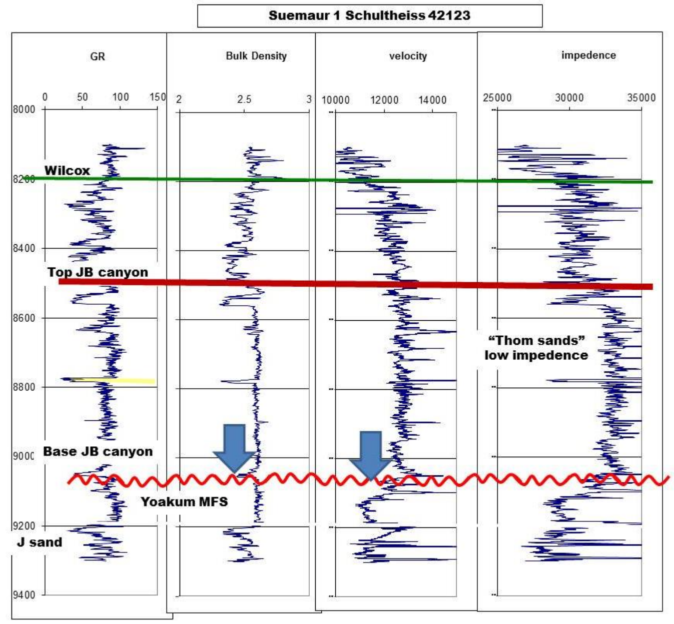

***Figure 17**. Impedence of Jennie Bell canyon fill, Suemaur 1 Schultheiss, Dewitt Co, location Figure 12. Modified from the original, reprinted by permission of the STGS.*

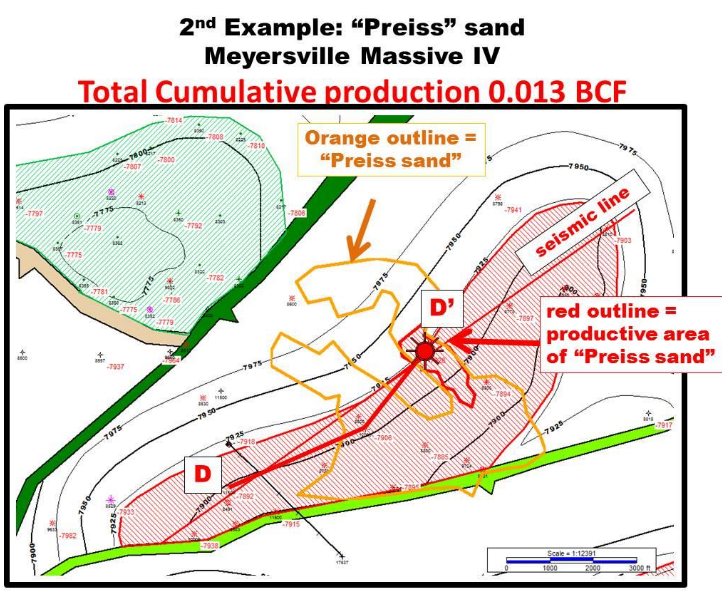

***Figure 18**. Structure top Wilcox; red/green striped polygons gas/oil production from top Wilcox; orange outline - Wilcox "Preiss" sand outline; red outline = productive area of "Preiss sand"; red line location of WesternGeco seismic line, Figure 20 and cross section D-D Figure 21'.*

***Figure 19**. "Wilcox "Preiss" sand pre-stack amplitude with top Wilcox structure*

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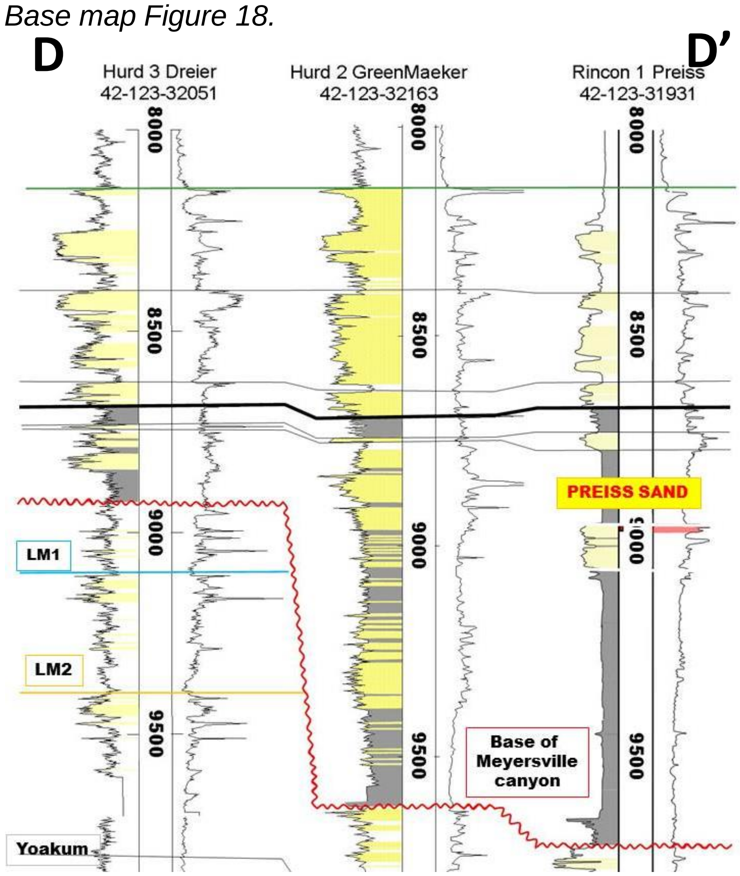
CANYON FILL SANDS ASSOCIATED THE FINAL PHASE OF CANYON FILL

Canyon fill sands are discontinuous within the canyon and can lead to miscorrelations of the top of canyon. The reader is first referred back to Figure 11 in the Anna Barre canyon, Dewitt Co. Tx, where the green arrow highlights the sands in question. Sands are mostly blocky to coarsening upwards, though some fining upwards patterns do exist. Sands are thickest along the deepest part of the canyon and are positioned near the canyon top (Figure 22). The geometry of the sands are similar to sand bodies illustrated in Donaldson et al 1970 and Simms et al 2009 representing bay head delta fill of flooded incised valleys along the Texas Gulf Coast. Here, they represent the return of regressive deltaic deposition to a shale filled submarine canyon incised into the shelf edge during a relative sea level rise. The trap is a lateral pinch out of the sand near the canyon edge along an anticlinal rollover (Figure 23). The Field is Anna Barre 8500 and Wilcox 3rd Upper. Three wells have made 0.868 BCF and 14.9 MBO combined.

***Figure 21**. Stratigraphic cross section D-D' illustrating sinuous Wilcox "Preiss" sand in Meyersville canyon, Base map Figure 18.*



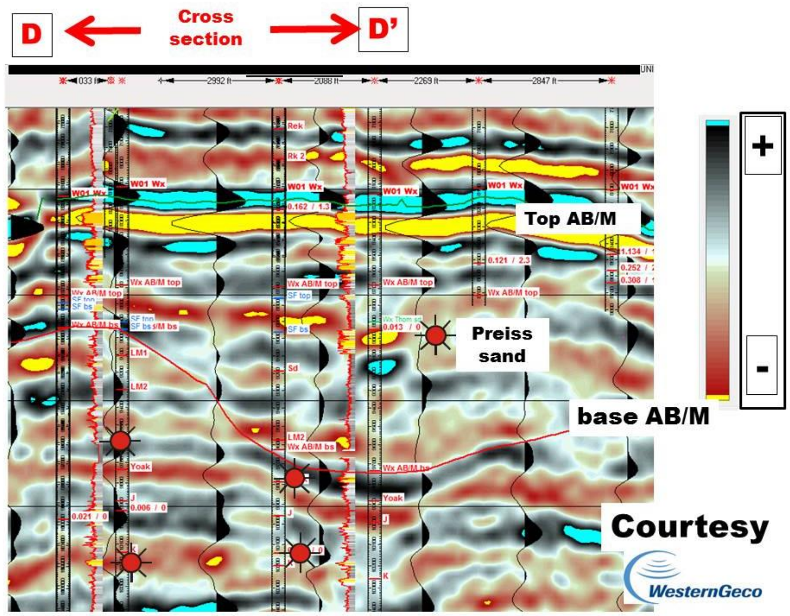


***Figure 20.** Pre-stack amplitude of arb line shown on Fig 18 and 19; courtesy of WesternGeco*

CONCLUSIONS

The superior trap associated with Upper Wilcox canyon fill is the Type 1 trap of regional sands against the shale filled canyon. The next best trap are sinuous channels within the canyon itself. Finally, the least preferred trap (to date) are the canyon fill sands associated with the final phase of canyon fill. The conservative exploration geologist would concentrate on the Type 1 traps. The optimistic exploration geologist would seek all three and consider the poor production indicative of potential for further exploration. The difficulty would be in convincing a conservative and jaded conventional buyer looking for low risk exploration prospects.

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REFERENCES CITED

Ambrose, W., 2016, Verbal communication, Bureau of Economic Geology, Univ. of Texas at Austin.

Chopra, S. and Marfurt, K. J., 2007, Seismic attributes for prospect identification and reservoir characterization, SEG Geophyical Development Series No. 11, 464 p.

Chuber, S., 1986, Computer-aided geological study of Yoakum Field, Dewitt and lavaca counties Tx in W. L. Stapp, ed. Contributions to the geology of South Texas, p. 232-251.

Chuber, S., 1987, Yoakum Field, Dewitt and Lavaca Counties, in G. K. Burns, ed. Typical Oil and Gas Fields of Southeast Texas, p. 519-525.

Cornish, F. G., 2011, Incised valleys of the Upper Wilcox, middle Texas Gulf Coast: Additional pathways for Wilcox sand delivery to the deep GOM?: Bulletin of the South Texas Geological Society, v. 51, p. 15–48.

Cornish, F. G., 2013, Do Upper Wilcox canyons support Paleogene isolation of the Gulf of Mexico?, Gulf Coast Association of Geological Societies Transactions, v. 63, p. 183–204**.**

Cornish, F. G. and L. Lambiotte, 2016, Hydrocarbon traps associated with Upper Wilcox canyons and seismic response, Mid Gulf coast, Texas, Gulf Coast Association of Geological Societies Transactions, v. 66, p. 731-737 (ext. abs.).

Devine, P. E., and D. M. Wheeler, 1989, Correlation, Interpretation, and Exploration potential of lower Wilcox valley fill sequences, Colorado and Lavaca Counties, Tx, GCAGS, v.39, p. 57-74.

Dingus, W. F., and W. E. Galloway, 1990, Morphology, paleogeographic setting, and origin of the Middle Wilcox Yoakum canyon, Tx coastal Plain: AAPG Bull v. 74 p. 1055-1076.

Donaldson, A. C., Martin, R. H., and Kanes, W. H, 1970, Holocene Guadalupe delta of Texas Gulf Coast, in Morgan, J. P. and Shaver R H, eds., Deltaic Sedimentation: Modern and Ancient, SEPM Sp. Pub., 15, p 107-137.

Galloway, W. E., and T. A. McGilvery, 1995, Facies of a submarine canyon fill reservoir complex, Lower Wilcox Group (Paleocene), Central Texas Coastal Plain, *in* R. D. Winn, Jr. and J. M. Armentrout, eds., Turbidites and associated deep-water facies: Society of Economic Paleontologists and Mineralogists Core Workshop 20, Tulsa, Oklahoma, p. 1–23.

Galloway, W. E., W. F. Dingus, and R. E. Paige, 1991, Seismic and depositional facies of Paleocene-Eocene Wilcox Group submarine canyon fills, northwest Gulf Coast, *in* P. Weimer and M. H. Link, eds., Seismic facies and sedimentary processes of submarine fans and turbidite systems: Springer Verlag, New York, New York, p. 247–271.

Hargis, R. N, 2009, Major transgressive shales of the Wilcox, northern portion of South Texas: Bulletin of the South Texas Geological Society, v. 49, no. 8, p. 19–47.

Miller, S. K., 1989, Genetic stratigraphic sequence analysis of the upper Wilcox, Gulf Basin, Texas: Master's thesis,University of Texas at Austin, 127 p.

Simms, Alexander, R., Aryal N., Miller, L. and Yokoyama, Y., 2010, The incised valley of Baffin Bay, Texas: a tale of two climates, Sedimentology, v, 57, p. 642-669.

Xue, L., 1997, Depositional cycles and evolution of the Paleogene Wilcox strata, Gulf of Mexico basin, Texas, American Association of Petroleum Geology Bulletin, v. 81, p. 937-953.

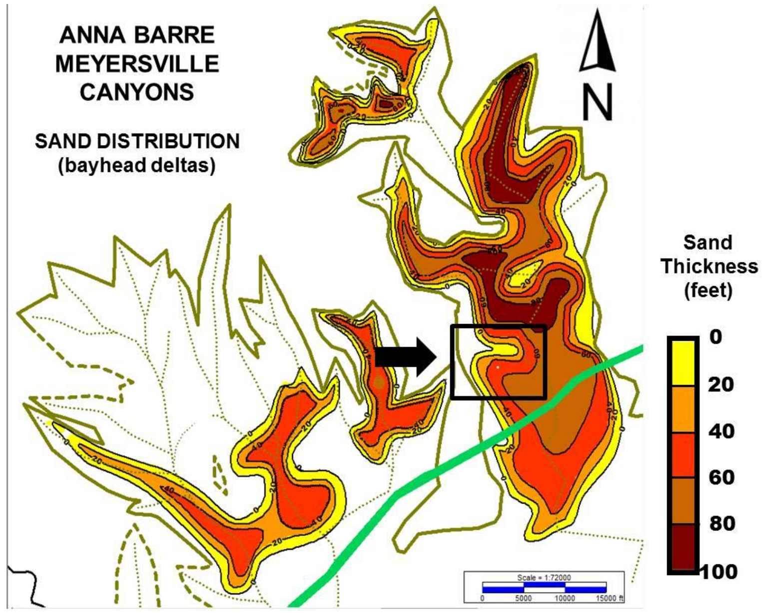
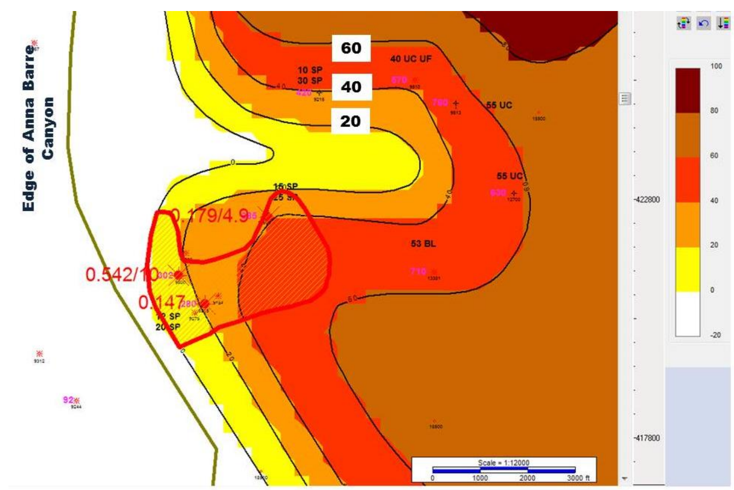


***Figure 22**. Regional isopach of bayhead delta sand in upper reaches of Anna Barre and Meyersville canyons, black box is detail - Figure 23*

***Figure 23**. Detail isopach of bayhead delta sand in upper reaches of Anna Barre canyon; black values are sand thickness and vertical expression; BL = blocky sand, SP = spiky, UC = upward coarsening, UF = Upward fining. Red outline is productive area associated with an anticlinal structural closure.*



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CCGS 002S $15.00

Type Logs of South Texas Fields, Vol. I, Frio Trend. Compiled by Don Kling. Includes 134 fields. 158 p., 1972. Ring binder.
CCGS 015TL $25.00

Type Logs of South Texas Fields, Vol. II, Wilcox (Eocene) Trend. Compiled by M. A. Wolbrink. 98 p., 1979. Ring binder.
CCGS 016TL $25.00

Field Trip Guidebooks

South Texas Uranium. J. L. Cowdrey, Editor. 62 p., 1968.
CCGS 102G $12.00

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

Padre Island National Seashore Field Guide. R. N. Tench and W. D. Hodgson, Editors. 61 p., 1972.
CCGS 104G $5.00

Triple Energy Field Trip, Uranium, Coal, Gas—Duval, Webb & Zapata Counties, Texas. George Faga, Editor. 24 p., 1975.
CCGS 105G $10.00

Minas de Golondrinas and Minas Rancherias, Mexico. Robert Manson and Barbara Beynon, Editors. 48 p. plus illus., 1978.
CCGS 106G $15.00

Portrero Garcia and Huasteca Canyon, Northeastern Mexico. Barbara Beynon and J. L. Russell, Editors. 46 p., 1979.
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Geology of Peregrina & Novillo Canyons, Ciudad Victoria, Mexico, J. L. Russell, Ed., 23 p. plus geologic map and cross section, 1981.
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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.
CCGS 110G $15.00

Structure and Mesozoic Stratigraphy of Northeast Mexico, prepared by numerous authors, variously paginated. 76 p., 38 p., 1984.
CCGS 111G $15.00

Geology of the Big Bend National Park, Texas, by C. A. Berkebile. 26 p., 1984.
CCGS 112G $12.00

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http://www.lib.utexas.edu/books/landsapes/index.php Free service. Rare, fragile, hard-to-find, public domain documents covering various topics about the landscape of Texas. Includes the Texas Geological Survey from 1887 until 1894.

USGS TAPESTRY OF TIME AND TERRAIN http://tapestry.usgs.gov The CCGS is donating to all of the 5th and 6th grade schools in the Coastal Bend. Check it out--it is a spectacular map. You might want to frame one for your own office. The one in my office has glass and a metal frame, and It cost $400 and it does not look as good as the ones we are giving to the schools.

FREE TEXAS TOPOS'S http://www.tnris.state.tx.us/digital.htm these are TIFF files from your state government that can be downloaded and printed. You can ad them to SMT by converting them first in Globalmapper. Other digital data as well.

FREE NATIONAL TOPO'S http://store.usgs.gov/b2c_usgs/b2c/start/(xcm=r3standardpitrex_prd)/.do go to this webpage and look on the extreme right side to the box titled TOPO MAPS DOWNLOAD TOPO MAPS FREE.

http://www.geographynetwork.com/ Go here and try their top 5 map services. My favorite is 'USGS Elevation Date.' Zoom in on your favorite places and see great shaded relief images. One of my favorites is the Great Sand Dunes National Park in south central Colorado. Nice Dunes.

http://antwrp.gsfc.nasa.gov/apod/asropix.html Astronomy picture of the day--awesome. I click this page everyday.

http://www.spacimaging.com/gallery/ioweek/iow.htm Amazing satellite images. Check out the gallery.

http://www.ngdc.noaa.gov/seg/topo/globegal.shtml More great maps to share with kids and students.

www.ccgeo.org Don't forget we have our own we page.

http://terra.nasa.gov/gallery/ Great satellite images of Earth.

www.ermaper.com They have a great free downloadable viewer for TIFF and other graphic files called ER Viewer.

http://terrasrver.com Go here to download free aerial photo images that can be plotted under your digital land and well data. Images down to 1 meter resolution, searchable by Lat Long coordinate. Useful for resolving well location questions.

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Aransas Pass/McCampbell Deep
Bartell Pass
Blackjack
Burgentine Lake
Copano Bay, South
Estes Cove
Fulton Beach
Goose Island
Half Moon Reef
Nine Mile Point
Rockport, West
St. Charles
Tally Island
Tract 831-G.O.M. (offshore)
Virginia

BEE COUNTY
Caesar
Mosca
Nomanna
Orangedale(2)
Ray-Wilcox
San Domingo
Tulsita Wilcox
Strauch_Wilcox

BROOKS COUNTY
Ann Mag
Boedecker
Cage Ranch
Encintas
ERF
Gyp Hill
Gyp Hill West
Loma Blanca
Mariposa
Mills Bennett
Pita
Tio Ayola
Tres Encinos

CALHOUN COUNTY
Appling
Coloma Creek, North
Heyser
Lavaca Bay
Long Mott
Magnolia Beach
Mosquito Point
Olivia
Panther Reef
Powderhorn
Seadrift, N.W.
Steamboat Pass
Webb Point
S.E. Zoller

CAMERON COUNTY
Holly Beach
Luttes
San Martin (2)
Three Islands, East
Vista Del Mar

COLORADO COUNTY
E. Ramsey
Graceland N. Fault Blk
Graceland S. Fault Blk

DEWITT COUNTY
Anna Barre
Cook
Nordheim
Smith Creek
Warmsley
Yorktown, South

DUVAL COUNTY
DCR-49
Four Seasons
Good Friday
Hagist Ranch
Herbst
Loma Novia
Petrox
Seven Sisters
Seventy Six, South
Starr Bright, West

GOLIAD COUNTY
Berclair
North Blanconia
Bombs
Boyce
Cabeza Creek, South
Goliad, West
St Armo
Terrell Point

HIDALGO COUNTY
Alamo/Donna
Donna
Edinburg, West
Flores-Jeffress
Foy
Hidalgo
LA Blanca
McAllen& Pharr
McAllen Ranch
Mercedes
Monte Christo, North
Penitas
San Fordyce
San Carlos
San Salvador
S. Santallana
Shary
Tabasco
Weslaco, North
Weslaco, South

JACKSON COUNTY
Carancahua Creek
Francitas
Ganado & Ganado Deep
LaWard, North
Little Kentucky
Maurbro
StewartSwan Lake
Swan Lake, East
Texana, North
West Ranch

JIM HOGG COUNTY
Chaparosa
Thompsonville,N.E.

JIM WELLS COUNTY
Freebom
Hoelsher
Palito Blanco
Wade City

KARNES COUNTY
Burnell
Coy City
Person
Runge

KENEDY COUNTY
Candelaria
Julian
Julian, North
Laguna Madre
Rita
Stillman

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Alazan
Alazan, North
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Chevron (offshore)
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Seeligson
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LA SALLE COUNTY
Pearsall

LAVACA COUNTY
Halletsville
Hope
Southwest Speaks
Southwest Speaks Deep

LIVE OAK COUNTY
Atkinson
Braslau
Chapa
Clayton
Dunn
Harris
Houdman
Kittie West-Salt Creek
Lucille
Sierra Vista
Tom Lyne
White Creek
White Creek, East

MATAGORDA COUNTY
Collegeport

MCMULLEN COUNTY
Arnold-Weldon
Brazil
Devil's Waterhole
Hostetter
Hostetter, North

NUECES COUNTY
Agua Dulce (3)
Arnold-David
Arnold-David, North
Baldwin Deep
Calallen
Chapman Ranch
Corpus Christi, N.W.
Corpus Christi West C.C.
Encinal Channel
Flour Bluff/Flour Bluff, East
GOM St 9045(offshore)
Indian Point
Mustang Island
Mustang Island, West
Mustang Island St. 889S(offshore)
Nueces Bay/Nueces Bay West
Perro Rojo
Pita Island
Ramada
Redfish Bay
Riverside
Riverside, South
Saxet
Shield
Stedman Island
Turkey Creek

REFUGIO COUNTY
Bonnieview/Packery Flats
Greta
La Rosa
Lake Pasture
Refugio, New
Tom O'Connor

SAN PATRICIO COUNTY
Angelita East
Commonwealth
Encino
Enos Cooper
Geronimo
Harvey
Hiberia
Hodges
Mathis, East
McCampbell Deep/Aransas Pass
Midway
Midway, North
Odem
Plymouth
Portilla (2)
Taft
Taft, East
White Point, East

STARR COUNTY
El Tanque
Garcia
Hinde
La Reforma, S.W.
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Ricaby
Rincon
Rincon, North
Ross
San Roman
Sun
Yturria

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McFaddin
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Placedo

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Bruni, S.E.
Cabezon
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Hirsch
Juanita
Las Tiendas
Nicholson
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Olmitos
Tom Walsh

WHARTON COUNTY
Black Owl

WILLACY COUNTY
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La Sal Vieja
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Tenerias
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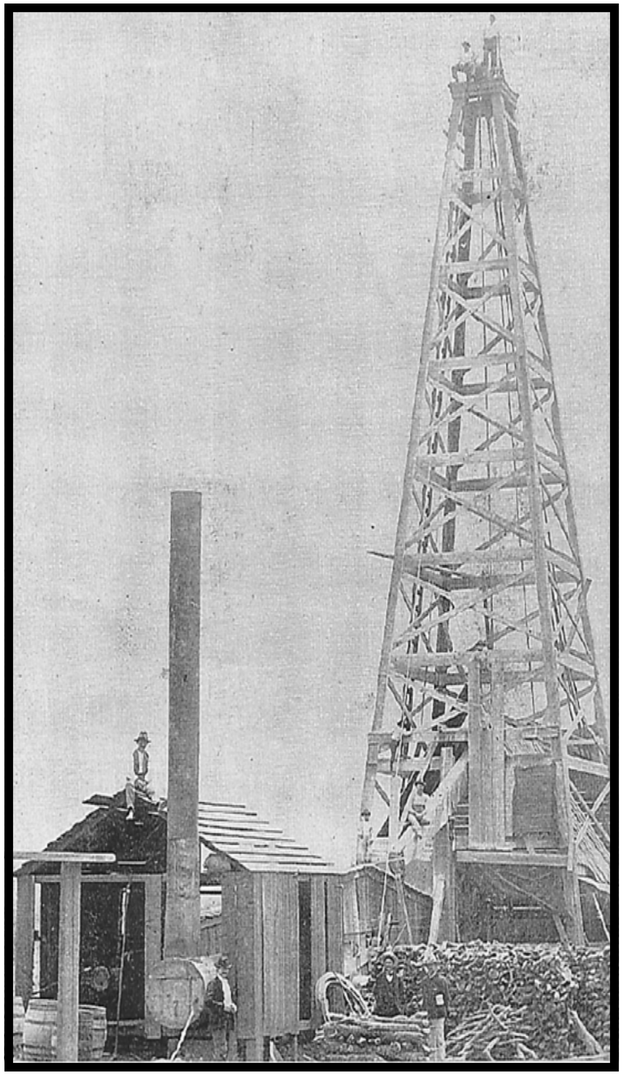

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