

# **BULLETIN**

## **Corpus Christi Geological Society**



and

## **Coastal Bend Geophysical Society**



**November/December  
2016  
ISSN 0739 5620**

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# TABLE OF CONTENTS

Blood Drive.....	1
Officers, Committees and Chairpersons for CCGS/CBGS.....	4 & 5
Calendar of Meetings and Events.....	6 & 7
CCGS President’s Letter.....	8
Convention Sponsors and Exhibitors.....	9
CBGS President’s Letter.....	10
Luncheon Meeting Announcement for November 2016.....	12,13,14
Geologists, the Public, and Public Policy: What Are Our Ethical Responsibilities?.....	16
CCGS papers available for purchase at the Bureau of Economic Geology.....	65
Geo Link Post.....	66
Type Logs of South Texas Fields.....	67
Order Oil Men DVD.....	68
Wooden Rigs Iron Men.....	69
Professional Directory.....	70



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2016-2017

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## CCGS/CBGS JOINT MEETING SCHEDULE 2016-2017

September 2016							October 2016							November 2016						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
				1	2	3							1			1	2	3	4	5
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30			
							30	31												

GCAGS Convention  
*"Explore The Future"*  
 September 18-20, 2016  
 Corpus Christi, TX.

GCAGS Post-Convention  
 Party & Society Kickoff  
 Bar-B-Q  
 Thursday, October 13  
 5:30 to 8:00 p.m.

11:30am-1:00pm.  
 Speaker: Bruce Moriarty,  
 Principal Geophysical Advisor,  
 Lumina Geophysical  
 "Simultaneous Inversion of  
 Spectrally-Broadened 3D  
 Seismic Data: Case Study for  
 the Olmos Unconventional  
 Play, South Texas"

December 2016							January 2017							February 2017						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
				1	2	3	1	2	3	4	5	6	7			1	2	3	4	
4	5	6	7	8	9	10	8	9	10	11	12	13	14	5	6	7	8	9	10	11
11	12	13	14	15	16	17	15	16	17	18	19	20	21	12	13	14	15	16	17	18
18	19	20	21	22	23	24	22	23	24	25	26	27	28	19	20	21	22	23	24	25
25	26	27	28	29	30	31	29	30	31					26	27	28				

Combined  
 November/December for the  
 Holidays.



## CCGS/CBGS Joint Meeting Schedule 2016-2017

March 2017							April 2017							May 2017						
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							1		1	2	3	4	5	6
5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31			
							30													

Combined  
February/March for Spring  
Break

## 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
Austin Chapter of SIPES.....	First Thursday
Houston Geological Society Luncheons.....	Last Wednesday
Central Texas Section of Society of Mining, Metallurgy & Exp.....	2 <sup>nd</sup> Tues every other month in San Antonio



## PRESIDENT'S PAGE

The days are shorter, but as I write this column we are still waiting for the first strong cold front of the fall. The year is well under way, and we have yet to hold our first luncheon meeting. I hope to see everyone at our meeting on Wednesday, November 16 at the Ortiz Center. The price is still only \$25 per member with reservation.

That will leave the remaining luncheon meetings for the 2016- 2017 year to be held in January, February, April, and May. The Executive Committee is working to offer more opportunities by possibly hosting one or two field trips in early 2017:

- Randy Bissell ran a field trip “Geomorphology and Geologic History of the Nueces River Valley, Corpus Christi Bay, Laguna Madre, and Padre Island.” This one-day field trip was well received by all who attended. Many of us in CCGS could not attend because we were working or attending other offerings in the convention.
- Tom Ewing offered to run an overnight field trip to the Rio Grande Delta with stops on the South Texas Sand Sheet. We did not have the minimum number of people to “make” the trip, so it was not run. This trip would be a little more expensive because of the overnight stay in the Harlingen area.

CCGS still remains in need of two more volunteers for this year:

- **President-Elect:** This officer serves on the Executive Board this year and becomes the new President at the end of the current President’s term. This year, it’s the learning curve.... next year you get to manage the Society.
- **Technical Editor for the *Bulletin*:** The past Editor, Sebastian Wiedmann, no longer wishes to serve as Editor.

If you are interested in serving in either of these positions, please contact any officer of the CCGS.

The Executive Committee is working to revise the CCGS Bylaws. The last time they were amended was in 1986. Watch for more announcements through the year regarding the progress. Voting on ratification will take place next spring.

Respectfully,

Barbara Beynon—CCGS President



The 66<sup>th</sup> Annual Convention of the Gulf Coast Association of Geological Societies (GCAGS) and Gulf Coast Section of Society of Sedimentary Geologists (GCSSEPM) Convention was a great success!

Please see the list of sponsors and exhibitors that partnered with the convention through their support and sharing their expertise with us on the exhibition floor.

Over 600 people joined us for four days of excellent technical presentations, superb short courses and field trips, and entertaining social events. We received a lot of compliments and kudos – especially from veteran convention attendees, so I take that as a sign of a job well done.

It was definitely a group effort. There are over 32 folks intensely involved, working on this for almost three years. As Randy Bissell noted, probably the greatest measure of success – we produced an outstanding event – and we all still like each other!

My heartfelt and sincere thanks go to the folks who have made the outstanding convention possible

- The technical committee: *Rick Paige, Bob Critchlow, and Allen Lassiter*
- Short Courses: *Stephen Thomas, Tom Fett, Woodson Godfrey, Selim Shaker, and Bob Schneider.*
- Field Trips: *Randy Bissell, Tom Ewing, Robby Sterett, Jon Baskin, and Jim Garrison.*
- GCSSEPM: *Dorene West and Carl Fiduk.*
- Luncheon and Breakfast speakers: *Charles Sheppard, Mike Blum, Rusty Riese, Jim Moloney, and Robbie Gries.*
- Sponsorships: *Lonnie Blake, Alexandra Dyckman, Paul Strunk, Sara Davis, Cheryl Oxsheer, and Dennis Moore.*
- Arrangements (all the food and fun stuff): *Alexandra Dyckman and Dorothy Jordan.*
- Technical Editor and Managing Editor: *Jennifer Smith-Engle and James Willis.*
- Judging: *Bob Bell.*
- K-12 Teacher Activity: *J.R. Jones*
- University Liaisons: *Thomas McGehee and Mark Ford*
- Publicity and Social Media: *Sebastian Wiedmann, Randy Bissell, BJ Thompson, and Dianna Phu.*
- Guests and spouses activities: *Darlene Murry.*
- Audio Visual: *Fermin Munoz and Dennis Moore.*
- Golf: *Fermin Munoz*
- Volunteers: *Casey Mibb and Dorothy Jordan.*
- Secretaries: *Dorothy Jordan and Alexandra Dyckman*
- Registration: *Susan Stone, Jeanie Timmerman, and Dorothy Jordan. Members of the Corpus Christi Chapter of Desk and Derrick*
- Treasurer: *Leighton Devine.*
- GCAGS President: *Brent Hopkins.*
- 2015 General Chairman: *Larry Bartell*

Of course you can't have a technical convention without content! Thank you to all the session chairs – over 30 people; and over 150 presenters. You were the “why” we met.

The Corpus Christi Geological Society is made up of great people. All of you have done a fine job. It has been such a pleasure working with you. Thank you so much!

Dawn S. Bissell—General Chair, GCAGS 2016 Convention



## CBGS PRESIDENT'S LETTER

### **News-**

SEG Convention was this month. Anyone attend? It was pretty quiet from what I heard.

### **CBGS Business-**

CBGS golf tournament was held on Oct. 7<sup>th</sup> at Northshore Country Club. We had 31 people, which was not a crowd, but we made enough money to fund our scholarships for the 2017-2018 school year. Thanks Fermin for organizing, and thanks to all the participants and sponsors.

### **Education/Events-**

#### **-GSH**

"Everything you always wanted to know about microseismic," Houston, Nov. 9-10. There are numerous technical luncheons if you happen to be in Houston. Check the following: Geophysical Society of Houston Calendar.

CBGS has a revenue sharing agreement with GSH. Mention CBGS if you register for GSH events.

#### **-SEG**

SEG has 450+ eLearning courses online from \$0.99 to \$150.00 (most expensive I saw). <http://www.seg.org/professional-development/seg0n-demand>

#### **-HGS**

Petrological and Geochemical screening methods, Houston, Dec. 9, 2016.

### **Monthly Saying**

I do not h

Think there is any other quality so essential to success of any kind as the quality of perseverance. It overcomes almost everything, even nature. John D. Rockefeller

Texas Oil and Gas Info	Current Month	Last Month	Difference	
Texas Production	MMBO/BCF	MMBO/BCF	MMBO/BCF	
Oil	72.9	79.6	-6.7	June
Condensate	9.2	10.7	-1.5	
Gas	604	656	-52	June
	Current Month	Yr to date - 2016	Yr to date - 2015	
Texas Drilling Permits	660	4,830	7,407	August
Oil wells	203	1,412	1,828	
Oil and Gas	392	2,848	4,598	
Gas wells	24	250	546	
Other	15	88	104	
Total Completions	822	8,107	14,665	August
Oil Completions	545	6,166	11,723	
Gas Completions	223	1,527	2,006	
New Field Discoveries	2	16	50	
Other	55	414	936	

Lonnie Blake—CBGS President

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



# LUNCHEON MEETING ANNOUNCEMENT

**WEDNESDAY, NOVEMBER 16, 2016**

- 
- Location:** Congressman Solomon P. Ortiz International Center, 402 Harbor Drive, Corpus Christi, TX 78401 <http://ortizcenter.com>
- Bar Sponsor:** To be announced (*sponsors needed!*)
- Student Sponsor:** Core Laboratories and Corpus Christi Geological Society
- 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-shows 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: [wes@gislerbrotherslogging.com](mailto:wes@gislerbrotherslogging.com)

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



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WEDNESDAY LUNCHEON MEETING BARS ARE OPEN!!!**

***Please consider a CCGS/CBGS sponsorship!!! It's a great way to advertise both  
your company and the services it provides!!!***

---

## ***Inversion of Spectrally-Broadened 3D Seismic Data: Case Study for Olmos Unconventional Play, South Texas***

Presented by: Bruce Moriarty, Principal Geophysical Advisor, Lumina Geophysical

### **Summary**

In South Texas, tight gas sandstone reservoirs in the Olmos Formation are prospective. Unfortunately, detecting and mapping the lateral continuity of reservoir quality Olmos sands is limited by the fact that prospective pay zones are commonly below conventional seismic resolution. Thus, spectral broadening is potentially valuable if it can be shown to be useful in this area. This paper describes seismic interpretation and simultaneous inversion results of an original and a spectrally-broadened high-resolution seismic dataset across the South Texas Olmos tight sand. The incorporation of high-resolution seismic data addresses the lack of enough vertical resolution to image thin beds within the Olmos productive zone. This high-resolution seismic data results from the application of the sparse-layer inversion method (Zhang and Castagna 2011) to the original pre-stack seismic data. The method is unbiased against thin beds and thus allows the detection and resolution of thin beds below tuning thickness.

### **Abstract**

The primary objective of this work was to identify sweet spots in the unconventional tight sand reservoir of the Olmos formation using pre-stack simultaneous inversion. The second objective was to compare the original seismic data with high-resolution seismic data, along with the resulting simultaneous inversions. High-resolution seismic data is the result of sparse layer inversion method applied to the original pre-stack seismic data. This method inverts the frequency spectrum for layer thickness and enables the detection and resolution of thin beds below tuning thickness.

Simultaneous inversion is a process which generates P impedance, S impedance, and density at the same time, though only the P impedance results will be shown today. The P impedance volume generated from the original seismic lacked sufficient vertical resolution to image thin beds (~ 25-30 ft/ 7.6-9 m) within the productive interval of the Olmos formation. High-resolution seismic was used to address this challenge. The process of spectral layer inversion improved the resolution from about 98 feet to 47 feet. At this resolution, two additional horizons can be mapped to separate individual porosity zones within the productive Olmos interval.

Using the P impedance volume generated from the high-resolution seismic, we were able to map a new low impedance anomaly within the study area. This new anomaly correlates with the lower interval of the high porosity zone associated with better Olmos production, and should provide new potential for field development.

This general approach may be very useful in many plays worldwide.

### **About our Presenter:**



**Bruce Moriarty** attended Colgate University in Syracuse, New York, earning his Bachelor Degree in Geology in 1972. He also attended the University of South Carolina – Columbia.

Bruce was a Project Manager for Visos, coordinating 3-D seismic surveys in the Gulf Coast, Mid-Continent, and Rocky Mountain Regions in a multi-component program, including the Bureau of Economic Geology and PGS Onshore. He has served as the Principal Geophysicist for El Paso Production, Chief Geophysicist for Dominion Exploration & Production, as well as Geophysical Advisor for Swift Energy. He presently serves as Principal Geophysical Advisor for Lumina Geophysical in Houston, Texas.

Bruce is an expert in utilizing new seismic technologies to extend the production life and economics of existing fields through enhanced well performance and recovery. He has researched and published reports on identifying new targets in mature unconventional plays by utilizing new seismic technologies.

Bruce was the President of the Denver Geophysical Society in 1985, the Treasurer of the Geophysical Society of Houston in 2010. He is also a member of the Society of Exploration Geophysicists (SPE), American Association of Petroleum Geologists (AAPG), and enjoys skiing, golf, and motorcycling.







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Permission to republish "Geologist, the Public, and Public Policy: What Are Our Ethical Responsibilities?" was granted by the author W. C. Rusty Riese and Brent Hopkins --President of the GCAGS.

## Geologists, the Public, and Public Policy: What Are Our Ethical Responsibilities?

By

W.C. Rusty Riese

In the polarizing and supercharged environment of today's public discourse, many views are hotly contested, but three stand out as worthy of attention from geological scientists: fracking, public primary and secondary education, and climate change. All three are interconnected.

Fracking is widely condemned in the public media as a new technology whose safety hasn't been demonstrated and which should therefore be banned, as it has been in New York, and all this in spite of the fact that fracking has been carried out in Kansas since the 1920's, and more widely since the end of WWII – all tight gas plays have benefited from its application. Public K-through-12 education in science has been weak for many years, as evidenced by ever-declining scores on achievement tests, but has been further compromised in a number of states through the application of the Common Core State Standard Initiative and the Next Generation Science Standards (NGSS) – standards which appear less devoted to raising scientific awareness and skills than to promoting a political agenda.

The chimeric fantasy of controlling climate change is thus the avenue through which an assortment of political agenda are being promoted. Common Core and NGSS both recommend that educators identify global warming as a core concept and stress the relationship between global warming and human activity. This is a link which no scientific study has been able to demonstrate; and neither set of standards address the physics of heat, or the relationship between radiant heat and energy. They offer no appreciation of the role of the sun in affecting climate, or the relative impact of human contributions.

Why would educators and the federal bureaucracy which drives these initiatives take positions which clearly short-change the application of true quality science and in so doing diminish the scientific capabilities of the next generation? John Holdren, president Obama's science advisor answered that best:

"A massive campaign must be launched to...*de-develop* the United States...bringing our economic system (especially patterns of consumption) into line with the realities of ecology and the global resource situation...We must design a stable, low consumption economy in which there is a more equitable distribution of wealth."

This "more equitable distribution of wealth" is envisioned to be global, as indicated by a UN IPCC spokesperson in the fall of 2015:

"One must free oneself from the illusion that international climate policy is environmental policy. This has nothing to do with environmental policy anymore. ...We redistribute the world's wealth by climate policy."

This is where geoscientists, indeed all scientists, must become involved. Our science is the study of the planet Earth, including all its materials, processes, and products; and the history of the planet and its life forms. We then have an ethical responsibility to place the knowledge thus obtained into the service of man. In this we have failed. We must become involved in shoring up the scientific foundations of the next generation by seeing that their curricula are robust in content. We must speak out about how hydraulic fracturing really works. We must shine a light on the criminal alteration of historical climate data by individuals who are charged with maintaining the integrity of those data and help the public understand what is really happening. None of this will be easy and some may be distinctly unpleasant, but without a robust engagement along these lines the “war on coal” will continue to metamorphose into a “war on all carbon fuels”; our access to many of the things which the “Great Enrichment” of the past two hundred years depended on and developed will be lost; and our very culture and way of life will be threatened.

# Geologists, the Public, and Public Policy:

What Are Our Ethical Responsibilities?

By

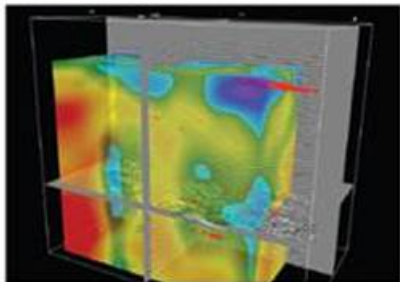
W.C. Rusty Riese, PhD

## What will we discuss today?

- What is geology?
- What are our responsibilities as professional geologists?
- What is happening in the world of K thru 12 education?
- What is happening in the world of post-secondary education?
- What are the issues which attend debates on the safety of fracking?
- What are the issues surrounding the debate on climate change?

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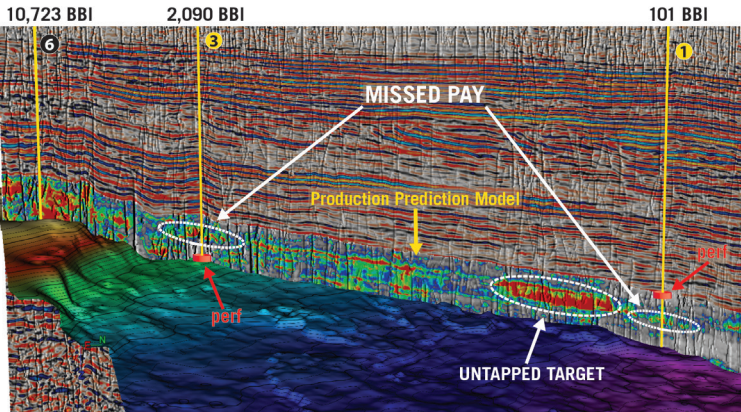
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## What is geology and what are our responsibilities?

- Our science is the study...  
“...of the planet Earth – the materials of which it is made, the processes that act on those materials, the products formed, and the history of the planet and its life forms since its origin. Geology considers the physical forces that act on the Earth, the chemistry of its constituent materials, and the biology of its past inhabitants.. *The knowledge thus obtained is placed in the service of man...*” (emphasis added).

- Taking this one step further, this analysis of what we should or should not concern ourselves with, we can consider stratigraphy...  
“The science of rock strata ...and their interpretation in terms of *environment* or mode of origin and geologic history.”
- I suggest that the logical extension of “environment” is climate. So who better to provide the information of what our earth’s climate has been through time than geologists?

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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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## What is happening in the world of K thru 12 education?

- ESEA

The Elementary and Secondary Education Act (ESEA) was part of President Lyndon B. Johnson's Great Society program. Passed in 1965, it created a clear role for the federal government in K-12 policy.

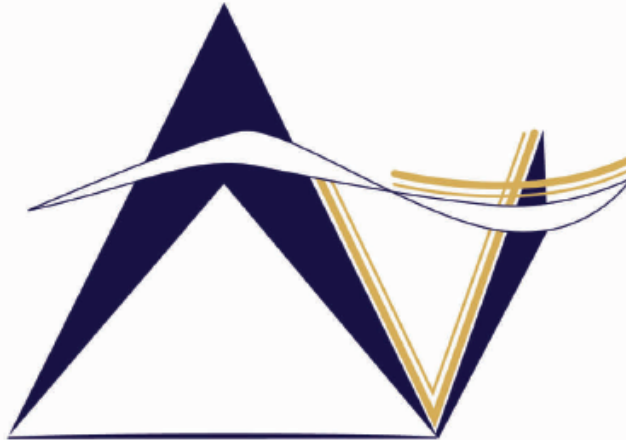
The law has been reauthorized and changed more than half a dozen times since that initial legislation. And, for the most part, each new iteration has sought to expand the federal role in education.

- No Child Left Behind

The No Child Left Behind Act (NCLB), which passed Congress in 2001 and was signed into law by President George W. Bush on Jan. 8, 2002, is the name for the most recent update to the Elementary and Secondary Education Act of 1965. The NCLB law—which grew out of concern that the American education system was no longer internationally competitive—significantly increased the federal role in holding schools responsible for the academic progress of all students.



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- **Common Core**

The Common Core State Standards Initiative is an educational initiative in the United States that details what K-12 students should know in English language arts and mathematics at the end of each grade.

- **Next Generation Science Standards**

The **Next Generation Science Standards** is a multi-state effort to create new education **standards** that are "rich in content and practice, arranged in a coherent manner across disciplines and grades to provide all students an internationally benchmarked **science** education."

"The standards lack any teaching of the physics of heat, or the relationship between radiant heat and energy. There is no appreciation of the role the sun plays in affecting climate, or of the relative impact of human contributions. In practice, therefore, the national standards are simply propaganda fitting the party line of the global climate change alarmists."

*Wanless, 2016*

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The West Virginia BOE recently took a lot of heat for suggesting changes to the NGSS they had unwisely adopted early in 2015. NGSS assumes human-caused global warming as a persistent feature of Earth's climate, but the BOE voted in December for a more nuanced approach. Rather than assuming anthropogenic global warming, as NGSS insist upon, they want to encourage debate.

The Next Generation Science Standards (NGSS) approved by the Kentucky Board of Education (BOE), and likely to be adopted in many other states, revolutionizes the classroom landscape for millions of students. Like Common Core it recommends that educators identify global warming as a core concept and stress the relationship between global warming and human activity.



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In March 2016 a bill was introduced in the House to withdraw Kentucky from both NGSS and the Common Core Standards. The concern is that Common Core and NGSS effectively remove state and local control of educational standards and surrender them to a private third party, deeply vested in federal visions of what good citizens should learn and think.

Oregon has also adopted the new Next Generation Science Standards, as have most states.

Next Gen Standards say the students will know how to do this:

“Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate. Clarification Statement: Examples of the causes of climate change differ by timescale, over 1-10 years: large volcanic eruption, ocean circulation; 10-100s of years: changes in human activity, ocean circulation, solar output;...”

That all climate change is due to human activity is implicitly denied, as it should be.

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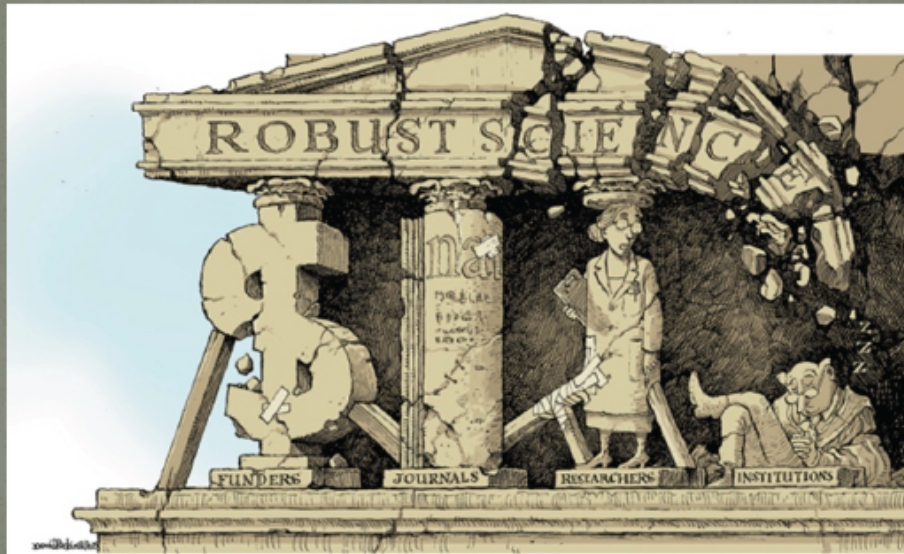
In an outrageous fit of activism the Portland School Board has banned the teaching of climate science.

Here is the actual order from the School Board to the Portland Public Schools (PPS):

“PPS will abandon the use of any adopted text material that is found to express doubt about the severity of the climate crisis or its root in human activities.”


What must now be taught is that there is a severe climate crisis caused by humans. The problem is that this is not what the Oregon Science Education Standards specify that students should learn.

What is happening in post-secondary education?





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Two professors at the University of Northern Colorado were investigated after students complained that they were forced to hear opposing viewpoints.

Never mind that neither professor wasn't even expressing his own opinion — the students just wanted the discussion shut down. And the school obliged.

Three professors co-teaching an online course called “Medical Humanities in the Digital Age” at the University of Colorado-Colorado Springs recently told their students via email that man-made climate change is not open for debate, and those who think otherwise have no place in their course:

“The point of departure for this course is based on the scientific premise that human induced climate change is valid and occurring. We will not, at any time, debate the science of climate change, nor will the ‘other side’ of the climate change debate be taught or discussed in this course,” states the email.

Kate Hardiman, Univ of Notre Dame, 8/31/2016  
in *The College Fix*

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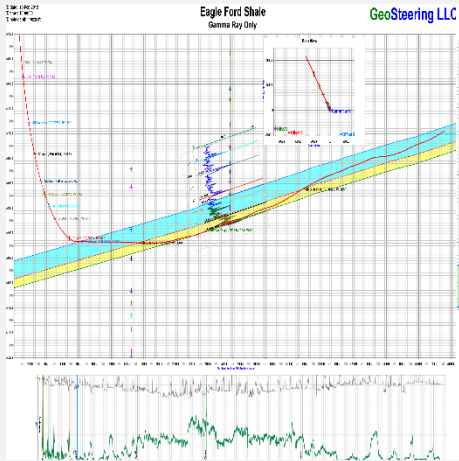
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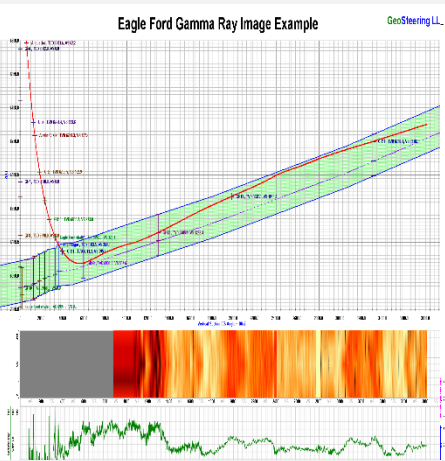
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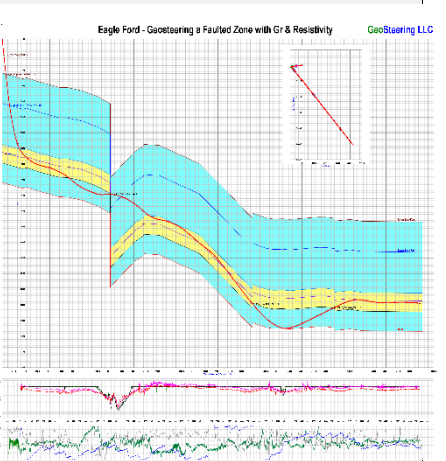
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Valentina Zharkova, a professor at Northumbria University at Newcastle in the United Kingdom, said the Royal Astronomical Society received requests to withdraw a press release on her team's latest research pointing to a significant drop in solar activity by mid-century.

"Some of them [scientists] were welcoming and discussing. But some of them were quite, I would say, pushy, ..." "They were trying to actually silence us. Some of them contacted the Royal Astronomical Society demanding behind our back that they withdraw our press release." -- Valerie Richardson, *The Washington Times*, 10 August 2016

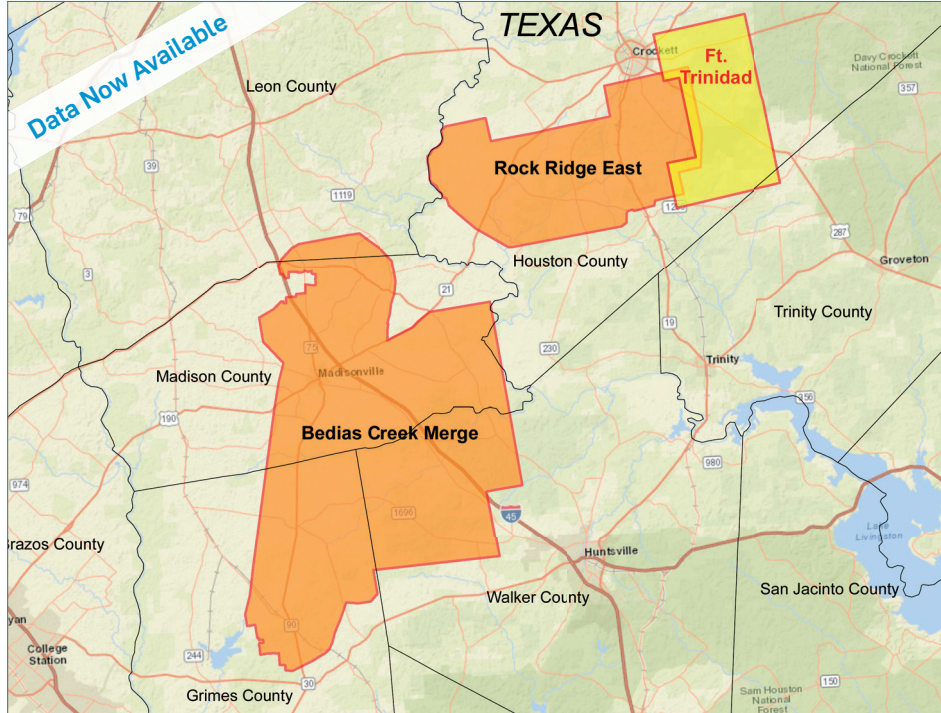


You may not have noticed but our sun has gone as blank as a cue ball. As in, it's lost its spots. According to scientists, this unsettling phenomenon is a sign we are heading for a mini ice age.



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The Climategate emails leaked in 2009 revealed intimidation against academics and journal editors who voiced doubts about the forthcoming Armageddon.

“Kevin and I will keep them out somehow – even if we have to redefine what the peer review literature is.”

“...If you think that Saiers is in the greenhouse skeptics camp, then, if we can find some documentary evidence of this, we could go through official AGU channels and get him ousted.”

“...don't pass it along.”

“...hide the decline.”

“...can't account for the lack of warming.”

“Leave it to you to delete as appropriate.”

“I will be hiding behind them.”

“...delete any emails you may have had.”

Dr. Judith Curry, National Press Club, September 2014:

“If I were a non-tenured scientist, I would fear for my job! But I am a senior scientist with retirement in sight, so I can afford to do what I want, say what I think.”

Geologists at the University of Cincinnati just wrapped up a three-year investigation of hydraulic fracturing and its impact on local water supplies.

The result? There's no evidence that fracking contaminates drinking water. Researchers hoped to keep these findings secret.

Why would a public research university boasting a top-100 geology program deliberately hide its work? Because, as lead researcher Amy Townsend-Small explained, "our funders, the groups that had given us funding in the past, were a little disappointed in our results. They feel that fracking is scary and so they were hoping our data could point to a reason to ban it."

A review of the available research bears out these claims. Consider the Ground Water Protection Council's recent study on gas exploration in Ohio, from 1983 until 2007, and in Texas, from 1993 until 2008.

According to that report, neither officials in Texas nor those in Ohio "identified a single groundwater contamination incident...at any of these horizontal shale gas wells" during those periods.

Since 1947 over one million wells have been hydraulically fractured.

Only one case of demonstrated induced seismicity from hydraulic fracturing for shale gas has been documented worldwide (Blackpool, England - 2011).

## New NASA Study Undercuts EPA, Finds Fracking Not to Blame for Increased Methane Emissions

Posted by: Katie Brown, PhD  
Washington DC  
March 11, 2016

Just one day after the U.S. Environmental Protection Agency announced it will regulate methane emissions from existing sources of oil and natural gas in order to “combat climate change,” scientists at the National Aeronautics and Space Administration (NASA) have released a new study finding that oil and natural gas producers are not to blame for a global increase in methane emissions. In fact, according to the researchers, the increased emissions are instead coming from wetlands and agriculture.

Over-reliance on models, misapplication of statistical methods, and lack of repeatability are the hallmarks of the new pseudoscience that is replacing the traditional practice of science, real science.

Science, September 1, 2015

Modeling is not true science; modeling is just playing with hypotheses, so there is actually very little climate science being done. Moreover, *given that the models all assume AGW*, it is no wonder that many climate scientists endorse AGW. It is built into their work.



Johann Wolfgang von Goethe



I could never have known so well how paltry men are, and how little they care for really high aims, if I had not tested them by my scientific researches. Thus I saw that most men only care for science so far as they get a living by it, and that they worship even error when it affords them a subsistence.

AZ QUOTES

## What's happening in government?

California SB 1161: Makes Questioning "Climate Change" a Sue-able (Criminal?) Offense.

Section 2(b) of the bill declares it the California legislature's policy to promote "redress for unfair competition practices committed by entities that have deceived, confused, or misled the public on the risks of climate change or financially supported activities that have deceived, confused, or misled the public on those risks"

Promoted as making it easier to sue fossil fuel companies over their involvements in public debate, the bill would lift the four-year statute of limitations of the state's already extremely liberal Unfair Competition Law, otherwise known as s. 17200— and retrospectively, so as to revive decades' worth of time-lapsed claims “with respect to scientific evidence regarding the existence, extent, or current or future impacts of anthropogenic-induced climate change.”

The top law enforcement officers in 16 states have formed a coalition to investigate and prosecute companies that don't agree with them on climate change. In other words, those not practicing orthodoxy will be punished.

“We cannot continue to allow the fossil fuel industry or any industry to treat our atmosphere like an open sewer or mislead the public about the impact they have on the health of our people and the health of our planet,” Gore said in a news conference held in Manhattan.

Standing next to Gore was New York Attorney General Eric Schneiderman, who promised that the group of state attorneys general will hunt down the global warming heretics and punish them.

# Investor's Business Daily

Editorials

## Attorneys General Create Axis For Global Warming Shakedown

A coalition of state attorneys general wants to leave businesses that don't agree with its global warming views as cracked and dry as a drought-weary lake bed. (AP) 3/31/2016

A12 | Saturday/Sunday, April 30 - May 1, 2016

OPINION

### REVIEW & OUTLOOK

## The Climate Police Escalate

Sometimes we wonder if we're still living in the land of the free. Witness the subpoena from Claude Walker, attorney general of the U.S. Virgin Islands, demanding that the Competitive Enterprise Institute cough up a decade of emails and policy work, as well as a list of private donors.

Mr. Walker is frustrated that the free-market think tank won't join the modern church of climatology, so he has joined the rapidly expanding club of Democratic politicians and prosecutors harassing dissenters.

New York Attorney General Eric Schneiderman started the assault last autumn with a subpoena barrage on Exxon Mobil. His demand for documents followed reports by Inside Climate News and the Los Angeles Times that claimed Exxon scientists had known for years that greenhouse gases cause global warming but hid the truth from the public and shareholders.

Those reports selectively quoted from Exxon documents, which in any case were publicly available and often peer-reviewed in academic journals. Some Exxon scientists changed their views over the years, and several years ago the company even endorsed a carbon tax.

Mr. Schneiderman nonetheless says he is investigating Exxon for "defrauding the public, defrauding consumers, defrauding shareholders." He also tipped a broader assault by claiming that the oil and gas company was funneling climate misinformation through "organizations they fund, like the American Enterprise Institute," the "American Legislative Exchange Council" and the "American Petroleum Institute." He wants to use the Exxon case to shut down all "climate change deniers."

Mr. Schneiderman didn't single out CEI, and CEI doesn't disclose its donors. But in January CEI senior attorney Hans Bader blasted Mr. Schneiderman for violating Exxon's First Amendment rights. "Government officials cannot pressure a private party to take adverse action

against a speaker," he wrote. Mr. Schneiderman responded by inviting more than a dozen state AGs to join him in "collectively, collaboratively and aggressively" investigating fossil-fuel companies and their donations. He rolled out Al Gore for the press conference.

Mr. Walker belongs to this climate prosecution club and so he unleashed his subpoena

attack on CEI, as well as on DGI Group, a Washington-based PR firm that represents free-market and fossil fuel groups. His demand for a decade's worth of papers on climate research is a form of harassment. The process is itself punishment, intended to raise the cost of speaking freely on climate policy lest it invite legal bills and other political headaches.

Mr. Walker is also over the line in demanding the names of nonprofit CEI's donors, who can remain secret under federal law. Anyone on the list will become a new target for the Schneiderman climate posse.

CEI has filed to quash the subpoena, and the nonprofit has hired attorneys Andrew Grossman and David Rivkin, who recently founded the Free Speech in Science Project to defend First Amendment rights against government abuses. The project is much needed.

Rhode Island Senator Sheldon Whitehouse has asked the Justice Department to use the RIGG statutes to bring civil cases against climate dissenters. Attorney General Loretta Lynch recently referred to the FBI a request from two Democrat Congressmen seeking a criminal probe of Exxon. Democrats on Capitol Hill have sent letters pressuring companies to disavow the Chamber of Commerce for its climate heresy.

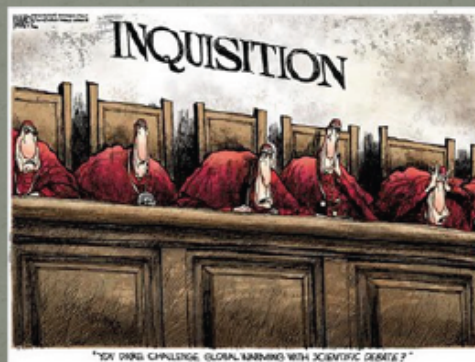
This is a dangerous turn for free speech, and progressives ought to be the first to say so lest they become targets for their own political heresies. Rather than play defense, the targets of the climate police need to fight back with lawsuits of their own.

### A subpoena hits a think tank that resists progressive orthodoxy.

In news that should shock and anger Americans, U.S. Attorney General Loretta Lynch told the Senate Judiciary Committee on Wednesday that not only has she discussed internally the possibility of pursuing civil actions against so-called “climate change deniers,” but she has “referred it to the FBI to consider whether or not it meets the criteria for which we could take action.”  
--Hans von Spakovsky, *The Daily Signal*, 10 March 2016



Last summer, taking his lead from the Inquisition, Democratic senator Sheldon Whitehouse proposed that anti-racketeering laws be used to shut down the “climate denial network” and the work of scientists who have “consistently published papers downplaying the role of carbon emissions in climate change.”



Interior Secretary Sally Jewel, 2014:

“I hope there are no climate change deniers in the Department of Interior.”

None of this should be a surprise:

In 2007 and 2008, candidate Obama declared his intention to destroy fossil fuel energy in America and around the world, calling for “emissions targets” that would make it illegal to use more than 20 percent of today’s levels. (Epstein, 2014, *The Moral Case for Fossil Fuels*).

“At the dawn of the twenty-first century, the country that faced down the tyranny of fascism and communism is now called to challenge the tyranny of oil... For the sake of our security, our economy, our jobs and our planet, the age of oil must end in our time.”

Barack Obama, “Remarks to the Detroit Economic Club,”

May 7, 2007, speech, Detroit, MI, The American Presidency Project

In November (2015), massive manipulation and falsification of the surface temperature record by NASA and NOAA were exposed in a detailed analysis by German scientist Friedrich-Karl Ewert titled "NASA GISS Temperature Records Altered - Why?"

In January (2016) some 300 scientists signed a letter to Congressman Smith supporting his investigation into NOAA.

Senator Inhofe has also called for investigation of the scientific improprieties revealed in the CRU emails:

"The notion that these scientists tried to declare the science settled for personal reasons is disgraceful. ...They were purposefully misrepresenting the facts. They tried to make America believe, and it worked, for a time. ...We've had warming, then cooling, then warming, then cooling again. I'm delighted that people are discovering that the science has been cooked for a long period of time.

"There are tremendous economic ramifications to what these guys are trying to do...The IPCC for years has been costing the government so much money, and now, wasted time in trying to pass faulty legislation based on bad data."

Robert Costa, "Inhofe: CRU Scandal Bigger than ACORN Flap," National Review online, November 24, 2009

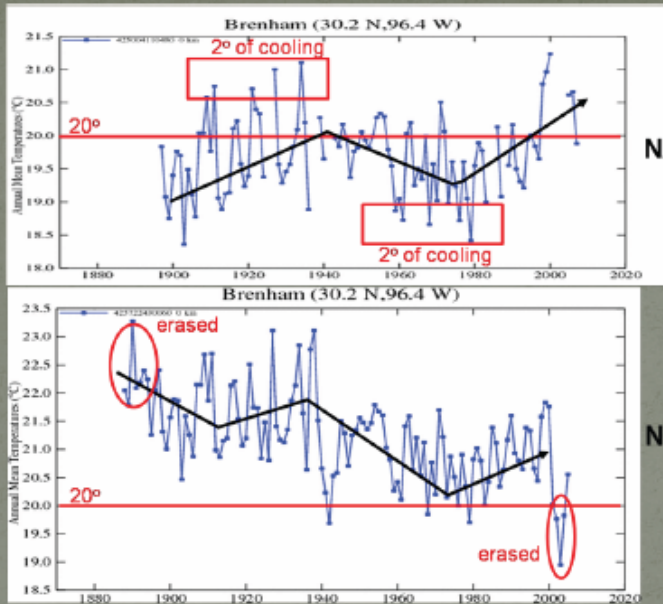
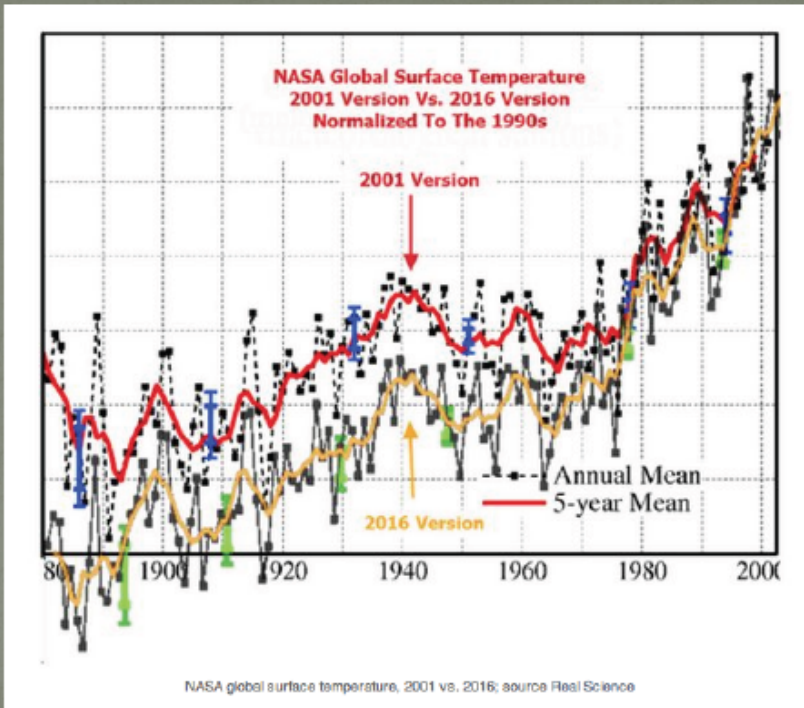
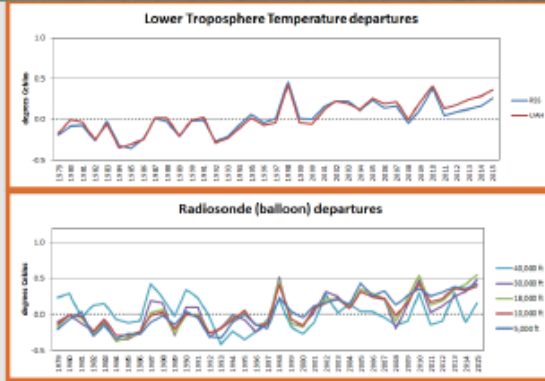


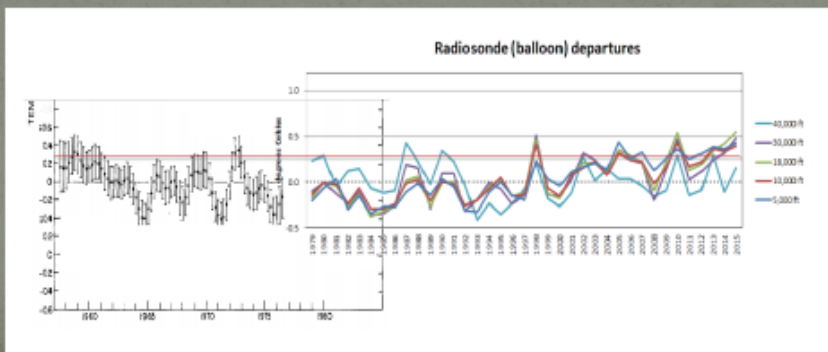
Figure 4: Temperature station data for Brenham Texas. The upper graph was downloaded from the NASA GISS data base in late 2012. The lower graph was downloaded from the same site in mid 2008. Two degrees of cooling have been added to the 2012 curve for several years between 1900 and 1940 and again for several years between 1955 and 1985. As a result, the Brenham Station now shows an overall warming trend, whereas in 2008 the data showed a generally cooling trend.

- NESDIS STAR: 5<sup>th</sup> warmest
- Lower Troposphere (37 yr record)
  - UAH: 3<sup>rd</sup> warmest
  - RSS: 3<sup>rd</sup> warmest
- Radiosonde data (58 yr record)
  - ~5,000 ft (850mb): 2<sup>nd</sup> warmest
  - ~10,000 ft (700mb): 3<sup>rd</sup> warmest
  - ~18,000 ft (500mb): warmest
  - ~30,000 ft (300mb): 2<sup>nd</sup> warmest
  - ~40,000 ft (200mb): 14<sup>th</sup> warmest



January 2016 | NOAA/NASA – Annual Global Analysis for 2015

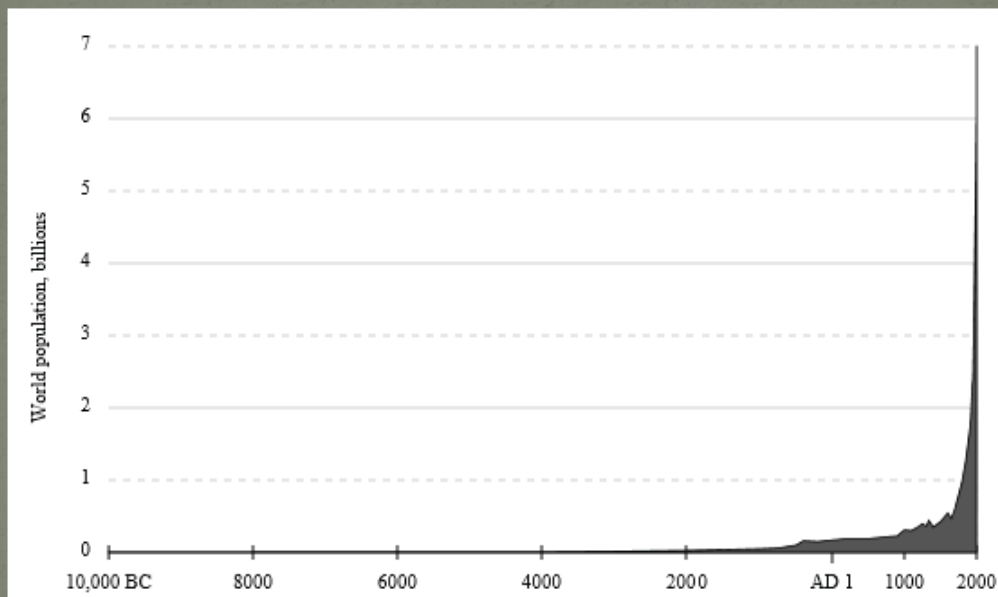
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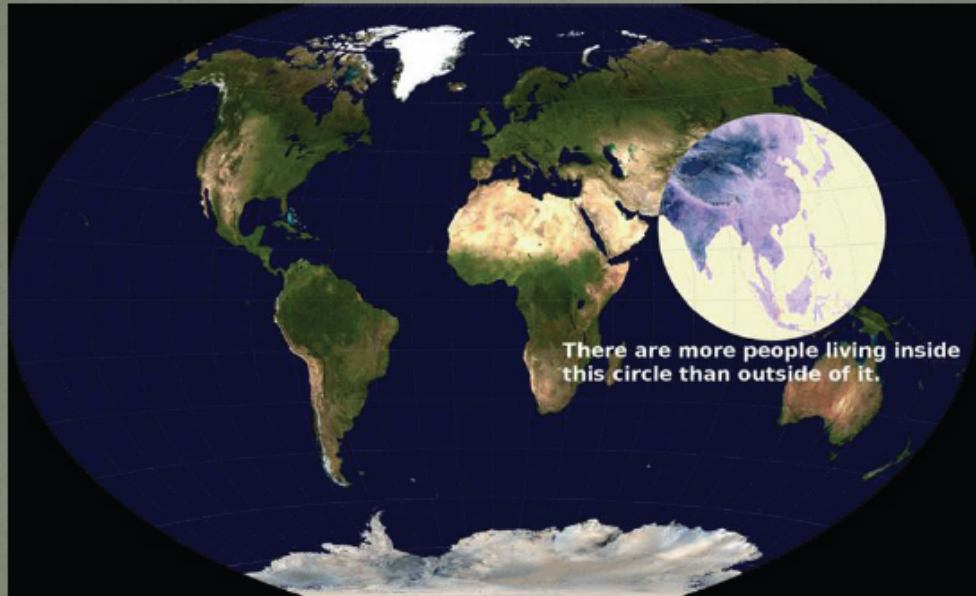


Dr. Patrick J. Michaels and Dr. Richard S. Lindzen, writing in June (2015) at the blog "Watts Up With That", commented on the National Oceanic & Atmospheric Administration's (NOAA) use of unreliable water temperature records to create a spurious new record to support alarmist claims: "As has been acknowledged by numerous scientists, the engine intake data are clearly contaminated by heat conduction from the structure, and as such, never intended for scientific use."



So, what's driving these passions and behaviors?





But the bottom line is the political science, not the climate science, as Obama White House Science Advisor John Holdren has previously revealed. He has stated, "A massive campaign must be launched to...*de-develop* the United States...bringing our economic system (especially patterns of consumption) into line with the realities of ecology and the global resource situation....We must design a stable, low consumption economy in which there is a much more equitable distribution of wealth."

*Peter Ferrara in Forbes, May 18, 2014*

The alarmists keep telling us their concern about global warming is all about man's stewardship of the environment

But we know that's not true

At a news conference last week in Brussels, Christiana Figueres, executive secretary of U.N.'s Framework Convention on Climate Change, admitted that the goal of environmental activists is not to save the world from ecological calamity but to **destroy capitalism**.

"This is the first time in the history of mankind that we are setting ourselves the task of intentionally, within a defined period of time, to change the economic development model that has been reigning for at least 150 years, since the Industrial Revolution. ...This is probably the most difficult task we have ever given ourselves, which is to intentionally transform the economic development model for the first time in human history."

*--Investor's Business Daily, 10 February 2015*

Maurice Strong, Chairman, First international meeting on global warming, Rio de Janeiro, 1992:

“Isn’t the only hope for the planet that the industrialized civilizations collapse? Isn’t it our responsibility to bring that about?”

“Our concept of ballot-box democracy may need to be modified to produce a strong central government capable of making difficult decisions.”

Strobe Talbert, Deputy Secretary of State under Clinton:

“Nationhood as we know it will be obsolete – all states will recognize a single global authority... National Sovereignty wasn’t such a good idea.”

Vice President Biden and Defense Secretary Hagel, 2014

“We are moving towards a new world order.”

Ottmar Odenhofer, UN-IPCC lead author, 4<sup>th</sup> IPCC Report, in an interview Nov. 18, 2010:

“We redistribute de facto the world’s wealth by climate policy. One has to free oneself from the illusion that international climate policy is environmental policy.”

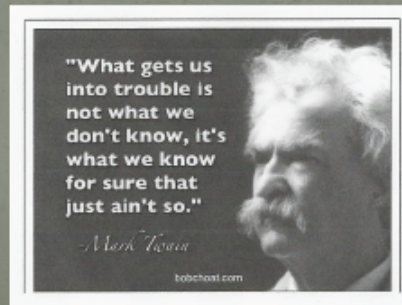
Richard Benedict, then Deputy Assistant of State, head of the policy divisions of the US State Department:

“A global warming treaty must be implemented even if there is no scientific evidence to back the (enhanced) greenhouse effect.”

S. Fred Singer and Dennis T. Avery,  
*Unstoppable Global Warming*, 2007, p.210.

Dana Rohrabacher, U.S. Representative, California:

“Global warming is a fraud being used as a tool to create a Global Government.”



Jacques Cousteau explicitly proclaims the need to depopulate the earth :

“The damage people cause to the planet is a function of demographics - it is equal to the degree of development. [The single country] America burdens the earth much more than twenty Bangladeshes.... This is a terrible thing to say. In order to stabilize world population, we must eliminate 350,000 people per day. It is a horrible thing to say, but it's just as bad not to say it.”

November 1991 *UNESCO Courier*

- “Human happiness, and certainly human fecundity, are not as important as a wild and healthy planet. ...(Some claim) that people are part of nature but it isn't true. ...we became a cancer. We have become a plague upon ourselves and upon the Earth. It is cosmically unlikely that the developed world will choose to end its orgy of fossil-energy consumption, and the Third World its suicidal consumption of landscape. Until such time as *Homo sapiens* should decide to rejoin nature, some of us can only hope for the right virus to come along.”

David M. Graber, research biologist, National Park Service in the Los Angeles Times, Oct. 22, 1989



But there are other ways to achieve those ends – a “pristine” planet and smaller population.

Simply eliminate the world’s access to inexpensive energy – declare war on fossil fuels and eliminate them.

Problem solved, capitalism destroyed in the developed world, and “wealth” transferred to the Third World where fossil fuel use is not curtailed.

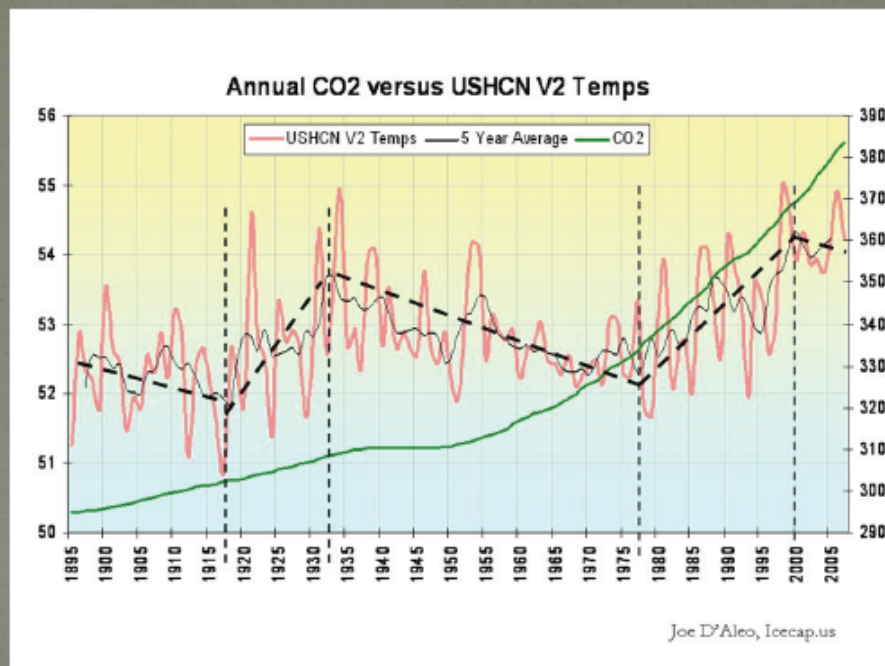
So, enter the EPA and its activities:

- Control CO<sub>2</sub> “pollution” via the Clean Air Act ->
- Control commercial aircraft emissions
- Cause 244 coal plants to close
- Push all major coal producers to bankruptcy
- Declare that all residential energy will be renewable by 2030 (requiring 500 million solar panels at a cost of \$1 trillion)

Dr. Patrick Moore in *"Confessions of a Greenpeace Dropout"*:

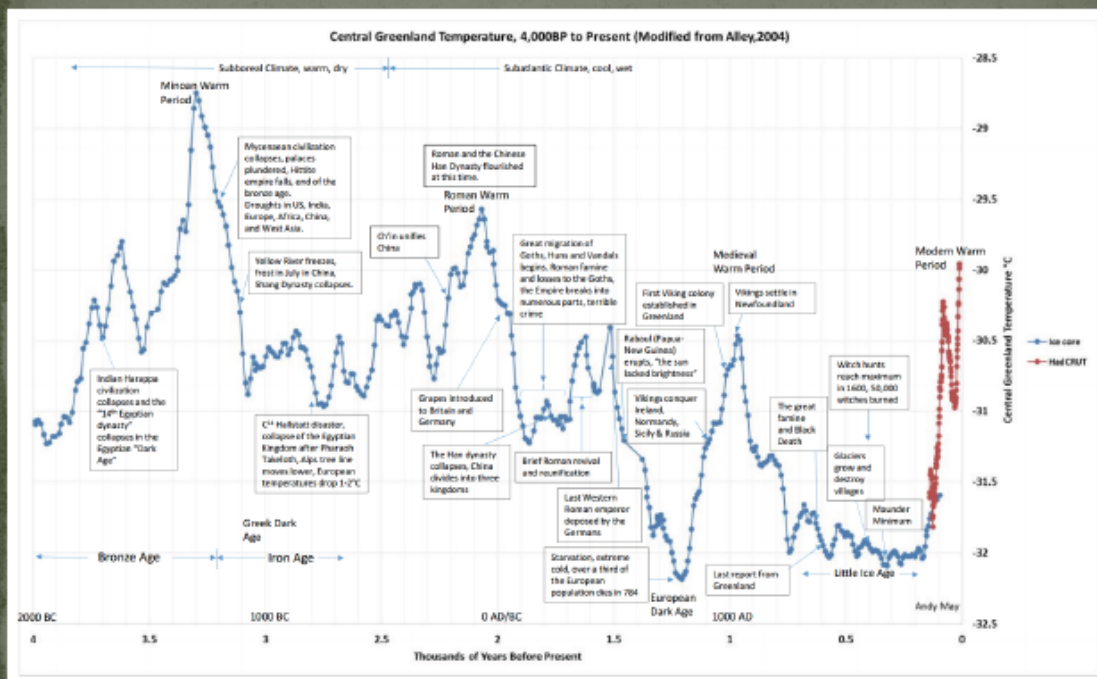
"There is no definitive scientific proof, through real-world observations, that CO<sub>2</sub> is responsible for warming of the globe."

"It doesn't matter how beautiful your theory is, it doesn't matter how smart you are. If it doesn't agree with experiment, it's wrong." Richard Feynman



“...cooling has always resulted in major social upheavals, whereas warming has sometimes led to a blossoming of culture. If we can learn anything from the history of culture, it is that, even if humans were ‘children of the Ice Age’, civilization was a product of climatic warming.”

Behringer, 2010, *A Cultural History of Climate*



“The future is hard to foresee. Serious scientists should refrain from slipping into the role of Nostradamus. Computer simulations cannot be better than the premises that guided the input of data: they show what is expected to happen, not the actual future. The history of the sciences is also a history of false theories and wrong predictions.”

Behringer, 2010, *A Cultural History of Climate*

## The New York Times

THURSDAY, JANUARY 5, 1978

By WALTER SULLIVAN

An international team of specialists has concluded from eight indexes of climate that there is no end in sight to the cooling trend of the last 30 years, at least in the Northern Hemisphere.

The report, prepared by German, Japanese and American specialists, appears in the Dec. 15 issue of *Nature*, the British journal. The findings indicate that from 1950 to 1975 the cooling, per decade, of most climate indexes in the Northern Hemisphere was from 0.1 to 0.2 degrees Celsius, roughly 0.2 to 0.4 degrees Fahrenheit.

Data from the Southern Hemisphere, particularly south of latitude 30 south, are so meager that reliable conclusions are not possible, the report says. The

## The Cooling World

There are ominous signs that the earth's weather patterns have begun to change dramatically and that these changes may portend a drastic decline in food production—with serious political implications for just about every nation on earth. The drop in food output could begin quite soon, perhaps only ten years from now. The regions destined to feel its impact are the great wheat-producing lands of Canada and the U.S.S.R. in the north, along with a number of marginally self-sufficient tropical areas—parts of India, Pakistan, Bangladesh, Indochina and Indonesia—where the growing season is dependent upon the rains brought by the monsoon.

The evidence in support of these predictions has now begun to accumulate so massively that meteorologists are hard-

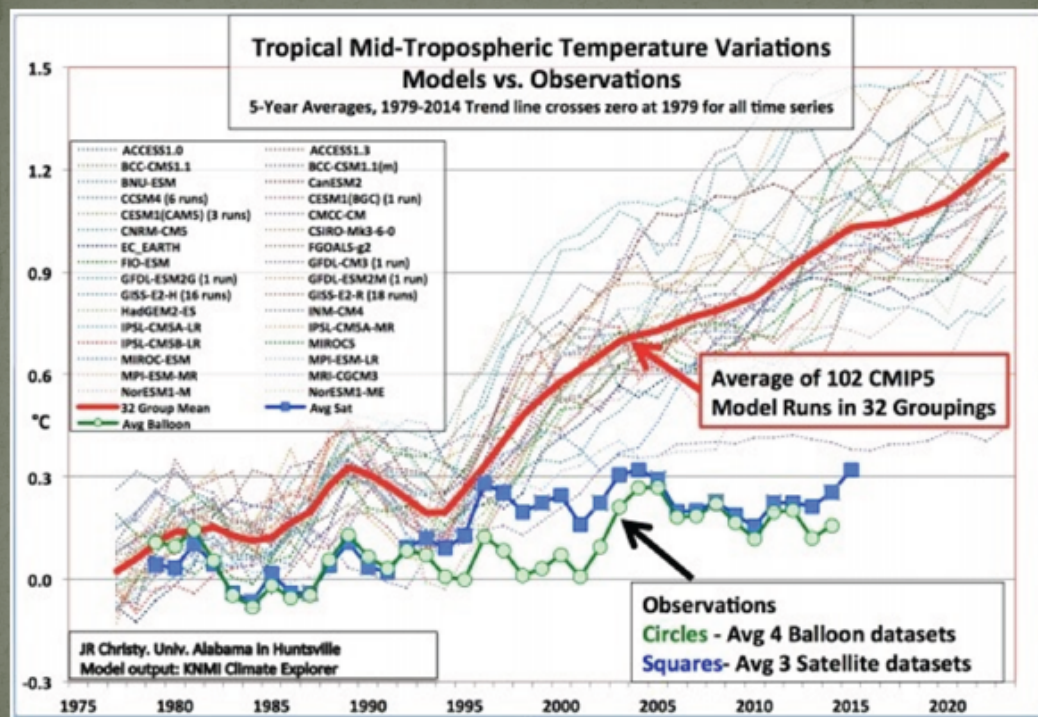
pressed to keep up with it. In England, farmers have seen their growing season decline by about two weeks since 1950, with a resultant over-all loss in grain production estimated at up to 100,000 tons annually. During the same time, the average temperature around the equator has risen by a fraction of a degree—a fraction that in some areas can mean drought and desolation. Last April, in the most devastating outbreak of tornadoes ever recorded, 148 twisters killed more than 300 people and caused half a billion dollars' worth of damage in thirteen U.S. states.

**Trend:** To scientists, these seemingly disparate incidents represent the advance signs of fundamental changes in the world's weather. The central fact is that after three quarters of a century of extraordinarily mild conditions, the earth's climate seems to be cooling down. Meteorologists disagree about the cause and extent of the cooling trend, as well as over its specific impact on local weather conditions. But they are almost unanimous in the view that the trend will

reduce agricultural productivity for the rest of the century. If the climatic change is as profound as some of the pessimists fear, the resulting famines could be catastrophic. "A major climatic change would force economic and social adjustments on a worldwide scale," warns a recent report by the National Academy of Sciences, "because the global patterns of food production and population that have evolved are implicitly dependent on the climate of the present century."

A survey completed last year by Dr. Murray Mitchell of the National Oceanic and Atmospheric Administration reveals a drop of half a degree in average ground temperatures in the Northern Hemisphere between 1945 and 1968. According to George Kukla of Columbia University, satellite photos indicated a sudden, large increase in Northern Hemisphere snow cover in the winter of 1971-72. And

Newsweek, April 28, 1975



“In climate research and modeling, we should recognize that we are dealing with a coupled non-linear chaotic system, and therefore that long-term prediction of future climate states is not possible.”

IPCC Climate Change 2000,  
Chapter 8, “Model Evaluation”, p.  
774

“Anyone who claims to know what climate changes will occur in a year, a decade, or even longer ahead is either a fraud or a fool.”

Larry Bell, *Climate of Corruption*,  
2011, p.215.

## Summary

- Inappropriate standards
  - Inadequate
  - Unevenly applied
  - Prejudicial
- Science
  - Ignores data
  - Presents modeling as “hard science”
- Suppression of alternatives
- Self-censorship
- Misrepresentation of data
  - Alteration of data

“Corrupt science that supports these travesties has many complicit agents. It is perpetrated by sponsors who fail to provide competent oversight; by ideologically, politically, and financially driven authorities who twist and exploit conclusions; and by lockstep, headline-hungry media organizations that emphasize sensationalism over substance. *And we can’t forget those among us who, through complacency and denial in the face of obvious deception, willingly forfeit demands for accountability. When we abrogate that responsibility, perhaps we become culpable too.*”

Larry Bell, *Climate of Corruption*, 2011, p.236.



*Climate change is the biggest scam in the history of the world – a \$1.5 trillion-a-year conspiracy against the taxpayer, every cent, penny and centime of which ends in the pockets of the wrong kind of people, none of which goes towards a cause remotely worth funding, all of it a complete and utter waste.*

## Selected references

- “The Great Global Warming Blunder” by Roy W. Spencer, 2010
- “Climate of Corruption” by Larry Bell, 2011
- “A Disgrace to the Profession, Vol. 1” by Mark Steyn, 2015
- “The Moral Case for Fossil Fuels” by Alex Epstein, 2014
  
- “Unstoppable Global Warming – Every 1,500 Years”  
by S. Fred Singer and Dennis T. Avery, 2007
- “Fire, Ice, and Paradise” by H. Leighton Steward, 2009
- “Climate Change Facts” Alan Moran ed., 2015



## Video references

- “The Great Global Warming Swindle”

[https://video.search.yahoo.com/search/video;\\_ylt=AwrBT\\_t4JddXHQoA9qFXNy0A;\\_ylu=X3oDMTEyMm43aWFsBGNvbG8DYmYxBHBvcwMxBHZoaWQDQjE5MTBfMQRzZWMDc2M-?p=The+Great+Global+Warming&fr=mcafee](https://video.search.yahoo.com/search/video;_ylt=AwrBT_t4JddXHQoA9qFXNy0A;_ylu=X3oDMTEyMm43aWFsBGNvbG8DYmYxBHBvcwMxBHZoaWQDQjE5MTBfMQRzZWMDc2M-?p=The+Great+Global+Warming&fr=mcafee)

- Professor Ian Plimmer

[https://www.youtube.com/watch?v=iEPW\\_P7GVB8](https://www.youtube.com/watch?v=iEPW_P7GVB8)

- Patrick Moore

<https://www.prageru.com/courses/environmental-science/what-they-havent-told-you-about-climate-change#.Vc4sj IViko>

- Stefan Molyneux

<https://www.youtube.com/watch?v=yTTaXqVEGkU>

In 2013 *The Los Angeles Times* said it would “no longer publish letters from climate change deniers”, in which category it included sceptics.

In 2014 the BBC upheld a complaint against itself for allowing Lord Lawson to discuss climate change at all, commenting bizarrely that his views “are not supported by the evidence from computer modelling”.

The editor of this newspaper received a private letter last week from Lord Krebs and 12 other members of the House of Lords expressing unhappiness with two articles by its environment correspondent. Conceding that *The Times’s* reporting of the Paris climate conference had been balanced and comprehensive, it denounced the two articles about studies by mainstream academics in the scientific literature, which provided less than alarming assessments of climate change.

Wash. Times Review 25 Jan '16

## Stop censoring climate debate

President Obama told Americans in his recent (and last) State of the Union address: "Democracy grinds to a halt without a willingness to compromise, or when even basic facts are contested, or when we listen only to those who agree with us. Our public life withers when only the most extreme voices get all the attention." Yet the president will not compromise with or even listen to the many highly qualified scientists who contest his position on climate change.

Instead he heeds the most extreme voices in the debate, people such as ex-NASA scientist James Hansen and others who exaggerate the climate scare to ridiculous levels that even left-wing scientists disdain.

In his last year, Mr. Obama must do the following:

1. Stop referring to those who question the causes of climate change as people 'on the fringe' of science who should be shunned. As shown by the reports of the Nongovernmental International Panel on Climate Change (NIPCC), there are literally thousands of peer-reviewed papers in the world's leading science journals that shed doubt on or outright refute the Obama administration's position on climate change.

2. Stop his dangerous 'war on coal' to



3. supposedly stop climate change. Coal is America's cheapest and most abundant power source and its use must be expanded, not reduced, if soaring electricity prices and massive unemployment is to be avoided.

3. Start telling the truth about the Paris Agreement on climate change and other nonsensical attempts to stop global warming. Developing countries emit the most carbon dioxide, yet the United Nations has given them an opt-out clause. So even if the United Nations' science were correct, America's sacrifice would be for nothing.

If Obama is serious about promoting "a more elevated debate in Washington," as he said he was in his last State of the Union address, he must start to practice what he preaches.

**TOM HARRIS**

Executive director  
International Climate Science Coalition (ICSC)  
Ottawa, Ontario

# Corpus Christi Geological Society Papers available for purchase at the Texas Bureau of Economic Geology

Note: Publication codes are hyperlinked to their online listing in [The Bureau Store](http://begstore.beg.utexas.edu/store/) (<http://begstore.beg.utexas.edu/store/>).

Cretaceous-Wilcox-Frio Symposia, D. B. Clutterbuck, Editor, 41 p., 1962.  
[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 Rancherías, 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.  
[CCGS 107G](#) \$15.00

Modern Depositional Environments of Sands in South Texas. C. E. Stelling and J. L. Russell, Editors. 64 p., 1981.  
[CCGS 108G](#) \$15.00

Geology of Peregrina & Novillo Canyons, Ciudad Victoria, Mexico, J. L. Russell, Ed., 23 p. plus geologic map and cross section, 1981.  
[CCGS 109G](#) \$10.00

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. Various 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. Berkebille. 26 p., 1984.  
[CCGS 112G](#) \$12.00

# GEO LINK POST

<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.

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<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.

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[www.ccgeo.org](http://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](http://www.ermaper.com) They have a great free downloadable viewer for TIFF and other graphic files called ER Viewer.

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Nine Mile Point  
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St. Charles  
Tally Island  
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Mosca  
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Orangedale(2)  
Ray-Wilcox  
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Warmleys

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Hagist Ranch  
Herbst  
Loma Novia  
Petrox  
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Berclair  
North Blanca  
Bombs  
Boyce  
Cabeza Creek, South  
Goliad, West  
**St Armo**

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Donna  
Edinburg, West  
Flores-Jeffress  
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McAllen& Pharr  
McAllen Ranch  
Mercedes  
Monte Christo, North  
Penitas  
San Fordyce  
San Carlos  
San Salvador  
S. Santallana  
Shary  
Tabasco  
Weslaco, North  
Weslaco, South

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Ganado & Ganado Deep  
LaWard, North  
Little Kentucky

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Julian, North  
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Rita

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Borregos  
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Hope  
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**Southwest Speaks Deep**  
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Calallen  
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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.  
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Nueces Bay/Nueces Bay  
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**Perro Rojo**

Pita Island

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Riverside, South

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Greta  
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Tom O'Connor

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Enos Cooper

Geronimo

Harvey

Hiberia

Hodges

Mathis, East

McC Campbell Deep/Aransas Pass

Midway

Midway, North

Odem

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Portilla (2)

Taft

Taft, East

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Hinde

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Ricaby

Rincon

Rincon, North

Ross

San Roman

Sun

Yturria

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Keeran, North

Marcado Creek

McFaddin

Meyersville

Placedo

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Big Cowboy

Bruni, S.E.

Cabezon

Carr Lobo

Davis

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Las Tiendas

Nicholson

O'Hem

Olmitos

Tom Walsh

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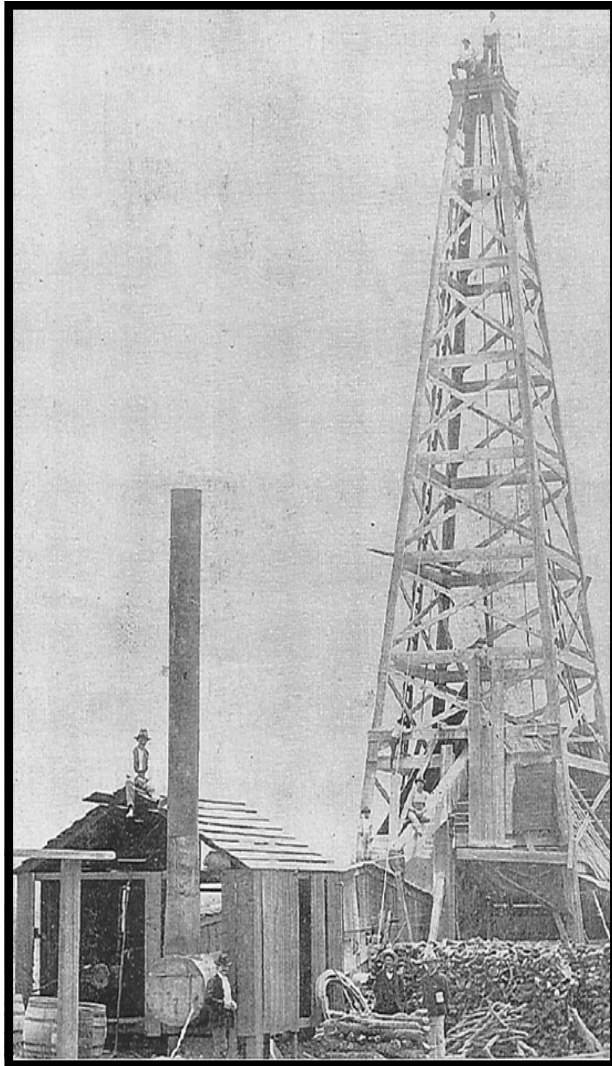
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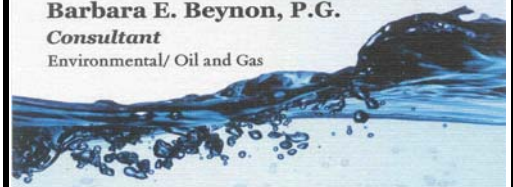
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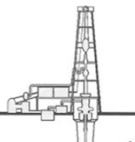
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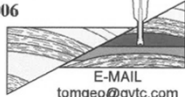
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