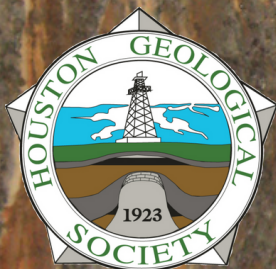


BULLETIN

HOUSTON GEOLOGICAL SOCIETY



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& Ugly Christmas Sweater Party
December 12, 2022

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History of Macro-Trends
& Oil Market Price

HGS E&E MEETING

Guadalupe Mountains HGS Field
Trip Overview

GEOGULF CALL FOR PAPERS

Abstract deadline:
December 15, 2022

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THIS COULD GET UGLY

HOLIDAY SOCIAL & UGLY CHRISTMAS SWEATER PARTY

DECEMBER 12, 2022 | 4:30PM - 7:30PM
NORRIS CENTER, HOUSTON, TX

Wear your worst Christmas Sweater & celebrate the season networking with fellow geos!

Happy Hour | Hors d'oeuvres | Ugly Christmas Sweater Contest

Promote your business with a \$500 Vendor Corner sponsorship including a networking booth! Contact office@hgs.org to learn more.

REGISTER AT WW.HGS.ORG



Holiday Greetings Fellow HGS Members! I hope everyone had a good Thanksgiving break. As we approach the end of the first semester of our year, our **Three Point Plan** is evolving well.

Increasing Membership.

The online registration process is being tuned up by our programmer.

These modifications will make it much easier to renew memberships or make an application online using our website. Thanks to Bill DeMis, Linda Sternbach and our office staff for coordinating these changes. Please continue to encourage your work colleagues and service company contacts to join our society.

Rebuilding Community / In-Person Events

Environmental & Engineering Dinner Meeting on November 8 was well-attended by 30 folks.

Our **Continuing Education Course** was well-attended with 23 paying participants. Bill DeMis led this all-day, in-person class on November 11 hosted by Core Lab at their facility. Lunch and course notes were included. Thank you, Continuing Education Committee, Bill DeMis, and Core Lab!

The **Annual HGS-UH Robert Sherriff Dinner** was held on November 18 at Norris Center.

We have several events scheduled for December and January.

On December 1 Bill DeMis and Art Berman will co-lead an online 4-hour Zoom Continuing Education Short Course addressing Oil Price, Supply, Demand and Inventories.

December 12 we have a **Networking/Social Holiday Gathering** late afternoon/early evening. This event will be held at the Norris Conference Center. Sign up your E&P Team up for this event in the Energy Corridor and enjoy cocktails and heavy hors d'oeuvres. For details and registration see the Bulletin or the weekly announcements.

December 14 Environmental & Engineering will hold its dinner meeting at **Craft Republic**, 5:30 to 9:00pm. "**Guadalupe Mountain HGS 2023 Field Trip Overview**". For details see the HGS Bulletin or weekly announcements.

Our **January 9** our **General Dinner Meeting** promises to be an interesting event. Dr Jeff Dravis will present a talk titled "**Tropical Trade Wind Models from Caicos Platform, SE Bahamas: Applications to Cretaceous Limestone reservoirs Around the Ancestral Gulf of Mexico**". For details and registration see the HGS Bulletin or the weekly announcements.

On **January 23** our first **North American event** will be an evening seminar entitled, "**The State of Private Equity in Oil & Gas**". For registration and details see the Bulletin or the weekly announcements.

Additional 2023 events include:

HGS Annual Scholarship Night February 13

Guadalupe Mountain and Delaware Basin Field trip March 23-26

GeoGulf 2023 (formerly GCAGS) April 23 to 25

Grand Canyon Raft Trip June 1-8. Accepting wait list reservations.

Financial Sustainability

At our last evaluation point, we appear to be performing financially better than we have in several years. We continue to make progress on the goal of financial sustainability. One of the components that we are still tuning up is to have a thorough, in-advance, understanding of all the costs associated with running an individual event. This will include the allocation of administrative staff time to individual events.

Achievement of this critical goal requires membership support and active participation by the membership in the society-sponsored events.

So again, the Board and I thank you for supporting your geological society with your membership and your participation in the scheduled events.

Have a Joyful Holiday Season!

Walter S. Light, Jr. - President



Advertise with HGS

The Houston Geological Society has many advertising opportunities to help you promote your business. The money raised through advertising helps the HGS to be able to support continuing education, networking, outreach to students, student scholarships, and young professional activities. Check out some of our advertising opportunities below!



Vendor Corner

Promote your business with a booth at an in-person luncheon or dinner meeting. HGS will also post your logo, website/social link(s) and a brief company summary on the HGS website below the technical meeting's announcement and abstract.



HGS Bulletin

Published 10 months out of the year and available digitally on the HGS website, the HGS Bulletin is an outstanding technical journal sent electronically to all current members and to subscribing libraries around the world.



Virtual HGS Event Sponsorship

Promote your business at a virtual meeting. Along with the opportunity to reach a global audience, HGS will promote your business on the event page, on our social media, and at the technical talk.



GeoJobs

The HGS GeoJobs section provides a variety of employment information to interested HGS members and the geological and geophysical community at large. If your business has an employment opportunity, let us help you fill the position!

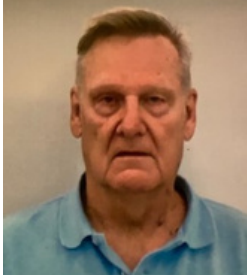


HGS Weekly Newsletter

The HGS Weekly Newsletter is published digitally every week, and reaches a global community of 8,000+ people. HGS will promote your business with an ad of your design or your logo and a link to your website or social media.

To learn more about advertising rates and how you can promote your business with us, visit our website or contact the HGS Office at 713-463-9476 or office@hgs.org.





Well, we are coming to the end of another calendar year and one that has been very trying for most of us connected to the Oil and Gas industry. We work every day with the challenges our Earth presents to us to finding and developing energy resources that power our standard of living. We also deal with the challenges of economics in this endeavor. Of late there has been the added challenge of governmental regulations and outright efforts to eliminate the use fossil fuels in the "Climate Change Crisis". But I have confidence we will weather these challenges as we have in the past. See the article by Bill DeMis in this issue. I'm anticipating several more but I ask that other members take the time to express their thoughts about the future of our industry and science in general.

We are entering the year of the 100th Anniversary of the Houston Geological Society. This is a good time to reflect on the many accomplishments and activities that our society has accomplished or promoted and the benefits it has provided to our members. I call on our membership to provide me with their list of these so we can list them here for all to be made aware.

Lastly, I want to wish all of our readers a safe and joyful season and inspiration along with success as we promote our science and our industry.

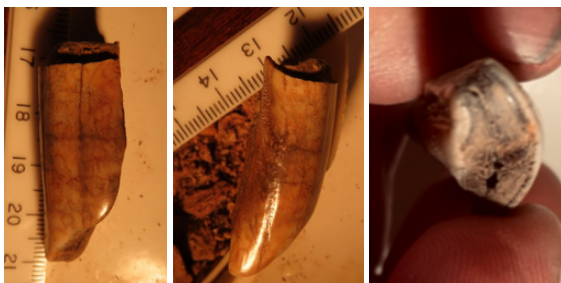
Can you guess the fossil?



Number 1



Number 2



Number 3

Hints:

- They are all from the latest Pleistocene
- They were all found in northwestern Harris County, Texas
- Number 1 is from an animal still found here today
- Numbers 2 and 3 went extinct about 12,000 YBP

Photos provided by Ken Thies. Answers on page 21.

CALL FOR PAPERS



Be There!

APRIL 23-25, 2023
NORRIS CONFERENCE CENTER

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



www.geogulf2023.org

**72nd Annual Meeting
of the Gulf Coast Association
of Geological Societies
(GCAGS)**

HGS VIRTUAL CONTINUING EDUCATION SHORT COURSE

THURSDAY, DECEMBER 1, 2022

VIRTUAL EVENT

8:30AM - 12:30PM

HGS MEMBERS \$200 NON-MEMBERS \$300 STUDENTS/IN-TRANSITION \$100

[HTTPS://WWW.HGS.ORG/CIVICRM/EVENT/INFO?ID=2429](https://www.hgs.org/civicism/event/info?id=2429)

4 PROFESSIONAL DEVELOPMENT CREDIT HOURS OFFERED



Registration includes: 4 Hours PDH Certificate emailed after the course

History of Macro Trends that Affect Oil Prices Through the OPEC Era and Today by Bill DeMis

Oil is a global commodity that is traded and settled around the world in US dollars. US fiscal and monetary policies affect the value of the US dollar and therefore the value of OPEC's revenue. Throughout the OPEC era, inflation and changes in the value of the dollar have affected OPEC's decisions to raise or lower production when they can - meaning when supply and demand are tight. This class will trace the history of US fiscal and monetary policies in the OPEC era, and OPEC's responses. The class will also describe what the Federal Reserve is, how it works, and how macro trends of today will impact future oil prices. A brief discussion of alternative energy and its overstated role in future price scenarios will be presented. OPEC's recent decision to reduce member's production targets is not surprising when viewed from an historical perspective of US policies.

AND

Oil Market Price: Supply, Demand, Comparative Inventory and Capital by Art Berman

Markets focus on supply and use price to encourage producers to increase or decrease drilling to optimize near-to medium term supply. This contrasts with analyst obsession with demand. Oil is a disequilibrium system in which inventories are the critical measure of future supply. Inventories are largely excluded from most supply-demand estimates. Price movements can be explained and anticipated once this is correctly understood.

Money is a claim on work that is based on energy. Money supply, currency value, interest rates and inflation are, therefore, derivatives of energy. Most economists think about things in reverse if indeed they even acknowledge energy as a factor.

Debt is a lien on future energy supply. Capital available through credit markets is, therefore, the key factor for oil production and future supply. Integration of all of these factors leads to a proper basis for understanding oil price formation

Biographical Sketches



Bill DeMis currently is a consultant and is working with two startup companies; one in the US and one in Europe. He has had positions of Exploration Manager at Marathon Oil Company, Exploration Vice President at Roxanna Oil Company, and, most recently, as Senior Vice President

and Chief Geologist for Goldman Sachs. Bill has held a variety of technical and managerial positions, working on both domestic and international projects. In 2021, Mr. DeMis was awarded the dedicated Service Award from the AAPG. In 2008, he was awarded the "Best Paper Award" from the RMAG/PTTC. In 2000, he received the Dedicated Service Award from the West Texas Geological Society. In 1996 and 2000, Bill was awarded "best paper" at the AAPG National Conventions for his presentations on the effects of US dollar exchange rates and inflation on OPEC price policy. In 1993 he won a "best paper award" from the GCAGS for his work on production-controlling carbonate stratigraphy of the Smackover. Mr. DeMis is an AAPG Charles Taylor Fellow, and has served as AAPG Books Editor, AAPG Associate Editor. He is an AAPG foundation trustee associate.



Arthur E. Berman is a petroleum geologist with 44 years of oil and gas industry experience. He is an expert on U.S. shale plays and is currently consulting for several E&P companies and capital groups in the energy sector. He routinely gives keynote addresses for

energy conferences, boards of directors and professional societies. Berman has published more than 100 articles on oil and gas plays and trends. He has been interviewed about oil and gas topics on CBS, CNBC, CNN, CBC, Platt's Energy Week, BNN, Bloomberg, Platt's, The Financial Times, The Wall Street Journal, Rolling Stone and The New York Times. He has more than 36,000 followers on Twitter (@aebberman12). Berman is an associate editor of the American Association of Petroleum Geologists Bulletin and was a managing editor and frequent contributor to theoil drum.com. He is a Director of the Association for the Study of Peak Oil and has served on the boards of directors of The Houston Geological Society and The Society of Independent Professional Earth Scientists. He worked 20 years for Amoco (now BP) and 24 years as consulting geologist. He has an M.S. (Geology) from the Colorado School of Mines and a B.A. (History) from Amherst College.

Website: artberman.com

HGS ENVIRONMENTAL & ENGINEERING MEETING

WEDNESDAY, DECEMBER 14, 2022 | 5:30 - 9:00PM

CRAFT REPUBLIC HOUSTON

11470 WESTHEIMER RD, HOUSTON TX 77077

HGS MEMBERS \$35 NON-MEMBERS \$40 EMERITUS/HON. LIFE \$18 STUDENTS \$12 WALKUPS \$40

[HTTPS://WWW.HGS.ORG/CIVICRM/EVENT/INFO?ID=2414](https://www.hgs.org/civicism/event/info?id=2414)

EVENT CONTACT: MATTHEW COWAN | MRCOWAN1@HAL-PC.ORG



Guadalupe Mountain HGS Field Trip Overview

The Houston Geological Society will run a Guadalupe Mountain – Delaware Basin Field Trip on March 23-26, 2023.

The field trip will study Middle Permian strata, consisting of: 1) Delaware Basin strata composed of Cutoff, Brushy Canyon, Cherry Canyon, and Bell Canyon formations; 2) Ramp margin to inner ramp and shelf margin to inner shelf strata composed of San Andres, Grayburg, Queen, Seven Rivers, Yates, Tansill formations, and Capitan Limestone.

Each field trip attendee will be part of a team. Teams will study each field trip stop and make an interpretation of: 1) depositional environment; 2) lithology; 3) sedimentary structures; 4) porosity-permeability; and 5) reservoir-seal-source rock potential. Each team will report their findings prior to an in-depth overview of each stop. Outcrops will be compared to Permian Basin subsurface reservoirs and associated vertical and lateral seals.

Field trip attendees will have the opportunity to build their own Middle Permian composite-scale sequence stratigraphic cross section, connecting time equivalent strata from Delaware Basin strata up-dip into ramp margin-shelf margin strata and further up-dip into inner ramp-inner shelf strata in the Guadalupe Mountains.

The field trip agenda is:

Day 1. Late afternoon flight to Midland, Texas. Drive to Carlsbad, New Mexico and check into the Stevens Inn.

Day 2. Delaware Basin and shelf margin – reservoir, source rock, and seal lithofacies:

Fine-Grained Debris Flows and Source Rock Deposition

Stop 1. Williams Ranch Member, Cutoff Formation. Study deep water unconventional potential.

Deep Water Sand Channel and Turbidite Deposition

Stop 2. Brushy Canyon Formation. Review cut and fill sandstone channel carrying siliciclastic stratadown-dip onto the floor of the Delaware Basin as turbidites. Laterally will be overbank and levee deposits.

Debris Flow, Turbidite, and Sandstone Deposition

Stop 3. Rader Slide, Bell Canyon Formation. Review emplacement of debris-dominated and sand-dominated debris flows and mud-dominated turbidites. Review Bell Canyon sandstone deposition.

Shelf Margin and Slope Deposition

Stop 4. Lunch and restroom stop, McKittrick Canyon. View Capitan Limestone sponge-algal shelf margin and Lamar Limestone slope deposits from visitor's center.

Source Rock Deposition

Stop 5. Lamar Limestone Member, Bell Canyon Formation. Review basin floor deposition and source rock potential. Address how a gas reservoir becomes stratigraphically trapped within source rocks.

Regional Seal Deposition

Stop 6. Castile Formation, state line outcrop. Study carbonate-evaporite varves deposited in the Delaware Basin. In the Late Permian Castile evaporite strata filled the Delaware Basin and overlying Salado Salt formed a regional seal across the Permian Basin.

Shelf Margin Deposition

Stop 7. Capitan Limestone, mouth of Walnut Canyon. Shelf margin limestone composed of sponges encrusted by algae. Phylloid algae deposits are slightly further down-dip. Neptunian dikes, where the shelf margin partially failed, are strike-oriented along the shelf margin.

Day 3. Guadalupe Mountains. Inner ramp – ramp crest shoal – middle ramp reservoir and inter-reservoir baffle and barrier lithofacies:

Homoclinal Carbonate Ramp Deposition

Stop 8. Lower & Upper San Andres formations, Lawyer Canyon. Review Lower San Andres fusulinid, peloid grain-dominated dolopackstone-dolograinstone that shallowed upward into peloid-oid dolograinstone. These strata are similar to subsurface reservoirs in the Permian Basin. On ascent out review Upper San Andres mud-rich strata that was deposited up-dip of ooid dolograinstone strata further down-dip.

Distally Steepened Carbonate-Siliciclastic Ramp Deposition

Stop 9. Grayburg Formation, Stone Canyon. Grayburg strata can be subdivided into Upper Grayburg and Lower Grayburg stratigraphic packages that effect reservoir performance. Review ramp crest shoal ooid dolograinstone reservoir potential. Grayburg strata are identical to subsurface Grayburg mixed dolostone-sandstone reservoirs in the Permian Basin.

Guadalupe Mountain HGS Field Trip Overview...continued



Day 4. Guadalupe Mountains. Inner shelf up-dip lateral stratigraphic trap lithofacies (seal) and initial inner shelf reservoir lithofacies:

Inner Shelf Carbonate Deposition

Stop 10. Seven Rivers Formation, Rocky Arroyo. Review Seven Rivers carbonate deposits immediately down-dip of the evaporite-carbonate transition in the Seven Rivers inner shelf.

Inner Shelf Evaporite Deposition

Stop 12. Seven Rivers Formation, Seven Rivers Embayment. Review evaporite deposits immediately up-dip of the evaporite-carbonate transition in the Seven Rivers inner shelf.

Seven Rivers Embayment

Stop 13. Lunch and overview of Seven Rivers Embayment and Indian Basin gas field.

Inner Shelf Carbonate-Siliciclastic Deposition

Stop 14. Yates Formation, Dark Canyon. Review pisolitic carbonate strata interbedded with siliciclastic strata. Review how top of Yates Sandstone was utilized as a key stratigraphic pick for early subsurface mapping.

Shelf Margin Carbonate Deposition

Stop 15. Tansill Formation, mouth of Dark Canyon: Review Babcock's reef composed of sponges that shallow-upward into crinoid stalks and further upward into Mizzia deposits.

By the end of the field trip each field trip attendee will have built and completed a 38-mile composite-scale sequence stratigraphic cross section through Middle Permian strata connecting time equivalent basin - ramp margin-shelf margin - inner ramp-inner shelf strata from the Delaware Basin up-dip and through the Guadalupe Mountains. The cross section will serve as an analog for similar depositional settings in the subsurface of the Permian Basin and other basins throughout the world.

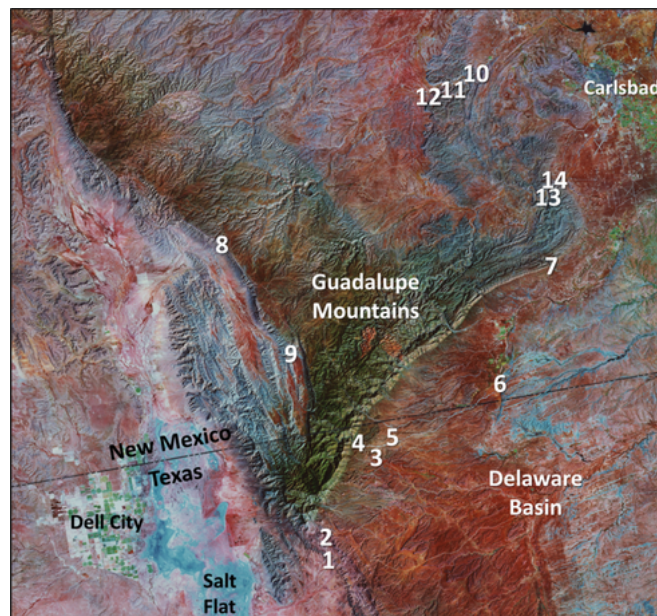


Figure 1. Index map of western edge of Delaware Basin and Guadalupe Mountains showing field trip stops 1-14. Stops 1-6 are in the Delaware Basin. Stops 4, 7, 14 are in shelf margin. Stops 8 and 9 are in the inner ramp-ramp crest-middle ramp. Stops 10, 11, and 12 are in the inner shelf. Stop 13 is immediately up-dip of the shelf margin in the initial inner shelf.



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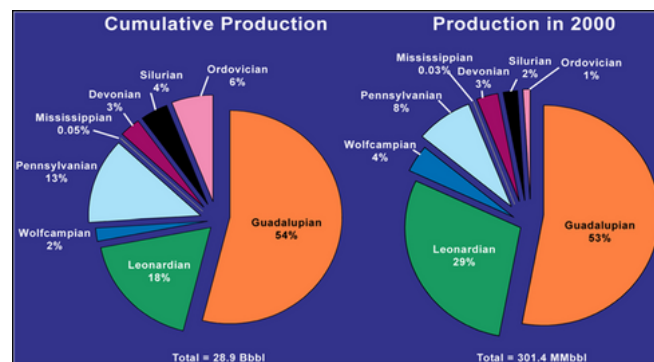


Figure 2. Cumulative production and 2000 production from Permian Basin oil fields that produced >1 million barrels oil. Two largest productive intervals are in Middle Permian (Guadalupean) reservoirs and upper part of Lower Permian (Leonardian) reservoirs, with Pennsylvanian reservoirs a distant third. This data base does not include recent production from unconventional reservoirs. From Dutton et al. (2004).

Guadalupe Mountain HGS Field Trip Overview...continued

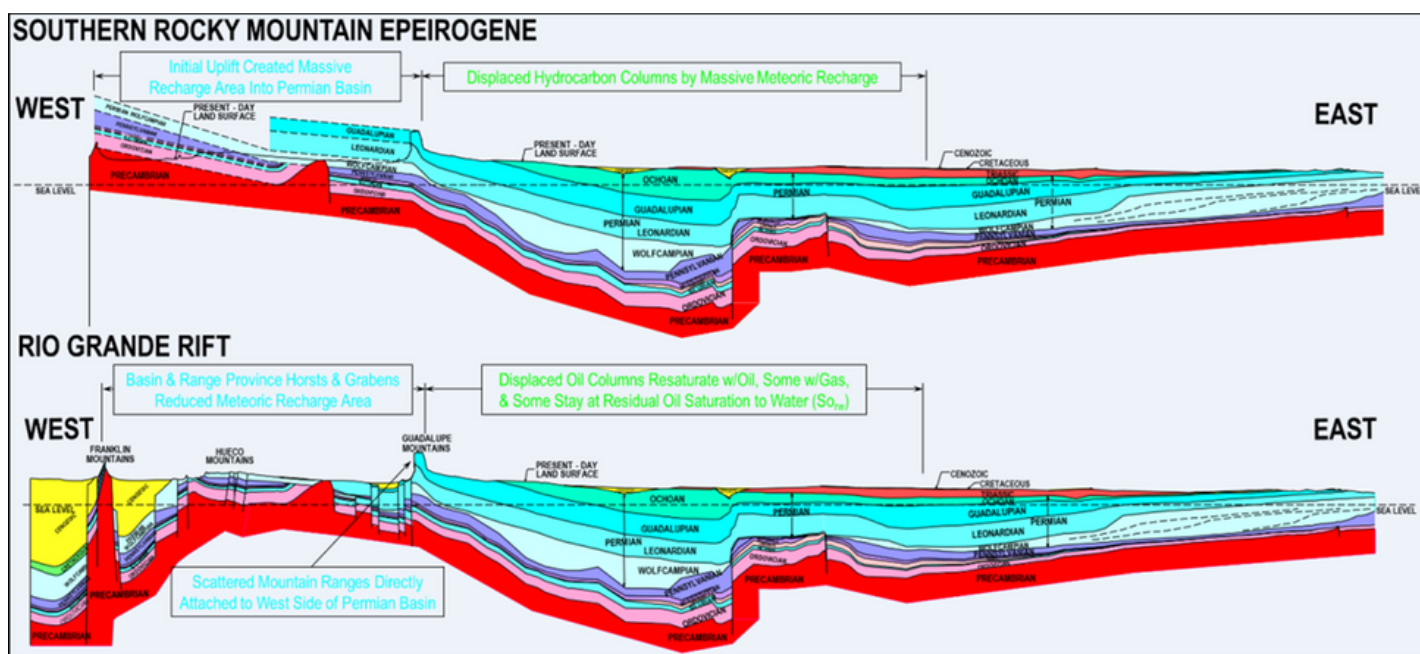


Figure 3. West to east cross sections from the center of the Southern Rocky Mountain Epeirogene and Rio Grande Rift at El Paso, Texas eastward through the Permian Basin. Within the Permian Basin, most Permian strata is covered by younger Triassic, Cretaceous, and Cenozoic strata. Permian outcrops west of the Permian Basin dip to the east, while outcrops in central Texas dip to the west. Late Eocene to Early Miocene Southern Rocky Mountain Epeirogene formed as intrusive and extrusive igneous rocks invaded the crust, emplacing plutons in Trans Pecos West Texas, forming the Trans Pecos Magmatic Province. Plutons extend further north through North America, British Columbia, into Alaska, and 200 km south into Mexico. Uplifted terrain recharged meteoric water into the Permian Basin and partially to completely displaced oil columns forming residual oil zones (ROZ's). Middle Miocene to Late Miocene rifting formed the Rio Grande Rift, with the east limb resembling miniature Basin and Range structures between the Franklin Mountains and Guadalupe Mountains, with large bounding faults on west (Hueco Bolson) and east (Salt Flat) sides and elevated terrain in the middle (Heuco Mountains). Rio Grande rifting destroyed the meteoric recharge area west of the Guadalupe Mountains. This allowed oil columns in the Permian Basin to partially to completely re-saturate with mobile oil. In some cases reservoirs only slightly re-saturated with a small amount of mobile oil in residual oil zones (ROZ's). These rift geometries are similar to Basin and Range structures between the Wasatch Mountains in central Utah and the Sierra Nevada Mountains in eastern California. Salt Flat graben represents the easternmost Basin and Range set of normal faults (listric?) in the United States. The Central Basin Uplift was uplifted in the Pennsylvanian and reactivated in the Lower Permian. The Central Basin Uplift separated the more slowly subsiding Midland Basin to the east from the more rapidly subsiding Delaware Basin to the west. Once the carbonate factory started depositing carbonate sediment upon the Central Basin Uplift it became the Central Basin Platform. Ramp-shelf margins ringing the Central Basin Platform and lining the Northwest Shelf, Eastern Shelf, Southern Shelf, and Guadalupe Mountains (Western Shelf) became sites of high-energy grain-rich carbonate deposition and house dolomitized carbonate reservoirs within the subsurface of the Permian Basin, with time equivalent outcrops in the Guadalupe, Sierra Diablo, and Apache mountains. On a regional scale there are three basic oil types within the Permian Basin. Ordovician Simpson algal source rocks that generated oil. Up section through the remainder of the stratigraphic column from the Silurian through the lower part of the Lower Permian (Wolfcampian) strata host West Texas Intermediate (WTI) sweet crude oil. Upper part of the Lower Permian (Leonardian) strata through Middle Permian strata host West Texas Intermediate (WTI) sour crude oil. The sour nature of WTI crude oil owes its origin to Late Eocene to Early Miocene meteoric recharge into the Permian Basin, which introduced-reactivated microbes (bacteria) into Leonardian and Guadalupian strata in the subsurface. Microbes (bacteria) metabolized sources of sulfur, such as anhydrite nodules, and converted them into sulfur and turned sweet crude into sour crude. From Lindsay (1998; 2014; 2016).

Guadalupe Mountain HGS Field Trip Overview...continued

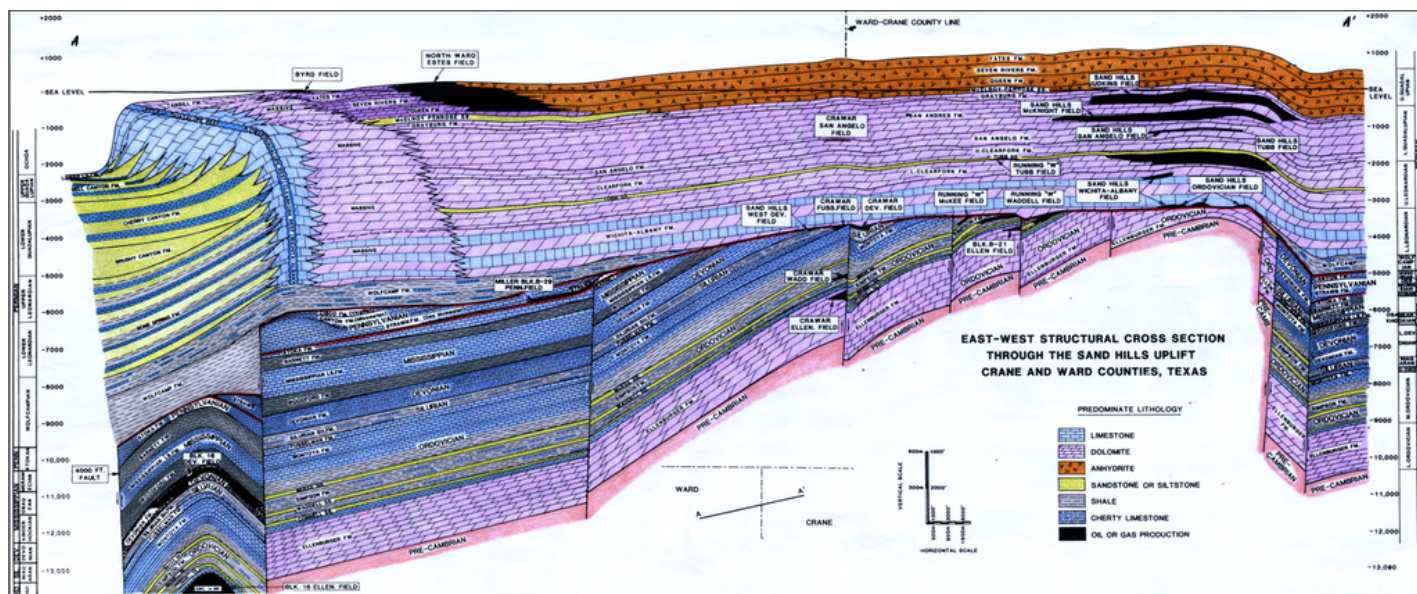


Figure 4. West-east color cross section through the western half of the Central Basin Platform into the Delaware Basin through Crane and Ward counties, Texas. Four major unconformities separate the Paleozoic stratigraphic column into: 1) Ordovician, Silurian, Devonian and Mississippian strata, with no or very little Cambrian strata; 2) Pennsylvanian strata; and 3) Lower and Middle Permian (Wolfcampian, Leonardian and Guadalupian) strata. Color highlighted areas represent: 1) Pink = Precambrian basement rocks; 2) Black = oil and gas fields; 3) Yellow = sandstone; 4) Gray = siltstone and shale; 5) Blue = limestone; 6) Dark blue = cherty limestone; 7) Purple = dolostone; 8) Dark purple = sandy dolostone; and 9) Orange = anhydrite. Note how the lower Paleozoic strata have been block faulted and capped by a regional unconformity, with progressively less strata preserved toward the center of the Central Basin Platform. Faults and overlying unconformities set up a series of fault and stratigraphic traps within the lower Paleozoic strata. Within Permian strata there are a series of stacked reservoirs at the crest of the present-day structure of the Central Basin Platform in the Sand Hills area. Note how the large North Ward Estes field is stratigraphically trapped on the west side of the Central Basin Platform. To the north anhydrite strata descend deeper in the stratigraphic column and create stratigraphic traps within Grayburg Formation strata. Color enhanced from Ward et al. (1986).

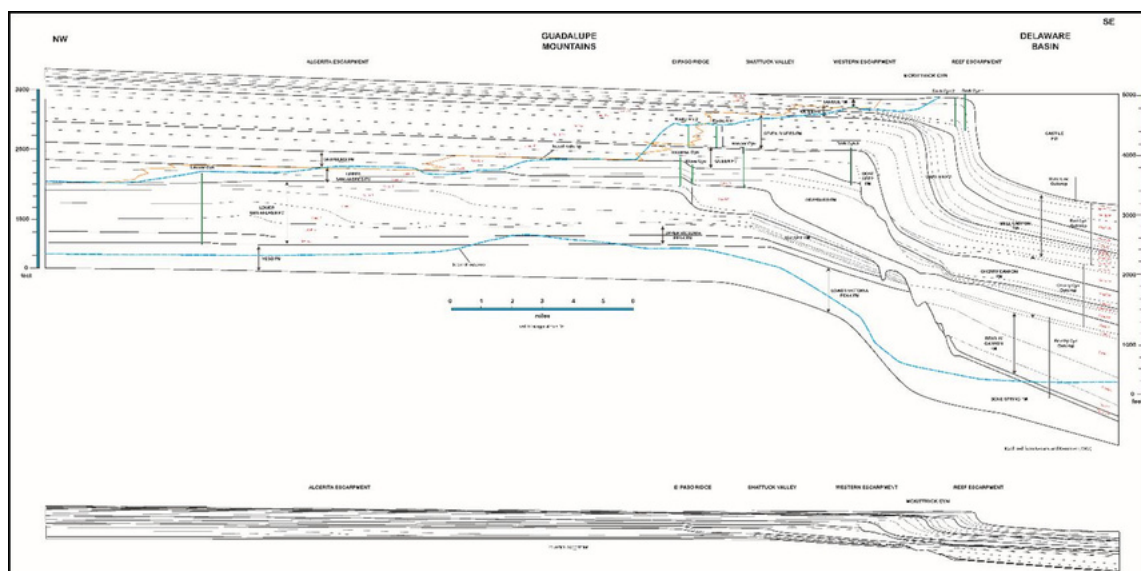


Figure 5. Skeleton cross section of composite sequence time lines across the Guadalupe Mountains into the Delaware Basin. Major lithofacies will be colored in by field trip participants. Bottom cross section is 1:1 scale. Top cross section is vertically exaggerated. Modified from Kearns and Kemper (2002).

Guadalupe Mountain HGS Field Trip Overview...continued

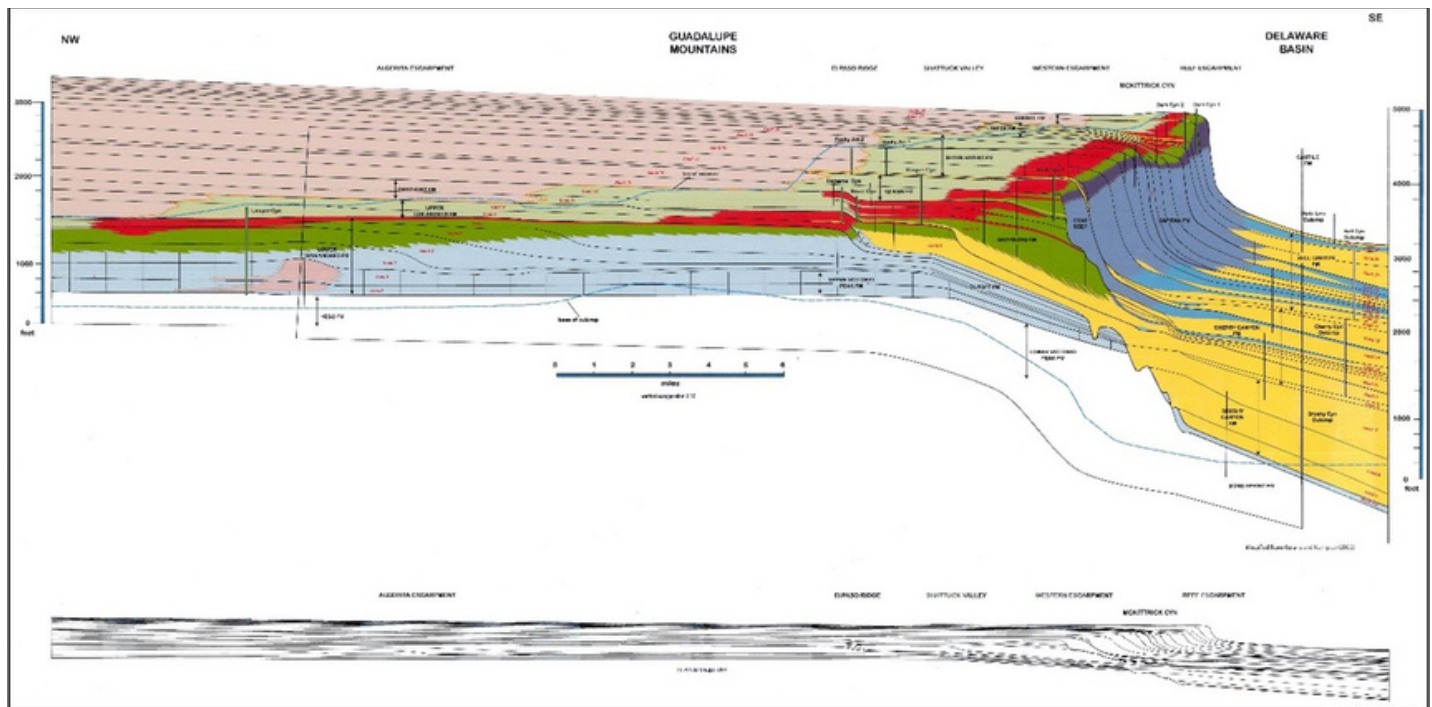


Figure 6. Color cross section of major lithofacies on a composite sequence scale across the Guadalupe Mountains into the Delaware Basin. Lithofacies in the Delaware Basin:

- 1) Yellow = basin sandstone and shale;
- 2) Blue = deep water carbonate debris flows-turbidites. Lithofacies in the Guadalupe Mountain shelf margin:
- 3) Dark blue = Capitan Limestone talus slope; and
- 4) Darkest blue = Capitan Limestone in-place sponge-algal reef. Lithofacies in the Guadalupe Mountains:
- 5) Light pink = deeper water buildup strata;
- 6) Light blue = mud-dominated dolopackstone;
- 7) Dark green = Middle ramp-middle shelf fusulinid-rich dolostone;
- 8) Red = Ramp crest shoal ooid-peloid grain-dominated dolopackstone to dolograinstone, with interbedded dolomitic sandstone upsection;
- 9) Light green = Inner ramp-inner shelf mud-rich dolostone and dolomitic sandstone strata;
- 10) Flesh = Evaporite strata. Lithofacies color enhancement is by the field trip leader. Bottom black and white cross section is 1:1 scale. Top colored cross section is vertically exaggerated. Modified from Kearns and Kempter (2002).

HGS GENERAL DINNER MEETING



MONDAY, JANUARY 9, 2023 | 5:30 - 9:00PM
NORRIS CONFERENCE CENTER, CITYCENTRE
816 TOWN AND COUNTRY BLVD #210 HOUSTON, TX 77024
HGS MEMBERS \$65 NON-MEMBERS \$75 STUDENTS \$25 WALKUPS \$75
[HTTPS://WWW.HGS.ORG/CIVICISM/EVENT/INFO?ID=2435](https://www.hgs.org/civicism/event/info?id=2435)
EVENT CONTACT: SCOTT SECHRIST | PENNTEXAS53@YAHOO.COM

Night in the Tropics: Tropical Trade Wind Carbonate Depositional Models From Caicos Platform, SE Bahamas: Applications to Cretaceous Limestone Reservoirs Around the Ancestral Gulf of Mexico

Black Lake, Fairway and Golden Lane/Poza Rica Fields, all Cretaceous limestone oil pools, occur in settings that never made any sense based on depositional models gleaned from studies of subtropical, steep-margined platforms in the northern Bahamas. For example, on Great Bahama Bank, linear reefs only occur along its platform margins exposed to oceanic swells. Along its more protected platform margins, daily tidal currents generate oolitic sand belts oriented parallel to these margins; however, these oolitic sands never occur behind platform margin reefs. Further, isolated reefs and/or oolitic sands (as linear shoals or sheets) do not occur in platform-interior settings. Northern Bahamian platforms also are subjected to gentle easterly trade winds that produce weak cross-bank currents. These currents are capable of only shedding mud- and silt-sized carbonate material, which means that the resultant highstand wedges that onlap leeward platform-margins have poor reservoir potential. Linear reefs on leeward margins are absent or poorly developed due to persistent off-bank sediment stress.

The settings of the Cretaceous oil pools noted above are better explained by newer depositional models derived from studies of Holocene and Pleistocene carbonates on Caicos Platform. Located in the southeastern Bahamas, Caicos Platform is influenced by tropical, strong easterly trade winds. It is a carbonate sand-dominated platform where oolitic sands occur not only along its margins but well into the interior of the platform. These oolitic sands occur as linear subtidal sand shoals oriented parallel to the prevailing trade winds or occur as widespread subtidal sheets in deeper-water (up to 7-8 meters) platform-interior settings. Wherever preexisting island topography faces into these easterly trade winds, shoreline-parallel oolitic sands form perpendicular to these winds and quickly prograde into them. All Caicos Platform ooids form because of persistent trade wind-wave agitation; tidal currents play no role in their formation.

And unlike the northern Bahamas, reefs and ooids do form together on Caicos Platform. Strong trade wind-wave agitation promotes isolated and coalesced patch reef development in the interior of Caicos Platform, up to over 50 kilometers inboard of the platform margin, and in waters as deep as 10-12 meters. Skeletal sands shed from these reefs are converted to oolitic sand by the same style of agitation. Along the leeward margin of Caicos Platform, wherever parts of the platform jut out into the prevailing

trade winds, isolated linear platform margin reefs capped by reef flats have formed that are up to a few kilometers in length. Associated back-reef, finer-grained skeletal sands are being transformed into oolitic sands because of persistent easterly trade wind agitation. Therefore, on Caicos Platform, coeval oolitic sands do occur behind platform-margin reefs.

Finally, in concert with hurricanes, strong trade winds persistently shed not only mud- and silt- sized carbonate sediments from the interior of Caicos Platform but also push oolitic sands to the edge of its leeward platform margin. There, these sands either shoal to create shallower bottom topography or they cascade over the platform margin, producing onlapping wedges likely dominated by oolitic sands with excellent reservoir potential.

Black Lake Field in Louisiana (Sligo-aged; 156 MMBOIP); Fairway Field in east Texas (Pearsall-aged [James Limestone]; 410 MMBOIP) and the interrelated Golden Lane and Poza Rica Fields in Mexico (Edwards-aged; >4BBOIP combined) occurred in a tropical belt 10-15 degrees north of the paleoequator, a setting influenced by strong easterly paleotrade winds. For each pool, I will show how their geological attributes confirm the key role that strong easterly paleotrade winds played in their localization and evolution, consistent with the guidelines developed on Caicos Platform*.

Appreciating the role that strong easterly paleotrade winds played in the deposition of subsurface shallow-marine carbonates expands the potential for carbonate play development in platform- interior and slope settings historically ignored because of the older northern Bahamian models entrenched in the literature. The Caicos tropical strong trade wind models have direct applications to any Phanerozoic shallow-marine carbonate sequences that occurred between 5 and 22 degrees north or south of the paleoequator. As such, geoscientists involved in the exploration for, or exploitation of, carbonate reservoirs always should factor in the basin's physiographic setting at a global scale (determines paleolatitude) and at a local scale (bottom topography [ramp versus platform]).

***Key Reference:** Dravis, J.J. and Wanless, H.R., 2017, Impact of strong easterly trade winds on carbonate petroleum exploration - relationships developed from Caicos Platform, southeastern Bahamas, *Journal of Marine and Petroleum Geology*, v. 85, p. 272-300.



Biographical Sketch



Jeff Dravis received his Bachelor of Science degree in Geology from St. Mary's University in San Antonio, Texas. He then obtained a Master of Science degree in Marine Geology from the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences in Miami, Florida. His thesis was entitled "Holocene Sedimentary Environments on Eleuthera Bank, Bahamas" and was supervised by Dr. Harold R. Wanless. In 1976, Jeff entered Rice University, Houston, Texas, to work on deep-water carbonates under the direction of Dr. James Lee Wilson. He was awarded a Ph D in Geology; his dissertation was entitled "Sedimentology and Diagenesis of the Upper Cretaceous Austin Chalk Formation, South Texas and Northern Mexico."

Dr. Dravis began his professional career in Houston with Exxon Production Research Company. There, he conducted applied research on carbonate facies, diagenesis and porosity evolution, but also headed up Exxon's worldwide training efforts in carbonates. This training included teaching in-house seminars, as well as leading 25-day combined modern (Bahamas and S. Florida) and ancient (Texas and New Mexico) carbonate field seminars for the corporation.

In 1986, Jeff started a geological consulting practice in Houston. He founded Dravis Interests, Inc. to provide technical expertise and training in applied carbonate geology to the oil and gas industry. Later, Dravis Geological Services was created to handle all technical consulting projects. To date, Jeff has completed 196 technical projects worldwide, working on carbonate sequences ranging in age from Cambrian to upper Tertiary. He has presented 324 in-house and field seminars to industry, both on a public and private basis. This includes teaching 73 industry and academic seminars on Caicos Platform in the southeastern Bahamas, as well as numerous ancient carbonate field seminars in west Texas and New Mexico.

Jeff has been an Adjunct Professor of Geology at Rice University since 1987, where he has taught parts of graduate courses, taken students into the field, and served on thesis committees. In 2016, he began teaching the carbonate geology segment of the University of Houston's Professional Master's Program in Petroleum Geology and will present his sixth segment in early 2023.

E-Mail: jdravi@rice.edu



HGS CONTINUING EDUCATION SHORT COURSE



FRIDAY, JANUARY 20, 2023

SHELL WOODCREEK CAMPUS, 150 N. DAIRY ASHFORD RD, HOUSTON, TX 77079

BUILDING B, ROOM B-0101

8:00AM - 1:00PM

HGS MEMBERS \$425 NON-MEMBERS \$550 STUDENTS/EMERITUS/IN-TRANSITION \$310

[HTTPS://WWW.HGS.ORG/CIVICRM/EVENT/INFO?ID=2436](https://www.hgs.org/civicrm/event/info?id=2436)

Deepwater Sedimentary Systems: Science, Discovery, & Applications

Registration includes: Copy of the first edition book, a value of \$189.44, Continental breakfast and beverages, 4 Hours PDH Certificate (handed out at the end of the event)

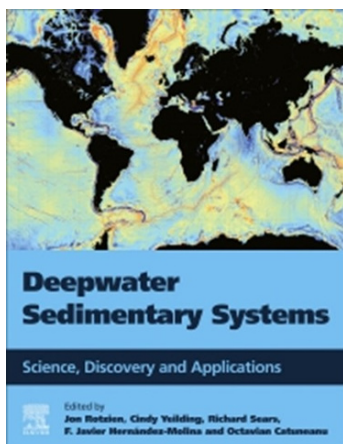
Join two of the editors of Deepwater Sedimentary Systems: Science, Discovery and Applications for a full day of learning and discussion on the topic of deepwater exploration and production. Specifically, Jon and Cindy will present these key themes:

1. deepwater sedimentary processes and reservoir architecture;
2. emerging themes in subsurface imaging and modeling;
3. the important factors for financial success in deepwater;
4. offshore exploration and development scenarios for the next 10, 20 and 100 years – and what it will take to achieve those milestones.

Each early registration will receive a questionnaire. Please be sure to submit your requests and questions for Jon and Cindy in the questionnaire.

Please be sure to register early by (December 15, 2022)!

Early registration guarantees a signed copy of the first edition book, detailed below:



Deepwater Sedimentary Systems: Science, Discovery and Applications 1st Edition – August 17, 2022

Editors: Jon Rotzien, Cindy Yeilding, Richard Sears, F. Javier Hernández-Molina, Octavian Catuneanu

- eBook ISBN: 9780323919210
- Paperback ISBN: 9780323919180

Deepwater Sedimentary Systems: Science, Discovery and Applications helps readers identify, understand, and interpret deepwater sedimentary systems at various scales – both onshore and offshore. This book describes the best practices in the integration of geology, geophysics, engineering, technology, and economics used to inform smart business decisions in these diverse environments. It draws on technical results gained from deepwater exploration and production drilling campaigns and global field analog studies.

With the multi-decadal resilience of deepwater exploration and production and the nature of its inherent uncertainty, this book serves as the essential reference for companies, consultancies, universities, governments and deepwater practitioners around the world seeking to understand deepwater systems and how to explore for and produce resources in these frontier environments.

From an academic perspective, readers will use this book as the primer for understanding the processes, deposits and sedimentary environments in deep water – from deep oceans to deep lakes. This book provides conceptual approaches and state-of-the-art information on deepwater systems, as well as scenarios for the next 100 years of human-led exploration and development in deepwater, offshore environments. The students taught this material in today's classrooms will become the leaders of tomorrow in Earth's deepwater frontier.

This book provides a broad foundation in deepwater sedimentary systems. What may take dozens of individual academic and professional courses to achieve an understanding in these systems is provided here in one book.

For more information, please see: [Deepwater Sedimentary Systems – 1st Edition \(elsevier.com\)](https://www.elsevier.com/books/deepwater-sedimentary-systems/9780323919210).



Biographical Sketch

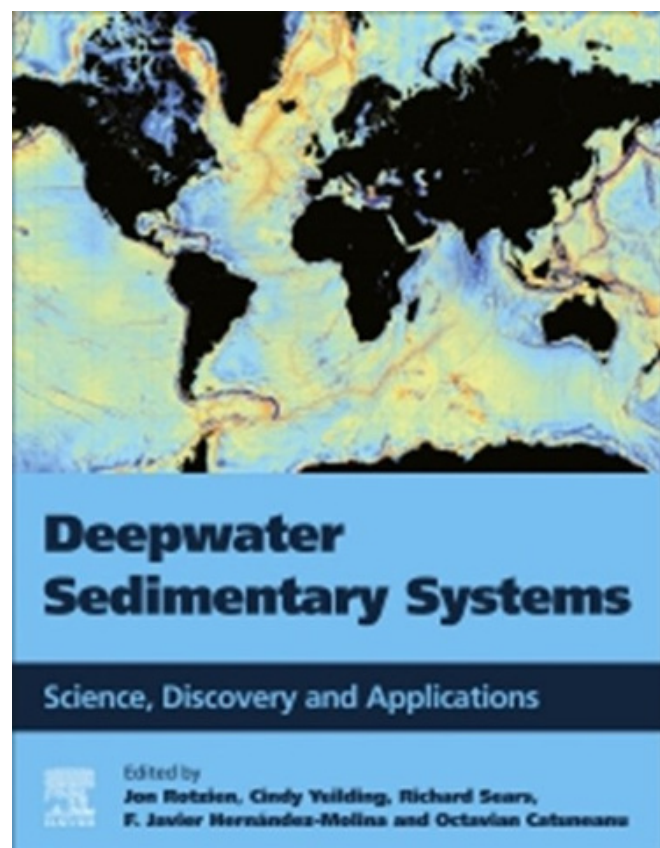


Jon Rotzien is President of Basin Dynamics and Adjunct Professor at University of Houston. He specializes in reservoir presence and quality forecasting in conventional and unconventional drilling programs on all oil-producing continents. Prior to his

present posts, he served BP and other supermajor and independent operators in a variety of basins and petroleum reservoir technical training programs. As a business owner and scientist, Rotzien has participated in oil and gas exploratory to development drilling, mapping expeditions, technical competency training and consulting and has served as lead geologist in about one-third of those ventures. He is currently serving as Chair of the Houston Explorers Club. Rotzien received a Ph.D. in Geological Sciences from Stanford University and a B.A. degree in Geology from Colorado College.

Affiliations and Expertise

Basin Dynamics, LLC, and University of Houston Houston, TX, USA



Biographical Sketch



Cindy A. Yeilding served as a leader and technical expert at bp for more than 35 years, most recently as Senior Vice President of BP America, prior to her retirement in 2020. In this role she held numerous positions, including Chair of the coordinating subcommittee of the

U.S. National Petroleum Council's Carbon Capture, Use, and Storage study, bp's Executive Sponsor for Princeton University and as Board Member and Executive Committee member of the Greater Houston Partnership. Previous roles in bp include Vice President, Exploration and Appraisal- Gulf of Mexico; Vice President- Global Basin Analysis and Global R&D Manager. As an exploration and research scientist, Cindy has developed and led geological courses, published technical papers, participated on panels and delivered numerous technical, leadership and keynote presentations for technical societies, universities and leadership. Ms. Yeilding currently serves as the Board Chair of the Offshore Technology Conference and serves as a Director on the boards of Denbury Inc. and the Center for Houston's Future. Ms. Yeilding has a Bachelors of Science degree in Geology from Southern Methodist University and a Masters of Science degree in Geology from the University of North Carolina. Additionally, Ms. Yeilding was a founding member of the American Association of Petroleum Geologists Women's Committee and conceived of and initiated the Women's Networking program (WISE) and the OTC High School Energy Challenge at the Offshore Technology Conference. Ms. Yeilding has been recognized as a leader and a scientist across the energy industry, including receiving the AAPG Pioneer Award and being recognized as one of Hart Energy's "25 Most Influential Women in Energy" and the Houston Business Journal's "Women of Influence."

Affiliations and Expertise

Board of Directors, Denbury Inc., Texas, USA; Board of Directors, Center for Houston's Future, Texas, USA; Board Chair, Offshore Technology Conference, Texas, USA

Deepwater Sedimentary Systems: Science, Discovery and Applications

1st Edition - August 17, 2022

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- eBook ISBN: 9780323919210
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GUADALUPE MOUNTAIN AND DELAWARE BASIN FIELD TRIP



When: March 23- 26, 2023

Where: Starts/ends in Midland, Texas and base camp is Carlsbad, New Mexico

Itinerary: Carbonates Galore - Debris flows, turbidites, shelf margins, basin floor deposition, and sponge-algal reef as presented by Dr. Robert Lindsay (he will be giving a talk on the topic on December 14th during the HGS Environmental/Engineering Section meeting) who has led dozens of field trips in this area in the past. Finish with your own cross section of the area.

Cost: \$1,200 (Deposit of \$600 due with registration; Final balance due by February 23, 2023) includes local transportation to and from Midland airport, van transportation to the various geologic stops, van snacks & water, guidebook, welcome dinner, daily lunches, 3 nights lodging. Cost does not include airfare from home to midland and back. Registration Deadline: March 9, 2023

Please contact the HGS (713-463-9476) to reserve a spot early (limited to 30 people). More details to follow at a later date.

Drawing Middle Permian lithofacies onto 38 mile cross section – Guadalupe Mtns into Delaware Basin



Guadalupe Mountains: View of El Capitan with Guadalupe Peak, highest peak in Texas, in the background





December 2022

<i>Sunday</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>
4	5	6	7
11	12 <i>HGS Holiday Social & Ugly Christmas Sweater Party</i> Page 4	13 <i>HGS Board Meeting</i> 6 p.m.	14 <i>HGS E&E Meeting</i> "Guadalupe Mountain HGS Field Trip Overview" Page 10
18	19 <i>HGS Office Closed for Winter Holiday</i>	20 <i>HGS Office Closed for Winter Holiday</i>	21 <i>HGS Office Closed for Winter Holiday</i>
25	26 <i>HGS Office Closed for Winter Holiday</i>	27 <i>HGS Office Closed for Winter Holiday</i>	28 <i>HGS Office Closed for Winter Holiday</i>



December 2022

<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>	
1 HGS Virtual Short Course "History of Macro Trends & Oil Market Price" Page 9	2	3 	Reservations The HGS prefers that you make your reservations online through the HGS website at www.hgs.org . If you have no internet access, you can email office@hgs.org or call the office at 713-463-9476. Reservations for HGS meetings must be made or cancelled by the date shown on the HGS website calendar, which is normally 24 hours before hand or on the last business day before the event. If you make your reservation on the website or by email, an email confirmation will be sent to you. If you do not receive a confirmation, please contact the HGS Office at office@hgs.org . Once the meals are ordered and name tags and lists are prepared, no more reservations can be added even if they are sent. No-shows will still be billed.
8	9 	10	
15	16	17	
22 HGS Office Closed for Winter Holiday	23 HGS Office Closed for Winter Holiday	24	
29 HGS Office Closed for Winter Holiday	30 HGS Office Closed for Winter Holiday	31	

Answers from page 7:

1. Alligator tooth (juvenile)
2. Mastodon tooth (Cuvieronius sp.)
3. Fang (poss. North American Lion, Panthera atrox)



VENDOR CORNER

Advertise your services at an HGS meeting

READ MORE
www.hgs.org

HGS at the HGMS Show

BY JANET COMBES & THE HGS EDUCATIONAL OUTREACH COMMITTEE



Looking west. Photo by Huw James.

The annual Houston Gem and Mineral Society Show was held at the Humble Civic Center on November 11-13, 2022, and the Houston Geological Society hosted an outreach booth as it has for many years. Total front door paid admissions attendance (not including vendors and volunteer staff) for the three days was 2,557 adults and 407 kids = 2,964 attendees. This number does not include attendees admitted free for school field trips – home schools, private schools, and some public schools – which had another 933 kids and about 480 adults. So more than 2000 people visited our show on that day, which was one of the main reasons dealers were ecstatic about their sales on that day. Moreover, we provided a great educational program for the public, thus satisfying our educational non-profit, tax-exempt status. The students on Friday came with specified stops at the HGS booth. On Saturday, 97 scouts worked on their Geology badges with the HGS booth as a designated part of the process.

This year to limit contact during the lingering pandemic – no 3D maps with no shared 3D glasses or shared hand lenses – but geology posters and rocks to look at and samples to take home and geologists to talk with were there at the HGS booth.

Sarah Heinlein co-chaired this year's HGS participation with Janet Combes. HGS members volunteered, including Ken Williams, Paul Riegler, Angela Hammond, Gregg Zelewski, Huw James (all three days), Michelle Pittenger, Sarah Heinlein, Jim Tucker, Steve Johansen, and Janet Combes. University of Houston Downtown students also volunteered, usually for multiple shifts: Anthony Galarza, Devin Taylor (3 days), Yunued Sotelo, Carlos Lopes, and Rose Campos.

The HGS booth shares an area with the Houston Museum of Natural Science volunteers. Comments from the HMNS volunteers, as well as some of the senior HGS folks, mentioned multiple times how the UHD students were helpful and flexible, and appreciated.

Interested in Volunteering?

The HGS Educational Outreach Committee provides geoscience learning resources to students, educators, and the general public of southeast Texas. Outreach activities include geoscientist visits to classrooms, scout troops, and other public assemblages, with presentations and hands-on activities about geology and careers in geoscience. Participation in other opportunities as they arise, to encourage the development of educator skills in the geologic sciences and to educate the general public on geologic matters. Interested? Please contact Steven Johansen at geosjjohansen@gmail.com for more information.

HGS at the HGMS Show ...continued



Looking east on Friday. Photo by Huw James.



Sunday morning. Photo by Huw James.



Looking north at two of the HMNS volunteers.
Photo by Huw James.



Sunday afternoon. Photo by Huw James.



Looking east. Photo by Huw James.



End of show. Photo by Huw James.

HGS ANNUAL SCHOLARSHIP NIGHT

Expanding the Horizon for
Geoscientists of the Next Century

Meet the student scholars & help support the HGS
Scholarship Funds!

Monday, February 13, 2023 | 5:30pm - 9:00pm

Norris Conference Center, Houston, TX

Sponsorship opportunities available!



Read more at www.hgs.org

SCHOLARSHIP NIGHT

FEBRUARY 13, 2023 | 5:30PM - 9:00PM

NORRIS CONFERENCE CENTER, HOUSTON, TX



SPONSORSHIP FORM

All event profits benefit the HGS Scholarship Funds.

\$10,000

Corporate Platinum Sponsor

- Dedicated table with company logo
- 10 complimentary dinner registrations
- Drink tickets for Icebreaker reception
- Formal recognition at event
- Company name & logo listed as sponsor on HGS website and in related articles

\$5,000

Corporate Gold Sponsor

- 6 complimentary dinner registrations
- Drink tickets for Icebreaker reception
- Formal recognition at event
- Company name & logo listed as sponsor on HGS website and in related articles

\$2,500

Corporate Silver Sponsor

- 4 complimentary dinner registrations
- Drink tickets for Icebreaker reception
- Formal recognition at event
- Company name & logo listed as sponsor on HGS website and in related articles

\$1,000

Corporate Bronze Sponsor

- 2 complimentary dinner registrations
- Drink tickets for Icebreaker reception
- Formal recognition at event
- Company name & logo listed as sponsor on HGS website and in related articles

\$500

Individual Sponsor

- 1 complimentary dinner registration
- Drink tickets for Icebreaker reception
- Formal recognition at event

Company Name: _____

Sponsorship Type: _____ Amount Enclosed: _____

Contact Name: _____

Street Address: _____

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Phone: _____ Fax: _____

Email: _____

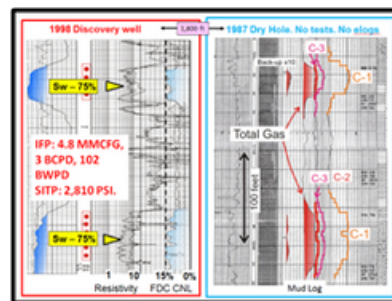
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Please make checks payable to Houston Geological Society. Email form to office@hgs.org.**

Name of Card holder: _____ Card Type: _____

Card Number: _____ Expiration Date: _____ CVC: _____

HGS holds in-person class on Discovery Thinking: Bypassed Pays & Plays in Conventional Reservoirs

BY CHERYL DESFORGES



The HGS class on “Discovery Thinking: Bypassed Pays and Plays in Conventional Reservoirs” was held November 11, at the Core Lab conference room. The instructor, HGS member, Bill DeMis taught a full day class. The class included lectures on the Archie Equation, capillary pressure, statistics, and other topics. In addition to the lectures, the class worked on real-life dry holes exercises that had missed pay which ranged from shaly sands to tight carbonate reservoirs. The exercises included major missed plays, such as the offshore James Lime play (1/3 TCFG) in the Gulf of Mexico, and the Muddy Formation in Highlight Field (83 MM BO) in Wyoming. The class had 29 attendees and was well-received. Colton Dudley, President of RichRock Resources summarized the class, “There is no formula for bypassed pay, but Mr. DeMis' By-Passed Pays and Plays class is surely the next best thing. Nothing substitutes for experience and Mr. DeMis' offers a successful careers worth; nonetheless, the course notebook of slides and examples itself is priceless.”

The HGS thanks Core Lab for the generous contribution of their conference room for the day.



Volunteer with HGS



Annual Events

Every year the HGS has annual social events, and we need volunteers to help us organize and set up on the day of!

These include events such as:

- Golf Tournament
- Shrimp Peel & Crawfish Boil
- Skeet Shoot
- Tennis Tournament
- Field Trips



Committees

HGS committees such as Educational Outreach and Continuing Education provide geoscience learning resources to students and the local geoscience community. These groups are always looking for volunteers! If you or someone you know is interested in lending a hand, please contact the HGS Office!



Interested in Volunteering?

The HGS is always looking for energetic members to become volunteers for the society! As the largest local geological society in the country, we depend on the support of our members to help us organize and execute our many activities. Committees such as Educational Outreach, Continuing Education, and our annual social event committees are always looking for extra helping hands! Contact the HGS Office at office@hgs.org to learn more!

COP27 Goes Comedy: Venezuelan Dictator Speaks Absurdities, Watermelons Applaud

BY WILLIAM DEMIS

Anthropogenic Global Warming is real and will affect the climate and humans. Issues of climate, energy, and society will affect HGS members, and all Americans. Conferences that address AGW must be scientific. However, if anyone bothered to put an ear to the latest rock concert of environmental jet-setters at COP27, one might get the opinion it was open-mike night at the comedy club.

Standing center stage at COP27 was Venezuelan dictator Nicolas Maduro. His comedy act included such zippy one-liners as, “The Venezuelan people must pay the consequences of an imbalance caused by the world’s capitalist economies who have polluted and continue to pollute the planet,” (NYT 11/8/2022) and “capitalism was responsible for the environmental crisis” (Midwestern Marx 11/12/2022), and, my favorite, “Capitalism will not cure the climate crisis.” (GreenLeaf, 11/15/2022)

Mr. Maduro’s solution is – no surprise! – rich countries should pay poor countries (like his) for environmental crimes!

This is true comedy. But like all jokes, you can’t “get it” if you don’t understand the context.

Shouldn’t reparation start at home? Amnesty International has decried the Maduro regime’s thwarting of reparation for the victims of his regime’s torture, murder, and the disappearing of political dissenters by the inter-American Commission on Human Rights (Amnesty International accessed 11/27/2022).

Venezuela’s economy has long been sliding from its economic apex of the 1970s, as detailed in the book Venezuela Before Hugo Chavez. The country has not suffered from the “resource curse” but from the “socialism curse.” Notable leaders on the slide down the socialist chute were ex-communist turned socialist President Romulo Betancourt, and later President Carlos Perez. Perez nationalized the oil industry to finance a profligate welfare state paradise. And like all socialist states, things worked great until they “ran out of other peoples’ money.”

But Venezuela only became the true basket case of today when Maduro’s socialist party got into power under Hugo Chavez. The country became a socialist hell with rampant poverty, pollution and repression. Inflation hit 350,000% in 2019, but it has since dropped to “only” 114% (Reuters, 9/13/2022). Young women with college degrees have left this “socialist paradise” to become sex workers in other countries (CNN, 11/23/2019). More than a million people have immigrated to neighboring countries (ibid) to flee the poverty and oppression.

Climate Crisis and Venezuela

Readers might ask what role has socialist Venezuela played in climate change. Oil and gas emissions caused climate change by releasing CO2 into the atmosphere. Some environmentalists reason that oil companies and countries that used oil should pay reparations to poor countries for the past sin of burning oil.

Some readers might not know (and evidently this includes Mr. Maduro), but Venezuela is a founding member of OPEC and has sold billions of barrels of oil to the world. Even the New York Times notes Maduro’s speech omits of Venezuela’s role in producing billions of barrels of oil. But it makes no mention of his human rights violations, or his deceitful of bashing capitalism (NYT 11/8/2022). Venezuelan oil production fell from 3 million barrels a day before Hugo Chavez to 700 thousand barrels today. Venezuela would sell even more oil today if it could, but “mismanagement and corruption” have prevented upgrades to Venezuela’s oil infrastructure, and its “infrastructure is on the brink of collapse” (Harvard International Review, 11/07/2022).

It gets worse. Maduro and a dozen Venezuelans officials (included a Supreme Court Justice, Minister of Defense, Vice President for the Economy, plus a few motely FARC terrorists) are currently under indictment for Narco-Terrorism and Drug Trafficking, as posted to the US department of Justice web page (accessed 11/17/2022).

Maduro even has a \$15 million bounty on his head. Hey! Leonardo DiCaprio should have made a citizen’s arrest and flown Maduro back to the US in his Lear Jet to stand a fair trial. But darn, Maduro got away.

Maduro’s regime never rests on its laurels. Venezuela is also under sanctions by 50 countries for conducting fraudulent elections, as reported by the Center for Strategic and international Studies (12/10/2020). Yes dear readers, not all fraudulent elections are the fiction of a right-wing orange man.

Irrespective of environmental concerns, Mr. Maduro continues to seek more buyers for his oil and, allegedly, for boat-loads of cocaine. So Maduro seems to represent both an oil cartel and a cocaine cartel. President Biden has been courting this corrupt dictator for more oil (WSJ 10/6/2022) – which makes moral sense just how?

Maduro’s concern for the environment and people

One might think there is no pollution in his socialist paradise with “with-it and woke” leaders like Mr. Maduro. So let’s look in on Venezuela environmental management. The Canaima National Park is a world Heritage site where mining is prohibited. No mind to Maduro. Mary O’Grady reports in

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the Wall Street Journal (11/4/2022) that the World Heritage Watch Report, 2022 documents the Maduro regime is promoting gold mining in the park. The operations include the mercury separation process. (FYI mercury is highly toxic in any amount.) Mercury is estimated to spread 70 miles downstream. Ms. O'Grady reports, "Environmental disaster is the hallmark of Venezuelan socialism. Residents increasingly burn household rubbish ... Water-treatment systems have collapsed, sending wastewater into streams..."

Mr. Maduro's apologist might argue that he needed to allow pollution to help his people, what with all those unfair sanctions. Well, Mr. Maduro is actually NOT a "nice guy once you get to know him." A UN human-rights report (This is the same UN that fielded COP27) found political prisoners in this socialist hell are subjected to torture including, "asphyxiation, electric shock, broken bones, and being hung from the limbs" (UN report 7/4/2019). These tortures might look familiar. They are same tortures conducted by other socialist paradise, Cuba. Cuba has been giving lessons in torture to Venezuela, and the Cuban-Venezuela torture connection was confirmed by the UN (NewsStormer, 9/22/2022). Amnesty International states that the Prosecutor for the International Criminal Court agrees there is sufficient evidence of crimes against humanity committed in Venezuela to open a case (Amnestyusa.org, accessed 11/27/2022)

Maduro uses hackneyed socialist class-warfare banalities to mask his pedigree as a garden variety South American dictator. How does having a thug like this at a UN conference elevate issues of climate change?

Watermelons in the Title

Reader might be asking what COP27 has to do with garden fruit. Noted environmentalists Michael Shellenberger has said much of climate alarmist movement has been replaced by "watermelons" (green on the outside but red on the inside): Marxist masquerading as environmentalists to promote a collectivist agenda. Throughout the 1960s, conservationists were thrown out of organizations like the Sierra Club and replaced with political activist with a hard socialist/Marxist agenda.

The Midwestern Marx newspaper shows how communists use environmentalism as a prop for advancing Marxist ideology. It lauds Maduro's absurd statements and adds such tripe as "the Venezuelan people must pay the consequences of an imbalance caused by the major Western economies, who have polluted and continue to pollute the planet for the benefit of a few." (Midwestern Marx, 11/12/2022. Nowhere does the paper point to Maduro's human rights record, or the fact that communists China is by far the largest polluter on the planet.

Now if the Watermelon Movement was just confined to a few odd-ball Marxist newspapers, I doubt anyone would accept that as proof of anything. But the self-appointed "Joan of Arc of the Environment," and Time magazine cover-girl, Greta Thunberg, stated at her book promotion event in London that climate activists must overthrow "the whole

capitalist system," which she says is based on "imperialism, oppression, genocide... racist, oppressive extractionism." (Shellenberger, 11/4/2022). Her book, *The Climate Book* includes contributions from many watermelons for whom, "...the climate crisis isn't man-made. It's made by capitalism" (Unherd, 10/31/2022).

Capitalists cure climate problems; socialisms contribute to more pollution

But readers might think capitalists have no way of fixing the climate crisis because all greedy capitalists do is maximize profit at the expense of the environment. Actually, it is just the opposite. Collectivist economies have a much poorer record on pollution than capitalist countries.

Collectivist countries never produce innovations or new technology. When was the last time a new block-buster cancer drug, like Keytruda (developed by capitalist company Merck), or a Netflix-type company was developed in North Korea or Cuba or Venezuela?

America is the largest free-market capitalist economy on the planet. America began "the energy transition" to lower CO2 emissions in 2005 with multi-stage fracking in horizontal wells. Fracking for shale gas was invented by capitalist Mitchell Energy. But the Barnett was seen as a curious one-off play until the smart guys at capitalist Southwestern Energy realized the Fayetteville shale had the same shale gas properties as the Barnett. They took an entrepreneurial risk for profit and made the Fayetteville shale gas play work. Southwest stock climbed 3,000% from 2002 to 2008. Other capitalist companies quickly followed.

Fracking leads to increasing volumes of natural gas in America. The "creative destruction" of capitalism took hold: capitalist innovation created so much natural gas that the price dropped off its 2008 price high of \$14/mcf. In the Appalachian basin, natural gas replaced coal because it became cheaper than coal for electricity generation.

The capitalist US got much cleaner air, lower CO2 emissions, less acid rain and nitric oxide emissions, by shifting to fracked natural gas (Figure 1 and 2). Free market capitalism created the greenest technology known to humanity, except for nuclear power. The US now accounts for less than 15% of global CO2 emissions.

Did anyone at COP27 thank the use of fracking for reducing US GHG emission? Or did I miss that one?

The second largest economy on the planet is communist China. It continues to rely heavily on coal. Its coal-power CO2 pollution has increased almost 300% since 2005 (Figure 3). It has extremely high levels of soot (PM 2.5) (Figure 4). China's economy has grown many-fold since 2005. China should be commended for lifting 700 million people out of poverty, and it now has more middle-class citizens than the US' total population (World Bank, accessed 11/26/2022). But we need to "get real" about where global pollution is coming from. And it is not western capitalist countries....

COP27 Goes Comedy ...continued

China's GDP is below the US even as its CO2 emissions have exploded to over twice the US. China produces more CO2 than the US, the EU, and Japan combined (NYT 11/3/2022). "There is no solution to climate change without reducing China's coal combustion," said David Sandalow, senior energy official in the Obama and Clinton administration (ibid). (does climate change need a solution or an adaptation? This is the sneaky way they shift the argument by getting acknowledgement that climate change needs a solution rather than an acceptance of the inevitable despite our actions and adjusting to it)

Chinese officials announced at COP27 that it will continue to expand its coal coal-fired power plants (Forbes, 11/15/2022). China has plans to bring online another 200 gigawatts of coal power (NYT, 11/3/2022). China's official policy is that it will not begin to reduce CO2 emissions until 2030. China did not honor the unification date with Hong Kong as set by treaty. So vague promises about beginning to reduce CO2 emissions in 2030 do not carry much weight. More importantly, "statements" are not going to change the Mauna Loa CO2 curve.

All of this brings up the fairly obvious question: why is China not the country being asked to pay climate reparations, at least until 2030?

Other Green Innovations by capitalists

Capitalist corporation Carbon Engineering of Canada has developed a direct air capture technology that will take CO2 out of the air. Capitalist corporation OXY Petroleum has teamed up with capitalist United Airlines and broke ground on their first \$1.1 billion DAC plant using Carbon Engineering's DAC technology. They anticipate sequestering 1 million tons of CO2 per year from just one DAC facility in the Permian basin.

Without a doubt, capitalist companies like Schlumberger and Haliburton are inventing new technology for better carbon capture and sequestration right now. What new technology do readers think socialist countries like Venezuela or North Korea or Cuba will produce?

The capitalist US also invented electricity generation using nuclear power (Office of Nuclear Power, 6/18/2009). Nuclear power produces zero CO2 and has the lowest number of deaths per tera-watt of power for any source except solar (Figure 4). Some environmentalists contend it's safety rate is actually lower than solar.

Certainly, were it not for the Chernobyl disaster in then-communist USSR, the mortality rate would be much lower. The Chernobyl was a nuclear reactor operated by the then-communist USSR did not have a containment dome, among other massive communist failings.

Conclusions

This article is not a denial of global warming nor should it be interpreted that the international community should not take action. Dealing with climate change requires scientific discussion.

Facile Marxist platitudes about the environment from a garden-variety South American thug masquerading as a socialist to legitimize his reign of terror have no place at a supposed climate conference.

COP27 turned itself into carnival clown-car parade when it gave the microphone to a ruthless human-rights abuser like Mr. Maduro. COP27 has sullied itself and any conclusions that might come from it.

HGS members, Americans, and the people of the planet deserve better.

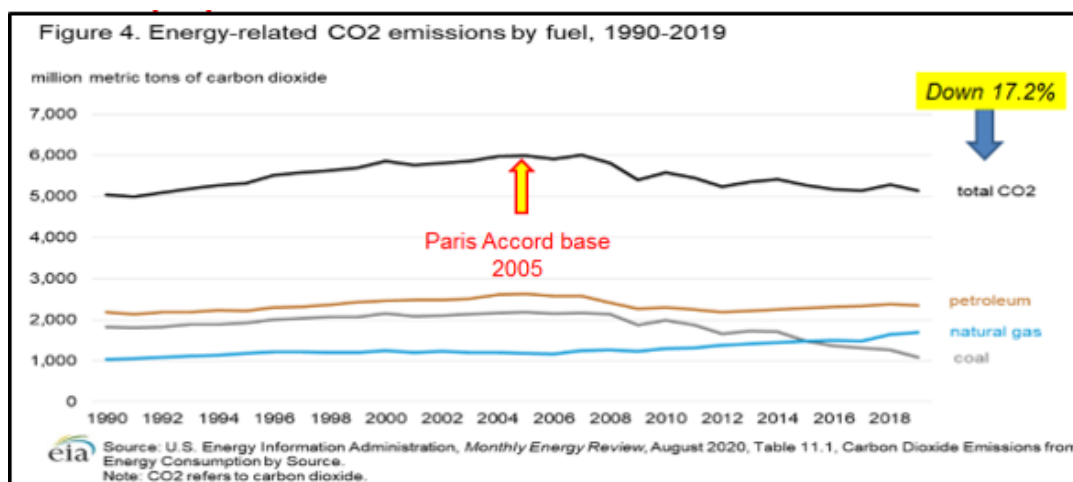


Figure 1. Energy-related CO2 emissions in capitalist America are down 17.2% by 2018. They are as low as they were 1993. In capitalist US, fracked natural gas has displacing high-polluting coal power. The EIA report states, "Between 2005 and 2019, total U.S. electricity generation increased by almost 2%, (but) related CO2 emissions fell by 33%" and that "This decline was largely the result of the electric power sector's decrease in carbon intensity."

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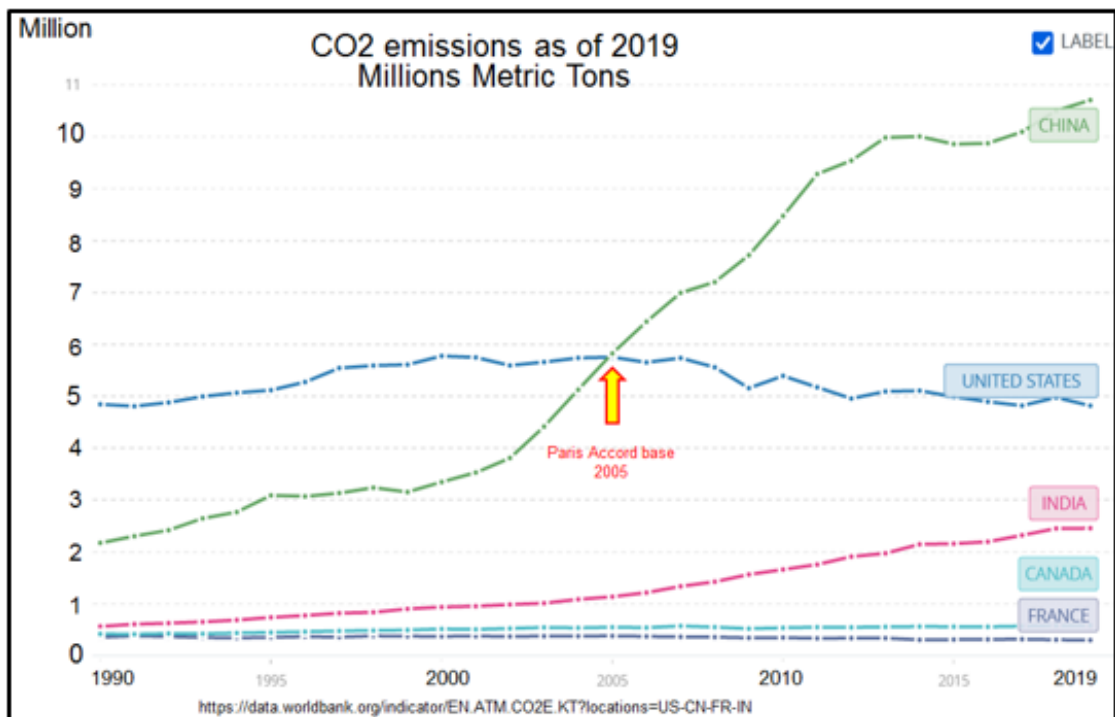


Figure 2. CO2 Emissions by country in million metric tons by 2019. US emissions have fallen 20% from the 2005 base in capitalist America, while CO2 emissions have doubled in communist China. Collectivist economies are bad at innovation or entrepreneurialism; or implementing change that is good for the environment. Source: World bank.

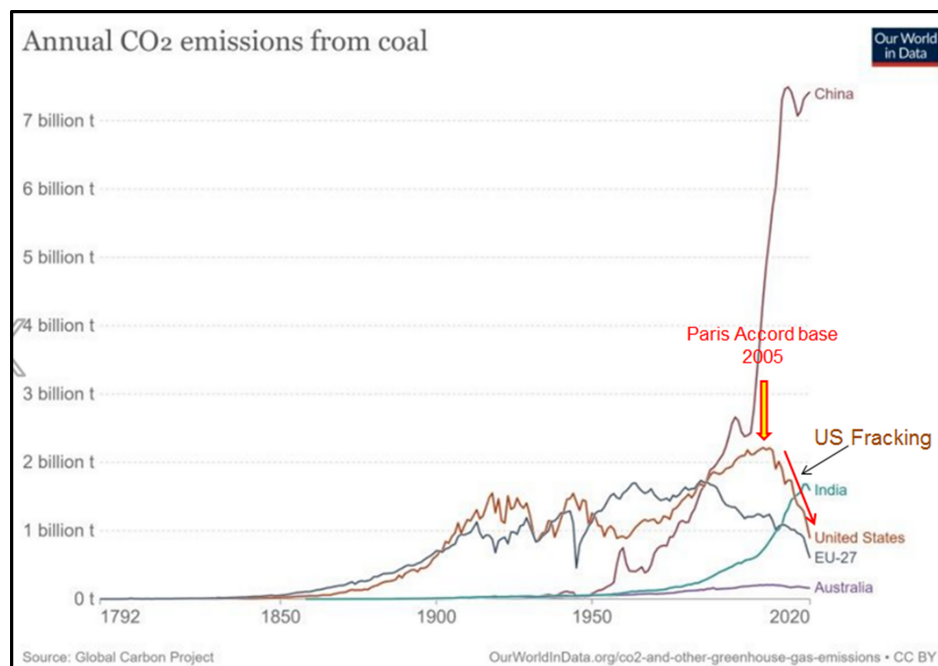


Figure 3. Emission of CO2 from coal. The US emissions have plummeted since fracking liberated cheap natural gas. China leads the planet in coal-sourced CO2. Chinses officials stated at COP27 it will build more coal power plants. China's policy means atmospheric CO2 will continue to increase irrespective of anything the US does or who pays what to whom.

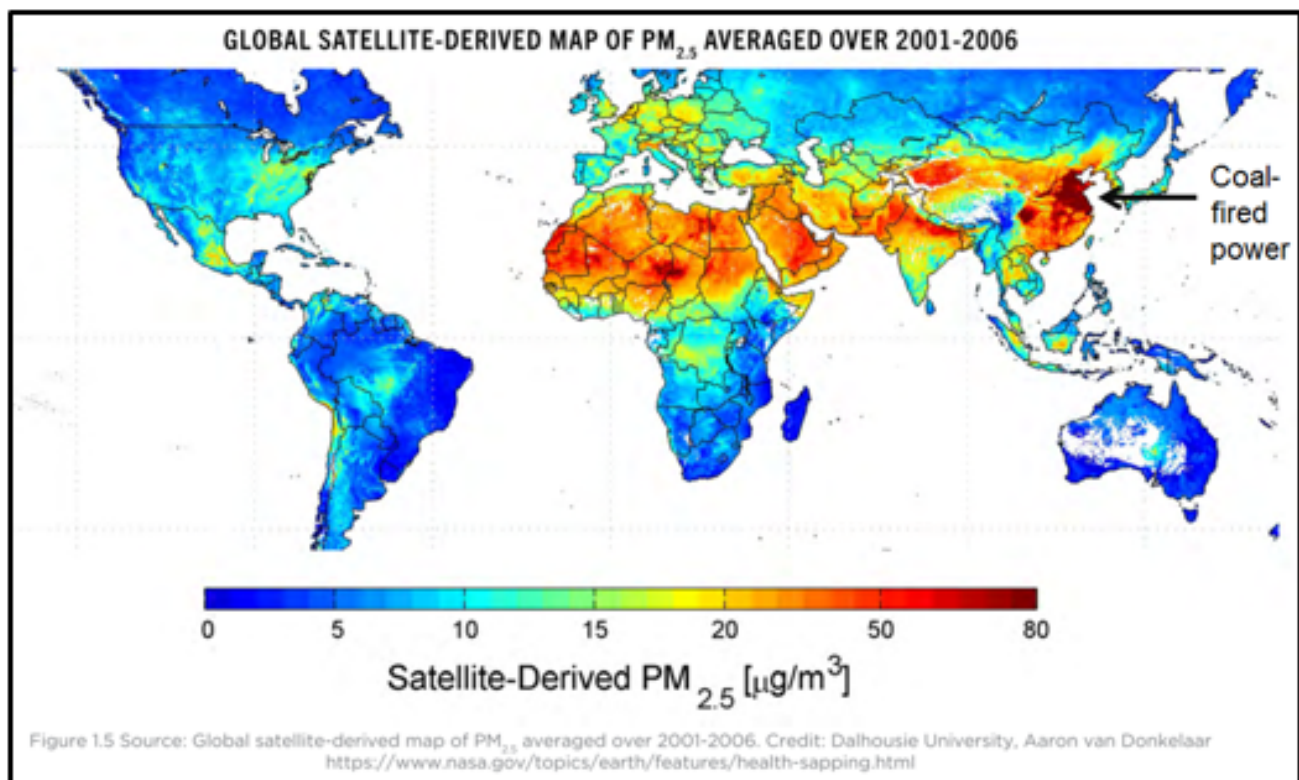


Figure 4. Satellite-derived averaged soot concentrations (PM 2.5). Capitalist North America has low PM 2.5 concentrations. High concentrations of particle matter in North Africa and Middle East should not surprise anyone; they are deserts with lots of dust. Communist China on its east coast is not a desert. It has the highest PM 2.5 of any country on the planet. This is all from coal fired power. The reader is reminded that this is the average for 2001 – 2006. Since 2005, China's CO2 emissions from coal-fired power have nearly doubled. Figure from Liberty Oil Field Services ESG statement 2020. Reprinted by written permission. Annotation marking “coal fired power” was added by the author.

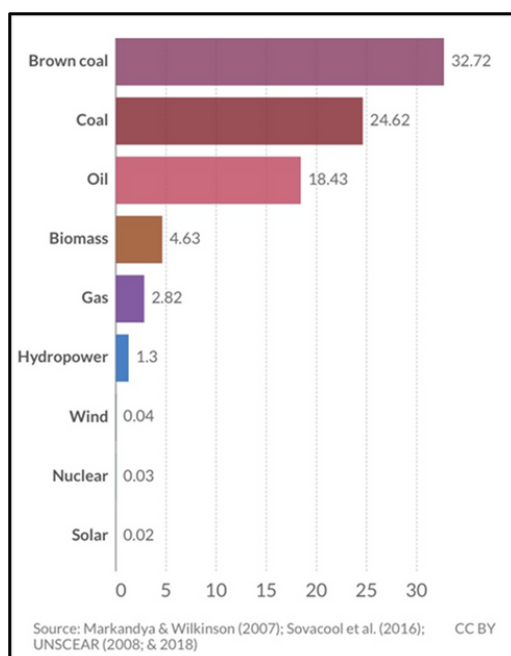
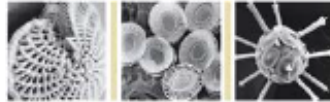


Figure 5. Death rates per unit of electricity produced. Death rates are measured based on deaths from accidents and air pollution per terawatt-hour of electricity.

Source: energy for humanity webpage. Accessed 11/18/2022.

Environmentalist Michael Shellenberger contends even this low rate for nuclear power is an exaggeration. Were it not for the Chernobyl nuclear disaster in communist USSR, the mortality rate would be much lower.

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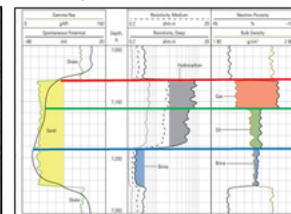
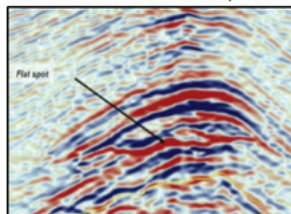
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