

SAGE

2022

Society of Applied Geoscientists & Engineers
23-25 March 2022 ♦ Lafayette, LA, and Virtual

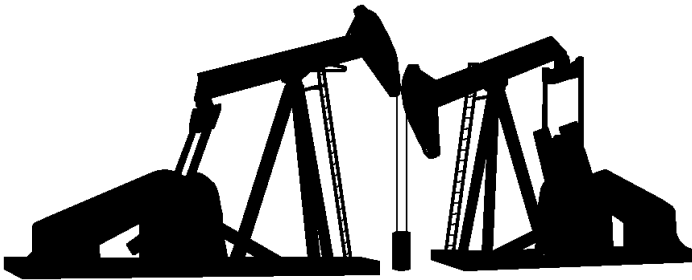
1st CONVENTION AND EXPOSITION
LAFAYETTE, LOUISIANA, AND VIRTUAL
23-25 MARCH 2022

CONVENTION PROGRAM

**Co-Hosted by the Lafayette Geological Society,
SAGE Acadiana and Libya Chapters,
and Association of Applied Geoscientists**

Special Thanks to
our Premier Sponsors

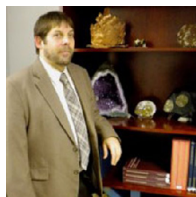
Willis School of Applied Geoscience



Advanced Hydrocarbon Stratigraphy
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SAGE 2022

Society of Applied Geoscientists & Engineers ♦ 23-25 Mar. 2022 ♦ Lafayette, LA, and Virtual



Welcome to SAGE 2022!!

As President of SAGE and the General Chair of the Convention, it is my pleasure to welcome you to SAGE 2022 in Lafayette and Online. For the main event in Lafayette, we have a diversity of presentations including energy, CCUS, and legal, as well as additional applied geoscience and engineering topics, spread over 12 half-day oral sessions with multiple keynote presentations and 3 half-day poster sessions. Our All-Convention Luncheon features Jeff Landry, Attorney General for the State of Louisiana, and we are hosting two additional luncheons with support of our local affiliated societies, the Southwest Louisiana Geophysical Society (SWLGS) Luncheon with Rui Zhang discussing some interesting aspects of shear wave surveying and the Lafayette Geological Society (LGS) Luncheon with Sarah E. Stogner discussing aspects of Texas oil and gas independence.

In addition to the hybrid Lafayette-based event, SAGE 2022 includes a Virtual Special Symposium organized by Salah S. El-Ekhhifi, President of the SAGE Libya Chapter! Multiple presentations are organized over two half-day sessions on Libya geoscience and engineering and/or by Libyan geoscientists and engineers. Due to time difference and work week differences, these two sessions are early in the mornings of Wednesday, March 23, and Thursday, March 24. If you are unable to watch the presentations live, recordings will be provided post-convention on the SAGE website.

I'd like to thank members of the primary planning committee, Jill Willis, Travis Helms, and King Munson, with a special thanks to Mr. El-Ekhhifi. Additional thanks are extended to Joe Morris and other board members of the Lafayette Geological Society (LGS) for agreeing to serve as official co-host of SAGE 2022. Special thanks to Scott Granger and Christopher Gary for arranging AG Jeff Landry's presentation. On-going efforts in editing papers for the *SAGE Record*, our conference proceedings volume to be released post-convention to allow for authors to modify works based on convention feedback and to accommodate later additions to the technical program, by Co-Editors Norman Rosen and Dorene West are greatly appreciated. Tim Bennett, Wayne Cook, and Brian Brennan deserve recognition in organizing our golf outing, with a special thanks to Infinity Energy Solutions for sponsoring the lunch.

Of course our speakers and sponsors are primary drivers for a successful convention. So if you see individuals walking around with speaker and/or sponsor ribbons, please be sure to thank them for helping make this event happen.

Otherwise, I hope you enjoy the food and drink at our Icebreaker, the complimentary lunches, and more at other food-oriented events, and maybe even catch a few presentations.

James J. Willis
SAGE President

Welcome



THANK YOU to our sponsors for supporting the SAGE 2022 Convention and Exhibition! Your support is essential for the success of this meeting and very much appreciated.

SAPPHIRE

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Mary J. Broussard



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Digital Program Guide



Follow us on LinkedIn at <https://www.linkedin.com/company/society-of-applied-geoscientists-and-engineers-inc>.



Follow us on Facebook at <https://www.facebook.com/sagetechnology.org/>

All activities, unless otherwise noted, are on 1st and 2nd floors of the Petroleum Club, 111 Heymann Blvd., Lafayette, LA 70503. Please see Floor Plan Map on p. 5. All Times are Central Daylight (GMT-5).

Wednesday, March 23

- 3:45 am–7:00 am Virtual Oral Session: SAGE Libya Chapter Special Symposium, Session 1, p. 13
- 7:30 am–1:00 pm Golf Outing, Wetlands Golf Club, p. 9
- 11:00 am–8:00 pm Registration Open, Atrium, p. 8
- 12:00 pm–4:30 pm Short Course: Reservoir Fluids Behavior and Analysis for Earth Scientists, Offshore Room, 2nd Floor, p. 23
- 6:00 pm–9:00 pm Icebreaker Reception, Ballroom, Exhibit Area, and Courtyard, 1st Floor, p. 6

Thursday, March 24

- 3:45 am–6:55 am Virtual Oral Session: SAGE Libya Chapter Special Symposium, Session 2, p. 14
- 7:30 am–6:00 pm Registration Open, Atrium, p. 8
- 8:30 am–11:10 am Oral Session: Geoscience 1, Offshore Room, 2nd Floor, p. 16
- 8:30 am–11:10 am Oral Session: Engineering, Heymann Room, 2nd Floor, p. 15
- 8:30 am–11:15 am Oral Session: CCUS 1, Ballroom, 1st Floor, p. 15
- 8:30 am–11:15 am Poster Session, Exhibit Hall, 1st Floor, p. 16
- 8:30 am–6:00 pm Exhibition and Poster Alley Open, Adjacent to Ballroom, 1st Floor, p. 8
- 9:50 am–10:10 am Coffee Break
- 11:30 am–1:00 pm All-Convention Luncheon, Ballroom, 1st Floor, p. 11
- 11:30 am–1:00 pm Southwest Louisiana Geophysical Society (SWLGS) Luncheon, Offshore Room, 2nd Floor, p. 11
- 1:30 pm–4:15 pm Poster Session, Exhibit Hall, p. 19
- 1:30 pm–4:55 pm Oral Session: CCUS 2, Ballroom, 1st Floor, p. 17
- 1:30 pm–3:00 pm Oral Session: SIPES and More, Offshore Room, 2nd Floor, p. 18
- 1:30 pm–4:55 pm Oral Session: Geochemistry, Heymann Room, 2nd Floor, p. 18. Moves across the Hall to Executive Room after the break.
- 2:50 pm–3:10 pm Coffee Break
- 5:00 pm–8:00 pm President's Reception and Happy Hour, Exhibit Area and Courtyard, 1st Floor, p. 7
- 6:00 pm–8:00 pm Awards Banquet Dinner, Ballroom, 1st Floor, p. 10

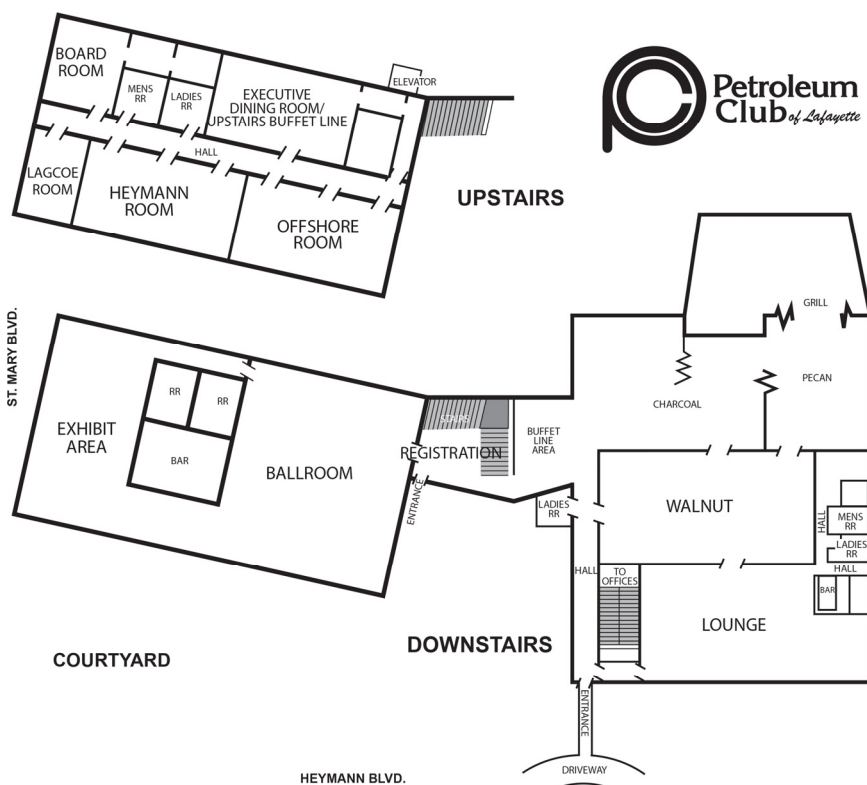
Friday, March 25

- 7:30 am–12:00 noon Registration Open, Atrium, p. 8
- 8:30 am–11:10 am Oral Session: CCUS 3, Ballroom, 1st Floor, p. 19
- 8:30 am–11:15 am Oral Session: Geoscience 2, Offshore Room, 2nd Floor, p. 19
- 8:30 am–11:15 am Oral Session: Geothermal and More, Heymann Room, 2nd Floor, p. 20
- 8:30 am–11:15 am Poster Session, Exhibit Hall, 1st Floor, p. 20

- 8:30 am–1:00 pm Exhibition and Poster Alley Open, Adjacent to Ballroom, 1st Floor, p. 8
- 9:50 am–10:10 am Coffee Break
- 11:30 am–1:00 pm Lafayette Geological Society (LGS) Luncheon, Ballroom, 1st Floor, p. 11
- 11:30 pm–3:40 pm Oral Session: Rocks and Fluids, Heymann Room, 2nd Floor, p. 21
- :30 pm–4:15 pm Oral Session: Geoscience 3, Offshore Room, 2nd Floor, p. 21
- 1:30 pm–4:30 pm Oral Session: CCUS 4 and More, Ballroom, 1st Floor, p. 21
- 2:50 pm–3:10 pm Coffee Break
- 6:00 pm START Field Trip: Bourbon on the Bayou, Revisited: Ancient and Modern Fluvial Depositional Systems, WSAG Field Laboratory and Wildlife Preserve, St. Martinville, LA, p. 23. Field trip ENDS 12:00 noon, Sunday, March 27

Schedule of Events

FLOOR PLAN Petroleum Club of Lafayette



All activities listed below, except the Golf Outing, are on the 1st and 2nd floors of the Petroleum Club of Lafayette. Check at Registration to see if tickets are still available to optional events.

SAGE LIBYA CHAPTER SPECIAL SYMPOSIUM

Date: Wednesday and Thursday, March 23 and 24

Time: Virtual Session Starting Each Day at 11:00 am Libya Time (GMT+2) or 4:00 am Central Daylight Time (GMT-5)

Cost: Complimentary as part of registration fees

Location: Online via Zoom Meetings

Tune in to listen to a series of presentations on Libya geoscience and engineering and/or by Libyan geoscientists and engineers. Special thanks to Salah S. El-Ekhfifi, National Oil Company of Libya, for convening this special event.

SAGE 2022 GOLF OUTING

Date: Wednesday, March 23

Time: 7:30 am Check-in; 8:30 am 1st Tee Start

Cost: \$125 per player/\$440 per team (Note: Convention Registration is NOT required for this event)

Location: Wetlands Golf Course Lafayette, LA

Play a round with friends and colleagues at the Wetlands Golf Course in a four-man best-ball scramble.

ICEBREAKER RECEPTION (Sponsored by Advanced Hydrocarbon Stratigraphy)

Date: Wednesday, March 23

Time: 6:00 pm–9:00 pm

Cost: Complimentary with registration badge; \$65 for non-convention registrants.

Location: Ballroom, Exhibit Area, and Courtyard, 1st Floor

See old friends and meet new ones as you check out the Exhibit Area and enjoy some Cajun hospitality with champagne on arrival, loads of food, and cocktails.

Entrance by badge only.

ALL-CONVENTION LUNCHEON

Date: Thursday, March 24

Time: 11:30 am–1:00 pm

Cost: \$30 (\$60 for non-convention registrants)

Location: Ballroom, 1st Floor

Join us for the All-Convention Luncheon, where SAGE President James Willis will welcome and provide opening remarks, followed by Jeff Landry, Attorney General of the State of Louisiana. Space is limited, so purchase your ticket early. (Note: Convention Registration is NOT required for this event.) **Entrance by badge only.**

SOUTHWEST LOUISIANA GEOPHYSICAL SOCIETY (SWLGS) LUNCHEON

Date: Thursday, March 24
Time: 11:30 am–1:00 pm
Cost: \$0 (complimentary for all registrants)
Location: Offshore Room, 2nd Floor

Rui Zhang of the University of Louisiana at Lafayette will present “Direct Shear-Wave Seismic Survey in Sanhu Area, Qaidam Basin, West China.”

PRESIDENT’S RECEPTION and HAPPY HOUR (Sponsored by Willis School of Applied Geoscience)

Date: Thursday, March 24
Time: 5:00 pm–8:00 pm
Location: Exhibit Area and Courtyard, 1st Floor

See old friends and meet new ones as you enjoy some Cajun hospitality with SAGE President James Willis and other SAGE board members, and LGS President Joe Morris. **Entrance by badge only.**

AWARDS BANQUET DINNER

Date: Thursday, March 24
Time: 6:00 pm–8:00 pm
Cost: \$60 (Note: Convention Registration is NOT required for this event)
Location: Ballroom, 1st Floor

Join SAGE President James Willis, SAGE Executive Vice President Jill Willis, SAGE Vice President of Applied Geoscience Travis Helms, and SAGE Vice President of Engineering Lindsay Longman, Sr., P.E., for an evening banquet dinner to honor Mr. Frank W. Harrison, Jr. as the inaugural recipient of SAGE’s Legend Award and Mr. Michael P. Smith as a Special Commendation awardee. Space is limited, so purchase your ticket early. **Entrance by badge only.**

LAFAYETTE GEOLOGICAL SOCIETY (LGS) LUNCHEON

Date: Friday, March 25
Time: 11:30 am–1:00 pm
Cost: \$0 (complimentary for all registrants)
Location: Ballroom, 1st Floor

Join Sarah E. Stogner, Esq., who will present “Ushering in the Next Era of Texas Energy Independence.”

LISKOW & LEWIS

REGISTRATION

Location: Atrium

Dates & Times:

Wednesday, March 23..... 11:00 am–8:00 pm

Thursday, March 24..... 7:30 am–6:00 pm

Friday, March 25..... 7:30 am–11:00 am

THE EXHIBITION

Location: Ballroom Bar Area, 1st Floor

Dates & Times:

Wednesday, September 30..... 6:00 pm–9:00 pm

Thursday, October 1..... 8:30 am–6:00 pm

Friday, October 2..... 8:30 am–1:00 pm

Explore the displays of companies during the two days of the exhibition as well as poster sessions. Please support all those who have made this vital commitment to the success of the convention, now more than ever in these dynamic times for our industry.

Note: Please note that children under the age of 13 will not be allowed in the Exhibit Hall anytime during exhibit setup or teardown. During exhibit hours, children not of school-age will not be allowed into any activities within the Exhibit Hall, including the Icebreaker reception, unless they are young enough or small enough to be confined to a stroller, backpack, or front pack. School-age children will be allowed to attend the exhibition during regularly scheduled hours if they are properly registered (as students) and they wear their badges at all times.

SPEAKERS & POSTER PRESENTERS ROOM & JUDGES TALLY ROOM

Location: LAGCOE Room, 2nd Floor

Dates & Times:

Wednesday, March 23..... 1:00 pm–5:00 pm

Thursday, March 24..... 7:30 am–6:00 pm

Friday, March 25..... 7:30 am–1:00 pm

POSTER SESSIONS

Poster sessions will take place in the Exhibit Hall. Student and professional posters covering a diverse range of topics will rotate (Thursday morning–Friday morning). Presenters will be available for discussion during the coffee breaks on Thursday and Friday mornings (9:30 am–10:30 am) and Thursday afternoon (2:30 pm–3:30 pm). For more information, please see pages 16, 19, and 20.

SAGE 2022 Golf Tournament



Golf Tournament

Wetlands Golf Course

2129 N. University Avenue Lafayette, Louisiana 70507

March 23, 2022

ENTRY FEE – \$440 PER TEAM (\$110/PERSON, Singles will be assigned) (Pay Online at SAGE Website or by Check Onsite)

Schedule of Events

7:30 am–8:30 am Registration and free use of driving range
8:30 am 1st Tee Time
Lunch provided at the 9th Hole

Contact Tim Bennett, Tournament Chair,
at 337–962–2916 for more information.

AWARDS BANQUET DINNER

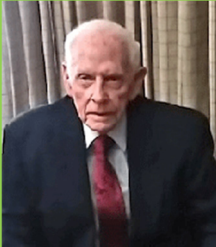
 6:00 pm–8:00 pm • Thursday, March 24
 Ballroom, 1st Floor

Join SAGE President James Willis, SAGE Executive Vice President Jill Willis, SAGE Vice President of Applied Geoscience Travis Helms, and SAGE Vice President of Engineering Lindsay Longman, Sr., P.E., in welcoming attendees to Lafayette and acknowledging worthy individuals for their contribution to SAGE and the applied geoscience and engineering professions in general.

Members of the SAGE Executive Committee and Advisory Board will also be recognized.

Come Join us at our 2022 Awards Banquet Dinner Honoring:

LEGEND AWARD



Frank W. Harrison, Jr.
 Optimistic Energy, LLC
 Lafayette, Louisiana

SPECIAL COMMENDATION AWARD



Michael P. Smith
 Advanced Hydrocarbon
 Stratigraphy
 Tulsa, Oklahoma

ALL-CONVENTION LUNCHEON

Part 1: 11:45 am–12:00 pm, James Willis, SAGE President, “Welcome and Opening Remarks”; and



Part 2: 12:00 pm–1:00 pm, Jeff Landry, Attorney General of the State of Louisiana, “Louisiana Law”

Date: Thursday, March 24
Time: 11:30 am–1:00 pm
Location: Ballroom, 1st Floor
Cost: \$30 (\$60 for non-convention registrants)



SOUTHWEST LOUISIANA GEOPHYSICAL SOCIETY (SWLGS) LUNCHEON

Rui Zhang, University of Louisiana at Lafayette, “Direct Shear-Wave Seismic Survey in Sanhu Area, Qaidam Basin, West China”

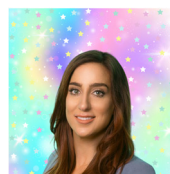
Date: Thursday, March 24
Time: 11:30 am–1:00 pm
Cost: \$0 (complimentary for all convention registrants)



LAFAYETTE GEOLOGICAL SOCIETY (LGS) LUNCHEON

Sarah E. Stogner, Esq., STOGNER LEGAL, PLLC, Monahans, Texas, “Ushering in the Next Era of Texas Energy Independence”

Date: Friday, March 25
Time: 11:30 am–1:00 pm
Location: Ballroom, 1st Floor
Cost: \$0 (complimentary for all convention registrants)



Luncheons

TECHNICAL SESSIONS AND LUNCHEONS**Wednesday Morning, March 23**

SAGE Libya Chapter Special Symposium, Virtual Session 1

Thursday Morning, March 24

SAGE Libya Chapter Special Symposium, Virtual Session 2

CCUS 1 (Ballroom, 1st Floor)

Engineering (Heymann Room, 2nd Floor)

Geoscience 1 (Offshore Room, 2nd Floor)

Poster Session 1 (Exhibit Hall)

Thursday Luncheons, March 24

All-Convention Luncheon (Ballroom, 1st Floor)

Southwest Louisiana Geophysical Society (SWLGS) Luncheon
(Offshore Room, 2nd Floor)

Thursday Afternoon, March 24

CCUS 2 (Ballroom, 1st Floor)

Geochemistry (Heymann Room, 2nd Floor; note: switches to
Executive Room, 2nd Floor, after the coffee break)

SIPES and More (Offshore Room, 2nd Floor)

Poster Session 2 (Exhibit Hall)

Friday Morning, March 25

CCUS 3 (Ballroom Room, 1st Floor)

Geoscience 2 (Heymann Room, 2nd Floor)

Geothermal and More (Offshore Room, 2nd Floor)

Poster Session 3 (Exhibit Hall)

Friday Luncheon, March 25

Lafayette Geological Society (LGS) Luncheon (Ballroom, 1st
Floor)

Friday Afternoon, March 25

CCUS 4 and More (Ballroom Room, 1st Floor)

Geoscience 3 (Heymann Room, 2nd Floor)

Rocks and Fluids (Offshore Room, 2nd Floor)

TECHNICAL PRESENTATIONS

WEDNESDAY, MARCH 23

–SAGE LIBYA CHAPTER SPECIAL SYMPOSIUM, VIRTUAL SESSION 1–

(Convened by Salah S. El-Ekhhfifi, Founder and President of the SAGE Libya Chapter,
National Oil Company of Libya, Benghazi, Libya)

TIMES LISTED ARE MIDDAY LOCAL LIBYA TIME (GMT+2).
U.S. CENTRAL DAYLIGHT TIME IS GMT-5.

- 1045-1100 OPENING REMARKS**
- 1100-1125 Ahmed M. Muftah (Dept. of Earth Sciences, University of Benghazi, Libya):** Biostratigraphical Review of Al Hilal Formation at the Al Hilal Anticline Environ in Ras al Hilal Region, NE Libya
- 1130-1155 Aimen Amer (Schlumberger, Manama, Bahrain), Mubarak Al-Hajeri (Kuwait Oil Company, Ahmadi, Kuwait), and Ali Najem (Schlumberger, Ahmadi, Kuwait):** The Interaction between Microbial and Siliciclastic Sediments of the Lower Oligocene Deposits of the Kuwait Formation
- 1200-1225 Khaled S. Amrouni (Dept. of Geology and Geophysics, Texas A&M University, College Station, TX/Dept. of Earth Sciences, Garyounis University, Benghazi, Libya), Michael C. Pope, Ahmed S. El-Hawat, Salah S. El-Ekhhfifi, Hassan S. El-Bargathi, Adel A. Obeidi, Aimen Amer, and Essa A. Elbileikia:** Global and Local Geo-Chemo-Stratigraphic Events in the Cyrenaican Miocene Carbonate Platform Ar-Rajmah Group (Central Mediterranean), NE Libya
- 1230-1255 Khaled S. Amrouni (Dept. of Geology and Geophysics, Texas A&M University, College Station, TX/Dept. of Earth Sciences, Garyounis University, Benghazi, Libya), Michael C. Pope, Ahmed S. El-Hawat, Salah S. El-Ekhhfifi, Hassan S. El-Bargathi, Adel A. Obeidi, Aimen Amer, Essa A. Elbileikia, Hatem Barghathi, Abdelbaset Abdalla, Matthew Wehner, Mohamed SH. Abdalla El-Jahmi, Khalid A. M. Mustafa, Ahmed M. A. Al-Alwani, and Hamzah Allafi:** Cyrenaica Method: Data Science Analysis and Applications in Geology to Clean and Correct Patterns of Oxygen and Carbon Stable Isotopes Data
- 100-200 Salah S. El-Ekhhfifi (National Oil Corporation, Benghazi, Libya):** KEYNOTE PRESENTATION: Foraminifers: A Bioindicator to Monitor Marine Pollution in North Africa



STRATAGRAPH

THURSDAY, MARCH 24

–SAGE LIBYA CHAPTER SPECIAL SYMPOSIUM,
VIRTUAL SESSION 2–

(Convened by Salah S. El-Ekhfifi, Founder and President of the SAGE Libya Chapter,
National Oil Company of Libya, Benghazi, Libya)

**TIMES LISTED ARE MIDDAY LOCAL LIBYA TIME (GMT+2).
U.S. CENTRAL DAYLIGHT TIME IS GMT-5.**

- 1045-1100 OPENING REMARKS**
- 1100-1125 Ahmed A. Al Amin (Sirte Oil Company, Marsa El Brega, Libya), Maher A. El Amawy (Banha University, Banha, Egypt), and Ahmed M. Muftah (Dept. of Earth Sciences, University of Benghazi, Libya):** Late Cretaceous Deformation-Related Inlier Structure of Jardas al Jarari Area, the Central Part of Al Jabal al Akhdar, NE Libya
- 1130-1155 Nuri Mohamed Fello (Nafusah Oil Operations B.V.):** Geopark Features and Characteristics in Libya
- 1200-1225 Ibrahim M. Abou El Leil (Petroleum Engineering Department, Tobruk University, Tobruk, Libya) and Ali M. Elfeituri (Environment and Natural Resources Department, Academy for Higher Studies, Benghazi, Libya):** Estimation of Reservoir Petrophysical Properties by Using Gas Well Testing Analysis
- 1230-1255 Mohamed A. Mohamed Masoud (Natural Resources Department, Faculty of Natural Resources and Environmental Sciences, Tobruk University, Tobruk, Libya):** Microfacies and Mineralogical Studies on the Shore Zone of Tobruk City, Libya
- 100-125 T.A. Hodairi & R.P. Philp (University of Oklahoma, Norman, OK):** Biomarker Characteristics of Crude Oils from the Murzuq Basin, SW Libya
- 130-155 Khaled S. Amrouni (Dept. of Geology and Geophysics, Texas A&M University, College Station, TX/Dept. of Earth Sciences, Garyounis University, Benghazi, Libya), Michael C. Pope, Ahmed S. El-Hawat, Ahmed M. A. Al-Alwani, Mohamed SH. Abdalla El-Jahmi, Hassan S. El-Bargathi, Adel A. Obeidi, Aimen Amer, Essa A. Elbileikia, and Salah S. El-Ekhfifi:** Analogues of Complex Carbonate Reservoirs from the Cyrenaican Miocene Carbonate Sequences, NE Libya



**Applied
Petroleum
Technology**

**THURSDAY MORNING, MARCH 24
—HYBRID ORAL SESSIONS—**

ALL TIMES U.S. DAYLIGHT TIME (GMT-5)

CCUS 1 (Ballroom, 1st Floor)

- 830-840 **OPENING REMARKS**
840-910 **Esmail Ansari, Eugene Holubnyak*, Franek Hasiuk, and Jennifer Hollenbach (Kansas Geological Survey/University of Kansas, Lawrence, KS) (Asterisk denotes speaker):** VIRTUAL—Comparing CO₂ Injection Practices to Low-Salinity and High-Salinity Wastewater Injection Practices into Deep Saline Aquifers in Kansas
- 915-945 **Chris McLindon (McLindon Geosciences, LLC, Mandeville, LA):** Achieving Long Term Sustainability and Carbon Sequestration in the Louisiana Coastal Zone Using Dredged Sediment
- 945-1010 **BREAK**
1010-1040 **Emmanuel Auger* (Baker Hughes, Magnitude SAS, Sainte Tulle, France), Katerina Vassilellis* (Baker Hughes, Reservoir Technical Services, Houston, TX), J. Barnavol (Baker Hughes, Magnitude SAS, Sainte Tulle, France), and X. Payre (Former TotalEnergies, France) (Asterisk denotes speakers):** Lessons Learned from Seven Years of Microseismic Monitoring Applied to CCS
- 1045-1115 **Michael P. Smith (Advanced Hydrocarbon Stratigraphy, Tulsa, OK), William Ampomah (New Mexico Institute of Mining and Technology, Socorro, NM), Luke Martin (NMIMT), Timothy Smith (AHS), Patrick Gordan (AHS), and Christopher Smith (AHS):** Evaluating Faults, Fractures, Migration Pathways, Reservoirs, and Seals for CCS Risk Assessments in the San Juan Basin Using Rock Volatiles Stratigraphy of Cuttings and Cores from Legacy Oil Wells and a New CCS Monitoring Well

ENGINEERING (Heymann Room, 2nd Floor)

- 830-840 **OPENING REMARKS**
840-910 **Herman Boro (SGS, Voorburg, The Netherlands) and Mario Ulloa (OPECS, Bucharest, Romania):** VIRTUAL—The Application of Drill Cuttings for Optimized Hydraulic Fracturing
- 915-945 **Scott Lapierre (Shale Specialists, LLC, Houston, TX):** Reliability of a Physics-Based Analytical Solution for Forecasting Impending Critical Flow Regime Transitions

Optimistic Energy, LLC

945-1010 **BREAK**1010-1110 **William K. (Bill) Ott, P.E. (Well Completion Technology, Houston, TX): SAGE ENGINEERING KEYNOTE PRESENTATION: Sand Control Method Selection****GEOSCIENCE 1 (Offshore Room, 2nd Floor)**830-840 **OPENING REMARKS**840-910 **C. I. Unuevho (Dept. of Geology, Federal University of Technology, Minna, Nigeria), O. J. Ajiroba (Kwara State's Ministry of Industry and Solid Minerals Development, Ilorin, Nigeria), A. N. Amadi (Dept. of Geology, FUT), K. A. Saloko (Dept. of Physics, FUT), K. M. Onuoha (Dept. of Geology, University of Nigeria, Nsukka, Nigeria), and E. E. Udensi (Dept. of Physics, FUT): VIRTUAL—Goelectrical Prospecting for Deep Fracture Aquifers in Kadna, Part of Minna Sheet 164 SW, North-Central Nigeria**915-945 **David T. King, Jr. (Auburn University, Auburn, Alabama), Andrew Sowder (Electric Power Research Institute, Charlotte, North Carolina), and Richard A. Esposito, Jr. (Southern Company Research & Development, Birmingham, Alabama): VIRTUAL—Analysis of Geological Criteria for Borehole Disposal of Nuclear Waste within the Southeastern United States**945-1010 **BREAK**1010-1040 **Robert G. Loucks (Bureau of Economic Geology/Univ. of Texas at Austin): VIRTUAL—Regional Lithofacies Stacking Patterns of the Upper Cretaceous Austin Chalk Formation in the Onshore Northern Gulf of Mexico**1045-1115 **Lauren Guy et al. (ASTERRA USA, San Diego, CA) (Speaker: John Metzger): VIRTUAL—Applied Remote Sensing—Introducing SAR Polarimetry—and the Opportunity for Subsurface Assessments****–POSTER SESSION–****Poster Session 1 (Ballroom Bar Area, 1st Floor):****8:30 am–11:15 am (Presenters in booth from 9:30 am–10:30 am)**

- 1 **Julie M. Bloxson (Stephen F. Austin State University, Nacogdoches, Texas) and Co-Authors TBA: Title TBA**
- 2 **Merritt S. Ford, Melinda S. Faulkner, and Julie M. Bloxson (Stephen F. Austin State University, Nacogdoches, Texas): Facies and Well Log Analysis of the Smackover Formation in the East Texas Basin, Wood County, Northeastern Texas**

**Travis Helms**

- 3 **Matthew E. Kratochvil (Louisiana State University, Baton Rouge, LA/ Fugro, Lafayette, LA) and Phillip J. Bart (Fugro):** Quantitative Analysis of the Maximum Rate and Minimum Duration for a 200 km Stepwise Retreat of the Bindschadler Ice Stream at ~11.5 cal kyr BP
- 4 **Tyler West and Julie M. Bloxson (Stephen F. Austin State University, Nacogdoches, Texas):** Reservoir Characterization of the Utica Shale Play within Columbiana County, Ohio Using Well Logs, Rock Mechanics, and Geochemical Data

THURSDAY HYBRID LUNCHEONS, MARCH 24

ALL-CONVENTION LUNCHEON:

11:30 am–1:00 pm (CDT, GMT-5) (Ballroom, 1st Floor)

Part 1: 1145-1200, James J. Willis (SAGE President) and Christopher Gary: Welcome, Opening Remarks, and Speaker Introduction

Part 2: 1200-100, Jeff Landry (Attorney General of the State of Louisiana, Baton Rouge, LA): Louisiana Law

SOUTHWEST LOUISIANA GEOPHYSICAL SOCIETY (SWLGS) LUNCHEON:

11:30 am–1:00 pm (CDT, GMT-5) (Offshore Room, 2nd Floor)

Zhiwen Deng, Rui Zhang*, Liang Gou, Shaohua Zhang, Yuanyuan Yue, Xuejun Chang, Yongguo Wu, Yan Wang, Yudong Ni, Zhihui Yan, Ting Gong, Haili Wang, Faquan Feng, Zhigang Liu, and Long Wu (Asterisk denotes speaker, University of Louisiana at Lafayette; all other authors, Bureau of Geophysical Prospecting, China National Petroleum Corporation, Zhuozhou, China): VIRTUAL—Direct Shear-Wave Seismic Survey in Sanhu Area, Qaidam Basin, West China

THURSDAY AFTERNOON, MARCH 24

–HYBRID ORAL SESSIONS–

ALL TIMES U.S. DAYLIGHT TIME (GMT-5)

CCUS 2 (Ballroom, 1st Floor)

- 130-140 **OPENING REMARKS**
140-210 **Laihmen Quan, Maryam Mirabolghasemi, and Kelsey Crane (Mississippi State University, Mississippi State, MS):** Induced Faulting by CO₂-Sensitive Polyacrylamide Injection for CCS Applications

CRPlus & Associates

A. Summerfield

Tim Rynott

Terry Lolan Mattalino

- 215-245 **Toddy Guidry (Core Laboratories, Broussard, LA) and Kory Holmes (Core Laboratories, Houston, TX):** Planning the Analytics for CCUS in Aquifer Project
- 245-310 **BREAK**
- 310-340 **Michael P. Smith, Christopher Smith, Patrick Gordon, and Timothy Smith (Advanced Hydrocarbon Stratigraphy, Inc., Tulsa, OK):** Alternating CO₂-Phobic and CO₂-Philic Strata Determined Using Rock Volatiles Stratigraphy: Evaluating CCS Reservoir and Seal Quality
- 345-415 **Julie M. Bloxson (Stephen F. Austin State University, Nacogdoches, Texas), Michael C. Dix (Premier Oilfield Group, Houston, Texas), Tim Prather (Premier), Austin Morrell (Premier), Giovanni Zaroni (Premier), Nicholas Nelson (Premier), Harry Rowe (Premier), and Hannah Chambers (SFASU):** Application of XRF-Based Elemental Data Characterization for CCUS Projects: Core Case Studies of the Jurassic Cotton Valley Sandstone and Cretaceous Blossom Sands, Gulf Coast Region
- 420-455 **Lindsay Longman, Sr., P.E. (Independent):** SAGE ACADIANA KEYNOTE PRESENTATION: Musings on Gulf Coast CCUS—A Drilling Engineer's Perspective

GEOCHEMISTRY (Heymann Room, 2nd Floor) (Note: Switches to Executive Room, 2nd Floor, after the Break)

- 130-140 **OPENING REMARKS**
- 140-210 **Craig D. Barrie (Applied Petroleum Technology):** Geochemical Production Optimization—How to Get the Most out of your Rock and Fluid Samples
- 215-245 **Julie M. Bloxson (Stephen F. Austin State University, Nacogdoches, Texas), Michael P. Solis (Ohio Department of Natural Resources, Columbus, Ohio), and Robert Friedfeld (SFASU):** Geochemical Characterization and Depositional History of the Silurian Salina Group in Ohio using XRF, SEM, and Subsurface Mapping
- 245-310 **BREAK**
- 310-340 **Eric Michael (Consulting Petroleum System Analyst, Katy, Texas):** Using Geochemistry to Understand Production Gas-Oil Ratio
- 345-415 **Christopher M. Smith (Advanced Hydrocarbon Stratigraphy), Caleb Conrad (Baker Hughes), Zachary Spath (University of Alaska at Anchorage), Kurt Johnson (Alaska Geological Materials Center, Alaska Division of Geological & Geophysical Surveys), Timothy M. Smith (AHS), Patrick S. Gordon (AHS), Shuvajit Bhattacharya (Bureau of Economic Geology, University of Texas at Austin), Albert Holba (Albert Holba Geochemical Consulting), and Michael P. Smith (AHS):** Tar Mapping Using Low Molecular Weight Volatiles Signatures: Cases Studies from the Alaskan North Slope
- 420-455 **Stephanie Brightwell-Coates (Hilcorp):** Geochemical Site Survey in the Cook Inlet, Alaska

SIPES AND MORE (Offshore Room, 2nd Floor)

- 130-135 **OPENING REMARKS**
- 135-225 **George Vassilellis (Insight-Pegasus, The Woodlands, TX) and Ewert Munoz (Austral Integrated Services, Inc., Conroe, TX):** SOCIETY OF INDEPENDENT PROFESSIONAL EARTH SCIENTISTS (SIPES LAFAYETTE) KEYNOTE PRESENTATION: Upstream Integration for Independents

**Lindsay Longman, Sr.,
P.E.**

Harris Pantlik

- 230-300 **Scott Lapierre (Shale Specialists, LLC, Houston, TX):** Translating PVT Data into a First-Principles Predetermination of Recovery Factor

–POSTER SESSION–

Poster Session 2 (Ballroom Bar Area, 1st Floor):

1:30 pm–4:15 pm (Presenters in booth from 2:30 pm–3:30 pm)

- 1 **Melinda S. Faulkner, Melanie L. Ertons, and Joseph W. Watkins (Stephen F. Austin State University, Nacogdoches, Texas):** Geochemical Characterization of Base Metals in Stream Water and Sediments in the Caddo Lake Watershed, Cass, Harrison, and Marion Counties, Texas
- 2 **Brian Lesh, Melinda Faulkner, Julie Bloxson, and Christine Piela Cox (Stephen F. Austin State University, Nacogdoches, TX):** Geochemical Characterization of the Louann Salt, Puma Field, Gulf of Mexico Basin, Using X-Ray Fluorescence (XRF) and X-Ray Diffraction (XRD)
- 3 **Tiffany Nordstrom and Sophie Warny (Louisiana State University, Baton Rouge, LA):** Developing a Palynological Biosteering Zonation of the Wilcox Group, Alaminos Canyon, Gulf of Mexico

FRIDAY MORNING, MARCH 25

– HYBRID ORAL SESSIONS–

ALL TIMES U.S. DAYLIGHT TIME (GMT-5)

CCUS 3 (Ballroom, 1st Floor)

- 805-815 **OPENING REMARKS**
- 815-835 **Abbas Seyedolali (Oklahoma Geological Survey/University of Oklahoma, Norman, OK), Emilio J. Torres-Parada (OGS/OU), Kurt Rottmann (RKR Services Company, LLC, Bethany, OK), and William Full (GXStat, LLC, Wichita, KS):** VIRTUAL—Oklahoma Saline Reservoirs for Carbon Capture, Utilization, and Storage (CCUS)
- 840-940 **Ian Ussery, Brody Friesenhahn, and Sam Yun (U.S. Environmental Protection Agency, Region 6, Dallas, TX):** KEYNOTE PRESENTATION: VIRTUAL—Class VI Permitting Process
- 940-1010 **BREAK**
- 1010-1110 **Dawn Porter (Stratum Reservoir, Midland, TX):** KEYNOTE PRESENTATION: Who Owns the Pore Space? Legal and Ethical Debates for Geologic Sequestration of CO₂

GEOSCIENCE 2 (Heymann Room, 2nd Floor)

- 830-840 **OPENING REMARKS**
- 840-910 **C. I. Unuevho (Dept. of Geology, Federal University of Technology, Minna, Nigeria), K. M. Onuoha (Dept. of Geology, University of Nigeria, Nsukka, Nigeria), A. N. Amadi (Dept. of Geology, FUT), S. O. Ejepu (Dept. of Geology, FUT), and E. E. Udensi (Dept. of Geophysics, FUT):** VIRTUAL—Application of Geological and Geophysical Data to Characterize the E8000 Reservoir in the Afenmai Field of the Niger Delta Basin, Nigeria
- 915-945 **Brian Brennan (Independent, Lafayette, LA):** Tinker, Tailor, Soldier, ... Consultant? Geophysical Tradecraft, 2022

945-1010 **BREAK**1010-1040 **Thomas D. Demchuk (PetroStrat Inc., Houston, TX), Katrin Ruckwied (PetroStrat), and Kimberley M. Bell (PetroStrat Canada Ltd., Calgary, Alberta, Canada):** VIRTUAL—Palynofacies/Kerogen Analysis and its Importance in Paleoenvironmental and Geochemical Determinations1045-1115 **Chris McLindon (McLindon Geosciences, LLC, Mandeville, LA):** Causes and Effects of a Late 20th Century Fault Slip Event in Coastal Louisiana**GEOTHERMAL AND MORE (Offshore Room, 2nd Floor)**830-840 **OPENING REMARKS**840-910 **Melinda S. Faulkner, Melanie L. Ertons, and Joseph W. Watkins (Stephen F. Austin State University, Nacogdoches, Texas):** Geochemical Characterization of Base Metals in Stream Water and Sediments in the Caddo Lake Watershed, Cass, Harrison, and Marion Counties, Texas915-945 **Robert A. Wiener (Geothermal Resources LLC and Goh Exploration, Inc.):** Onshore Texas and Louisiana Geopressured-Geothermal Resources for Baseload Electrical Power Generation945-1010 **BREAK**1010-1110 **Mike Eros (Sage Geosystems, Houston, Texas):** KEYNOTE PRESENTATION: Advanced Geothermal Technologies Applied to Geopressured Formations: The Gulf of Mexico, USA**–POSTER SESSION–****Poster Session 3 (Ballroom Bar Area, 1st Floor)****8:30 am–11:15 am (Presenters in booth from 9:30 am–10:30 am)**

- 1 **Kyla S. Gray and Melinda S. Faulkner (Stephen F. Austin State University, Nacogdoches, TX):** Geologic and Geomorphological Interpretation of the Mare Orientale Impact Basin Region of Earth's Moon
- 2 **J. Kevin Reece (Dept. of Earth and Environmental Sciences, Tulane University, New Orleans, LA), Robert Dorrell (Energy and Environment Institute, University of Hull, Hull, UK), and Kyle M. Straub (Tulane):** Quantifying the Three-Dimensional Depositional Mechanics of Turbidity Currents in Minibasins across the Fill to Spill Transition
- 3 **Laihmen Quan, Maryam Mirabolghasemi, and Kelsey Crane (Mississippi State University, Mississippi State, MS):** Induced Faulting by CO₂– Sensitive Polyacrylamide Injection for CCS Applications

FRIDAY HYBRID LUNCHEON, MARCH 25**LAFAYETTE GEOLOGICAL SOCIETY (LGS) LUNCHEON:****11:30 am–1:00 pm (CDT, GMT-5) (Ballroom, 1st Floor)****Sarah E. Stogner, Esq. (STOGNER LEGAL, PLLC, Monahans, TX):** Ushering in the Next Era of Texas Energy Independence**Brian Brennan****D. J. Bergeron**

**FRIDAY AFTERNOON, MARCH 25
– HYBRID ORAL SESSIONS –**

ALL TIMES U.S. DAYLIGHT TIME (GMT-5)

CCUS 4 AND MORE (Ballroom, 1st Floor)

- 130-140 **OPENING REMARKS**
140-240 **Jeffrey D. Lieberman (Liskow & Lewis, Lafayette, LA): KEYNOTE PRESENTATION: An Introduction to CCUS Laws and Regulations**
- 240-310 **BREAK**
310-340 **Caleb J. Madere (Liskow & Lewis, Lafayette, LA): A Primer on Mineral Rights in Louisiana**
- 340-430 **James J. Willis (Willis School of Applied Geoscience, St. Martinville, Louisiana): SAGE APPLIED GEOSCIENCE KEYNOTE PRESENTATION: Applied Geoscience through Time: How the 1761 Transit of Venus Led to Subsurface Contour Mapping with Energy and CCUS Applications**

GEOSCIENCE 3 (Heymann Room, 2nd Floor)

- 130-140 **OPENING REMARKS**
140-210 **J. Kevin Reece (Dept. of Earth and Environmental Sciences, Tulane University, New Orleans, LA), Robert Dorrell (Energy and Environment Institute, University of Hull, Hull, UK), and Kyle M. Straub (Tulane): Quantifying the Three-Dimensional Depositional Mechanics of Turbidity Currents in Minibasins across the Fill to Spill Transition**
- 215-245 **John Metzger and Steve Borron (ASTERRA USA, San Diego, CA): VIRTUAL—Pipeline Infrastructure Monitoring with L-Band SAR**
- 245-310 **BREAK**
310-340 **Gary L. Kinsland (School of Geosciences, University of Louisiana at Lafayette): The Deliberate Search for the Chicxulub Impact Megatsunami Signature in Industry Seismic Data**
- 345-415 **Melany Hysert (Royal Roads University, Calgary, Alberta, Canada): VIRTUAL—Geotourism Trends and Strategies**

ROCKS AND FLUIDS (Offshore Room, 2nd Floor)

- 130-140 **OPENING REMARKS**
140-210 **Katrina Cox (Core Laboratories, Houston, Texas): VIRTUAL—Advanced Rock Typing—An Artificial Intelligence Approach to Find Petrophysical Analogs**
- 215-245 **Toddy Guidry (Core Laboratories, Broussard, LA): Reservoir Fluids Behavior and Analysis for Earth Scientists**
- 245-310 **BREAK**
310-340 **Jacob McCreless (Proserv, Houston, TX) and Richard Barr (Aberdeen, Scotland, UK): TECHNOLOGY SHOWCASE PRESENTATION: Subsea Sampling**

Glenn Bixler

Mary J. Broussard

Exhibitors

Stratagraph

William Hagan

www.stratagraph.com**Proserv**

Jacob McCreless

www.proserv.com**Stephen F. Austin State University****Department of Geology**

Julie Bloxson and Melinda Faulkner

<https://www.sfasu.edu/academics/colleges/sciences-math/geology>

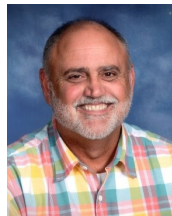
SAGE2022

Society of Applied Geoscientists & Engineers ◇ 23-25 Mar. 2022 ◇ Lafayette, LA, and Virtual

The Continuing Education Program is sponsored by Core Laboratories and the Association of Applied Geoscientists.

Short Course—Reservoir Fluids Behavior and Analysis for Earth Scientists

Wednesday, March 23 (Half Day, PM Only)
12:00 pm–4:30 pm (begins with complimentary lunch)
Instructor: Toddy Guidry, Core Laboratories
Location: Offshore Room, 2nd Floor
Fee: \$60 (Professional Registration) and \$0 (Student Registration)



SOLD OUT—SAGE/AAG Field Trip: Bourbon on the Bayou, Revisited: Ancient and Modern Fluvial Depositional Systems

Friday Evening—Sunday Morning,
March 25–27

Leader: Dr. James J. Willis
March 25 evening—Bourbon on the Bayou Icebreaker. Camping at WSAG Field Laboratory and Wildlife Preserve, St. Martinville, LA.

March 26 morning—Breakfast and On-Land Examination (Phase 1)

March 27 afternoon—Lunch and Over-Water Examination

March 27 evening—Dinner and Party. Camping at WSAG.

March 28 morning—Breakfast and On-Land Examination (Phase 2)



AAG Association of Applied Geoscientists

Linking Geoscience with Application



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 Golf Tournament.....Tim Bennett, Wayne Cook, and Brian Brennan
 Additional Planning Committee Members
 King Munson, Travis Helms, Joe Morris (LGS President), William Hagan, Scott Granger, and Christopher Gary.



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SAGE ACADIANA CHAPTER
 Society of Applied Geoscientists & Engineers Lafayette, Louisiana

SAGE LIBYA CHAPTER
 Society of Applied Geoscientists & Engineers Benghazi, Libya

Convention Team

Notes

Notes



LISKOW & LEWIS



Optimistic Energy, LLC



Travis A. Helms

CRPlus & Associates
A. Summerfield
Tim Rynott
Terry Lolan Mattalino
Lindsay Longman, Sr., P.E.

Harris Pantlik
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Glenn Bixler
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