GCSSEPM 40th Annual Perkins-Rosen Research Conference
2–4 December 2024, Houston, Texas

Old Rocks, New Energies: The Energy Transition in the Gulf Coast and Basin

Monday, 2 December

7.30–8.15 Registration (breakfast served)

8.15–8.20 Conference Welcome—*John Suter*

8.20–8.30 Welcome and Safety Moment—*Matt Croy, Equinor US*

Session I: Plenary Special Session—Chairs: Clare Falcon (LSU), Cindy Yeilding (The Center for Houston's Future)

8.30–9.00 **Keynote:** Equinor in the energy transition—*Sarah Delille* (Equinor)*

9.00–9.30 **Keynote:** TBA—*Mark Dean* (Chevron)*

9.30–9.55 Gulf of Mexico stratigraphic and structural foundation for the energy transition—*John Snedden**

9.55–10.30 *Coffee Break and Posters*

Session IIA: CCUS Regional and Site Evaluation (Geophysics)—Chairs: Janine Helmich (Equinor), Ayşe İbrahimbaş (Shell)

10.30–11.00 **Keynote:** From legacy to the future—how vintage seismic is being used to characterize CCS sites with machine learning—*Jeni Masi*, Mike Powney, Dan Austin, Theresia Citraningtyas, Monika Dyrendahl, Behzad Alaei, Anastasiia Jacobsen, Sharon Cornelius, Felix Dias, Pete Emmet*

11.00–11.25 New energy perspectives for carbon storage along the Texas Gulf Coast—*Alex Fick*, Sougata Halder, Makayla Christensen*

11.25–11.50 Time-lapse microgravity screening for CCS—*Dominik A. Kardell**

11.50–1.00 *Lunch and Poster Viewing*

Session IIa (continued): CCUS Regional and Site Evaluation (Offshore)—Chairs: Janine Helmich (Equinor), Ayşe İbrahimbaş (Shell)

1.00–1.25 CO_2 storage resources of the offshore Gulf of Mexico continental shelf—*Alex Bump*, Ismail Faruqi*

1.25–1.50 Faulting within and above CO_2 storage interval across the northern Gulf of Mexico shelf—*Bryan P. Stephens*, Liepin He, Kevin Trosclair, Cheri Cruz, Erin Elliott*

1.50–2.15 Effect of fault geometry and top seal stratigraphy on fault migration of sequestered CO_2 in the Miocene section, offshore Texas—*Lluis Salo-Salgado*, Josimar Silva, Lisa Lun, Christie Rogers, Ruben Juanes*

2.15–2.40 Enhanced seismic imaging and pore pressure prediction for CCUS in the Gulf of Mexico—*Ravi Kumar*, Minshen Wang, Shengda Ding, Mothi Sabaresan, Daniel Carruthers, Paola Fonseca*

2.40–3.15 *Coffee Break and Posters*

Session IIb: Modeling and Risking of Carbon Storage and Containment—Chairs: Hailun Ni (UT-Austin), Tao Sun (Chevron)

3.15–3.45 **Keynote:** Evaluating CO_2 retention risk for geological sequestration sites—*J. Steven Davis, Rene Jonk, Kevin Bohacs**

3.45–4.10 Calibrating performance predictions for large-scale injection—*Chinemerem C. Okezie, Alexander Bump*, Susan D. Hovorka*

4.10–4.35 Controls on pore-scale properties of mudrocks and their sealing capacity—*Hugh Daigle**

4.35–5.00 Modeling CO_2 plume migration and retention with physical analogs—*Hailun Ni**

5.00–5.25 Capturing geologically realistic high-resolution reservoir heterogeneity with computational stratigraphy in modeling CO_2 geological storage—*Boxiao Li**

5.25–5.50 The impact of capillary heterogeneity trapping on field-scale CO_2 geologic storage simulations—*Jose Eduardo Ubillus*, Hailun Ni, Sahar Bahkshian, David DiCarlo, Tip Meckel*

5.50–6.00 ***Open Discussion***

6.00–8.00 ***Icebreaker***

Tuesday, 3 December

8.00–8.30 Registration (breakfast served)

Session III: Geothermal Energy—Chairs: Milly Wright (Rohmtek), Malcolm Ross (UT-Austin, Eavor Technologies)

8.30–9.00 **Keynote:** Is geothermal energy a viable option for campus/community decarbonization of heating and cooling in the Gulf Coast?—*Malcolm Ross*, Andrew Parker*

9.00–9.25 Geothermal Play Fairway Analysis (GPFA)—Texas/Gulf Coast mechanisms of heat generation—*Kevin McCarthy*, Will Pettitt, Rich Priem*

9.25–9.50 Applied petrophysics in geothermal reservoirs: leveraging oil and gas evaluation techniques for energy transition—*Katerina Yared**

9.50–10.15 Implications for geothermal energy in the context of a global energy outlook—*Richard Chuchla**

10.15–10.40 *Coffee Break and Posters*

Session IV: Critical Minerals—Chairs: Bianca Kennedy (LSU), Rob Bruant (BP)

10.40–11.10 **Keynote:** Critical mineral potential of the Gulf Coast region—*Brent A. Elliott* and J. Richard Kyle*

11.10–11.35 Understanding the lithium content trends in the Smackover Formation: potential influencing factors in the Ark-La-Tex region—*Julie Bloxson**

11.35–12.00 Data analytics and machine learning workflows for optimization of lithium-rich brine assets. Case study: Smackover Formation, Arkansas—*Jesus Ochoa*, Swapan Sahoo, Stephen O'Leary, Michael Zeller*

12.00–12.45 *Lunch and Poster Viewing*

Session IV (continued): Critical Minerals—Chairs: Bianca Kennedy (LSU), Rob Bruant (BP)

12.45–1.10 Exploring for critical metals in Louisiana—*Bianca Kennedy*, Matthew Loocke, Clare Falcon*

1.10–1.35 Estimating the mass of lithium in Smackover Formation brines using machine learning—*Katherine Knierim*, Andrew Masterson, Philip Freeman, Amanda Herzberg, Aaron Jubb, Bonnie McDevitt, Colin Doolan, Jessica Chenault*

1.35–2.00 Lithium: a developing industry in the ranches and forests of NE Texas and Arkansas—*Peter Mullin*, Dmitry Daudin, Sergei Pokrovsky*

2.00–2.25 Opportunities for the energy transition in further exploration and exploitation of Gulf Coast salt domes—*Matthew Loocke*, Bianca Kennedy, Clare Falcon*

Session IIa (continued): CCUS Regional and Site Evaluation—Chairs: Matt Croy (Equinor), Alex Bump (UT-Austin BEG)

2.25–2.50 Geological characterization of the Chandeleur Sound 3D seismic survey area, offshore Louisiana, and the potential for anthropogenic carbon sequestration within a newly discovered Middle Miocene submarine canyon—*Marcie Phillips*, Annie Walker, Dallas Dunlap, John W. Snedden, Michael L. Sweet, Shuvajit Bhattacharya*

2.50–3.15 CO_2 storage site screening for depleted fields on the Texas Gulf Coast—an integrated approach—*Yijie Zhu*, Sophie Boulter, Tianyu Chen, Marie McKechnie*

3.15–3.45 *Coffee Break and Posters*

Session IIa (continued): CCUS Regional and Site Evaluation—Chairs: Matt Croy (Equinor), Alex Bump (UT-Austin BEG)

3.45–4.15 **Keynote:** CO_2 residence time and geothermal resource potential of the Hosston and Travis Peak Formations, onshore US Gulf Coast region—*Laurie A. Burke**

4.15–4.40 Sleipner, Snohvit, Smeaheia, northern lights, and Kalundberg, Norway and Denmark—*Michael Schoemann*, Janine Helmich*

4.40–5.05 Wedges, bridges, and hockey sticks: exploring the energy transition—*Cindy Yeilding*

5.05–5.30 ***Open Discussion***

Wednesday, 4 December

8.00–8.30 Registration (breakfast served)

Session V: Hydrogen—Chairs: Barry Katz (HGS), Lorena Moscardelli (UT-Austin BEG)

8.30–9.00 **Keynote:** An overview of hydrogen in the subsurface—*Barry J. Katz**

9.00–9.25 The role of salt tectonics in the energy transition: an overview and future challenges—*Oliver Duffy, Michael Hudec, Frank Peel, Gillian Apps, Alex Bump, Lorena Moscardelli*, Tim Dooley, Naiara Fernandez, Shuvajit Bhattacharya, Ken Wisian, Mark Shuster*

9.25-9.50 The new gold rush—gold hydrogen: why is it important, what do we know and where could it be?—*Mike Powney*, Ian Hutchinson, Owain Jackson, Andrew E. Stocks, Andrew C. Barnicoat, Stephen R. Lawrence*

9.50–10.15 **Keynote:** Emerging hydrogen economy in Texas: the role of the subsurface in geological storage—*Lorena Moscardelli*, Leopoldo Ruiz-Maraggi, Ning Lin, Nur Schuba, Ander Martinez-Doñate, Leandro Melani, Lucy Ko, Edna Rodriguez Calzado, Mark Shuster*

10.15–10.50 *Coffee Break and Posters*

Session V (continued): Hydrogen—Chairs: Barry Katz (HGS), Lorena Moscardelli (UT-Austin BEG)

10.50–11.15 Mississippi salt basin diapirs: considerations for geological hydrogen storage—*C. Nur Schuba, Lorena Moscardelli*, Leopoldo Ruiz-Maraggi*

11.15–11.40 Hydrogen storage in salt caverns; evaluating the potential of Permian Basin evaporitic sequences for cavern development (USA)—*Ander Martinez-Doñate*, Leandro Melani, Leopoldo Ruiz-Maraggi, Lorena Moscardelli*

11.40–12.05 Evaluating depleted gas reservoirs for hydrogen storage: a criteria-driven approach—*Lokesh Kumar Sekar, Henry Galvis, Adeshina Badejo, Esuru Rita Okoroafor**

12.05–12.25 Hydrogen and ammonia projects at Equinor—*Stephanie Curran**

12.25–1.15 *Lunch and Poster Viewing*

Session VI: Energy Transition Workforce—Chairs: Bianca Kennedy (LSU), Rob Bruant (BP)

1.15–1.40 Determining the favorability of sedimentary lithium accumulation in the geological record: a global approach—*David Lee, Amanda Galsworthy, Bill Heins*, Howard Golden*

1.40–2.05 SEG EVOLVE carbon solutions internship: preparing students for industry—a mentor's perspective—*Ryan Ruppert**

2.05–3.15 **Panel Discussion:** The energy transition: perspectives from the Gulf Basin and global analogs—***Moderator:*** *Ayşe İbrahimbaş (Shell),* ***Panelists:*** *TBD*

POSTER PRESENTATIONS (listed in alphabetical order)

Determining the favorability of sedimentary lithium accumulation in the geological record: a global approach—*David Lee, Amanda Galsworthy, Bill Heins*, Howard Golden*

Exploring for critical metals in Louisiana—*Bianca Kennedy*, Matthew Loocke, Clare Falcon*

Geology for CO_2 is still geology—borehole images for understanding local capillary trapping in reservoirs—*Anish Kumar, Elia Haddad, Adaobi Elekwachi*

Opportunities for the energy transition in further exploration and exploitation of Gulf Coast salt domes—*Matthew Loocke*, Bianca Kennedy, Clare Falcon*

Analyzing critical metal and fluid interactions of a historic subsurface volcanic core drilled from Door Point, LA, US Gulf Coast—*Ashlyn Schneida*, Bianca Kennedy, Matthew Loocke*

Identification and analysis of reservoir-seal pairs for sequestration of CO2 in the greater Mississippi Embayment, onshore Gulf of Mexico—*Robert Wellner*, Kathryn Denommee, Raed El-Awawdeh, Peter Gold*