

# Sedimentary Geology and the Energy Transition Conference

## 2–5 June 2025, Salt Lake City, Utah, USA

### Monday, 2 June

8.00–8.30 *Coffee*

8.30–9.00 *Conference Welcome and Introduction*

9.00–9.45 **Keynote:** Energy Transition and Sedimentary Basins—*Sherilyn Williams-Stroud*

### **CCUS Technical Talks**

9.45–10.05 Investigating the carbon storage potential on onshore meandering fluvial sandstone reservoirs in the Tyonek Formation, Cook Inlet Basin, Alaska—*Richie G. Ness, Matt Wallace, Frank Paskvan, Yin Zhang*

10.05–10.25 Multi-scale assessment and interpolation techniques for characterizing confining formations in data poor regions of the Michigan Basin for carbon capture, utilization, and storage (CCUS) projects—*Amber Conner, Autumn Haagsma, William Harrison, Jennifer Trout, Stephen Kaczmarek, Natalia Zakharova, Ashley Scott, Moira Burns, Ava (Gabe) Fox, Maxwell Copus, Alex Kominek, Cole Ritts*

10.25–10.45 Assessing the influence of depositional-system scale and basin-filling patterns on subsurface connectivity: implications for subsurface heat storage and carbonate mineralization—*Liz Hajek, Mohit Tunwal, Zuleima Karpyn*

10.45–11.00 *Break*

11.00–11.15 *Poster popups*

### 11.15–12.15 **CCUS Posters**

- Microfluidic chip for reactive fluid transport in carbonate rock fracture—*Yujie Jin, Xiongqi Pang*
- Evaluating the Tonkawa Sandstone as a CO<sub>2</sub> storage reservoir in Oklahoma: geological insights and site characterization—*Dessy W. Sapardina, FNU Suriamin, Nick Hayman*
- Quantitative evaluation of CO<sub>2</sub> storage potential in the Arbuckle Saline Aquifers, Oklahoma—*FNU Suriamin, Anna Turnini, Matthew J. Pranter, Nicholas Hayman, Jacob Walter, Dessy Sapardina, Russel Standridge*
- Integrated well logging and seismic analysis using machine learning for carbon capture and storage in high-porosity dolomite formations: a case study of Pakistan's Balkaser Field—*Muhammad Tamoor Malik, Muhammad Bilal Malik, Armghan Faisal Miraj*
- Assess the feasibility of geological carbon storage in the Basin and Range province through the DOE's CarbonSAFE initiative—*Nathan Moodie, Brian McPherson, Michael Vanden Berg, Eugene Szymanski, Eric Edelman, Jiaqi Jin, Daniel Minguez, George El'kaseeh*

- Carbon sinks in Utah: a study of siliciclastic and carbonate geological reservoirs—*Gabriela St Pierre, Tara Tankersley, Eugene Szymanski, Michael D. Vanden Berg*
- Improving formation correlations to understand the continuity and extent in the Michigan Basin to inform carbon capture, utilization, and storage (CCUS) assessments—*Ava (Gabe) Fox, Amber Conner, William Harrison, Jennifer Trout, Maxwell Copus, Alex Kominek, Cole Ritts, Autumn Haagsma*
- Carbon storage potential of Mesozoic eolian sandstones, Utah—*Elizabeth Mahon, Cari Johnson, Rohanna Bowers*
- Carbon storage potential in Utah: The Navajo Sandstone—*Rohanna Bowers, Elizabeth Mahon, Cari Johnson*
- Outcrop-based reservoir characterization of the Jurassic Entrada Sandstone: implications for geologic carbon storage—*Scott Melnyk, Lauren P. Birgenheier, Michael D. Vanden Berg, Gabriela A.E. St Pierre, Nicholas Bailey, Jake Alexander, Tara Tankersley*
- Implications of utilizing existing data for geologic carbon storage projects: an example from the Illinois Basin—*Julia Mulhern, Gabe Creason, Paige Morkner, MacKenzie Mark-Moser*
- Characterization of dual porosity in bioturbated carbonates: a case study of Cenomanian–Turonian platform carbonates from the Southern Apennines (Italy)—*Maria Antonietta Tommasone, Giovanni Di Domenico, Villiam Bortolotti, Giuseppe Cruciani, Domenico Chiarella, Anastasiia Nagmutdinova, Gianluca Frijia*

12.15–13.30 *Lunch*

13.30–14.15 **Keynote:** Energy Transition and Sed/Strat—*John Holbrook*

### **Geothermal Technical Talks**

- 14.15–14.35 Structural and petrological analysis of Paleozoic sedimentary strata to assess deep basin geothermal resource potential in the Black Rock Desert, Utah—*Alexander Brettmann, Cari Johnson, Christian Hardwick, Eugene Szymanski, Justin Tully*
- 14.35–14.55 Seismic and outcrop-based characterization of pore space for wastewater storage assessment in Delaware Mountain Group reservoirs, Delaware Basin, west Texas–New Mexico—*Amanda Calle*

### **CCUS Technical Talks**

- 14.55–15.15 The impact of sedimentary facies on CO<sub>2</sub>-EOR and CO<sub>2</sub> storage potential within a residual oil zone at the Salt Creek oil field in Wyoming—*Luke Fritz, Richie G. Ness, Ben Roth, Mitchell Meyer, Nick Jones*
- 15.15–15.35 Exploring the intersection of geology, risk, and societal considerations in carbon capture, utilization, and storage site screening and selection—*Autumn Haagsma, Amber Conner, William Harrison, Jennifer Trout, Stephen Kaczmarek, Natalia*

*Zakharova, Sallie Greenberg, Ashley Scott, Moira Burns, Maxwell Copus, Alex Kominek, Ava (Gabe) Fox, Cole Ritts*

15.35–15.50 *Break*

15.50–17.00 **Mini posters and social hour (morning posters will still be up for viewing)**

- Geoscience for the future—*Bosiljka Glumac*
- Carboniferous giving trees of Appalachia: opportunities in the energy transition—*Amy Weislogel, Tyler Hickey*
- Leveraging geological process insight to integrate data and improve prediction in coal-associated critical mineral deposits—*Liz Hajek*

## **Tuesday, 3 June**

8.00–8.30 *Coffee*

8.30–9.15 **Keynote:** Energy Transition and Geoscience in the US—*Dustin Crandell*

### **Critical Minerals Technical Talks**

9.15–9.35 Sedimentary trends in rare earth element enrichment in Cretaceous coal-bearing strata, Utah and Colorado—*Lauren P. Birgenheier, Haley H. Coe, Emma A. Morris, Peyton D. Fausett, Laura Wilcock, Diego P. Fernandez, Ryan D. Gall, Andrew Giebel, Michael D. Vanden Berg, Michael Free*

9.35–9.55 Sedimentary and early diagenetic processes driving rare earth elements and Yttrium enrichment in Moroccan sedimentary phosphates—*Radouan El Bamiki, Abdellatif Elghali, Jérémie Aubineau, Fleurice Parat, Jean-Louis Bodinier*

9.55–10.15 Feasibility analysis and formation evaluation for converting depleted hydrocarbon fields to geothermal energy production—*Jamar Bynum, Conn Wethington*

10.15–10.35 Patterns of lithium enrichment in Pennsylvanian paleosols from the northern Appalachian Basin—*Nicholas B. Sullivan, Timothy S. White*

10.35–10.50 *Break*

10.50–11.05 *Poster popups*

11.05–12.15 **Critical Minerals and Other Posters**

- Innovative approaches in sedimentary geology for energy transition: application of carbon sequestration and critical mineral exploration—*Muhammad Junaid*
- pXRF and ICP-MS methodology for REE quantification in sedimentary systems—*Haley H. Coe, Lauren P. Birgenheier, Diego P. Fernandez, Peyton D. Fausett, Emma A. Morris, Ryan D. Gall, Michael D. Vanden Berg, Andrew Giebel*
- Lithium source to sink in Great Salt Lake, Utah—*Elliot A. Jagniecki, Andrew Rupke, Jake Alexander, Taylor Boden, Erin Brinkman, Hugh Hurlow*
- Lithium in Great Salt Lake, Utah—a potentially recharging resources—*Andrew Rupke*
- Critical sedimentary deposits in the energy transition: a case study from Algeria—*Hamida Diab*

- Coal quality control on REE enrichment—*Peyton D. Fausett, Lauren P. Birgenheier, Emma A. Morris, Haley H. Coe, Nicholas Bailey, Diego P. Fernandez, Ryan D. Gall, Michael D. Vanden Berg*
- New insights from mineral mapping and sedimentological investigations of the phosphatic facies of the Souss Basin (western High Atlas, Morocco)—*Ayuoub Et-Toumi, Radouan El Bamiki, Salem El Ouariti, Mustapha Mouflih*
- Ferron Sandstone coal-bearing coastal plain deposits as a source of Rare Earth Elements and Critical Minerals—*Emma Morris, Lauren P. Birgenheier, Peyton D. Fausett, Diego Fernandez, Ryan D. Gall*
- Geomorphology and stratigraphic evolution of isolated carbonate buildups in the Timor Sea: insights into margin collapse and slope breccia architecture from 3D seismic data—*Yessimkhan Seitkhaziyev, Zane Jobe, Victorien Paumard*

12.15–13.30 *Lunch*

13.30–14.15 **Keynote:** Vital role of geochemistry in unlocking the energy transition technologies—*Shikha Sharma*

### **CCUS Technical Talks**

14.35–14.55 Basin scale screening methodology for carbon sequestration: insights from statewide modeling of the Arbuckle Group of rocks in Kansas—*Souvik Bhattacharjee, Brendan Bream, Jason Gumble, Mark White*

14.55–15.15 Modelling CO<sub>2</sub> flux regimes post-injection—diffusion, convection, and gravity slumping—*Sean Kelly*

15.15–15.30 Sensitivity analysis on sedimentary controls and the effects on simulated CO<sub>2</sub> plume behavior during dynamic reservoir modeling—*Jamar Bynum, Conn Wethington*

15.30–16.45 **Mini posters and social hour (morning posters will still be up for viewing)**

### **Wednesday, 4 June (at the Utah Survey)**

8.30–12.00 **Short Course in and Core Workshop in core layout, participants choose**

12.00–13.30 *Lunch and Group Discussion*

13.30–14.15 **Additional core viewing time**

14.15–15.00 **Conference wrap-up and plan for white paper writing**