

Stanford Center for Carbon Storage

Annual Affiliates Meeting

Nov 19, 2024



Stanford | Doerr | Stanford Center
School of Sustainability | for Carbon Storage

Thank you to our Affiliate Members!



Introductions

SCCS Leadership:

- Lou Durlinsky
- Sally Benson
- Tony Kavscek
- Sarah Saltzer

Logistics:

- Heidi Chau, Emily Gwynn, Celene Machen (Registration Desk)

Logistics

This is a Hybrid meeting

- Zoom participants please use the chat for Q&A
- In person participants please walk up to the microphone to ask questions

Annual Affiliates Meeting

Agenda

8:30 - 9:00 am	Breakfast and Registration
9:00 - 9:15 am	Welcoming Remarks
9:15 - 10:00 am	<u>Session 1: Under Pressure</u>
10:00 - 10:15 am	Break
10:15 - 11:00 am	<u>Session 2: Can't Shake This Off</u>
11:00 - 11:15 am	Break
11:15 - 12:05 pm	<u>Session 3: California Dreamin'</u>
12:05 - 1:05 pm	Lunch
1:05 - 2:50 pm	<u>Session 4: CCS at Work Down Under- GeoCquest Field Validation</u>
2:50 - 3:05 pm	Break
3:05 - 4:05 pm	<u>Session 5: I'll Be Watching You - MMV</u>
4:05 - 4:30 pm	Geos Update
4:30 - 5:00 pm	Discussion & Closing Remarks
5:00 - 6:00 pm	Poster Session and Reception

Session 1: Under Pressure

Elliot Kim: Assessment of CO₂ Leakage into USDW during CCS Project Operations

Alice Nuz: Inverse modeling of pressure data to predict CO₂ saturations using machine learning

Hemanth Harihanan: Parametric analysis of the AoR using CCSNet

Session 2: Can't Shake This Off

Xiaowen He: Data-space inversion for prediction of fault slip potential in CO₂ storage

Oluwatobi Raji: Optimization to minimize fault activation

Arjun Kohli: 3D seismic hazard assessment for a potential CO₂ storage site in Kern Co., CA

Session 3: California Dreamin'

Sarah Saltzer: SCCS California Activity Update - CalCCS

Samuel Desai: A Geospatial Dashboard for Carbon Storage Transparency

Tony Kovscek: A ViSUaLizer (VSUL) for Demonstration of CCS Dynamics

Rudraksh Mohapatra: Ordinal regression analysis for probabilistic ranking and identification of carbon storage sites in California

Session 4: CCS at Work Down Under-GeoCquest Field Validation

Sally Benson: Overview of GeoCquest and Field validation project

Oleg Volkov: Simulation of GFV models using GEOS

Catherine Callas: Probabilistic plume migration prediction using machine learning

Aman Raizada: Pulsed-Neutron Logging for gas saturation monitoring in highly heterogeneous rock formations

Issac Ju: Learning CO₂ plume migration in faulted reservoirs with Graph Neural Networks

Haoyu Tang: Graph Network Surrogate Model for Optimizing the Placement of Horizontal Injection Wells for CO₂ Storage

Catherine Spurin: GeoCquest Field Validation project: the role of heterogeneity of CO₂ trapping in core scale experiments

Session 5: I'll Be Watching You - MMV

Yifu Han: Surrogate Model for Coupled Flow-Geomechanics and Its Use in Hierarchical Markov Chain Monte Carlo History Matching

Nanzhe Wang: Deep Learning Framework for History Matching CO₂ Storage with 4D Seismic and Monitoring Well Data

Dylan Crain: Illinois Storage Corridor - Enhanced Framework for Monitoring and History Matching

Wenchao Teng: Sequential monitoring design for geological carbon storage

Geos Update

Herve Gross

Senior R&D Project Manager, Total Energies

Discussion and Closing Remarks

New SCCS Projects and Activities

- Study to assess and understand the safety of CO₂ transport activities
- Study to assess alternative institutional and investment models to achieve 100 Mt/yr of carbon removal by 2045 in California
- Process modeling study to assess parasitic load of carbon capture retrofit
- Sutter CCS project:
 - Top seal assessment
 - Designing the MRV plans for the project
- Geomechanical Assessment at the Tulare County Carbon Storage Project (TCCSP)
- Developing a 'Global Carbon Management Academy' jointly with the Global CCS Institute

Feedback from last year

- More focus on **Pressure** and **AoR**
- Continue **California focus**, including implementation of SB 905

Discussion

What is going well?

Are there additional research areas that we should be focusing on?

Webinars, newsletters, special meetings, networking:
What else would you like to see from SCCS?

Any other feedback?

Stay Tuned

Tomorrow, Nov 20: MMV Workshop - Towards Affordable and Effective MMV for Geologic Storage of CO₂

April 2025: Managing the Hazards and Risks of Earthquakes and Faulting Associated with Large-Scale CO₂ Sequestration

- Joint with UT/BEG, Oxy, GWPC

1-4 September 2025, Bergen Norway



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**TIME FOR ALL OF US TO STEP
UP AND TACKLE WORLDWIDE
TECHNOLOGICAL AND
INDUSTRIAL CHALLENGES IN
THE FIELD OF CCUS!**

- > Thought-provoking discussions
- > Interdisciplinary networking
- > Real-world impact



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Endorsed by:



SCCS Poster Session & Reception