Advancing Carbon Capture, Utilization, and Storage (CCUS): East Asia Perspective

10-13 November 2024
SEG, China University of Petroleum (East China), State Key Laboratory of Deep Oil and Gas, China University of Petroleum (East China), CNOOC Research Institute Ltd.

TECHNICAL PROGRAM

Oral presentations are in campus of China University of Petroleum (East China), Qingdao
All times are Winter Daylight Time.

The presentation in green boxes indicate remote presentation
The presentation in blue boxes indicate TBD (either in person or remote or not coming)

Monday, 11 November	
07:00-08:00	Registration and Continental Breakfast
08:00-08:15	Welcome and Opening Remarks *Yi Shen, China University of Petroleum (East China); **Erkan Ay**, Shell; **Joel Le Calvez**, SLB; **Arthur Cheng**, SEG President*
Session 1: Overview of Developments, Opportunities, and Challenges in CCUS *Session Chairs: Yi Shen, Wenyue Sun, Sudipta Sarker, Lianjie Huang, Yingcai Zheng, Luanxiao Zhao*	
08:15-08:40	The Role of BECCS in Carbon Removal and Storage **Tao Yang**, *Equinor*
08:40-09:05	Progress and prospects of offshore CCUS technologies in China **Lijun Mi**, *CNOOC*
09:05-09:30	ML methods for subsurface monitoring using time lapse seismic data **Mrinal K. Sen**, *UT Austin (7:05 pm, 11/10, Texas time)*
09:30-09:55	Modeling and mitigating the risk of induced earthquakes due to CO2 Storage Operations **Jean-Philippe Avouac**, *California Institute of Technology (5:30 pm 11/10, California time)*
09:55-10:25	**BREAK & GROUP PHOTO**
10:25-10:50	Geophysical petrophysical forward modeling of CO2 and H2 related to measurement, monitoring and verification of energy transition projects **William Harbert**, *University of Pittsburgh*
10:50-11:15	Advancements in geophysical monitoring for CCUS projects **Don Lawton**, *CMCGHG (7:50 pm, 11/10, Calgary time)*
11:15-11:40	Role of DAS and Machine learning in cost-effective GCS monitoring and verification **Biondo Biondi**, *Stanford University (7:15 pm, 11/10, California time)*
11:40-12:10	**Session Discussion**
12:10-14:00	**LUNCH**
Session 2: Implementing CCUS: Insights from Case Studies, Regulation, and Practical Applications *Session Chairs: Yi Shen, Wenyue Sun, Sudipta Sarker, Lianjie Huang, Yingcai Zheng, Luanxiao Zhao*	

14:00-14:25	End-to-End Workflow to Analyze in Real-Time Induced Seismicity Using DAS-Acquired Data ***Joel Le Calvez,*** *SLB (Houston time, 12 am same day, be cautious of the date)*
14:25-14:50	CCUS Progress and Ordos City Practices under the Carbon Neutrality Goal ***Kaiqiang Zhang, Zhijun Jin team,*** *Peking University*
14:50-15:15	Carbon dioxide geological storage potential in saline aquifer of sedimentary basins in China Sea ***Jianwen Chen,*** *Qingdao Institute of Marine Geology*
15:15-15:30	**BREAK**
15:30-15:55	Exploration of new sites for Geological Carbon Sequestration in India ***Nimisha Vedanti,*** *NGRI (1:00pm, 11/11, Indian time)*
15:55-16:20	The Development and Application of Risk-Based Monitoring for CCS ***Chris Willacy***, *Shell (7:55am, 11/11, UK time)*
16:20-16:45	A Numerical Approach for Optimizing Distributed Acoustic Sensing (DAS) Monitoring Systems for Offshore CO_2 Storage ***Chen Gu***, *Tsinghua University*
16:45-17:15	**Session Discussion**
17:15-18:15	**Poster Session**
P001	Carbon emission reduction calculation based on CCUS-EOR technology in oilfield - A case study of Shu16 block in Daqing Oilfield ***Qianbo Fan***, *Yunshan University*
P002	Analysis of Seismic Wave Response Induced by CO_2 Injection ***Jinghao Li,*** *Ocean University of China*
P003	Monitoring plume changes by modeling DAS direct-wave traveltimes and amplitudes ***Wanting Hou***, *China University of Petroleum (East China)*
P004	Thermo-chemo-mechanical models to evaluate the seismic properties of water-rock-CO_2 reactions for carbon sequestration in fractured reservoirs ***Nianqi Li***, *China University of Petroleum (East China)*
P005	Wavelet Estimation for CO_2 Storage Characterization ***Weiting Peng***, *China University of Petroleum (East China)*
P006	Q full waveform inversion for CO_2 time-lapse seismic monitoring ***Qiang Mao***, *China University of Petroleum (East China)*
P007	Reservoir characterization for CO_2 storage through petrophysical and seismic analysis ***Yanjiao Dong***, *China University of Petroleum (East China)*
P008	CO_2 storage saturation prediction using elastic properties ***Xiaoqin Wu***, *China University of Petroleum (East China)*
P009	Research on Seismic Monitoring of Carbon Dioxide Flooding in Gao89-1 Well Area of Shengli Oilfield ***Chunli Zou***, *China University of Petroleum (East China)*
P010	Enhanced Fluid Discrimination in Reservoir Rocks Using Deep Learning-Based Seismic Inversion with Poroelastic Modelling ***Badreldein Mohamed***, *China University of Petroleum (East China)*

P011	Q Compensation Using Time-Wavenumber based Spectrum Ratio Method for CCUS Monitoring *Changsheng Xu, China University of Petroleum (East China)*
P012	Migration with Q Compensation Based on Lloyd Sampling and Its Application in CCUS *Xiuchuan Liu, China University of Petroleum (East China)*
P013	Wave-Equation Based Tomography of Seismic Attenuation Induced by CO_2 Storage *Tianyu Jia, China University of Petroleum (East China)*
P014	Time-lapse Full-waveform Inversion Using Double Difference Method for CCS Monitoring *Shu Luan, China University of Petroleum (East China)*
P015	Displacement of a granular suspension invaded by a high-viscosity liquid Ceyu Yang, *Guangxi University*
P016	Air invasion through a highly compacted porous media Jiaxin Xie, *Guangxi University*
P017	CO_2 storage history matching considering 4D seismic data and monitoring well data *Wenxin Zhou, China University of Petroleum (East China)*
PA01	Characteristics and controlling factors for CO_2 plume migration in saline aquifers *Jiachao Ge, CNOOC*
PA02	Evaluation of leakage potential for CO_2 storage in saline aquifers *Xiaohan Shu, CNOOC*

Tuesday, 12 November	
07:00-08:00	Continental Breakfast
08:00-08:15	Delegates are entering the venue gradually
Session 3: Exploring Rock Physics, Geomechanics, and Gravity for CCUS *Session Chairs: Yi Shen, Wenyue Sun, Sudipta Sarker, Lianjie Huang, Yingcai Zheng, Luanxiao Zhao*	
08:15-08:40	Effects of CO2 Phase State on the Seismic Properties of Reservoir Rocks: Implications for Detecting Changes in Reservoir Pressure and Temperature **Douglas R Schmitt**, *Purdue University (7:15pm 11/11, Purdue time)*
08:40-09:05	The Future of Cost-Competitive CCS Monitoring **Kris Walker**, *Chevron (6:40pm, 11/11, Houston time)*
09:05-09:30	Coupled power and carbon grid optimization for the ASEAN region **Elita Li**, *Purdue (8:05pm, 11/11, Purdue time)*
09:30-09:55	SEAM Modeling of CO2 Sequestration: Evaluating Geophysical Methods for Characterization: **Michael Fehler**, *MIT (7:30 pm, 11/11, New Mexico time)*
09:55-10:25	**BREAK**
10:25-10:50	Study on nonlinear elasticity of rocks for carbon storage **Xuan Feng**, *Jilin University*
10:50-11:15	Seismic Site Characterization and Monitoring for Geologic Carbon Storage **Lianjie Huang**, *LANL*
11:15-11:40	Characterizing Acoustic-based Reservoir Injectivity Monitoring with Perforation Laboratory Testing **Joseph Ma** *(9:15 pm, 11/11, Houston time)*
11:40-12:05	Using downhole DAS for active and passive continuous seismic monitoring of CO2 stored underground: Otway Project experience **Boris Gurevich**, *Curtin University* (11:40 am, 11/12, Perth time)
12:05-12:35	**Session Discussion**
12:35-14:00	**LUNCH**
Session 4: Seismic Monitoring and Site Characterization *Session Chairs: Yi Shen, Wenyue Sun, Sudipta Sarker, Lianjie Huang, Yingcai Zheng, Luanxiao Zhao*	
14:00-14:25	A cost-effective GCS seismic monitoring approach using localized waves and rock physics properties of CO2 **Yingcai Zheng**, *University of Houston*
14:25-14:50	Earthquake risks associated with underground fluids injection **Hongfeng Yang**, *CUHK*
14:50-15:15	Rock Physics for Seismic Monitoring of CO2 Geological Storage **Luanxiao Zhao,** *Tongji University*
15:15-15:40	Time-lapse seismic monitoring of CO2 storage in saline aquifers: a case study in the Ordos Basin, China **Yikang Zheng, Yibo Wang (team)**, *China Academy of Sciences*
15:40-15:50	**BREAK**
15:50-16:05	Advances and propects of key technologies for CO2-EOR in offshore low-permeability reservoirs

	Renfeng Yang, CNOOC	
16:05-16:20	Evaluation of micro-dispersion on oil recovery during low-salinity water-alternating-CO2 processes *Jiaxing Wang*, CNOOC	
16:20-16:45	The application of microseismic monitoring technology in CCUS-EOR *Feng Heng, BGP, CNPC*	
16:45-17:00	GeoGPT: An Open AI Assistant for CCUS *Hongyang Chen, Zhejiang Lab*	
17:00-17:30	**Session Discussion**	
17:30-18:30	**Museum tour**	

Wednesday, 13 November	
07:00-08:00	Continental Breakfast
08:00-08:15	Delegates are entering the venue gradually
Session 5: Reservoir Engineering and Chemical Engineering for CCUS *Session Chairs: Yi Shen, Wenyue Sun, Sudipta Sarker, Lianjie Huang, Yingcai Zheng, Luanxiao Zhao*	
08:15-08:40	Deep-learning surrogate models for CO2 storage history matching with in-situ and surface displacement data *Louis Durlofsky, Stanford University (4:15pm 11/12, California time)*
08:40-09:05	The Rapidly Evolving Geological Carbon Sequestration Landscape & Geoscience Advances *Ali Tura, Colorado School of Mines (5:50 pm, 11/12, Colorado time)*
09:05-09:30	Data Related De-risking Challenges for CCUS *Birol Dindoruk, University of Houston (7:05 pm 11/12, Houston time)*
09:30-09:55	Environmental geomechanics: Towards a minimised chemical footprint in geo-energy engineering *Manman Hu, HKU*
09:55-10:20	Immiscible invasion of granular suspension by air or high-viscosity liquid, *Zhipeng Qin, Guangxi University*
10:20-10:40	**BREAK**
Session 6: Lightning session by local speakers *Session Chairs: Yi Shen, Wenyue Sun, Sudipta Sarker, Lianjie Huang, Yingcai Zheng, Luanxiao Zhao*	
10:40 -10:50	Uncertainty Quantification of CO2 Storage *Wenyue Sun, China University of Petroleum (East China)*
10:50-11:00	Time-Lapse Q-FWI for CO2 Storage Monitoring with Saturation Prediction *Yi Shen, China University of Petroleum (East China)*
11:00-11:10	Time-lapse full waveform inversion *Xin Fu, China University of Petroleum (East China)*
11:10-11:20	Optimization for CO2-water-alternating-gas injection based on a two-stage multi-objective optimization algorithm *Wei Zhang, China University of Petroleum (East China)*
11:20-11:30	Numerical simulation of CO2 Replacement and Sequestration in Marine Natural Gas Hydrate Formation, *Jianchun Xu, China University of Petroleum (East China)*
11:30-11:40	Quantitative study on the effect of permeability heterogeneity on CO2 storage in saline aquifers *Shuyang Liu, China University of Petroleum (East China)*
11:40-12:00	**Session Discussion**
12:00-12:20	**Closing & Award Ceremony**
12:20-14:00	**LUNCH**