



3rd Energy Group CCS Symposium: Characterization and Monitoring of Containment

11-13 September 2024

Hybrid Conference, *Burlington House*, and Zoom, BST

Final Programme

Day One	
08.30	Registration
08.50	Welcome
09.00	Opening keynote: Scaling Up Carbon Capture and Storage: Navigating a Critical Crossroad in Fighting Climate Change Sofia Northridge
	Session One: CCS Containment and Risk Chair: Nick Lee Online chair: Stuart Gilfillan
09.30	Plumbing and Bowties: An integrated approach to risk identification and mitigation in CCS projects. Mark Wood
09.50	Defining a bespoke and proportionate monitoring plan linked to the Early Risk Assessment (ERA) for carbon storage Kate Thatcher
10.10 Virtual	The insurance rationale for CCS Rodney Garrard
10.30	Rapid fire poster presentations (1 minute each) All poster presenters
10.50	BREAK – coffee/tea & posters
11.30	Session Two: Pore-scale characterization and modelling Chair: Stuart Gilfillan Online chair: Mads Huuse
11.30	Multiscale-multiproxy characterisation of targeted Mesozoic mudrock analogues in the Cleveland Basin, UK to aid assessments of seal potential and performance in the North Sea Colm Pierce
11.50	Compositional controls on the Lower Cretaceous Rodby Shale pore structure and surface area: a planned CCS top seal caprock for the Acorn storage site Nourah Alnajdi
12.10 Virtual	Pore Network Modelling of CO₂-Shale Interaction in Carbon Storage and Gas Recovery: Swelling effect and Fracture Permeability Amin Taghavinejad
12.30	LUNCH & posters

13.30	Session Three: Bowtie Analysis Chair: Elizabeth MacKie Online chair: Mark Wood
13.30	Bowtie Analysis Simon O'Brien & Simon Shoulders
14.15	Bowtie workshop – interactive [requires separate registration] led by Simon O'Brien & Simon Shoulders
15.45	BREAK
16:00	Session Four: Bunter projects Chair: Mads Huuse Online chair: Ivan Fabuel Perez
16.00	East Mey: the characterisation of the storage complex Philip Whiteley
16.20	Understanding the impact of regional structures on pressure communication within the Bunter Sandstone Formation, UK Southern North Sea Lucy Abel
16.40	Sub-regional static reservoir characterisation of the Bunter Sandstone hydraulic unit for CO₂ storage – A multi-discipline, multi-scale approach Ewan Gray
17.00	CO₂ storage potential, containment, and monitoring challenges of the Humberside license (UK) Martin Grecula
17.20	End of day one
17.25-18.25	Drinks Reception

Day Two	
08.30	Registration
08.55	Welcome and Summary of Day 1
	Session Five: Projects Chair: Mark Wood Online chair: Ivan Fabuel Perez
09.00 Virtual	Keynote: Gorgon Carbon Capture and Storage David Fallon & Robert Root
09.30 Virtual	Northern Lights Monitoring and CRA, the basis for safe CO₂ storage operations Catalina Acuna

09.50	Endurance CO2 Store corrective measures planning: how can we use monitoring data effectively? Alex Gillespie
10.10	Monitoring CO2 storage in the Morecambe depleted gas reservoirs through seafloor deformation and time-lapse gravimetry measurements Helen Basford
10.30	Preliminary Monitor Strategy for CO2 storage in depleted reservoir, a case study from the Bifrost project in DK Rasmus Lang
10.50	BREAK – coffee/tea & posters
11.20	Session Six: Containment characterisation and monitoring – global examples I Chair: Chris Lloyd Online chair: Eleanor Rollett
11.20	Quest Carbon Capture and Storage – 4D Seismic Insights into Plume Migration and Containment Chris Freeman
11.50	Integrated characterisation of CO2 containment in storage complexes: A case study of the Illinois Basin – Decatur Project Idris Bukar
12.10	Rapid Large-scale Trapping of CO2 via Dissolution in US Natural CO2 Reservoirs Stuart Gilfillan
12.30	LUNCH & posters
13.20	Session Seven: Containment characterisation and monitoring – global examples II Chair: Nick Lee Online chair: Chris Lloyd
13.20	Keynote: Risk assessment and monitoring of carbon stores in the UKCS context Ian Barron
13.40	CO2-injection projects in the Brazilian Pre-Salt – Storage Capacity and Geomechanical Constraints Joao Paulo Pereira Nunes
14.00	Composite Confining Systems for Permanent CO2 Sequestration Alex Bump
14.20	BREAK
14.50	Session Eight: Geomechanics in risking Chair: Eleanor Rollett Online chair: Mads Huuse
14.50	Integrating field, laboratory, modelling and machine learning for de-risking CO2 fault leakage Andreas Busch
15.10	Screening constraints imposed by fault slip potential on the deployment of carbon capture and storage Iman Rahimzadeh Kivi

15.30	Fast Tool for Field-Scale Simulation of Fault Leakage during CO2 Storage HariHaran Ramachandran
15.50	Small-strains and gentle uplift of the seabed: Modelling the regional geomechanical response to industrial-scale injection of carbon dioxide in the Bunter Sandstone John Williams
16.10	Aspects of Mechanical Containment in CCS Projects Andy Kirchin
16.30	End of day two discussion: what is the right tech and timeline for MMV?
17.30-18.30	Evening Social Event (tbc)

Day Three	
08.30	Registration
08.55	Welcome and Summary of Day 2
	Session Nine: Rock Physics in CCS Chair: Mads Huuse Online chair: Nick Lee
09.00	Efficient Storage Complex Characterisation and 4D Monitoring Feasibility using Rock Physics Eleanor Oldham
09.20	Examples of Gassmann fluid substitution of non-hydrocarbon fluids from the UKCS Hector Barnett
09.40	Evaluation of signals from monitoring CO2 injection in the North Sea using 4D seismic Colin MacBeth
10.00	BREAK – coffee/tea & posters
10.30	Session Ten: Monitoring approaches Chair: Ivan Fabuel Perez Online chair: Elizabeth MacKie
10.30	Leveraging Surface Distributed Acoustic Sensing for cost-effective CCS monitoring James Butt
10.50	Onshore passive seismic monitoring for CO2 storage projects using array methods Joseph Asplet
11.10 Virtual	High-resolution seismic for characterising seal geometry and leakage risk for carbon storage: A central North Sea case study Deepak Rathee
11.30 Virtual	Keynote: Application of muon tomography for detection and monitoring of geostored carbon dioxide Jon Gluyas

12.00	LUNCH & posters
13.00	Session Eleven: Baselines and Monitoring Chair: Mark Wood Online chair: Chris Lloyd
13.00	Keynote: Labarge CCS Project, Wyoming, USA: An Example of Containment Monitoring Using Non-Seismic Methods Patricia Montoya
13.30	Seabed monitoring of storage complexes – leveraging baselines and regulations Robert Hines
13.50 Virtual	Environmental baselines in geological CO2 storage monitoring- what are they really good for? Katherine Romanak
14.10	End of day three – final comments, proceedings, etc
14.30	End of Conference

Posters	
	Fractured caprock failure criterion in the context of underground CO2 storage Rafael Mesquita
	Geological modelling and fault seal analysis for optimising co2 storage in the koye field niger delta Claire Chukwumah
	Mechanical stratigraphy and fault damage zone characterisation of the Lower Jurassic Redcar Mudstone Formation at Robin Hood's Bay, NE Yorkshire Adam Szulc
	Critical Minerals from CCS Brines William Norfolk
	Drilling the late Plio-Pleistocene of the North Sea for climate reconstructions, with implications for the efficacy of CCS Mads Huuse
	Advantages of CO2 storage – Water Geothermal combined system to control pressure increment and enhance storage capacity Farnam Firouzbehi
	Containment monitoring of a Carbon Capture Storage (CCS) project using chemical tracer technology Paul Hewitt
	Bunter and Leman Sandstones Rock Physics Modelling and Geophysical Responses Analysis during CCS Jing Yang
	The Röt Halite Member of the Southern North Sea – A critical top seal for carbon dioxide storage in the Bunter Sandstone Formation Harry Morris
	Assessment of subsurface carbon dioxide storage potential of gas shales in Sichuan Basin, China He Yue

Assessing the sealing capacity of the Haisborough Group, Southern North Sea: insights from a continuous core succession in North Yorkshire

Colm Pierce

The importance of reproducibility in CCS storage site characterisation and monitoring

Mark Ireland

SAFERCCS: Sustaining fluid-flow and Assessing Feldspar solubility Enhancement Reactions in CCS reservoirs

Natalie Farrell

Characterising creeping formations

Matteo Loizzo

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