

Geological Disposal of Radioactive Waste

4th-6th June 2024

Hybrid Conference, University of Manchester and Zoom, BST

Final Programme

Day One	
08.30	Registration
09.15	Welcome – University of Manchester & Geological Society
09.25	Introduction – Conference Aims, Ways of Working Simon Norris, <i>Nuclear Waste Services</i>
	Session One: POTENTIAL HOST ROCK CHARACTERISATION
09.40 Pre-Recorded	Investigating the Reproducibility and Reliability of Multiscale Fracture Characterization G. Amicarelli, <i>Newcastle University</i>
09.55	Advancing techniques for Microscopic to Mesoscopic Gas Migration in Clay Rock (LSSRs): Deep Learning for Long-Term Management of Deep Geological Disposal Abdelrazik Elfar
10.10	Characterising the subsurface geology of potential Geological Disposal Facilities using elemental and mineralogical geochemistry Alexander Finlay, <i>X-Ray Mineral Services Ltd</i>
10.25	BREAK
11.10	Advancing Geological Disposal Facility Design through Digital Outcrop Modelling David Hodgetts, <i>VRGeoscience Limited</i>
11.25	Inversion feasibility study to characterise the Mercia Mudstone Group, Copeland area Ana Somoza Graterol, <i>Cegal</i>
11.40 Virtual	Tectonic setting of the site selected for a Deep Geological Repository in Switzerland: insights from 3D seismic interpretation Miller Zambrano, <i>University of Camerino</i>
11.55	Poster ‘Elevator Pitches’ All 11 poster lead authors to give a 2 minute introduction to their poster, max 2 slides Cam Fletcher, Simon Schneider, Jonny McEvoy, Elliott Bird, Sam Jones, Lie Kong, Olatundun Aihie, Lucky Oseghale Odiase, Matthew Kirby, Kathryn Page, Qian Zhang
12.30	LUNCH
13.45	POSTERS SESSION
14.15 Virtual	KEYNOTE: Decision on the Site for Switzerland’s Geological Disposal Facility for Radioactive Waste Tim Vietor, <i>Nagra</i>

15.00	BREAK
	Session Two: UK SITE CHARACTERISATION
16.00	New Data reveals Hidden Complexity Offshore Cumbria: Importance of High-Resolution Seismic Reflection Data in Ground Modelling for Nuclear Waste Disposal Neil Jones, <i>Jacobs</i>
	Session Three: SITE EVOLUTION & ASSESSMENT STUDIES
16.15	New assessment workflow for borehole closure for the Final Ultra Deep Disposal (FUDD) concept in sedimentary formations Gert-Jan Heerens, <i>TNO – Geological Survey of the Netherlands</i>
16.30	Final Ultra Deep Disposal: Geological Assessment of Borehole Storage in Sedimentary Basin Settings Rixt Altenburg, <i>TNO – Geological Survey of the Netherlands</i>
16.45	Future geological evolution and effects on deep disposal of radwaste in the Netherlands Johan ten Veen, <i>TNO- Geological Survey of the Netherlands</i>
17.00	End of day one
17.15 - 18.15	Drinks Reception

Day Two	
08.15	Registration
	Session Four: ANALOGUE STUDIES
08.45 Virtual	The relevance of natural analogues to the German site selection procedure Milena Schoenhofen-Romer, <i>BGE mbH</i>
09.00	International Bentonite Longevity (IBL) project: an overview W.R. Alexander, <i>Bedrock Geosciences</i>
09.15	The engineering properties of low strength sedimentary rocks – Evidence from the construction of the High Speed Two railway K.M Briggs, <i>University of Bath</i>
09.30	Multiscale-multiproxy seal assessments of Mesozoic mudrock units in North Yorkshire, a potential aid to screening and modelling radioactive waste disposal facilities Colm S. Pierce, <i>CASP</i>
09.45	Contribution of programming language to novel mine risk assessment project Mabe Fogang Pieride, <i>Liaoning Technical University, PR China</i>
10.00	New insights into the Muhos Formation, an unmetamorphosed Mesoproterozoic sedimentary rock sequence in central Finland Heini Reijonen, <i>Geological Survey of Finland</i>
10.15	BREAK

10.45 Virtual	KEYNOTE: Perspective on French Geological Disposal Programme Frédéric Plas, <i>ANDRA</i>
	Session Five: GEOMECHANICAL STUDIES
11.15	Some geotechnical considerations for nuclear waste disposal in the Mercia Mudstone Group Kieren Quigley, <i>Mott MacDonald</i>
11.30	Assessing the Fracturing Mechanisms and Evolution of the Excavation Damage Zone of Underground Structures in Hard Rockmasses for Disposing Nuclear Waste Ioannis Vazaios, <i>Ove Arup & Partners Ltd</i>
11.45	Modelling of Spalling around Deposition Boreholes in a Geological Disposal Facility for Nuclear Waste Robert Zimmerman, <i>Imperial College London</i>
12.15	Modelling Techniques for Simulating the Excavation Damage Zone around Deep Underground Excavations Anastasios Stavrou, <i>WSP UK Ltd</i>
12.30	LUNCH
	Session Six: TRANSPORT PROCESSES (Part 1)
13.45	Evidence of gas migration processes in Opalinus Clay; The Gas Transport (GT) field study conducted at the Mont Terri Underground Research Laboratory Qian Zhang, <i>British Geological Survey</i>
14.00	Multi-phase flow modeling at the component level for the Swiss deep geological repository Chao Li, <i>INTERA</i>
14.15	Diffusion measurements in natural and synthetic rocks: lessons learned and some relationships identified Jon F. Harrington, <i>British Geological Survey</i>
14.30	Evidence of rock matrix diffusion from forty years of site investigations in Finland and Sweden P. Trinchero, <i>Amphos 21</i>
14.45	Understanding the pore structure of mudrocks for predicting porosity, flow, and transport in host rocks for radioactive waste disposal Andreas Busch, <i>Heriot-Watt University</i>
15.00	BREAK
	Session Seven: WASTEFORM/ WASTEFORM EVOLUTION
15.30	The Evolution of the Supply of Cementitious Materials used to Encapsulate Intermediate Level Radioactive Wastes and Implications for the Geological Disposal Facility G.M. Cann, <i>National Nuclear Laboratory</i>
15.45 Virtual	Discrete event simulation of spent fuel assembly packaging into disposal canisters for the purpose of deep geological disposal Andreas POLLER, <i>CSD Engineers AG</i>
16.00	Will sizing down scale up the problem? A perspective on how waste arising from PWR SMRs and BWR SMRs could impact future disposability Emma Nickels and Amirah Azhar, <i>AtkinsRéalis</i>
	Session Eight: RELATED INITIATIVES
16.15	RSO presentation Prof Sam Shaw, <i>University of Manchester</i>

16.30	INFORM presentation Lie Kong, <i>University of Manchester</i>
16.45	End of day two

Day Three	
08.15	Registration
	Session Nine: MONITORING
08.45	Confidence in Repository Monitoring Data - Key Results from the MODATS Work Package of EURAD Thomas Haines, <i>Galson Sciences Limited</i>
	Session Ten: ENGINEERED BARRIER SYSTEM
09.00	Hydromechanical behaviour of bentonite clay at temperatures greater than 100°C Caroline C. Graham, <i>British Geological Survey</i>
09.15	Interaction of simulant thermally-treated intermediate level wastes with a high pH cementitious backfill Graham Kenyon, <i>Jacobs</i>
09.30	Bentonite homogenisation and swelling: The effect of salinity K. A. Daniels, <i>British Geological Survey (now University of Cardiff)</i>
09.45	Long-term Thermal-Hydrological-Mechanical Behaviour of Bentonite as a Component of Radioactive Waste Disposal Concepts Tom Mitchell, <i>University College London</i>
10.00	KEYNOTE: Regulating a geological disposal facility and the importance of geological knowledge in the underpinning regulatory submissions Candida Lean, <i>Environment Agency</i>
10.30	BREAK
	Session Eleven: TRANSPORT PROCESSES (Part 2)
11.00	Thermal-hydro-chemo-mechanical coupled modelling of ionic transport in clay materials Qingrong Xiong, <i>Shandong University</i>
11.15	A review of the state of the art in redox and kinetics applied to nuclear waste disposal facilities Eli Colas, <i>Amphos 21 Consulting S.L</i>
11.30 Virtual	Buoyancy-Related Groundwater Flows: Comparing the Physics of Hydrothermal and Radwaste Situations Gary D Couples and Helen Lewis, <i>Heriot-Watt University</i>
11.45 Virtual	Thermo-Hydro-Mechanical (THM) Design of Finnish Spent Nuclear Fuel Repository Erdem Toprak, <i>International Center for Numerical Methods in Engineering (CIMNE)</i>
12.00	Nano-scale imaging and modelling of gas transport in clay-rich mudstones Xin Zhong, <i>University of Manchester</i>
12.15	PANEL SESSION
12.50	Closing Remarks
13:00	LUNCH
14:00	End of Conference

Posters

Observing and quantifying deformation behaviours in halite for applications in compressed air energy storage (CAES)

Cameron Fletcher, *British Geological Survey*

The Triassic Mercia Mudstone Group as a host rock for radioactive waste: insights from a continuous core succession in North Yorkshire

Simon Schneider, *CASP*

The influence of depositional and diagenetic heterogeneity on fracture distributions in the Mercia Mudstone Group

Jonathon McEvoy, *University of Liverpool*

Evolution of bentonite pore water chemistry upon resaturation with saline groundwater

Lucky Oseghale Odiase, *University of Plymouth*

Adapting disposal concepts to reflect emerging UK geological environments

Matthew Kirby, *Nuclear Waste Services*

Using analogue tests to observe fundamentals of gas flow in clay-rich rocks and barrier systems

Elliot Bird, *British Geological Survey*

Controls on the Gas Permeability of the Triassic Mercia Mudstone Group, UK

Samuel Jones, *University of Liverpool*

Characterisation of Mercia Mudstone Containing Mineralised Fractures

Junlong Shang, *University of Glasgow*

Excavation Disturbance Zone Evolution in UK Jurassic and Triassic Mudrocks – Implications on fluid flow in a nuclear waste repository

Olatundun Aihie, *University of Plymouth*

Conceptual workflow for coupled hydro-chemical-mechanical analysis of mudstone based fault zones

Kathryn Page, *Heriot Watt University*

Manufacturing and geotechnical characterisation of synthetic samples for engineered barrier system in radioactive waste repositories

Qian Zhang, *British Geological Survey*

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