



**Powering the energy transition
through subsurface collaboration**

16 - 18 MAY 2023

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The
Geological
Society

energygeoscienceconf.org

#EGC2023

Welcome to the Energy Geoscience Conference – EGC 1

The Energy Geoscience Conference, organised by the Geological Society of London and the Petroleum Exploration Society of Great Britain, aims to explore the contribution of geology and geophysics to the low-carbon energy transition. Aberdeen’s world-leading role in the energy sector and vision to lead the world towards net zero makes it the standout UK location to launch this new conference series.

EGC is inspired by the long-running and highly influential Petroleum Geology Conference series, led by the PESGB and the Geological Society, which disseminated world-class geoscience over five decades. EGC has been initiated as a key forum for sharing the geoscientific aspects of energy supply as earth scientists grapple with the subsurface challenges of remaking the world’s energy system for a low carbon future.

The conference will bring high-quality, energy-related geoscience to a UK and international audience. It aims to address technical challenges and support geoscientists in industry and academia researching, exploring and developing the energy supplies, storage and sequestration facilities demanded through the transition. It will enable collaboration between geoscientists regardless of their particular specialism, promoting sharing of subsurface data, techniques and understanding towards building a single energy



geoscience community. The many challenges of the energy transition demand such an approach and we are delighted to be launching EGC under the banner ‘Powering the Energy Transition Through Subsurface Collaboration’.

The conference will feature a wide range of high quality contributions, and provide extensive learning and networking opportunities for delegates, at a very competitive registration cost. The conference will allow delegates both to immerse themselves in their own particular industry or subsurface specialism and to better understand a range of new and emerging fields and techniques. It will also allow attendees to see the broad applicability of their own geoscience skills through the energy transition as new subsurface uses gain prominence in the energy mix and in the employment market.

We would like to express our thanks and gratitude to our sponsors, speakers and poster presenters, to the Geological Society and PESGB and their conference staff, to our Conference Board, and to our Technical Committee supported by a network of geoscientists and company management.

We very much look forward to welcoming you in May 2023!

Caroline Gill (Lead Convenor)
John Underhill (Lead Convenor)
Graham Goffey (Conference Board Chair)
On behalf of the Conference Board and
Technical Committee

Who should attend and why

The strong technical programme has been designed to cover the full life-cycle of energy sources from exploration through development, utilisation, re-purposing and abandonment. The programme covers the complete spectrum from oil and gas through geothermal, subsurface storage and geological disposal to shallow geophysics for wind farm siting and exploration for new energy sources and materials. Consequently EGC1 offers extensive learning, networking and professional development opportunities to:

- Energy and engineering geoscientists, analysts, engineers, subject matter experts and technical specialists in government, companies, advisories, consultancies, and industries including oil and gas, geothermal, CCUS, energy storage, radioactive waste disposal and wind farm development;
- Technical assurance, functional and line management including regional business managers, business development, exploration, development, production and operations managers right up to director, country manager and CEO level;



- Geoscience students and researchers working across the range of energy geosciences in universities and research agencies

Whether you are interested in gaining an up-to-date understanding of developments in your own sector, in learning about the subsurface aspects of emerging energy transition applications such as energy storage and CCS, or considering broadening your career into a different branch of energy geoscience, this conference is aimed squarely at you.

	3 days Technical Programme	3 days Poster Programme	Networking with fellow delegates	Field trips Programme	3 days live- streamed Technical Programme	Recorded ‘catch-up’ Technical Programme	Discount on EGC proceedings volume
Online attendance					✓	✓	✓
In-person attendance	✓	✓	✓	✓	✓	✓	✓

Why sponsor EGC1?

Sponsorship of the inaugural event of this exciting new conference series will position your organisation as a supporter of earth science’s leading role in finding and developing lower carbon solutions through the energy transition. We have a range of sponsorship opportunities available, all of which can be tailored to meet your specific business objectives. Sponsors will also be featured in the landmark Conference Proceedings, published after the conference by the Geological Society.

For more information and to receive a copy of our sponsorship prospectus, please contact:
jenny.boland@geolsoc.org.uk or lydia@pesgb.org.uk

The PESGB and The Geological Society would like to thank our sponsors



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CONFERENCE HIGHLIGHTS

The technical programme has been designed to offer in-depth coverage across a range of broadly overlapping subsurface themes. Talks and posters will cover themes including:

- Case studies and techniques of **resource exploration, screening and siting in the energy transition** including hydrocarbons, geothermal, carbon and energy storage, nuclear waste disposal, hydrogen, helium and lithium
- **Early life, late life, new life**: the efficient development of new hydrocarbon resources, maximisation of existing resources and repurposing of depleted pore space for storage
- **Geothermal applications and developments**, including geothermal exploration, low enthalpy heating and cooling, mine water geothermal and geothermal resource assessments
- The role of **salt in storage, as a seal, repository and hydrocarbon trap**
- **Subsurface storage** case studies, techniques, measurement and monitoring technologies for CO₂, hydrogen and compressed air storage
- **Subsurface modelling for energy projects**, covering applications from reservoir characterisation and simulation, radioactive waste modelling and CO₂

injection monitoring to geothermal modelling and geomechanics

- **Characterisation and evaluation of containment** in hydrocarbon entrapment, storage and radioactive waste disposal including rock-fluid interactions and leakage behaviours
- **Fault and fracture characterisation for the energy transition**, including modelling and case studies
- **Geophysics** for energy developments including ground modelling in offshore wind projects and geophysical applications in disposal and energy applications

In addition to the core technical programme, the conference will feature:

- **Debates on energy-related controversies** in addition to **panel discussion** and **lunchtime** talks on the trajectory of the energy transition, the changing role of geoscience and of geoscientists
- A **suite of expert-led field trips** showcasing local geology to examine conference themes including CO₂ storage

Conference attendees will also be eligible for a substantial discount on a **conference proceedings volume and eBook**, planned to include papers on as many talks and posters as possible and which will be published in the Lyell Collection by the Geological Society's widely-respected Publishing House.



CONFERENCE CONVENORS

Dr Charlotte Adams, Coal Authority

Dr Matthew Allen, Dana Petroleum

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Dr. Tim Wynn, TRACS

CONFERENCE ORGANISERS



To advance, for public benefit, education in the scientific and technical aspects of subsurface energy and related technologies.

The PESGB was established in 1964 by a group of like-minded professionals keen to create a community of geoscientists for networking and sharing ideas. Over 50 years on, we have a growing membership across the world.

This member led organisation serves our industry by providing great value, networking and knowledge-sharing events, conferences and workshops as well as a programme which supports the education of earth sciences in the wider community. Though careers in 'energy' are constantly evolving, the PESGB aims to be relevant, useful and beneficial to members at every stage of their careers within the 'energy' industry.



serving science, profession & society

The Geological Society is the UK's national society for geoscience, providing support to c.11,600 members in the UK and overseas.

We aim to be an inclusive and thriving Earth science community advancing knowledge, addressing global challenges, and inspiring future generations. Our strategy, mission and values can be found [here](#)

Find out more about our diverse offering of [events](#) as well as other key activities including careers & education, membership & Charterhip, publications, policy and outreach. Visit our [website](#) to find out more.

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EGC 2023 PROGRAMME: DAY 1 - Tuesday 16 May - Morning					EGC 2023 PROGRAMME: DAY 1 - Tuesday 16 May - Afternoon						
HALL 1		HALL 2		HALL 3		HALL 1		HALL 2		HALL 3	
08.00	Registration, refreshments, networking and poster viewing					13.55	ENERGY CONTROVERSY DEBATE <i>Details to be confirmed</i>	Geoscience in CCUS (continued)		Emerging Geothermal (continued)	
Introduction and Plenary Talks					Overview and Regional Screening			Low Enthalpy Geothermal			
09.20	Welcome and Introduction <i>Graham Goffey (Soliton Resources), Conference Chair</i>							A New Understanding of the Zechstein in the UK SNS: Implications for remaking prospectivity and the energy transition <i>Laura-Jane Fyfe, Heriot-Watt University</i>		Repurposing the Newcastle Science Central Deep Geothermal Borehole as a Borehole Heat Exchanger: Understanding Modes of Operation and Scalability <i>Christopher Brown, University of Glasgow</i>	
09.30	Plenary Talk 1 - <i>Speaker TBC</i>							Adapting an existing hydrocarbon screening workflow to the challenge of objectively ranking carbon storage resource <i>Joseph Jennings, Halliburton</i>		Driving towards net zero carbon emissions targets: A case study tailored to local industry <i>Eshagh Goudarzi, London South Bank University</i>	
09.55	Plenary Talk 2 - <i>Speaker TBC</i>						14.20				
10.25	Move to sessions					14.45	Exploration in the Energy Transition (continued)	CCS Case Studies and Applications		The Dutch SCAN Geothermal Exploration Program: Seismic acquisition, processing and reprocessing <i>Johannes Rehling, EBN</i>	
Exploration in the Energy Transition		Geoscience in CCUS		Emerging Geothermal			Deepwater Hydrocarbon Exploration	The Endurance CO2 Storage Complex: characterising injectivity, containment and capacity of the UK's largest saline aquifer store <i>Catherine Gibson-Poole, BP</i>			
Hydrocarbon Perspectives		Overview and Regional Screening		Minewater Geothermal			Gas Exploration Potential in the Northern Faroe-Shetland Basin, UK Atlantic Margin: Aiding the UK Net Zero 2050 Strategy <i>Alice Hall, University of Aberdeen</i>	Sherwood Sandstone outcrop analogues study in the Cheshire Basin: how to better constrain CCS potential and CO2 injectability in depleted oil and gas fields in the context of the Liverpool Bay Carbon Capture Project. <i>Rodrigo de Sainz Simpson, University of Manchester</i>			
10.30	Themes from the last decade. A hydrocarbon exploration retrospective from the UK Continental Shelf <i>John Seedhouse, North Sea Transition Authority</i>	CCS: Dynamic Geoscience <i>Owain Tucker, Shell</i>		Reduce, re-use, resilient: shared use of the onshore mined subsurface for low temperature heating and thermal storage <i>Alison Monaghan, BGS</i>			15.10	Exploring an igneous intrusive province in the West of Shetlands <i>Valerie Goggin, BP</i>	Deep geothermal resource potential of the Early Carboniferous limestones in Central and Southern Britain <i>Darren Jones, British Geological Survey</i>		
				Assessment of Flooded Mine Shafts for Thermal Energy Storage <i>Daniel Whittington, University of Strathclyde</i>							
10.55	Sand Injectites: a developing hydrocarbon play and more... <i>Andrew Hurst, University of Aberdeen</i>	Role of Play Based Exploration (PBE) Methods in the search for, and critical evaluation of, safe subsurface carbon stores <i>John Underhill, University of Aberdeen</i>		Addressing challenges for uptake of mine water heating, cooling, and thermal storage schemes <i>Sally Jack, University of Strathclyde</i>		15.35	Refreshments, networking and poster viewing				
11.20	Refreshments, networking and poster viewing					16.05	Progressing Hydrocarbon Plays and New Discoveries	Could the Lower Carboniferous Shales of northern England be used as a Geological Carbon Sequestration Target? <i>Michael Sims, Imperial College, London</i>		Geothermal Case Studies and Applications	
	Deepwater Hydrocarbon Exploration				The Z2 Haupt Dolomite – Imaging, Mapping and Understanding Porosity Distribution On The Frontier Margin of the Southern Gas Basin <i>Peter Browning-Stamp, Horizon</i>						
	11.50	50 years of Petroleum Exploration within the Faroe-Shetland Basin: the past, present and future of a frontier basin <i>Nick Schofield, University of Aberdeen</i>	Europe - an early look at CCS <i>Johannes Kalunka, ExxonMobil</i>		Appraisal of mine shafts in Scottish coalfields <i>Neil Burnside, University of Strathclyde</i>		16.30	The Dutch Q-blocks: creating exploration and appraisal opportunities to accelerate low-carbon-footprint gas production through quantitative seismic interpretation and modelling. <i>Kike Benteima, Kistos</i>	Deep marine reservoirs as viable CCS targets <i>Ian Kane, University of Manchester</i>		Re-evaluating Glasgow's Geothermal Dataset to account for the effect of palaeoclimate on heat flow <i>Sean Watson, University of Glasgow</i>
12.15	Deepwater stratigraphic traps <i>Bryan Cronin, Tullow</i>	Evaluating containment volumes and leakage risks for geologic carbon sequestration across brownfield and greenfield opportunities: An assessment of the Moray Firth Basin, North Sea <i>Rene Jonk, APA Corp.</i>		Gateshead minewater project <i>Charlotte Adams, Coal Authority</i>		16.55	Distribution of dryland clastics upon a complex topography - reservoir prediction of the basal Upper Rotliegend II (Dutch SNS) <i>Oliver Button, University of Aberdeen</i>	Range of Carbon Storage Performance in Saline Aquifer, a Simulation Sensitivity Study <i>Pipat Likanapaisal, ExxonMobil</i>		Review of Geothermal Energy Potential of Pakistan from Oil and Gas Wells <i>Saif Ur Rehman, University of the Punjab</i>	
12.40	Lunch, networking and poster viewing					17.20	Ijssel discovery: an integrated approach to characterisation of an unusual reservoir type; an example of Upper-Jurassic greensands in the Netherlands <i>Rob Lengkeek, One Dyas</i>	The Application of SRMS in the Assessment of Geological Storage Projects <i>Gordon Taylor, RPS</i>		Structural and stratigraphic control on carbonate platform growth of the upper Mississippian, Irish Sea Basin: implications for onshore geothermal projects <i>Maulana Aditama, University of Manchester</i>	
			Future Outlooks Lunchtime Talk Ten Themes for Exploration and the Geosciences in the Next Ten Years <i>Graeme Bagley, Westwood Global Energy</i>		Development of an unparalleled database for existing Hot Sedimentary Aquifers projects <i>Maëlle Brémaud, University of Strathclyde</i>						
13.30						17.45	Networking reception and poster viewing				

EGC 2023 PROGRAMME: DAY 2 - Wednesday 17 May - Morning					EGC 2023 PROGRAMME: DAY 2 - Wednesday 17 May - Afternoon				
HALL 1		HALL 2	HALL 3	HALL 4	HALL 1		HALL 2	HALL 3	HALL 4
08.00	Registration, refreshments, networking and poster viewing				12.35	Lunch, networking and poster viewing			
	Exploration in the Energy Transition (continued)	Emerging Geothermal (continued)	Containment	Fault and Fracture Characterisation for the Energy Transition			Future Outlooks Lunchtime Talk Characterizing the sub-surface: a critical element of the energy transition <i>Mike Simmons, Halliburton</i>		
09.00	Near Term UK Hydrocarbon Exploration Wells	How can the geothermal potential of low-mid temperature sedimentary basins be realized? An integrated overview. <i>Simon Todd, Causeway Geothermal</i>	Seal Integrity for CO2	The role of chemistry in fracture pattern development: applications to the energy transition <i>Stephen Laubach, University of Texas Austin</i>	13.25				
	The Selene prospect: Quantifying depth uncertainty in a mature basin to unlock a missed opportunity. <i>Tom Cafferkey, Deltic Energy</i>		Seal integrity evaluation of potential CO2 storage sites in depleted oil fields using mud gas logs and leakage phenomena <i>Henrik I. Petersen, GEUS</i>						
09.25	Tolmount area TITLE TBC <i>Speaker tbc</i>	An Update on the United Downs Geothermal Power Project, Cornwall, UK <i>Hazel Farndale, Geothermal Engineering Ltd</i>	Caprock Wettability Under CO2 GeoStorage Conditions <i>Alex Lee, ExxonMobil</i>	Modelling Fractures in Geoenergy Applications <i>Sebastian Geiger, TU Delft</i>	13.50	ENERGY CONTROVERSY DEBATE Details to be confirmed	Subsurface Modelling for Energy Projects (continued) Diverse Modelling Applications	Containment (continued)	Salt as Store, Seal, Trap and Repository
			Caprock Wettability Under CO2 GeoStorage Conditions <i>Alex Lee, ExxonMobil</i>	Modelling Fractures in Geoenergy Applications <i>Sebastian Geiger, TU Delft</i>			Integration of Geological Process Modelling (GPM) for achieving realistic History Matching scenarios for an Eocene Carbonate Field in the Middle East <i>Ammar Ahmed, Schlumberger</i>	The Geomechanical Challenges of Massive Scale CO2 Sequestration <i>Mark Zoback, Stanford University</i>	The Role of Salt Tectonics in the Energy Transition: An Overview and Future Challenges <i>Oliver Duffy, Bureau of Economic Geology, University of Texas at Austin</i>
09.50	The Isolde prospect and Central North Sea welded diapir evolution: quantifying a (previously invisible) trap and understanding hydrocarbon containment <i>Graham Goffey, Soliton Resources</i>	Optimising the role of geothermal desalination in energy budgets of water stressed nations <i>Dave Waters, Paetoro Consulting</i>	Using inherent geochemical fingerprints to verify the security of CO2 storage <i>Stuart Gilfillan, University of Edinburgh</i>	Mapping fracture trace patterns in outcrop analogs for low-enthalpy geothermal targets: the role of contingent nodes <i>Stephanie Forster, University of Texas Austin</i>	14.15		Unconventional Fractal Modelling and Simulation of Heterogeneous and Anisotropic Reservoirs <i>Paul Glover, University of Leeds</i>	Safe underground Hydrogen storage in porous subsurface reservoirs (SHINE): a new European interdisciplinary project aiming at exploring the hydrogen interaction with porous reservoir <i>Katriona Edlmann, Edinburgh University</i>	Salt as a Storage Medium
						Exploration in the Energy Transition (continued) Exploration, Screening and Siting Across the Energy Spectrum		How to represent fracture systems volumetrically in an upscaled model? <i>Mohammed Saiful Islam, Amer. University of Middle East.</i>	The Effect of Authigenic Clays on Fault Zone Permeability <i>Natalie Farrell, University of Manchester</i>
10.15	CNS Palaeocene - TITLE TBC <i>Speaker tbc</i>	Performance analysis of a CO2-plume geothermal system in 2D fluvial formations using subsurface metrics <i>Amir Norouzi, University of Manchester</i>	Investigating the impact of heterogeneity on mudrock seals to CO2 storage reservoirs, via the multiscale-multiproxy characterisation of the well-exposed Lower Jurassic Redcar Mudstone Formation, Cleveland Basin, UK. <i>Colm Pierce, CASP</i>	Cutting-Edge Technology in 3d Modelling of Fault and Fracture Systems: How close can we get to the geological reality? <i>Janpieter van Dijk, OCRE Geoscience Services</i>	14.40	Deep geological disposal of nuclear waste - recent progress with the programme in England and Wales <i>Jonathan Turner, Nuclear Waste Services</i>			
10.40	Refreshments, networking and poster viewing				15.05		Pore-scale Modelling of Polymeric Solutions in Porous Medium <i>Amna Al-Qenae, University of Manchester</i>	Modelling the impact of hydrodynamic flow on capillary seals using the Manzocchi & Childs model: Theory and Application <i>Neil Grant, ConocoPhillips</i>	Utilising publicly available datasets for identifying offshore salt strata and developing salt caverns for hydrogen storage <i>Craig Allsop, University of Strathclyde</i>
	Exploration, Screening and Siting Across the Energy Spectrum	Subsurface Modelling for Energy Projects	Leakage - Recognition and Solution			Oil & Gas Industry Seismic Interpretation Best Practice for Nuclear Waste Repository site selection and characterization: Why not? An example from Northern Switzerland <i>Valantina Zampetti, NAGRA</i>	Evolution and facies distribution using forward Stratigraphic Modelling of EX carbonate build-up Central Luconia Province, Malaysia <i>Jiménez Soto, Grisel, Universiti Teknologi PETRONAS, Malaysia</i>		Compressed Air Energy and Hydrogen Storage Potential in Salt Structures in the UK Sector of the Southern North Sea <i>Sjastri Hansen, Royal Holloway University, London</i>
11.20	A methodology for regional assessment of subsurface energy and CO2 storage resources in underexplored basins: a case-study of the Irish Atlantic margin <i>Conor O’Sullivan, University College Dublin</i>	Recovery factor vs. storage efficiency - revisiting reservoir characterisation <i>Mark Bentley, TRACS & Heriot-Watt University</i>	Analysis and modelling of leakage above gas fields <i>Martino Foschi, University of Oxford</i>	Analogues to fault integrity in CO2 containment studies from hydrocarbon column traps against active faults <i>Chris Wibberley, Total Energies</i>	15.30	Refreshments, networking and poster viewing			
						A holistic mindset - knowledge transfer applied from hydrocarbon exploration to mineral systems <i>Graeme Nicoll, Halliburton</i>	Modelling Geothermal, Nuclear Waste Disposal and CO2 Storage	Geomicrobiology in Storage and Exploration	Please DON’T pass the salt! How a long-ignored geological formation is now becoming the centre of attention for underground storage. <i>Edward Henden, Atkins</i>
11.45	Evaluating the Carbon Storage Potential of Depleted Gas Fields in the Dutch Offshore Sector of the Southern North Sea <i>Martha Vinhais Gutierrez, Heriot-Watt University</i>	Closing the loop: bringing back geological and geophysical features into an automatic history matched model - Buchan Redevelopment (UK) <i>Helene Nicole, Jersey Oil & Gas</i>	A novel approach to quantify the risk of CO2 leakage through legacy wells in a CO2 storage site <i>Ali Mojaddam Zadeh, Equinor ASA</i>	Microfracture detection in microscopic images using an object-based machine learning approach <i>Issac Sujay Anand John Jayachandran, Texas A and M University</i>	16.00		Geothermal Modelling <i>John O’Sullivan, University of Auckland</i>	Microbiological impacts of subsurface engineering <i>Sophie Nixon, University of Manchester</i>	
12.10	A Workflow for Carbon Storage Site Exploration, and its Similarities and Differences with Traditional Oil and Gas Exploration <i>Dominic Skinner, ERCE</i>	Prediction of Formation Compressibility and Secondary Gas Cap Development from Seabed and Downhole Tidal Pressure Signal in the Lancaster Field <i>Francis Boundy, Hurricane Energy Plc</i>	Rapid sealing of bed rock flow-paths by a ‘synthetic concretion-forming solvent’: a new technology for sealing boreholes and inflows to underground cavities <i>Hidekazu Yoshida, Nagoya University Japan</i>	Case history TBC <i>Speaker TBC</i>	16.25	The Dutch SCAN Geothermal Exploration Well Campaign: from leads to wells <i>Marten ter Borgh, EBN</i>	Pre- and post-injection dynamic modelling of CO2 injection in a depleted oil field - the Greensand CO2 storage project, Danish North Sea <i>Michael Larsen, INEOS Energy</i>	Using molecular biological techniques for hydrocarbon prospecting – The PROSPECTOMICS Project <i>Jens Kallmeyer, GFZ German Research Centre for Geosciences</i>	Imaging Advances and Structural Evolution
									CNS Salt like you’ve never seen it before: Using OBN seismic to unlock the secrets of the East Central Graben <i>Ben Twigger, BP</i>

EGC 2023 PROGRAMME: DAY 2 - Wednesday 17 May - Afternoon					EGC 2023 PROGRAMME: DAY 3 - Thursday 18 May - Morning				
16.50	HALL 1	HALL 2	HALL 3	HALL 4	08.00	HALL 1	HALL 2	HALL 3	HALL 4
	Exploration in the Energy Transition (continued)	Subsurface Modelling for Energy Projects (continued)	Containment (continued)	Salt as Store, Seal, Trap and Repository (continued)		Registration, refreshments, networking and poster viewing			
	Exploration, Screening and Siting Across the Energy Spectrum (continued)	Modelling Geothermal, Nuclear Waste Disposal and CO2 Storage (continued)	Geomicrobiology in Storage and Exploration (continued)	Imaging Advances and Structural Evolution (continued)		Early Life, Late Life, New Life	Geophysics and Geoscience for Energy Developments	Exploration in the Energy Transition (continued)	Fault and Fracture Characterisation for the Energy Transition (continued)
	* *	The role of subsurface models to evaluate geo-containment for safe storage of CO2 – A case study of the Porthos CCS project in the Netherlands <i>Gloria Thurschmid, EBN</i>	Geochemical detection of hydrocarbon reservoirs from marine surface sediments <i>Ellen Schnabel, GFZ German Research Centre for Geosciences</i>	Systematic regional kinematic classification of multi-stage salt structures in the Southern North Sea salt basin <i>Gerardo Gaitan, Royal Holloway University, London</i>		Title TBC <i>Nick Richardson, North Sea Transition Authority</i>	Ground Modelling for Offshore Wind	Natural Hydrogen and Helium	Quantifying fault stability for the energy transition <i>David Healy, University of Aberdeen</i>
			The Geomicrobiology of Hydrogen Storage <i>Aidan Jacques, Newcastle University</i>				Why more geoscience is crucial to the sustainable development of offshore wind <i>David Hodgson, University of Leeds</i>	Exploring for hydrogen, helium and lithium: is it as easy as 1, 2, 3? <i>Jon Gluyas, Durham Energy Institute</i>	
17.15	How expertise in seismic reflection data and basin analysis can help in metals exploration <i>Taija Torvela, University of Leeds</i>	DECOVALEX 2023: Comparative modelling of advective gas flow <i>Elena Tamayo-Mas, British Geological Survey</i>	Insights in metagenomic diversity in pristine oil reservoirs <i>Armando Alibrandi, GFZ German Research Centre</i>	Coupling Relationships Between Pre-Salt and Post-Salt Faults Across the Southern North Sea Basin <i>Anna Preiss, Royal Holloway University, London</i>	09.25	The Arran Field Development – New Gas Production in the CNS <i>David Webster, Shell UK Ltd.</i>	Conceptualisation of possible ground model interpretations for the St Brieuc Offshore Wind Farm Offshore Substation <i>Jordan Gear, Atkins Global</i>	From zero to helium: exploration techniques for an ‘emerging’ resource <i>Max Norman, CGG</i>	Integrated structural-geomechanical fault integrity risk assessment for CCS <i>Kevin Bisdom, Shell</i>
	17.40	End of day 2				09.50	Netherlands Quad A and B - shallow gas fields TITLE TBC <i>Nick Dancer, Petrogas</i>	Linking geophysical and geotechnical data from a glaciated landscape; to optimise front-end engineering design for offshore renewable energy projects <i>Hannah Gandley, Bangor University</i>	Co-occurrence of Helium and Hydrogen. Evidence from S Africa matching theory with observation <i>Ruta Karolyte, University of Oxford</i>
* *		The Basal Rotliegend, a wind-powered gas development and multi-TCF follow-up target - Dutch/ German Offshore border area <i>Bert Clever, ONEDyas</i>	Ground modelling of geohazards in offshore wind farm development <i>Matt Jameson, Orsted</i>	Identifying the mechanism of Primary N2-He gas field formation <i>Anran Cheng, University of Oxford</i>	Case History - TALK TBC <i>Speaker TBC</i>				
							The Evelyn field development, UKCS. Forty years in the making <i>Richard Hiney, Tailwind Energy</i>	Subsea cables on deglaciated continental shelves: key geological and geoengineeing considerations <i>Bartosz Kurjanski, Atkins Global</i>	Native hydrogen and helium exploration: A new frontier in the energy transition <i>Ranald Kelly, CGG</i>
* *		Integration of high quality data into subsurface models to maximise the economic recovery of the Culzean Field <i>Chris Bugg, TotalEnergies</i>	Semi-supervised learning for geotechnical soil characterization in offshore windfarm sites <i>Haibin Di, Schlumberger</i>	Hydrogen Habitats and Exploration	Numerical investigation of surface wave anisotropy for fault characterisation in geothermal fields <i>Heather Kennedy, Aberdeen University</i>				
				12.10			Natural hydrogen in Australia <i>Emanuelle Frery, CSIRO</i>	Numerical Modeling of Natural Fracture Pattern Using 3D Coupled Model <i>Byungtark Lee, University of Texas at Austin</i>	

16.55
17.20
17.45

EGC 2023 POSTERS

EXPLORATION IN THE ENERGY TRANSITION

Renewed Hydrocarbon Exploration and Preliminary Assessments of CCS and Geothermal Potential in the Kura-Kartli Basin, Onshore Central Georgia
Paolo Pace, PACE Geosciences

Carbon storage options in the Inde Shelf and Cleaver Bank areas, Southern North Sea
Ellen Mears, Heriot-Watt University

Probabilistic Assessment on the Role of Structural Features Related to Helium Occurrences in the Four Corners Region of the Colorado Plateau, USA
Daniel Halford, University of Oxford

Distribution of dryland clastics upon a complex topography - reservoir prediction of the basal Upper Rotliegend II (Dutch SNS)
Oliver Button, University of Aberdeen

Differential deformation in the southern Sichuan Basin and its influence on hydrocarbon accumulation
Guimin Feng, China University of Petroleum, Beijing

FAULT AND FRACTURE CHARACTERISATION FOR THE ENERGY TRANSITION

Spatial analysis of fractures and pattern reconstruction
Mahmood Shakiba, University of Texas at Austin

Using rigid block DEM to asses the impact of fault geometry and rock properties on fault reactivation
Janis Aleksans, University College Dublin

Is aspect ratio enough to separate microfractures and pores in thin-section images? A tiered multi-dimensional object-classification approach using unsupervised and supervised machine learning
Issac Sujay Anand John Jayachandran, Texas A and M

Characterising a rock fracture rough surface using spatial continuity and kriging: from semi-variograms and an upscaled surface
Gonalo Cunha, University of Edinburgh

Quantification of spatial arrangement in two dimensions using fracture trace and barycenter
Rodrigo Correa, University Texas Austin

GEOPHYSICS AND GEOSCIENCE FOR ENERGY DEVELOPMENTS

Using seismic modelling to explore pattern similarities between fluid conduits and near-surface velocity effects
Saad Almaki, University of Mancs

Improving Reservoir Characterization using new Seismic frequency enhancement technique and Pre-stack direct elastic properties Inversion- North Sea examples
Can Yeng, Seismic Image Processing

Leveraging the use of repurposed Oil and Gas 2D seismic data to de-risk offshore wind farm development projects. A case study from the Central North Sea
Clement Tam, Atkins Global

Low-cost time-lapse seismic monitoring with sparse acquisition
Afsaneh Mohammadzaheeri, University of Leeds

From reservoir characterisation to site investigation: retrofitting a stochastic, facies - based seismic inversion algorithm for use in shallow subsurface site characterisation
Ana Somoza, Cegal

WEB-AVO inversion for geothermal project development: a 3D Triassic reservoir characterization case study in the West Netherlands Basin
Lennart Hanemaaijer, EBN

Karstic related ground risk and remedialmanagement in existing assets using an integrated geophysical approach
Shekhar Majumdar, Fugro

Where is my bedrock?
Bartosz Kurjanski, Atkins

CenoStore: Understanding the Late Cenozoic succession of the North Sea Basin and implications for subsurface CO2 containment
Georgina Heldreich, University of Manchester

EMERGING GEOTHERMAL

Modelling & Optimization of Geothermal Energy in the Gulf of Suez
Amira Abdelhafez, University of Manchester

Geothermal Energy Opportunities and Challenges in Puerto Rico
Melody Cosme Morales, University of Puerto Rico Mayaguez

Geological setting of the Hui Nam Ron hot spring in Ranong and Surat Thani, Southern Thailand
Pitsanupong Kanjanapayont, Chulalongkorn University, Bangkok

De-risking Dutch geothermal plays by acquiring subsurface data – the SCAN borehole data-acquisition strategy
Adriaan Janszen, EBN

Investigating and quantifying the geothermal energy potential from mine water of abandoned coalfields within the Greater Leeds area in the UK
Sandra Piazzolo, University of Leeds

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The Potential of Sherwood Sandstone Group as an Aquifer for Aquifer Thermal Energy Storage
Shuangyi Gong, University of Manchester

The characterisation of hypogenic void systems in Mississippian carbonates (UK) and implications for geothermal heat production
Alessandro Mangione, University of Manchester

Effect Of Dead-End Zones On Heat Transfer In Vuggy-Heterogeneous Porous Media
Ramin Soltanmohammadi, State University Campinas, Brazil

GEOSCIENCE IN CCUS

Geomechanical Simulation Case Study of CO2 Injection in a Carbonate Reservoir
Stephen Morgan, Exxon Mobil

Natural CO2 accumulations and the implications for prospective storage sites in the northern East Irish Sea Basin, UK
Sam Head, Heriot-Watt University

The Lower to Middle Triassic Bunter Sandstone CO2 storage complex of the Southern North Sea: multi-disciplinary reservoir and seal investigation
Niall W. Paterson, CASP

The potential of in-situ CO2 mineralisation within onshore UK formations
Angus Montgomery, University of Edinburgh

Feasibility study of geological CO2 storage in the Khorat Plateau, Thailand: from seismic and well data to 3D modeling
Piyaphong Chenrai, Chulalongkorn University, Bangkok

CO2-brine-rock interactions from Pha Nok Khao reservoir rock: implications for geological CO2 storage
Thitiphan Assawincharoenkij, Chulalongkorn University, Bangkok

The importance of estimating vertical permeability in Bunter Sandstone reservoirs
Keith Milne, TRACS

Outcrop-based fracture characterisation of Permian carbonate reservoir in NE Thailand with implication for geological storage of CO2
Sukonmeth Jitmahantakul, Chulalongkorn University, Bangkok

Seismic Characterization of Intraformation Layers in CO2 Storage Assesment Applying Machine Learning Approach
Daniel Rendon Hernandez, AspenTech

Methodology for the development of consistent relative permeability and capillary pressure models for reservoir simulation of CCS projects
Lisa Lun, ExxonMobil

Pore Scale Assessment of Potential Subsurface Carbon Storage Reservoirs Using Digital Image Analysis
Domenico Chiarella, Royal Holloway University of London

SUBSURFACE MODELLING FOR ENERGY PROJECTS

Process-based modelling of development of hypogene void systems and implications for subsurface flow and the energy transition
Wenwen Wei, University of Bristol

Reflection Seismic Thermometry: application in the North Viking Graben for CCS characterisation
Arka Dyuti Sarkar, University of Manchester

Using numerical modelling for de-risking mine water geothermal energy: application to the UK Geoenergy Observatory in Glasgow
Andres Gonzales Quiros, British Geological Survey

Numerical modelling and conceptualization of the rate of extractable heat from mine-water reservoirs
Mylene Receveur, Univ. of Edinburgh

Applying Forward Stratigraphic & Assisted Property Modeling for Predicting & Evaluating Shallow Surface Sedimentation for Offshore Wind Farms
Ammar Ahmad, Schlumberger

Geothermal Potential Assessment Through an Integrated and Agile Modeling Solution
Astrid Jonet, AspenTech

MISCELLANEOUS

Multi-scale and multi-approach investigation of subsurface hydrogen storage
Heather Braid, University of Manchester

Clay grain coat identification and quantification using Microfocus X-Ray Computed Tomography (MXCT) – A case study from a deeply buried sandstone, Norwegian North Sea
James Houghton, University of Liverpool

The Geological Evaluation of Low Carbon Energy Solutions in North-East England.
Rifky Wijanarko, Heriot-Watt University

Primary REE potential related to granitic rocks in Thailand: Evidence from mineral chemistry and geochemistry
Alongkot Fanka, Chulalongkorn University, Bangkok

Lithofacies classification and identification using artificial neural networks in the Bunter Sandstone Formation of the UK Southern North Sea
Zhenghong Li, Univ. of Manchester



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(continued)

Application of Digital Enablers to the Siting of Radioactive Waste Disposal Facilities
Kasia Clarke, Mott MacDonald

Making onshore subsurface data accessible to all
Malcolm Butler, UK Onshore Geophysical Library

Are We Fully Utilising an Easily Accessible World Class Geoscience Resource in the Energy Transition? #ScotlandsGeoLab
Steve Adams, Balcownie Geoscience

CONTAINMENT

A Methodology for Deciding on Well Seal Options for Abandonment
Renato Zagorscak, Quintessa

Development of tufa deposits associated with the dewatering of a radioactive waste disposal facility
Graeme Morgan, Dounreay Site Restoration Ltd.

The Effect of Authigenic Clays on Fault Zone Permeability
Natalie Farrell, University of Manchester

Seismic modelling of near-surface velocity effects
Saad Almalki, University of Manchester

Insights in metagenomic diversity in pristine oil reservoirs
Armando Alibrandi, GFZ German Centre for Geoscience Research

Incorporating Rock Matrix Diffusion in SafetyAssessment Models for Radioactive WasteDisposal in Porous Rocks
Richard Metcalfe, Quintessa

Quantifying the predicted seismic response of CO2 injection into a depleted gas reservoir
Sarah Harrington, Schlumberger

3D Visualization of hydrogen storage in sandstones at reservoir conditions
Zaid Jangda, Heriot Watt University

Monitoring Seal Integrity Using Self-Growing Neural Network (SGNN) Classification
Ross Findlay, AspenTech

Subsurface Radioactive Waste Disposal Successes
Antonia Newlands, Mott MacDonald

SALT AS A STORE, SEAL, TRAP AND REPOSITORY

Regional variability of mobilisation and kinematics of salt tectonics in the Mesozoic and Cenozoic Southern North Sea sub basins
Christopher Brennan, Royal Holloway University of London

Regional Subsurface Mapping of the Cheshire Basin Salt Beds for Underground Storage of Hydrogen
David Johnstone, University of Manchester

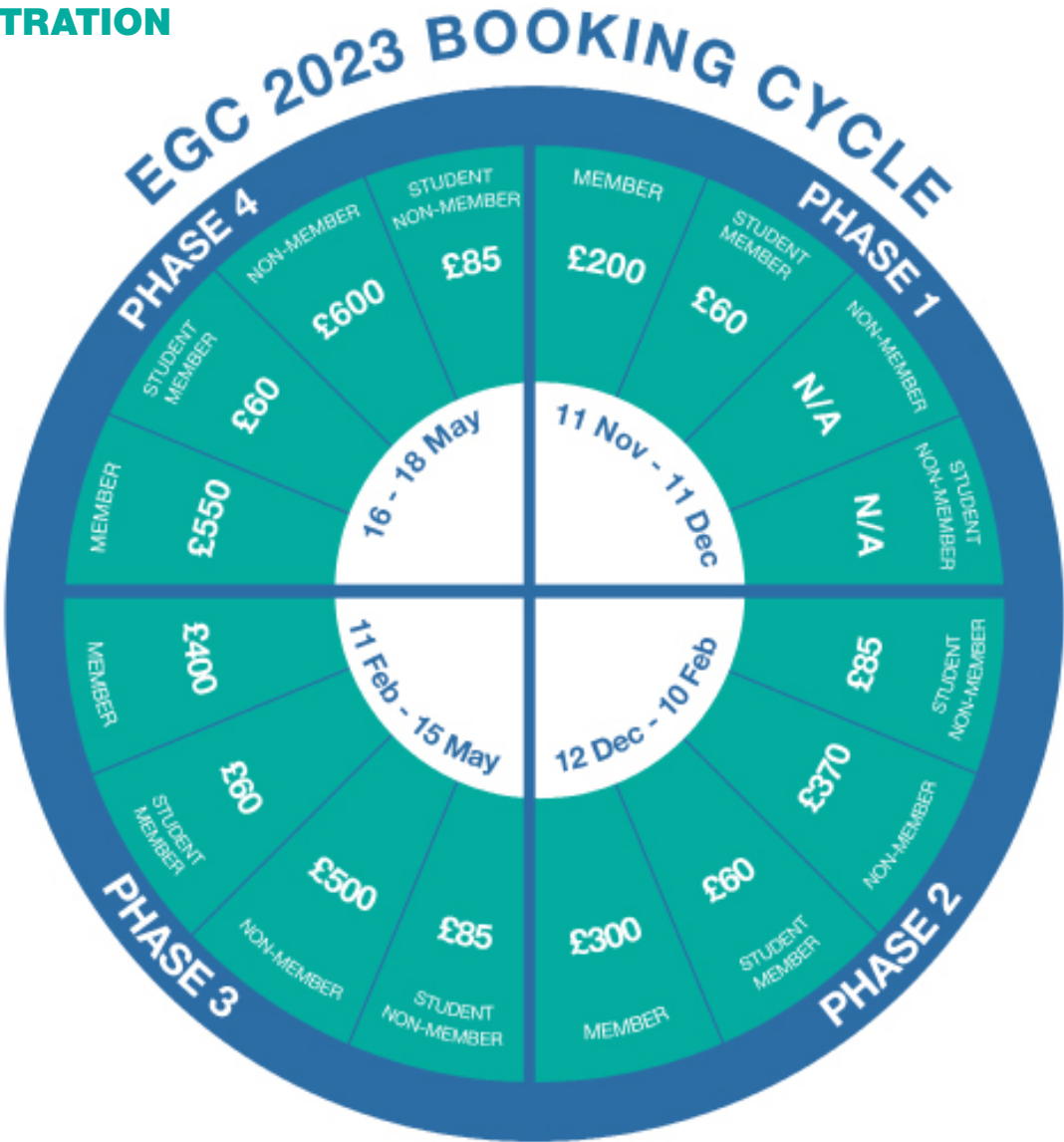
Fluid flow in the central Algerian basin: interaction between the Mediterranean Salt Giant, volcanic basement and fluid circulation
Simon Blondel, University Oslo

3D Seismic classification of salt structure morphologies across the Southern North Sea
Christopher Brennan, Royal Holloway University of London

Mapping and Analysing Pre-salt Fault Trends – Example from the Southern North Sea
Anna Preiss, Royal Holloway, University of London

Optimising Site Selection for CO2 Storage in Salt Basins: the Norwegian-Danish Basin, a future European energy hub
Sian Evans, University of Oslo

REGISTRATION



Please note: all rates exclude VAT

Visit the website for more information on booking your place at this event:
<https://www.energygeoscienceconf.org/events/energy-geoscience-conference-2023/>

FIELD TRIPS

An exciting suite of field trip options reflecting the conference themes are being planned for Monday 15 May, Wednesday 17 May (evening), and Friday 19 May. These include day trips to the Old Red Sandstone and to the Permo-Triassic Hopeman Sandstone Fm. (CO2 storage oriented) and an evening trip to the Highland Boundary Fault, followed by fish and chip supper. Details are progressively being added to the conference website, with booking arrangements to follow. The convenors would like to offer an Aberdeen-based core workshop(s) linked to conference themes; please contact the convenors if you may be interested in convening such a workshop

ACCOMMODATION

We are working with the accommodation agency Reservation Highway to provide discounted hotel accommodation at hotels close to P&J Live Aberdeen, exclusively for EGC 2023 attendees.

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