

Eighth EAGE Borehole Geophysics Workshop

ADVANCED SOLUTIONS FOR SUSTAINABLE ENERGY

29 SEPTEMBER - 1 OCTOBER 2025 • AL KHOBAR, SAUDI ARABIA

Programme

PLATINUM SPONSORS





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TECHNICAL COMMITTEE

The Technical Programme Committee is integral to the workshop and enables EAGE to continue its mission in the development and application of geosciences to promote innovation and technical progress in communities worldwide

Nestor Alexander Palacios Aponte	Aramco
(Co-Chair)	Aramco
Andres Chavarria	LUNIA OntoConce Cilius
	LUNA - OptaSense - Silixa
Charles Cooper	bp
Eric Verschuur	Delft University of Technology
Fela Aromolaran	Independent Consultant
Howard Simpson	Independent Consultant
Jakob B.U. Haldorsen	MagiQ Technologies
James Bailey	VSProwess
Jan H. van der Mortel	Independent Consultant
Jeelani Bhat	Halliburton
Martin Karrenbach	Independent Consultant
Phil Armstrong	Independent Consultant
Marsha Sakina	SLB
Rob Stewart	Director, Allied Geophysical Lab, University of Houston
Roman Pevzner	Professor, Curtin University
Steve Oates	Shell
Vladislav Lesnikov	TotalEnergies
Will Wills	Avalon Sciences
Muhammad Waqas	ADNOC
Tiago de Bittencourt Rossi	Petrobras
Gang Yu	BGP Inc.
Helen Saaler	Baker Hughes

WORKSHOP OVERVIEW

For decades, borehole geophysics has been a game-changer in the oil and gas industry—powering breakthroughs in well-to-seismic correlation, refining velocity models, enhancing drilling precision, and unlocking insights into reservoir behaviour.

Today, as the global energy landscape shifts toward sustainability, the need to monitor reservoirs with greater accuracy—and lower uncertainty—is more critical than ever. This need extends far beyond traditional oil and gas, touching industries like geothermal energy, geotechnical engineering, and carbon capture, utilization, and storage (CCUS).

Driving this evolution are cost-effective fiber optic technologies, such as Distributed Acoustic Sensing (DAS) and next-generation 4C optical point sensors, which are transforming long-term downhole monitoring. In parallel, advancements in surface seismic acquisition—especially with the rise of nodes and DAS—enable multi-survey recording both at the surface and downhole. The fusion of these technologies is unlocking powerful new possibilities in subsurface imaging and monitoring, aligning geophysics with the goals of a cleaner energy future.

As Borehole Geophysics returns to Saudi Arabia for its landmark eighth edition, we are thrilled to welcome a global audience to a workshop that has become a cornerstone event in the energy sector. Join us for cutting-edge insights, collaborative learning, and a shared vision for a more sustainable world.



TOPICS

- Borehole data acquisition and greener operations
- Efficiency in data acquisition, lower carbon footprint
- Environmentally friendly sources and downhole sensors

2. Conventional VSP applications and robust well ties

- DAS and 3C Sensors VSP applications, including imaging, multiples, Q(z), etc.
- Seismic while drilling, VSP lookahead and drilling operations

3. Time-lapse VSP monitoring

- CCUS
- Geothermal
- Oil and Gas exploration and development

4. AVO, Anisotropy and Inversion

- Modeling vs Insitu measurements
- Quantitative analysis and reducing uncertainty

5. Microseismic Monitoring and Passive Seismic

- Caprock Integrity
- Thermally Induced Fracturing
- Injection Induced Fracturing

6. Bridging the scale gap of acoustic measurements

- From ultrasonic, sonic, VSP to surface seismic scales
- Deep sonic imaging
- Joint velocity model calibration

7. Handling of Big Data

- Big Data Integration (in particular DAS)
- Local vs. Cloud Computing
- Automated solutions

SHORT COURSES AT EIGHTH EAGE BOREHOLE GEOPHYSICS

Pre-Workshop Short Course

VSP technology - From check shot to advanced distributed acoustic sensing

Date: Sunday, 28 September 2025

Instructed by



Sebastien SoulasGlobal Operations Manager
Avalon Sciences Ltd

Overview

The course will highlight value of borehole geophysics and practical range of applications in the oil and gas and also in the context of energy transition for CCUS and geothermal energy where more efficient and cost-effective borehole monitoring are required. We will review advancements in sensing technology for the last three decades and also a wide range of case studies where VSPs delivered. This will provide the latest advances of fibre-optic sensing for reservoir management applications, and discusses challenges



related to sensing hardware, deployment, processing, integration and analysis. We aim to showcase the DAS seismic application, give a snapshot of the state of the technology, and outline the road ahead. I will also provide an overview of recent applications of borehole geophysics from field exploration to development and where it has improved drilling decisions, structural imaging and impacted surface seismic processing in order to maximize the value of seismic information. This would be an opportunity to share with the industry on the application of sensor technologies. This can help directly the future development of seismic sensors by presenting our learnings, results, and needs.

POST-WORKSHOP SHORT COURSE

Microseismic Monitoring for the Energy Industry

Date: Thursday, 2 October 2025

Instructed by



Leo Eisner Founder Seismik

Overview

This newly revised programme explains the principles of microseismic monitoring ranging from single monitoring borehole to surface and near surface networks. The applications cover from conventional to unconventional production, through geothermal energy extraction to CO2 sequestration. We will focus on understanding the measurements made in passive seismic, their use and their uncertainties.

The course will also discuss the latest developments in microseismicity from DAS monitoring systems, source mechanisms, tomography and anisotropy to reservoir simulations. Finally, we will discuss social and scientific aspects of (induced) seismicity related to oil and gas reservoir, hydraulic fracturing and unconventional production.

STRATEGIC PROGRAMME

Opening address speaker



Dr. Aiman BakhorjiDirector of Geophysical Imaging Department,
Aramco Exploration

Keynote speakers



Abdulrahman Shuhail

Chief Technologist for the Geophysics Technology Division, Aramco EXPEC Advanced Research Center

Keynote Title: Innovations in Borehole Seismic: Overcoming Challenges and Driving Technological Advancements



Dr. Umair Bin Waheed

Associate Professor at the Department of Geosciences and Data Analytics & Al Program Lead at the Center for Integrative Petroleum Research (CIPR), KFUPm

Keynote Title: Real-time Microseismic Monitoring in the Era of Machine Learning and DAS

GENERAL INFORMATION

Venue Information

voco® Al Khobar

Address:

Dhahran Road, Al-Thuqbah, King Abdullah Street, Al Khobar 31952, Saudi Arabia

Contact: +966 13 869 6666

EAGE Registration Desk

We encourage delegates to visit the EAGE Registration Desk to learn about membership benefits and upcoming events to make the most of your EAGE involvement. We welcome feedback on EAGE's activities for us to improve upon our membership services.

Badge collection will open at the following times:

29 September 2025 7.30 am – 9.00 am (UTC+01:00.)

Photo and Video Regulations

Photography and video/audio recording of any kind are strictly prohibited in the technical sessions.

EAGE strives to bring you the greatest and latest of scientific and technical advances. Due to the importance of the technical content, EAGE upholds a photography and videography policy, in an endeavour to protect these leading-edge technologies.

Wi-F

Delegates may connect to free Wi-Fi at the venue. Wifi details will be provided onsite.

Deliverables

The following are included in the delegate fee

- Access to workshop technical sessions
- Daily Luncheon
- Daily Morning and Afternoon refreshments
- Event proceedings via EAGE's EarthDoc (for EAGE members only)
- Complimentary EAGE Membership will be included for the remainder of 2025 (for fully paid non-members)



TECHNICAL PROGRAMME

Oral Presentations | Monday, 29 September

SULT	ANA BALLROOM		
08:00	Registration & Welcome Coffee		
08:30	HSSE From Hotel voco® Al Khobar		
08:35	Welcome by Chairperson Nestor A Palacios (Aramco)		
08:45	Opening Address by DR. AlMAN BAKHORJI (Director of Geophysical Imaging Department, Aramco Exploration)		
	ION 1 - Borehole Data Accquisition &		
	ener Operations on Chairs: Will Wills (Avalon Sciences) &		
	Saaler (Baker Hughes)		
09:15	Surface Linear Vibrator: field test of a novel permanent seismic source - V. Lesnikov ^{1*} , N. Brooks ² , S. Li ³ , A. Huffman ⁴ , M. Verliac ⁵ ¹ TotalEnergies; ² GPUSA; ³ SensorEra; ⁴ HighPeak Energy Inc.; ⁵ TotalEneries		
09:35	Land Walkaway VSP: from Acquisition to Inversion - M. Benalshaikh ^{1*} , M. Tayeb ¹ , H. Marzooq ¹ , H. Alfaraj ¹ ¹Saudi Aramco		
09:55	Vibroseis Harmonic From Noise to Signal - Case Study of ZVSP in a highly deviated well - M. Alsinan ^{1*} , H. Almarzooq ¹ , A. Shaiban ¹ ¹Saudi Aramco		
10:15	Morning Coffee Break		
10:45	Cosmic Ray Muon Imaging for the Monitoring and Characterization of Injected CO2 in Subsurface Reservoirs - C. Steer ^{1*} , L. Thompson ¹ , T. Ramsay ² ¹ Geoptic; ² ADNOC		
11:05	Optical Seismic Accelerometer Performing at High Temperatures - J. Haldorsen ^{1*} 'MagiQ Technologies		
11:25	Systematic Cross-Domain Analysis of Ground Force Signal - M. Almubarak ¹ , H. Almarzooq ^{1*} , W. Wenxiu ² , Y. Sun ² ¹ Aramco; ² Aramco Research Center - Delft		
11:45	Enhancing Well Seismic Acquisition in Deepwater with DAS and Hybrid Wireline Cable: Balancing Efficiency, Data Quality, and Environmental Stewardship - T. Rossi ^{1*} , A. Martinez ² , M. Galaguza ² , R. Alvar ² , G. Almeida ² , V. Alves ² , T. Sueoka ² , A. Malik ² , N. Adu-Gyamfi ² , R. Barcelos ² 'Petrobras; ² SLB		
12:05	Session Q & A		
12:05	Lunch Break - Horizon Restaurant		
SESS	ION 2 - Conventional VSP applications		
	robust well ties		
Jan H	on Chairs: Vladislav Lesnikov (TotalEnergies) & I. van der Mortel (Independent Consultant)		
13:25	The reconstruction of robust shallow velocity profile using a disposable fibre - A. AlDawood ^{1*} , E. Alfataierge ¹ , A. Shaiban ¹ ¹Aramco		
13:45	Enhanced Imaging of Walkaway VSP data for Complex Geological Structures using Horizon-Based Velocity Modelling - A. Shaiban ^{1*} , H. Marzooq ¹ 'Saudi Aramco		
14:05	Geo-stopping at the top of carbonate by reducing the depth uncertainty using seismic while drilling, near-bit gr, and resistivity real-time data, a novel carbonate reservoir entry strategy in deep water malaysia - S. Das¹, M. Cox², P. N Tynan³, H. Saaler⁴*, R. Ridhuan B Khalid⁵, A. Hakimi Wong Abdullah⁶¹Baker Hughes; ²Petronas Carigali Sdn Bhd		
14:25	Afternoon Coffee Break		

14:55	VSP-assisted interpretation of 3D seismic data in the Mahanadi and Andaman Basins, India - R. Stewart ^{1*} , L. Shen ¹ , U. Shahriar ¹ , N. Gungor ¹ ¹ University of Houston
15:15	Enhancing fault identification in the complex geological structures of Sanga Sanga Region with Offset VSP - Y.I. Cakra¹*, T. Nugraha¹, Y.R. Apranda¹, S. Hartanto¹, A. Darmawan¹, D.L. Rahmani², I. Eliza² ¹PT Pertamina Hulu Indonesia; ²SLB
15:35	Session Q & A
15:55	Closing Remarks by Workshop Chairperson

Oral Presentations | Tuesday, 30 September

SULT	ANA BALLROOM			
08:00	Registration & Welcome Coffee			
08:30	Welcome by Chairperson: Review of Day 1 & Welcome to Day 2			
SESSION 3 - Microseismic Monitoring and				
Passive Seismic				
	on Chairs: Jakob B.U. Haldorsen (MaqiQ nologies) & Jan H. van der Mortel (Independent			
	ultant)			
08:40	Keynote 1 - Real-time Microseismic Monitoring in the Era of Machine Learning and DAS - Dr. Umair Bin Waheed (KFUPM)			
09:10	Microseismic monitoring with borehole DAS during CCUS operations onshore Japan - S. Nakayama ¹ , T. Mouri ^{2*} ¹INPEX Corporation; ²JOGMEC			
09:30	Advancing Passive/Microseismic Technology to Monitor Subsurface Reservoir During CO2 Injection R. Bitrusi*, A. Aljaberi², E. Smirnov¹, J.Z. Ahmed², M. Waqas², M. Abdelrahman Mohamed², F. Ofowena², V. Ryzhov¹ ¹Tenzorgeo; ²ADNOC			
09:50	The Impact of Preprocessing on DAS Micro-seismic Event Detection - H. Almomin ^{1*} , M. Park ² ¹Saudi Aramco; ²Stanford University			
10:10	Morning Coffee Break			
10:40	Effective fracture network description based on microseism in China's hydraulic fracturing test site - F. Heng ^{1*} , T. Liu ¹ , M. Zhao ¹ , L. Yan ¹ , N. Li ¹ ¹ BGP			
11:00	Revolutionizing Hydraulic Fracturing: Thailand's First Borehole Microseismic Monitoring Success in an onshore Oil Field - T. Tongpet ^{1*} , P. Boonyasatphan ¹ , D. Weeramethachai 1PTTEP			
11:20	Session Q&A			
Sessio	ION 4 - Time-lapse VSP monitoring Part II on Chairs: Phil Armstrong (Independent ultant) & James Bailey (VSProwess)			
11:40	An evaluation of the effect of VSP and surface acquisition geometries on 4D velocity estimates - R. Valensi ^{1*} , A. Ben-Hassine ¹ , R. Baina ¹ , V. Lesnikov ² ¹ Opera; ² TotalEnergies			
12:00	Time-Lapse VSP Monitoring of CO2 WAG Injection in a Carbonate Reservoir: Abu Dhabi Case Study - M. Waqas¹, M. Mohamed¹*, J.Z. Ahmed¹, F.O. Ofowena¹, A. Al Hamedi¹, R. Guerra², A. Al Bulushi², S. Dogra², S. Gupta², S. Ali², Y. Chen²¹ADNOC; ²SLB			
12:20	DAS VSP Monitoring of CO2 Plume in Carbonate Saline Aquifer Onshore Abu Dhabi - M. Waqas¹*, G. Cambois¹, O. Kirstetter¹, A. Martinez¹, J. Mason¹, J. Cowell¹, M. Mahgoub¹, A. Al Neyadi¹, Y. Chen², H. Li², D. Yu², X. Ji², G. Yu²¹ADNOC; ²BGP			

Disclaimer: The programme is confirmed as of publishing date and may be subject to change without prior notice.

Oral Presentations | Tuesday, 30 September

12:40	Session Q&A			
13:00	Lunch Break - Horizon Restaurant			
Inve Session	ION 5 - AVO, Anisotropy and rsion Part II on Chairs: Nestor Alexander Palacios Aponte nco) & Muhammad Waqas (ADNOC)			
14:00	First-arrival Raypath & Traveltime Modeling of a 2D Walkaway VSP Survey under Attenuating VTI Media - M.F. Darwis¹*, F. Bouchaala¹, M.K. Riahi¹¹Khalifa University			
14:20	Observed anisotropic effects of fractures in a hot dry rock geothermal reservoir by shear-wave polarisation analysis - S. Soulas¹*, W. Wills¹, S. Bridger¹, T. Tubridy¹, B. Kaack¹, C. Naville² ¹Avalon Sciences Ltd; ²IFP Energies Nouvelles			
14:40	Joint migration inversion of VSP walk-away lines offshore Abu Dhabi - B. El Marhfoul ^{1*} , E. Verschuur ¹ , T. Ishiyama ² , M. Asaka ² , A. Al-Khamiri ³ ¹ Delphi Studio for Imaging; ² INPEX; ³ ADNOC Offshore			
15:00	Afternoon Coffee Break			
15:30	Quantitative Interpretation and Imaging of Walkaway VSP Data: Navigating Rough Terrain and Complex Subsurface - H. Almarzooq ^{1*} , R. Alzayer ¹ , N. Hamad ¹ ¹ Aramco			
15:50	Sensitivity of singularity points position to fracture weak- ness change - J.V. Saide¹*, A. Stovas¹ ¹Norwegian University of Science and Technology - NTNU			
16:10	Acquisition Requirements for Inversion for Fracture Parameters with 3D DAS VSP Data - W. Cao¹*, T. Mizuno¹, M. Khaitan¹¹SLB			
16:30	Session Q&A			
16:50	Closing Remarks by Workshop Chairperson			
19:00	Workshop Dinner			

Oral Presentations | Wednesday, 1 October

	-	
SULT	ANA BALLROOM	
08:00	Registration & Welcome Coffee	
08:30	Welcome by Co-Chairs: Review of Day 2 & Welcome to Day 3	
SESSION 6 - Bridging the Scale Gap in Acoustic Measurements Through AI Session Chairs: Jan H. van der Mortel (Independent Consultant) & Jakob B.U. Haldorsen (MaqiQ Technologies)		
08:40	Keynote 2 - Innovations in Borehole Seismic: Overcoming Challenges and Driving Technological Advancements - Abdulrahman Shuhail (Aramco)	
09:10	Fracture detection using S-wave reflections and Stoneley wave from Full-Waveform sonic data - M. Altayeb ^{1*} , T. Tonellot ¹ , Y. Altowairqi ¹ 'Saudi Aramco	
09:30	Deep Learning-Based Automated Workflow for Stratigraphic Boundary Detection and Well Correlation - M.Q. Nasim ^{1*} , P. Nath Singha Roy ¹ 1Indian Institute Of Technology, Kharagpur	
09:50	Shear wave sonic log estimation from petrophysical data utilitizing machine learning models, lower indus basin pakistan - A. Abdullah¹*	
10:10	Field VSP Lookahead Inversion for Velocity via Temporal Convolutional Networks - H. Almarzooq ^{1*} , U. Bin Waheed ² , M. Alfarraj ² , S. Hanafy ² 'Aramco; ² KFUPM	
10:30	Morning Coffee Break	

Oral Presentations | Wednesday, 1 October

11:00	Using a Convolutional Neural Network To Differentiate Between Events and Production-related Seismic Signals: A case study from the Sultanate of Oman - J. Williams¹*, M. Beninger¹, T. Pugh¹, A. Kassam¹, Y. Al Sulaimi², S. Azri²¹ESG Solutions; ²Petroleum Development Oman Deep Learning for Multichannel Log Prediction Tool using
	Drilling Data and Gamma-Ray Log - Y. Alshaheen ^{1*} , A. Ali ¹ , P. Golikov ¹ , E. Alfataierge ¹ 'EXPEC ARC, Saudi Aramco
11:40	A kick in the salt, a case study of a water inflow using sonic log advanced processing - T. de Bittencourt Rossi ^{1*} Petrobras ¹
12:00	Session Q&A
Brea	kout Sessions
12:20	Introduction to Breakout Sessions & Discussion
13:20	Lunch Break - Horizon Restaurant
Sessio Vladi	on Chairs: Jeelani Bhat (Halliburton) & slav Lesnikov (TotalEnergies)
14:20	A DAS VSP case study, onshore Abu Dhabi, UAE - F. Ofowena ¹ , J. Ahmed ¹ , M. Alqaydi ^{1*} , J. Vargas ¹ , J. Bailey ² ADNOC ¹ ; VSProwess ²
14:40	Borehole seismic imaging using DAS: Horizontal wells, FORGE geothermal site, & elastic waves - R. Stewart ^{1*} , Y. Wang ¹ ¹ University of Houston
15:00	Signal-to-Noise Ratio Enhancement in DAS VSP Data Using Adjacent Trace Stacking Techniques - H. Almomin¹*, A. Shaiban¹ ¹Saudi Aramco
15:20	3D DAS-VSP data acquisition, processing and integrated interpretation in Junggar Basin - G. Yu¹².3*, S. Zhang¹, H. Chen¹, S. An¹², Z. Cai¹², B. Liu¹², M. Xiao²³, J. Wu¹², Y. Chen¹² ¹BGP Inc. CNPC; ²Optical Science and Technology (Chengdu) Ltd.; ³Chengdu University of Technology
15:40	Session Q&A
16:00	Closing Remarks by Co-Chairs
16:15	End of Workshop

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REGISTRATION

(All registration rates are in USD)

Registration Fees: Workshop & Two Short Courses (All Access)

REGISTERED AND PAID	EARLY REGISTRATION 30/6/25 - 24/8/25	REGULAR REGISTRATION 25/8/25 - 15/9/25	LATE REGISTRATION 16/9/25 - 1/10/25
EAGE Green Member ^{1,5}	1650	1900	2100
EAGE Bronze/Silver/Gold Member ^{1,5}	1490	1750	1950
EAGE Platinum Member ^{1,5}	1490	1490	1490
Non-member ³	1750	2000	2200

Registration Fees: Workshop & One Short Course

REGISTERED AND PAID	EARLY REGISTRATION 30/6/25 - 24/8/25	REGULAR REGISTRATION 25/8/25 - 15/9/25	LATE REGISTRATION 16/9/25 - 1/10/25
EAGE Green Member ^{1,5}	1450	1700	1900
EAGE Bronze/Silver/Gold Member ^{1,5}	1290	1550	1750
EAGE Platinum Member ^{1,5}	1290	1290	1290
Non-member ³	1550	1800	2000

Registration Fees: Short Course Only

REGISTERED AND PAID	EARLY REGISTRATION 30/6/25 - 24/8/25	REGULAR REGISTRATION 25/8/25 - 15/9/25	LATE REGISTRATION 16/9/25 - 1/10/25
EAGE Green Member ^{1,5}	575	675	825
EAGE Bronze/Silver/Gold Member ^{1,5}	525	625	775
EAGE Platinum Member ^{1,5}	525	525	525
Non-member ³	680	780	930

Registration Fees: Workshop Only

REGISTERED AND PAID	EARLY REGISTRATION 30/6/25 - 24/8/25	REGULAR REGISTRATION 25/8/25 - 15/9/25	LATE REGISTRATION 16/9/25 - 1/10/25
EAGE Green Member ^{1,5}	1150	1400	1600
EAGE Bronze/Silver/Gold Member ^{1,5}	990	1250	1450
EAGE Platinum Member ^{1,5}	990	990	990
Non-member ³	1250	1500	1700
EAGE Student Green Member ^{1,2,5}	375	425	475
EAGE Student Bronze/Silver/Gold Member ^{1,2,5}	300	350	400
Student Non-member ^{2,3,4}	400	450	500

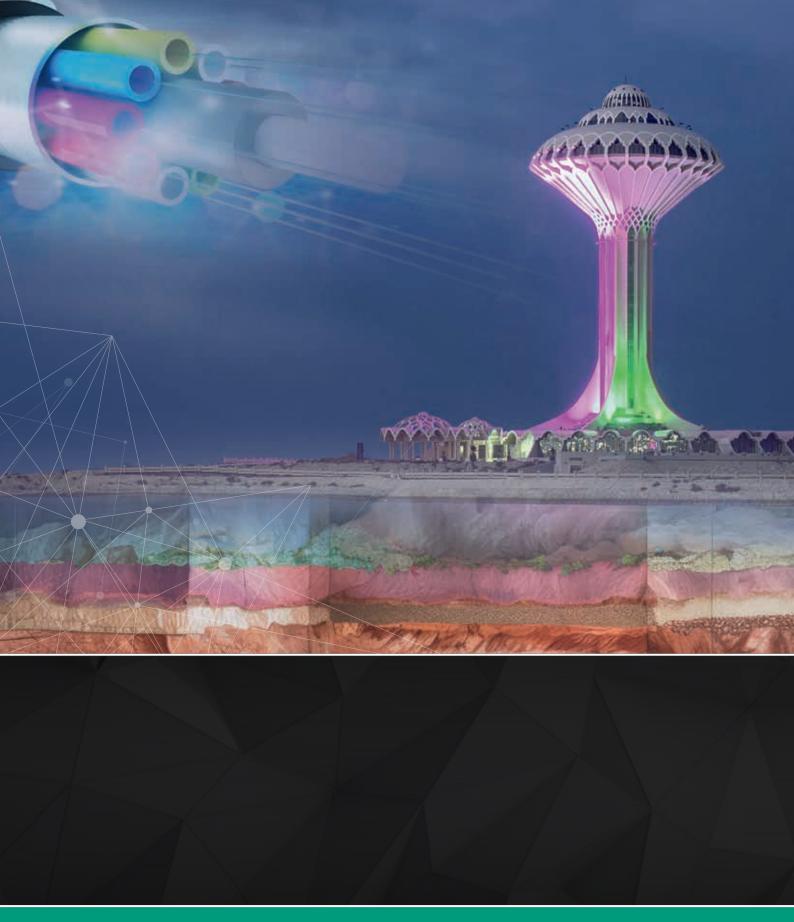
SOCIAL PROGRAMME

Workshop Dinner

Tuesday 30 September, 19:00hrs - 21:00hrs Venue: Blue Garden Restaurant Southern Corniche Rd, Al Khobar 34612, Saudi Arabia

CONTACT

For more information on the workshop, please get in touch with the EAGE MEA team via middle_east@eage.org or +971 4 369 3897.



EUROPE OFFICE | MIDDLE EAST/AFRICA OFFICE

ASIA PACIFIC OFFICE +60 3 272 201 40 +57 310 8610709 ASIAPACIFIC@EAGE.ORG AMERICAS@EAGE.ORG

AMERICAS OFFICE

HEAD OFFICE • KOSTERIJLAND 48 • 3981 AJ BUNNIK • THE NETHERLANDS • +31 88 995 5055 • EAGE@EAGE.ORG

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