EAGE

EUROPEAN ASSOCIATION OF GEOSCIENTISTS & ENGINEERS

Sixth EAGE Borehole Geophysics Workshop

MAXIMISING DATA VALUE DURING THE ENERGY TRANSITION

9-11 NOVEMBER 2021 • ONLINE

● **Technical Programme**

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WORKSHOP OVERVIEW

As the world accelerates the transition to cleaner, renewable energy, hydrocarbons are still, and will remain for some time yet, a key part of the energy mix. One constant through these changes is the vital role in hosting technical workshops, and this includes the Borehole Geophysics workshop, now in its sixth iteration.

Borehole geophysics is a key component to link surface measurements with the reservoir; data acquired in the well provide high resolution geological and geomechanical measurements vital to calibrate and constrain the processing of surface seismic and other data across the field. The Sixth EAGE Borehole Geophysics workshop will bring together geophysicists and geoscientists from operating companies, contractors, equipment suppliers, academics, and anyone interested in promoting and celebrating borehole geophysics in all its forms. It will allow delegates to showcase their latest technology, and provide a valuable forum for networking with key individuals and organisations in this field.

Although these workshops may have previously focussed on Vertical Seismic Profiling (VSP), the workshop will be open to

discussions covering a wide range of geophysical techniques, including VSPs. The technical programme will include 6 sessions:
- Calibration & Data Integration
- Machine Learning & AI
- Imaging & Inversion
- DAS Solutions
- Drilling Operations
- Monitoring & Sustainable Energy

On Monday, 8th November, there will be a full day online short course on Geophysical Data Analysis in Julia, including Machine Learning, led by Dr. Rajiv Kumar. Following this, the 3-day workshop programme will continue in a fully virtual setting. In addition to keynotes and technical presentations, the programme will include interactive panel discussions that are an essential part of the proceedings, allowing comments and discussions on wider issues to capture the consensus of opinion amongst the delegates.

SHORT COURSE

Monday, 8 November
09.30 - 16:00 CET, Online

Geophysical Data Analysis in Julia, including Machine Learning
Course instructor: Dr. Rajiv Kumar, Research Geophysicist at Schlumberger

In this hands-on course, an overview of the Julia language and of its applications to solving geophysical problems will be delivered through the use of a series of notebooks. Several key packages in the Julia ecosystem will be covered, which allow loading, viewing and analyzing geophysical data, with primary focus on seismic data. These include seismic data I/O, seismic data processing, modeling and inversion. Finally an introduction to seismic machine learning in Julia will be provided.

This course will be included in the workshop registration fee, all workshop participants will have access to the course at no extra cost. For external participants, there will be a fee to join the course. Please contact the EAGE MEA Office for more information.

TECHNICAL PROGRAMME

All timings are in CET (Central European Time)

Short Course | Monday 8 November

09:30	**Short Course: Geophysical Data Analysis in Julia, including Machine Learning -** Instructor: Rajiv Kumar (Schlumberger)

Oral Presentations | Tuesday 9 November

DAY 1	
09:30	**Welcome Address from Co-chairs**
09:45	**Keynote**
Calibration & Data Integration	
10:15	**BG01 - Advanced seismic calibration using multi-Walkaway VSP data, onshore UAE -** R. Guerra[1], P. Armstrong[2*], I. Salim[1], G. Cambois[3], M. Waqas[3], M. Caeiro[3], A. Al Kobaisi[3] [1]Schlumberger; [2]Independent Consultant; [3]ADNOC
10:40	**BG02 - Walkaway VSP in ultra-shallow water images deep targets, offshore UAE -** R. Guerra[1], I. Salim[1*], M. Lal Khaitan[1], A. Mavromatidis[2], T. Leythaeuser[2], K. Jan[2] [1]Schlumberger; [2]ADNOC
11:05	**BG03 - Quantitative borehole matching of surface seismic using zero-offset VSP data -** R. Guerra[1*], W. Gouveia[2] [1]Schlumberger, [2]Shell
11:30	**Break (15min)**
11:45	**BG04 - Multi-Physics Formation Evaluation of Shaly Sandstones Using Stochastic Inversion -** A. Shahin[1*], M. Myers[2], L. Hathon[2] [1]University of Isfahan; [2]University of Houston
12:10	**BG05 - Borehole Fracture Identification using Fullwave Sonic Data Analysis and Borehole Image Logs -** M. Altayeb[1*], C. Ayadiuno[1], A. Shaiban[1], M. Woldeamanuel[1] [1]Saudi Aramco
12:35	**BG06 - Integration of X-dipole sonic, Offset VSP and 3D seismic to calibrate a geological model -** S. Tcherkashnev[1*], T. Kuptsova[1], V. Kim[1], S. Dobrynin[1], A. Alzanov[2], P. Kravets[2] [1]ASTO Geophysical Consulting Pty Ltd; [2]Nostrum Oil & Gas PLC
13:00	**BG07 - Geothermal Borehole Logging: State of the art, challenges, and Opportunities. -** D. Saitet[1*] [1]Kengen
13:25	**Panel Discussion on Calibration & Data Integration**
13:55	**Break (45min)**
Machine Learning & AI	
14:40	**BG08 - Deep neural networks for inversion of borehole microseismic data recorded by DAS -** D. Wamriew[1*], E. Maltsev[1], R. Pevzner[2], D. Pissarenko[1] [1]Skolkovo Institute of Science and Technology; [2]Curtin University
15:05	**BG09 - VSP model building via deep learning -** Y. Ma[1*], J. Zhang[1] [1]University of Science and Technology of China (USTC)
15:30	**Panel Discussion on Machine Learning & AI**
16:00	**Virtual Icebreaker**

Oral Presentations | Wednesday 10 November

DAY 2	
09:30	**Introduction to Day 2**
09:35	**Keynote**
Imaging and Inversion	
10:05	**BG10 - Processing and Imaging of a DAS VSP Pilot Survey at the Culzean Field, UKCS -** H. Moore[1*], I. Iliev[1], S. Drummie[1], E. Kaszycka[1], V. Lesnikov[2], A. Merry[3], A. Mitra[3], M. Verliac[4] [1]CGG; [2]Total; [3]Total E&P; [4]Total SE
10:30	**BG11 - Ray-based Focused Vector Migration for Microseismic Applications -** J.B.U. Haldorsen[1*] [1]MagiQ Technologies
10:55	**BG12 - HTI anisotropy and 3D migration from Walkaround VSP -** S.A. Tcherkashnev[1*], V.N. Danilenko[1], A.A. Sergeev[1], L.A. Shulkova[1], T.N. Kuptsova[1] [1]SPF JSC GITAS
11:20	**Break (15min)**
11:35	**BG13 - VSP Planning and Repeatability Evaluation Based on Comparison of Fresnel Zones -** S. Tcherakshnev[1], A. Shevchenko[2*] [1]ASTO Geophysical Consulting Pty Ltd; [2]PetroTrace
12:00	**Panel Discussion on Imaging & Inversion**
12:30	**Break (45min)**
DAS Solutions	
13:15	**BG14 - Borehole-driven 3D surface seismic data processing using DAS-VSP data -** G. Yu[1*], Y. Zhang[2], Q. He[3], X. Cai[3], Q. Ding[3], J. Wu[3], W. Liu[3] [1]BGP Inc. CNPC; [2]Southwest Oilfield, CNPC; [3]Optical Science and Technology (Chengdu) Ltd.
13:40	**BG15 - MASW Analysis of an Active Landslide Using Active and Passive Data -** S. Cole[1*], P. Clarkson[1], M. Karrenbach[1], V. Yartsev[1] [1]OptaSense
14:05	**BG16 - Distributed Acoustic Sensing vs. Geophone Accelerometer Measurements -** M.L. Khaitan[1*], A. Sayed[1], A. Martinez[1], M. Useche[1], C. Duran[2], J. Araujo[2] [1]Schlumberger; [2]PetroSud
14:30	**BG17 - A Case Study of Hydraulic Fracturing Monitoring in Shale Gas Well Based on DAS -** S. An[1,3*], X. Liang[2], G. Yu[1,3], D. Li[2], J. Wu[1,3], S. Wang[1,3] [1]BGP. CNPC; [2]Zhejiang Oilfield, CNPC; [3]Zyaobo Ltd.
14:55	**Panel Discussion on DAS Solutions**
15:25	**End of Day 2**

Oral Presentations | Thursday 11 November

DAY 3	
09:30	**Introduction to Day 3**
09:35	**Discussion Session on Day 1 & 2**
Drilling Operations	
10:05	**BG18 - Drillbit source focusing using seismic-while drilling data in a desert environment -** A. Aldawood[1]*, E. Hemyari[1], I. Silvestrov[1], A. Bakulin[1] [1]Saudi Aramco
10:30	**BG19 - First Look-Ahead VSP based Salt-Face and Sub-Salt Imaging for Exploration Well Steering in Offshore Abu Dhabi -** M. Waqas[1]*, A. Yahia[1], A.S. Al Kobaisi[1], W.H. Borland[2], M. Atif Nawaz[2] [1]ADNOC; [2]Schlumberger
10:55	**BG20 - Overburden velocities and indirect interpretation of sub-seismic faults from SWD VSP data in the Askeladd Field -** P. Tynan[1]*, B. Wang[2], M. Haverl[3], M. Cox[1], G. Foster[1] [1]Baker Hughes; [2]Three60 Energy, consultant at Equinor; [3]Equinor
11:20	**Break (15min)**
11:35	**BG21 - Seismic Logging While Drilling Evolution -** N. Kelsall[1]*, L. Euranie[1] [1]Schlumberger
12:00	**BG22 - Using Walkaway-VSP to predict the multi-directional targeting of horizontal wells a case study from Ordos basin,China -** C. Chen[1]*, D. Wang, Y. Li, J. Deng, Y. Wang, Z. Cai [1]BGP
12:25	**BG23 - Utilizing acoustic telemetry networks for potential Seismic-While-Drilling applications -** A. Ross[1]*, M. Verliac[1], A. Hawthorn[2], J.P. Van Zelm[2] [1]Total; [2]Baker Hughes
12:50	**Panel Discussion on Drilling Operations**
13:20	**Break (45min)**
Monitoring & Sustainable Energy	
14:05	**BG24 - Which baseline is the best? A year of continuous time-lapse DAS VSP reveals seasonal repeatability variation -** R. Isaenkov[1]*, R. Pevzner[1], S. Yavuz[1], K. Tertyshnikov[1], A. Yurikov[1], P. Shashkin[1], B. Gurevich[1], J. Correa[2], T. Wood[2], B. Freifeld[3] [1]Curtin University; [2]Lawrence Berkeley National Laboratory; [3]Class VI Solutions, Inc.
14:30	**BG25 - MsMr-VSP: A specialized VSP survey for high-resolution imaging of stratigraphic clinoforms for carbonate reservoir monitoring -** M.A. Nawaz[1]*, W.H. Borland[1], S. Ali[1], J.Z. Ahmed[2], M. Waqas[2], S.A. Khoori[2] [1]Schlumberger; [2]ADNOC

14:55	**BG26 - Time-lapse walkaway VSP acquisitions with optimal repeatability in CO2 EOR project, onshore UAE -** A. Abdel-Halim[1]*, F. Ofowena[2], R. Guerra[1], S. Ali[1], I. Salim[1], J. Vargas[2], J. Ahmed[2], M. Al Baloushi[2] [1]Schlumberger; [2]ADNOC
15:20	**Panel Discussion on Monitoring & Sustainable Energy**
15:50	**Closing Remarks & End of Workshop**

IMPORTANT DATES

Early Registration Deadline	9 October 2021
Regular Registration Deadline	8 November 2021
Short Course	8 November 2021

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CONTACT

For more information on this workshop, please contact the EAGE Middle East & Africa office via middle_east@eage.org or +971 4 369 3897.