

EAGE

EUROPEAN
ASSOCIATION OF
GEOSCIENTISTS &
ENGINEERS

EAGE Seabed Seismic Today: from Acquisition to Application

8-10 SEPTEMBER 2020 • ONLINE

- **Technical Programme**



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TECHNICAL COMMITTEE

Claudio Bagaini	Schlumberger
Gary Hampson	DownUnder GeoSolutions
Constantine Tsingas	Saudi Aramco
Sandeep Kumar Chandola	Petronas
Guillaume Cambois	ADNOC
Eivind Fromyr	Fromyr Geophysical Consultancy
Chris Walker	BGP Offshore
Tim Bunting	Seabed Geosolutions

WORKSHOP OVERVIEW

Approximately a quarter of a century ago, Eivind Berg, James Martin and Bjørnar Svenning “took land seismic to the seabed.” Their pioneer acquisition and processing work, which was supported by Statoil (now Equinor) provided a new tool to the seismic exploration community to address the well known issue of imaging reservoirs located underneath gas charged sediments.

The early successes on the application of shear waves recorded at the seabed sparked an explosion of interest and activity. Theoretical seismologists, who studied the potential applications of this new type of seismic acquisition, came up with a long list that included: imaging reservoirs with weak acoustic impedance contrasts, fracture characterization, distinction of lithology and fluid effects, pore pressure prediction, high resolution imaging of shallow reservoirs, imaging underneath formations with high P impedance contrasts and discrimination between saturation and pressure changes in reservoir monitoring. Arguably, only imaging underneath gas charged sediments has so far been a widely employed success of shear waves recorded at the seabed.

However, in the last five years, despite the economic downturn, there has been a huge return of interest in seabed seismic acquisition, processing and interpretation, the main driver being P-wave imaging with wide azimuths. This workshop aims at studying the technical reasons of this phenomenon and to identify the challenges that these technologies still faces.

The conveners of this workshop plan to invite industry experts to give presentations that will help to bring all the attendees up to speed on seabed seismic acquisition, processing and interpretation. Case histories from the participants and theoretical developments from the researchers in the industry and from the academia are also welcome.



TECHNICAL PROGRAMME

Online Presentations | Tuesday 8 September

ALL TIMES ARE IN CEST

13:00 Co-chair Welcome Address

Acquisition

Session Chairs: C. Bagaini (Schlumberger) & C. Walker (BGP Offshore)

13:10 **SB01 - The largest 3D seabed seismic survey in the world is under way offshore Abu Dhabi** - G. Cambois^{1*}, S. Al Mesaabi¹, G.A. Casson¹, J. Cowell¹, D. Arnold¹, M. Mahgoub¹, M. Al Hammadi¹, K. Obaid¹
¹ ADNOC

13:35 **SB02 - Sparse Node survey in GoM, first results and further experiments** - H. Roende^{1*}, C. Udengaard¹, R. Malik¹, Y. Huang¹, D. Bate¹
¹ TGS

14:00 Break

14:10 **SB03 - Multiple Source Towed Streamer and Seabed "Hybrid" Seismic Acquisition in The Middle East** - J. Wallace^{1*}, M. Adnan², D. Sturko²
¹ Polarcus; ² Dubai Petroleum Establishment

14:35 **SB04 - The Evolution of the OBN Acquisition Solution** - T. Bunting^{1*}
¹ Seabed Geosolutions

15:00 Break

15:10 **SB05 - Autonomous Underwater Vehicles: A game changer for seafloor nodal acquisition** - C. Tsingas^{1*}, T. Brizard, A. Al Shuhail
¹ Saudi Aramco; ² Seabed Geosolutions; ³ Saudi Aramco

15:35 **SB07 - OBN 3D/4D imaging: Reducing radically the number of seabed sensor for Full Wavefield Migration and FWI** - D. Lecerf^{1*}
¹ PGS

16:00 Discussion Session on Acquisition

End of Day 1

Online Presentations | Wednesday 9 September

Case Studies

Session Chairs: C. Bagaini (Schlumberger) & G. Hampson (DUG)

13:05 **SB08 - Improved reservoir monitoring with PP & PS time-lapse imaging utilising up/down deconvolution: Edvard Grieg field** - F. Twynam^{1*}, R. Ford¹, P. Caprioli¹, M. Hooke¹, R. Whitebread¹, P.E. Dhelie², V. Danielsen², K.R. Straith²
¹ WesternGeco; ² Lundin

13:30 **SB09 - Processing and imaging of a multi-petabyte OBN survey in the North Sea** - T. Rayment^{1*}, G. Hampson², L. Letki¹
¹ DownUnder GeoSolutions; ² DownUnder GeoSolutions

13:55 Break

14:05 **SB10 - Seabed Seismic Application in Malaysian Basins: Unlocking the Subsurface Complexities.** - S. Kumar^{1*}, S. Chandola¹, A.A. Khalil¹, W.H. Tang¹, A.A.B. Muhamad¹
¹ PETRONAS CARIGALI SDN BHD

Processing

Session Chairs: G. Hampson (DUG) & G. Cambois (ADNOC)

14:35 **SB11 - Down/down deconvolution** - G. Hampson^{1*}, G. Szumski²
¹ DownUnder GeoSolutions; ² DownUnder GeoSolutions

15:00 Break

15:10 **SB13 - A denoising workflow of seafloor vertical geophone using 4-C data** - W. Jeong^{1*}, C. Tsingas¹, M. Mubarak¹
¹ Saudi Aramco

15:35 **SB14 - An Overview of OBN Processing Challenges and Technologies Development** - D. Zhang^{1*}, C. Tsingas¹, A.A. Ghamdi¹, M. Huang¹, K.K. Sliz¹, W. Jeong¹
¹ Saudi Aramco

16:00	Break
16:10	SB15 - Multi-component seismic data processing of a 3D 4C OBC dataset for lithological identification. - B. Kamel ^{1*} ¹ Saudi Aramco
16:35	SB16 - Improving quality control and data understanding of a large OBN survey through unsupervised machine learning - F. Damianus ^{1*} , M. Al Sarmi ¹ , A. Roubaud ¹ , G. Cambois ² , M. Mahgoub ² ¹ CGG; ² ADNOC
17:00	Discussion Session on Processing
End of Day 2	

Online Presentations | Thursday 10 September

Imaging and Velocity Model Building Session Chairs: E. Fromyr (Fromyr Geophysical Consultancy) & G. Cambois (ADNOC)	
13:05	Keynote - Strategies to increase efficiency of node surveys - J. Blanch ^{*1} , A. Kostin ¹ , M. Cahoj ¹ , D. Ren ² , F. Lin ² ¹ BHP; ² CGG
13:45	SB17 - Surface-related multiples help image the overburden in shallow waters offshore Abu Dhabi - A. Almessabi ^{1*} , G. Cambois ¹ , M. Mahgoub ¹ , J. Oukil ² , S. Naumann ² , A. Pankov ² ¹ ADNOC; ² PGS
14:10	Break
14:20	SB18 - Robust Full Waveform Inversion for sparse ultra-long offset OBN data - H. Aghamiry ¹ , A. Gholami ² , S. Operto ^{1*} ¹ UCA - CNRS - GeoAzur; ² University of Tehran
14:45	SB20 - Elastic full-waveform inversion using all components of 4C data. - D. Vigh ^{1*} , X. Cheng ¹ , K. Jiao ¹ ¹ Schlumberger
15:10	Break
Novel Applications Session Chairs: C. Walker (BGP Offshore) & T. Bunting (Seabed Geosolutions)	
15:20	SB23 - Up-down deconvolution in complex geological scenarios - D. Boiero ¹ , C. Bagaini ^{1*} ¹ Schlumberger
15:45	SB24 - 4D gravity and subsidence monitoring as cost-effective alternatives to 4D seismic - H. Ruiz ^{1*} , M. Lien ¹ , J.E. Lindgård ¹ ¹ OCTIO AS
16:10	Break
16:20	SB25 - Accurate measurement of node depths and seafloor deformation during seabed seismic acquisition - P. Hatchell ² , H. Ruiz ¹ , A. Libak ^{1*} , R. Agersborg ¹ , B. Nolan ² ¹ OCTIO AS; ² Shell International Exploration and Production Inc.
16:45	Discussion Session on Novel Applications
End of Workshop	

HOW TO JOIN THE WORKSHOP

The workshop will be held online, all registered and paid attendees will receive a link to join the workshop a few hours prior to the start. The time zone for the event is in CEST, and the starting time for each day is at 1:00 PM CEST. Please ensure you log on early to test your sound and camera to avoid any technical issues on the days of the event.

REGISTRATION

REGISTERED AND PAID	Until 8 SEP
EAGE Member	€ 150
EAGE Student Member	€ 50
Non-Member	€ 225
Student Non-Member	€ 75

Members please note: To qualify for the member registration fee, your EAGE membership dues for 2020 must have been paid and confirmed. The processing time for membership applications or renewals is around 10 working days.

To qualify for the reduced student registration fee:

- Students must be enrolled in a full-time study programme at a recognized university or institute.
- The registration must be accompanied by a copy of a student ID card and/or official proof of enrolment.

The non-member fee includes EAGE membership for the remainder of 2020.

This membership will be activated shortly after the conclusion of the event.

Student non-members cannot be older than 34 years of age (when registering).

Please visit the event website for more information about the workshop and how to register, or contact us at:

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