Second EAGE/SPE Geosteering and Well Placement Workshop

5-8 November, 2018 • Abu Dhabi, UAE

Technical Programme
WORKSHOP OVERVIEW

This three-day workshop has the primary goal to share knowledge, case studies, techniques and workflows pertaining to the understanding of well placement process, sub-surfaces in real time while drilling and optimum deployment of techniques and technologies for geosteering of horizontal and sub-horizontal wells. With sparse new hydrocarbon discoveries around the world and the wobbling oil prices, the call for more effective producers becomes prominent. This entails the need for accurate well placement and careful geosteering to obtain better field throughput and recovery. Future improved efficiency and accuracy could be obtained through more integrated services where the oil reservoir is mapped in real-time. Raising geosteering technologies and workflow that will shape the future of our discipline; benefits of multi-disciplinary integration; experienced and/or planned that could revolutionize the operational deployment and applications of geosteering.

The workshop will feature discussions to help each and all to envision the potential contribution of Machine Learning and Artificial Intelligence to support geosteering and well placement discipline. Sharing experiences between the participants and paving the road for future development have direct influence on burgeoning the process of geosteering and well placement.

Workshop Objectives

Objectives of this workshop are to establish unanimous venue to exchange knowledge and expertise between professionals from industry and academia on well placement and geosteering topics.

The technical program is involved with oral presentations and posters covering several well placement and geosteering topics including:

- Best Practices & Techniques
- Case Studies
- Challenges With Uncertainties
- Integration of Data and Technology
- Future of Well Placement and Geosteering to achieve optimum placement and landing for horizontal and deviated well

Participants will have the opportunity to present their experiences, and describe how such a diverse team can be integrated to improve the well placement process and the impact it has on successful operations.

Monday 5 November

SHORT COURSE

Precise well placement and best real-time and post-drill geosteering practices based on new methods and extensive data integration

Instructor: Dr. Karén Vlad Payrazyan, Rogii Inc.
8:00 AM, Monday, November 5, 2018

Recent developments in IT capabilities and data acquisition have led to great advancements in real-time well placement and geosteering of various types of wells in different types of reservoirs throughout the world. This course will give a comprehensive introduction to well planning and real-time geosteering. Attendees will work with a variety of data types, including but not limited to various logs, image logs, seismic sections, and grids, as well as deep and ultra-deep investigation resistivity logs forward modeling and inversion. Importance and resolution of individual datasets will be discussed in relation to effective geosteering. Multiple approaches, strat-based and model-based geosteering, will be evaluated and used on/in real case studies from around the world. Attendees will learn the basics of geosteering technology, the minimum and recommended data requirements, the benefits of various geosteering methods, and the best practices for positive impact of geosteering on accurate well placement and increased productivity.

For more information about the instructor and detailed outline of the course please visit: https://bit.ly/2mHU9RF

18:00 Icebreaker Reception
**TECHNICAL PROGRAMME**

**Oral presentations | Tuesday 6 November**

**MASTERS 1 BALLROOM**

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<tr>
<td>08:30</td>
<td>HSE from Hotel</td>
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<tr>
<td>08:35</td>
<td>Welcome &amp; Aims</td>
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<tr>
<td>08:40</td>
<td>Pushing The Limits of Geosteering &amp; Wells Placement - K. A. Zinamalbedin (Saudi Aramco)</td>
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**Case studies - Best Practices and Strategies for Well Placement and Geosteering**

D. Boyd (ADNOC - Upstream), E. Suter (NORCE)

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<tr>
<th>Time</th>
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<tr>
<td>09:10</td>
<td>GEE01 Horizontal Well Placement Benefits of High Resolution Images in Real Time, Case Study from UAE - A. B. Abdelkarim (Weatherford), S. AlHassani (ADNOC Offshore), S. Ahmed (ADNOC Offshore), H. Abujimeh (ADNOC Offshore), A. Sery (ADNOC Offshore), M. El Kholy (Weatherford)</td>
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<td>09:35</td>
<td>GEE02 Dive into the Channels. Mapping Channel Facies with Multilayer Bed Boundary Detection Technology - S. Lebedev (Schlumberger), A. Makarabtov (Schlumberger), Y. Selivanov (Schlumberger), V. Sayifitidova (Schlumberger), S. Kochneva* (Schlumberger), A. Enrygane (Schlumberger), V. Petmyakov (Lukoil-Perm)</td>
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**Coffee Break & Poster Session**

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<th>Time</th>
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<td>10:00</td>
<td>Coffee Break &amp; Poster Session</td>
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**Case studies - Best Practices and Strategies for Well Placement and Geosteering Continued**

D. Boyd (ADNOC - Upstream), E. Suter (NORCE)

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<tr>
<td>13:10</td>
<td>GEE06 3D Surface Shape Conformance QC in Geological Model Building - M. A. Jervis* (Saudi Aramco), T. W. Thompson (Saudi Aramco), J. N. Vogt (Saudi Aramco)</td>
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<td>13:35</td>
<td>GEE07 Reactive Geosteering for Real-time Pro-Active Well-Placement decisions targeting multiple thin carbonate layers A Case History from an Undeveloped Reservoir, Offshore Abu Dhabi - S. O. Al-Hassani (ADNOC - Offshore), I. Al Tamimi (ADNOC - Offshore), D. Amre Khan (ADNOC - Offshore), S. Naseem (ADNOC - Offshore), W. Fares* (Halliburton), R. Essam (Halliburton), A. Ali (Halliburton)</td>
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**Lunch Break**

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**Oral presentations | Wednesday 7 November**

**MASTERS 1 BALLROOM**

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<th>Time</th>
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<tr>
<td>08:25</td>
<td>Introduction to Day 2</td>
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<td>08:30</td>
<td>Keynote Speaker - J. M. Denichou (Schlumberger)</td>
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**Best Practices and Strategy based on Deep Directional Resistivity tools**

M. Mele (Eni S.p.A.), N. Clegg (Halliburton)

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<tr>
<td>09:00</td>
<td>GEE10 The Use of Ultra-Deep Resistivity Tools and its Impact on Cost Saving, Casing Design Optimization and Drilling Risks Reduction During Well Planning Phase - G. Tosi* (Eni Norge), D. Salim (Schlumberger)</td>
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<td>09:25</td>
<td>GEE011 Extra-Deep Azimuthal Resistivity in Deep Offshore Niger Delta - C. Nokoku* (BHGE), P. Brock (BHGE), P. Wharton (BHGE), V. Okoo (BHGE), N. Foekema (BHGE)</td>
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<td>09:50</td>
<td>GEE12 The Greater Enfield Project: Planning for Success through Robust Well Placement and Geosteering Strategies - S. Thompson* (Woodside Energy Ltd), M. Rigliden (Schlumberger), D. Baker (Woodside Energy Ltd)*</td>
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**Coffee Break & Poster Session**

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<td>10:20</td>
<td>Coffee Break &amp; Poster Session</td>
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**Role of data integration for Intelligent Well Placement**

V. K. Payrazyan (ROGII Inc.), A. Bassiouney (Weatherford)

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<td>11:15</td>
<td>GEE13 Expanding the Envelope: Demonstrating a 200ft Depth of Detection for an Ultradeep Azimuthal Resistivity Tool - N. Clegg* (Halliburton), B. Djefel (Halliburton), M. Welch (Halliburton)</td>
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**Coffee Break & Poster Session**

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**Role of data integration for Intelligent Well Placement Continued**

V. K. Payrazyan (ROGII Inc.), A. Bassiouney (Weatherford)

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<td>12:05</td>
<td>Lunch Break</td>
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**Workshop Dinner, Sacci Restaurant**

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<td>19:30 - 22:30</td>
<td>Workshop Dinner, Sacci Restaurant</td>
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Oral presentations

MASTERS 1 BALLROOM

08:25 Introduction to Day 3

08:30 Breaking The Norms of Geosteering & Well Placement - G. AlQahtani (Saudi Aramco)

Uncertainties in wellbore surveying

D. Boyd (ADNOC - Onshore), D. Baker (Woodside Energy Ltd)

09:00 GEE21 Utilising Geological Markers to Verify the Wellbore Vertical Geometrical Placement - D. Selvaag Larsen* (BHGE), I. Aarnes (BHGE), I. Edvardsen (BHGE)

09:25 GEE22 Wellbore Trajectory Uncertainty Management for Geosteering Optimization - G. Gangemi* (ENI), F. Chinellato (Schlumberger)

09:50 GEE23 Quantification of Survey Deviation in Real-Time to Prevent Well Collision - M. Al Isber (Petrolink), T. Jovin (Petrolink)

10:20 Coffee Break & Poster Session

Vision for Well Placement and Geosteering – Where the Industry is Going?

10:50 GEE24 A Methodology for Effective Earth Model Management while Geosteering – E. Suter* (IRIS), T. Kårstad (UiS), A. Escalona (Uis), H. A. Friis (IRIS), V. Vefring (IRIS), S. Alyaev (IRIS)

11:15 GEE25 Towards a Fast Integral Equation Method for Inversion of Electromagnetic Data – M. Sommer* (University of Bergen), M. Jakobsen (University of Bergen)

11:40 GEE26 Are you Myopic, Naive or Farsighted About your Geosteering Decisions? - S. Alyaev* (IRIS - International Research Inst. of Stavanger), E. Suter (NORCE), R. B. Bratvold (University of Stavanger)

12:05 Lunch Break

Vision for Well Placement and Geosteering – Where the Industry is Going? Continued

13:30 GEE27 Local 3D Understanding Around Horizontal Wells Provided by Deep 2D Azimuthal Resistivity Inversions - F. Antonsen* (Equinor ASA), M. E. Teixeira De Oliveira (Equinor ASA), B. A Petersen (Equinor ASA), R. William Metcalfe (Equinor ASA), J. M. Denichou (Scheumberg), G. AlQahtami (Saudi Aramco)

13:55 GEE28 Look Ahead Opportunity in Geosteering Operations: real time seismic calibration using ultra-deep azimuthal resistivity - M. Mele (Equinor ASA), F. A. Arata, C. Tarchian (Equinor ASA), F. Chinellato (Schlumberger), D. C. Salim (Schlumberger Stavanger Research)

14:20 Coffee Break & Poster Session

14:50 GEE29 Boundary Detection Ahead of the Bit – a sensitivity study of Extra Deep - A. Muntz* (BHGE), D. Larsen (BHGE), D. Boesing (BHGE), A. Hartmann (BHGE), M. Martakov (BHGE), J. Skilling (BHGE), A. Vianna (BHGE)

15:15 GEE31 Resitivity Ahead of the Bit – from Vision to Reality - M. Constable (Equinor ASA), F. Antonsen (Equinor ASA), J. Seydoux (Schlumberger), D. Omeragic (Schlumberger), D. Salim (Schlumberger), K. R. Jensen* (Equinor ASA)

15:40 Workshop Closing Remarks

Poster Sessions

Kindly note all below posters will be made available on all 3 days of the workshop at each coffee break.

P001 Geo-steering within Ultra-thin Reservoirs in Block-5 - T. Al-Abdali* (Daleel Petroleum)

P004 Rotary steerable directional tool precision in Unconventional Resources - A. Alnasser* (Saudi Aramco), M. E. Elasmar (Saudi Aramco)

P005 Integrated Geosteering Solution In High Uncertainty Faulted Reservoir-Oman - D. Khalifi* (Schlumberger), A. Farah (Schlumberger), A. El Havy (Schlumberger), A. Al Maktoumi (Schlumberger), G. Al Ghaithi (Schlumberger), A. Al Abri (Schlumberger), Z. Al Abri (PDO), P. Haesser (PDO)

P006 Complex Deepwater Reservoir in the Niger Delta - C. Ndokwu* (BHGE), D. Brock (BHGE), H. Andersson (BHGE), H. Pedersen (BHGE), V. Okowoi (BHGE)

P007 Ensemble-based Decision-support Workflow for Operational Geosteering - S. Alyaev* (IRIS - International Research Inst. of Stavanger), E. Suter (NORCE), R. B. Bratvold (University of Stavanger), E. H. Vefring (IRIS), N. Johani (IRIS)

VENUE

The Westin Abu Dhabi Golf Resort & Spa
Address: Abu Dhabi Golf Club, Sas Al Nakhl, Abu Dhabi, UAE
Telephone: +971 2 616 9999

SOCIAL PROGRAMME

Icebreaker Reception
Aperol Bar
6:00 PM, Monday 5 November 2018
Westin Abu Dhabi

Dinner
Sacci Restaurant
7:30 PM, Wednesday 7 November 2018
Westin Abu Dhabi
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