

3rd EAGE/SPE Geosteering Workshop 2021

Online
2-4 November 2021

ISBN: 978-1-7138-4094-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2021) by the European Association of Geoscientists & Engineers (EAGE)
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact by the European Association of Geoscientists & Engineers (EAGE)
at the address below.

European Association of Geoscientists & Engineers (EAGE)
PO Box 59
3990 DB Houten
The Netherlands

Phone: +31 88 995 5055
Fax: +31 30 634 3524

eage@eage.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

SESSION ONE PART I: INDUSTRY CASE STUDIES FOCUSED ON BEST PRACTICES AND STRATEGIES FOR WELL PLACEMENT AND GEOSTEERING APPLICATIONS IN VARIOUS RESERVOIR TYPES

Finding the Needle in a Haystack: Multi-Solution Integration for Multiple Challenges, a Case Study from UAE.....	1
<i>J. Maalouf, S. M. Lyonga, S. Suleiman, W. Siddiqui, C. Shrivastava, M. Ashraf, H. Khemissa, Y. Goraya</i>	
Mapping of Water Slumping Using Ultra-Deep EM Logging While Drilling Technology in Carbonate Reservoirs Onshore-Abu Dhabi	7
<i>W. Fares, M. Singh, M. Al Manssori, V. Pandey, I. Seddik, S. Al Arfi, D. Boyd, N. Clegg, A. Aki</i>	
Mapping Reservoir in Complex Fluvial Channel Sand with 3-D Mapping Reservoir Mapping While Drilling.....	11
<i>I. Pasaribu, T. M. Gezeeri, S. H. Al Sabea, M. Al Hadad, Y. A. Halawah, M. Al Rashidi, D. Salim, C. Jyoti Keot, S. N. Osman, S. M. Abdelbaset</i>	
Mapping the OWC with Extra-Deep Resistivity in the Lower Burgan Reservoir, Kuwait	14
<i>T. El-Gezeery, Y. Halawah, M. Al Rashidi, S. Al Sabea, P. Sudiro, E. Sitinjak</i>	
Real Time Navigation in Complex Deltaic Scenario: the Role of Multiscale Approach for Geosteering Optimisation	18
<i>A. Leone</i>	
Real-Time 3D Imaging of a North Sea Turbidite Reservoir.....	23
<i>S. Sinha, K. Riofrío, A. Walmsley, N. Clegg, S. Sviland-østre, N. Gueze</i>	
Remotely Navigating Thin Reservoirs in ERD Wells. North Slope Alaska.....	28
<i>P. Sudiro, K. Hoffmeister, M. Howell, A. Small, I. Says</i>	
Retrofit Multilateral Application - Innovative Solution to Unlock Reservoir Potential and Increase Recovery. Goliat Experience	33
<i>C. Musca, G. Tosi, S. Ragaglia, L. L. Napoleone</i>	
Ultra-Deep EM LWD Mapping Tool Provided Efficient Geostopping Solution to Eliminate Need for Pilot Holes Offshore-UAE.....	38
<i>A. Al Felasi, K. Honda, O. Al Mutwali, H. Khemissa, B. Al Dhafari, M. Ashraf, S. Al Hajeri, Y. Goraya, A. Alkhoori, W. Fares, A. Aki, N. Clegg</i>	

SESSION TWO PART I: ADVANCEMENT IN DATA ANALYTICS METHODS; TO ASSIST IN GEOSTEERING AND WELL PLACEMENT

Wellbore Trajectory Optimization Using Geological Inputs.....	43
<i>M. Abughaban, A. Alali</i>	
Similar Geology, Same Stochastic Inversion, Different Azimuthal Resistivity Tools - Lessons Learned from Well Placement Experience	49
<i>D. Nemuschenko, P. Shpakov, P. Bybin, K. Ronzhin, M. Sviridov</i>	

Uncertainty Quantification on the Inversion of Geosteering Measurements Using Deep Learning.....	52
<i>J. A. Rivera, J. A. Rivera, D. Pardo, J. Omella, C. Torres-Verdín</i>	
Azimuthal Geosteering Technique	57
<i>T. Popov, D. Leontyev, I. Evdokimova, Y. Selivanov, V. Kim</i>	
2D Inversion for Structure with Angular Unconformity on Example of Troll Field.....	62
<i>A. Astrakova, E. Konobriy, D. Kushnir, N. Velker, G. Dyatlov</i>	
Reducing 3D Uncertainty by an Ensemble-Based Geosteering Workflow: An Example from the Goliat Field.....	67
<i>K. Fossum, S. Alyaev, E. Suter, G. Tossi, M. Mele</i>	
Novel GTS for Realistic Geosteering Training and Optimization of Well Placement Strategies	72
<i>B. E. Danielsen, F. Antonsen, M. V. Constable, M. E. T. De Oliveira, K. Hermanrud, S. A. Petersen</i>	

SESSION THREE PART I: DISCUSSIONS FOCUSED ON EFFICIENT WORKFLOWS AND TECHNOLOGIES FOR DATA INTEGRATION AND MODELLING DURING REAL-TIME GEOSTEERING

Accurate Reservoir Description and Well Placement Using Distance Data, Zone Logs and Depth to Fluid Contact	77
<i>P. Dahle, A. Almendral Vazquez, A. Sektman</i>	
Integrating Time-Indexed Archives of Past Drilling Data Improves the Reliability of Geosteering and Monitoring Activities.....	82
<i>P. Neri, R. Philo</i>	

SESSION THREE PART II: DISCUSSIONS FOCUSED ON EFFICIENT WORKFLOWS AND TECHNOLOGIES FOR DATA INTEGRATION AND MODELLING DURING REAL-TIME GEOSTEERING

Integration of Seismic and 3D Ultra-Deep Azimuthal Resistivity LWD	85
<i>M. Alexander, D. Salim, M. Etchebes, T. Akindipe</i>	
Practicalities of 3D Well Placement.....	90
<i>N. Clegg, A. Walmsley</i>	
Technical and Intra-Organizational Implementations for Improved Geosteering and Reservoir Characterization.....	95
<i>K. Hermanrud, F. Antonsen, M. Vik Constable, B. Ensted Danielsen, M. E. Teixeira De Oliveira</i>	
Enhancing the Understanding of a Mature Giant Oil Field from the Wellbore to Reservoir Scale.....	100
<i>M. Viandante, L. Pontarelli, S. Leveque, C. Longis, S. Finlay, S. Sen, D. Cross, D. Hartney, A. Azeem, O. Onyia</i>	

**SESSION FOUR PART I: VISION FOR WELL PLACEMENT AND GEOSTEERING –
WHERE IS THE INDUSTRY GOING? HOW WILL NEW TECHNOLOGY, BIG
COMPUTING RESOURCES, AND INTEGRATED WORKFLOWS OPEN NEW
POSSIBILITIES IN THE FUTURE?**

Probabilistic Forecasting for Geosteering in Fluvial Successions Using a Generative Adversarial Network 104
S. Alyaev, J. Tveranger, K. Fossum, A. H. Elsheikh

Using a Real-Time 3D-reservoir-mapping Tool to Image a Complex Deep-water Reservoir in a Producing Oil Field 109
D. Baker, V. Cutten, H. Wang

A Multi-physic Methodology for 3D Structural Delineation and Geosteering in Real-time Using Cloud Computing 113
M. Bower, D. Salim, M. Etchebes, V. Wibowo

The Use of High Performance and Cloud Computing in Well Placement Operations 118
V. Usaitis

New Multiscale Measurement Approach for Geosteering in Low Resistivity and Low Contrast Reservoirs: Cygnus Field. 122
M. Dupouy, K. Simpkin, M. Covill, M. Bower

POSTERS

P01: Coal Seam Miming: a New Frontier for Advanced Real-Time Modeling with Deep Azimuthal Resistivity 127
A. Martins Vianna Neto, K. Boyce, M. Ramsay

P02: Prototype Concept of Reservoir-Profile-Update-Rate to Quantitatively Evaluate Efficiency of Reservoir Description with Different Services While Drilling 131
B. Chang, C. Wang

P03: Jurassic Gas. Geosteering with Reservoir Mapping Technology in Jurassic Deposits of Zapadno-Yurkharovskoe Field in Russia 136
V. Sayfitdinova, R. Khabibullin, E. Skorikova, T. Berdnikova, A. Shakunov

Author Index