

**EAGE**

EUROPEAN  
ASSOCIATION OF  
GEOLOGISTS &  
ENGINEERS



# EAGE/ALNAFT Geoscience Workshop

**ENHANCED OIL RECOVERY IN MATURE FIELDS & TIGHT RESERVOIR  
AND DEEP RESERVOIR CHARACTERIZATION AND EVALUATION**

28-30 JANUARY 2019 • ALGIERS, ALGERIA

- **Final Announcement & Technical Programme**

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## WORKSHOP OVERVIEW

As global demand for energy rises and as hydrocarbon basins mature to a point of few or no remaining untested big structures, one of the main challenges facing explorationists and producer is how to continue being creative and innovative in order to successfully push back the limits of the hydrocarbon exploration and production. There is an increasing need to look at new thematic in exploration of the tight formation and in field development challenges to explore in new ways and leveraging new technologies.

This workshop aims to highlight new inroads on how we can 'Move Forward by Exploring Differently' particularly through sharing relevant learning on best practices in exploration and production (e.g. workflows, techniques, back to basic geology), lessons learned from failure cases (exploration, production, technologies), innovative technology applications (e.g. geophysics, remote sensing) and examples of where making use of old data with new processes made a difference (e.g. a new play entry).

## WORKSHOP OBJECTIVE

Our key objective is to meet worldwide experts from different disciplines, (geology, geophysics, petrophysics, reservoir engineering), in the oil and gas industry in order to share their knowledge and experience to identify potential challenges, solutions and the best practices applicable to the exploration of the tight formation and to field development challenges of the new or mature fields; this will be supported by presentations of successful case studies and the sharing of lessons learned through technical discussions, communication and networking.

Exploration Geologists, Specialist Geologists, Reservoir engineers, Geomaticians, Geophysicists, Seismic Interpreters and the likes are invited to attend this workshop where there will be dedicated time for discussions, debates and to brainstorm issues presented during each session. The objective is to give everyone the opportunity to interact, exchange ideas and to engage in finding practical solutions to issues in the field of exploration of tight sand formation and field development challenges.

## TECHNICAL PROGRAMME

### Oral Presentations | Monday 28 January

BALLROOM	
07:30	Registration & Welcome Coffee
08:30	HSSE
08:40	Opening Remarks & Welcome Address - ALNAFT & SONATRACH
08:55	Opening Address - EAGE President Jean-Jacques Biteau & Ministère de l'Energie et des Mines
09:30	Technical Keynote - Bilan des activités pour le domaine minier Algérien et résultats des évaluations du potentiel Shale Oil et Shale Gas - ALNAFT
10:00	Coffee Break
Basin Petroleum Play Assesment	
10:20	AA0 - Emerging Unconventional Plays in Western Algerian Saharan Platform: Tectono-Stratigraphic Approach of Cambrian to Devonian Units - J. Allard* (BEICIP-FRANLAB), S. Roussé (BEICIP-FRANLAB), D. Sawwa (BEICIP-FRANLAB), B. Murat (BEICIP-FRANLAB), F. Saint-Ange (BEICIP-FRANLAB), M. Djidjeli (ALNAFT), C. Basuyau (BEICIP-FRANLAB), A. Lounes (ALNAFT)
10:45	AA1 - Melhrir Trough-Challenges and Plays
11:10	AA2 - Understanding exploration risk using critical time and maturation modelling in Hodna, NEC and SEC area, Algeria - D. Bora* (Schlumberger), T. Joppen (Schlumberger), S. Alem (Schlumberger), N. Maache (Schlumberger), A. Dubois (Schlumberger)
11:35	AA3 - Defining Complex Hydrocarbon reservoirs in the Aptian Play using Seismic Attributes and Acoustic Impedance Inversion, Central Tunisia - M. Harzali* (National School Engineering)
12:25	Lunch
Basin Petroleum Play Assesment	
13:30	AA4 - 3D-sedimentary model of a Late Ordovician glacial cycles: fully-integrated subsurface approach (Illizi Basin, Algeria) - S. Roussé* (BEICIP-FRANLAB), J. Allard (BEICIP-FRANLAB), T. Chrest (BEICIP-FRANLAB), L. Drab (BEICIP-FRANLAB), L. Kuhfuss-Monval (BEICIP-FRANLAB), M. Benseradj (SONATRACH), K. Hachour (SONATRACH), A. Zemmouk (SONATRACH)
13:55	AA5 - Selection of Representative Geological Models through the Evaluation of Connectivity using Flow Lines, Illizi Basin Algeria - A. Orive Vega* (Repsol), R. Palomino Díaz (Repsol), M. Aida (Repsol), M. Del Prado Caamaño (Repsol), J. Fernandes Arruebarrena (Repsol), J.L. Huedo Cuesta (Repsol)
14:20	AA6 - Determination of CO2 Equation in a Porous Media and Application on Tight Gas Reservoir to Predict CO2 Production
14:45	Coffee Break
Seismic Reservoir Characterization	
15:15	AA7 - Contribution of the Seismic Anisotropy in Shale Gas Reservoirs Exploration, a Case Study from the Barnett Shale (USA) - S.A. Ouadfeul* (Algerian Petroleum Institute), L. Aliouane (LABOPHYT, FHC, UMBB)
15:40	AA8 - Optimizing Well Location in Tight Sand Reservoir using Deterministic Seismic inversion for the Irharen Structure, SW Algeria - G.R. Rodrigo* (CEPSA)
16:05	AA9 - 3D Advanced Seismic and its Impact on Reservoir Characterisation in Mature Fields: Case Studies - L. Michel* (CGG), P. Bertrand (CGG)
16:30	Close of Day
18:00	Icebreaker Reception





## Oral Presentations | Tuesday 29 January

BALLROOM	
08:00	Morning Coffee
Production & Stimulation Technology	
08:30	<b>Technical Keynote - Shale Brittleness Evaluation: Case Study in Frasnien Hot Shale Basin of Ahmet, Algeria</b>
09:00	<b>AA10 - Engineered Completion and Well Spacing Optimization Using a 3D Planar Frac Simulator and Fast Marching Method: Application to Eagle Ford</b> - A. Bachir* (Go GeoEngineering), M. Paryani (FRACGEO), R. Khandelwal (FRACGEO), D. BOUKHELF (Go GeoEngineering)
09:25	<b>AA11 - Oil Production Optimization using Data Analytics Approach, Algeria</b> - B.H. Hammadi* (Schlumberger), F. Khelili (Schlumberger), K. Agoudjil (Schlumberger), F. Guehria, P. Vercurijsse
09:50	<b>AA12 - Increasing Chance of Success for Hydraulic Fracturing in Low Permeability and Multi-Layer Oil Reservoirs using Quantitative Subsurface Criteria</b> - M. Wantawin* (PTTEP PLC.), S. Rongdechprateep (PTTEP PLC.)
10:15	Coffee Break
10:45	<b>AA13 - 70 years of Oil Production: Emlichheim Long Living Example of Full Field EOR, Germany</b> - M. Ibrahim* (Wintershall Holding GmbH), U. Strecker (Wintershall Holding GmbH)
11:10	<b>AA14 - The Best Practice to Combine IOR / EOR Project and valorization of rich gas</b> - R.L. Lamali* (Schlumberger), O.S. Salmi (Schlumberger)
11:35	<b>AA15 - Case study of EOR Modelling in Brown Field in the Algeria Onshore</b> - M. Moumene* (Eni Algeria), M. Rametta (Eni Algeria), M. Botteon (Eni S.p.A.)
12:00	<b>AA16 - Effect of Gas Cycling on Condensate Behaviour in Gas Condensate Reservoirs</b>
12:25	Lunch
Petrophysical Evaluation	
13:30	<b>AA17 - Core Analysis Requirements for Low Salinity Waterflooding</b> - J. P. Reed* (Lloyd's Register)
13:55	<b>AA18 - Design of New Model (ANNSVM) Compensator for Saturation calculation Based on Logging Curves for Low Resistivity Phenomenon</b> - M.Z. Doghmane* (Sonatrach), B. Belahcene (Sonatrach)
14:20	<b>AA19 - A New Ten-Step Integrated Petrophysical Rock Type Verification Process</b> - G.W.G. Gunter* (Schlumberger), M.Y.S. Sahar (Schlumberger)
14:45	EXTENDED COFFEE BREAK & POSTER SESSION
15:45	<b>AA20 - Deciphering Reservoir Wettability from Deep Resistivity Log</b> - A. Alansari* (University Technology PETRONAS), M. Ahmed Elfeel (Schlumberger), A. Salem (University Technology PETRONAS), N. Fello (National Oil Corporation, Libya)
16:05	<b>AA21 - Dielectric Scanner Technology Added-Value in Tight Reservoirs Characterization</b> - R. Lamali (Schlumberger), NA Bendali Amor* (Schlumberger)
16:30	Close of Day
19:00	Workshop Dinner

## Poster Presentations | Tuesday 29 January

BALLROOM	
Poster Session	
14:45	<b>P01 - Role of Pore Pressure Profile in Hydrocarbons Exploration</b> - A. Riadh (University of Sfax, National Engineering School, Laboratory Water, Energy, and Environment: LR99ES35), S. Ali* (University Larb Tébissi, Tébessa, Algeria), A. Dhaou (University of Gabes, Higher institute of the Sciences and Techniques of Waters, Laboratory Geosystems, Georesources, and Geoenvironments: UR13ES80, Tunisia.), A. Samah (University of Gabes, Higher institute of the Sciences and Techniques of Waters, Laboratory Geosystems, Georesources, and Geoenvironments: UR13ES80, Tunisia.)
	<b>P02 - Acid Wash using Pulsonix® TFA tool and Different Zones Evaluation on the Horizontal Section before and after Treatment using SPECTRUMSM/DTS Services</b> - K. Hilba* (Halliburton Algeria), J.F. Joya (Halliburton Kuwait), M. Abderraouf (Sonatrach Hassi Messaoud)
	<b>P03 - 3D Geomechanical Modeling And Reservoir Characterization Using Simultaneous Seismic Inversion Output In Carbonate Reservoir. Case Study (South-East Costantinois Basin, Algeria)</b> - S. Mohamed (ENAGEO)
	<b>P04 - Development of a Mechanical Earth Model in an Algerian Tight Gas Field</b> - B. Boussad (ENAGEO)
	<b>P05 - Tight Reservoir Integrated Evaluation Workflow Approach</b> - R. Lamali* - Schlumberger
	<b>P06 - Extraction of Structural Lineaments from Satellite Imagery and Aeromagnetic Maps and Estimation of the Depth of the Basement in the In Téria Region, Illizi Basin, Algeria</b> - K. Nedjraoui* (Laboratoire de Géophysique, FSTGAT – USTHB, Babezouar, Algiers, Algeria)
	<b>P07 - Multidisciplinary Approach for Unconventional Reservoirs Characterization by Integrating Wireline Openhole Logging Techniques</b> - M. Kelkoui* (Schlumberger), N. Mokhtari (Sonatrach), H. Hadjarab (Schlumberger), N. Amor (Schlumberger), K. Kecili (Schlumberger)
	<b>P08 - Sequence Stratigraphy and Leads Identification using Seismic DATA: A case study "ALGERIAN OFFSHORE"</b>
	<b>P9 - Petrophysical Evaluation of unconventional tight reservoirs of Cambro-Ordovician in Ahmet Basin</b>
	<b>P10 - Application of Quantitative Seismic Techniques to the Characterization of the Strunian reservoir in the Bechar basin /Algeria</b> - I. Ammar* (SONATRACH), M.A. Samir (SONATRACH), B. Amin (SONATRACH)

## Oral Presentations | Wednesday 30 January

BALLROOM	
08:00	Morning Coffee
Multidisciplinary Approach For Reservoir Geology Characterization	
08:30	<b>AA22 - Appraisal of Paleozoic Tight Reservoirs in Algeria; Fault and Fracture Network Analyses and Modeling in a Challenging Complex Geological Environment</b> - J.P. Van Dijk* (Dragon Oil), A.J. Ayayi (Dragon Oil), L. De Vincenzi (Dragon Oil), A.T.H. Ellen (Dragon Oil), H. Gunev (Dragon Oil), P. Holloway (Dragon Oil), M. Khdaouria (Dragon Oil)
08:55	<b>AA23 - Integrated Approach of Sedimentology, Diagenesis and Log Response for the Characterization and the Prediction of Devonian-Carboniferous Reservoirs in the Berkine Basin, Algeria</b> - G. Musial* (BEICIP-FRANLAB), F. Fournier (BEICIP-FRANLAB), L. Cuilhé (BEICIP-FRANLAB), M. Médaouri (Sonatrach), A. Bellahcene (Sonatrach), N. Filali (Sonatrach), J. Pitz (BEICIP-FRANLAB), A. Prêlat (BEICIP-FRANLAB), A. Le Saos (BEICIP-FRANLAB), V. Machault (BEICIP-FRANLAB)
09:20	<b>AA24 - Characterizing Algeria Tight Reservoir Cutting Samples with Virtual Microscopy, Petrography, Mineralogy and Digital Petrophysics</b> - M. A. Caja* (Repsol), C. Santos (Repsol), L. García (Repsol), P. R. Fernández (Repsol), J. L. Pérez (Repsol), A. Peña (Repsol), J. Canal (Repsol), V. Blázquez (Repsol), H. González (Repsol), V. Sánchez (Repsol), A. J. García (Repsol Exploration)
09:45	<b>AA25 - Facies analysis and Depositional Environment Prediction using Advanced Borehole Image Analysis</b> - D. Rezig* (Schlumberger), H. Hadjarab (Schlumberger)
10:10	Coffee Break
10:40	<b>AA26 - Fracture study using Walaround VSP data Case study ALGERIA Field</b> - A. Djeddou* (ENAGEO)

New Technology	
11:05	<b>AA27 - Application of Machine Learning Models in Thin Sections Image of drill cuttings: lithology classification and quantification (Algeria tight reservoirs)</b> - A. Peña (Repsol Technology Centre), M. A. Caja (Repsol Technology Center), J. R. Campos (Repsol Technology Centre), C. Santos (Repsol Technology Centre), J. L. Pérez (Repsol Technology Centre), P. R. Fernández (Repsol Technology Centre), J. Tritla (Repsol Exploration)
11:30	<b>AA28 - Use of Artificial Intelligence Algorithm in Well-Placement Optimization</b> - P. Ruthairung* (PTT Exploration and Production Public Company Limited), P. Ekkawong (PTT Exploration and Production Public Company Limited)
11:55	<b>AA29 - Further Improving the Water Flooding Project Benefits: Capacitance Resistance Modeling and Smart Algorithms Numerical Optimization Approaches</b> - J.L. Mogollón* (Halliburton), L.W. Lake (University of Texas)
12:25	Lunch
Development Drilling & Completion Technology	
13:30	<b>AA30 - The Ordovician Hydrocarbon Resources in North Africa – A Review</b> - G. Fischer* (IHS Markit), G. Maximov (IHS Markit)
13:55	<b>AA31 - Methodology to Review and Optimize the Waterflooding Segments in Mature Fields</b> - K. Slimani* (Schlumberger), J. Orjuela (Schlumberger), R. Balcazar (Schlumberger), M. Jamal (Kuwait Oil Company)
14:20	<b>AA32 - Use of Reservoir Elastic Properties to Improve the Design of Wireline Formation Testing Jobs – Study Focus: Berkine Basin (Algeria)</b> - A. Tedjani* (Sonatrach), A. Boulassel (Sonatrach), Y. Balamane (Sonatrach)
14:45	<b>AA33 - Hassi Messaoud: Review of Production Potential of Reservoir Layers by Determination of Flow Unit Speeds Using Petrophysical Properties</b> - R. J. Soto Maldonado* (Halliburton Consulting and Project Management), B.A ElHadj (Halliburton)
15:10	FINAL DISCUSSION
16:00	Close of Workshop



“Algeria to host discussions on some of the best practices in exploration and production”

## SOCIAL PROGRAMME

### Icebreaker Reception

Monday 28 January, 18:00 – 20:00hrs

Details to follow

### Workshop Dinner

Tuesday 29 January, 19:30 – 22:00

Details to follow soon

## OVERVIEW OF REGISTRATION FEES

**Registration covers attendance for the 3-day workshop.**

REGISTERED AND PAID	01/11/2018 – 23/01/2019
EAGE Member	€ 1000
Non-Member <sup>1</sup>	€ 1200

Please note: to qualify for the member registration fee, your EAGE membership dues for 2019 must have been paid and confirmed. The processing time for membership applications or renewals is 10 working days.

1. The non-member fee includes EAGE membership for 2019.

2. 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.
- Please note: Student non-members can't be older than 34 years of age (when registering)

3. Please note that EAGE reserves the right to cancel the event due to low participation. In this case, payment will be refunded in full.

### How to Register

We recommend that you register via the online registration form on the EAGE event website <https://events.eage.org/en/2019/eage-alnaft-geoscience-workshop/registration>. However, a downloadable pdf registration form, can be completed and returned to the EAGE Head Office. This will be available on the event page.

## VISA REQUIREMENTS

Please contact your nearest Algeria diplomatic missions/embassy/consulate in your home country or country of residence for up to date information on the application process.

## VENUE

Details to follow soon



## SPONSORSHIP

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## CONTACT

For more information on the forum, please visit the event's website or contact the EAGE Middle East & Africa office via [africa@eage.org](mailto:africa@eage.org) or +971 4 369 3897.

**We look forward to seeing you in Algiers!**





# REGISTER NOW!

**EUROPE OFFICE**  
+31 88 995 5055  
EAGE@EAGE.ORG

**RUSSIA & CIS OFFICE**  
+7 495 640 2008  
MOSCOW@EAGE.ORG

**MIDDLE EAST OFFICE**  
+971 4 369 3897  
MIDDLE\_EAST@EAGE.ORG

**AFRICA OFFICE**  
+971 4 369 3897  
AFRICA@EAGE.ORG

**ASIA PACIFIC OFFICE**  
+60 3 272 201 40  
ASIAPACIFIC@EAGE.ORG

**LATIN AMERICA OFFICE**  
+57 1 7449566 EXT 116  
AMERICAS@EAGE.ORG

**HEAD OFFICE** • PO BOX 59 • 3990 DB HOUTEN • THE NETHERLANDS • +31 88 995 5055 • EAGE@EAGE.ORG

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