Seventh Arabian Plate Geology Workshop

PRE-CAMBRIAN TO EARLY PALEOZOIC PETROLEUM SYSTEMS IN THE ARABIAN PLATE

9-13 DECEMBER 2018 • MUSCAT, OMAN

Final Announcement
TECHNICAL COMMITTEE

Maha Al-Baghli (Co-chair)  Kuwait Oil Company (KOC)
Fahad Najrani (Co-chair)  Saudi Aramco
Benoit Vincent  Cambridge Carbonates
Ghaida Al Sahlan  Kuwait Oil Company (KOC)
Ibrahim Zadjali  Petroleum Development Oman (PDO)
Osman Abdullahif  King Fahd University of Petroleum and Minerals (KFUPM)
Tom van Hoof  TNO

WORKSHOP OVERVIEW

The seventh workshop will focus on the Precambrian-to-Paleozoic section of the Arabian Plate and will cover megasequence AP1 to AP5. This part of the stratigraphic column has most diverse regional stratigraphy which was likely the result of segmented basin physiography during that time. In several parts of the plate the section lies very deep and drilling activity is limited which resulted in the sketchy data availability especially in off structure areas. The section consists of known regional source and reservoir rocks. It encompasses the Hercynian tectonic event and several glaciation events in Precambrian and Paleozoic formations.

This workshop will enrich our knowledge in relation to regional and local geological commonalities and diversities. It will help in formulating and updating regional stratigraphic framework based on common stratigraphic and chronostratigraphic markers. The knowledge attained will enhance our ability to predict the source-reservoir-seal presence, its quality and distribution. Both oral and poster presentations make part of the workshop including presentations by invited keynote speakers. Additionally, core materials from various formations will be displayed and discussed throughout the workshop.

CORES DESCRIPTION

CORES SESSION (WEDNESDAY, 12 DECEMBER)
The workshop will have a dedicated session on cores display from Petroleum Development Oman, Saudi Aramco and Kuwait Oil Company. Please find below brief description of the cores.

PETROLEUM DEVELOPMENT OMAN CORES

Total five set of cores will be displayed as follows:
- Two cores from the deep Haima Supergroup of North Oman will be displayed. Both have been selected as being stratigraphically correlatable to the outcrops which will be viewed during the Amdeh Formation Fieldtrip to Wadi Qahza. The first covers the Cambrian age fluvial-aeolian reservoir sandstones of the Amin Formation and the unconformably overlying evaporite-disrupted shales of the Migrat Formation seal. The second covers the Ordovician age marginal marine shoreface sandstones and shales of the Mabrouk and Barakat Formations.
- Three cores of The Nafun and Ara Groups of South Oman will be displayed. These geological groups contain the oldest petroleum systems in Oman (considered some of the oldest in the world). The Nafun Group comprises clastic-carbonate passive margin sequences deposited in extensive platform to basinal settings. A shallow water sedimentary succession is recorded in the type sections in the Huqf outcrops of Central Oman, while in the South Oman subsurface the succession consists of deeper water marine deposits. The Ara Group consists of carbonates and evaporites deposited in a restricted marine, convergent margin basin. Basinal deposits of the Nafun Group, which include the main source rocks for the hydrocarbon basins of Oman will be showcased, together with Ara carbonate platform reservoirs.

SAUDI ARAMCO CORES

Three cores from northwest Saudi Arabia will be shown. These cores will showcase the AP2/AP3 upper Ordovician (Qasim and Sarah formations) erosional unconformity contact. It will be an excellent opportunity for the participants to examine the cores and differentiate between shoreface and deltaic sediments of the Qasim Formation from glaciogenic processes associated with the Sarah Formation. Participants will also be able to compare the erosional contact between the two formations with the lateral time equivalent unconformity in Oman, between Saïh Nihayda and Hasirah formations.

KUWAIT OIL COMPANY CORES

Two sets of cores from Kuwait will be displayed as follows: The 1st set of cores will cover the Unayzah Formation and the Basal Khuff Clastics from north Kuwait. The Unayzah Formation consists of fluvial channel and flood plain / distal alluvial fan fines. During its deposition, sea incursions are recorded in the form of burrowing and tide influenced facies. No clear evidence of aeolian processes was observed with the exception of one doubtful aeolian reworked facies. The Unayzah Formation transitionally passes upwards into the Basal Khuff Clastics where marine influence is more prominent. The BKC sediments are sparsely burrowed, consists of tide influenced channels, and coastal marsh and or lagoon deposits. In its upper reaches, dolomitic beds are interbedded with the sandstone and siltstone facies. The upper contact with the Khuff formation is faulted. The displayed cores will show case these features. The 2nd set of cores presents the deepest drilled section in south Kuwait of likely Proterozoic age. This age is tentative and is deduced by correlating to Jubaylah Group in Saudi Arabia. The deepest cores consist of varves of siltstone-fine sandstone and mudstone lacustrine deposits correlated to Mudarum group. The polymictic conglomerate and red sandstone and mudstone of alluvial fan, fluvial channel and flood plain / distal alluvial fan deposits are correlated to the Rubayt Formation. The volcaniclastic facies correlated to the Baday Formation will also be displayed during the workshop for the participants to observe.

FIELD TRIP

This two-day field trip will cover the Ediacaran Nafun Group on day one followed by the Cambrian-Ordovician Amdeh on day two. Further details below.

Day One Field Trip: The Ediacaran Nafun Group includes most of the source rocks for the hydrocarbons basins of Oman, as well as some reservoirs in shallow water platform carbonates. Understanding its facies distribution, tectonic context, and paleogeography, has implications for exploration across Oman. Additionally, the Nafun outcrops in Oman represent Ediacaran type sections of global significance. The upper Nafun and base Ara Groups (Kufai, Shuram, Buah and Fara Formations) are well exposed in wadi Bani Aww, where we will examine distal carbonate ramp, carbonate slope,
silecylite basin, and volcaniclastic successions, and discuss the position and significance of the Nafun-Ara unconformity.

Day Two Field Trip: The Cambrian-Ordovician Amdeh Formation is the outcrop equivalent of the subsurface Haima Supergroup, which includes the most prolific gas reservoirs and several of the major oil reservoirs of the Sultanate of Oman. Although overprinted by Late Cretaceous metamorphism, the 3.4km thick Amdeh succession provides a valuable opportunity to study the facies, heterogeneities and reservoir-seal cycles of this predominantly marginal to shallow marine clastic interval.

TECHNICAL PROGRAMME

Oral Presentations | Sunday 9 December 2018
FIELD TRIP: DAY 1
8:00  Departure for Field Trip
17:00  Return Back to the hotel

Oral Presentations | Monday 10 December 2018
FIELD TRIP: DAY 2
08:00  Departure for Field Trip
17:00  Return Back to the hotel
18:30  Ice Breaker Reception

Oral Presentations | Tuesday 11 December 2018
ZAIBA BALLROOM 2 & 3
08:00  Registration & Welcome Coffee
08:30  Health & Safety Announcements
08:35  Opening Address Co-Chairs
08:45  KNA01 - Z. Al-Rawahi (Petroleum Development Oman)

Tectonic Structural configuration & Paleogeographic Framework
F. Najrani (Saudi Aramco) & M. Al-Baghti (Kuwait Oil Company)

09:45  APL02 - Early Infra-Cambrian and Early Paleozoic Extension in East Rub’ Al Khali Basins and Dibdibrah Trough, Saudi Arabia - H. Xiao* (Saudi Aramco), A. BhuR (Saudi Aramco), N. Abbas (Saudi Aramco)
10:15  APL03 - Some Aspects of Basement Architecture of Kuwait Inferred from High Resolution Multi-Physics Data - R.T. Arasu* (Kuwait Oil Company), Sanjay Majumdar (Kuwait Oil Company), Reyad Ibrahim Ali Abu-Taleb (Kuwait Oil Company)
10:45  Coffee Break
11:15  APL04 - An Evaluation of Pre-Cambrian to Paleozoic Faults Pattern and Rift Basin Architecture, Central Saudi Arabia - S. Aslulami* (Saudi Aramco), M. Aneek (Saudi Aramco), C. Hoffmann (Saudi Aramco), A. Salem (Saudi Aramco), M. Khan (Saudi Aramco)
11:45  APL05 - Wajid Graben Structural Evolution - Hoffmann* (Saudi Aramco)
12:15  Panel Discussion
13:00  Lunch

Poster Session

Sedimentology, Sequence Stratigraphic Framework - Pre-Cambrian to Early Paleozoic
I. Zadjali (Petroleum Development Oman) & S. Tanoli (Kuwait Oil Company)

14:30  APL07 - The Precambrian Succession of Oman from Platform to Basin: Predicting Reservoir and Source Rock Distribution - I. Gomez-Perez* (PDO), S. Al Fargani (OGECP), S. Schohten (Shell International), A. Rovira (Shell International), B. Al Balushi (PDO)
15:00  APL08 - Sedimentology and Isotopes Stratigraphy of the Fara Formation in North Oman Outcrops and its Relation to the South Oman Subsurface - H. Al Rawahi* (PDO), I. Gomez-Perez (PDO), K. Bergmann (Massachusetts Institute of Technology MIT), M. Cantine (Massachusetts University of Technology MIT), C. Fonseca-Rivera (Shell International)
15:30  Coffee Break
16:00  APL09 - Elemental Chemostratigraphy of the Late Neoproterozoic & Early Cambrian Sediments in Oman - R. McCabe* (Chemostrat Ltd), I. Gomez-Perez (PDO), H. Rawahi (PDO), K. Bergmann (Massachusetts Institute of Technology), T.J. Pearce (Chemostrat Ltd), J-M. Dawans (Shuram Oil & Gas), B. Balushi (PDO)
16:30  APL10 - Pre-Khuff subsurface stratigraphy in Kuwait - A. Al-Bloushi* (Kuwait Oil Company), S.K. Tanoli (Kuwait Oil Company), R Husain (Kuwait Oil Company), M. Al-Wadi (Kuwait Oil Company), A. Horbury (Cambridge Carbonates), P. Clews (Consultant)
17:00  Panel Discussion
17:30  Close of Day
19:30  Workshop Dinner
Oral Presentations | Thursday 13 December 2018

ZAIBA BALLROOM 2 & 3

New Concepts, Challenges, and Unconventionals Targets
O. Abdullatif (KFUPM)

08:30 APL16 - A New Insight into Understanding the Middle Cambrian Migrat Reservoir in the North of the Sultanate of Oman: Implication for Exploration and Development Strategies - N. Balushi* (Petroleum Development Oman), O. Al Harrasi (Petroleum Development Oman), T. Lee (Petroleum Development Oman)

09:00 APL17 - Reservoir Characteristics of the Late Ordovician in the Rub' al-Khali Basin, Kingdom of Saudi Arabia - Z. Anjigorgis* (Saudi Aramco), K.G. Mah (Saudi Aramco), J. Ismail (Saudi Aramco), M. Husni (Saudi Aramco)

09:30 APL18 - New Unconventional Play Concepts in the Middle East – The Silurian Qusaiba Member - T.D Cousins* (Halliburton), G.E Sutcliffe (Halliburton)

10:00 APL19 - An Overview of Fractured Basement Play Concept in Saudi Arabia - Y.M.A. Ghorashi (Saudi Aramco), A. A Adam* (Saudi Aramco)

10:30 Coffee Break

11:00 APL20 - Challenges to Exploration of Triassic and Paleozoic Reservoirs in Kuwait - R. I. A. Abu-Taleb* (KOC), I. Sinha (KOC), A. Lane (KOC), R.T. Arasu (KOC), T. F. H. Al-Adwani (KOC), A. Ali Sajer (KOC)

11:30 APL21 - Seal Identification by Mudgas Data: Northern Arabia Integrated Study of the Devonian Formation - O. Soyhan* (Saudi Aramco), A. Rees (Saudi Aramco), J. Luo (Saudi Aramco), F. Elisabeth (Saudi Aramco), H. Abdul (Saudi Aramco), R. Weight (Saudi Aramco), A. Fataiher (Saudi Aramco)

12:00 Panel Discussion

13:00 Workshop Wrap up and Close

12:30 Lunch

15:30 Coffee Break

Poster Session

10:30 POS04 - Imaging and Inversion Challenges for Deep Targets and Low Porosity Plays: A Case Study from Ilizi Basin, Algeria - L. de Vincenzi* (Dragon Oil), J.P. Van Dijk (Dragon Oil), M. Trezzi (Schlumberger), T. Chelbi (Sonatrach)

POS05 - Glaciers, Flows, And Fans: Origins of A Neoproterozoic Diamictite In the Saratoga Hills, Death Valley, California - S. Al-Tofaif* (Saudi Aramco)
SOCIAL PROGRAMME

Icebreaker Reception
Monday 10 December, 18:30 – 20:30 hrs
Water Side Terrace

Workshop Dinner
Tuesday 11 December, 19:30 – 22:00hrs
Qureshi Bab-Al-Hindi Restaurant

Overview Of Registration Fees

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Please note: to qualify for the member registration fee, your EAGE membership dues for 2018 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/2018/7th-arabian-plate-workshop). However, a downloadable pdf registration form, can be completed and returned to the EAGE Head Office. This is available on the event page.

VENUE

Hormuz Grand Muscat, A Radisson Collection Hotel
EAGE has negotiated room rates for delegates attending the Seventh Arabian Plate Geology Workshop. To make your reservation at the Hormuz Grand Muscat, all delegates should book online – a link is available on the event website.

Hormuz Grand Muscat, A Radisson Collection Hotel
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Phone: +968 24 350500
E-mail: reservations.muscat@radissoncollection.com
Website: https://www.radissoncollection.com/en/hormuz-grand-hotel

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Ice Breaker Reception

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CONTACT

For more information on the workshop, please visit the event’s website or contact the EAGE Middle East & Africa office via middle_east@eage.org or +971 4 369 3897. We look forward to seeing you in Muscat!
SEE YOU IN MUSCAT!