



AAPG

Geosciences Technology Workshops 2017



STRATIGRAPHIC TRAPS OF THE MIDDLE EAST

MUSCAT, OMAN • 11 – 13 DECEMBER 2017

The Geosciences Technology Workshop (GTW) aims to deliver the latest understanding of a selected exploration play to its members by engaging with key industry and academic professionals to share recent knowledge through case studies, new technologies and latest innovative geological thinking to unlock its potential.

In October 2014, the AAPG hosted its first stratigraphic traps of the Middle East GTW in Muscat Oman to a resounding success as the potential for such traps in onshore areas is still at an immature stage. Thus it is rapidly becoming clear that the traditional structural traps are mostly creamed and attention is fast moving to complex trapping configurations for potential of large structures similar to recent discoveries in the offshore. Hence this 3-day workshop aims to continue the success of the first meeting and by investigating further the concepts of exploration of stratigraphic traps in the Middle East.

The amount of technical work required to effectively mitigate the geological risks associated with stratigraphic traps, has increased significantly. Mature basins such as those found in the Middle East provide the ideal setting for defining technologies and workflows that will ensure continued execution of successful exploration programs. The wealth of available data, knowledge and professional experience in these mature basins, enables a better understanding of the regional geology, depositional environment, and petroleum systems, all critical elements to successful evaluation of this trapping configuration.

One key petroleum element that has been addressed in the past workshop but deserves a dedicated session is seal assessment. Seal risk is commonly the most critical

risk element, yet the least understood for stratigraphic trap configurations. Careful investigation of data, including 3D seismic data, cores, cuttings, and well logs, in a chronostratigraphic framework, as well as new analytical techniques are required for the characterization of seal geometry and integrity. Examples on this work will be highlighted and shared in this event.

New technologies and best-practices that support the evaluation of stratigraphic traps and the decision making process will be emphasized during this workshop. We will be discussing new developments in seismic data acquisition, such as the acquisition of high-resolution seismic data, new processing techniques focused on imaging and development of stratigraphic traps, and new interpretation workflows that have unraveled some of the latest discoveries in the area.

Benefits of Attending

The workshop is an opportunity for attendees to receive up-to-date knowledge about stratigraphic trap exploration, exposure to regional and global stratigraphic case studies and to be introduced to state of the art-technologies utilized to detect these difficult to find yet rewarding traps. It is an opportunity to network and share experiences. The participants will receive a summary of the breakout sessions and discussions, lessons learned and the abstracts of papers presented in the workshop.

Who Should Attend?

This workshop targets technical experts involved in exploring and developing stratigraphic and subtle traps who are working in national operating and service companies, as well as academic institutions.

REGISTRATION BROCHURE

PROGRAM COMMITTEE

Co-Chairs

Zuwaina Rawahi, PDO
Mahdi Mutlaq, Saudi Aramco

Committee Members

Badar Al Mamari, BP
Shaoqing Sun, C&C Reservoirs
Didier Granjeon, IFPEN
Thomas Jewell, Neflex/Halliburton

William Fitchen, Oxy
Elias Al Kharusi, Petrogas
Peter Kukla, RWTH Aachen University
Friso Veenstra, TNO

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TECHNICAL PROGRAM

DAY 1 MONDAY, 11 DECEMBER

07.00-08.00 Workshop Registration

08.00-08.10 Workshop Co-Chairs Welcome and Introduction

08.10-08.20 Inaugural Keynote Speech
Intisaar Al Kindy, PDO

08.20-08.50 Technical Keynote Speech

08.50-12.30 SESSION 1: GLOBAL CARBONATE AND CLASTIC CASE HISTORIES

Session Chairs **Thomas Jewell**, NefTex/Halliburton
Friso Veenstra, TNO

Many different stratigraphic traps have been discovered to hold commercial volumes of hydrocarbons in sedimentary basins across the world. The majority of these discoveries are located within mature hydrocarbon provinces with access to high resolution well, seismic and other datasets; however given the relative maturity of petroleum exploration in the Middle East, stratigraphic traps remain relatively underexplored within the region. This session will focus on identifying, examining and understanding successful stratigraphic plays and traps in both carbonates and clastics from across the globe and draw on the experience gained during their discovery and exploitation. This global experience can be used to facilitate further exploration for stratigraphic plays and traps across the Arabian Plate. Examples of stratigraphic traps are to be included in this session are: facies and onlap pinchouts, depositional reliefs, sub-crops, erosional truncations and diagenetic variations.

11.05-11.15 Coffee Break & Posters

11.15-12.15 Breakout Session

12.15-12.30 Report Back

12.30-13.30 Lunch

13.30-16.50 SESSION 2: ROLE OF PETROLEUM SYSTEM ANALYSIS AND REGIONAL STRATIGRAPHIC FRAMEWORK FOR EXPLORING STRATIGRAPHIC TRAPS

Session Chairs **TBC**, PDO
TBC, Saudi Aramco

Searching for stratigraphic traps comprises two critical components. Firstly to identify through a geological play-based approach, the trap definition, reservoir development and charge migration pathways in the context of the basin evolution. This requires es-

establishment of a chronostratigraphic framework, understanding primary depositional models, and later basin history to fully define the whole petroleum system. Most of the play critical elements carry some element of risk given the larger uncertainties compared to pure conventional traps. The advent of large, high resolution seismic datasets and complex processing form the second component to critical to reducing some of these uncertainties. This enabler has allowed subtle features to be identified, which coupled with geological creativity can led to unlocking the potential of this important play type. This session aims to share examples from the region using these fundamentals to successful explore for subtle and stratigraphic traps.

15.20-15.30 Coffee Break & Posters

15.30-16.30 Breakout Session

16.30-16.50 Report Back

DAY 2 TUESDAY, 12 DECEMBER

08.30-12.00 SESSION 3: MIDDLE EAST CASE HISTORIES

Session Chairs **Elias Khauri**, PetroGas
Thomas Jewell, NefTex/Halliburton

With the majority of the Middle East's proven hydrocarbon resources residing within simple structural trapping mechanisms and exploration traditionally focusing on these geometries, stratigraphic traps have often been overlooked across the region. These stratigraphic traps or traps with major stratigraphic components have been identified in the subsurface of the Middle East since the early part of the twentieth century and offer a great opportunity to expand and replenish the regions reserves. Several of these identified traps have been discovered and developed across the Arabian Plate and this session will discuss a range of these different examples. The case studies will look to include a wide range of depositional systems and cover a variety of stratigraphic trapping mechanisms such as, stratigraphic pinchouts, unconformities, carbonate reef build-ups, and diagenetic variations.

10.25-10.40 Coffee Break & Posters

10.40-11.40 Breakout Session

11.40-12.00 Report Back

12.00-13.30 Lunch

13.30-18.00 **1/2 Day Field Trip**
(more details will follow shortly)

TECHNICAL PROGRAM

08.30-13.30 **SESSION 4: STRATIGRAPHIC TRAP SEAL ASSESSMENT**

Session Chairs **Badar Al Mamari, BP**
Peter Kukla, RWTH Aachen University

Seal risk is commonly the most critical risk element, yet the least understood for stratigraphic trap configurations. Detailed investigation of data is required for the characterization of seal geometry and integrity. This session will highlight how this critical petroleum element is addressed utilizing all available seismic and well data and new technologies to quantify seal capacity. Presentations of best practices, new workflows, and technologies that demonstrate the integrated assessment of this important element are solicited.

10.25-10.40 Coffee Break & Posters

10.40-11.40 Breakout Session

11.40-12.00 Report Back

12.00-13.30 Lunch

13.30-16.50 **SESSION 5: DEVELOPMENT OF STRATIGRAPHIC TRAPS, TECHNOLOGY APPLICATIONS AND FUTURE OPPORTUNITIES**

Session Chairs **Zuwaina Al Rawahi, PDO**
Mahdi Almutlaq, Saudi Aramco

The success of subtle and stratigraphic traps extends even more so beyond the exploration realm. Understanding the extent of the reservoir for successful development requires potential more upfront activity than expected from the conventional reservoirs. Integrating with geophysical workflows is a critical element to better define the size of the opportunity, and hence the planning of the development options through optimized drilling techniques and recovery options. Additional opportunities for discovering sizeable volumes of oil and gas exist in new areas, as well as in existing fields. Traps related to facies changes, diagenetic processes in classics and carbonates, and variations in rock properties are among the case studies to be addressed. Technologies and methodologies that have helped define these traps will be discussed in this session.

15.20-15.30 Coffee Break & Posters

15.30-16.30 Breakout Session

16.30-16.50 Report Back

16.50-17.10 Wrap Up and Workshop Adjournment

WORKSHOP GUIDELINES

FORMAT

The workshop will be 3 days, consisting of technical presentations, poster presentations and breakout sessions, where participants can discuss and investigate a specific theme that is of mutual interest. The first day will feature an inaugural keynote speech and technical keynote speech by high-profile professionals from the industry.

ATTENDANCE

Registrations are invited from all relevant disciplines with experience and/or knowledge of the subject areas being addressed in the workshop. Registrations will be accepted on a first-come, first-served basis.

CALL FOR POSTERS

You are invited to prepare a poster display for presentation. If you are interested in participating, please send a short abstract along with the poster artwork (in JPEG or PDF high resolution format) to akuzmenko@aapg.org by **9 November 2017**. All posters will be produced as pull-up banners and delivered by AAPG. There will not be any other format available for poster display. Please ensure that the poster artwork measurements are **85 cm (width) x 165 cm (height)**. Please provide the topic with a short abstract of the proposed poster.

DOCUMENTATION

All accepted abstracts will be published on the workshop "Abstracts USB" and distributed to delegates onsite. Kindly provide your permission to publish your abstract upon submission or it will not be included on the abstract USB.

REGISTRATION TYPES & FEES

Fees are inclusive of onsite documentation, coffee breaks and luncheons. To register as a 'Student / Young Professional' you must either be a current student or a young professional under the age of 35 with less than 10 years of work experience.

REGISTRATION DEADLINE

To guarantee your seat, please make sure to register by **4 December 2017**.

WORKSHOP LOCATION

Kempinski Hotel, Muscat, Oman
Tel.: +968 24 280730

CANCELLATION POLICY

AAPG will refund the tuition, less a \$100 processing fee, if the request is received no later than 30 days prior to the workshop. Cancellations must be made in writing. The registrar will accept cancellation notices by telephone, but all such notices must be followed up by fax or e-mail. No refund will be made for cancellations received less than 30 days prior to a workshop being given. Nonpayment of tuition does not constitute automatic cancellation. If no cancellation notice is received by 30 days prior to a workshop, participants are liable for full tuition. AAPG reserves the right to cancel a workshop if enrollment is insufficient to ensure proper effectiveness. Substitutions for individuals can be made at any time. A paid enrollment may be transferred one time to a future workshop if the request is received prior to the 30 day cut-off date.

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Last Name			First Name			
Nickname for Name Tag			Male	Female		
Company			E-mail (required)			
Business Address			Business Telephone			
Job Title						
City		State/Province		Post Code		Country
Alternative Telephone				Fax		
AAPG Member? Yes No Member N°			I am also a member of: EAGE SEG SPE Other			

REGISTRATION TYPE & FEES

Member (\$ 1500) Non-Member (\$ 1700) Join & Save (\$ 1700) Students/Young Professionals (\$ 500)

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Complete this form and send to: Anastasia Kuzmenko

American Association of Petroleum Geologists Middle Events Coordinator

Email: akuzmenko@aapg.org | Tel: +971 4 372 4198 | Fax: +971 4 372 4204

Invoices must be paid within 10 days of receipt. Should your application be received six weeks prior to the commencement of the workshop, please note that we will only accept credit card payment. AAPG will refund the tuition, less a \$100 processing fee, if request is received no later than 30 days prior to the workshop. Cancellation must be made in writing. The registrar will accept cancellation notices by telephone, but all such notices must be followed up by fax or e-mail. No refund will be made for cancellations received less than 30 days prior to a workshop being given. Nonpayment of tuition does not constitute automatic cancellation. If no cancellation notice is received by 30 days prior to a workshop, participant is liable for full tuition. AAPG reserves the right to cancel a workshop if enrollment is insufficient to ensure proper effectiveness. Substitutions for individuals can be made at any time. A paid enrollment may be transferred one time to a future workshop if the request is received prior to the 30 day cut-off date. The American Association of Petroleum Geologists (AAPG) does not endorse or recommend any products and services that may be cited, used or discussed in AAPG publications or in presentations at events associated with AAPG.



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