AAPG | Geosciences Technology Workshops 2020

26-28 OCTOBER 2020
AL KHOBAR, SAUDI ARABIA

3RD EDITION STRATIGRAPHIC TRAPS OF THE MIDDLE EAST GTW

REGISTRATION BROCHURE

WORKSHOP OUTLINE

Workshop Outline
The Geosciences Technology Workshop (GTW) aims to build on the success of the previous two workshops hosted by AAPG on stratigraphic traps of the Middle East GTW in Muscat, Oman in 2014 and 2017. This third edition will continue to deliver the latest understanding and industry practices on dealing with stratigraphic traps in various geometries and settings by engaging with key industry and academic professionals. Presenters will share recent knowledge through case studies, new technologies, and latest innovative geological thinking to unlock its potential and deal with upcoming associated challenges.

Many traditional structural traps of the region have been identified. Attention is quickly moving to identify complex trapping configurations for potentially large stratigraphic traps, which in many places in the Middle East, have seen positive successful exploration results recently. Thus, it is rapidly becoming clear that these evolved traps carry significant future value. This 3-day workshop aims to continue the success of the previous meetings 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 environments, and petroleum systems, all critical elements to successful evaluation of complex trapping configurations.

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 professionals involved in exploring and developing stratigraphic and subtle traps who are working in national operating and service companies, as well as in academic institutions.

WORKSHOP COMMITTEE

Ibrahim Al Ghamdi (Co-Chair)
Saudi Aramco

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Petroleum Development Oman

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German Segundo Torres Lozada
Schlumberger

Oluwaseun Fadipe
Schlumberger

Herve Farran
Shell

Iftikhar Ahmed
SQU

SESSIONS DESCRIPTIONS

DAY 1 MONDAY 26 OCTOBER

SESSION 1: SEISMIC RECOGNITION OF STRATIGRAPHIC TRAPS

Stratigraphic traps are containers independent of structural or fault closures. In the past, these traps were mostly discovered accidentally while drilling conventional structural targets. Subtle changes in seismic reflection waveforms make their detection difficult using traditional processing and interpretation techniques. To identify such traps, an integrated approach involving high-resolution seismic imaging, using techniques and procedures such as ad-hoc seismic acquisition parameter set estimation (via feasibility study) and application, seismic attributes, rock physics, geobody extraction, and sequence stratigraphy, in addition to stratigraphic correlation, can be used to define and confirm stratigraphic traps. Geological interpretation and geoscientists' requests should guide the outline of the seismic processing and the acquisition parameter set defined consequently.
Rock physics/inversion is particularly important during seismic stratigraphic recognition as this allows geoscientists to identify top and bottom seals, if frequency content of the seismic is appropriate, an essential component for determining hydrocarbon accumulation size. Furthermore, dual inversion calculating acoustic impedance (P-wave) and elastic impedance (S-wave) allows to characterize the proprieties and fluid content of the reservoir. The integration with borehole seismic survey, tailored on the particular project, facilitates the phases of appreciation and development of the hydrocarbon field.
Diagenetic overprinting must be taken into consideration, because it can modify primary trapping geometries. Diagenesis can be predicted and mapped reliably when core analysis is integrated with seismic studies, especially if diagenesis follows facies or paleo-structure.

SESSION 2: SEQUENCE STRATIGRAPHIC CONCEPTS AND MODELS

Recognition and delineation of sedimentary facies and facies associations through sequence stratigraphic analysis are critical in the search for subtle stratigraphic traps. The modern multi-component of 3D-3C seismic data acquisition provides high-resolution of subsurface signatures allowing additional knowledge for detailed geological interpretation. Generation of useful two- and three-dimensional sequence stratigraphic models for identification of stratigraphic traps requires data integration that includes surface seismic, borehole seismic, log data, core/cuttings, and outcrops in an overall geological framework.
Applied sequence stratigraphy provides models for three-dimensional distribution of top, lateral, and bottom seals, all of which are critical components of stratigraphic traps. "Layer-cake" stratigraphic models generally are inadequate for enhancing subtle stratigraphic traps, and we should approach the stratigraphic record with the a priori assumption that time boundaries cross lithostratigraphic surfaces at some scale. Contributions to this session should focus on high-resolution sequence stratigraphic models for the Middle East that can be useful for recognition of stratigraphic traps. Presentations and posters on clastic, carbonate, and mixed systems are welcome.

DAY 2 TUESDAY 27 OCTOBER

SESSION 3:OUTCROP ANALOGUES

Outcrop analogues are a key element in improving the understanding of subsurface geology, due to their ability to bridge the gap between the seismic scale and the well-bore scale geological observations. Detailed sedimentological and diagenetic facies interpretations made in outcrop underpin sequence stratigraphic models and allow for a quantification of lateral and vertical heterogeneities in reservoir, seal, and source-rock facies. In addition, outcrops provide insights into depositional geometries and bedding patterns which, together with facies observations, allow establishment of predictive high-resolution sequence stratigraphic models.
Examples are solicited where a combination of outcrop analogues with 3D seismic surveys and borehole information (logs, core, cuttings, and borehole seismic) improve our understanding of stratigraphic architecture and have been instrumental in the generation of new exploration concepts as well as revision of old ones.

SESSIONS DESCRIPTIONS

DAY 3 WEDNESDAY 28 OCTOBER

SESSION 4: INTEGRATED CASE STUDIES

The complex nature of stratigraphic traps often requires an integrated analysis to evaluate both discoveries and failures. Additionally, the goal is to identify sweet spots and to assess potential economic valuation.

Multidisciplinary studies and integration of data such as well-log evaluations, seismic inversion for reservoir characterization, well-test results, and pressure data, are key for success and to have a balanced overview in both exploration and appraisal phases of operations. Integration with potential methods projects could provide:

- More accurate image of the basement and/or magmatic/magnetic bodies (Magnetic survey)
- Recursive iterations and cross-check between seismic velocity and gravity velocity derived from density (Gravity survey).

The purpose of this session is to resolve the complexities and to revisit some of the existing discoveries and missed opportunities. These may have been previously classified as structural traps or micro traps based on a conservative one-dimensional geological view.

In recent years, various stratigraphic trap discoveries in the Middle East were successful through integration of multiple data sets, evolving play understanding, and technological advances to explain anomalies, which were not previously in line with conventional understanding.

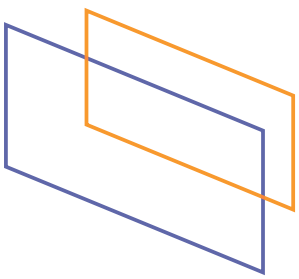
SESSION 5: SUCCESSES AND FAILURES – LEARNINGS FROM BOTH

Exploring, delineating, and developing stratigraphic trap plays is an exciting and challenging process. Successes lead to excitement and that may reduce learning potential. Meanwhile, failures cause a great deal of mind, soul, and knowledge searching; hence, more learning takes place than that caused by successes. Additionally, failures may cause despair, discouragement, or delays in exploration unless explorers are wise, resilient, and budget saving.

In exploring stratigraphic traps, the first well, or few wells, may not be successful. Deliberately integrating relevant information and re-defining the container continue through the development phase in stratigraphic reservoir exploration and development. Maximizing the use of every bit of information is the best road to finding, delimiting, and producing stratigraphic traps. Posters and presentations in this session share either a success that was repeated, or a failure that was used as a learning platform to reach subsequent discoveries.

Topics covering learning from exploring Middle East stratigraphic traps – in both carbonates and clastics - are preferred. Sharing such examples is encouraged. Hydrodynamic trapping, especially in combination with noses and stratigraphic variations, is a topic that is sought.

Analogues closely similar to Middle Eastern geology are also welcome. Analogues from nearby regions, well-studied cases, or directly relevant examples add perspective and expedite the process of learning as analogues improve existing knowledge, and those learnings can properly manage expectations.



WORKSHOP GUIDELINES

FORMAT
The workshop will be 2.5 days, consisting of 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 by a high-profile professional 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
ou are invited to prepare a poster display for presentation. If you are interested in participating, please send a short abstract to cnavarro@aapg.org by 24 September 2020. All posters will be produced as pull-up banners and delivered by AAPG. There will not be any other format available for poster display.

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 12 October 2020.

WORKSHOP LOCATION
Al Khobar, Saudi Arabia

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.

EVENTS CALENDAR

2020

15 MARCH BAHRAIN
11th Middle East Region Imperial Barrel Award Competition

16-19 MARCH BAHRAIN
GEO 2020: 14th Middle East Geosciences Conference and Exhibition

6-7 APRIL ABU DHABI, UAE
Immersion into Shuaiba Formation to Maximize Production

27-29 APRIL MAPUTO MOZAMBIQUE
Deepwater and LNG

26-28 OCTOBER DHAHRAN, SAUDI ARABIA
3rd Edition: Stratigraphic Traps of the Middle East

15-17 NOVEMBER BAHRAIN
EAGE/AAPG Shale Gas Evolution Symposium

23-25 NOVEMBER MUSCAT, OMAN
3rd Edition: AAPG/EAGE Hydrocarbon Seals of the Middle East

7-9 DECEMBER DHAHRAN, SAUDI ARABIA
2nd Edition: Decision Based Integrated Reservoir Modeling

2021

25-27 JANUARY DHAHRAN, SAUDI ARABIA
2nd Edition: Regional Variations in Charge Systems

22-24 MARCH BAHRAIN
Source Rocks of the Middle East

5-7 APRIL KUWAIT CITY, KUWAIT
Exploration and Development of High Pressure and High Temperature Reservoirs

24-26 MAY ABU DHABI, UAE
6th Edition: AAPG/EAGE Tight Reservoirs in the Middle East

21-23 SEPTEMBER TUNIS, TUNISIA
MEDiNA Technical Conference and Exhibition

24-27 OCTOBER MUSCAT, OMAN
International Conference and Exhibition (ICE)

22-24 NOVEMBER DHAHRAN, SAUDI ARABIA
2nd Edition: Low Resistivity Pay

6-8 DECEMBER TBC
4th Edition: Siliciclastic Reservoirs of the Middle East

REGISTRATION FORM

3rd Edition: Stratigraphic Traps of the Middle East GTW
26 - 28 October 2020, Al Khobar, Saudi Arabia

Last Name | First Name

Nickname for Name Tag | ❑ Male | ❑ Female

Company Name | E-mail (required)

Business Address | Business Telephone

Job Title | Mobile Telephone

City | State/Province | Post Code | Country

Alternative Telephone | Fax

AAPG Member? ❑ Yes ❑ No Member N^{0} ..... I am also a member of: ❑ EAGE ❑ SEG ❑ SPE ❑ Other .....

REGISTRATION TYPE & FEES

❑ Member*/Speaker ($ 1,500) ❑ Non-Member ($ 1,700) ❑ Join & Save ($ 1,700)

❑ Young Professionals ($ 850) ❑ Academia ($ 500) ❑ Students ($ 350)

**To avail the member rate you must be an ACTIVE member of AAPG* *(All rates are inclusive of 5% VAT)*

PAYMENT

❑ MasterCard ❑ VISA ❑ American Express ❑ Discover

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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.