AAPG | Geosciences Technology Workshops 2022

7-9 NOVEMBER 2022
AL KHOBAR · SAUDI ARABIA

2ND EDITION

INTEGRATED EMERGING EXPLORATION CONCEPTS

CHALLENGES, FUTURE TRENDS AND OPPORTUNITIES

WHAT TO EXPECT FROM THE AAPG EXPERIENCE

The American Association of Petroleum Geologists (AAPG) and our suppliers, venues and services partners are committed to providing a clean and safe environment and experience for all our event participants. We remain alert to COVID-19 risks and are closely following and adapting to all applicable health and safety guidelines. While conditions vary between countries, cities, municipalities, and facilities, safeguarding measures you may encounter at AAPG events include physical distancing and masking, readily available hand sanitizer, enhanced cleaning and disinfecting protocols, temperature health checks and screenings, minimized touchpoints and cashless payment options.

As personal safety is a shared responsibility, we ask that all participants ensure that they are feeling well and in good health, with no fever or other symptoms related to COVID-19, before showing up at an AAPG event. Any specific delegate obligations will be published in pre-event communications and clearly displayed on signage throughout our venues.

Given the ever-changing nature of the pandemic recovery, registrants will receive regular updates and instructions concerning the latest health and safety requirements.

TECHNICAL PROGRAM COMMITTEE

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WORKSHOP OUTLINE

The 2nd AAPG Integrated Emerging Exploration Concepts GTW will be held in Dhahran in November 2022. Building on the success of the first edition which was held in Dhahran in 2019, this event aims to provide a broad platform for professionals from all across the industry to discuss the challenges, future trends and opportunities to unlock remaining hydrocarbon potential in the subsurface.

The fast changing energy landscape coupled with the exploration challenges faced by the hydrocarbon industry require sophisticated and diverse technologies to ensure a safe and reliable energy future for the next generations. The ever-rising global energy demand, highly volatile prices for hydrocarbon resources, and increasingly stringent environmental regulations have led to the need for optimized exploration strategies. Navigating these economic and technical challenges effectively require multi-disciplinary workflows that are able to extract maximum value from the available data. In addition to that, simple exploration ideas are already known and mostly discovered, and finding sizable discoveries in mature basins have never been more challenging. This necessitates the generation of new exploration concepts and innovative techniques to identify conventional and unconventional prospective hydrocarbon resources in the subsurface. Furthermore, the global trend towards energy system decarbonization, open up new opportunities for subsurface utilization including Carbon capture and storage (CCS) and geothermal energy resources. This will require new ways for utilizing subsurface data to ensure the success and sustainability of such applications.

The workshop will emphasize the importance of developing new approaches and adopting best practices to generate and mature new exploration ideas. It will emphasize that with the accelerated advancements in technology and massive amount of subsurface data, the best approach is to integrate all disciplines to unlock further potential and reduce uncertainty. It will also showcase some of the latest developments in unconventional resources exploration and characterization workflows. Overall, the workshop will aim to give attendees the chance to learn how exploration challenges may have been tackled elsewhere, allowing them to share gained knowledge and perspective in their respective workplaces. As well as, helping them make impactful improvements to current workflows and processes in a challenging business environment for exploration.

During the workshop, selected speakers will present their case studies and ideas through several technical sessions covering different subsurface aspects of hydrocarbon exploration. Breakouts sessions to view posters will be also included.

Main themes to be covered during the technical sessions include:
- Existing best practices of exploration
- Under-explored and emerging exploration concepts
- The role of integrated modeling in maturing new exploration concepts
- Innovative geophysical techniques for prospect generation
- Multi-disciplinary case studies: Geology, geophysics, petrophysics
- Advancements in unconventional resources exploration and characterization

Benefits of Attending
The workshop is a great opportunity for attendees to discuss new ways of exploration and the way forward. New understanding and case studies can be introduced. It is an opportunity to network and share experiences. Additional to the oral presentations and posters, there will be breakout sessions to openly discuss the concerned topics.

Who Should Attend?
This workshop targets geologists, geophysicists, petrophysicists, petroleum engineers, and managers working in or interested in exploring for hydrocarbons.

WORKSHOP GUIDELINES

FORMAT
The workshop will be 3 days, consisting of oral 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
You are invited to prepare a poster for presentation at the workshop. If you are interested in participating, please send a short abstract to cnavarro@aapg.org by 7 October 2022. 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.

AAPG Member: $1,550
AAPG Non-Member: $1,750
Join & Save: $1,750
AAPG Young Professional Non-Member: $850
AAPG Young Professional Member: $750
Academia: $500
AAPG Student Non-Member (Masters): $350
AAPG Student Member (Masters): $250

To register, please visit: midleeast.aapg.org

*To avail a Member rate you must be an active member of AAPG.
**To register as a Young Professional you must be 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 31 October 2022.

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.

SESSION DESCRIPTIONS

DAY 1 MONDAY 7TH NOVEMBER

SESSION 1: EXISTING BEST PRACTICES OF EXPLORATION

Best practices of exploration in the oil and gas industry are continually being advanced and developed in many ways in accordance with technical innovations and the industry's needs. Advancement and development across the industry have significantly increased over the last few years. However, unresolved challenges in exploration remain, and therefore, this session is designed to bring together geoscientists, petroleum engineers, leaders, and decision-makers to share the advancement and development of best practices in exploration with examples of how best practices that are being developed recently and over time have helped to resolve challenges in the exploration and characterization for both conventional and unconventional resources.

This session aims to cover a large spectrum of topics pertinent to current issues related to exploration: examples of applied research conducted by the industry, academia, and consulting firms, topics include but are not limited to current exploration challenges and solutions, subsurface imaging, and advances in reservoir characterization, identifying new resources, investigating geological systems, integrated geological, geophysical field, and subsurface studies, source rock and traps characterization and modeling, highlighting new and proven approaches, evaluation, characterization, and sweet-spot prediction of unconventional resources, new advances in reservoir geology, geophysics, geochemistry, characterization of natural fractures and application of new technologies and innovative solutions to improve environmental footprint. Overall, the session will aim to introduce a comprehensive technical discussion that covers recent advancements and developments in exploration along with a future outlook on exploration innovations in solving currently unresolved challenges.

SESSION 2: UNDER-EXPLORED AND EMERGING EXPLORATION CONCEPTS

Exploration efforts have long focused, primarily on the abundance of four way dip closure traps. However, since most of these relatively easy to find structures have been already drilled, current and future exploration efforts will need to focus on subtle and complex trap setups (i.e. Stratigraphic, combination traps, hydrodynamic etc). These are often difficult to recognize and will require the integration of a wide range of data types along with the ingenuity of geoscientists to provide the technical context needed to mature such concepts. Furthermore, tapping into the recent digital revolution and advancements in machine learning will enable geoscientists to tackle complex challenges and provide them with more accurate prediction of the subsurface, leading the way to mature and target new exploration concepts. Furthermore, emerging energy decarbonization applications such as subsurface carbon sequestration and geothermal energy resources, introduce new opportunities and challenges to geoscientists. This requires developing new approaches, technologies and concepts for subsurface exploration and characterization.

DAY 2 TUESDAY 8TH NOVEMBER

SESSION 3: THE ROLE OF INTEGRATED MODELING IN MATURING NEW EXPLORATION CONCEPTS

Due to the increasing complexity of exploration targets, modeling became an integral part of the workflow to identify and mature new exploration concepts. Building a robust geological model is considered to be key to understand complex geological processes. Furthermore, with increasing need for more sophisticated models to understand such complex processes, there is an exponential increase in the computational power of workstations and the development AI algorithms that enable the generation of such advanced models. However, the main challenge for modelers remains to be how to integrate different types of data including (seismic data, well data, cores, analogs, and dynamic etc) while ensuring consistency in interpretation across a wide range of disciplines and at different scale levels, from basin to prospect scale. In addition to the challenge of properly addressing the risks and uncertainties associated with any generated model, in order to best guide future exploration drilling decisions and strategies.

SESSION 4: INNOVATIVE GEOPHYSICAL TECHNIQUES FOR PROSPECT GENERATION

In the modern landscape of the energy industry, conventional technologies are rapidly being replaced by smarter, faster, and more efficient ones. Keeping up in pace with the global digital revolution. These technological advancements enable geoscientists to adopt innovative geophysical techniques, providing them with valuable insights to new concepts of conventional and unconventional hydrocarbon exploration. Different Geophysical methods including both seismic and non-seismic, allow the study of physical properties of the subsurface rocks. They are often combined to obtain more accurate and reliable results to help in identifying new prospects along with assessing their associated risks and volumes. The session will aim to showcase innovative geophysical techniques focusing on modern acquisition, seismic data processing and imaging workflows, Key advancements in seismic data inversion and rock physics. As well as, ML/AL applications in aiding innovative geophysical data processing and interpretation techniques.

DAY 3 WEDNESDAY 9TH NOVEMBER

SESSION 5: MULTI-DISCIPLINARY CASE STUDIES: GEOLOGY, GEOPHYSICS, PETROPHYSICS

Navigating the current exploration challenges effectively requires multi-disciplinary workflows that are able to extract maximum value from the available data. These integrated workflows are essential to unlock additional hydrocarbon potential in the subsurface. This session will aim to showcase studies that highlight how geological, geophysical, and petrophysical data can complement each other to provide geoscientists with a comprehensive understanding for a given technical problem. It will also aim to provide insights on the value that can be obtained through a multi-disciplinary approach, and how such an approach can be optimized to answer key technical questions facing explorationists, leading the way to reduce risks and tap into remaining hydrocarbon potential.

SESSION 6: ADVANCEMENT IN UNCONVENTIONAL RESOURCES EXPLORATION AND CHARACTERIZATION

Exploration of unconventional resources has proven to be very complex and categorized as a high-risk investment, however, with high rewards. Unconventional plays are highly heterogeneous with complex rock, and fluid properties; capturing the variability at the earliest is critical for evaluating recoverable resources and further optimum development of the field. To address the challenges, integrating geoscience and engineering is one of the key aspects of defining the controls that influence productivity and make unconventional resources profitable/viable.

Unconventional resources exploration and development in Middle East are considered to have significantly huge potential. The session 'Advancement in Unconventional Resources Exploration and Characterization' intends to deliberate the geoscience perspective of the recent developments in unconventional resource exploration and characterization with emphasis to Middle East. Advancement in the unconventional resources exploration includes but is not limited to, the latest technological advances in seismic interpretation techniques, assessment of key reservoir properties, such as TOC content and the elastic moduli, that help to guide to map the sweet spots in the reservoir with favorable characteristics for production.

The Advancement in Unconventional Resources Exploration and Characterization session aims to cover a wide range of geoscience approaches, seismic interpretation, rock mechanical properties and deformation processes, petrophysical properties, geochemical properties and advanced core analysis.