AAPG

WORKSHOP BROCHURE

6-8 April 2026 | Muscat, Oman

3RD EDITION: AAPG "STRUCTURAL STYLES OF THE MIDDLE EAST" GTW

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WORKSHOP OUTLINE

WORKSHOP OVERVIEW

The AAPG Structural Styles of the Middle East is back! This exciting and highly anticipated Geoscience Technology Workshop will take place from 6 – 8 April 2026, in Muscat, Oman. This workshop aims to explore the diverse structural styles resulting from the different deformation phases on the tectonostratigraphic framework of the Arabian Plate and adjacent regions. The workshop aims to covers a wide range of topics at both regional and local scale including:

- Influence of the various tectonic phases on the structural evolution of the main geological province in the Middle East and the Zagros/Makran regions.
- Intrinsic characteristics and comparisons of structural styles across different geological provinces and time intervals.
- Impact and control of fault & trap geometries on flow paths, retention, and storage.
- Key structural tools, methods and best practices used for the seismic interpretation and quality control of structural models.
- Applied structural analysis examples from the resources exploration to the energy transition and decarbonization.

Based on subjects above, the 2026 edition of the "Structural Styles of the Middle East" will articulate around 5 main themes covered by half-day technical sessions. These themes are the following:

- Latest advances on Tectonic Evolution of the Middle East
- Case Studies in the Structural Evaluation of Complex Reservoirs, Traps & Storage
- Salt Tectonics in the Middle East
- Examples of Structurally Influenced Resource Plays & Hydrocarbon Fields of the Middle East
- Digital Tools, Data Analytics and AI in Structural Geology
- Open Discussion Session

WORKSHOP OBJECTIVE

This workshop's primary goal is to enhance knowledge sharing and collaboration within the geoscience community. Technical sessions will explore how various regional tectonic phases and other significant factors have influenced these major structural styles. Additionally, there will be a focus on recent advancements related to the topics discussed, highlighting their implications for the economic potential of hydrocarbon resources and the future of energy transition.

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 9 March 2026. 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.

$1,850 Non-Member
$1,850 Join & Save
$1,650 Member *
$1,550 Committee/Presenter
$850 Young Professional **
$500 Academia
$350 Student (Masters)

*To avail the Member rate you must be an active member of AAPG, KGS, GSO or DGS.
**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 30 March 2026.

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.

3RD EDITION: **AAPG STRUCTURAL STYLES OF THE MIDDLE EAST** GTW

WORKSHOP SESSION DESCRIPTIONS

6-8 April 2026
Muscat, Oman

DAY 1: MONDAY 6 APRIL

SESSION 1: LATEST ADVANCES ON TECTONIC EVOLUTION OF THE MIDDLE EAST

The Arabian lithospheric plate hosts the majority of global hydrocarbon resources as well as significant mineral deposits. It is bound by the young rifted margins and actively spreading ocean basins of the Red Sea and Gulf of Aden to the W and SE, respectively, with the resulting northward motion being accommodated by active transform plate boundaries along its western and eastern edges along Dead Sea/Aqaba and Owen fracture zone, respectively. To the north, along the convergent plate boundary between Anatolia and Makran, the kinematics change from continent-continent collision to oceanic plate subduction, making this data-rich and intermediate-sized plate an ideal laboratory to study plate-wide effects of changing plate boundary configurations across scales.

In this session, we solicit contributions which illuminate the different structural styles of the Arabian plate from lithosphere/crust to basin scale but in particular:

- Geodynamics of the Arabian plate such as vertical motions and their effects on sea level/stratigraphy as well as magmatism through time using seismological, geological and tectonophysical observations/models.
- Novel insights into the structure and tectonic evolution of the Arabian plate lithosphere & crust and its margins (Red Sea, Afar, Gulf of Aden, Dead Sea Transform, Owen Fracture Zone, Zagros mountains).
- Geological and geophysical insights into plate-scale processes shaping intra-plate stress, deformation, and depositional environments in petroleum system evolution.
- Mineral systems and basement structures of the Arabian Shield.

SESSION 2: CASE STUDIES IN THE STRUCTURAL EVALUATION OF COMPLEX RESERVOIRS, TRAPS & STORAGE

Structurally complex traps are integral to the exploration, production and storage of natural resources in the Middle East. We welcome contributions focusing on the assessment of structurally complex reservoirs and traps, applied to Hydrocarbon Exploration and Production as well as Carbon Capture and Storage. Particularly relevant are case studies integrating a diversity of disciplines and datasets, both geological and geophysical, into workflows aiming to further the understanding of structurally controlled traps hosting natural resources in the region. Works submitted to this session should preferably focus on areas of study within the Middle East. However, contributions from other provinces around the world are also welcome, provided their relevance and applicability to the exploration, production and storage of natural resources in the Middle East.

Topics welcome in this session typically include (but are not limited to): structural characterization of reservoirs and traps; structurally compartmentalized and/or fractured reservoirs; fault seal analysis; understanding history, configuration and evolution of traps through time; structural controls on petrophysical properties of prospective reservoirs; new and alternative workflows on decreasing structural trap uncertainty; and examples of failure and success in the exploration and production of structural prospects and plays in the Middle East.

DAY 2: TUESDAY 7 APRIL

SESSION 3: SALT TECTONICS IN THE MIDDLE EAST

Salt tectonics plays a major role for various structural styles in the Middle East, and large hydrocarbon resources are associated with salt basins. Evaporites across the Middle East cover a very large stratigraphic range, from the infra-Cambrian to the Mio-Pliocene. Structures generated by halokinesis range from relatively simple salt withdrawal and dissolution 4-way dip closures to complex deformation of carbonate stringers within salt domes and diapirs. Salt tectonics can have a strong impact on final fault framework geometries, and it will also influence local changes in stress regime, independently of the dominant regional remote stress. Amongst many common challenges, the structures associated with salt are often difficult to image and challenging to be recognized unless special filters are applied during seismic processing.

The objective of this session is to showcase and discuss the range of structural styles, their evolution, mechanisms of deformation and significance within the greater temporal and regional structural context of the Arabian Peninsula.

SESSION 4: EXAMPLES OF STRUCTURALLY INFLUENCED RESOURCE PLAYS & HYDROCARBON FIELDS OF THE MIDDLE EAST

The Arabian Plate's tectonic evolution has led to the formation of diverse geological features, including fault systems, folds, and basins, which are conducive to the generation and accumulation of hydrocarbons, minerals, and other resources.

The Middle East is home to numerous prominent hydrocarbon-producing basins, with most super-giant fields being structurally derived. A comprehensive understanding of the structural framework is vital for hydrocarbon exploration, as it aids in pinpointing potential traps and reservoirs. This knowledge is also applicable to the exploration of many other resources, as analogous geological characteristics may signal their presence.

Beyond hydrocarbons, the geological history of the Arabian plate has also fostered favorable conditions for the development of other resources such as mineral, geothermal and groundwater resources, particularly in regions marked by significant volcanic and tectonic activities.

This session explores the various resource plays and Hydrocarbon Fields of the Middle East that have been influenced by the Arabian Plate's structural styles whether it was in the formation, trapping or identification of these resources.

DAY 3: WEDNESDAY 8 APRIL

SESSION 5: DIGITAL TOOLS, DATA ANALYTICS AND AI IN STRUCTURAL GEOLOGY

The rapid evolution of AI technologies, Machine Learning (ML), Generative AI (GenAI), AI agents, AI clones, and Retrieval-Augmented Generation (RAG)-based systems, is unlocking new possibilities for structural data analysis. These tools are now available to structural geologists, offering unprecedented ways to interpret fault systems, fracture networks, and complex basin evolution. However, challenges remain "How far can AI go in reshaping structural geology"?

At the core of this transformation, traditional AI and ML techniques are already driving breakthroughs in fault detection, fracture classification, geomechanical risk assessment, and predictive modeling. Advances in supervised and unsupervised learning, deep learning architectures, and AI-assisted geospatial analytics are refining interpretations, enhancing efficiency, and reducing uncertainty. Yet, challenges remain, from training data limitations to the integration of AI outputs with geological reasoning.

This session provides a platform to explore, challenge, and debate the role of AI in structural geology. How do we leverage AI's strengths while preserving our geological intuition? Where do emerging AI technologies fit into practical applications? And most importantly, what are the next steps?

Join us to bridge the gap between proven methodologies and cutting-edge innovation on the future of AI-driven structural analysis.

SESSION 6: OPEN DISCUSSION SESSION

This session is seeking to monitor the latest progress of ideas, observations and interpretations that were presented and discussed during the last edition of the workshop in 2019 (i.e., i) Structurally influenced traps, source rocks, reservoirs and seals; ii) Precambrian basement patterns and the Paleozoic tectonic evolution; iii) Salt tectonics in the Middle East; and iv) Tectonic evolution of the Meso-Cenozoic). This may include a large variety of aspects like the modifications and improvements of findings, the solutions of addressed problems, the application of new models and tools. In short, AAPG and all workshop participants are keen to see what the outcome of these aspects is and what has been learned in the meantime.

The open discussion session is also meant to serve as a haven for structural style contributions that do not readily correspond to the titles of the other sessions. In addition, this session serves to attract contributions related to interesting and/or significant recent findings at a local or regional scale. The above-mentioned contributions may very well serve as topics which AAPG will follow up during the next edition of the workshop. With respect to the interactive nature of the session, AAPG is particularly interested in topics that are predestined to stimulate lively discussions at the workshop and also among the broader geoscientific community.

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AAPG MIDDLE EAST

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appg: middle east

6TH EDITION: **AAPG STRUCTURAL STYLES OF THE MIDDLE EAST**

FIELD TRIP & SHORT COURSE

6-8 April 2026
Muscat, Oman

FIELD TRIP

A JOURNEY FROM THE CRYOGENIAN TO THE CRETACEOUS WITHIN THE JABAL AKHDAR DOME

FIELD TRIP INFORMATION

Field Trip Date
9th – 10th April 2026

Field Trip Fees
$550

Registration Deadline
5th March 2026

Field Trip Leaders:

Ivan Callegari
GUtech Oman

Wilfried Bauer
GUtech Oman

Andreas Scharf
Sultan Qaboos University Oman

Fees include:

- 1 night accommodation in a hotel
- Guided hiking tour through rose farms and ancient villages in Jabal Akhdar (2–3hours)
- Traditional Omani lunch hosted at a local home
- BBQ dinner in a scenic open area at Jebel Akhdar
- All transportation (4x4s)

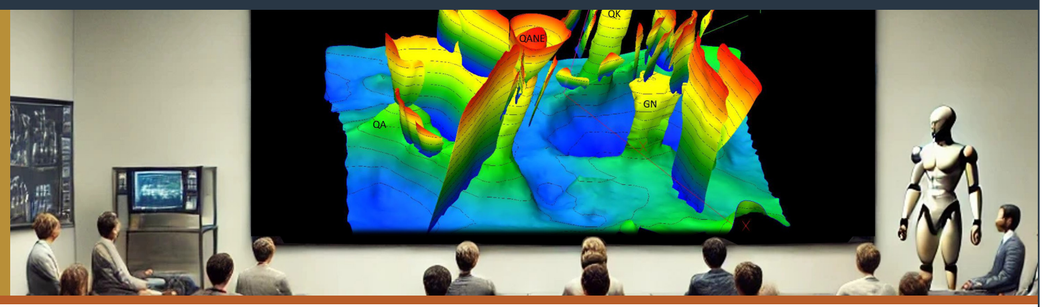
FIELD TRIP INTRODUCTION

The Jabal Akhdar in the Central Oman Mountains forms a ~90 km × 60 km dome. The core of this dome consists of Cryogenian to Ediacaran siliciclastics and carbonates, including source rocks. These rocks are separated from the overlying rocks by a spectacularly exposed angular unconformity. The rocks above this unconformity are Permo-Mesozoic shelf carbonates of the Arabian passive margin. The rocks below the unconformity are folded twice, while those above show no such folding. During the Late Cretaceous, Arabia was overthrust by the Samail Ophiolite and Hawasina deep-sea sedimentary rocks. Final doming occurred during the late Eocene to early Miocene. The Jabal Akhdar Dome is a textbook example of stratigraphy and structural geology development from the Cryogenian to the present. Furthermore, findings from the dome can be used as a natural laboratory and serve as an analogue for the hydrocarbon-bearing sequences in interior Oman.

The two-day field trip will start at the Saiq Plateau where we will examine Cryogenian Snowball-Earth diamictites with cap carbonates, blended within the scenic landscape of Jabal Akhdar. The second day will start at a breath-taking vista point at Wadi Bani Awf. From there we will descend into the core of the Jabal Akhdar and explore the structural style of the Cryogenian and younger succession.

SHORT COURSE

INTERPRETATION OF STRUCTURAL STYLES OF THE MIDDLE EAST – ENHANCED THROUGH GENERATIVE AI



Date
5th April

Time
8am – 4.30pm

Venue
Crowne Plaza Hotel, OCEC

Registration Fee
$590

Registration Deadline
22nd February

Instructors:

Pascal Richard
PRgeology

Jan Witte
Falcon-Geoconsulting

Short Course Overview

This one-day advanced course delivers a focused and highly practical framework for interpreting structural styles in the Middle East, combined with the unique advantage of applying Generative AI (GenAI) to elevate geological understanding and decision-making. Built for geoscientists working in exploration, development, or basin modeling, the course emphasizes practical techniques, hands-on interpretation, and modern tools that increase accuracy, speed, and confidence in structural workflows.

We begin with a foundational module designed to unify all participants, regardless of background, around the principles of fault mechanics and structural style recognition. Participants will revisit faulting fundamentals, mechanical stratigraphy, and structural style classification. The goal is to align interpretation techniques with geological processes, and to establish a shared vocabulary for the day. An introduction to GenAI highlights its role in managing structural ambiguity and enhancing workflows, helping geoscientists clarify options when data is incomplete or conflicting.

Normal Faulting

Through a sequence of focused exercises, participants explore fault segmentation, growth history, and interpretation in extensional domains. This segment reinforces practical skills in identifying and validating fault geometries in map and section views. GenAI is introduced as a scenario-building tool: participants will use it to explore structural uncertainty, generate alternative models, and compare extensional interpretations, all using fragmented or incomplete datasets, not as a seismic interpreter but as a powerful thought partner.

Strike-Slip and Transtension

This module targets the complexity of strike-slip and transtensional systems. Participants learn to distinguish pure strike-slip geometries from transtensional overprints, assess compartmentalization, and model realistic deformation patterns. Interpretation exercises develop structural reasoning in map and cross-sectional views. GenAI is applied here to integrate multi-source inputs, such as field data, analogs, and internal reports, to support rapid synthesis and generate testable structural concepts.

Salt Tectonics

The final segment introduces key diagnostic features of salt-related deformation: welds, reactive and passive diapirs, and halokinetic sequences. Exercises train participants to recognize salt-influenced geometries and link them to broader structural evolution. GenAI then supports pattern recognition and memory mining, leveraging archived knowledge from prior studies, case histories, and analog reports to help geoscientists build and validate interpretations faster and with more confidence.

What makes this course different?

This is not a theoretical seminar. It's a learning accelerator, where foundational concepts are applied in realistic interpretation settings, then extended with state-of-the-art GenAI
capabilities. You'll not only sharpen your structural reasoning, but learn how to delegate time-consuming tasks, like synthesizing legacy reports, generating alternative scenarios, or exploring interpretation options, to an intelligent AI partner.

By the end of the day, participants will:

- Recognize and differentiate key fault styles with confidence
- Improve fault interpretation quality and geological risk assessment
- Use GenAI to test structural scenarios and extract insight from fragmented or incomplete datasets
- Accelerate their ability to interpret, communicate, and make decisions in structurally complex plays

This course equips you with what matters most today: deep geological understanding, elevated by the best of modern AI.

Who Should Attend and Why

This course is ideal for both new hires and experienced geoscientists working across exploration, development, and reservoir modeling. Its exercise-driven format ensures that participants with diverse backgrounds, geologists, geophysicists, geomodelers, can engage, learn, and apply. While some familiarity with geosciences is beneficial, prior structural geology training is not required. What makes this course indispensable is its ability to bridge theory and practice: participants will gain a clear understanding of how rocks deform over time, how fault geometries evolve, and how these structures influence seismic interpretation, mapping, and static/dynamic modeling. By integrating real case studies and GenAI-enhanced workflows, the course delivers practical tools to improve subsurface outcomes and build models that match project maturity and business objectives.

Main Objectives

This course delivers the structural geology foundations every geoscientist needs to confidently interpret faults and build or validate static models. Derived from decades of project reviews, interpretation support, and applied field experience, these "must-know" concepts include fault mechanics, growth, segmentation, and structural style recognition, relevant to both exploration and production settings. Participants will strengthen their ability to recognize deformation styles, interpret fault geometries in map and section view, assess mechanical stratigraphy and reactivation risk, and QC interpretations with confidence. Throughout the course, GenAI is introduced not as a software tool, but as a workflow enhancer, used to reduce ambiguity, test structural hypotheses, and extract insight from fragmented datasets or legacy documentation. This empowers geoscientists to think more clearly, work more efficiently, and improve the geological soundness of their models.

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