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AAPG



EAGE/AAPG Workshop on Tectonostratigraphy of the Arabian Plate

STRUCTURAL EVOLUTION OF THE ARABIAN BASINS

2-5 NOVEMBER 2025 • RIYADH, SAUDI ARABIA

● Programme

WWW.EAGE.ORG

OVERVIEW

We are excited to welcome you to this novel workshop covering the wide tectonostratigraphic framework of the Arabian Plate and the associated effects of tectonics on the region's lithostratigraphy and its relationship to the major structural and stratigraphic phases throughout the geological history.

This workshop is designed to provide a comprehensive understanding of the principles and techniques used to analyze structural forces that shaped the rock formations of the Arabian Plate. Participants will explore various topics, including regional structural geology and sequence stratigraphy, as well as the interpretation of geological maps and cross sections. Through a combination of lectures, hands-on activities, and field-trip exercises, we aim to equip the participants with the skills and knowledge necessary to identify and analyze the main structural features within the Arabian Plate.

Whether you are an industry professional, researcher or student, this technical event offers valuable insights into the dynamic processes and tectonics that formed the extensive stratigraphy of the Arabian Plate.

Tectonostratigraphy of the Arabian Plate boasts of an exciting itinerary featuring a 2-days field trip to Riyadh including East Janadriyah & Umm-Shual anticlines.

TOPICS

- Tectonostratigraphy of the Arabian Plate
- Tectonic setting of the plate interior & Boundary
- Outcrop & core insights
- Sequence stratigraphic framework and sedimentology
- Salt tectonics
- Structural evolution of the Arabian Plate
- Structural configuration & Paleogeography
- Fracture network
- Key plays and petroleum systems in the Arabian Plate
- Numerical & Basin Modelling of structural plays, petroleum systems, geomechanics, restoration
- Emerging concepts, challenges (including unconventional, CO₂ trapping, Geothermal)
- New methodologies in structural trapping
- Case studies

TECHNICAL COMMITTEE

Mohammed Saleh (Co-Chair)	Aramco
Mohammed Marhoon (Co-Chair)	Aramco
Abdulaziz Albalushi (Co-Chair)	PDO
Sabah J. Alhosani	ADNOC
Karl Leyrer	KOC
Nicolas Hawie	Halliburton
Callum Thurley	Sharjah National Oil Company
Frans Van Buchem	KAUST
Israa Abu-Mahfouz	KFUPM
Mohammed Naqi	Kuwait University
Surajit Das	KOC
Said Al-Balushi	CCED
Ahmed Baghdadi	Baker Hughes
Eman Alabdulmuhsin	Weatherford
Halo Fateh	Gulf Keystone
Emmanuel Dujoncquoy	TotalEnergies
Abdullah Omar Bamousa	Taibah University
Thamer Al Daajani	KACST
Hajar Al-Wazzan	KOC
Mena Waheeb	Shell

FIELD TRIP: UNVEILING THE STRUCTURAL EVOLUTION OF EASTERN ARABIA

Field Trip Objective

The understanding of tectonics in exploring hydrocarbon reserves is vital for our industry. The Arabian plate contains numerous basins and hinterlands that have changed throughout time. The structural elements of these basins define our petroleum systems in terms of shape, content, and evolution. This field work aims to bring to light outcrop- and basin-scale structural elements that have affected or continue to affect the outcrop and subsurface of the Arabian plate.

FIELD TRIP OUTCOMES

- Establishing tectonostratigraphic field trip and surface case studies in Saudi Arabia
- Observing and characterizing folds and faults in the field in terms of stress, strain, scale, and associated features
- Linking field observations to tectonostratigraphic knowledge to predict similar features in the subsurface and its impact on reservoir, seal, and trap.
- Emphasizing the link between structural settings and sedimentation patterns
- Comparing field-scale observations to subsurface and their impact on the petroleum systems

FIELD TRIP ITINERARY

Field trip | Sunday, 2 November 2025

DAY 1	
07:45	FT Attendees gather
07:50	FT Briefing & HSSE by FT Leaders
08:00	Bus Depart from Hotel to Narjis Area
08:30	Narjis Area
11:20	From Narjis Area to King Abdullah Park
12:00	Lunch Break
13:00	From King Abdullah Park to Aziziyah Kharj Outcrop
13:30	Aziziyah Kharj Outcrop
14:20	From Aziziyah Kharj Outcrop to Heet Cave
14:50	Heet Cave Stop
15:20	From Heet Cave to Um Alshaal anticline
16:10	Um Alshaal Anticline Stop
16:40	Bus Arrive at Hotel
17:40	End of Day 1

Field trip | Monday, 3 November 2025

DAY 2	
07:45	FT Attendees gather
07:50	FT Briefing & HSSE by FT Leaders
08:00	Bus Depart from Hotel to Wadi Mawan
09:30	Wadi Mawan Stop
10:30	From Wadi Mawan to Sahba Nisah
11:15	Sahba Nisah Stop
12:30	From Sahba Nisah to the Al Hair Lakes Lunch Stop
12:45	Lunch Break
13:45	Al Hair Lakes Outcrops
14:30	From Al Hair Lakes Outcrops to the Edge of the World
15:30	Edge of the World Stop
16:00	Bus Arrive at Hotel
17:00	End of Day 2

TECHNICAL PROGRAMME

Oral Presentations | Tuesday, 4 November

AL FAYROUZ 1 MEETING ROOM	
08:00	Registration and Welcome Coffee
08:30	HSSE by Hyatt Regency Riyadh Olaya
08:35	Welcome by Co-Chairs Mohammed Saleh, Moahmmed Marhoon (Aramco) & Abdul Aziz Balushi (PDO)
08:45	Opening Address/ Keynote: TBC (Aramco)
SESSION 1: Tectonostratigraphy of the Arabian Plate- (Part I)	
09:05	Keynote 1: Evolution of tectonostratigraphic concepts for the Arabian and Red Sea basins - Dr. Abdulkader M. Afifi (KAUST)

Oral Presentations | Tuesday, 4 November

09:35	Middle and Late Paleozoic Tectonostratigraphy of NE Offshore Abu Dhabi Salt Basin - A. Horbury ^{1*} , C. Byrne ² , M. Malik ³ , K. Aziz ³ , M.A. Bhatti ³ , M.N. Ahsan ³ , N. Sardar ³ , J. Garland, J. Aitken, A. Elila, M. Al Blooshi, M. Al-Hammadi ¹ Cambridge Carbonates Ltd; ² Independent Consultant; ³ PIOL; ⁴ ADNOC
10:00	Interplay of Palaeoclimate, Sea-Level, and Basin Configuration in Mixed Clastics-Carbonate Deposits in Zubair Formation, Southern Iraq - W. An ² , F. Yongjun ² , X. Nie ² , G. Sultan ^{1*} , A. El Araby ⁴ , A. Selmy ⁴ , A. Shabeeb ³ , W. Elward ³ ¹ Slb; ² KEBL; ³ SLB; ⁴ SLB
10:25	Tectono-sedimentary evolution of the Cenomanian carbonate platform in the eastern Arabian Plate - K. Yamamoto ^{1*} , H. Takayanagi ² , M. Aljneibi ³ , Z. Al Farhan ³ , T. Sato ⁴ , Y. Tsuji ¹ , Y. Iryu ² ¹ INPEX Corporation; ² Tohoku University; ³ ADNOC Offshore; ⁴ Akita Prefectural University
10:50	AM Coffee Break
11:20	Regional Play-Based Exploration of the Mafraq Formation, North Oman: Targeting Sweet Spots and Play Concepts - N. Al-Sinawi ^{1*} , G. Al Rawahi ¹ , S. Al Barashdi ¹ , A. Abdul Husain ¹ , K. Al Hadhrami ¹ , K. Al Bahri ¹ , S. Al Busaidi ¹ , S. Al Farsi ¹ , H. Al Shuaily ¹ , G. Coy ¹ , M. Akpokodje ¹ , W. Al-Salmi ¹ ¹ Petroleum Development Oman
11:45	Re-vitalizing the emerging Shammar Play in North Oman - M.R. Al Jabri ^{1*} , A. Al Hajri ¹ , W. Al Salmi ¹ , U. Ghulam ¹ , A. Abdul Husain ¹ , M. Drossart ² , K. Al Hadhrami ¹ , S. Al Maskari ¹ , A. Obeidi ¹ , A.M. Al Kindi ¹ , R. Al Riyami ¹ , A. Al Kiyumi ¹ ¹ Petroleum Development Oman; ² Shell
12:10	Stratigraphic record of tectonic deformations from the Latest Cretaceous to the Early Miocene around the Arabian Plate: learnings from outcrop data - E. Dujoncqoy ¹ , P. Razin ^{*2} ¹ TotalEnergies; ² Bordeaux INP
12:35	Seated Lunch Buffet - 56th Avenue Diner
SESSION 2: Structural evolution of the Arabian Plate Session Chairs: Ahmed Baghdadi (Baker Hughes) & TBC	
13:35	Keynote 2 - Impact of the Arabian Plate Lithosphere Dynamic on the NW Zagros Foreland Basin Evolution during Cenozoic - Renas Koshnaw (University of Goettingen)
14:05	Integrating Geodynamics and Structural Restoration to understand tilted contacts in the Jurassic reservoirs of North Kuwait - A. Wood ^{1*} , C. Heine ¹ , J. Harris ³ , A. Al-Ajmi ² , A.M. Al-Anzi ² , M. Al-Dousiri ² , I. Al-Obaidli ² , S. Al-Haider ² ¹ Shell Global Solutions; ² Kuwait Oil Company; ³ Shell Kuwait
14:30	Tectonostratigraphy of the Arabian Plate - A. Rajput ^{1*} ¹ Rajiv Gandhi Institute Of Petroleum Technology
14:55	PM Coffee Break
SESSION 3: Key plays and petroleum systems in the Arabian Plate	
15:25	Keynote 3: Trap Types and Associated Tectonics in the Arabian Plate - Dr Shaoqing Sun (C&G Reservoirs)
15:55	Integrated Structural and Petrophysical Analysis for Prediction of the Seal Capacity of Tight Carbonate Rocks - J. Alsafwani ^{1*} ¹ Saudi Aramco
16:20	EXPLORING COMPLEX SUB-SEISMIC CHANNELIZED RESERVOIRS COMBINATION TRAPS OF NORTH OMAN - M. Shaibani ^{1*} , U. Ghulam ¹ , S. Al Marjibi ¹ , M. Al Ghamari ¹ , A. Al Obeidi ¹ , K. Al Hadhrami ¹ , M. Al Jahdhmi ¹ , F. Al Shukaili ¹ ¹ Pdo
16:45	Closing Remarks
16:50	Close of Day 2

Oral Presentations | Wednesday, 5 November

AL FAYROUZ MEETING ROOM	
08:00	Registration and Welcome Coffee
08:30	Welcome by Co-Chairs Mohammed Saleh, Moahammed Marhoon (Aramco) & Abdul Aziz Balushi (PDO)
SESSION 4: Case studies	
08:40	Keynote 4: Revisiting the “AP” tectono-megasequences of the Middle East: timing, context, drivers - Mike Simmons (Halliburton)
09:10	Characterising remaining potential of the eastern flank of the Ghaba salt basin, Oman, using play analysis - P. Ventris^{1*}, I. Cockerill², O. Mamari², I. Longley¹ ¹ GIS-pax, Perth; ² CC Energy Development, Muscat,
09:35	3D Structural Modeling and Evolution of the Dammam Dome, Eastern Saudi Arabia - S. Alnasser^{1*}, L. Alghamdi¹ ¹ Aramco
10:00	A Potential Geothermal Target Along a Strike-Slip Fault in The Rift System - J. Albarak^{1*}, J. Fedorik¹ ¹ Aramco
SESSION 5: Poster Session	
Session Chairs: - TBC	
10:25	Lightning Session - All Presenters come up on stage & introduce their posters
10:25	Predictive model of sediment distribution and stratigraphic traps along salt structures: Insights from outcrop analogs - A. Kalifi^{1*}, C. Ribes² ¹ King Abdullah University of Science and Technology, Thuwal; ² TotalEnergies E&P USA, Houston
10:25	Late Cretaceous deformation of the Arabian Plate: Analogue modelling and geodynamic implications - G. Schreurs¹, A. Kalifi^{2*}, F. Van Buchem² ¹ Institut für Geologie, Bern University; ² King Abdullah University of Science and Technology, Thuwal
10:25	Near wellbore challenges to hydrogen sequestration in depleted oil and gas reservoirs - J. James Abraham^{1*}, M. Amani¹, A. Carvero¹ ¹ Texas A&M University at Qatar
10:25	Temperature influenced mechanical stability of oilwell cements in geothermal operations - J. James Abraham^{1*}, M. Amani¹, C. Teodoriu² ¹ Texas A&M University at Qatar; ² University of Oklahoma
10:25	Tectono-Stratigraphic Evolution of the Zagros Fold-Thrust Belt in Kurdistan, Northern Iraq - J. Doski^{1*}, K. McClay² ¹ Duhok Polytechnic University; ² University of Adelaide
10:35	AM Coffee Break & Poster Presentations
SESSION 6: Tectonostratigraphy of the Arabian Plate- (Part II)	
11:05	Keynote 5: Evolution of Quadruple Junction: Example from Afro-Arabia plate boundary - Thamer Al Daajani (KACST)
11:35	New ideas about Tectonic Megasequences (TMSAP, 10) boundaries on the northeastern margin of the Arabian plate - F.A. Ameen[*] ¹ University of Sulaimani-Department of Erath sciences and Petroleum

12:00	Stratigraphic evolution of the forebulge depozone, the Paleogene Zagros foreland basin, NE Arabian Plate - B. Al-Qayim^{1*} ¹ University of Sulaimani
12:25	Seated Lunch Buffet - 56th Avenue Diner
13:25	Tectono-stratigraphic evolution of the Late Cretaceous-Eocene of Jordan: Implications for the Arabian Plate active margin phase - A. Kalifi^{1*}, J. Haj Messaoud¹, G. Baby¹, K. Ibrahim², J. Powell³, F. Van Buchem¹ ¹ King Abdullah University of Science and Technology, Thuwal; ² Department of Earth and Environmental Sciences, The Hashemite University, Zarqa; ³ British Geological Survey (BGS)
13:50	Salt Structures in Foreland Settings. South Oman Basin (seismic) versus Sivas Basin in Turkey (field). - J. Ringenbach^{1*}, C. Kergaravat¹, C. Ribes¹, F. Sapin¹, O. Laurent¹ ¹ TotalEnergies
14:15	PM Coffee Break
SESSION 7: Tectonostratigraphy of the Arabian Plate- (Part III)	
14:45	Tectonostratigraphic Relationships of Arabian Plate with Precambrian Basins of Pakistan - S.A. Haider Zaidi^{1*} ¹ Pakistan Oilfields Limited (POL)
15:10	Modelling plate-wide stress field evolution of the Arabian plate for reservoir sweetspotting in Kuwait Jurassic carbonates - C. Heine^{1*}, A. Wood¹, J. Harris², A. Al-Ajmi³, A.M. Al-Anzi³, M. Al-Dousiri³, I. Al-Obaidli³, S. Al-Haider³ ¹ Shell; ² Shell Kuwait Exploration & Production; ³ Kuwait Oil Company
15:35	Final closing remarks by co-chairs
15:50	Close of Workshop

REGISTRATION

Registration Fees: Workshop & Field Trip

(All registration rates are in USD)

REGULAR DELEGATES	RATE (USD)
EAGE/ AAPG Members	1650
Non-Members	1850
Committee Member/ Presenter	1450
Academia	950
STUDENT DELEGATES	RATE (USD)
EAGE/ AAPG Student Members	500
Student Non-Members	600

CONTACT

For more information on the workshop, please get in touch with the EAGE MEA team via middle_east@eage.org or +971 4 369 3897.

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