OBJECTIVES
To learn about the petroleum plays, hydrocarbon potential and exploration risk of offshore Lebanon and the Eastern Mediterranean region, through hands-on exercises and local field visits, articulated within the geodynamic, paleogeographic and tectonostratigraphic regional framework.

ABOUT THE SEMINAR
This 2-day training seminar is based on more than ten years of experience stemming from R&D studies in the fields of sedimentology, stratigraphy, structural geology, geochemistry and petroleum systems in the East-Mediterranean basins, together with technical industrial consultancy work for major players in the region. This seminar will only showcase the work achieved by an international multi-disciplinary research group including prestigious academic and industrial institutions, as well as research centres, seismic data providers and last but not least the Lebanese Petroleum Administration (LPA). Attendants are not expected nor required to provide any of their company’s data, results, or any sort of interpretation.

The practical goal of the seminar is to share our learnt lessons on assessing the petroleum prospectivity of the Levant Basin ahead of Lebanon’s second licensing round — in line of achieving an excellent turn out and subsequent discoveries. Our workflow is based on seismic interpretation, prospect mapping, reasonable multi-scenario modelling and probabilistic information, which lead to sound decisions for less risky hydrocarbon exploration. The expected petroleum plays will be evaluated in light of regional play fairway analysis, and key prospects will be individually assessed to determine the exploration risk.

The delivering method of this seminar is centred on interactive group activities with a minimum amount of lecturing. After presenting the regional geology and tectonic evolution of the Eastern Mediterranean region, the participants will work with hands-on exercises to understand the petroleum systems and the associated risk. The classroom exercises and theoretical presentations will be complemented by a one-day field visit north of Beirut in order to examine potential analogues for carbonate prospects, recognise the depositional environments in terms of reservoirs and source rocks, and visualise the large structural fabric of the Levant margin.

DAY 1
General overview of the regional geology of the Eastern Mediterranean region with a focus on Lebanon and its offshore. Key seismic sections will be interpreted to identify the tectono-stratigraphy, facies distribution and structure of the basin. Review of the infilling of the basin with suggestion of source to sink scenarios and play fairway analysis.

DAY 2
Basin modelling (petroleum systems analysis) with a focus on both biogenic and thermogenic source rocks, generation of leads/prospects, assessment of trap integrity and assessment of the exploration risk.

DAY 3 (optional)
Visit of the northern coastal Mount Lebanon to examine the Cretaceous carbonate platform (Zohr analogue), visualise the Campanian thermogenic source rocks and evaluate to the Miocene reefal carbonate buildups in Chekka (north of Beirut).

WHO SHOULD ATTEND
Geologists, exploration managers and oil & gas professionals with an interest in the East Mediterranean’s geology or in the upcoming licensing rounds in the region. This workshop will particularly help New Venture teams of IOCs who are exploring the potential of offshore Lebanon ahead of Lebanon’s 2nd offshore bid-round.

TRAINING SEMINAR LEADERS
Ramadan Ghalayini, Agenor Energy
Fadi Nader, IFP Energies nouvelles

Under the auspices of:
The participants will gain extensive knowledge on the following areas:

1 – Regional Geology Synthesis
Tectono-stratigraphy, structural geology and petroleum systems of the Eastern Mediterranean
   • Theoretical presentations

2 – Seismic Data Interpretation
Identification of key regional horizons, tectono-stratigraphy, facies interpretation, fault mapping and characterization, geomechanical interpretation.
   • Practical exercises on seismic data and interpretation
   • Discussion of results (input data for stratigraphic models)

3 – Stratigraphic Architecture of the Basin
Understanding the infilling of the basin (particularly offshore Lebanon and Cyprus), evaluating sediment provenance, source to sink, GDE models, defining key plays, mapping play fairways
   • Practical exercises in play fairway analysis and modelling
   • Discussion of results (input data for basin models)

4 – Basin Modelling
Integration of the sedimentary stratigraphy (GDE) models into a thermal/burial model, understanding the source rock maturity, expulsion and accumulation, evaluating the thermogenic/biogenic systems, assessing the viability of the proposed potential petroleum systems. Are we expecting liquids in the Levant Basin?

5 – Prospect/Lead Analysis
Interpretation of the trapping type and structural style (structural and/or stratigraphic traps), assessment of trap integrity, evaluation of fault permeability, evaluating key risks. What can we learn from in depth structural analysis?
   • Practical exercises in structural analysis and fault permeability
   • Discussion of results

6 – Exploration Risk Analysis
Evaluating the risk and the chance of success for key prospects and plays, identifying the major exploration risk and suggest action plans to lower this risk segment.

7 – Field Visit to Observe the Levant Margin’s Carbonate Platform and its Structures
Investigate the Cretaceous to Miocene carbonate platform in Lebanon to draw analogy to Zohr, understand the depositional environment of the Campanian source rocks, visualise the large structures of the Levant margin (e.g. the Qartaba structure) analogous to the offshore structures and have a concept of the scale.

**OPTIONAL FIELD TRIP**

**Date:** Friday, 13 December 2019  
**Location:** Central coastal Lebanon north of Beirut. The visited towns will include Qartaba, Laqlouq, Tannourine, Chekka and Byblos  
**Fees:** US$ 550 (Members) | US$ 750 (Non-members)

Investigate the Cretaceous to Miocene carbonate platforms in Lebanon to draw analogy to Zohr, explore the depositional environment of the Campanian source rocks, visualise the large structures of the Levant margin (e.g. the Qartaba structure) analogous to the offshore structures and have a concept of the scale.

**ITINERARY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>08:00</td>
<td>Departure from Hotel</td>
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<tr>
<td>STOP 1</td>
<td>Qartaba village: Overview of the stratigraphy and depositional environment of the Levant margin by looking at a panoramic view of the stratigraphic succession.</td>
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<tr>
<td>STOP 2</td>
<td>Laqlouq: quick stop to visualize the folding of the Qartaba anticline.</td>
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<tr>
<td>STOP 3</td>
<td>Tannourine: Overview of the large E-W strike-slip faults and discussion on their geodynamic history and implications on the petroleum system.</td>
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<tr>
<td>STOP 4</td>
<td>Tannourine-Douma road: Overview of the Cretaceous carbonate monocline and discussion on facies variation.</td>
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<tr>
<td>STOP 5</td>
<td>Chekka quarry: Examine the Campanian thermogenic source rocks and the Paleocene depositional systems.</td>
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<tr>
<td>STOP 6</td>
<td>Ras Chekka: observe the Eocene carbonates, the Miocene reefs and the hiatus between the Lutetian-Burdigalian.</td>
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<tr>
<td>17:00</td>
<td>End of Trip</td>
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Figure 1: The map of the region visited in this fieldtrip  
Figure 2: Map showing the road that will be followed during the trip and the location of the stops.
THE GEOLOGY, PETROLEUM SYSTEMS AND EXPLORATION POTENTIAL OF LEBANON AND THE EASTERN MEDITERRANEAN

11 – 12 DECEMBER • LE GRAY HOTEL, BEIRUT, LEBANON

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 #: ____________________ I am also a member of: ☐ EAGE ☐ SEG ☐ SPE ☐ Other: ____________________

REGISTRATION TYPE & FEES
Rates include a dinner on 11th December. Rates do not include accommodation.

☐ Member ($ 1,050)       ☐ Non-Member ($ 1,250)       ☐ Local Member ($ 650)       ☐ Local Non-Member ($ 850)

ACTIVITIES & EVENTS
Rates are inclusive of field trip guides, lunch boxes and safety equipment.

☐ Yes I will join the field trip on 13th December (Member $ 550)

☐ Yes I will join the field trip on 13th December (Non-Member $ 750)

PAYMENT

☐ MasterCard       ☐ VISA       ☐ American Express       ☐ Discover

Card Number       Expiration Date       CSC

Billing Address

City/State       ZIP

Card Holder Name       Authorized Signature

Credit card charges will be processed in US dollars.

Complete this form and send to: CORA NAVARRO
Event Coordinator, AAPG Middle East & Africa | Dubai Silicon Oasis, Office F-502, PO Box 341359 * Dubai, UAE
Email: cnavarro@aapg.org | Tel: +971 4 372 4201 | 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.