

COURSE CONTENT

Play Fairway and Petroleum System Analysis are two analytical techniques of vital importance to hydrocarbon exploration. In describing these and taking examples from Libya and surrounding areas of North Africa, attendees gain familiarity both with critical techniques and with the petroleum geology of this region. Play fairways of the Palaeozoic, Triassic and Lower Cretaceous clastic reservoirs are described together with those of the Paleogene carbonates of the Sirt and offshore basins. Critical components of Petroleum System Analysis that will be described include: defining generative areas; processes of expulsion, migration, drainage and entrapment; preservation time between trap charge and the present or subsequent tectonic intervention / hydrodynamic flushing, and relative importance of stratigraphic and structural factors.

Day 1: Play Fairway and Petroleum Systems Classification and Petroleum Geology Introduction

Play Fairway Classification (White 1980 and 1988)
Subsequent revisions to Play Fairway Classification
Petroleum Systems Analysis – Magoon and Dow (1994),
Subsequent revision (Magoon and Beaumont 1999 etc.)
Hydrocarbon reservoirs, traps & seal rocks
Charge, Migration, Entrapment and Destruction
Defining generative areas (or 'pods' / 'kitchens')
Late-stage destructive events (tectonic uplift, tilting and hydrodynamic flushing)
Theoretical Exercise

Day 2: Introduction to the Structure and Petroleum Geology of North Africa

Structural evolution
Prolific petroleum provinces
Petroleum systems onshore and offshore
Exercises

Day 3: The Mesozoic/Cenozoic Petroleum Provinces of North Africa

Petroleum Provinces of the Sirt Basin
Zallah Trough
Kotlah / Abu Tumayam Trough
Zahrah Hufrah Platform
Bayda Platform
Maradah Trough
Zaltan / Jahamah Platform
Ajdabiya / Intisar Trough
Amal Platform
Maragh Trough
Eastern Embayment (Nubian Sandstone Province)
Exercise on Zahrah Hufrah / Zaltan Platforms

Day 4: The Mesozoic/Cenozoic Petroleum Provinces of North Africa (cont) am
The Palaeozoic Petroleum Provinces of North Africa pm

Petroleum Provinces of the the Western Desert of Egypt and the Pelagian Basin Offshore
Abu Gharadiq Basin (Egypt)
North Egypt Basin
Pelagian Basin (Offshore Tunisia and NW Libya)
Exercise on Offshore Pelagian Basin
Palaeozoic Petroleum Provinces
Trias depocentre of Algeria
Ghadamis (Berkine) Trias Basin
Hamra Basin and Southern Tunisia
Illizi Basin
Exercise on Ghadames (Berkine Basin)
North Oued Mya, Hassi R'Mel and Hassi Messaoud / El Biod
Amguid Spur /Hassi Touareg Ridge

Day 5: The Palaeozoic Petroleum Provinces of North Africa (cont.) and Conclusions

Ahnet, Gourara and Sbaa basins
Murzuq Basin
Exercise
Discussion of basins with no petroleum systems identified to date (Kufrah and others)
Defining prospective (future) petroleum systems onshore and offshore