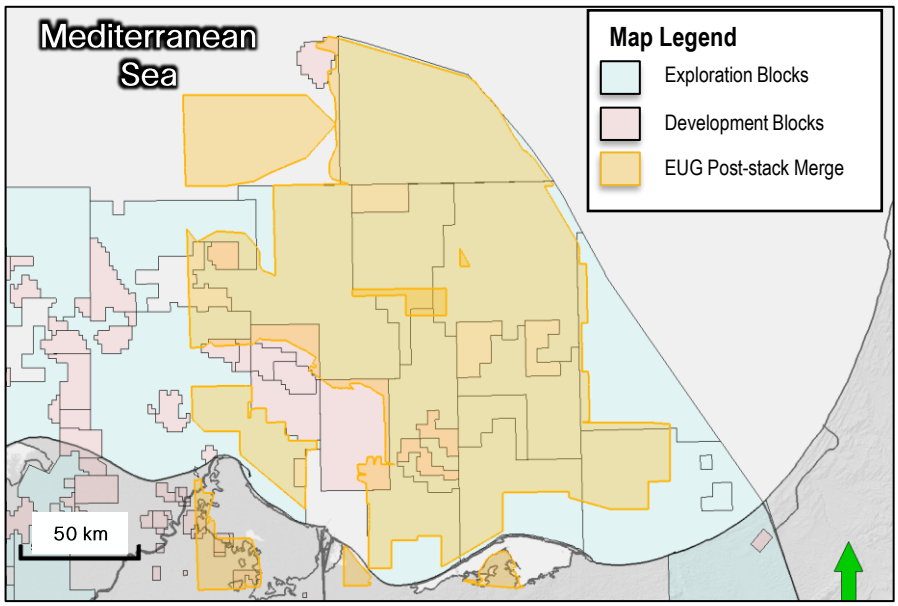
Egypt – East Mediterranean

3D Regional Post-Stack Merge Phase 1

EGYPT UPSTREAM GATEWAY
MINISTRY OF PETROLEUM & MINERAL RESOURCES

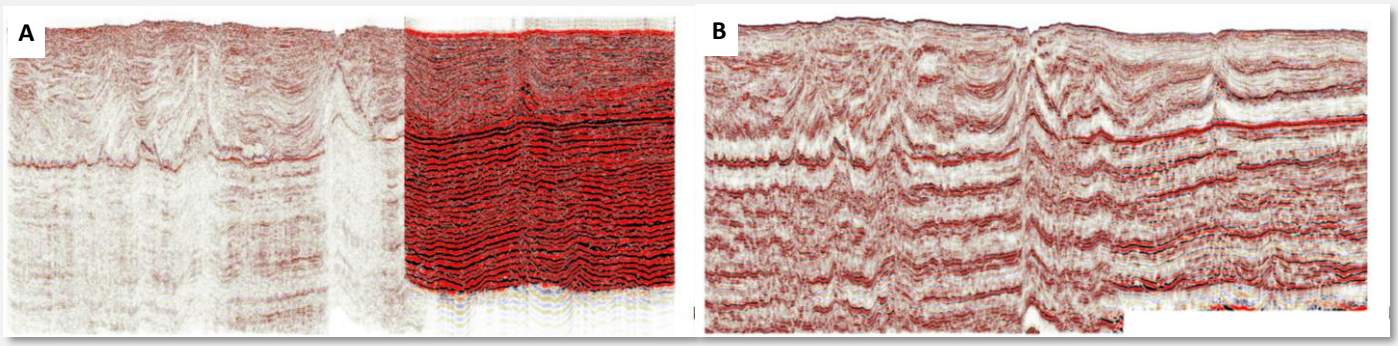
In recent years the biggest hydrocarbon discoveries in Egypt were attributed to a Nile Delta and Mediterranean basins. Substantial deep reserves have been found in Oligo-Miocene turbidites, with high porosity and permeability as deep as 7 km in high pressure-high temperature traps. This Tertiary gas province contains some of the largest fields in Egypt. Zohr discovery (30 TCF) confirmed a new play, consisting of large stacked Miocene and Cretaceous isolated carbonate platform reefs. Understanding of the Nile Delta has advanced considerably through utilization of extensive 3D seismic surveys.

Key Processing Highlights
Reformatting
Regularization
Pre-conditioning
Survey Matching
Survey Merging
Post-stack enhancement
Statistical Zero Phase



EUG East-Med regional post-stack merge over ~ 25,000 km².

Egypt Upstream Gateway has completed approximately 25,000 km² of Regional Post Stack merge in time using the 3D legacy data. The post stack time merged volume enables explorers to access more than 25 surveys via one single merged and matched seismic cube. The enhanced volume provides an improved and holistic understanding of the Eastern Mediterranean regional geology and enables deep under-explored play mapping. The seamlessly merged volume enables regional stratigraphic correlation and structural mapping of different plays and outlines the prospective areas.



A comparison between (A) the legacy data received before the seismic merge and (B) the EUG East-Med regional post-stack merge over ~ 25,000 km².

For further information on availability and licensing, Please contact EUG : sales@eug.petroleum.gov.eg

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Regional Evaluation

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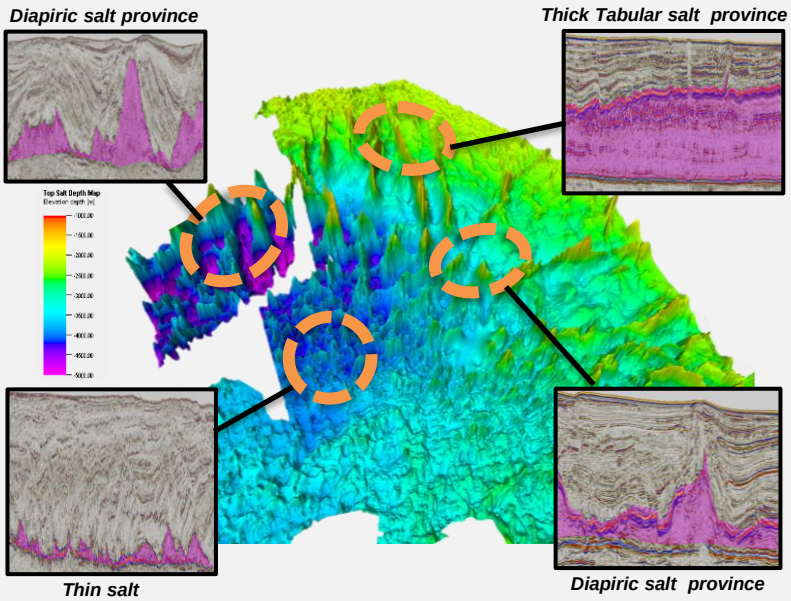
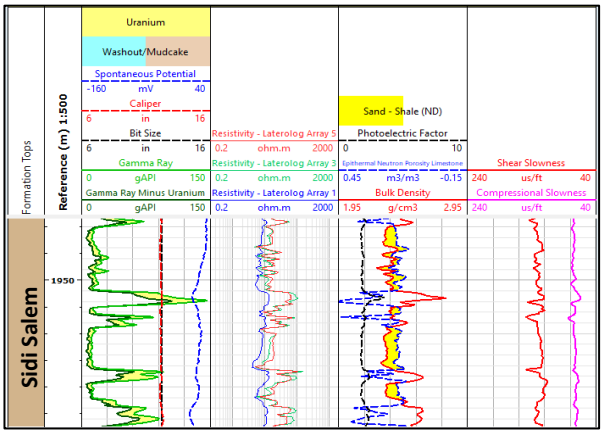
The Nile Delta and the Levantine basins are characterized by the following:

1. Complex Plio-Pleistocene faults mainly extensional of nature
2. Rapid variation in the geometry of the Messinian salt.
3. Poor imaging in the Pre-Messinian section.

In order to develop a solution to resolve the Pre-Messinian imaging challenges, a detailed Messinian top of salt and base of salt maps were generated to improve the understanding of the Messinian salt geometries in the study area.



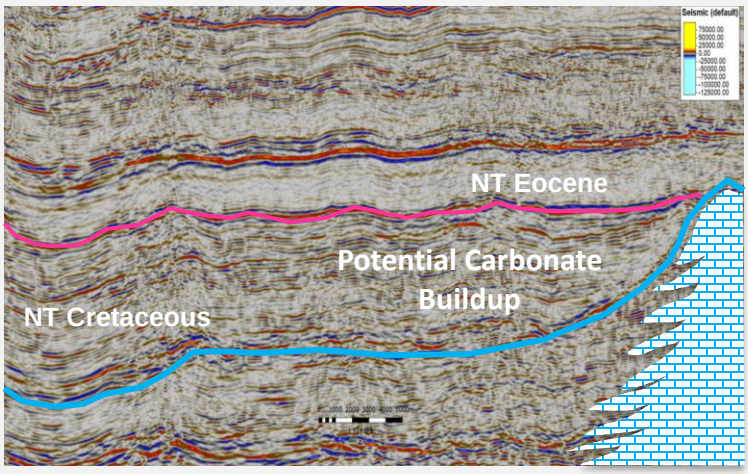
3D surface of the Messinian Top of Salt, modified after Saleh et al., (2022).



Petrophysical Evaluation

Understanding the well findings in the study area is of significant importance in order to delineate the petroleum system elements in the study area. Therefore, the well logs of more than 35 wells in the study area have been harmonized to accelerate the wells' evaluation for explorers. In addition, a structured wells' folders database, a consistent petrophysical log layout, a LAS file and an audit sheet containing details on data and reports availability have been delivered.

Deliverables
Post-stack seismic merge
Regional merged velocity model
Processing report
Data Mining Inventory for Wells
Database of Wells & Conditioned Digital Logs
Regional Maps



An identified carbonate build up lead.

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