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POTENTIAL HYDROCARBON RESOURCES OFFSHORE CYPRUS
(EASTERN MEDITERRANEAN)

Lucien Montadert*, Yves Gou* and Solon Kassinis**

*BeicipFranlab, France. lucien.montadert@beicip.com

**Ministry of Commerce, Industry and Tourism, Republic of Cyprus,
pkoulermou@mcit.gov.cy

In the Offshore Eastern Mediterranean, hydrocarbon reserves are presently concentrated on the Egyptian and Israeli margins. The offshore areas south of the Cyprus Arc remain mainly untested. Nevertheless speculative 2D and 3D seismic surveys allow to better estimate potential resources in the area. In particular, detailed surveys carried out by PGS for the Republic of Cyprus (Ministry of commerce, industry and tourism) shed new lights on the geology of the area and allowed to define plays for hydrocarbon exploration. The main tectonic and stratigraphic events which shaped the area and controlled the hydrocarbon prospectivity are the following:

- 1) Rifting of the Pangea margins from Triassic to Mid-Jurassic followed by spreading during Upper Jurassic and Lower Cretaceous. It formed the Levantine Basin and a sliver of Continental Crust detached from Arabia : the Eratosthenes Continental Block (ECB) which drifted along a NW- SE oriented set of transform faults. This Block is bounded to the East by a passive margin, conjugate of the Levant passive margin. While the 12 to 15 km thick Levantine Basin was filled up mostly by re-deposited deep water sediments, the ECB stayed during most of its history as a carbonate platform except in the Upper Cretaceous and Paleogene when carbonate pelagic sediments were deposited. To the east, the Herodotus Basin, 15 km thick, was formed also at that time.
- 2) As in the whole Tethys, compression occurred in the Late Cretaceous. A continuous chain of South vergent thrusts of deep water Mesozoic sediments and Cretaceous ophiolites was emplaced on the previous tectonic units and formed the Cyprus Arc.
- 3) Important Miocene to Present compressional events linked to the separation of Arabia from Africa, followed by the SW expulsion of the Anatolian microplate and the ongoing northward motion of Africa, affected the whole offshore area. In the Miocene, deformations occurred in the Levantine Basin, the western ECB with formation of the West ECB sub-basin , Southwest of the ECB and in the Herodotus Basin with left-lateral strike-slip faults. In the Latest Miocene-Early Pliocene a strike-slip -transpressional regime was active on the Easter Cyprus Arc along the Latakia Ridge. It became compressional South of the Cyprus Island and to the west with a large front of deformation. During this period, two major sedimentary events play a great role for the Exploration of the area:
 - The development of the Nile Delta since the Oligocene with a large deep sea fan especially developed west of the ECB.
 - The Messinian Salinity Crisis with thick salt deposits in the basinal areas. It is an efficient seal above the thick Levantine and Herodotus sedimentary basins where hydrocarbons were

generated. It is also responsible for the deformations of the thick Plio-Quaternary sediments of the Nile deep sea fan in the Herodotus Basin.

Active petroleum systems have been proven by recent drillings in the deep Levantine Basin and in the Nile deep sea fan and by numerous DHI in the Herodotus Basin.

Potential resources in this large virgin frontier area are linked to several plays:

- The Levantine Basin and its ECB margin
- The ECB carbonate platform
- The West Eratosthenes sub-basin and High
- The Nile deep sea fan
- The Cyprus Arc and its front of deformation