

# **Isolated Carbonate Platforms of the Mediterranean Region: Using Surface and Subsurface Analogues to Define Depositional Architectures, Reservoir Distribution and Hydrocarbon Potential of an Attractive Exploration Target**

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## **ABSTRACT**

The outstanding recent Zohr discovery made by Eni in the East Mediterranean, at the intersection of the Nile Delta Basin and of the Levantine Basin, demonstrates that the potential of Isolated Carbonate Platforms (ICPs) in the region has been underestimated during past exploration efforts. ICPs are commonly attractive oil and gas exploration targets, and have been successfully explored in many parts of the world, but their distribution and potential in the Mediterranean Region are far from well-defined. Their depositional architecture and reservoir distribution can be frequently hard to predict in a reliable way through seismic data only. Moreover, the scarcity of subsurface case histories in the Mediterranean Region creates an urgent need for surface and subsurface analogues to enable a better assessment of these targets through geometrical, stratigraphic and sedimentological analysis. Several surface and subsurface examples from the Mediterranean Region show that many ICPs nucleated on top of fault-bounded structural highs formed by differential subsidence resulting from the rifting that affected Tethyan margins during the early Mesozoic. The geomorphic relief of ICPs resulted from long-term platform aggradation and the stacking of individual units during postrift thermal subsidence. The demise of ICPs is related to paleoceanographic events or the development of compressional belts around the basin. Their size, geometric and sedimentary characteristics depend on the complex interaction between regional to global processes and the productive ability of the active carbonate factories, which vary over time and with paleolatitude, under the continuous influence of climate changes and environmental perturbations, producing effects that vary between, sometimes even within, platforms. This study reviews the characteristics of several Meso-Cenozoic ICPs of the Mediterranean Region from outcrop and subsurface studies, including examples from the central and eastern Mediterranean. The study defines criteria that enable the identification of ICPs in the Mediterranean Region, the processes that control their initiation and development, their paleogeographic distribution and allows a comparison of size, geometries, depositional architectures, types of carbonate factories and the main petrophysical properties that characterize ICPs in the Mediterranean Region with the aim of increasing the efficiency of both exploration and development of these attractive targets.