



Geodynamics and synchronous filling of rift-type basin evolved through compression tectonics

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The Levant Basin falls in the category of frontier basins, and is bounded by the Eratosthenes seamount to the West, the Nile cone delta to the south, Cyprus to the north and Lebanon to the east. The Levant Basin was initially a rift type basin, which is located at a major plate boundary since the Late Triassic. It evolved later on through compression tectonics. The post-rift phase prevailed since the Late Jurassic and is expressed by the gradual initiation of a passive margin. A thick infill, mostly of deep water sediments (about 12 km thick) is accounted for the Levant Basin. The post-rift sediments are pinching-out along the slope of the well preserved (and imaged) eastern margin of the Eratosthenes seamount, which is essentially made up of Mesozoic platform carbonates (about 5 km). Thus, the Eratosthenes carbonate platform was adjacent to the deep marine facies of the Levant Basin until the late Cretaceous/Cenozoic. At that time, both the Eratosthenes seamount and the Levant Basin became part of a foreland basin along the Cyprus Arc zone as a result of the collision of the African and Eurasian plates.

The objective of this contribution is to investigate the timing and the mechanisms of flexural subsidence as well as the sedimentary filling of Levant Basin (through a source-to-sink approach) in a well-deformed tectonic region. The interpretation of twenty-four 2D seismic profiles coupled with the available ODP wells, offshore Cyprus, aims to define the primary reflectors and seismic packages. Then, concepts of seismic stratigraphy and sequence stratigraphy are applied to achieve a better understanding of the tectonostratigraphy and sedimentary architecture of the Eratosthenes seamount (as an isolated carbonate platform) and its surroundings. Recent offshore discoveries south of the Eratosthenes seamount (e.g., Zhor) have confirmed the presence of gas accumulations exceeding 30Tcf in subsalt Lower Miocene carbonate buildups, making out the understanding of the evolution of this new frontier hydrocarbon province of great importance.