

The Senonian Subsidence of the Levant Basin

Yossi MART

National Institute of Oceanography, IOLR, Tel Shiqmona, HAIFA (Israel)

The recently discovered Litani Anticline in the SE Mediterranean basin off northern Israel is buried under a thick sequence of regularly bedded sedimentary series, and suggests a new interpretation of the tectonic regime in the Levant during the late Cretaceous and the early Tertiary. The anticline is approximately 25 km wide, its length is more than 60 km and its crest is uplifted more than 2,000 m. The anticline is buried under series of 5 km of nearly horizontal sedimentary layers, at a water depth of 1,500 m. The apex of the anticline was apparently leveled by erosion. Seismo-stratigraphic correlations with lithological data from boreholes drilled along the continental shelf of Israel suggest that the uppermost folded layer in the Litani Anticline is of late Turonian, and the deepest seismic reflector of the nearly horizontal sequence is attributed to the early Eocene. The patterns of the thickness distribution of the Cretaceous and the Tertiary strata show that pronounced subsidence affected the Levant Basin only since the Senonian. The Turonian age of the uppermost folded layer suggests that the folding of the Litani Anticline occurred during the Senonian, and is contemporaneous with the tectonic development of the folded structures of the "Syrian Arc". The erosion of the apex of the Anticline into an abraded platform suggests further that after the folding, the Anticline was still located in an environment of shallow sea. Only after the erosion did the tectonic block that contains the Litani Anticline subside, and the deposition of the overlying latest Cretaceous - early Tertiary took place in a basinal depositional environment. The Litani Anticline thus indicates abrupt variation of contrasting tectonic regimes along the Levant continental margin of the SW Neo-Tethys Ocean during the late Cretaceous, and fast transition from compressional to extensional tectonic regimes.