

## THE LATE CENOZOIC HISTORY OF THE LEVANT BASIN, SE MEDITERRANEAN

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In Neogene times the Levant basin was little deformed though it is close to the Alpine zone of plate convergence. The basin was influenced by vertical motions and by the rifting process which affected the stable lands S and SE of the basin. The continental margin of Israel subsided 1-2 km; most of this was achieved before the Messinian. The nearby lands rose in the Neogene-Quaternary, up to 1-2 km close to the rifts. The Messinian desiccation produced a drainage system characterized by deep erosive valleys on the continental margins, but by much flatter valleys on the basin floor. Sinai and Levant areas were apparently drained to the N, and the Nile valley - to the NW. The basin was covered by thick evaporite bearing sequence which pinches out landward at a depth of ca. 2.7 km off Israel, and more under the Nile delta. Faults extending northward from the Suez rift seem to have broken the basin floor, and also shaped the Eratosthenes seamount. In a trough, apparently fault controlled, an especially thick evaporitic series accumulated. It is likely that the difference between the Levant basin and the much deeper Herodotus basin was also produced by this fault system.

Continuing activity on the extension of the Suez rift, and the Carmel fault (an offshoot of the Dea Sea transform) activated linear diapiric structures arising from the Messinian sequence. These structures are aligned across the bathymetry and are developed only on the seaward extension of the active faults on land. In addition, under much of the Levant basin the Messinian series was slightly activated and it uparched, and locally even broke, the overlying Pliocene-Quaternary sediments. As motion took place under a thin burden of uncompacted sediments, the customary explanation in terms of buoyant upwelling of low-density halite, is not applicable. A tectonic trigger seems likely. In addition, gravitation instability produced large slumps, having areas of several hundred sq. km, on the continental margins of Sinai, Israel, and Lebanon. Here Plio-Pleistocene sediments glided basinward on the Messinian series, which acted as a lubricant. Thus the Messinian series flowed under much of the Levant basin, both over faults, and forming rootless structures. The deformation of the surficial sediments does not, in many cases, record equivalent deformation in the underlying levels.

