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Reactivation of the Levant passive margin during the late Tertiary and formation of the Jaffa Basin offshore central Israel

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Reexamination of the stratigraphic record in the continental margin of Israel indicates that the Levant passive margin was reactivated in the late Tertiary. Subsidence and, presumably, sedimentation rates increased after prolonged gradual decay; the shelf-slope facies transition zone was revived after $>$50 m.y.; normal faulting resumed $\sim$150 m.y. after the last rifting event; magmatism resumed after a long quiescence and the Judea Hills began rising. Two parallel fault systems with large structural steps were formed between the Levant Basin and the continent forming a 2500-m-thick sedimentary basin, the Jaffa. The basin was initiated in the Mid-Late Oligocene; it was mainly active in the Miocene; and it was completely buried by sediments in the Plio-Pleistocene.

Whereas Tertiary tectonics in Israel and its surroundings is commonly related only to the Suez Rift - Dead Sea Transform (DST) - Carmel Fault, this study shows that at the early stage of the Arabia-Africa breakup, prior to the formation of the DST, the Levant margin was reactivated in conjunction with the Suez Rift. Then, when most of the plate motion jumped inland from the Gulf of Suez to the DST, both the Suez Rift and the Jaffa basins were abandoned and filled with sediments.