Post-Miocene Geodynamic Trends in the Mediterranean Sea

by

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Upper Miocene evaporites were deposited in the Mediterranean region in a series of interconnected basins. Fig. 1 marks the present position of these evaporites along a west-east cross section through the Mediterranean region. Fig. 2 shows selected present-day elevations with respect to sea level (in km) of Upper Miocene evaporites.

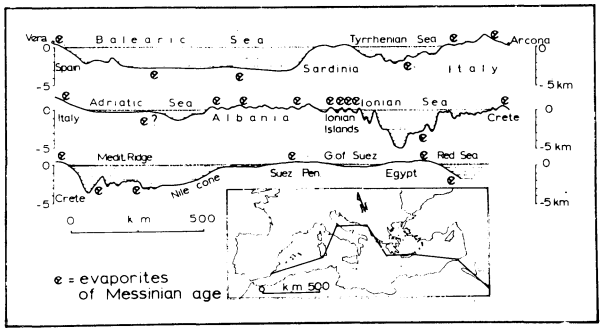

FIGURE 1

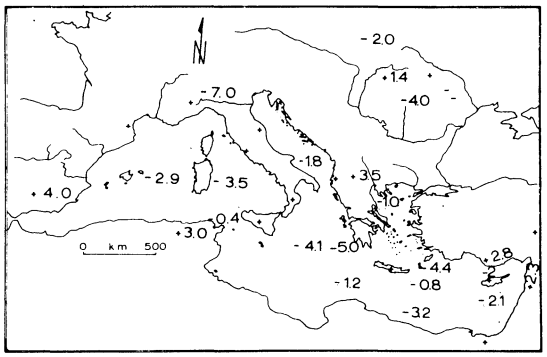

FIGURE 2

It is suggested that the present-day positions of Upper Miocene evaporites are a consequence of late Neogene to present crumpling and buckling of a buoyant continental crust caught between the soft underbelly of Europe and the hard skull of Africa. Rates of vertical displacements are less than one fourth or one sixth of previously published rates of horizontal plate motions.

Submarine canyons along some of the continental slopes of the Mediterranean Sea, along the Black Sea coast of Turkey and along the French and Dutch Atlantic coasts are also a function of the tilting and buckling movements of the continental plates. An example from the Gaza area of Palestine is an Oligocene/early Miocene drainage channel filled with mid-Miocene, Upper Miocene and Plio-Pleistocene onlap at progressively faster rates of deposition.

The Mediterranean Sea in its present configuration represents a deep depression of extremely modern date. The present subsea elevations, e.g. of the East Mediterranean Ridge, are no indication of Pliocene or of Upper Miocene sea level or land level positions.

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