

## ADVANCEMENT IN THE GEOPHYSICAL KNOWLEDGE OF THE MEDIT. SEA

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La Mer Méditerranée est bien couverte par les différentes méthodes de Géophysique marine pour permettre une première connaissance de la Croute dans la plupart des bassins. Les caractéristiques des séries sédimentaires, l'existence ou moins du basement cristallin, l'épaisseur de la Croute donnent des éléments précieux aussi pour comprendre l'évolution des bassins et le mécanisme.

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In the latest years the geophysical knowledge of the Mediterranean sea has fairly advanced. After the up-dating report compiled in 1973 (Morelli, 1975) three important publications were issued (Biju - Duval, 1974; Malovitskiy, et al., 1975; Mulder, 1975) with new geophysical data but also with a discussion of their geological meaning.

The geophysical data available permit following conclusions:

1. A typical continental Crust constitutes the Northern and Central Adriatic, which belong to the Adriatic plate continuing an African promontory till to the Alps.
2. A thinned continental Crust represents the continuity of the African platform to Sicily, of Spain to the Balearic Islands, and of the northern Apennines to Corsica. The thinning is accompanied by distension faults and magmatic intrusions.
3. The Western Mediterranean and the Aegean sea (which lie inside the Alpine belt) were mainly a land area up to Lower Miocene, were uplifted in Middle Miocene and discharged radially their sedimentary covers. Sediments as old as Middle to Lower Miocene were evidenced by reflection seismic on the floor of most of the Western Mediterranean.
4. The Eastern Mediterranean lies mainly outside the Alpine belt, and has for most of its part the characteristics of the African platform. Sediments as old as Mesozoic, but probably also Paleozoic, could be recognized.
5. The present form of the Med. basins is relatively recent and caused by a strong subsidence from the late Miocene to the present. Practically all the actually supposed continental margins are characterized by strong vertical fault systems.

6. Both in the Western and in the Eastern Med. the Crystalline basement can be followed far away from the actual continental margins towards the bathyal plains, so extending considerably the continental Crust.

7. The Crust is surely oceanic under the bathyal plains of the Western Med., with a sedimentary cover from a few hundred meters (Tyrrhenian) to 4-5 kms (Algero-Provençal Basin).

8. The thickness of the Crust in the Eastern Med. (20 km as a minimum) is mainly due to very thick (up to 12 km) sedimentary covers, also in the bathyal plains. The continuation of the African basement speaks in favour of a reduced continental Crust till to the contact with the Southern (folded) European continental margin.

9. Four arcs in different stages of evolution (Gibraltar, Calabrian, Aegean, Cyprian) can be recognized, with a collapsed distensional area on the concave side, and overthrusts and/or gravitational slides on the convex side.

The mechanism of the formation of the Med. sea can be preferably attributed to physical modifications in the Upper Mantle, with consequent volume variations and vertical actions : in agreement with the van Bemmelen's or Belousov's hypotheses, but not excluding the plate tectonics as origin.