

### Geological structure of the Deep Eastern Mediterranean Sea (East of 25°E)

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The deformation fronts of the Cyprus Arc and of the Mediterranean Ridge, extending from the Turkey-Syria boundary to North Cyrenaica are the southernmost superficial expression of the convergence between the Eurasian and the African plates. They separate the Eastern Mediterranean deep basin into two different structural units

- A thrust belt, northward, with the presence of Cenozoic sedimentary basins (Iskenderun, Adana, Cilicia, Antalya and Rhodes basins). These basins, filled by 4000 to 6000 m of Cenozoic sediments, lie on a substratum composed of south vergent nappes emplaced between the late Cretaceous and the late Miocene.
- A fore land area, southward, where the thick Herodotus and Levantine sedimentary basins, relatively undeformed, lie on the passive and subsident African continental margin initiated during late Triassic or early Liassic time.

Due to the still active collision between the thrust belt and the Erathosthenes seamount, the Cyprus island was uplifted and nowadays represents the emerged part of the deformation front.

During the Messinian, with the isolation of the Mediterranean Sea, evaporitic deposits including a salt layer, sometimes more than 2000 m thick, were widely distributed into the Iskenderun, Cilicia, Antalya, Levantine and Herodotus basins. In these basins, the Messinian sedimentation was directly controlled by basin topography.

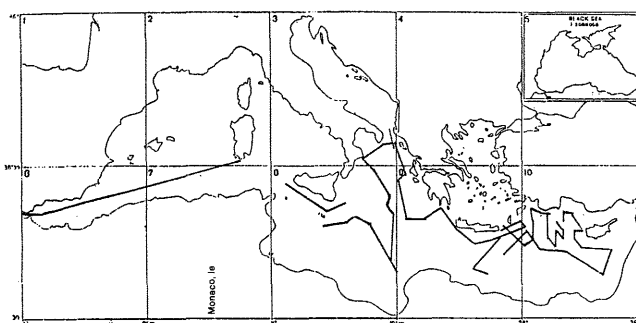
The interpretation of multi-channel seismic profiles recorded East of the 25°E allowed to establish a synthetic structural map and regional geologic cross-sections. Front of nappes, thrusts, faulted and folded belts, evaporites and salt extension, diapiric zones, onshore geology as well as reactualized bathymetry and isopaches of the salt base - sea bottom interval, are figured on the map at the 1/2.500.000 scale.

### A review of the gravity field of the Mediterranean Sea. Report from the Meteor-cruise n° 5/6

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During the last few years several sets of gravity data from the Mediterranean countries and sea were collected by the IfG and BGI and compiled into Bouguer Maps of the whole region. More than 200.000 point values from individual surveys, digitised maps and already computed grids were incorporated into this map, which was divided into 10 sheets and printed in 1:1.000.000 scale as overlay sheets to the GEPCO-bathymetric maps of the Mediterranean Sea.

Figure 1.- Track chart Meteor-Cruise 5/6

In summer 1987 during the RV METEOR cruise No. 5/6 in the Mediterranean Sea several detailed gravity profiles were resurveyed. Our aim was to control the old data and establish their accuracies. The KSS-30 gravity meter and the GPS and Loran C navigation systems permit very precise measurements compared to those performed 20 years ago.

The comparison between the above mentioned Bouguer maps and the direct gravity measurements of RV METEOR is shown for a line in the western Mediterranean from Gibraltar to 2 degrees West (see Fig. 2). This comparison elucidates that the regional features of the old and the new data are in good agreement.

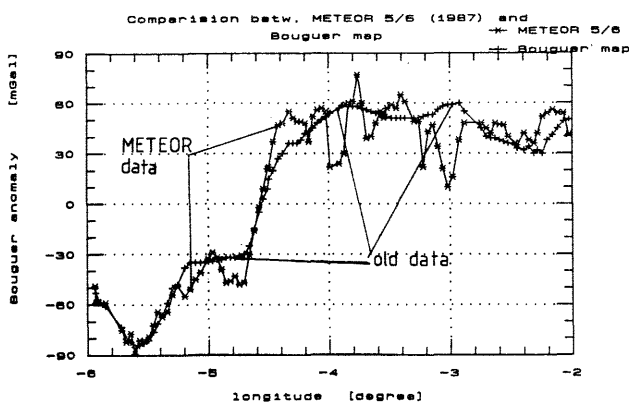


Figure 2.- Western line from Gibraltar to 2 degrees West.

In summary it was found that:

- The average values coincide for both data sets.
- High frequency anomalies, which are shown by the new data, could not be resolved by the old measurements.
- The steepness of gradients are smoothed in the old data and differ significantly from the new ones.

The old map permits a good regional overview over the gravity field in the Mediterranean but for detailed interpretations of geological and tectonic structures new measurements are recommended.