CYPRUS BACK-ARC BASINS IN THE NORTHEASTERN MEDITERRANEAN

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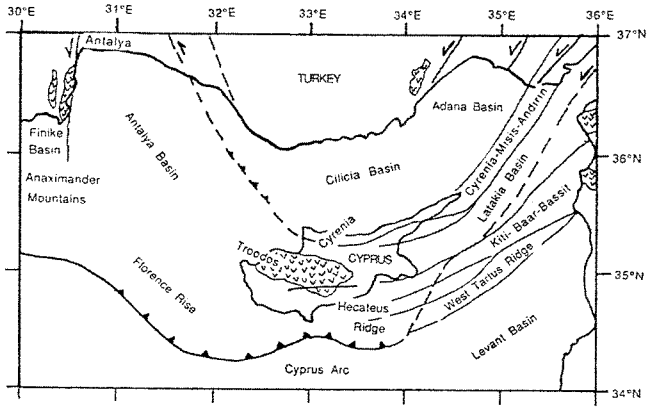
The present-day tectonic framework of the eastern Mediterranean is controlled by the last phase of collision between the African and Eurasian plates. The Agean/Anatolian plate is pushed westwards along strike-slip faults, due to collision between the Arabian/Syrian and Eurasian plates along the Bitlis-Zagros Suture. At its northeastern edge, the African plate is presently moving NNE relative to the Eurasian plate. The boundary between the African and the Anatolian plates is delineated by the Hellenic Arc and Pliny-Strabo Trench in the West and the Cyprus arc and a diffuse fault systems probably associated with the Amanos Fault in the East. The two arcs are near perpendicular to the relative motion of the African and Anatolian plates, delineating the subduction zones, whereas the Pliny-Strabo Trench, Antalya and East Anatolian fault zones (including the Amanos and Ecemis Faults) are sub-parallel to the slip vector, with predominantly transform motion.



Tectonic framework of the northeastern Mediterranean and the Cyprus back-arc basins.

The eastern Mediterranean includes several distinct provinces, the formations of which are intimately related to the histories of the provinces in the regions of plate convergences. The Cenozoic depocentres along the southern margin of the Anatolian plate which is located in the back-arc setting on an active orogenic region with complicated microplate configuration. The edge of the Anatolian platform, immediately southwest of the Africa/Arabia/Anatolia triple junction, and includes four genetically related basins : Adana, Cilicia, Iskenderun and Latakia Basins. These four basins collectively form a moderately large semi-enclosed depocentre in the northeastern Mediterranean sea. The Antalya basin, which is surrounded by Anaximander Mountains and Beydaglar range in the West and Florence Rise in the South, is again one of the principal late depocentre between the northwest of Cyrus and southern Turkey. The Cilicia basin lies in between these two main basinal areas. The Misis-Kyrenia fault zone links the Misis Mountains of southern Turkey and Kyrenia range of northern Cyprus.

During the Pliocene-Quaternary, extension took place in the NE corner of the Mediterranean sea by listric faulting on a decollement surface at the base of the Messinian evaporites. The evolution of Pliocene-Pleistocene depocentres was largely controlled by the Misis-Kyrenia horst and the listric fans and associated roll-over anticlines, which shifted position through time, creating a shifting pattern of depocentres. The extensional collapse of the Adana-Cilicia-Iskenderun-Latakia basin complex resulted in overall retreat of the coastline in Cilicia and Latakia basins during the mid-to late Quaternary. Northward from the Florence rise, passing into the Antalya basin which is is actively sinking and tilting to the northeast, the concordance of the Messinian reflectors with the overlying sediments is maintained, but the sabement of the Messinian appears tilted northwards and folding effects the entire succession. The sinistral strike-slip fault of Antalya has a great implication on the Antalya ophiolites and emplacement of the Anaximander Mountain block. This thrust zone also affects the Messinian salt layers creating cobblestone structures.

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DISTRIBUTION OF MUD DIAPIRISM AND OTHER GEOLOGICAL STRUCTURES FROM LONG-RANGE SIDE-SCAN SONAR (GLORIA) DATA, IN THE EASTERN MEDITERRANEAN SEA

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Extensive long range sidescan sonar coverage, obtained with the GLORIA system in the eastern Mediterranean eea, has been reinterpreted in the light of subsequent "ground truth" data. Several types of high back-scattering patches are recognized.

About 150 circular to sub-circular patches have been identified on the shallower and inner part of the Mediterranean Ridge accretionary complex. Some can occur in groups or in ridge parallel alignments, associated with deep-seated structures (KENYON *et al.*, 1982). On the basis of core stratigraphy they have been interpreted as mud volcanoes and mud ridges, with surface or near surface mud breccia (CAMERLENGHI *et al.*, 1992). It seems that mud volcanoes are not imaged by the 6.5 kHz GLORIA system if there is a cover of more than about 2 m of pelagic sediments. Few high back-scattering patches are present in these external parts of the Calabrian and Cyprus arcs that have been surveyed. It is thus confirmed that mud diapirism is more common where the covering Messinian salt is thinner; this occurs on the crest and inner part of the Mediterranean Ridge (CAMERLENGHI *et al.*, in press).

Larger, more elongated patches, up to 80 km long and usually associated with steep slopes, are found in the Hellenic Trough System; they are attributed to hard rock outcrops (HUCHON *et al.*, 1982). Similar shaped patches, associated with lower relief, found near the eastern and western ends of the Mediterranean Ridge, are attributed to dissolved evaporites at the top of salt diapirs which leave a rough, karst like surface topography. Other elongate patches of high backscatter at the foot of the Nile Cone may be due to differences in grain size and/or to chemical crusts; they are on diapiric fold crests that are probably due to salt mobilisation (SMITH, 1976). A few small circular patches, found at the foot of scarps on the Nile Cone, are attributed to debris flow deposits.

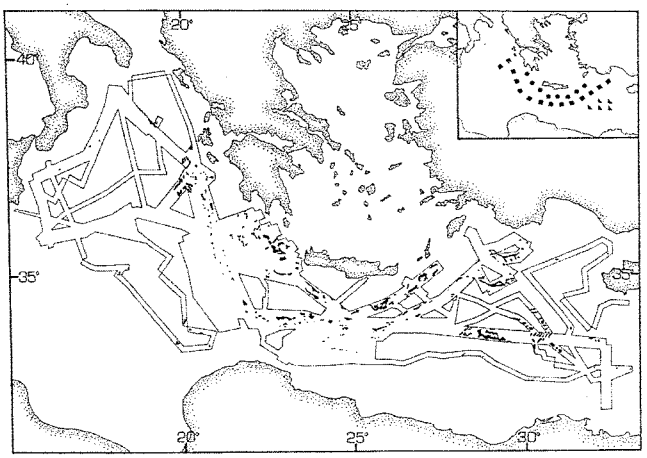

Fig. 1 - Distribution of high back-scattering patches within the GLORIA coverage. Inset: dots = Hellenic Trough, squares = Mediterranean Ridge, triangles = Nile Cone.

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