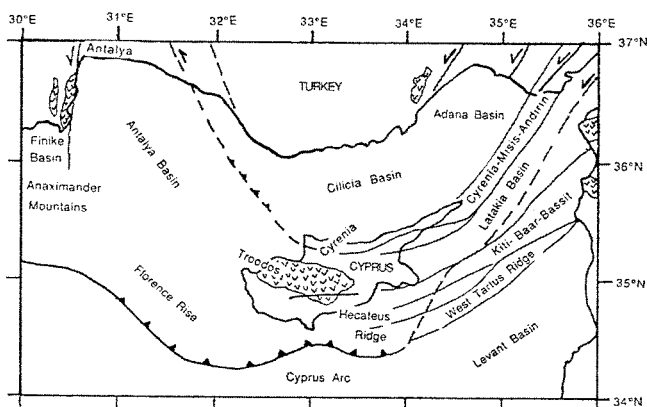


## CYPRUS BACK-ARC BASINS IN THE NORTHEASTERN MEDITERRANEAN

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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 Aegean/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 Eceemis 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 Cyprus 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 actively sinking and tilting to the northeast, the concordance of the Messinian reflectors with the overlying sediments is maintained, but the submergence 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.

### REFERENCES:

- AKSU A. E., ERGÜN M., HALL J. M., DUMAN M. Y., YASAR D. and CALON T., 1992. Tectonic evolution of basins in the northeastern Mediterranean sea. (abstract), *Yerbilimleri, Bull. Earth. Sci.*, 20 : 352-353.
- BIJU-DUVAL B., LETOUZEY J., and MONTADERT L. 1979. Variety of margins and deep basins in the Mediterranean. In: J.S. Watkins L., Montadert and P.W. Dickerson (eds.), *Geological and Geophysical Investigations of Continental Margins*, AAPG Memoir 29, p 293-318.
- EVANS G. P., EVANS W. E., EVANS T. R. and WOODSIDE J. M., 1978. Faulting and helokinetics in the northeastern Mediterranean between Cyprus and Turkey. *Geology*, 6 : 392-396.