



Longitudinal evolution of the tectonic style along the Cyprus Arc, northern margin of the Levant and Herodotus Basins

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The Levant Basin is bounded to the north by the Cyprus Arc zone which was created by the northward movement of the African plate with respect to the Eurasian plate since Late Cretaceous time. The westward movement of the Anatolian micro-plate since Late Miocene created an additional strike-slip component along the plate boundary. The main objective of this contribution is to portray the structural architecture and features offshore Cyprus by analyzing available 2D seismic data in order to investigate the transition in tectonic style from compression to strike slip along the Cyprus Arc zone. We identified three different crustal domains offshore Cyprus that are from east to west: the eastern domain which belongs to the Levant Basin, the South-central domain which includes the Eratosthenes Seamount, and the South-West domain of Cyprus which corresponds to the Herodotus Basin. In the Levant Basin, the sequences identified are from Base Pliocene extending until the Senonian unconformity. The same sequences in the Cyprus Basin are offset and less thick due to the movement of the Latakia Ridge, which is identified as a steeply dipping sub-vertical fault on our data. In the central domain, the horizons identified on the Eratosthenes Seamount indicate that the Seamount is a Mesozoic carbonate platform covered by thin Miocene/Pliocene-Pleistocene sediments. A subdivision of the sedimentary sequence in the Herodotus Basin is proposed down to the Paleocene-Eocene basis. A major change in the structural style of the deformation is observed from west to east. Whereas the Levant Basin is almost undeformed south of the Latakia Ridge, several structures were mapped in the central domain, like flexural basin, pop-up structures and back-thrusts. South-verging thrusts were also, identified in the Cyprus Basin. All these structures show a Pliocene activity. Our data suggest that the heterogeneity of the crustal structure played a major role in the longitudinal evolution of the plate boundary.