



Tectonic Evolution of the Haymana Basin during Late Cretaceous – pre-Miocene Period in Central Anatolia, Turkey

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There are various basins situated on and front of a tectonic chaotic belt located to the south of the North Anatolian Fault and north of southern front of İzmir-Ankara-Erzincan suture zone, distinguished in Ankara region (Central Anatolia). Although the belt differentiated into three imbricated tectonic subbelts, there are more than that complex structuring with associated basin on top and front of this tectonic belt. The fore-arc to foreland and trench linked, Late Cretaceous-Paleogene basins are, from NW to SE of the tectonic belt, Mudurnu basin, Orhaniye basin, Alçı basin, Haymana basin, Kırıkkale and Tuzgözü basins on top of a northward subducting oceanic leading edge of the Anatolide-Tauride platform. Within these basins Haymana basin will be target of this study. The basin evolved on a huge Pontide Jurassic-Cretaceous carbonate platform and terrain of northern ophiolitic mélanges and ophiolites during early Late Cretaceous and on Anatolide-Tauride fragments during post-Paleogene-pre-Miocene period.

The Atlantic type continental margin evolved to active subduction margin during early Late Cretaceous until the end of Late Cretaceous. Following open marine to deep pelagic basinal setting operated during Cenomanian to Maastrichtian, relatively shallow marine to transitional basinal setting dominated the deposition until the end of Late Eocene. And lately, post-Middle Eocene to Miocene, the shallowing continued under almost NNE-SSW oriented thrusting of imbricated thrust sheets of Triassic Sequences, Paleozoic Metamorphics and Cretaceous Ankara ophiolitic mélanges in the Haymana area. The fault slip data from the matrix of the Cretaceous ophiolitic mélange manifest a NNE-SSW oriented compression for post-Middle Eocene emplacement of ophiolitic mélanges and a NNE-SSW to NNW-SSE oriented compressive stress during post-Maastrichtian-Paleocene period. The slip data all around the central Anatolia supports these results. Moreover, post-Pliocene fault slip data reveals NW-SE to N-S oriented multi-extension overprinted onto strike-slip deformation indicating a clear tectonic regime changes after Miocene.

To sum up; the Haymana basin was evolved episodically and progressively in accretionary thrust tectonics with top to the SE vergence during post-Cenomanian to pre-Miocene period in central Anatolia in Ankara region.