

Morphotectonic features along the Tosya-Havza segment of the North Anatolian Fault

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North Anatolian Fault is an active right-lateral strike slip system emplaced into a broad shear zone, North Anatolian Shear Zone (NASZ), reaching up to 100 km width. The morphology of the NASZ is mainly controlled by the faults within the NASZ. Different morphological entities such as river offsets, sag ponds, releasing and restraining bends, shutter ridges, terraces, push-up structures etc have been mapped along the shear zone. In this study, morphology of an area in the central part of the NASZ between Tosya (Kastamonu) and Köprübaşı (Havza, Samsun) have been studied. In this area there are two sedimentary basins, Tosya Basin filled by Upper Miocene deposits and the Kargı Basin filled by Quaternary sediments. Both basins developed as pull apart basins along the central part of the North Anatolian Fault Shear Zone.

To the east of the Kargı Basin the main branch of the North Anatolian Fault extends along a narrow and deep valley. In the north and south of the fault there are mountainous areas elevated as positive flower structures. Close to the Köprübaşı in the east, the shear zone widens again. The fault zone widens close to the Neogene and Quaternary basins while it is represented by a single fault branch lying in a very narrow depression in the other areas. This widening and narrowing structure of the shear zone indicate that the geometry of the fault is controlled by the structure of the crust. On the other hand, morphological features along the main active North Anatolian Fault between Köprübaşı and Tosya indicate 11km of right lateral offset for this region.