



## **Morphotectonic setting of the Gölpazarı pull-apart basin: Implications on the region between the North Anatolian and Eskişehir fault zones, NW Turkey**

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The Gölpazarı basin is a rhomb-shaped pull-apart basin that situated on the region between the right-lateral North Anatolian and Eskişehir fault zones in NW Turkey at an altitude of  $\sim 500$  m a.s.l. with a size of 12 km in length and 4.5 km in width. The main structural elements controlling the morphological features in and around the study area are the strike-slip motion of these fault zones. The North Anatolian fault zone is one of the best known faults in the world because of its remarkable high seismicity and importance for the tectonics of Eastern Mediterranean region. This fault zone separates the Eurasian plate from the Anatolian plate and splays into two major strands to the north of the Gölpazarı basin. The Eskişehir fault zone that located to the south of the studied area is a WNW-ESE-trending strike-slip deformation area with a normal component that extends from Uludağ in the west to Sivrihisar in the east and separates the western Anatolia region from the central Anatolia. The morphotectonic framework of the study area was mainly set in the Quaternary period by the tectonics of these fault zones. The fault-generated mountain fronts are the most characteristic landforms. As a result of this the surrounding topography of the Gölpazarı basin being steeper along the boundaries where mountains rises steeply to over 700 m from the depression floor. The faults along the northern and southern sides of the depression, indicate mainly oblique normal faulting whereas the SE and NW margins indicate mainly strike-slip faulting. The gradient of the basin floor is towards west. There was a shallow lake in the west of the depression until 1963. There are several boreholes in the floor of the Gölpazarı basin that were drilled by General Directorate of State Hydraulic Works of Turkey that represents an alluvium thickness of  $\sim 300$  m. In the Early Quaternary the Gölpazarı basin was a closed depression and then the opening of a strait in the south of the basin by Akçay stream resulted to abrasion of the region towards south. The basin opened to external drainage by this process. This mentioned event, the geomorphic evidences of strike-slip motion along the depression boundaries, fresh scenes of faults scarps, the thickness of the basin-fill deposits, the poor developed drainage basin, seismic activity in the region represents the morphotectonic development of the Gölpazarı pull-apart basin due to sheared region that located between the North Anatolian and Eskişehir fault zones.