



Paleoseismological Findings on the Eastern Limb of the Manyas Bend, NW Anatolia, Turkey

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Different tectonic regimes have been developed during the neotectonics of Turkey and the surroundings. Southern Marmara Region is a transition zone between strike slip and extensional tectonic deformations. Current deformations at this region accommodated by strike slip faults with reverse and normal component. Fault zone and segments at this region form structure that large bend concave geometry to the south. This structure is called as Manyas Bend. The bend structure is formed by Manyas fault (40-km) at apex, Yenice-Gönen fault (70-km) at west limb, Mustafakemalpaşa (47-km) and Orhaneli (30-km) faults at east limb. Total length of Mustafakemalpaşa and Orhaneli fault have 87 km length and NW-SE direction. These two fault segments that form east limb of the bend in a zone of 11 km width. In this zone 4-5 km length right lateral strike slip faults separated from each other with en-echelon structures. This fault systems are the source of the instrumental and historical earthquakes in this region. When analyzed the instrumental and historical earthquakes, it is observed that seismic activity is quite intense in this region. Paleoseismological trench surveys were carried out on these fault segments to investigate seismic activity of the faults of the eastern limb of the bend. Three earthquake that accompanied with surface rupture at each two fault segments were dated as a Holocene. Some of the earthquakes that determined at trenches can be correlated with known historical earthquake in this region. Findings obtained from this study contribute to paleoseismological behavior of the faults of the Manyas Bends of eastern limb and regional-scale seismic hazard studies.