



Faulted archaeological man-made structures by the Dead Sea Fault zone in southern Turkey

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The Dead Sea Fault Zone (DSFZ) is an active left-lateral fault zone between the Red Sea in south and East Anatolian Fault zone in north. The northern part of the DSFZ extends approximately N-S from the Syrian-Turkish border towards north and enters into the Amik Basin in southern Turkey. Large historical earthquakes were recorded on the northern part of the DSFZ but there is no information whether they were associated with surface ruptures or not and about the exact location of surface rupture.

The Amik Basin area is rich in archaeological sites and age of ancient settlements goes back over the past six thousand years in this part of Turkey. Considering the seismic activity of the DSFZ and age of ancient man-made structures, it is possible that surface-fault related historical earthquakes ruptured man-made structures which were located on the fault zone and existing at the time of earthquake. Detailed field studies in the Amik Basin showed that a tell (ancient settlement) is located on the DSFZ near the southern margin of the Amik Basin. In addition, the ancient road between the ancient city of Antioch (in Turkey) and Aleppo (in Syria) extends along the southern margin of the Amik Basin and thus it had to cross the DSFZ. Geological, geomorphological, archaeoseismic and geophysical studies both on the tell and ancient road revealed that the tell and ancient road is sinistrally displaced by the DSFZ about 40 m and 25 m, respectively.