



Holocene activity of the northern part of the Dead Sea Fault Zone in Southern Turkey

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The left-lateral strike-slip Dead Sea Fault Zone (DSFZ) extends from the Red Sea in south to the East Anatolian Fault Zone (EAFZ) in north. Examination of the instrumental records shows no large earthquakes on the northern part of the DSFZ. However, according to historical earthquake catalogues, there are more than 40 large historical earthquakes in this region. Field studies revealed that some historical earthquakes involved surface faulting. The late Quaternary activity of the DSFZ in southern Turkey is characterized by faulted alluvial and colluvial deposits, sinistrally offset streams in south of Amik Basin and faulted archeological relics. Cumulative offset on deflected stream beds changes from 14 m to 650 m. The fault zone enters into the Amik Basin towards north and continues at least 10 km in the basin. Trace of the fault zone in the Amik Basin is identified with surface and subsurface observations including trenching, GPR and offset archaeological man made structures. Obtained palaeoseismological results on the northern part of the DSFZ revealed that large earthquakes occurred in 859, 1408 and 1872 on the main branch of the DSFZ. Further north of the Amik Basin, there is NNE-SSW trending Karasu Valley where the 1822 large earthquake ($M=7.4$) occurred. Western side of the Karasu Valley is characterized by faulted alluvial and colluvial deposits and sinistrally offset streams. Detailed studies along the western margin of the Karasu Valley showed that cumulative offset on deflected stream beds changes from 2.8 m to 500 m. Field evidence on the northern part of the DSFZ shows that the main branch of the DSFZ extends along the western side of the Asi River into the Amik Basin. In addition, field evidence also suggests that the main connecting fault between the DSFZ and EAFZ extends along the northwestern margin of the

Karasu Valley.