Geophysical Research Abstracts, Vol. 8, 06399, 2006
SRef-ID: 1607-7962/gra/EGU06-A-06399

Quaternary faulting along the Yenice – Gönen fault (NW Turkey)

S. Pavlides (1), S.Z. Tutkun (2), A. Chatzipetros (1), A. Kürçer (2), Ö. Ateş (2), S. Valkaniotis (1)

(1) Department of Geology, Aristotle University of Thessaloniki, Greece (2) Department of Geological Engineering, Çanakkale University, Turkey (pavlides@geo.auth.gr / Phone: +30-231-0998494)

The Yenice-Gönen Fault (YGF), that produced the March 18, 1953, earthquake (M_w 7.2), is located in NW Turkey and is one of the fanning strands of the North Anatolian Fault Zone that are directed towards the Aegean Sea. It was investigated in terms of paleoseismology in order to draw quantitative results on its recent seismic history. Three trench sites were determined along the 70-km long right-lateral surface rupture, where microtopographic studies, shallow geophysical surveys and trench excavating, logging and sampling studies have been performed. Selected samples were dated using the ^{14}C AMS method. A trench at the area of Seyvan village has shown that an earthquake of paleoseismic age *ca.* 620 AD has ruptured a different strand of the same fault, producing rather significant surface displacement, while there are indications that at least two older events occurred during the past 4.5 millenia. The site material consists of soil, colluvial and fluvial alternations. Another set of trenches excavated near Gönen town (Muratlar) revealed extensive liquefaction not only during the 1953 event, as is also documented by various sources, but also during a previous earthquake, dated at 1440 AD. Terrestrial reddish deposits are intruded by two generations of yellowish liquefied sand, clearly differentiated in terms of grain size and colour, indicating thus successive reactivations of the fault, which seems to behave in a uniform way. Finally, one more trench at Karakoy has shown no indications of recent reactivations. Based on the trenching and dating results, we conclude that there is a recurrence interval in the order of *ca.* 660 $\pm$ 160 years for large, ground-rupturing earthquakes. It seems however that no previous earthquake has ruptured the YGF along its entire length on the same 1953 fault. It is highly possible that various parallel-subparallel strands have

been activated during the past, as is indicated in the Seyvan trench.