



New Paleoseismological Finding on the Yenice Gönen Fault; Biga Peninsula, NW Turkey

Akın Kürçer, Selim Özalp, Ersin Özdemir, Özgül Sönmez, and Tamer Y. Duman

General Directorate of Mineral Research and Exploration, Department of Geological Research, Active Tectonic Research Group, Ankara, Turkey (akin.kurcer@mta.gov.tr, +903122011578)

The North Anatolian Fault System (NAFS) is one of the major intra-continental transform faults in the Eastern Mediterranean region. It is an active dextral strike-slip fault zone extends more than 1500 km-long forming northern boundary of the Anatolian microplate. East of Marmara Sea it divides into the northern and southern strands running towards the northern Aegean sea. The southern strand of the NAFS is consists of several fault segments, which trend NE-SW in the Biga Peninsula. Yenice-Gönen Fault (YGF) is one of the main fault segment of the NAFS in Biga Peninsula. It is about 70 km long and generated destructive earthquake ($M_w=7.2$) of 18th March, 1953.

In this study, paleoseismological investigations were performed on the YGF. It is composed of fault sections separated from each other by releasing and/or restraining bends or step-overs. The lengths of the fault sections vary from 5 to 19 km. The whole length of the YGF ruptured with maximum dextral slip of 4.0 m measured on the surface rupture nearby Yenice Town. The amount of slips decrees both NE and SW from Yenice town indicating bilateral rupture propagation. There is no clear consistency between the previously suggested epicentre location and the slip distributions. According to the slip observations, the epicentre of the 1953 event locates to the near east of the Yenice.

In order to understand paleoseismic history of the YGF, three cross trenches were excavated on the 1953 surface rupture. Two of them are on the distal part of an alluvial fan at Seyvan village and one of them is on the flood plain of the Yenice River at Çakır village. 1953 surface rupture is characterized by an evident of linear fresh fault scarp around Seyvan. Fault scarps are obvious with an uplifted of 1.2 m southern block. Dextral slip of 2.5 meter associated with the last event was measured along the rupture near the Seyvan trench site. Although active river erosion, the rupture trace can be easily followed in the field at the Çakır site. According to trench micro-stratigraphy, fault colluvial wedge, upwards termination of the faults and radiometric dating results (^{14}C -AMS), at least five paleoseismic events during the last 7.000 years period were determined from the trench surveys at Seyvan and Çakır sites.