

## **Paleoseismic evidence of surface faulting on a normal fault segment within the Aegean Extensional fault system; The Knidos fault, SW Turkey**

M. Ersen Aksoy (1), Cengiz Yıldırım (2), Orkun Türe (1), Özlem Yılmaz (1), Sefa Şahin (2), M. Akif Sarıkaya (2), and Ertekin M. Doksanaltı (3)

(1) Dept. of Geological Engineering, Muğla Sıtkı Koçman University, Muğla, Turkey, (2) Eurasia Institute of Earth Sciences, Istanbul Technical University, Istanbul, Turkey, (3) Dept. of Archaeology, Selçuk University, Konya, Turkey

The Knidos fault is a 2 km long fault segment within the southern Aegean Extensional Province. The normal fault is expressed as 5-6 m high limestone escarpments and strikes through an ancient city (Knidos) that dates back to 7 century B.C.. Historical documents and archeo-seismic data mark two destructive earthquakes in 2-3 c. B.C. and in 459 A.D. for Knidos city. Here, we opened four trenches to reveal the relationship of the fault and the earthquake related damage in the Knidos city. In Trench-2 and 3 we determined a 1-2 m wide fault zone. Trench-2 exposed six colluviums of which the lower four colluviums have been truncated by faults. The upper 2 layers overlay the faults with a sharp erosional contact. Our structural analysis points out the occurrence of at least 3, probably 4 faulting events. The most recent and penultimate events are overlain by separate colluviums that bury the event horizon for each surface rupture. Our trenches reached a depth of 1-2 m and exposed fragments of potteries dating (2. century B.C.– 2. century A.D.). Besides, ages obtained from bulk samples showed that the trenches exposed a stratigraphy from 1000 B.C. up to present. C14 dating results allowed us to constrain the age of the most recent two events. Thus, the penultimate event occurred most probably between 1336-1628 A.D. and the latter after 1655 A.D. Both earthquakes fall in the period where the city declined and are therefore not attributed to Knidos city by historical accounts. Our results reveal that the Knidos fault has ruptured two times within the last ~700 years. However, further paleoseismic trenching studies are required to obtain a better constrain on the ages of these earthquakes.