



Age of the North Anatolian Fault Segments in the Yalova with U/Th Dating Method by Travertine Data

Haluk Selim (1) and K. Ömer Taş (2)

(1) Istanbul Commerce University, Istanbul, Turkey (hselim@ticaret.edu.tr), (2) Istanbul Technical University, Istanbul, Turkey (task@itu.edu.tr)

Travertine occurrences developed along the segments of the North Anatolian Fault (NAF) in the south of Yalova. Travertines outcrop approximately 1 km² area. These are middle-thick bedded approximately 20-40 m and back-tilted southward or horizontally. Lithology of travertines deposited such as physolite, stalactites-stalagmites, cave pearls, sharp pebble carbonate nodules, spherical-roller-intricate shapes or laminated banded travertine. Geochemical analyses were performed on the six samples of the travertines. X-ray analysis indicates that all samples are entirely composed of low-Mg calcite. Banded travertines with some tubular structures formed by precipitation from rising hot water are best developed near the toes of the large, hanging-wall-derived alluvial fans, whereas phreatic cement preferentially exists in footwall-derived, alluvial-fan conglomerates. The unit developed clarity which is controlled by normal fault as the structural and morphological, relationship with active tectonics. The travertines are a range-front type. U/Th series age dating results indicate that the travertine deposition extends back to 155 ka and yields ages of 60.000 ($\pm 3,091$) to 153.149 ($\pm 13,466$) from the range-front type travertines.