



Extensional Tectonics Evidenced in Recent Sediments of Lake Van, Eastern Turkey

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The Lake Van region is characterized by NE-SW trending faults with a left-lateral normal-slip component, NW-SE trending faults with a right-lateral normal-slip component and E-W trending reverse/thrust-slip faults, suggesting a N-S trending compressional stress orientation. Tectonic effects in the region continue to be manifested by recent seismicity as in the earthquake of October 23, 2011 ($M_w=7.1$). Although this earthquake has not produced many earthquake-related surface deformation, evidences of recent tectonics are rather extensive in the Quaternary sediments surrounding the lake. Therefore ages of sediments are important in determining the timing of tectonic activity.

Optically stimulated luminescence (OSL) method was used to determine the age of lake sediments to the north of the lake. Also, shells of gastropods available in the sediments are dated by C^{14} . Ages suggest that to the NE of Lake Van youngest activity on the NW-SE trending Erciş Fault with right-lateral normal-slip component is to be 34 ka. Activity on other normal faults in the same area is dated between 10-14 ka and 20 ka. Also, somewhat to the south of this region in vicinity of the Canik area, reverse faulting is dated to be younger than 40 ka. All ages indicate the region has been affected during the Pleistocene locally by an extensional regime contemporaneously with the contractional regime. The evidence of a one meter dip-slip displacement measured on a fault plane in a quarry supports the view of local extension in the NE sector of the lake.

Key Words: Lake Van, OSL dating, neotectonics, active tectonics