

Ismetpasa and Destek regions; Creeping or accumulating strain

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The North Anatolian Fault (NAF) is one of the most destructive fault system all over the world. In the last century, many devastating seismic event happened on it and its shear zone (NAFZ). Especially, after the 1999 Izmit and Duzce earthquakes, the earth science studies increase to save human life. To better understand the mechanism of the active fault system, tectonic stress and strain are important phenomena.

According to elastic rebound theory, the locked active faults release the accumulated strain abruptly in four periods; interseismic, preseismic, coseismic and postseismic. In the literature, this phase is called the earthquake cycle. On the other hand, there is another scenario (aseismic deformation or creep) to release the strain without any remarkable seismic event. For the creep procedure, the important subject is threshold of the aseismic slip rate. If it is equal or larger than long-term slip rate, the destructive earthquakes will not occur along the fault which has aseismic slip rate. On the contrary, if the creep motion is lower than long-term slip rate along the fault, the fault has potential to produce moderate-to-large size earthquakes.

In this study, the regions, Ismetpasa and Destek, have been studied to determine the aseismic deformation using GPS data. The first and second GPS campaigns have been evaluated with GAMIT/GLOBK software. Preliminary results of the project (slip-rate along the NAF in this region and aseismic deformation) will be presented.