



## **Earthquake Potential of East Anatolian Fault**

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Although available efforts worldwide have not yet developed a universal approach to predict earthquakes, understanding mid and long-term seismic behaviour of fault zones provide insights into potential future earthquakes. In this study, we investigate earthquake potential of East Anatolian Fault (EAF) combining seismicity and geodetic measurements. EAF is a major plate boundary between Arabian and Anatolian plates accommodating destructive earthquakes as reported by historical earthquake catalogue, which is complete above M 6.4 for the last millennia. In this time period, the three largest earthquakes are 1114 (M 7.8), 1513 (M 7.4), 1893 (M 7.1). According to GPS measurements, EAF accommodates  $\sim 10$  mm on the northern section,  $\sim 10$  mm in the middle section and  $\sim 4$  mm in the southernmost section. Based on this geodetic background, EAF should have stored  $\sim 9.6$  m average slip deficit during the last millennia although only 6.65 m has been released in this time period. Remaining 2.95 m average slip deficit presently has a potential to generate several  $M > 7.0$  earthquakes. B-values allow to discriminate between creeping/locked, in other words, to verify which segments can currently be responsible for 2.95 m average slip deficit and therefore have potential to accommodate future large earthquakes along the EAF. There are two seismic gaps that have high potential of generating large earthquakes, namely Pazarcık and Palu segments, as they have not accommodated a large earthquake recently. Our calculations show that two M 7.6 earthquakes can totally release present slip deficit.