

An overview of the seismic activity and gaps in the Marmara Sea area

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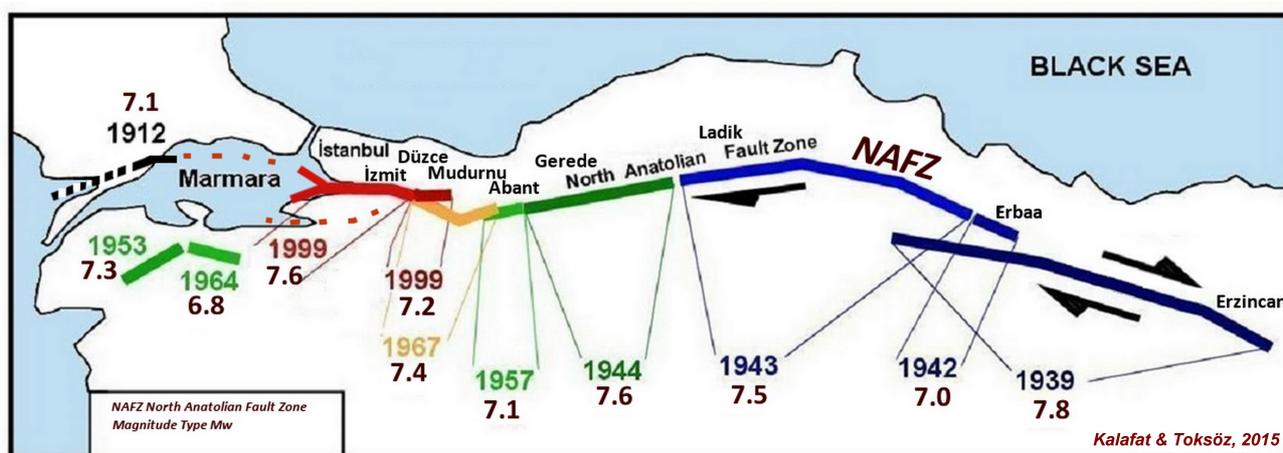
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Turkey and its surrounding region comprise one of the most rapidly deformation parts of Alpine-Himalayan mountain belt, because the country is located at the junction of the three main tectonic plates. Global kinematic models based on the analysis of oceanic spreading, fault system, and earthquake slip vectors indicate that Arabian plate is moving in the north-northwest direction relative to Eurasian at an average rate of about 25 mm/yr. The westward escape of Anatolian plate by right lateral strike-slip motion produces major earthquakes along the North Anatolian Fault Zone and this causes an important role on the tectonic evolution of the Marmara Sea region. Eventually, the Marmara Sea region is one of the most seismic active region, because the Marmara Sea region is at a triple junction between the Turkish, Aegean and Eurasian Plates in a complicated area of small block structures, and an understanding of the behaviour of the Marmara Sea area is very important in the interpretation of the tectonics evolution of the entire region.

Active tectonics in the region has strike-slip, normal and some reverse of dip-slip (oblique) faulting types. Especially western part of the latitude 30°E, fault mechanisms changed via normal faulting and oblique faulting types. Another indicator, the Marmara Sea region is a kind of mixed place of changing of fault mechanisms and rotation of dominant T stress axes directions in the NAFZ.

In this study, we present seismicity and briefly presented the fault mechanism characteristics of the Marmara Sea region. On the other hand, we try to understand seismic gaps along the Marmara region. Recent crustal deformation and seismicity provide about seismic gaps in the region for future earthquakes.

Keywords: Marmara Sea, seismicity, fault mechanisms



The westward migration earthquakes since 1939 along the North Anatolian Fault