

## Seismicity and Tectonics of the Black Sea

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The Black Sea, a complex basin between the Arabian, Anatolian and Eurasian plates is a feature of special interest for understanding the geologic history of the region. It was formed as a "back-arc" basin over the subduction zone during the closing of the Tethys Ocean. In the past few decades, the Black Sea has been the subject of intense geological and geophysical studies, including deep seismic sounding and reflection profiling for scientific and petroleum exploration purposes. The Black Sea consists of two basins, Eastern and Western Black Sea, separated by NW-SE trending topographic ridges. The deepest part of the basins have oceanic crust below a thick cover of sediments at a depth of about 10 km. The margins and the ridges have continental crusts. In this paper, we present the seismic and fault mechanisms of earthquakes in and around the margins of the Black Sea. Although seismic activity is sparse in the basin relative to the surrounding region of the Caucasus and Turkey, the broad-band seismic networks established in surrounding countries, especially in Turkey since 2005, have provided the capability for the detection, location and source mechanism studies of earthquakes in the Black Sea basins. The data shows that; There are a significant number of earthquakes in the Black Sea, mostly of magnitude  $M_w=4.0$  or smaller.

The seismicity increases toward the margins, with the largest events at the margins. The focal mechanisms indicate primarily N-S compression with some E-W component. The mechanism are consistent with the GPS observations, where Westward motion of the Anatolian Plate and N-S deformation of the Caucasus take up most of the motion of the Arabian Plate and only small motions (about 1 mm per year) are transmitted through the Pontides and the Black Sea is being compressed in N-S direction.

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