

An Interpretation of Active Faults and Their Seismicity in Turkey

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Abstract

A well accepted view is that the neo-tectonic of Turkey has originated by continental collision occurring at Southeastern Anatolia during the Middle Miocene. This deformation affecting the entire Anatolia developed many thrust-, normal- and strike-slip faults as well as extensional cracks. During the Late Pliocene, the emerging Anatolian block broke away towards west through activation of the North Anatolian and the East Anatolian faults. Deformation at Anatolia assumed a complex behavior considering also the effect of the Hellenic subduction. In such a complicated deformation system, a multitude of active fault Systems of different characters developed in Turkey, including primarily the North Anatolian Fault System, East Anatolian Fault System, Southeastern Anatolia Thrust Belt and West Anatolia Graben System.

It is a fact that many earthquakes have occurred in Anatolia according to the information gathered during historical and instrumental periods. A close relationship is found between these devastating earthquakes and mapped active faults; this is taken to indicate that destructive earthquakes will also occur on these faults in the future as well.

Active Fault Map of Turkey was produced within the framework of a project carried out by General Directorate of Mineral Research and Exploration (MTA). When generalized, the recurrence period of big earthquakes on these faults changes from 200-350 and some times up to 10000 years; the latter being relatively passive faults.

After the publication of Active Faults Map of Turkey, a number of studies have been carried out in regard to active faults in Anatolia. These studies either revealed some faults which did not exist in the Active Faults Map of Turkey or investigated in detail the faults already indicated on the Map.