

National Strong Ground Motion Network of Turkey

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Abstract

About the Network

Strong Ground Motion Network of Turkey is operated by Earthquake Research Department (ERD) under the Ministry of Public Works and Settlement General Directorate of Disaster Affairs (GDDA). The network had been initiated in 1973 and the first strong ground motion had been recorded in 1976. Earthquakes which occurred in Turkey near the network since 1976 have been recorded by our network.

Initially, analog acceleration recorders were installed as they were the available technology. Later (after 1993) the system has been supported by digital instruments additionally.

Aim of the Network is; to improve the damage-loss estimations and to develop the seismic intensity attenuation relations, which is in turn connected to the earthquake scenario studies for urban areas. Data from the Network will be used for emergency response, performance assessment, improvement of building codes and scientific studies. And also, earthquake strong motion records can be used by national and international researcher via internet.

According to the aim of the Network, accelerometers are installed on the North Anatolian Fault Zone (NAFZ), East Anatolian Fault Zone (EAFZ) and Aegean Graben System where the big earthquakes occurred or the expected active areas with a distance about 20-30 km.

Most instruments have been generally installed at freefield and also, end of the year 2009 all of them will be installed as freefield.

Development of the Network

Between 1973 and 1993, 67 of analog recorders have been established along the active fault zones.

Since 1993 analog equipment have been supported by digital instruments and in the year 2000, an array including totally 116 accelerometers (67 analog 49 digital) in the country wide scale has been established.

In the year 2000, by the financial support of NATO and METU (Middle East Technical University), BYTNET local array in Bursa – Yalova provinces containing 12 accelerometers and DATNET local array containing 6 accelerometers were included to the network. By the support of TUBITAK and METU local array of MATNET of 18 stations has been established and operated since 2003.

In the year 2006, 61 analog recorders are upgraded by QDR.

As of the year 2007 total number of stations increased to 205, and end of the year 2008 establishment of the new stations will be done then the number of stations will be increased to 235.

During the year 2009 some new stations are established and now 271 accelogramms are operating in the National Network.

Approximately 50 new stations are planned to be added to the existing network for each year. By that, it is aimed to have 1000 stations in the network until 2015.

