

## Antakya Basin Strong Ground Motion Network

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Antakya Basin Strong Ground Motion Network was established in 2009 with the objectives of monitoring the earthquake response of the Antakya Basin, improving our understanding of basin response, assisting to determine the effects of local and regional earthquakes on the urban environment of Antakya and contributing to its earthquake risk assessment of Antakya, that is a town in southeastern Turkey marked with high earthquake hazard and historical and cultural significance. The system is the first of its kind in Turkey with the primary purpose of monitoring basin response.

The network consists of six instruments installed in small buildings. The stations form a straight line along the short axis of Antakya basin passing through the city center. They are equipped with acceleration sensors, GPS and communication units and operate in continuous recording mode. The soil properties beneath the strong motion stations (S-Wave velocity structure and dominant soil frequency) are determined by array measurements.

A number of regional earthquakes have been recorded by the system since its installation. Following preliminary observations can be deduced from their analysis and from the results of array measurements (1) to the west of river Asi, average bedrock depth is 480m. The depth of engineering bedrock is estimated as 250m; (2) ground motion amplification along the short-axis of the basin can clearly be observed from the recordings; (3) to the west of the Asi River, 3 to 10 times amplifications in ground motion levels are observed. They tend to increase as one moves towards the middle of the basin.

Our immediate plan is to increase the number of stations to twelve with the intention of covering areas of the basin along its long axis and to carry out further geophysical and geotechnical studies to better characterize the velocity structure within the basin.

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