



Antakya basin strong ground motion network

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Turkey is located in one of the most active earthquake zones of the world. The cities located along the North Anatolian and East Anatolian faults are exposed to significant earthquake hazard. The Hatay province near the southern terminus of the EAF has always experienced a significant seismic activity, since it is on the intersection of the northernmost segment of Dead Sea Fault Zone coming from the south, with the Cyprean Arc approaching from south-west. Historical records extending over the last 2000 years indicate that Antakya founded in the 3rd century B.C., a town in the Hatay province and moreover near the edge of a basin called after its own name, is affected by intensity IX-X earthquakes every 150 years. In the region, the last major earthquake occurred in 1872. Destructive earthquakes should be expected in the region in the near future similar to the ones that occurred in the past.

“Antakya Basin Strong Ground Motion Monitoring System” is set up with the aim of monitoring the earthquake response of the Antakya Basin and of contributing to our understanding of basin response and to earthquake risk assessment of Antakya town. It is the first monitoring installment in Turkey dedicated to understanding basin effects, a devastating phenomenon well documented during 1985 Michoacan and 1988 Spitak earthquakes. The strong motion monitoring system 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. So far five earthquakes are recorded by the system. We expect that the records will allow for the visualization of the propagation of long-period ground motion in the basin and show the refraction of surface waves at the basin edge. They will also serve to enhance our capacity to realistically synthesize the strong ground motion in basin-type environments.