

## IRAN STRONG MOTION NETWORK RENOVATION

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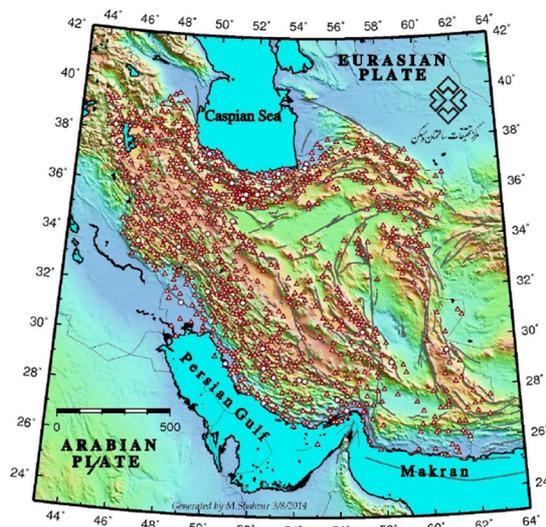
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Strong ground motion records are the main input data to earthquake engineering studies such as dynamic structural analyses and seismic hazard evaluation, helping us to improve our understanding of seismic hazard and risk. This data is used as basic information on the development of earthquake building codes. The Iran strong motion network (ISMN), Road, Housing and Urban Development Research Center (BHRC), is operating a network of about 1115 digital strong motion accelerometer.

Strong motion monitoring of earthquake activity in Iran began at the onset of the 1973, consisting of 270 analog SMA-1 stations. Since then Iran has been at the forefront of strong motion monitoring in Middle East. In the early 1990s, after Manjil destructive earthquake, the National Strong Motion Network was established including dial-up triggered instrumentation replaced the analog sensors. This network, consisting of 1070 SSA-2 sensors, was installed across Iran, 547 free-field stations as well as of 91 dam-related (see Figure 1).



Iranian Strong Motion Network (1972-2015)

Figure 1. Strong Motion Stations operated by the ISMN. Stations with CMG-5TD (circle) are the continuous real-time network. The other sensors operate in dial-up modem (triangle) and have limited dynamic range.

About nearly 13,600 three component strong motions have been recorded from 1973 in earthquakes between  $3 < M_w < 7.8$ .

This paper describes the current status of network including instrumentation, database and ongoing developments and renovation project for the Iran strong motion network. The renovation project started in late 2016, and will lead to the installation of 500 new free field state-of-the-art accelerometer stations across Iran over a 5-year period.

The renewal of the Iran Strong Motion Network was funded in 2015 by a decision of the Ministry of Road and Urban Development. The project involves installation of 500 new accelerometers over the next 6 years, with an initial 100 new stations to be installed in the first 2 years. The key goal of the network is to densify instrumentation in the major Iran cities and towns, in particular those with higher seismic risk and numerous of the dial-up stations will be upgraded. Instrumentation quality and communications will also be up-to-date, with 24-bit digitization and real time communication with high sample rate data.

## **REFERENCES**

ISMN, Iran Strong Motion Network, available at: [www.ismn.bhrc.ac.ir](http://www.ismn.bhrc.ac.ir).

BHRC, Road, Housing and Urban Development Research Center at [www.bhrc.ac.ir](http://www.bhrc.ac.ir).

