Sharing Local Seismic Networks Data to Complete Instrumental Gaps of CTBTO Global Network

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Highlights

Seismic waves attenuate while propagating through the earth from the source to any target site or recording station. Density and the geometry of each seismic network has the main role on the recording and then evaluating the parameters of an earthquake. CTBTO by its responsibility has a key role to make a safe world.

Seismic monitoring can be more precise if many local seismic networks all around the world took into account. If the small events from lots of local networks share with CTBTO then there would be the possibility to enhance effectively the monitoring network.

This protocol can simply gather lots of stations and data to strength evaluation of all events and effectively extends the number of monitoring equipments all over the world. This paper gives a snapshot of this data sharing.

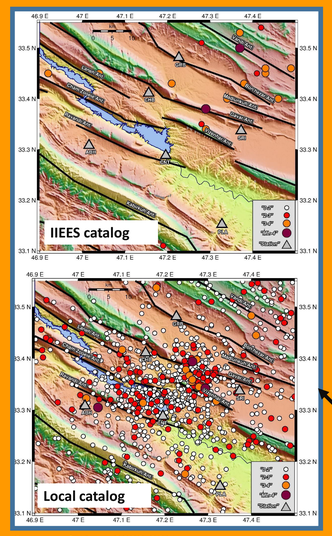
The detecting ability simply changes with instrumental coverage which plays an effective role for professional and applied usages in seismology.

The inherent error in regional and global networks are as high that can't give accuracy to determine the exact trend and depth of seismic sources and enough evaluation for early warning networks and rapid response systems which can effectively reduce the natural hazard of earthquakes. This procedure even can use as a procedure to increase the CTBTO network applications.

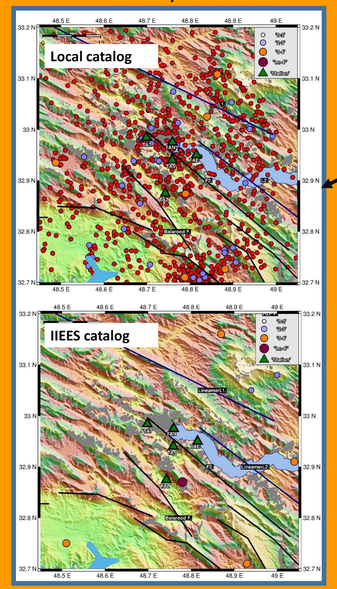
Local networks are operating for various goals of seismology in Iran and this definitely will increase the quality of studies and can prepare lots of informative data that directly relates to seismic hazard assessment. These networks have reduced the magnitude of completeness of seismic catalogs and increase the knowledge of crustal properties which will prepare a huge data bank to define 2D, 3D earth models.

Bam earthquake was one the most destructive earthquakes in recent decades in Iran plate. with the death toll amounting to 26,000 people and injuring an additional 50,000. At the time of earthquake there was no seismological station close to BAM city!

Here; events recorded by national network of IIEES (International Institute of Earthquake Engineering and Seismology) and some local networks for dam monitoring in a similar framework and time interval are compared. The figures talk!

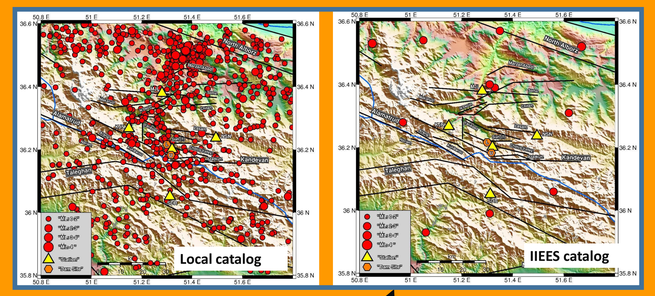


Seymareh Dam 2008-2015



Bakhtiary Dam: 2011-2014

SiahBishe Dam: 2010-2015



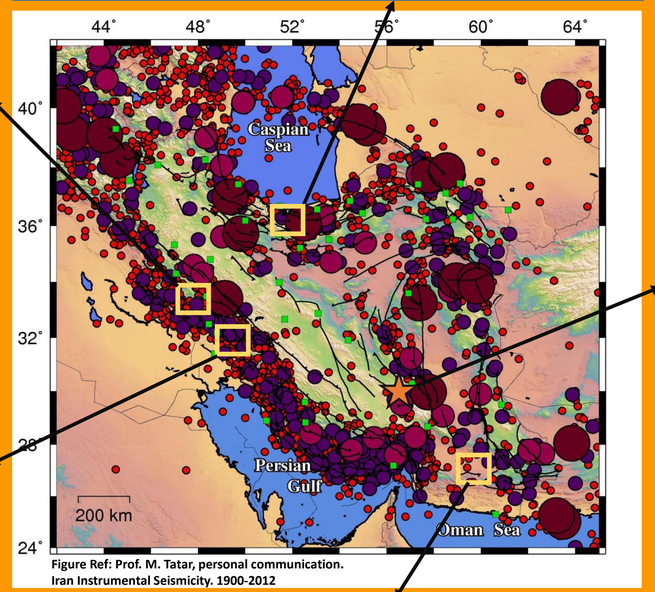
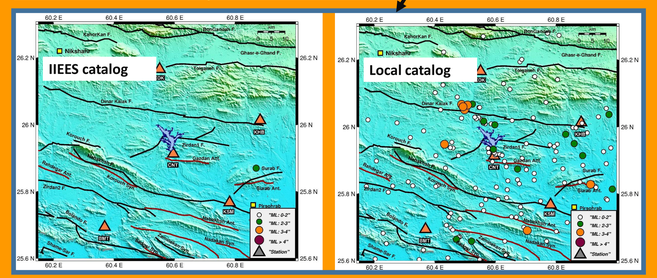
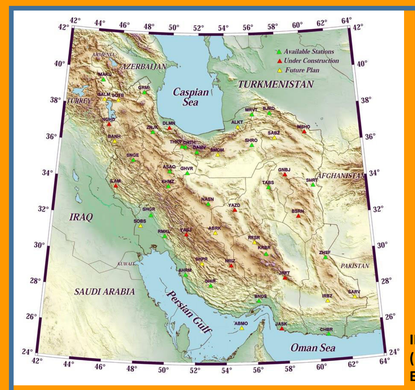
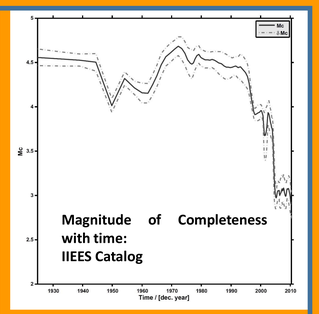


Figure Ref: Prof. M. Tatar, personal communication.
Iran Instrumental Seismicity. 1900-2012

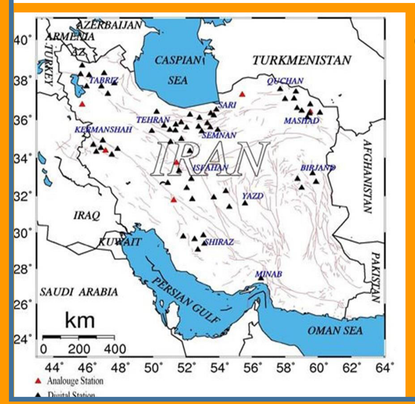


Zirdan Dam 2011-2013





IIEES national network (International Institute of Earthquake Engineering and Seismology)



IGTU national network (Institute of Geophysics of Tehran University)