

# Seismic Observation and Seismicity of Pakistan

Mr. Muhammad Zafar Iqbal (2012 Global Seismological Observation Course)

Micro Seismic Studies Programme (MSSP), Pakistan Atomic Energy Commission

## 1. Seismic Network of the Micro Seismic Studies Programme (MSSP)

The seismic network of Micro Seismic Studies Programme (MSSP) in Pakistan Atomic Energy Commission was established in 1976 (Figures 1 and 2).

MSSP network consists of 28 seismic stations of three-component high performance broad band. The network stretches from Nagar Parker in southern Sind to Cherat near Peshawar in the north for maximum azimuthal coverage and discrimination of the tests from seismicity owing to geologic activities in the region. Out of these 28 stations, both acceleration and velocity sensors have been installed at 15 stations while remaining 13 stations contain only velocity sensors. 23 stations are in working condition while 05 situated in central Pakistan are not operational in the want of maintenance which is not possible due to present security conditions.

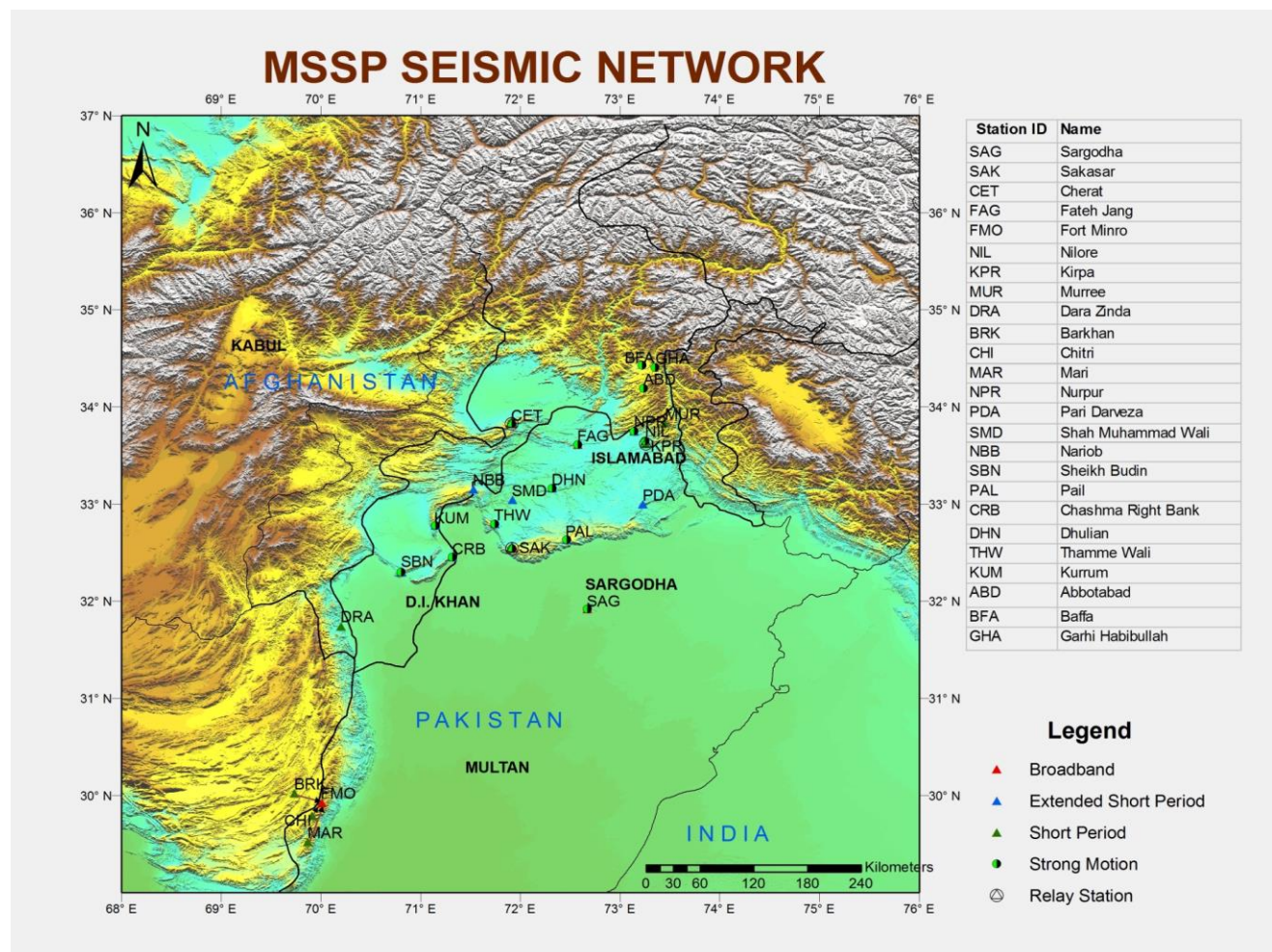
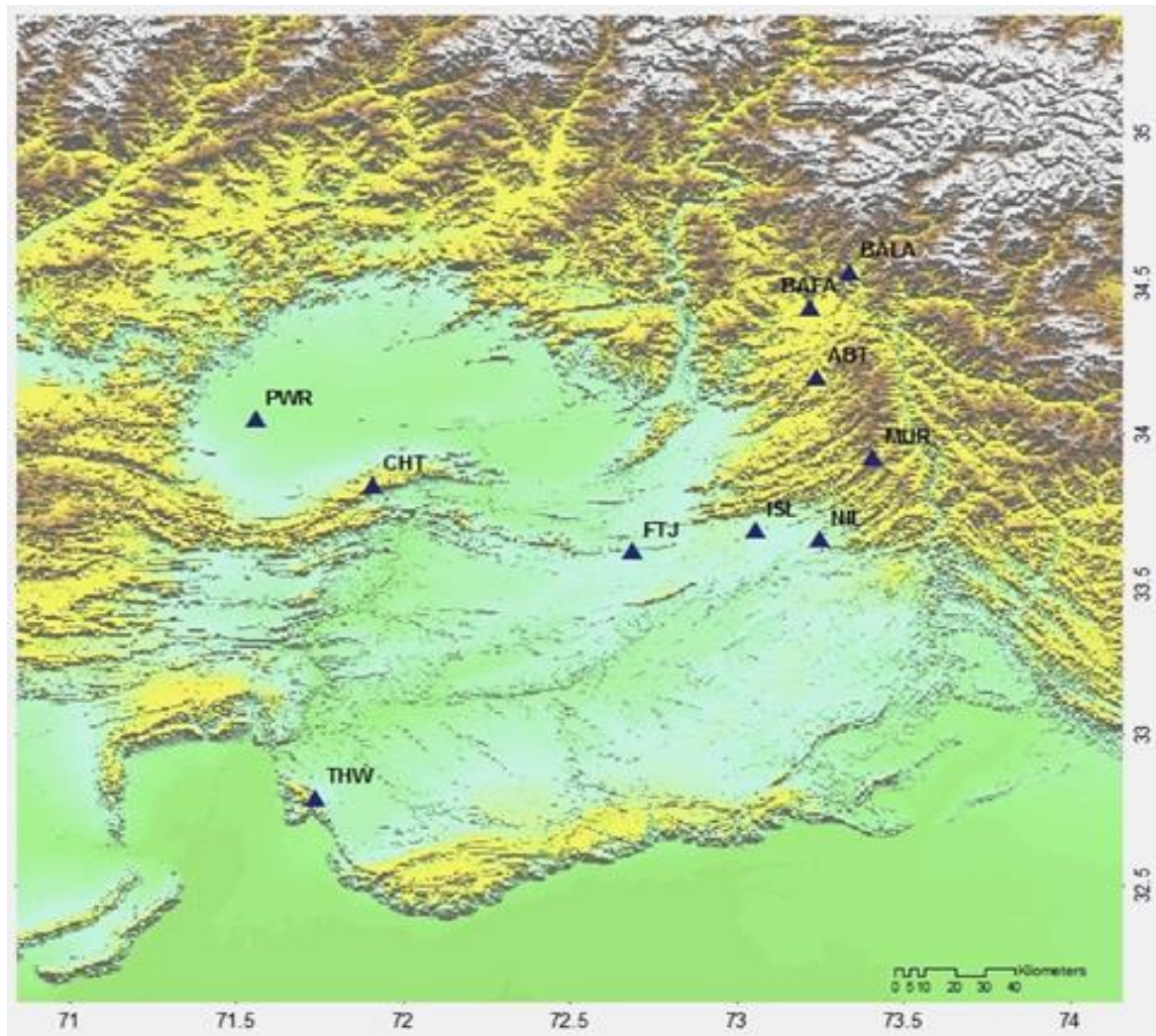


Figure 1. MSSP Seismic Network.



**Figure 2.** MSSP Strong Motion Network.

## **2. Equipment of Micro Seismic Studies Programme**

- 30 digital seismic stations with 24 bit digitizers
- 10 strong motion stations
- One borehole system
- Equipment for data transmission from remote sites to central recording lab.





**Figure 3.** Equipment.

Left: Geotech Model S-13 of high resolution, premium seismometer

Center: CMG-3ESP seismometers, triaxial, force-feedback instruments of a large dynamic range

Right: 5TB



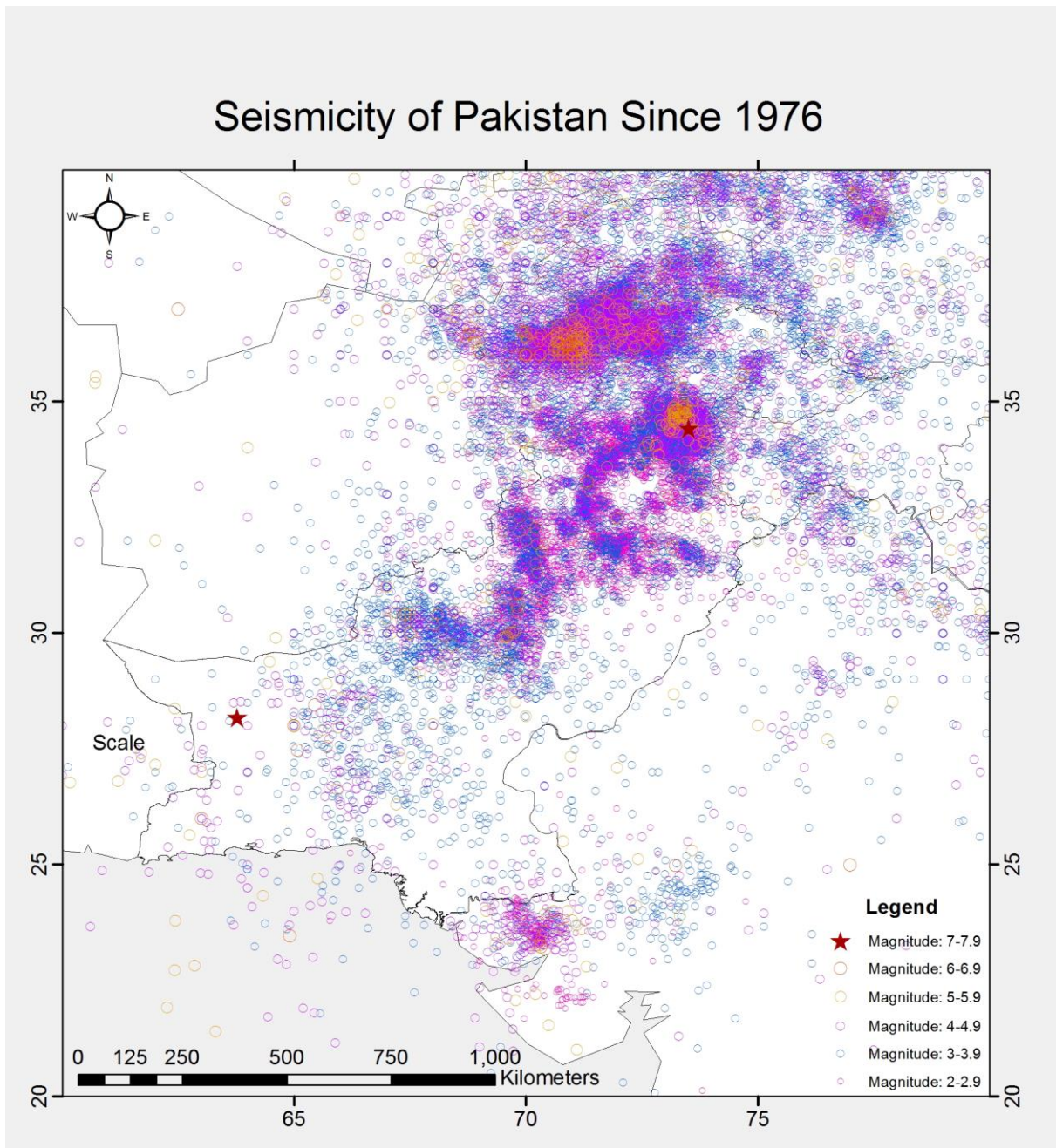
**Figure 4.** Equipment.

Left: CMG-3T seismometer with compact three-component

Center: CMG-DCM

Right: Güralp CMG-DM24 multi-channel digitizer

### 3. Seismicity of Pakistan



**Figure 5.** Seismicity of Pakistan Since 1976.



## Deadliest Earthquakes in Pakistan Since 1900 (Deaths > 1000)

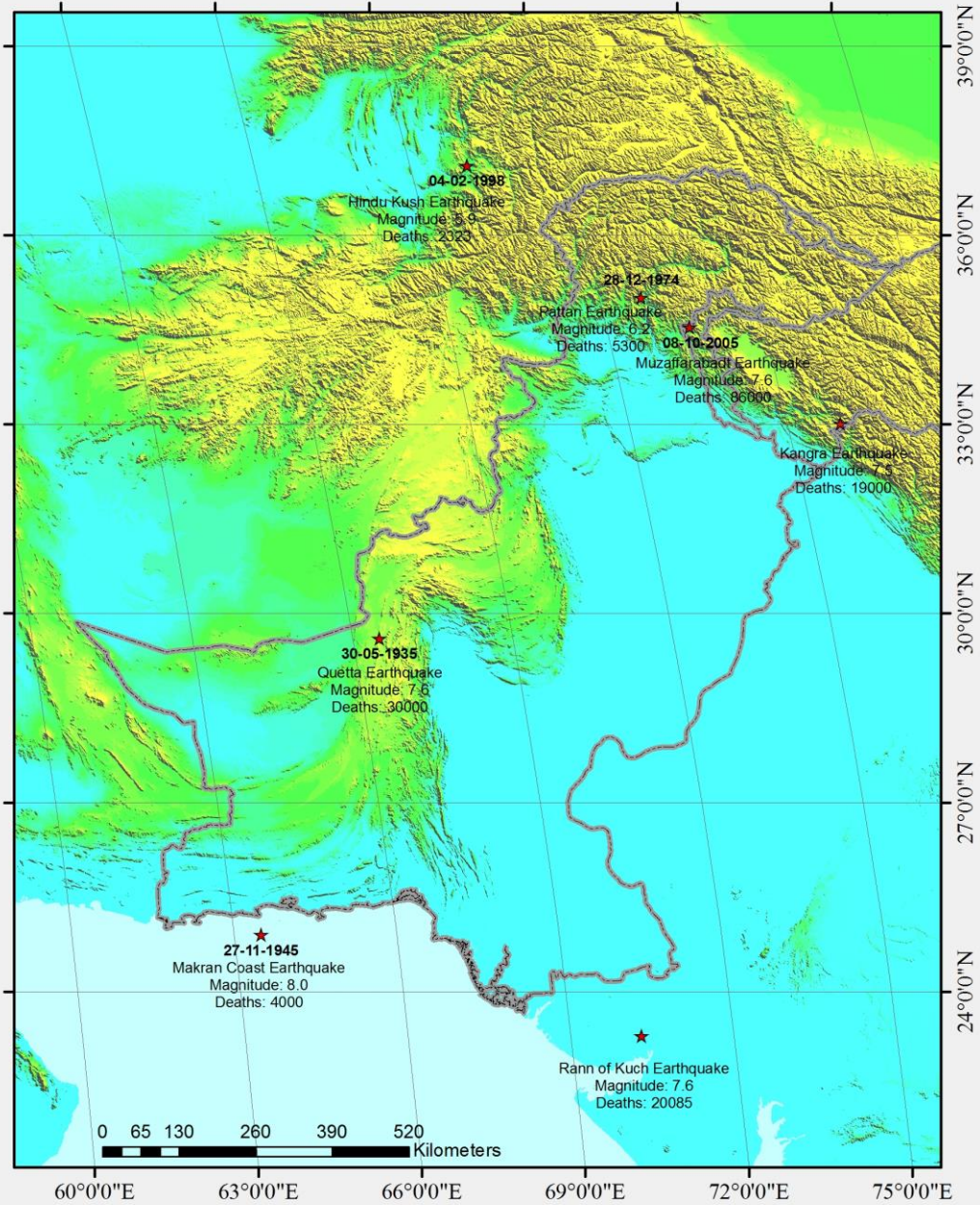


Fig. 2 Map shhowng earthquakes resulted more than 1000 casualities since 1900

**Figure 6.** Deadliest Earthquakes in Pakistan Since 1900 (Deaths > 1000).