

National Seismic Monitoring Network of Pakistan Meteorological Department

Mr. Mahmood Shahid (2011-2012 Seismology Course)

Pakistan Meteorological Department (PMD)

1. Seismic Monitoring Network of PMD

The stunning Kashmir earthquake on October 8th 2005 provided both challenges and opportunities to review the existing earthquake monitoring network and data infrastructure instantly. The Pakistan Meteorological Department (PMD) operates a state wide seismic network in Pakistan. The new digital seismic network was installed after October 8th 2005 Kashmir Earthquake. Today PMD seismic network comprises of 16 BB seismic stations 16 Strong Motion stations and 10 Short Period stations which cover most earthquake-prone regions in and around Pakistan efficiently. Major objectives of this network are monitoring of natural and induced seismicity and earthquake warning; observation of the consequences of the earthquakes and study of their mechanism; seismic hazard study of the country etc.

PMD Seismic Network comprises of two sub-networks distinguished on the basis of earthquake recording sensors installed for seismic monitoring:

a. Guralp Broadband and Short Period Seismic Network

This network includes:

- i. 10 Broadband Guralp stations of CMG 3T sensors
- ii. 10 Strong Motion of Guralp CMG 5T sensors
- iii. 10 Short period Guralp CMG 40T

b. Pak-China Seismograph Network (PCSN)

This network includes:

- i. 06 Broadband Chinese stations of Geodevice BBVS-120S sensors
- ii. 06 Accelerometer of Geodevice BBAS-2 sensors

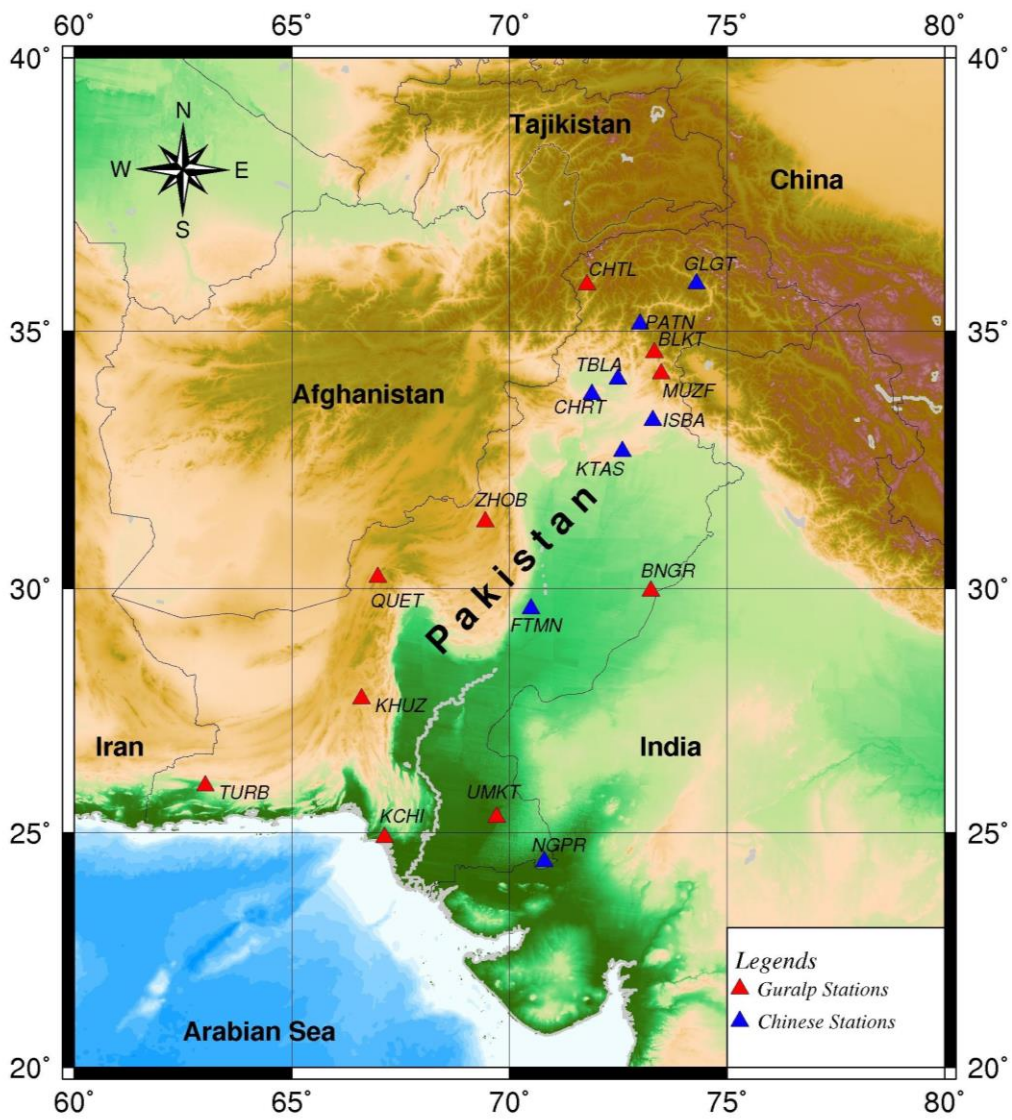


Figure 1. PMD Broadband Seismic Monitoring Network.

Table 1. Guralp Broadband and Strong Motion Seismic Stations.

<i>Code</i>	<i>Name</i>	<i>Latitude(°N)</i>	<i>Longitude(°E)</i>	<i>Sensor Type</i>
BLKT	Balakot	34.5333	73.3333	<i>CMG 3T & CMG 5T</i>
BNGR	Bhawalnagar	29.9510	73.2501	<i>CMG 3T &CMG 5T</i>
CHTL	Chitral	35.8833	71.7833	<i>CMG 3T &CMG 5T</i>
KCHI	Karachi	24.9167	67.1333	<i>CMG 3T &CMG 5T</i>
KHUZ	Khuzdar	27.7833	66.6012	<i>CMG 3T &CMG 5T</i>
MUZF	Muzaffarabad	34.3646	73.4938	<i>CMG 3T &CMG 5T</i>
QUET	Quetta	30.2333	66.9833	<i>CMG 3T &CMG 5T</i>
TURB	Turbat	25.9928	63.0389	<i>CMG 3T &CMG 5T</i>
UMKT	Umerkot	25.3529	69.726	<i>CMG 3T &CMG 5T</i>
ZHOB	Zhob	31.3375	69.4511	<i>CMG 3T &CMG 5T</i>

Table 2. Chinese Geodevice Broadband and Strong Motion Stations.

<i>Code</i>	<i>Name</i>	<i>Latitude(°N)</i>	<i>Longitude(°E)</i>	<i>Sensor Type</i>
ISBA	Islamabad	33.7426	73.065	<i>Geodevice BBVS & BBAS</i>
GLGT	Gilgit	35.9317	74.234	<i>Geodevice BBVS & BBAS</i>
TBLA	Terbela	34.0509	72.6978	<i>Geodevice BBVS & BBAS</i>
KTAS	Katas	32.7279	72.9539	<i>Geodevice BBVS & BBAS</i>
FTMN	Fort Munro	29.9199	70.0101	<i>Geodevice BBVS & BBAS</i>
CHRT	Cherat	33.8163	71.8756	<i>Geodevice BBVS & BBAS</i>

Table 3. Guralp Short Period Seismic Stations.

<i>Code</i>	<i>Name</i>	<i>Latitude(°N)</i>	<i>Longitude(°E)</i>	<i>Sensor Type</i>
PESH	Peshawar	34.0133	71.1065	<i>CMG 40T</i>
ISBD	Islamabad	33.5317	73.1034	<i>CMG 40T</i>
LHR	Lahore	31.3212	74.2011	<i>CMG 40T</i>
GCQU	Quetta	30.1279	67.0142	<i>CMG 40T</i>
KAKUL	Kakul	34.1119	73.1510	<i>CMG 40T</i>

Seismic Data readily available in 03 standard formats:

- GCF – Guralp Compressed format
- MiniSEED Format
- Seed Format

2. Earthquake Recording Instruments used by seismic monitoring network of PMD



Figure 2. BB Guralp Sensor CMG-3T (*Left*)
Short Period Guralp Sensor CMG 40T (*Right*).



Figure 3. PCSN Geodevice Sensor (*Left*)
Digitizer Rake BBVS 120S at Islamabad (*Right*).