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The Seismicity of NW Himalaya, Its Migration and Implications on Active Tectonics

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The seismicity (M>5) in the North-West (NW) Himalaya is studied comprehensively for the period of last 500 years. Gross heterogeneity is observed in the tectonic activity in the fault zones and various other lineaments which run transverse to the regional well-defined tectonics. The activity is clustered around three different tectonic zones, i.e. the Garhwal Himalaya, the Punjab re-entrant and the Kinnaur region indicating an unevenly distributed stress regime.

The study of local seismicity in the last decade, as recorded by the WIHG seismic network shows a cluster of small shocks in the Chamba region, which was not so evident in the global seismic catalogues of M >5. The seismic activity is confined to the north dipping Main Central Thrust (MCT) in the Garhwal and Chamba region. The seismic activity shifts to the Main Boundary thrust (MBT) and the Panjal Thrust (PT) in the Punjab re-entrant region. A region of little or no activity is also seen to the north of Punjab re-entrant along the MCT. It remains to be seen if this is an indication of stress accumulation in the region.

The migratory behavior of the regional seismicity in the last two decades is being studied. A lot of clusters are seen in the data in the recent years. There may either be a real increase/ shift in the seismicity pattern or it may be due to enhanced instrumentation in the region. A distinct increase of seismicity is observed along features which are transverse to the regional tectonics.