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Clusters of Moderate Size Earthquakes along Main Central Thrust (MCT) in Himalaya

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ABSTRACT

The Main Central Thrust (MCT) in Himalaya is seismically active in segments. In recent times, strain release within these active segments produce five spatial clusters (A to E; Figure 1). The seismicity within the cluster zones occurs in two depth bands; corresponding to the base of upper and lower crust. Depth sections across the clusters illustrate gently dipping subducted Indian Plate, overriding Tibetan Plate and compressed Sedimentary Wedge in between, with mid crustal ramping of MCT. Several presumptions / hypotheses have been put forward to decipher the causes of clustering along MCT. These are segmental activation of MCT, cross fault interactions, zones of arc parallel and arc perpendicular compressions, pore pressure perturbations, low heat flow zones etc. But these hypotheses need to be evaluated in the future after more ground level data are available. The maximum size of seismic threat that MCT can produce is inferred to be around Mw 7.0 in those clusters.

KEYWORDS

MCT, Himalaya, Earthquake, Seismic Clusters, Seismic Potential

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