

### 4.1-O3. INVESTIGATING A NEW PARADIGM IN DELAYING IMPENDING EARTHQUAKE IN INDO-NEPAL HIMALAYA

The Himalaya and its surrounding regions are highly complex in terms of its evolution, tectonics and seismicity. Indo-Nepal Himalaya displays all major tectonic features of the Himalayan mobile belt and is seismically one of the active regions in the Himalayan arc. Observations indicate that there is a significant fluctuation in seismicity at different times but mostly prior to large earthquakes. Five cases of anomalous seismicity have been identified. Of which, three medium size earthquakes of 1980 (mb 6.1), 1984 (mb 5.6) and 1999 (mb 6.6) already occurred in the Western Nepal and its adjoining Indian region were preceded by well-defined patterns of precursory swarm and two cases for which quiescence episodes still continues be investigated for impending earthquake. It has been estimated that an earthquake with  $M 6.5 \pm 0.5$  should have occurred till December 2011 within an area bounded by 29.30-30.50 N and 81.20-81.90 E, in the focal depth range 10-30 km. However, analyzing seismicity data from period 1963-2006 advocate that delay in impending earthquake is the case of a repeated swarm sequence in which the second activity has occurred in the gap episode of the first which was continuing, that has enhanced both the preparatory period and the magnitude.

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