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Prediction of Earthquake Hazard in the northeast India Himalaya

The Himalayan region, the zone of collision of the Indian and Eurasian plates is most earthquakes prone. Based on the observed positive correlation between the inter-event times and the magnitude of the preceding mainshocks, the time- and magnitude- predictable model is found to be applicable in study region. The earthquakes with magnitude Ms ≥5.5 since 1906 to 2008 occurred in 19 delineated seismogenic sources in northeast India Himalaya have been used to predict the future earthquake hazard. It is found that, the probabilities for the occurrence of moderate to large size earthquakes in some of the seismogenic sources of northeast India and its adjoining southeastern Tibet is significantly high ranging from 0.81 to 1.0 for the next decade. Using the estimated conditional probabilities for occurrence of moderate to large size earthquakes, we report that eight such earthquakes of expected magnitude range 6.0-7.1 would occur till 2019 of which six will be located in Arakan-Yoma region (three intermediate and three shallow) and remaining two shallow focus one each in the Himalayan Frontal Arc and the Eastern Syntaxis. It has been advocated that these vulnerable seismogenic sources be monitored for multi-hazards in real time for future development and planning.

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