

DETAILED QUANTITATIVE SEISMICITY MAPS OF THE HIMALAYAN BELT  
AND ADJOINING AREAS

by

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Detailed quantitative seismicity maps of the Himalayan belt and adjoining areas based on A and b values have been prepared using Kaila and Narain<sup>I</sup> (1971) method. The constants A and b in the cumulative regression curve  $\log N = A - bM$  for every  $0.5^\circ$  by  $0.5^\circ$  grid over the entire region are determined using the shallow earthquake data from 1954 to 1967. The seismicity maps reveal a number of high seismic activity zones.

The Srinagar seismic high consists of two localized highs one in Anantnag-Kistwar region (A=5.0, b=1.1) SE of Srinagar and the other in Muzaffarabad region (A=5.0, b=1.2) NW of Srinagar. In Kumaon and western Nepal, the Kedarnath-Askot high depicts two localized highs one (A=5.0, b=1.1) toward east of Kedarnath and the other (A=6.0, b=1.3) toward east of Askot. In Nepal Himalayas, the Pokhara seismic high is depicted by A=4.0, b=1.0 and Khatmandu-Everest high is characterised by A=5.0, b=1.1. The Taplejung-Kangchenjung seismic high region is characterised by A=5.0, b=1.1. The seismicity in Timphu-Dhubri high of Bhutan-Assam Himalayan region attain maximum value of A=5.0 and b=1.2 in the western part of Shillong plateau in the region of Surma valley. In Bhutan and NEFA Himalyas Tawang-Kangdu high shows the highest value of A=5.0, b=1.1. In the Abor-Misimi region the highest seismicity is indicated by A=5.0, b=1.1 in the areas of Riga-Kebang and in north of Denning. Although major high seismicity zones are aligned parallel to the Himalayas, some of the seismic highs such as NE-SW Kangchenjung-Taplejung high, NW-SE Timphu-Dhubri high, and NW-SE Tawang-Kangdu high are aligned transversely to the Himalayan structural trend and are related to the Arun anticline, Madhupur fault and Kanglo-Takpashiri fault respectively.

In the region of Burma, the Arakan Yoma high attains a maximum value of A=6.0, b=1.3 in Sagaing province. The Sinkiang region of China is characterised by A=8.0, b=1.6 north of Yarkand. In the region of western China, the high seismicity is indicated by A=6.0, b=1.2 west of Kungur. In the north Pamir-south Fergana region, there are three localised highs among which the highest A value of 9.0, b=1.7 is observed toward east of Garm, the next highest A=8.0, b=1.5 in the NW of Kommunizma and the third highest A=7.0, b=1.5, north of Karakul lake. In Hindukush-central Pamir high zone, the highest seismic activity is depicted by A=7.0, b=1.5, SE of Faizabad in Badakshan region. In Afghanistan region, there are three localized highs towards NW, NE and SW directions from Jalalabad each showing a value of A=5.5 and b=1.2. In the Pakistan region shifted south from Jalalabad high lies NE-SW trending Suliaman high with maximum A=6.0, b=1.3 with its NNW extension toward Kandhar region.

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1. Kaila, K.L. and Hari Narain (1971). A new approach for preparation of quantitative seismicity maps as applied to Alpidic belt-Sunda arc and adjoining areas, Bull. Seism. Soc. Am. 61, 1275-1291.