

Seismic Hazard Scenario in Western Himalaya, India

In the present study Deterministic Seismic Hazard Analysis (DSHA) has been carried out for the states of Himachal Pradesh & Uttarakhand. Study investigates the seismicity data from the year 1963 to 2017 with $M_w \geq 4.0$ in the region bounded by 29°N - 33°N latitude and 75°E - 81°E longitude have been taken from the catalogue of USGS and ISC. The study region is one of the most seismically active regions of western part of Himalaya, India and there are numerous major seismic faults present in this region. Eighty-nine seismo-tectonic sources in and around Himachal Pradesh & Uttarakhand were identified. Using an appropriate attenuation model the peak horizontal accelerations, peak vertical accelerations and ratios of peak vertical to horizontal accelerations were computed. For this purpose the study region was divided into grids of 0.5° by 0.5°. The estimated peak horizontal accelerations vary from 0.02g to 0.60g and peak vertical accelerations vary from 0.01g to 0.47g. The ratios of vertical to horizontal accelerations vary from 0.27 to 0.78. The PGA contour maps prepared for the region show that larger Peak Ground Accelerations are present in the region where there is a higher density of larger faults and vice versa.

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