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# Seismic Hazard Estimates for State of Uttarakhand Himalaya in terms of Peak Ground Acceleration (PGA)

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Probabilistic Seismic Hazard Assessment (PSHA) for the state of Uttarakhand (280-320 N and 770-810 E) has been investigated considering two Next Generation Attenuation (NGA) models. Results are presented in terms of PGA for various return periods for each district. Initially, based on seismicity and seismtectonic characteristics the whole region has been defined into four seimogenic zones (UK-I, UK-II, UK-III and UK-IV. Seismic hazard computation is performed using CRISIS 2015. The study area has been divided into grid size of 0.2° x 0.2°. The input parameters are seismicity parameters and attenuation models. The estimated seismicity parameters and (NGA) models have been used to produced seismic hazard in terms of PGA for 20%, 10% and 2% probability of exceedance in 50 years which are equivalent to return periods of 225, 475 and 2475 years respectively. The hazard Contour maps have been produced for mean PGA for 2%, 10% and 20% probability of exceedance in 50 years as well as Uniform hazard spectra (UHS) at various sites for return periods of 225, 475 and 2475 years have been plotted and the rate of occurrence of earthquakes and PGA are compared in each source zone.

## Promotional text

Earthquake disasters lead to the loss of life, property damage and other socio-economic disruption. These risks can be reduced by understanding complexities of the earth, dynamic and static properties; analyses and scientific interpretation of monitoring data and its application.

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