Fractal Dimension and b-Value Mapping in NW Himalaya and Adjoining Regions

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The northwest Himalayan region and the adjoining regions fall in the most intense seismic zone. Earthquakes of varying intensities have hit the region in the past and similar threats remain imminent. In the last 105 years, the main earthquakes occurred are the Kangra earthquake of 1905 (Ms=8.0), the Kinnaur earthquake of 1975 (M=6.8), Dharchula earthquake of 1980 (Mw=6.5), Uttarkashi earthquake of 1991 (Mb=6.6), Chamoli earthquake of 1999 (Mb=6.8) and the Kashmir earthquake of 2005 (Mw=7.6), which resulted in tremendous loss of life and property. The earthquakes occurrence possesses non-linear relation with respect to space and size. Fractal dimension and b-value are determined from 2100 well-located earthquakes, recorded at 9-19 seismic stations in Northwest Himalaya during 2004-2010. A detailed study of the frequency–magnitude distribution and fractal dimension as a function of depth has carried out. In this paper, the results obtained have discussed.