

Spatial and Temporal Variation of b Value for Earthquakes from Northwest Himalayan Region

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Some of the great earthquakes in the Northwest Himalayan region between 30°-36°N and 69°-80°E are the Hindukush earthquake in 1907 of magnitude 8.1, the Kangra earthquake in 1905 of magnitude 7.8 and the recent large Muzaffarabad earthquake 2005 of magnitude 7.6. Seismicity of the region is analyzed using b value and fractal dimension and is computed in space and time. Using the NEIC moment magnitude ($M^{3.9}$) from 1973-2009, the b-value, b with time and b with space is computed from the frequency-magnitude relation of earthquakes i.e. Gutenberg-Richter relationship. The b values are seen to be in the range of 0.8 to 1.2 indicative that most of the seismicity is of thrust type. In most of the thrust zones the b-value is seen to be lower while strike slip & normal faulting regions have higher b-values. The fractal dimension has been computed for this region and are approximately twice the b-value.