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Attenuation of Ground Motion in Bangladesh

Bangladesh is located in a seismically active region close to the plate boundary between the northward moving Indian plate and the Eurasian plate. Historically Bangladesh has been affected by six earthquakes of large magnitude, 7.0 (Richter) or greater, within the last 250 years. Three of them had their epicentres within the country. In the absence of seismic instrumentation, strong motion data for those earthquakes are not available. Several publications have been critically examined for identifying isoseismals and related intensities for some historical earthquakes. Attenuation of earthquake intensity appear to have directional dependence, and directions affecting Bangladesh show greater attenuation. Attenuation law describing attenuation of ground motion within Bangladesh has been developed from isoseismals of major earthquakes (mostly historical) and compared with published attenuation laws developed for other countries of the world including India, Iran, Western USA, Eastern USA and Europe. Such attenuation relationships are needed for seismic hazard studies. Only in recent years, digital seismic stations have been installed at different locations of the country. These stations have yielded some ground motion data for recent moderately strong earthquakes in neighbouring countries. The decay of ground motion with distance for these earthquakes is studied and compared with developed attenuation relationship.

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