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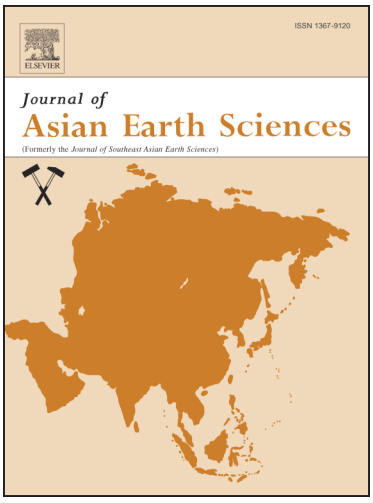

Full length article

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Assessment of maximum earthquake potential of the Kopili fault zone in northeast India and strong ground motion simulation

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Abstract

Maximum magnitude (MM) earthquake in the Kopili fault zone of North-East India has been assessed using different approaches, which are primarily dependent on various parameters such as fault geometry, slip rate, geodetic moment rate, and convergence rate. The analyses reveal that the source zone has accumulated strain energy, during the last 72 years since 1943, enough to produce a strong earthquake of magnitude ≥ 7. On supplementing with the historical data, we conclude M_w7.3 as the maximum potential earthquake for the Kopili source zone. Such large earthquake, on its occurrence, may cause widespread significant ground shakings and damage to infrastructures in the study region. We, therefore, also simulated strong ground motion, in the form of peak ground acceleration (PGA), for the M_w7.3 potential earthquake using Empirical Green's Function (EGF) approach for ten different sites. In the analysis, an earthquake of magnitude M_w6.5, which has been simulated using a recorded M_w5.3 earthquake, is used as Green's Function. The two-step approach is adopted in the simulation process, as the required