

Seismic Hazard Studies for Madagascar

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Seismic hazard assessment for Madagascar based on probabilistic analysis method (PSHA) is carried out after determining the three main parameters such as the mean seismic activity rate (λ), the b-value called Gutenberg-Richter value, and the maximum magnitude m_{\max} . An earthquake catalogue was compiled from data combined between two sets of bulletins by the MACOMO and National Data Centre databases. Duplicate events were removed and the catalogue was homogenized to moment magnitude (MW) scale before being declustered. A seismotectonic model for Madagascar developed from latter studies was used for the delineation of seismic source zones. A total of seven areal source zones were introduced in this study. Each zone is characterized in terms of its recurrence parameters and maximum magnitude using the homogenized catalogue. Seismic hazard calculations were performed for a grid spacing of $0.5^\circ \times 0.5^\circ$ throughout the country. The logic tree formalization was implemented to account for uncertainties in the input parameters. The hazard values from 10% and 2% probabilities of exceedance for 50 years are estimated with the spectral accelerations for periods 1.0 s and 3.0 s. Relatively high hazard values were observed within the central regions of Madagascar comparing results from previous studies.

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Promotional text

none

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in-person

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