

Seismic deaggregation analysis and ground motion selection for Chiang Mai and Chiang Rai

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ABSTRACT

In this study, seismic deaggregation analysis is applied for Chiang Mai and Chiang Rai in Northern Thailand to assess the combined effect of all magnitudes and distances on the probability of exceeding a given ground motion level. Deaggregation of peak ground acceleration and spectral acceleration at 1 s at different return periods are derived. From comparing the hazard maps from different major cities, it could be concluded that both cities have similar hazard estimates for considered return periods but by deaggregating the hazard, the controlling earthquake scenarios are different, partly due to the location of considered cities and seismicity level of background seismicity and considered active faults. The deaggregation results presented are further used to select ground motion at different return periods for structural engineers for testing the adequacy of the design of new structures or the response of existing ones and developing fragility curves of local buildings.

Keywords: ground motion