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Aleatory Variability of Ground-motion Attenuation Residuals

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The very much concerned ground-motion variability in the probabilistic seismic hazard analysis (PSHA) is reviewed and studied with huge amount of data from Taiwan. We analyzed aleatory variability firstly by direct observation on inter-event variability and site-specific variability, and then by two additional simple approaches, a single-station approach and a single-earthquake approach, and got spatial distribution of single-path sigma as well as their earthquake component and site component. The single-path sigma is ranging from 0.367 to 0.249 and with a mode at 0.303. These are 45% to 63% or 55% smaller than the total sigma. If we only use aleatory variability in PSHA, then the resultant hazard level would be lower than the traditional one.