

Seismic Microzonation Map of the Chiang Mai Basin, Thailand

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Seismic site effect is a dominant parameter of seismic hazards analysis. We present an experimental study of microtremor data to investigate the dynamic characteristics of soil and structures at the Chiang Mai basin, Northern Thailand. The Chiang Mai basin was constructed on terrace sediments and alluvium sediments. The horizontal vertical spectral ratio (HVSr) analyses of ambient noise data at 101 sites were processed and quality controlled, then interpreted for the amplification factor and fundamental resonance frequency. The results indicate that the low resonance frequency ranges between 0.15–0.4Hz in the middle and indented to the west of the Chiang Mai basin, which is proximity to the location of the basin depocenter. The western edge of the basin has distinctly low frequencies before the highland, indicating that the western edge of the basin has a steep slope. The amplification factor ranges from three to five times in middle of the basin. We also evaluate the shear wave velocity (V_{s30}) using the HVSr inversion technique, where most of the basin area classified as site D soil (stiff soil) relative to alluvium sediments and the class C soil (very dense soil) conform to the quaternary sediments area are located on the eastern edge of the basin.

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Promotional text

Seismic microzonation map of the Chiang Mai basin, Thailand.
The horizontal vertical spectral ratio and inversion technique.

Oral preference format

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