Geospatial data utilization for liquefaction analysis in the Chiang Mai Basin

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ABSTRACT

Chiang Mai Basin is situated in an active seismic zone near the Mae Tha faults. Given that Chiang Mai City has significant economic influence in Northern Thailand, it is essential to generate a liquefaction hazard map for this region to facilitate proactive mitigation strategies. Constructing a regional-scale liquefaction-triggering map necessitates the effective management and analysis of an extensive dataset. This dataset encompasses information such as boring logs, water table levels, soil shear wave velocities, and peak ground acceleration. This study aims to leverage geospatial data utilization for liquefaction analysis in the Chiang Mai Basin. All relevant data will be integrated into a unified platform, enabling the application of interpolation techniques to create parameter-specific surfaces. This, in turn, will facilitate comprehensive liquefaction potential analysis at the regional level. The accuracy of these interpolation methods will be assessed using the root mean square error. The GIS database will also be cross-referenced with the actual geological characteristics of the Chiang Mai Basin. Ultimately, liquefaction analyses will be conducted to develop the liquefaction-triggering map for Chiang Mai City.

Keywords: Geospatial data, Chiang Mai City, Liquefaction, Geotechnical Earthquake Engineering

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