An Impact Map of Phuket Earthquake Based on Building Intensity and Subsoil Properties

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Abstract

The two main causes of the earthquake in the study area, Phuket, are the two active faults, Ranong (RNF) and Klong Mauri (KMF). The estimated magnitude of the potential earthquake is between 7 and 7.5. As a result, the study's goal is to determine where an earthquake with a magnitude of 7.5 will have the greatest impact. Subsoil strength characteristics and building intensity are used to create an earthquake impact map for the Phuket Province. In this study, the intensity of the buildings in Phuket was observed, and the impact level was approached by examining the stress changes of the soil layers under earthquakes from a geotechnical point of view. The earthquake modeling uses synthetic ground motion data with a maximum PGA value of 0.7898g to simulate earthquake magnitudes in Phuket Province. The building intensity and maximum stress change thematic maps are produced. Finally, using a GIS environment and the weighted overlay technique, Phuket's earthquake impact map is produced.

Keywords: Earthquake impact map; Phuket; Ground motion; Earthquake modeling; Building intensity

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