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NON-LINEAR STATIC MODELING OF DIP-SLIP FAULTS FOR STUDYING GROUND SURFACE DEFORMATION USING APPLIED ELEMENT METHOD

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Earthquakes in different geological regions show drastic variations in their effects such as, large surface upliftment/displacements of unconsolidated soil deposits. For this reason, we attempted to develop a new application of Applied Element Method (AEM) to study the ground surface deformation near fault rupture zone. First, preliminary analysis is carried out to check the applicability of the method. Results are compared with the results from analytical and experimental methods and they showed good agreement. Non-linear modeling is carried out to study the effects of dip-slip faults on the ground surface. Detailed study is carried out using two cases of dip angles in both normal and reverse dip-slip fault conditions.

Key Words: Applied Element Method, AEM, active fault, dip-slip fault, surface rupture, Ji-Ji earthquake, Kocaeli earthquake


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