A Study on the Relationship between Arias Intensity and Earthquake-induced Slope Displacement

*Hsuan-Ho Wang¹, Ching Hung¹

1. National Cheng Kung University Department of Civil Engineering

Earthquake-induced landslides are damaging hazards. A way to mitigate landslide damage, having a better understanding of slope movements induced by earthquakes is pivotal. Various procedures have been developed to evaluate earthquake-induced slope stability. Lin et al. (2017) devised an enhanced FS method to evaluate stability of slopes based on Newmark displacement, assuming a rigid block model. Hung et al. (2017) analyzed an earthquake-induced landslide using finite element analysis. Notice that an energy-based analysis (Arias Intensity) has been recognized as a useful measure in earthquake-induced slope stability, the study utilized a series of seismic records and performed numerical experiments to study the relationship between Arias Intensity and earthquake-induced slope displacement. The displacements in the dynamic process were examined and the correlations of Arias Intensity and displacements of slopes, considering different angles of slopes (20°, 30°, and 45°), are presented.

REFERENCE


Keywords: Arias Intensity, Earthquake-induced landslides, Finite element analysis