



Assessment of movement behaviors for a potential landslide in Shezailiao area, south Taiwan using 3D discrete element simulation

Chun-Ming Huang and Guan-Wei Lin

National Cheng Kung University, Earth Science, Earth Science, Tainan, Taiwan (c44026113@gmail.com)

Landslide is one of the worst natural disaster in the world. Frequent earthquakes combined with subtropical climate with annual average four typhoons make Taiwan more prone to landslide. The potential Shezailiao landsliding slope, located at Chiayi County in south Taiwan, has significant displacement due to heavy rainfall. Field investigation demonstrates that the slope is affected by shallow creeping along a dip-slope direction with low dip angle. In this study, we use the 3D Particle Flow Code (PFC3D) to simulate the possible failure scenarios of the runout processes and potential impact area. Through onsite survey and literature reviewing, the potential sliding mass was divided into three blocks, and given different material parameters in simulation. Decreasing friction coefficients for each sliding block reveal different displacement during rainstorms. By this way, we can find out the interaction between these three blocks and get different behavior patterns of failure.

Keywords: Landslide, Discrete element method (DEM), Numerical modeling, Dip slope, Taiwan