

Landslide Runout Distance Prediction of Pinousuk Gravel Slope in Mesilou Kundasang, Sabah Using Slope Characterization

ABSTRACT

The study area is located at Mesilou, Kundasang, which focuses on slopes of the Late Pleistocene Pinousuk Gravel unit. This study aims to determine the landslide runout distance (L) against the slope height (H), slope angle (θ), percentage of sand and clay of slope materials. Data were obtained from a shaking table instrument used to simulate earthquake tremors that resulted in landslides. The results show that the higher the slope it is, the farther the runout will occur with correlation, $R = 0.87$. Based on the slope failure model, the increase of slope angle will add to 60% of the runout distance with $R = 0.81$, while the longer time of the tremor received increases more than 120% of the distance from the previous point. Results also show insignificant correlation between clay percentage with runout distance ($R = 0.23$) while higher percentage of sand shows a greater distance from the slope. The greater distance of movement was due to its incohesive and unconsolidated characteristics with correlation, $R = 0.64$. All the findings show that slope characteristics, such as slope geometry and slope soil properties, influence the distance of landslide runout.