

Numerical Analysis and Influence of the Parameters on Slope Stability

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Abstract : A designing of a structure requires its realization on rough or sloping ground. Besides the problem of the stability of the landslide, the behavior of the foundations that are bearing the structure is influenced by the destabilizing effect of the ground's slope. This article focuses on the analysis of the slope stability exposed to loading by introducing the different factors influencing the slope's behavior on the one hand, and on the influence of this slope on the foundation's behavior on the other hand. This study is about the elastoplastic modelization using FLAC 2D. This software is based on the finite difference method, which is one of the older methods of numeric resolution of differential equations system with initial and boundary conditions. It was developed for the geotechnical simulation calculation. The aim of this simulation is to demonstrate the notable effect of shear modulus « G », cohesion « C », inclination angle (edge) « β », and distance between the foundation and the head of the slope on the stability of the slope as well as the stability of the foundation. In our simulation, the slope is constituted by homogenous ground. The foundation is considered as rigid/hard; therefore, the loading is made by the application of the vertical strengths on the nodes which represent the contact between the foundation and the ground.

Keywords : slope, shallow foundation, numeric method, FLAC 2D

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