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Assessment of Slope Stability by Continuum and Discontinuum Methods

Authors : Taleb Hosni Abderrahmane, Berga Abdelmadjid

Abstract : The development of numerical analysis and its application to geomechanics problems have provided geotechnical engineers with extremely powerful tools. One of the most important problems in geotechnical engineering is the slope stability assessment. It is a very difficult task due to several aspects such the nature of the problem, experimental consideration, monitoring, controlling, and assessment. The main objective of this paper is to perform a comparative numerical study between the following methods: The Limit Equilibrium (LEM), Finite Element (FEM), Limit Analysis (LAM) and Distinct Element (DEM). The comparison is conducted in terms of the safety factors and the critical slip surfaces. Through the results, we see the feasibility to analyse slope stability by many methods.

Keywords : comparison, factor of safety, geomechanics, numerical methods, slope analysis, slip surfaces
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