

Performance based stability evaluation of slope subjected to the combined action of multiple failure factors.

Yu Huang*

Department of Geotechnical Engineering, College of Civil Engineering, Tongji University, Shanghai 200092, China; Key Laboratory of Geotechnical and Underground Engineering of the Ministry of Education, Tongji University, Shanghai 200092, China

*Corresponding author, E-mail: yhuang@tongji.edu.cn

Abstract

It can be seen from a large number of engineering practice that the instability and failure of slope is not caused by a single factor, but the result of the joint action of multiple dynamic and static complex factors. Among these influencing factors, precipitation, seismic dynamic excitation and the deterioration of slope geotechnical material properties are the main factors causing slope instability and failure. Especially under the joint action of these complex factors, the randomness and uncertainty involved in the evolution of slope stability performance bring great challenges to accurately grasp the stability performance of slope. In view of this, this study attempts to accurately describe these complex factors and their randomness and uncertainty, and analyze and evaluate the stability of complex slope based on performance design concept and nonlinear Stochastic Dynamics theory. In addition, our research group has made long-term exploration in the design and evaluation of slope stability performance, and formed a slope performance design and evaluation framework based on performance and Stochastic Dynamics theory of slope.

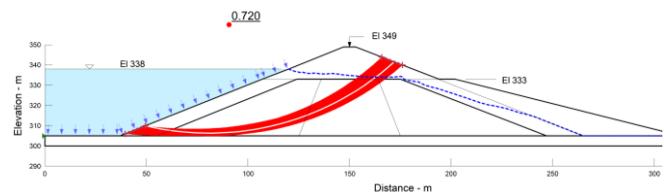


Fig. 1 Stability performance of embankment subjected to multiple dynamic and static complex factors.

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References

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