

Slip surfaces of slope with different shear strength parameters

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Summary

The cohesion c and friction angle ϕ are the shear strength parameters influencing the stability of slope. Any of them changes, the factor of safety of slope will change, many work has been done on the relationship between shear strength parameters and factor of safety, but it has seldom been considered in the literature how the slip surface changes at the same time. In the present paper, the strength reduction method is used to find out the effect of shear strength parameters c and ϕ to the distribution of slip surface. The study shows that, the slip surface is affected by the function of c and ϕ instead of the separated one, the function is $I_s = c / (\gamma \tan \phi)$. If I_s is a constant, the slip surfaces remain the same even the shear strength parameters changes. Increasing of I_s leads to the slip surface moving far away from the slope surface. Decreasing of I_s lead to the slip surface comes closer to the slope surface.

