7. Three Dimensional Slope Stability Analysis by Shear Strength Reduction Method

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In this study, the share strength reduction method is investigated for the three dimensional slope stability analysis. And we have applied this method for the geotechnical analysis program FEAST. We examined the share strength reduction method for the slope stability in earthquake by the seismic coefficient method.

The reasonable results were obtained for two dimensional slope stability analysis by this method. In three dimensional problems, we verified this method effective for the landslide analysis with the shape of bowl and the tunnel stability analysis in shallow earth covering. In seismic analysis, it was found that the analysis results obtained by this method are equivalent to those obtained by the simplified method for a circular slip.

Then it was verified that the share strength reduction method is an effective solution for the complex geometries and construction processes that are not considered in the simplified method for a circular slip.

Key words: share strength reduction method, three dimensional slope stability analysis, finite element method, elasto-plastic