



1963 Vajont rock slide: a comparison between 3D DEM and 3D FEM

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Data on the exact location of the failure surface of the landslide have been used as the starting point for the modelling of the landslide. 3 dimensional numerical analyses were run employing both the discrete element method (DEM) and a Finite Element Method (FEM) code. In this work the focus is on the prediction of the movement of the landslide during its initial phase of detachment from Mount Toc. The results obtained by the two methods are compared and conjectures on the observed discrepancies of the predictions between the two methods are formulated.

In the DEM simulations the internal interaction of the sliding blocks and the expansion of the debris is obtained as a result of the kinematic interaction among the rock blocks resulting from the jointing of the rock mass involved in the slide.

In the FEM analyses, the c-phi reduction technique was employed along the predefine failure surface until the onset of the landslide occurred. In particular, two major blocks of the landslide were identified and the stress, strain and displacement fields at the interface between the two blocks were analysed in detail.