Geophysical and geomechanical methods for the calculation of slope stability

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Based on the calculations carried out on the stability of two test slopes, the risk of strain and deformation of slopes and their shearing has been presented. The issue can be solved by application of up to date geophysical methods, established for the calculation of slope stability in complex isotropic, most often anisotropic environments. In design of pit slopes, both in mining and civil engineering we come across two opposite requirements. The increase of slope angle can result in big material save. On the other hand it may put the working environment in risk owing to the caving of the slope from the big angle. The paper presents examples in order to present the right slope defining in real conditions and the use of geophysical methods for the prediction of risks. Several models of slopes have been made, depending on physical - mechanical characteristics of soils and rocks. Calculation on slope stability with sufficient accuracy and application in real geological conditions has also been carried out. Methods were analyzed to determine slope stability, and models for concrete cases of working slope for the Suvodol, Bitola surface colliery and the slope in the waste dump for ashes in REK Oslomej, Kicevo. Analysis of the experimental models carried out for the paper help to come to the following conclusions: the given slope of the Suvodol surface colliery is unstable, whereas the slope for the electro filter ash at REK Oslomej is conditionally stabile.