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Numerical simulation of landslide stability in geological-engineering conditions of Carpathian foredeep

Abstract

In Poland, landslides are one of the most significant natural hazards. 90% of them occur in the Flysch Carpathians area. Many years of research within the framework of the SOPO project allowed for their accurate recognition. Outside the Carpathian area, landslides are still a significant problem. Factors influencing the initiation of mass land movements in the area of the Carpathian foredeep, in many cases differ from those described in the flysch. These mass movements are often formed in inhabited areas with developed infrastructure. In such conditions, the main problem is to give reliable values of slope stability indices allowing rational risk assessment. An important piece of information is the analysis of the possibility of safe use of constructions. The article discusses the assessment of the impact of changes in afforestation and ground conditions on the slope stability in Miękinia. Stability analyzes were made on the basis of field and laboratory tests as well as numerical simulations, taking into account the varied land use conditions.

The study was partially supported by AGH-UST 11.11.140.649.