A comparison landslide susceptibility assessment methods in the Luncavat watershed, Romania

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This paper uses quantitative approaches to generate a landslide susceptibility maps (LSM) for the Luncavăț watershed, located in the Getic Subcarpathians, Romania. The purpose of this study is to evaluate and to compare the results of multivariate and bivariate landslide susceptibility methods. For this study it was decided to use only three predictor factors: slope gradient, lithology and a land-use/land-cover. The study area spreads over approximate 300 km2. This area is highly affected by mass movements, over 65% of the area is moderately or highly susceptible to landslides. Bivariate and multivariate statistical analyses were applied to calculate a landslide susceptibility index. It was found that the results from all the methods converge for aproximate 75% of the Luncavat watershed. However, the bivariate method had some severe deficiencies and parts of the high and medium landslides susceptibility classess did not overlapped with the actual landslide inventory map. The result of the multivariate technique was more sensitive to the different local features of the test zone and it resulted in more accurate and homogeneous susceptibility maps. It is anticipated that the result of this work can be used by local authorithies to help identify high risk landslide areas, and those that are safe for building and other human activities