Geophysical Research Abstracts
Vol. 16, EGU2014-15747, 2014
EGU General Assembly 2014

Multi-Model R-Tool for uncertainty assessment in landslides susceptibility analysis

Ionut Cosmin Sandric (1), Zenaida Chitu (2), Marta Jurchescu (3), and Mihai Micu (3)

(1) University of Bucharest, Faculty of Geography & Esri Romania - Bucharest, Romania, (2) National Institute of Hydrology and Water Management, Bucharest, Romania, (3) Institute of Geography, Romanian Academy, Bucharest, Romania

The evaluation of landslide susceptibility requires understanding of the spatial distribution of the factors that control slope instability. It is known that the behavior of landslides is difficult to evaluate because of the various factors that trigger mass movements. The methodology used is very diverse, based on statistical methods, probabilistic methods, deterministic methods, empirical methods or a combination of them and the main factors used for landslide susceptibility assessment are composed from basic morphometric parameters, such as slope gradient, curvature, aspect, solar radiation etc. in combination with lithology, land-use/land-cover, soil types or soil properties. The reliability of susceptibility maps is mostly estimated by a comparison with ground truth and visualized as charts and statistical tables and less by maps for landslides susceptibility uncertainty. Due to similarity of inputs required by numerous susceptibility models, we have developed a Multi-Model tool for R, a free software environment for statistical computing and graphics, combines several landslides susceptibility models into one forecast, thereby improving the forecast accuracy even further. The tool uses as inputs all the predisposing factors and generates susceptibility maps for each model; it combines the resulted susceptibility maps in just one and assesses the uncertainty as a function of susceptibility levels from each map. The final results are susceptibility and uncertainty maps as a function of several susceptibility models. The Multi-Model R-Tool was tested in different areas from Romanian Subcarpathians with very good results