



The European landslide susceptibility map ELSUS 1000 Version 1

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With the increase in availability of environmental data sets at global and continental scale and the adoption of the Thematic Strategy for Soil Protection in 2006, small scale risk assessments of soil threats received increasing attention in Europe. We focus on landslides and present an approach for landslide susceptibility evaluation at the continental scale (1 km resolution) over the European territory covered by the EU member states and adjacent countries. Different to previous continental and global scale landslide susceptibility studies, we start with collecting more than 102,000 landslides in 22 European countries. These landslides are heterogeneously distributed over Europe, but are indispensable for the evaluation and classification of Pan-European datasets that can be used as spatial predictors for landslide susceptibility, and the validation of respective assessments. We further attempted a subdivision of the European territory into seven different climato-physiographic zones by combining morphometric and climatic data sets for terrain differentiation, and additionally defining coastal areas as a 1km inland from the coastline. Landslide susceptibility modelling was performed for the individual zones involving heuristic spatial multicriteria evaluations, and validated with the inventory data using receiver operating characteristics. The reliability of the resulting susceptibility map ELSUS 1000 Version 1 was examined on an administrative terrain unit level in areas with landslide information. ELSUS 1000 was further evaluated through comparisons with available national and regional landslide susceptibility maps. These evaluations suggest that although the first version of ELSUS 1000 is capable for a correct synoptic assessment of landslide susceptibility in the majority of the area, it needs further improvement in terms of data used. These should also consider differentiated susceptibility evaluations with respect to different landslide types. ELSUS 1000 Version 1 can be downloaded together with auxiliary data from the European Soil Data Centre (ESDAC) hosted at JRC.