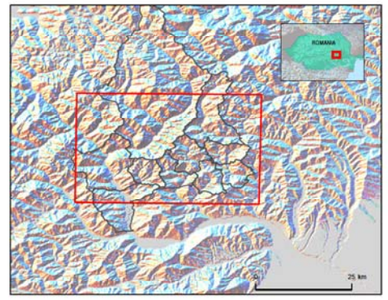
IncREO - WP 204 - 201b - v2.0

Landslide susceptibility map for deep seated landslides Buzau County / Romania

Overview maps



Legend

Population
- Settlement
- Local Administrative Unit Boundary

Hydrology
- River

Elevation
- Normal Contourline
- Index Contourline
- Contour Interval 20 meter
- Mapped Area

Infrastructure / Transport
- Road

Landslides
- Recent landslide
- Outline of large landslide

Susceptibility
- Very low
- Low
- Moderate
- High
- Very high

Interpretation

This map shows the susceptibility to deep seated landslides in a part of Buzau County, Romania, based on a set of landslides that were interpreted from high resolution images.
The following methodological steps have been followed:
(1) The inventory of large landslides was made through digital stereo image interpretation using a series of very high resolution colour orthophotos from 2005 in combination with Google Earth images, and a Digital Elevation Model.
(2) They were subdivided in active, dormant and old landslides, and scarps and bodies were identified.
(3) The inventory of recent landslides was compiled based on records from Buzau County Inspectorate for Emergency Situations, with identification of locations on Google Earth images
(4) A Digital Elevation Model was generated from contourlines with 20 meter contour interval, and 4 slope classe were generated
(5) The existing lithological map was analyzed and the most important units for landslide occurrence were extracted (16).
(6) Slope direction classes were generated based on the structural geological setting, and NW oriented slopes were separated from SE oriented slopes.
(7) Lithology and slope direction classes were combined
(8) Weights of Evidence modelling was used to analyze the relationship between landslides and causal factors.
(8) Import of the data in the Integrated Land and Water Information System (ILWIS Version 3.4, Fact. ITC, University of Twente, The Netherlands);
(9) Spatial Multi-Criteria Evaluation was used to combine the factor maps which were standardized, and weighted based on WoE results and expert opinion. The following main groups were used:
- Slope, 5 classes, weight 0.20
- Lithology and slope direction: 32 classes, weight 0. 30
- River distance classes (250 and 500 m) with slope classes, weight 0.10
- Large landslides, with activity classes and scarp/body: weight 0.40
(10) The procedure was done iteratively, by comparign the results with the landslide pattern and by discussion with local landslide experts.
(11) The final version was converted to Arc-GIS and classified into 5 classes.

Cartographic Information

Local projection: Romania - Double-Stereographic
Datum: D. Pulkovo 1942

Scale 1:50,000

0 0.5 1 2 3 4 5 Kilometers

Data Sources

(1) Digital color aerial ortho-photographs; cell size 0.5m; year 2005
(2) Topographic contour lines; interval 20 m from Military Topographic Directorate (DTM).
(3) Roads, streams and built-up areas with topographical names from DTM.
(4) Recent landslide inventory was compiled from records of Buzau County Inspectorate for Emergency Situations.
(5) Geological map from the Geological Institute of Romania

Framework

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Work package partners:

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Recent landslide compilation by Mihai Micu and Veronica Zumpano.
Susceptibility assessment by Veronica Zumpano, Mihai Micu and Cees van Westen.
Map produced by: Koert Sijmons (GeoMapa) © 2014.