

## OPTIMIZING RISK REDUCTION STRATEGIES FOR GEOMORPHOLOGICAL HAZARDS BY 3D MODELING

### Goal of the project

The project aims to optimize risk reduction strategies for geomorphological hazards by their 3D modeling in the context of Romania's susceptibility and poor management of local authorities who are insufficiently prepared to manage such situations.

### Short description of the project

Landslides are complex phenomena regarding the effects they produce; thus representing a risk factor to be assessed and quantified. 3D modeling of geospatial data characteristic to landslides acquired using TLS technology and UAVs is useful for monitoring and determining the risk potential of certain areas.

### Implementation period

June 2018–June 2019

### Budget

46.500 RON (10000 EUR)

### Main activities

Preliminary research was realized in order to choose a pilot study area. Then data collection on field involved using 2 different technologies, namely Terrestrial Laser Scanning and Unmanned Aerial Vehicle (drone). Further, the geospatial data acquired was processed using specialized software in order to obtain the 3D model of the landslide from the pilot study area. A comparative study of the 3D models realized is also of interest in order to determine particularities of the 2 technologies. The final part of the project includes optimizing risk reduction strategies for geomorphological hazards.

### Results

The results are useful for managing the destructive effects of geomorphologic hazards on the environment and to optimize their forecasting and post-factum approaches.

### Applicability and transferability of the results:

The geodetic engineer participates to the acquisition, manipulation, visualization and analysis of geospatial data characteristic of hazards in order to adopt the most appropriate methods of protecting and preserving the environment in order to adapt to climate change. Knowledge transfer and dissemination of project results is aimed at raising awareness organizations, both public and private, that are active in geodesy and civil engineering.

### Research team

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