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New aspects concerning geoelectrical tests on shallow landslides in Telega, Romania

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The analysis of natural hazards involved by landslides requires the revealing of both depth and relief of the slipping surface, and also to show the extension of the dislocated material areas.
A particular aspect in Romania is related to the frequent occurrence of salt. It is to be mentioned that Romania contains the largest salt resources/reserves throughout Europe. This potential of about three billion tons could supply salt for the whole world population for over four hundred years.
Telega village, separated by Campina town through Doftana River, is situated at 5 km from it, in the west part of Prahova County. The village covers a medium altitude relief (550m), characterized by irregularities of ground, many valleys and swales crossed by streams.
On the left bank of Telega valley, the landslides' effects have a large extension, in some places being catastrophic. Among these, the one called at "Butoi" area presents a huge interest according of their produced destructions and because of the influence on Telega Spa, main communal road etc. In the above-mentioned sector, the slope is badly affected over a 0.4 sqkm surface. The morphology presents many scars, sometimes with steeps, waves with variable amplitudes and counter slope aspects in which water accumulates as lakes and swamps, with transversal and longitudinal fissures with different lengths and depths. The slope is very steep, especially in crest area. Besides the covering deluvial, clayey, yellow-gray quaternary rocks, other rocks form the basement are moving, in the detachment area marly, gray-black, fine stratified, sandy rocks interbeded with soft, gray sandstones of Meotian age are affected. Also, the rocks of the "salt breccias horizon" of Badenian age are affected. Predominantly are gray-purple marls with breccias aspect with white-gray large crystallized lens of salt. The whole stack of sediments is trapped into a very complex structure crossed by Campina-Cosminele fault and flanked NE by Martin fault.
The salt presence influences land's instability phenomena occurrence. The water's circulation is made through the gritty and sandy horizons (layers), with a relatively large development. The permeability and the porosity of these rocks vary depending on the lithologic constitution of the respectively stratigraphic layer.
The geoelectric investigation outlines horizontally the sliding area, and vertically the elements of the landslide surface – position, depth, shape, and the bedrock's relief. The quantitative interpretation of the resistivity geoelectrical vertical tests, and the correlation with the geological structure identified 3 sliding surfaces, from which only the upper one (2-6m depth) was known before the stability works. There were localized the rainfall waters circulation and accumulation zones, areas with high sliding risk
Same results were obtained in sliding zones, been localized the principal elements of the landslides, with practical implications in land instability and estimation of the evolution of the destructive phenomena mechanisms.
With this study we try to quantify the complex relationship between the natural factors that generate the terrain instability phenomena and the intensity of the socio-economic effects, at a regional and local scale, by correlating the engineering geology information and geophysical data.
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