

P30 LANDSLIDE HAZARD

Organizers: *Mihai Alexandru Micu, Mauro Soldati*

Location: Room J

SLOT1

Chair: *Mihai Alexandru Micu*

Schedule: Wednesday, 2 September, 08:30–10:15

HAZARD ASSESSMENT AND RISK MANAGEMENT OF SAN ROCCO AND MORTOLA LANDSLIDES (PORTOFINO NATURAL PARK, ITALY)

Authors: *Francesco Faccini**, University of Genoa, Italy; *Marco Giardino; Riccardo Lazzeri; Emanuele Raso*

Keywords: landslide, monitoring network, Portofino Park, rockfall, slope instability

Abstract: The western sector of the Portofino Promontory, where the villages of San Rocco and Mortola are located, has been historically affected both by slow and rapid landslides.

Although this area has been deeply studied since the Sixties, recently the slope portion located under the San Rocco and Mortola villages has shown a quick geomorphological evolution, visible through rockfalls and debris flows representing a risk for buildings and infrastructures.

The landslides are strictly correlated with typical causal factors, such as ground conditions, geomorphological, physical and man-made processes. Specifically, the landslide are influenced by the geomechanical properties and the high fracturing of the rock mass (weathered, jointed and with adversely oriented structural discontinuities), the undercutting due to sea-wave erosion, the neotectonic activity, the heavy rainfalls, the vegetation removal and the excavation of the slope toe for quarrying purposes.

These phenomena have brought public administration to take urgent measures for risk mitigation: the landslide monitoring activities conducted with inclinometric instrumentations and PSInSAR interferometry technique, show activity movements with an increasing speed heading to the coastline, where the slope is characterized by an high steepness.

A continuous monitoring system has been recently installed in the San Rocco village with the purpose of detecting any underground displacement above the main landslide scarps.

Landslide remedial measures should be adopted following the principle of the adaptive management.

In addition to localized works on the slope (eg. drainage, retaining structures, internal slope reinforcement), a coastal protection along the shoreline is considered critical for the risk mitigation.

ANTHROPOGENIC AND PHYSIC LANDSCAPE FORMING ON THE HIGH LOESS BANK

Author: *András Hágén**, Újvárosi Elementary School, Hungary

Keywords: aeolian loess, antropogenic landscape forming, global climate change, high coast, soil slip

Abstract: This environmental study concerns the causes of the sliding processes of the loessic high banks. In the study, the causes of the sliding processes of the high banks are divided into two major groups, natural and anthropogenic factors; though also a further factor is determined, the impact of deep structural movements. The two main factors can be further divided into four-four environment modifier impacts. An example for the anthropogenic factor is presented here through one of the best known case studies on collapses: the collapse of the Dunaszekcső loess high bank.

Due to the sudden storms occurring as consequences of the global climate change great amount of precipitation accumulates in the cracks formed by natural and anthropogenic processes and it results in collapse and slide. Currently, the fact of the climate change is generally accepted, that is the reason why it would be highly important to monitor loessic high banks.

THE INFLUENCE OF THE ANTHROPIC LAKES AS A MAJOR PREPARATORY FACTOR IN LANDSLIDE DISTRIBUTION IN MOLDAVIAN PLATEAU, ROMANIA

Authors: *Mihai Ciprian Margarint**, Alexandru Ioan Cuza University of Iasi, Romania; *Mihai Niculita*

Keywords: anthropic lakes, crown density, landslide pattern, Lidar, Moldavian Plateau, roughness

Abstract: Landslides are gravitational processes whose distribution is directly influenced by spatial and temporal dimensions of preconditioning, preparatory and triggering factors. In monoclinic regions, the morphostructure and the lithology are the most important preconditioning factors and they are responsible for the emergence of a veritable pattern of landslide distribution along the cuesta scarp slopes. While the preconditioning factors have a major regional influence, others factors disturb these models acting at local scale: the preparatory factors. Among these, in the north-eastern part of the Romanian territory, the Moldavian Plateau (24,803 km²), the anthropic lakes play a significant role in the occurrence of certain real landslide hotspots. In this paper we try to assess the influence of these lakes in the mass movement occurrence by using a detailed inventory of the lakes and landslides in the north-eastern part of the Moldavian Plateau – the Jijia Hills. The inventory of the lakes was carried out by using a large series of topographical maps (for the last 120 years), and remote sensing images. Landslide inventory was prepared using remote sensing images, including high resolution Lidar data. A strong relationship was revealed between the spatial and temporal presence of the lakes and a large series of geometric and geomorphometric features of the landslides, especially the crown density and relative altitude, and the roughness of landslide bodies.