



Understanding mechanisms of the landslides related to the active faults in sub-Carpathian area (Romania).

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Geological composition and structure of the Alpine - Carpathian chain is a sensitive area for a major natural hazards, especially represented by landslide processes. In the last half century, a lot of natural hazards, as earthquakes, windstorms, floods and landslides have affected this area as consequence of the important global climatic changes. In the Romanian segment of the Carpathian chain these natural hazards have endangered large human communities and also the environment. The studied region, as part of Carpathian chain was made-up during complex Alpine orogenesis (Middle Cretaceous - Miocene). We focused our study in the Prahova basin, where the landslides are developed in the flyschoid domain of the Carpathians. The landslides affect the Oligocene strata of the Tarcau Nappe (Moldavides domain), containing slate, sandstone (Fusaru sandstone) and marl, and especially, the Upper Oligocene wildflysch deposits. These deposits have been defined as Slon wildflysch formation, discordant to the Vinetisu beds, consisting mostly of argillaceous marls with thin interlayers of sandstones. The studied area is tectonically very complicated by the presence of middle-Cretaceous and Miocene thrusts, and Miocene or post-Miocene active strike-slip faults, NE-SW orientated. More of the landslide features are intrinsic related to these active faults, which are in mutual connection with seismic Vrancea zone located in the curvature of the Carpathian chain. The main movements in the landslides are related to displacements rate into these active faults. The principal aspects are pure shear-like transport in dry conditions (no rainfall activity), roll-down and roll-up into a complex wildflysch deposits. However, during the important rainfalls the movement rate increase. All the geological, physical and anthropogenic aspects related to the landslide phenomena exposed in the study area were used in building up of some hazard maps with estimated risk areas. The better understanding of these phenomena

induce an optimization of knowledge and decision of the Romanian authorities for mitigation the impact of this natural hazard in accord with economic, ecologic and social considerations.