



Hydrological circulation in agricultural platforms of slopes with strong probability of landslides occurrence

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In winter of 2000/2001 (in Northwest of Portugal), as a result of a high precipitation period, it occurred several mass movements in weathered granites areas that had been responsible for human losses and material damages. The landslides occurred in high slope areas, mainly in agricultural areas, with weathered surface formations with different textures and thicknesses. They are the cases of the Debris Flow of Frades and the Complex Movement of Cestães, in Arcos de Valdevez and the Mud Flow of Santa Marinha do Zêzere, in Baião. This work intends understand the hydrological circulation at slopes organized in agricultural platforms, becoming pertinent in areas where the human occupation is so dependent of the dynamics of the physical environment. Using an experimental area located in the hydrographic basin of the Carriça, in Baião, we intend to evaluate the hydrological behavior of several superficial formations, and its importance to the instability/triggering of slope movements. In this experimental area had been studied a set of hydro-geomorphologic variables, using precipitation data, surface and subsurface draining processes and morfo-structural characteristics of 4 monitoring sites in different geomorphologic contexts of a slope. They had been characterized the variables that influence the infiltration capacity, the circulation and the storage of water in the ground. Among this, the texture of the agricultural terraces materials, the infiltration capacity of water in the ground, the hydrologic conductivity and the ground resistance to the penetration. The analysis of precipitations contributed for the determination of thresholds to distinguish the occurrence of different types of flows directly related with different rainy episodes. Of this form, we intend to give one contribution to the knowledge of the occurrence conditions of slope movements in agricultural platforms, in order to suggest prevention measures.