

A review of recent landslides in the North of Tunisia: description and practical solutions analysis

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Abstract. In many cases rainfall infiltration especially during high intensity rainfall events remains the main factor leading to the appearance of landslides. In fact, in the case of Tunisia which has a tropical climate, many huge landslides are recently occurred. It was observed that such cases are occurred in the same short whether period when the rainfall intensities are dramatically increased.

The region where huge landslides are occurred is characterized by soils with several mineralogical compositions. The soils are clay, silty-sands and hard rock. Then the understanding of such landslides requires a typical research study of the specific behavior of the kinds of soils. Also, the study of slope stability requires, in addition to site reconnaissance and mechanical characteristics of the soil, a good knowledge of soil behavior in unsaturated conditions, so a good comprehension of the phenomena resulting from the interaction between hydraulic and mechanical parameters in the soil.

Indeed, in this paper across a presentation of an overview on some real cases of landslides localized essentially in the North West region of Tunisia, an attention is given to the hydrological effects on the soil movements in connection with the topographic slopes. Some laboratory and field measurements are used in first step to analyze the predicting via standard models (models for saturated soils). Such analysis conducted to the practical solutions, already proposed for the slopes improvement. An overview of the practical solutions is also given in this paper. The shortcomings of among solution's set, merely reflect the limitations of the standard models. Consequently, some constitutive models for unsaturated soils are used to describe the evolution of some slopes instability.

In this step, the required data are investigated and the concept process to conduct successful improvement technique of the instable slopes is discussed.

Keywords: an overview, slope stability, constitutive model, rainfall, hydro-mechanical coupling.
