

## **Rainfall as a landslides triggering factor in NE of Algeria and hydrological responses: Field monitoring in sample site (East of Constantine).**

Manchar Nabil (1) and Benabbas Chaouki (2)

(1) Larbi Ben M'hidi Oum El Bouaghi, Fac of Earth Sciences and Architecture, Geology, Algeria (mannabil@yahoo.fr), (2) Institute 'Gestion des techniques urbaines' Constantine3 University, Constantine Algeria

The field monitoring is an important tool to evaluate, identify and characterise landslides events. North east of Algeria is characterised by the most widespread landslides, in particular in the region of Constantine. Results relative to one sample site (representative of the study area) characterised by a particular geological structure, where field monitoring has been carried out for adequate time intervals. They are in fact illustrated in the present work. Actually, we consider that rainfall is the most common trigger of landslides (Crozier, 1986; Corominas, 2000).

Geologically, Tafrent zone is considered as an area with outcroppings formed by a sort of "melange structure" made up of blocks and fragments of sandstones, clays, shale and marles in a prevalently clayey matrix. The morphology is in particular with elevation range from 850 m to 1100 m, which is a moderate steep gradient.

In the study area, a piezometer monitoring network and rain gauge give indication about the hydrological response of the slope in that very area where a big infrastructure has been recently constructed (E/W Highway segment). Piezometric levels measured as well as rainfall permit to identify some relationships between them (cumulative rainfall and piezometric levels). These latter levels increase especially when we have long time pluviometric period (winter season). It shows a relationship with changes in values of cumulative rainfall. It represents necessary, but not sufficient reasons for critical stability conditions in the considered area, in relation to possible scenarios of widespread landslide events.

The results obtained from this study can be useful in many ways such as helping local authorities to plan future development activities.

Keywords: Rainfall, Widespread Landslides, Piezometric levels, Tafrent.