

Erosion Processes In Soft Rocks And Their Consequences On Anthropic Works

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This paper aims to describe typology and distribution of the main types of erosion processes and slope instability phenomena in some areas along the boundary between Puglia and Basilicata Regions (Southern Italy), where Plio-Pleistocene clays and sands crop out. The erosion processes and the slope instability phenomena affect mainly a few meters thickness below the slope surface, and only in few cases they may involve deep slope movements. Periodical surveys carried out during several years in the study area, especially after heavy rainfalls, allowed to investigate the origin and the development of these processes. They are chiefly mud-flows and subordinately debris-flows firstly confined in slope rills and gullies, and afterwards enlarging in mud-fan on the flat areas at the base of the slope. The thickness of the mud deposits is up to 1 meter. Among the causes triggering mud and debris flows there are either the geological-morphological condition of the outcropping terrains, or the human activities related to the severe and diffuse agricultural works practised on those territories since some centuries ago. This situation has involved the deforestation of the area, with consequent loss of the protective forest tree cover, and the continuous alteration of soils by mechanical tools, leading to severe erosive processes mainly after short and heavy rainfalls. It is important to underline that the erosion surface processes might also have damaged or threatened the safety and efficiency of a large number of important civil engineering works (i.e. roads, reservoirs) existing in the examined area.