



## **Rainfall-landslide relationship for East Black Sea region (Turkey)**

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Rainfall is the most frequent landslide-triggering factor in East Black Sea region, Turkey. This region is prone to landslides because of the geologic, geomorphologic characteristics, and climate conditions of the region. The climate is characteristically Black Sea, with temperate climate summers and a rainy season generally lasting from September to April. However, the rainfall regime in the season is irregular, with some periods of rare precipitation with long-lasting heavy rains. Very intense precipitation episodes also occur, causing disastrous flash floods in river basins and many landslides in slopes. Heavy rainfall is the triggering variable which shifts the slope from a marginally stable to an unstable state and thereby, initiating failure in an area of given susceptibility. The results of researches in this region showed that the many landslide activity have been observed heavy rainfall periods. For example, extraordinary heavy rainfall in November 2001 caused a number of significant landslides in the study area. Heavy rainfall couldn't cause landslides alone all time. Appropriate geological materials have been required to come into existence landslides. There are suitable materials to contributed constitution of landslides in the study area; completely weathered dacite. Therefore, it is very important through rainfall records to predict landslide occurrence. Assessments of hazard require the analysis of rainfall data and the association between rainfall magnitudes and slope movement. In this study, heavy rainfall-landslide occurrence relationship was investigated and it was found that landslides triggered or reactivated under intensity rainfall conditions. Also, it is determined that high intensity and short duration rains triggered mostly shallow slides developed on the completely weathered units. In addition, intensity land cover types as tea plantations have been obstructed superficial flows and rainfall is able to quickly penetrate into the landslide body (completely weathered units) through open tension cracks that appear in the landslide head and in stretching zones. Thus, most heavy rainfall periods

were become as an indicator of landslide activity.