

Changes in the occurrence of rainfall-induced landslides in southern Italy in the 20th century

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In Italy, landslides are a serious threat to the population: in the period 1954 - 2013, 1279 persons were killed and 1731 were injured by landslides. Rainfall is the primary trigger of landslides in Italy; other causes are earthquakes and human activities.

The impact of rainfall on the occurrence of landslides was studied for Calabria, southern Italy, for a dataset of landslides and daily rainfall records in the period 1921 - 2010. The dataset consists of 1466 rainfall events with landslides: 49.7% in winter, 42.4% in autumn, 5.7% in spring and 2.2 % in summer. The analysis shows that landslides were triggered at lower rainfall volumes in the period 1981-2010 than in previous periods, indicating that the vulnerability of the territory to landslides has increased.

The complexity of the changes in the frequency and impact of rainfall-induced landslides observed in Calabria suggests that it remains difficult and uncertain to predict the possible variations in the frequency and impact of landslide in response to future climatic and environmental changes.

Source: Gariano et al., 2015. Natural Hazards and Earth System Sciences 15: 2313–2330.

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