

# **Rainfall conditions that have resulted in landslides: a global analysis**

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Rainfall is a recognized trigger of landslides, and investigators have long attempted to determine the amount of precipitation needed to trigger slope failures, a problem of scientific and societal interest. We review the literature on rainfall thresholds for the initiation of landslides, and we present a catalogue of 125 empirical rainfall thresholds for the possible occurrence of landslides proposed in the literature in the period from 1970 to 2006. Next, we present a world-wide catalogue of rainfall conditions that have resulted or have not resulted in slope failures, and we exploit this information to establish new minimum global intensity-duration and normalized intensity-duration thresholds for the possible occurrence of landslides. We compare the new thresholds with existing thresholds, including global, regional and local thresholds. We conclude discussing the results obtained, with emphasis on the possible application of the new thresholds in a world-wide operational landslide warning system.