

## **Identification of rainfall triggering damaging hydrogeological events: a methodological approach applied to Calabria (Italy)**

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**Abstract** The paper deals with Damaging Hydrogeological Events (DHEs), defined as periods of severe weather affecting wide regions for several days, and during which landslides and floods cause economic damage and there are victims. The great variability of DHEs in both space and time is the cause of one of the main problems to solve in performing analyses of these events. Dealing with events affecting wide areas for several days, it is problematic to isolate the rainy days that can be considered as factors triggering the observed damaging phenomena. We develop a methodological approach aiming to select and analyse rainfall events that triggered damage. The analysis allows the highlighting of some seasonal characteristics of Calabrian DHEs. The approach can be used for an in-depth analysis leading to the identification of both rainfall thresholds for DHE triggering and rain/damage relationships.

**Key words** damaging hydrogeological events; rain, landslides; floods; damage; Calabria, Italy