



## **From past to present: the effects of historical damaging hydrogeological events in the current urban setting**

O. Petrucci and A.A. Pasqua  
CNR-IRPI, Rende, Italy (o.petrucci@irpi.cnr.it)

Damaging hydrogeological events (DHEs) are defined as the occurrence of destructive phenomena (as landslides and floods) which during bad weather periods cause severe damage to people and goods. These phenomena have to be analysed all together -as actually occur- even because their interactions can both amplify damage and hinder emergency management actions.

The occurrence of DHEs depends on the interactions between climatic and geomorphological features: except for long-term climatic change effects, as time pass this interaction is averagely steady and for this reason some areas are systematically affected. What can change are damage scenarios: other things being equal, the effects of past DHEs can vary according to the modifications occurred in the geographical distribution of vulnerable elements.

Basing on the assumption that areas affected in the past could be hit again in the future, we propose the historical re-enacting of a catastrophic DHE aiming to individuate: a) where damage could occur; b) what damage severity can be expected; and c) what is the probability that rainfall able to trigger catastrophic events can occur. The final result is a semi-quantitative assessment of the susceptibility characterising the study area to be damaged during DHE.

The methodology was applied to Calabria (southern Italy): the catastrophic 1951 DHE (101 victims, 4500 homeless, about 1700 houses disrupted) was analysed in order to practically show the potentialities of the method.