



## **Sinkholes inclusion in a geodatabase about geo-hydrological hazards in Apulia, southern Italy**

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The karst nature of large sectors of Apulia, combined with the high diffusion of different types of artificial cavities, make sinkholes among the most widespread geo-hydrological hazards in the region. They have caused several damage to infrastructures, building and population.

Sinkholes represent a widespread problem in Apulia, and therefore they must necessarily be considered in studies concerning the regional geo-hydrological hazards and the related risks. With this aim we included sinkholes in a regional geodatabase concerning floods and landslides in Apulia, as a fundamental step for the susceptibility and hazard study of sinkhole occurrence on the specific territory. At these aims, it is necessary that the database is rigorously built, based on reliable information and data, including all those elements necessary for the subsequent analysis.

Here we present a geodatabase about geo-hydrological hazards, developed by the geomorphology group at the Institute of Research for the Geo-Hydrological Protection of the National Research Council of Italy (IRPI-CNR), now modified to take into account the geomorphological characteristics of Apulia, namely the sinkhole phenomena.

A sinkhole is considered as a “phenomenon”, belongs to an “event” that represent the ensemble of the phenomena (landslides, floods, sinkholes) caused by a “trigger” (of meteorological, seismic, or anthropogenic origin).

In the database are included all the sinkholes for which the connection with an underground cavity, either of natural or anthropogenic origin, is certain. In addition, the information on occurrence time of the sinkhole, and knowledge of its location, are fundamental.

The geodatabase allows to collect information about different types of geo-hazard (landslide, flood, sinkhole), to record with different geometry (point, line, polygon) both the location of the phenomena and of the damaged objects/mitigation works, to report data in format compliant with the EU Flood Directive (2010), even in the specific format required by the Department of the Italian Civil Protection.