



Karst sinkholes in Campania (southern Italy): geo-structural analysis, predisposing factors and genetic hypothesis.

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Sinkhole phenomena are widespread all over Campania territory both in granular soils and in lithoid rocks. This paper focuses on sinkholes in strongly karstified carbonate massifs, which were analysed by means of geological and geomorphological analyses accompanied by a detailed geo-structural survey of the rocky fronts.

The interpretation of air photographs and topographic maps allowed the recognition of more than 50 sinkholes that were catalogued on the basis of their main morphometric (depth, width, volumes, etc.) and geological (lithological, structural, hydrogeological context) characteristics. The collected data show that volumes involved in the fall generally range from 10^5 to 10^6 cubic metres and that, among the main predisposing factors, the presence of strongly jointed rocky masses and of mineralised springs can be listed. In some cases (Sorrento Peninsula) big traction fractures, up to 100 m deep and some hundreds metres long, were found in the upstream area of the sinkholes; in other cases sub-circular concave morphologies, representing potential embryonic sinkholes, were detected in the surrounding area. These data suggest high instability conditions along the slope interested by sinkhole formation and evolution.

As far as the age of these phenomena is concerned, only in few cases it was possible to establish that they formed in historical times as a consequence of strong earthquakes (Telese, 1349; Contursi 1980).

Unfortunately, many of the studied sinkholes are located in the vicinity of urban areas or near to important infrastructures but their presence was not taken into account neither for the construction of underground works nor for territorial planning.

This paper aims at furnishing a contribution to the knowledge of karst sinkhole genesis and evolution, outlining the main potential hazard and risk situations in Campania.