



## **A GIS of historical data concerning landslides occurred in north Calabria**

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The present work deals with the problems related to the implementation of a GIS of historical data on landslides. Working with this kind of data, a great effort has to be done in order to extract technical data from documents which are not technical and sometimes written by people who is not a technician. Besides, one of the other problems is the difficulty to map the areas hit by landslides, because often the documents refers about “widespread landslides”, especially in cases of small and numerous phenomena triggered by intense rainfall in superficial terrains.

On the other hand, historical data on landslides need a GIS organisation in order to manage and fruitfully elaborates the great amounts of historical data that can be gathered on these phenomena. For this reason, according to the level of detail characterising the historical data, different formats have to be arranged in the GIS, in order to introduce all the available data, taking into account that the data are not homogeneous.

In Calabria (Souther Italy), the ASICal database (italian acronym for Historically Flooded Areas in CALabria) has recently been implemented, by collecting historical information on landslides and floods occurred during the past centuries, and on related damage (the database is accessible on-line at <http://www.camilab.unical.it>).

For landslides occurred in Cosenza province (North Calabria) between 1900 and 1960, a detailed type of documents, extracted from the archive of the Corp of Civil Engineer, have been analysed. The documents mainly concern requests for refunding of landslide damage, and then only landslides which induced damage were included.

The available data are about 400 text files. For all data, the municipality in which phe-

nomena occurred is defined. Moreover, only a sub-section of data concerns distinct landslides which occurred in areas indicated by specific place names. At the beginning, data have been sorted by municipality in which landslide occurs and chronologically ordered.

The first product is a municipality classification according to the frequency of landslide occurrence during the study period. This provincial map, show a synoptic view of instability phenomena on the whole Cosenza province. In the hypothesis that landslides are in some way a stationary type of phenomena, this map, completed with data concerning landslides occurred most recently, can represent a starting point for future works.

In the sub-section of localised landslides, the phenomena showing more than one activity phase have been selected. They represent the most recurring and critical situation of the entire province.

For these phenomena, a most detailed representation format in the GIS has been organised. By clicking the municipality in which recurrent phenomena have been indicated, a most detailed cartographic representation can be visualised (Scale 1:25.000 to 1:10.000). Also the time-series of landslide activation and details concerning the most probable triggering cause can be visualised.

Despite the historical research concerning most recent years is actually in progress, the GIS obtained at the present is an operational support for future deepening of the research. The structure of the system, organised basing on a huge amount of data, can be considered tested for storing data in all the other Calabrian provinces or for other regions.

At the present, the obtained GIS can be used to localise the most critical phenomena of the province and predispose validation studies concerning the landslide triggering mechanisms.