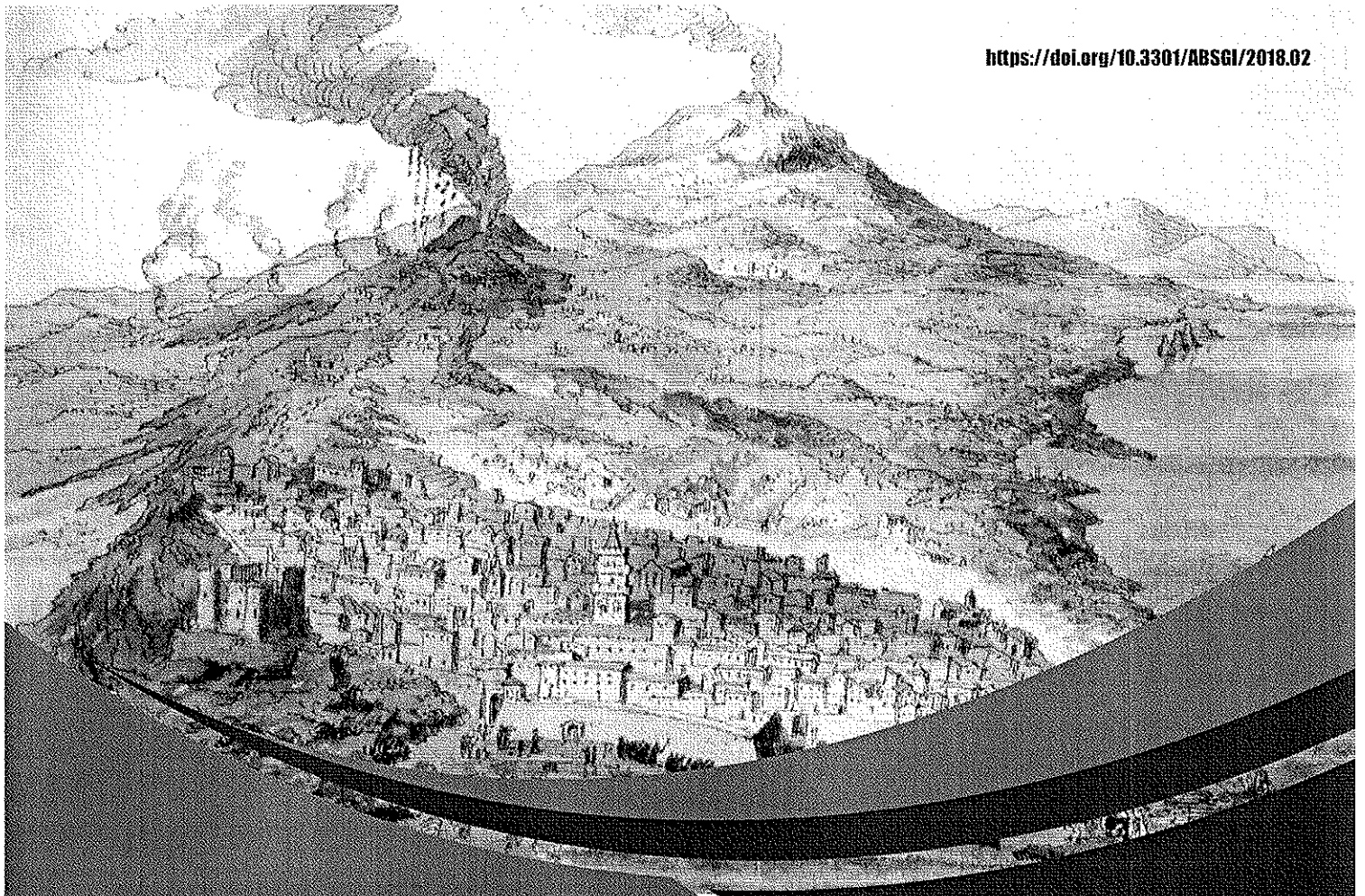
https://doi.org/10.3301/ABSGI/2018.02



Catania, 12-14 settembre 2018

ABSTRACT BOOK

a cura della Società Geologica Italiana

Congresso congiunto SGI-SIMP

CATANIA·2018
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«Geosciences for the environment, natural hazards and cultural heritage»

Geomorphological map of the urban area of Palermo (Italy)

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Keywords: Urban landscape, Geomorphological mapping, Human activities.

The results of a geomorphological survey carried out in the urban area of Palermo are described. The study area is located in the northern margin of Western Sicily and is part of the SE-verging Alpine orogenic belt (Catalano et al., 2013). An E-W mountain range (Sicilian Apennines) is the topographical expression of this belt (Di Maggio et al., 2017). In the Palermo area, the physical continuity of the mountain range is broken by a large topographically-depressed coastal area. This area is set on a half-graben and is characterized by a plain (Conca d'Oro plain), opened to sea and surrounded by wide scarps hundreds of meters tall to the inland. The wide and tall scarps are abandoned coastal cliffs derived from original fault scarps. Large talus slopes bound the scarps at their base. A very slight dipping wedge of Calabrian coastal and shallow water clastic deposits from few to tens of meters thick crops out in the Conca d'Oro plain. These deposits (Marsala synthem, ISPRA 2013) lie on Meso-Cenozoic rocks with strong angular unconformities. Along the plain, a Middle-Upper Pleistocene succession of marine terraces develops from 0 m up to 150 m a.s.l. These terraces are characterized by large and well-preserved polycyclic wave-cut surfaces which in turn are down-cut by some river valleys from few to ten meters deep. The city of Palermo rises along the marine terrace surfaces and the river valleys of the Conca d'Oro plain. Over the last 2700 years, the urban area of Palermo has been affected by remarkable man-made changes to the topographic surface and to the drainage network. The main changes consist of: filling of river valleys; concreting, diversion and burial of riverbeds; excavation of aqueduct tunnel (*qanat*) and underground or open quarries; massive nourishment of the coast areas by means of demolition materials of the Second World War. Geomorphological setting, man-made changes, and urban development up to the talus slope expose the city of Palermo a hydraulic, sinkhole, and landslide risks. To facilitate study on urban planning and environmental risk assessment, a geomorphological map of the urban area of Palermo has been achieved through field surveys, multitemporal analysis of aerial photographs and topographic map, consultation of historical documents, and stratigraphic and topographic reconstructions from numerous wells.

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