



## **Scoria cones occurring in various volcanological settings: a DEM-based geomorphometric analysis**

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Scoria cones form during a sub-plinian, strombolian or hawaiian eruption by the accumulation of ballistically ejected pyroclastic fragments. They are usually clustered in cone fields (either on flat surface or on volcanoes' flanks), distributed along major lineaments and shaped in agreement with the eruption characteristics. Quantitative analysis of cone fields thus provides information about the past and current activity of the related volcanic system with straightforward implications for volcanic hazard assessment. In this work we measured geomorphic parameters of 547 scoria cones belonging to 21 volcanic fields by using freely downloadable elevation datasets (ASTER GDEM, USGS NED and TINITALY). Selected scoria cones, formed from Pliocene to present, occur in different tectonic environments and range from basaltic to andesitic-basaltic composition. The obtained frequency distribution of geomorphometric data are in agreement with the existing literature. Geomorphometric data analysis indicates no correlation between volume and others morphometric parameters, while a correlation exist between the Hco/Wco index and cone slope. We suggest also a possible link between the geodynamic setting in which the cone fields formed and the mean trend of geomorphometric parameters. Finally, absolute age of several single cones have been used to investigate the evolution of geomorphometric parameters with time.