



A volcano at work: the rapidly evolving landforms of Mt Etna documented through DEMs analysis

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Volcanoes are characterized by rapid morphological changes in a continuously evolving landscape. In recent years, airborne LIDAR surveys have been repeatedly carried out to document the constructive and the destructive processes which modify the topography at Mount Etna (Italy), one of the most active volcanoes on Earth. In a few cases, time series of high resolution topographies have been acquired during ongoing effusive eruptions, and this extraordinary data allowed the systematic characterization of the morphology of active lava channels and the identification of a distinctive pulsating dynamic in lava flux. Furthermore, time series of topographies spaced several years allowed the quantification of the growth and of local collapses of summit craters, as well as the erosion of cinder cones formed during flank eruptions in 2001-2002. Overall, the availability of high resolution topographies boosted dramatically our understanding of volcanic processes, also allowing a better assessment of the related hazard. The present contribution is a review of several works spanning nearly a decade.