



Characterization of Teide-Pico Viejo's explosive activity required for hazard, risk and monitoring analyses

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During the last 25000 years, Teide-Pico Viejo system (TPV) has undergone effusive and explosive eruptions, both from vent flanks and main vents. Last explosive activity occurred 2020 yr BP (subplinian phonolitic event of Montaña Blanca). This lack of explosive activity in the historical records of Tenerife has important implications such as the perception of volcanic risk by the population and difficulties in the numerical characterization of the probability of occurrence of this type of eruption, definition of most probable and maximum expected scenarios, hazard analysis and design of the monitoring networks and early warning systems. One of the first steps for hazard analysis is the estimation of the the susceptibility (spatial probability for hosting a future vent). For TPV, this computation has been done based on the distribution of vents and alignments. The selection of the input parameters required by the models for the numerical simulations of expected hazards has been assessed from reconstruction of past eruptions or data measured in the lab or directly on the field. This information, plus the topography and deep atmospheric soundings, allows the numerical simulation of expected scenarios and computation of hazard maps. For short term analysis, the information provided by the monitoring networks is essential, as it can greatly modify the mid/long term susceptibility map and constrain the characteristics of the expected eruption.