

Reducing volcanic risk in the city of Arequipa: popularization of the updated volcanic hazards map of el Misti volcano (Perú)

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Misti volcano, one of the seven active volcanoes of the Plio–Quaternary volcanic range in southern Peru, belongs to the Central Andean Volcanic Zone (CAVZ). Hosting more than one million people, the city of Arequipa has expanded on the SW slopes of El Misti within 10 to 17 km of the summit. The eruptive activity of Misti volcano has included a wide range of explosive eruptions (with phreatomagmatic, vulcanian, subPlinian and Plinian styles), effusive eruptions, dome growth and destruction with flank collapses that have generated at least one debris avalanche (Thouret et al., 2001). The vulnerability of the city of Arequipa is increasing every day because urban development has spread out toward the volcano as close as 9 km from the summit. The southwest flank is considered the most exposed to all hazards. In this challenging setting, INGEMMET elaborated the hazard-zone map of Misti volcano in 2007, which shows three zones with relevant colors: red for high hazard, orange for moderate hazard and yellow for low hazard. Currently, INGEMMET has prepared a new version of the hazard-zone map of Misti volcano. This format of the new document is more friendly and usable by local people. This version has considered suggestions about how to do before, during and after a possible eruption. The new map indicates evacuation routes and also shows where the expansion of the city towards the volcano should be restricted. Since November 2010, the government has not allowed any further urban expansion toward Misti volcano (municipal ordinance N°961-2015). Maps with A3 format will be printed out by municipalities and will be distributed by the Electrical Society of Arequipa and Potable water service and sewage system of Arequipa so that the information is widely disseminated and benefits everyone with the aim to avoid a potential disaster.