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'Understanding volcanoes and society: the key for risk mitigation'



Ashfall alert to the people of the Ubinas valley by WRF - FALL3D model in the managing of 2013-2016 eruptive crises of the Ubinas volcano

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The Ubinas volcano is the most active volcano in Peru. Last eruptive period began on the 1st of September 2013 and lasted until January 2016. During this period, constant emissions of gases and ash were produced by Vulcanian type explosions. Those reached heights up to 5000 m above the top of the volcano, affecting several villages located at the foot of southern flank of the volcano, including: Querapi, Ubinas, Escacha, Tonohaya, Sacuhaya, San Miguel, Anascapa, Huatagua and Huarina. The principal consequences are damages to the health and quality of life of people, animals, impacting also agriculture. The Volcanological Observatory INGEMMET (OVI) in cooperation with the SENAMHI (National Service of Meteorology and Hydrology of Peru), has developed the forecast model scattering dispersion of ash. This model "Fall3D" (Folch et al., 2008) is coupled with the weather model "Weather Research and Forecasting" (WRF, containing meteorological data such as wind speed, temperature, density, moisture, etc. (Collini et al., 2012) As part of a tool to manage this volcanic crisis, awarning system of ashfall deposits, using Fall3D model, has been implemented, in order to send SMS alert tothe authorities involved in risk management. This system induces a gain of time for the people living in the Ubinas valley to adopt right dispositions to reduce the impact of ashfall. These SMS contain (1) the orientation generated by the model of the ash dispersion and (2) the names of the villages that will be potentially affected.