QUATERNARY PHREATOMAGMATIC VOLCANOES OF SOUTHERN TENERIFE, SPAIN: MONTANA PELADA TUFF RING AND CALDERA DEL REY MAAR

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Abstract

Quaternary phreatomagmatic volcanoes in southern Tenerife are part of a rift zone extending from the Pico del Teide to the south. In this rift zone various cones are often covered by younger volcanic successions from an extrusive-volcanic field. In the southern margin of the rift zone, near the Atlantic shoreline 2 phreatomagmatic volcanoes are known. Montana Pelada is a tuff ring 1.2 km across and stands about 100 m above the sea level. The pyroclastic succession of the maar is about 70 m thick in the crater rim. In near-vent position thickly bedded, two pyroclastic flow units are preserved indicating their high momentum to allow the ignimbrite to overrun the tuff ring and destroy several scoria cones that occupied the maar tuff crater.

Conclusion and implication for volcanic hazards

- Tuff ring facies of Montana Pelada are still very close to the crater rim. Montana Pelada is a tuff ring 1.2 km in diameter with a tuff ring of several meters thickness. - The proximal pyroclastic deposits in the crater rim indicate only a limited extent of the pyroclastic deposits. - Montana Pelada tuff ring is filled with massive volcaniclastic debris flow deposits. This deposits pose potential hazard after deposition in case of crater wall collapse. - Debris flows pose potential hazard after deposition in case of crater wall collapse. - Wave interaction with the Atlantic shoreline may result in erosion of the crater wall, causing collapse of the crater.
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