



A radiography of Teide-Pico Viejo active volcanic complex, Tenerife, Canary Islands

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The Teide-Pico Viejo active volcanic complex (TPV) started to grow up about 180 ka ago at the interior of the Las Cañadas caldera, in the island of Tenerife. This volcanic depression originated by several vertical collapses of the former Tenerife central volcanic edifice (Las Cañadas edifice) following explosive emptying of high-level magma chambers. Occasional lateral collapses of the volcano flanks also occurred and modified the northern side of the caldera depression. These twin stratovolcanoes derive from the interaction of two different shallow magma systems that evolved simultaneously, giving rise to a complete series from basalt to phonolite

The structure and volcanic stratigraphy of the TPV was initially established based on a detailed field and petrological studies. However, this volcanic complex has also been the focus of a number of geophysical studies that have provided a detailed imaging of its interior, including its plumbing system. The combination of these geophysical results with those from the previous stratigraphic and petrological studies, as well as the information gathered from the geology of the subhorizontal water galleries drilled on different sector of Tenerife, and from recent experimental petrology studies, offers a unique set of data that permits to construct a detailed 3D model of one of the largest intraplate oceanic volcanoes of the World.

In this contribution we present the first 3D model of the TPV complex obtained by combining the available geological and geophysical data and discuss about the implications of the resulting model on volcano evolution, eruption dynamics, and potential for future activity.

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