

**Peralkaline rhyolitic volcanism in the back-arc area, Las Navajas-Hidalgo stratovolcano, Eastern Sector of the Trans-Mexican Volcanic Belt: Geochemical and isotopic characterization.**

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Rhyolitic peralkaline lavas from the Las Navajas-Hidalgo stratovolcano and many basaltic monogenetic scoria cones represent Quaternary magmatism in the eastern sector of the Trans-Mexican Volcanic Belt. The area is located ~465 km away from the Middle American Trench, ~100 km to the north of Mexico City, in the back-arc region. Most of these structures were emplaced between ~2.58 and ~0.2 Ma. Stratigraphic, geochemical, and Sr, Nd and Pb isotopic studies were carried out in these rocks in order to provide petrogenetic evidences about their origin. Most mafic rocks show transitional geochemical features, between OIB type patterns and calc-alkaline magmas. Sr and Nd isotopic values are slightly radiogenic, whereas Pb isotopic values display a mixing line between a mantle-like component and the Pacific Ocean sediments. The stratovolcano peralkaline rhyolitic sequence is composed of comendite lava flows, obsidian, and pyroclastic and ash deposits derived from a lateral volcanic eruption. These rocks don't display LILE enrichment with respect to HFSE, but important negative anomalies are observed for Ba, Sr, P, Ti, and Eu, together with high enrichment of REE suggesting important crystal fractionation processes. Relative Sr radiogenic isotopic values imply a certain crustal assimilation.

The mafic volcanic rocks could be considered as result of melting of a heterogeneous mantle-wedge affected by an ascending asthenospheric mantle and subduction components, during a slab roll-back process occurring since the Late Miocene to Pleistocene. Prolonged crystal fractionation processes from a transitional Quaternary mafic magma and a certain crustal assimilation probably produced the peralkaline rocks.