



## **Relationship between early Mesozoic red beds and rhyolitic volcanism in the Huizachal Valley during the initial rifting stage of the Sierra Madre Oriental in NE Mexico**

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The Huizachal Valley (HV), cuts the Huizachal-Peregrina Anticlinorium, a major structure of the Sierra Madre Oriental laramidic fold and thrust belt (SMOr) in NE Mexico. It is located 20 km SW of Ciudad Victoria, Tamaulipas. HV is the type locality of the Huizachal Group (HG), constituted by Triassic/Jurassic red beds. They are widespread in NE Mexico, at the basis of the SMOr Mesozoic stratigraphic column, resulting from the continental deposition in the first stages of the opening of the Gulf of Mexico. On the basis of detailed cartography and petrographic analysis it is proposed a division of HG into three major units. The sequence starts with an overturned interstratification of pyroclastics, lahars and shales to conglomerates of the Huizachal Fm. It follows La Boca Fm. with a strong angular discordance, dominated by red beds interfingered with rhyolitic domes and flows as well as pyroclastics. Callovian shales and conglomerates of La Joya Fm. are the basis of a major marine transgression that led to a calcareous and shaly 2,000 m thick sequence. HV represents the core of a structural dome that shows strong normal faulting with lateral components (NNE-SSW and NNW-SSE). Along these faults the rhyolitic domes and Cu and Ba mineralization were emplaced. Due the pervasive alteration of the volcanics, they were classified using proper schemas (e.g. Floyd & Winchester, 1975 & 1978). They show a bimodal grouping, with basalts on one side and rhyolite/rhyodacite on the other. Im-

mobile incompatible trace elements indicate that the primitive basalts are not the direct source for the rhyolites, and that for the generation of the magmas three components are involved: a) subduction magmatism, b) subcontinental intraplate magmatism, and c) participation of the continental crust. According to this work, the magmas are not typical for continental arcs, as proposed earlier. Moreover the magmatism was generated contemporaneously with normal faulting and lateral displacements in the site of extensional tectonics.