



Paleomagnetism of Tequila Volcanic Field: Western Mexico

A. Goguitchaichvili (1), M. Rodríguez (1), M. Calvo (2), Juan Morales (1), Luis Alva (1), José Rosas (3), Jaime Urrutia (1), Hugo Delgado (4)

National University of Mexico (avto@geofisica.unam.mx)

This study presents new paleomagnetic results from 24 ^{40}Ar - ^{39}Ar dated independent cooling units in Tequila area (western Trans-Mexican Volcanic Belt). These sites The characteristic paleodirections are successfully isolated for 20 out 24 cooling units. The mean paleodirection obtained in this study, discarding intermediate polarity sites, is $I=29.6^\circ$, $D=359.2^\circ$, $k=26$, $a95=7.1^\circ$, $N=17$, which corresponds to the mean paleomagnetic pole position $Plat=85.8^\circ$, $Plong=84.3^\circ$, $K=27.5$, $a95=6.9^\circ$. These directions are practically undistinguishable from the expected Plio-Quaternary paleodirections, as derived from reference poles for the North American polar wander curve and in agreement with previously reported directions from western TMVB. This suggests that no major tectonic deformation occurred in studied area since Late Pliocene-Plesitocene to present. The paleosecular variation is estimated trough the study of the scatter of virtual geomagnetic poles giving ± 15.4 with ± 19.9 and ± 12.5 (upper and lower limits respectively). These values are consistent with the value predicted by the latitude-dependent variation model of McFadden et al. (1991) for the last 5 Ma. The interesting feature of the paleomagnetic record obtained here is an occurrence of intermediate polarity at 671 which may correspond the worldwide observable Delta excursion at about 680-690 ka. This gives first 'volcanic' evidence of this event. Two independent lava flows dated as 362 and 354 ka respectively, yield transitional paleodirections as well, probably corresponding to the Levantine excursion.