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Comprehensive Paleomagnetic Study of Chichinautzin Volcanic Field, Central Mexico

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Abstract

The Chichinautzin Volcanic Field (ChVF) is located at the southern boundary of the Trans-Mexican Volcanic Belt (TMVB), in central Mexico. It shows an E–W trend, c.a. 1000 km long volcanic arc, from the Pacific Ocean to the Gulf of México (Gómez-Tuena *et al.* 2007). The ChVF volcanism is related to the subduction of Cocos under North American plate. Their ages range from 1.25 Ma to < 05 Ka (Arce *et al.* 2013). Paleomagnetic cores were collected from 22 sites through the entire volcanic field. Rock magnetic experiments, such as susceptibility vs. temperature, hysteresis curves and FORC were done to identify the magnetic carriers of magnetization and the thermal stability during a heating-cooling processes. AF and termal demagnetization processes were conducted to investigate the mean paleomagnetic direction: Declination = 356.4°, Inclination = 49.7°, α_{95} = 5.2 and *Kappa* = 49.6. The paleointensity process was conducted using the Thellier-Thellier method (Thellier 1959). Results will contribute to develop a secular variation curve for Central Mexico, mainly the results of the youngest lavas (< 5 Ka).

Keywords: paleointensity, paleomagnetism, Mexico, Chichinautzin.

References

Arce, J.L., P.W. Layer, J.C. Lassiter, J.A. Benowitz, J.L. Macias, and J. Ramirez-Espinosa (2013), $^{40}Ar/^{39}Ar$ dating, geochemistry, and isotopic analyses of the quaternary Chichinautzin volcanic field, south of Mexico City: implications for timing, eruption rate, and distribution of volcanism, *Bull. Volcanol.* **75**, 12, 774, DOI: 10.1007/s00445-013-0774-6.

Gómez-Tuena, A., C.H. Langmuir, S.L. Goldstein, S.M. Straub, and F. Ortega-Gutiérrez (2007), Geochemical evidence for slab melting in the Trans-Mexican Volcanic Belt, *J. Petrol.* **48**, 3, 537–562, DOI: 10.1093/petrology/egl071.

Thellier, E. (1959), Sur l'intensite du champ magnetique terrestre dans le passe historique et goologique, *Ann. Geophys.* **15**, 285–376.