

MIOCENE VOLCANISM ALONG TRANSVERSAL STRUCTURES IN CENTRAL ANDES: GEOCHEMICAL CHARACTERS AND GEOTECTONIC SIGNIFICANCE OF THE VOLCANICS RELATED TO THE CALAMA-OLACAPATO-EL TORO FAULT SYSTEM.

1MATTEINI, M., 2MAZZUOLI, R., 1OMARINI and 3MAAS, R. 1 Facultad de Ciencias Naturales, Universidad Nacional de Salta, Salta, Argentina 2 Dipartimento di Scienze della Terra, Università degli Studi di Pisa, Pisa, Italy. 3 Earth Sciences Department, Latrobe University, Melbourne, Australia

The tertiary volcanism along the transversal structures in the Central Andes, is characterised by stratovolcanoes aligned along NW-SE lineaments as Lipez, Calama-Olocapato-El Toro (COT), Archibarca-Galan and wide calderas mainly set at the crossing between NW-SE and N-S fault systems. In this work we present new geochemical data on Miocene volcanism developed along the COT lineament which include, from NW to SE for a distance of about 200 km, Rincon, Tul-Tul-Del-Medio-Pocitos (TUMEPO), Quevar, Aguas Calientes and Tastil volcanoes. The products of this volcanism are mainly constituted by thick lava flows and domes with caldera-related pyroclastic deposits ranging in composition from basaltic andesites to dacites with a K₂O content relatively low. The trace element distribution for the lavas with andesitic composition (57-63% SiO₂) show significative variations along the transect from Rincon (NW) to Tastil (SE). In particular the TUMEPO volcanics show the highest values of La/Yb and Ba/Rb and the lowest of Th/La ratios. The ⁸⁷Sr/⁸⁶Sr ratios and εNd are significantly correlated with the distribution of the lavas along the transect, the TUMEPO rocks showing the lowest ⁸⁷Sr/⁸⁶Sr and the highest εNd values. These data are related to important gravimetric, sismological and magnetotelluric anomalies recorded along the COT transect and compared with the plioquaternary intraplate and shoshonitic volcanics outcropping in the Puna Plateau. These data suggest that the mantle under the COT lineament is dishomogeneous and the distinct geochemical features of the volcanic products, can be related to different degrees of mantle partial melting during the tertiary evolution of Andean building.