Geophysical Research Abstracts
Vol. 19, EGU2017-12816, 2017
EGU General Assembly 2017

Structure of the Rangel alkaline complex (Salta, NW Argentina)

Nestor Vegas (1), Fernando Hongn (2), José María Tubía (1), Nilda Menegatti (3), Aitor Aranguren (1), and Lidia Rodriguez-Méndez (1)

(1) Universidad del País Vasco, Fac. Ciencias y Tecnología, Dept. Geodinámica, Leioa, Spain (nestor.vegas@ehu.eus), (2) IBIGEO, Conicet-Universidad Nacional de Salta, Av. Bolivia 5150, 4400-Salta, Argentina (fhongn@conicet.gov.ar), (3) Universidad Nacional de la Patagonia San Juan Bosco, Facultad de Ciencias Naturales, Comodoro Rivadavia, Argentina (nildam@unpata.edu.ar)

The alcaline complex of the Sierra de Rangel is a Cretaceous granitoid emplaced in the Puna Region, at the province of Salta (NW Argentina). This granitoid spreads over 9 km^2 and is elongated following a NE-SW trend. The Rangel complex intrudes Quaternary sediments of the Salinas Grandes salt flat towards the east and Ordovician quartzites and metapelites to the west.

There are three main facies in the Rangel granitoid: the easternmost part of the intrusion is composed by sienites that crop out in three hills isolated into the salt flat; the central part of the stock made of alkaline granites and quartz-sienites; and the westernmost side composed by alkaline granites. The available rubidium-strontium ages point out two magmatic pulses: 134±1,6Ma for the granites and quartz-sienites and the sienites of the central and eastern part and 122±1,5 Ma for the alkaline granites of the western border.

The most common structure in the host quartzites and metapelites is N55^{o}E-trending schistosity that dips around 60^o to the SE. This schistosity is parallel to the axial surface of asymmetric folds with axes plunging to the east. The sharp western contact of the Rangel complex with the host rocks display a N30^{o}E strike and dips around 40^o to the SE. This contact is parallel to the intra-magmatic contact between the western and central facies and to the NE-SW elongation of the granitoid.

The study of the magnetic fabrics carried on 52 sites of the Rangel complex outline the presence of two sets of tabular intrusions: a main group of overlapping NE-trending sheets that dip to the SE; and a minor group roughly perpendicular to the previous one. The integration of the magnetic fabrics results and the structural data suggest that the former set of intrusions are feeder dykes of the NE-trending sheeted intrusions. Moreover, the radiometric data suggest that the oldest pulse corresponds to the upper part of the granitoid. This fact would imply that the emplacement was controlled by roof lifting mechanisms and that the younger magma pulses were stored at successively deeper levels.