



Interpretation of Chemical and Chronological Data of some Pegmatites in the Oaxacan Complex, Mexico.

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This work presents the preliminary results of a geochemical and geochronological study of some pegmatite bodies from the Oaxacan Complex, and a brief discussion about their possible origin. The Oaxacan Complex is a large complex in southern Mexico metamorphosed up to the granulite facies during the Grenville orogeny s.l. (1.2-0.95 Ga). This Complex, which includes anorthosites, granulites, gneisses, quartzites, etc., is characterized by the intrusion of multiple pegmatite bodies.

Some pegmatites were studied on two areas of the Oaxacan Complex: central part (Ayoquezco-Ejutla) and northern part (Telixtlahuaca). The U-Pb LA-ICP-MS ages on zircons lie in two ranges: 920-1000 Ma and 1160-1240 Ma. Both ranges can be present in the same pegmatite body. Likewise, the concentration of Hf, Y, Yb, Sm, U, Ce and Eu was determined in the same zircons and some diagrams constructed (Shnukov et al. 1997; Belousova et al. 2002) that can be used to estimate the probable melt origin of the zircon bearing rocks.

It has been suggested that all pegmatites from the Oaxacan Complex are the result of the evolution of felsic melts formed during anatexis processes. The interpretation of chemical data indicate that the composition of the initial melt was ultramafic in some cases. This means that the probable process of pegmatite formation was not the last stage of a granitic intrusion.

The results of the conducted work indicate that one possible scenario for the Oaxacan tectonic setting in the limit between Mesoproterozoic and Neoproterozoic could be a rift. Moreover, an estimation of cooling rate has been done using U-Pb and K-Ar ages, showing faster cooling rates towards the North.