Sr-Nd ISOTOPE GEOCHEMISTRY OF NEOPROTEROZOIC SOROCABA, SÃO FRANCISCO AND RELATED GRANITIC MASSIFS, SOUTHEASTERN BRAZIL

Tabata Hoeger Luque – Instituto de Geociências /USP, *Silvio Roberto Farias Vlach* – Instituto de Geociências /USP.

The continental crust in Southeast Brazil is characterized by a vast distribution of Neoproterozoic granitic intrusions. These granitoids have a wide range of compositions from calc-alkalic to sub-alkalic, and were emplaced in several distinct geological domains with uncertain paleo-geographical relationships. In this work we present new Sr-Nd data and compare the Sr-Nd isotope signatures of the Sorocaba (SG, ca. 584-613 Ma), São Francisco (SFG, ca. 592-600 Ma) and Piedade (PG, ca. 600 Ma; Leite et al. 2006) massifs emplaced in the Apiaí-São Roque Domain (ASRD), constituted by low-grade metavolcanosedimentary rocks, which may be found in variable quantities as xenoliths showing diverse degrees of assimilation in the granitic intrusions. The emplacement of these granites is related to the syn to late-orogenic (~615-605 Ma) and post-orogenic (~590 Ma) periods in that region. The $^{87}Sr/^{86}Sr_{initial}$ ratios of the studied granites are medium to high, around 0.70835 - 0.71486 (SG), 0.70921 (SFG) and 0.70802- 0.71408 (PG) (Leite et al. 2006). The highest observed values are related to the geochemically more evolved facies and/or to those evidencing important assimilation of the ASRD host rocks. The granitoids are characterized by strongly negative $\varepsilon Nd_{(t)}$ varying in between -16 and -22.4 (SG), -14.7 and -22 (SFG) and -12.3 and -15.3 (PG). $\varepsilon Nd_{(t)}$ values have no correlation with whole-rock SiO_2 content, however a slight trend of higher $^{87}Sr/^{86}Sr_{initial}$ and lower $\varepsilon Nd_{(t)}$ values with increasing ASI index [mol $Al_2O_3/(CaO + Na_2O + K_2O)$] is observed. Sm-Nd model ages (T_{DM}) are Paleoproterozoic to Archaean: 1.7 to 2.1 Ga (PG), 1.8 to 2.5 (SG) and 1.5 to 2.3 (SFG). These results advocate for a long residence time in the continental crust for the source material of the studied granitoids. They also highlight complex processes involving recycling and/or mixing/assimilation, either from wall rock or other magmatic sources.