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LEAD-LEAD DATING OF MIGMATIC ROCKS FROM THE REGION OF SÃO JOSÉ DOS CAMPOS, SÃO PAULO STATE, BRAZIL

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Lead isotope analyses have been carried out on the migmatitic rocks belonging to the basement of the Embu Complex occurring in the region of São José dos Campos, São Paulo State. These migmatites feature predominantly stromatolitic structures, with the paleosome made up of biotite gneisses and biotite-hornblende gneisses of granitic to tonalitic composition. The neosome is light grey coloured, fine-to medium-grained with granitic composition.

Five neosome and ten paleosome samples have been analysed by the Pb-Pb method in the present study. The samples were processed chemically in a clean laboratory of the type class 100, using reagents distilled by the sub-boiling technique. The samples were acid-digested and the lead was separated using the ion exchange method, with HBr as the eluting agent. Lead isotope ratios were measured with a Micromass VG Isotopes model 354 thermal ionization mass spectrometer, and the ratios were corrected for isotope fractionation using a factor of -0.072% a.m.u., determined on NBS 982

standard.

When the points were plotted in a Pb-Pb isochron diagram, seven out of the ten paleosome samples defined an age of $2,335 \pm 85$ Ma, with an μ_1 value of 8.33. The data could be interpreted as the age of metamorphism with the rocks being formed probably in the Archean. The neosome samples yielded a Pb-Pb isochron age of $1,388 \pm 290$ Ma, with $\mu_1 = 8.15$, which could be interpreted as the period of migmatization.

Rb-Sr isotope dating of these rocks showed a large scatter of the data points on the isochron diagram. The regression analysis of the data points suggest age and initial ratio values of $2,425 \pm 47$ Ma with $(^{87}\text{Sr}/^{86}\text{Sr})_{\text{initial}} = 0.706$ for the paleosome and $1,434 \pm 40$ Ma with $(^{87}\text{Sr}/^{86}\text{Sr})_{\text{initial}} = 0.738$ for the neosome samples. The scattering of data points in the Rb-Sr diagram imply that the system was not isotopically closed during its evolution, unlike the Pb-Pb isotope system. The study thus demonstrates the better applicability of the Pb-Pb dating method for migmatitic rocks.