VI South American Symposium on Isotope Geology
San Carlos de Bariloche - Argentina - 2008

U–Pb SHRIMP AND Sm–Nd ANALYSIS FOR RIBEIRA BELT MESOPROTEROZOIC AND NEOPROTEROZOIC TERRANES

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ABSTRACT

The Ribeira Belt in the studied area comprehends the Lajeado Subgroup, Ribeira Subgroup and Iporanga Formation, as well granite and basic rock intrusions. The metassedimentary sequences show mainly a low grade metamorphism. The Ribeira Subgroup consists of deeper water sedimentary assemblages (mainly distal turbidites) associated with metabasic rocks of MORB-type and immature island arc basalts occur. The Lajeado Subgroup is composed by carbonatic and siliciclastic formations of neritic (sublittoral) environment. Between these subgroups occurs the Iporanga Formation, with a tectonic emplacement, which is composed of polymict unsorted breccias and conglomerates set in a pelitic matrix, intercalated with metaturbidites, with a maximum depositional age of 580 Ma. The analysis of detritic zircon grains from the lower part of Lajeado Subgroup show the importance of Palaeoproterozoic source areas (1,8 Ga to 2,2 Ga) with some Neoarchean (~2,2 Ga) and Mesoproterozoic (1,4 Ga-1,5 Ga) presence. The Lajeado Subgroup depositional age is between the age of its younger detritic zircons (~1,4 Ga), and the age of intruded rocks (600 Ma-630 Ma). The Ribeira Subgroup shows Mesoproterozoic age in metabasic rocks demonstrated by concordant ages from zircons (1,4 Ga) and by a Sm/Nd isocron (1,2 Ga). The lithochemical signature of these metabasic rocks, similar to modern MORB, as the positive values of ε_{Nd}, suggest the open of a Mesoproterozoic Ocean.