

Rare Earth Elements Behavior in Mg Rich Metabasites in Proterozoic Basement, Southeastern Brazil

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Metabasites occur as lenses or disrupt bodies interlayered in gneisses, migmatite, granite and metasedimentary rocks of the Itapira-Amparo Complexes in the region of Amparo, Proterozoic basement, state of São Paulo, Brazil.

They are represented by hornblende rich amphibolite (more than 90% of hornblende in volume), common amphibolite with plagioclase, hornblende and diopside and olivine-orthopyroxene amphibolite (metaperidotite).

Some of these rocks are MgO rich (more than 10%), with Cr and Ni anomalous values. In chemical classification diagrams they correspond to sub alkaline oceanic basalt with toleitic trends, some of them showing komatiitic basalt affinities.

The rare earth element abundances for these metabasites indicate that some (metaperidotite) are very poor in these elements ($\Sigma\text{REE}_N = 33$) and other very rich ($\Sigma\text{REE}_N = 1549$). A most striking feature is a negative Ce anomaly, found in some samples (Ce/Ce^* from 0.13 to 0.59).

The REE behavior and in particular that of Ce is being investigated, considering a oceanic origin for the metabasites with possible contact by low temperature weathering process, or the nature of the source material from which these rocks are derived, considering improbable that this character could be due to differences in crystallization or fractionation path.

In spidergram for incompatible elements the studied metabasites lie near the trends for N-MORB to E-MORB basalts.