

T_{DM} -Ages and ϵ_{Nd} Values for the Late Precambrian Ribeira Fold Belt Magmatism in SE Brazil: an Interpretation.

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An outstanding feature of the plenty Ribeira Fold Belt magmatism in the State of São Paulo and neighbouring areas is the almost absence of juvenile Late Precambrian intrusions concerning either mainly lower crustal derived calc-alkaline Cordilleran I-type, alkali-calcic Caledonian I-type and rapakivi granites, or alkaline granites derived from olivine basalt magmas. All these Late Precambrian rock types have chemical arc-related signatures, Early Proterozoic T_{DM} -ages between 2.4 and 1.8 Ga. and high negative $\epsilon_{Nd(T)}$ values up to -17 .

Exception are larger lamprophyric to weakly lamproitic bodies ranging from diorites to syenites derived from a mantle source either enriched by fluids (lamprophyres) or melts (lamproites) as shown by chemical data. Their T_{DM} and $\epsilon_{Nd(T)}$ values cluster around 1.5 Ga. and -7 , respectively.

The lamprophyric rocks also occur closely associated with I-Caledonian and rapakivi granites with variable degrees of magma mingling and mixing between them. The resulting hybrid rocks show variable T_{DM} and ϵ_{Nd} values ranging between the pure crustal derived rocks and those for the lamprophyric ones.

It is suggested that the lamprophyric enriched mantle source is controlled by tensional zones in the Ribeira Fold Belt whereas the rare juvenile Late Precambrian ages may be debt to a small ocean closure, missing delamination of the Early Proterozoic lithospheric mantle or special granitoid magma geneses conditions under the typical transpressive / transtensional stress regimes of the belt, expressed by frequent and expressive thrust and NE/SW trending transcurrent faults.