

The Patrocínio Gold Mineralization at Northern Brazil: Isotopic Data Considerations

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The Tapajós Mineral Province (TMP), located at the Amazonian Craton hosts many mineral deposits of magmatic-hydrothermal affinity. Most recent ideas argue that the craton's coalescence started from ancient archean nuclei. E-W well marked lineations are installed on ancient archean continental crust and are interpreted to be genetically linked to the craton's amalgamation, with subduction on the N-S direction. As a consequence, at least two magmatic arcs were formed between the period of 2.0 and 1.89 Ga [1]. The metallogenetic fertility of subduction related magmatism is widely known, but issues such as which reservoir plays the most important role are still a matter of debate among geoscientists.

U-Pb, Sr and Nd isotopic data not only reveal the presence of archean basement rocks in the TMP region, but also demonstrate the important component of upper continental crust for the generation of fertile magmas. Granodiorites (1.99 Ga) are the country rocks at the studied area, with ϵ_{Nd} values of -8.43 and T_{DM} model ages of 2.9 Ga. The intrusions that follow, ranging from monzonites to syenites, all display slightly negative values of ϵ_{Nd} (granites particularly being the most important with respect to the Au mineralization). Arc maturity and evolution toward a late-tectonic environment is evidenced by late syenite intrusions of 1.95 Ga.

[1] Juliani et al. (2013a) Controle Tectônico e Eventos Magmáticos Associados as Mineralizações Epitermais, Tipo Pórfiro e IOCG Paleoproterozoicas na Parte Sul do Cráton Amazônico e seu Potencial de Prospectividade. *In*: III Simpósio Brasileiro de Metalogenia, Gramado, CD-ROM.