

[Home](#)[Search Abstracts](#)[Author Index](#)[Symposia Programmes](#)[Sponsors](#)[Help](#)[MPN-01 General contributions to metamorphic petrology](#)**Margarite-corundum schists (metamorphosed high-sulfidation alteration zones)**Annabel Pérez-Aguilar, *Instituto Geológico/SMA (Brazil)*Caetano Juliani, *Instituto de Geociências, Universidade de São Paulo (Brazil)*Lena V.S. Monteiro, *Instituto de Geociências, Universidade Estadual de Campinas (Brazil)*Jorge S. Bettencourt, *Instituto de Geociências, Universidade de São Paulo (Brazil)*Anthony E. Fallick, *Universities Environmental Research Centre (United Kingdom)*

At northeast of São Paulo city, making part of the central segment of the Ribeira Fold belt, outcrops the Serra do Itaberaba Group, which constitutes a Mesoproterozoic metamorphosed volcano-sedimentary sequence. Rocks from the Serra do Itaberaba Group were affected by two medium-grade regional metamorphic events (490-680°C, 4-6.7 kbar and 500-580°C, 4-4.7 kbar, respectively), followed by greenschist facies retrometamorphism. The genesis of margarite-corundum schist's protoliths is interpreted as consequence of multiple geological processes. A first magmatic-hydrothermal event was responsible for the genesis of argillic and advanced argillic alteration zones within fluid channel-ways due to interaction of rocks with acid sulfate-rich fluids (high-sulfidation), which generated clay-rich rocks. Related paleo-hydrothermal systems developed in the upper part of the volcano-sedimentary Pedra Preta formation (basal unit) due to the emplacement of shallow, relative small, andesite to rhyodacite bodies during the installation of a back-arc basin. Argillic and advanced argillic alteration zones crosscut chloritic alteration zones. Afterwards, rocks from argillic and advanced argillic alteration zones were reworked within fluid channel-ways or saline-rich exhalative pools formed around volcanic-exhalative centers.

Related processes were responsible for the leaching of almost all cations, including Si, leaving an Al-enriched residue, being its metamorphic product rocks essentially composed of corundum+margarite±rutile that are represented by margarite-corundum schists. These rocks are present as few to hundred meter intercalations within metabasic, metavolcanoclastic, and metapelites. Obtained whole-rock oxygen stable isotope data for Al-rich rocks ranges from 6.9 to 10.1‰. These isotopic signatures, in addition to margarite-corundum schists' relative high enrichments in W, Co and Th, suggests the participation of magmatic fluids derived from intermediate to acid intrusions for the genesis of argillic and advanced argillic alteration. Mass balances indicate that hydrothermal alterations responsible for the transformation of basic and intermediate rocks and formation of Al-rich protoliths were complex, showing mobility of almost all chemical elements associated to volume variations. Hydrothermal stable isotope signatures from margarite-corundum schists were preserved besides the overprinting of two medium-grade metamorphic events. The characterization of high-sulfidation alteration in ocean environment where are also present chloritic alteration zones, similar to those associated to Kuroko-type base metal deposits, so as gold mineralizations, shows the importance of these lithotypes for the metallogenetic modeling of paleo-hydrothermal systems of the Serra do Itaberaba Group. Grants: Fapesp 95/2337-2 and CNPq 800549/93-7.

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