

# **Paleoproterozoic Magmatic Arc Systems of the Minas-Bahia Orogen, Southern Segment, SE Brazil: a modern style accretionary-collisional orogeny?**

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The São Francisco Palecontinent, ESE Brazil, includes Archean nuclei surrounded by Paleoproterozoic magmatic arcs systems that defines a complex orogenic system known as Minas-Bahia Orogen (MBO). New data, including detailed mapping, petrology, geochemical and geochronological studies carried out at the southern segment of the MBO, revealed a diachronic history of juvenile and continental magmatic arcs accretion and collisional episodes with the Archean nuclei. From NW to SE the following tectonic units were identified: the southern SFC Meso-to Neo Archean nuclei, The Mineiro Juvenile to Evolved Magmatic Arc and related basins, the Piedade Archean Microcontinent that hosts a cordilleran arc in its western border, and the easternmost Mantiqueira-Juiz de Fora Magmatic Arc System that encompasses minor Archean Inliers. The Archean SFC continent and small nuclei comprises mostly TTGs and sanukitoid suites with ages spanning from ca.3.9 Ga in the SFC to 2.7 Ga within the minor inliers located eastern wards Younger syn-collisional high K granitoids (from ca.2.76-2.68 Ga) and ca. 2.5 Ga intraplate basic magmatism close the evolution. From ca. 2.4 to 2.08 Ga coeval development of siliciclastic to carbonatic passive margin units, holding BIFs, and outboard cordilleran to intra-oceanic arc systems and related basins developed. The Paleoproterozoic arc system hosts TTGs, sanukitoid rocks and modern equivalent to calcalkaline expanded suites besides basic rocks with IAT signatures. Finally diachronic collisions between 2.1 and 2.04 sculpted the Orogenic system. Late to post collisional intraplate basic magmatism and coeval alkaline rocks are suggestive to slab failure and collapse of the belt. Hf and Nd data indicate different proportions of mantle and crustal isotopic reservoirs. Altogether, we proposed that plate tectonic processes are implied by a consistent sequence of events involving the generation of juvenile subduction-related magmatic rocks, followed by collisional episodes with remelting of older crust, and post-collisional bimodal magmatism