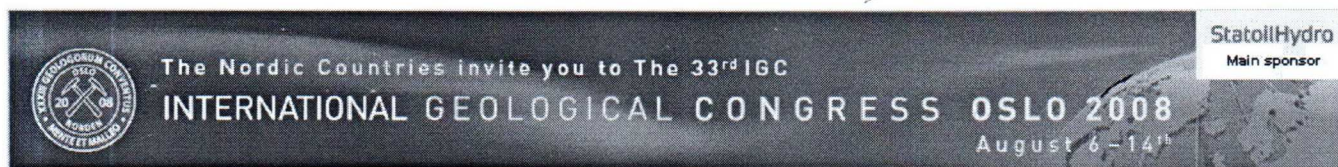


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The Araçuaí orogen extends from the eastern edge of the São Francisco craton to the Atlantic coastline, occupying an area of 350,000 square km in southeastern Brazil. Late Neoproterozoic and Cambrian granitic (s.l.) rocks cover at least half of this large area, where they built up the outstanding Eastern Brazilian Pegmatite Province, and the most important dimension stone province of Brazil that is located in the Espírito Santo and Minas Gerais states. The G1 suite consists of tonalite and granodiorite, with mafic to dioritic enclaves, representing a continental margin, calc-alkaline magmatic arc developed during the pre-collisional stage (630-585 Ma) of the orogen. The recent discovery of a volcanic pile of this magmatic arc opens new targets for base metal prospecting in this region. The G2 suite consists of S-type granites formed during the syn-collisional stage (582-560 Ma). This suite shows different crustal levels of S-type granite generation, from relatively shallow two-mica granites to the deep biotite-garnet-cordierite granites. U-Pb ages suggest that the most important G2 episode of granite genesis took place around 575 Ma. The G2 suite is of outstanding economic importance. It is the source of many big gemstone- and industrial feldspar-rich pegmatites, and is also the site of hundreds of quarries for exploitation of yellow dimension stones, including the internationally well-known Giallo Ornamental Granite of the Espírito Santo Province. Both G1 and G2 suites underwent the Brasiliano orogenic deformation. The G3 suite consists of S-type granites as well, but it was formed during the late collisional stage (550-530 Ma) of the orogen. It includes autochthonous garnet-cordierite leucogranites formed by the partial melting of G2 foliated granites and kinzigitic paragneisses in deep crustal levels, and allochthonous biotite-garnet granites crystallized in relatively shallow crustal levels. G3 suite is the site of many quarries for exploitation of white dimension stone. The G4 (530-500 Ma) and G5 (520-490 Ma) suites were generated during the post-collisional stage and are related to the gravitational collapse of the Araçuaí orogen. The S-type G4 intrusions mainly consist of two-mica granites with preserved pegmatoid cupolas. Important pegmatite populations related to this suite are mined for gemstones, industrial feldspars and lithium ores. G4 pegmatoid cupolas as well as big pegmatite bodies are mined for coarse-grained white dimension stone. The G5 suite mainly consists of balloon-shaped, bimodal, mainly granitic and/or charnockitic to dioritic/noritic intrusions. It is a high-K calc-alkaline to alkaline suite with widespread evidence of magma mingling and mixing processes. The G5 suite is the source of aquamarine- and topaz-rich pegmatites, but it is even more important for its large dimension stone production, being the source of green, bluish green, yellow and black ornamental granites.

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magmatism