GEOCHEMISTRY OF THE SERRA DO MAR (SOUTHERN BRAZIL) GRANITOID MAGMATISM AND TECTONIC IMPLICATIONS

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The neoproterozoic (580 ± 20 M. y.) alkaline granitoid magmatism of the Serra do Mar, Southern Brazil, forms two associations: 1 - metaluminous to weakly peraluminous monzo, syeno and alkali-feldspar granites; 2 - metaluminous syenites, quartz syenites and alkali-feldspar granites, as well as granites with sodic mafic minerals. Association 1 predominantely forms larger, 200-300 km² massifs and has HFSE (Zr, Nb, Y, HREE) depletion relative to LILE (K, Rb, Mg, Ca, Sr, Ba). Association 2 most commonly forms ~60 km² massifs and has enrichment of HFSE relative to LILE. The emplacement of the larger massifs occurred along NW-SE trends, while the smaller massifs were mainly emplaced within NE-SW transtensional faults formed along transcurrent fault zones generated during the final stages of the continental agglutination that led to the formation of the Gondwana Supercontinent. Both sets of transtensional faults are associated with graben and/or pull apart-like basins. As a whole, the Serra do Mar alkaline granitoid magmatism represents a transition from orogenic calc-alkaline monzonitic to anorogenic alkaline (A-type) magmatism.