

Orogenic and Anorogenic Rapakivi Granites.

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Up to now classic rapakivi granites has been considered world-wide as typical anorogenic / A-type granitoids with specific compositions and textures, lower crustal origin and emplaced hundreds millions of years after the latest preceding arc-related magmatism. Common is their association with tholeiitic mafic, anorthositic and alkaline rocks.

In the Late Precambrian Ribeira Fold Belt, SE and S Brazil, another type of rapakivi granite occurs. They are also of high-K alkali-calcic composition with even-grained, porphyritic and rapakivi textures and lower crustal origin, but display clear chemical arc-related signatures and were emplaced during the Postcollisional Crustal Identification & Uplift evolutionary stage of the belt, overlapping in space and time the final calc-alkaline I-Cordilleran-type granitoid magmatism. They belong to the Ribeira Magmatic System that includes also high-K Caledonian I-type, alkaline and peralkaline granites beside lamprophyric/appenitic and lamproitic plutons all them also with clear chemical arc-related characteristics.

The emplacement of all members of the Ribeira Magmatic System, developed between 610 and 570 Ma ago, is controlled either by arched structures linked to the last regional open-waved folding phase or by wrench faults successively reactivated. By this the major rapakivi intrusions are built up by many magmatic phases and facies assembled in coexisting magmatic cycles of variable alkalinity. The less alkalic cycles have Early Proterozoic T_{DM} ages between 2.4 and 1.8 Ga. whereas the most alkaline ones, with stronger signs of mingling and mixing with associated high-K dioritic appenitic rocks, have T_{DM} ages as low as 1.5 Ga., the same of larger lamprophyric and lamproitic plutons.