

THE CRETACEOUS LOW-TiO₂ THOLEIITIC DYKE SWARM FROM CABO FRIO (SOUTHEASTERN BRAZIL): PETROLOGICAL AND GEOCHEMICAL ASPECTS.

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Cretaceous tholeiitic dolerites, emplaced in the passive continental margin of southeastern Brazil, occur in the Cabo Frio dyke swarm (East of Rio de Janeiro). The dykes are generally fine-grained, with ophitic to subophitic textures; a few samples are plagioclase-phyric. The rocks are evolved tholeiitic and transitional basalts. A few samples are basaltic andesites. MgO varies from 7.5 to 4 wt %. The tholeiitic dolerites show moderate light REE enrichment (La/Yb)_N 4.5-5.6. The transitional basalts have a similar pattern but slightly lower chondrite-normalized La/Yb (3.3). The rocks have low TiO₂ (2%) and incompatible elements contents, and belong to low TiO₂ suite of the Paraná-Etendeka CFB province. However, the Ti/Y and Ti/Zr ratios and the mantle-normalized diagram of the most Mg-rich Cabo Frio dolerites are clearly distinct from those of low-TiO₂ Gramado and Esmeralda types. In particular the former have: 1) Lower LILE/HFSE ratios; 2) Lower Rb, Ba and K contents; 3) slight positive Nb and P anomalies, absent in the flood tholeiites. On the whole, the Cabo Frio dolerites show an E-type MORB pattern, with a positive anomaly for Nb and similar incompatible element contents. This suggests an involvement of E-MORB source along the continental passive margin of Brazil. In alternative a lower crustal contribution in the genesis of Cabo Frio dolerites than Low TiO₂ Paraná basalts is also a suitable genetic model.