

GEOCHEMICAL SIGNATURE OF THE TRANSMINAS DIKE SWARM

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RESUMO: A significant episode of bimodal volcanism in SW South America and its African counterparts preceded the fragmentation of West Gondwana during the Early Cretaceous. In the South-Central Brazil there are basaltic flows and intrusive rocks of the Paraná-Etendeka Magmatic Province (PEMP). In the northern PEMP, the Transminas dikes form two giant swarms: (1) with an azimuth of 170° spanning between the states of Minas Gerais and Bahia, and (2) with an azimuth of 125°, extending for at least 1,000 km between southern Minas Gerais and Goiás. The dikes consist of plagioclase, clinopyroxene, olivine, Fe-Ti oxides (titanomagnetite, ilmenite), alkali feldspar, quartz, sulfides, apatite, and other accessories. The Transminas dikes are composed of high-TiO₂ tholeiitic diabases (TiO₂ = 4.1-3.1%), with ⁴⁰Ar/³⁹Ar ages ranging between 130.3 and 129.8 Ma. In the Pirenópolis region (Goiás), a low-Ti suite (TiO₂ < 2 wt.%) is also observed. Isotopically, the high-Ti dikes exhibit ⁸⁷Sr/⁸⁶Sr₁₃₀ ratios from 0.707321 to 0.706662, εNd₁₃₀ from -2.3 to -6.0, ²⁰⁶Pb/²⁰⁴Pb_m ratios from 18.34 to 18.20, ²⁰⁷Pb/²⁰⁴Pb_m ratios from 15.59 to 15.56, and ²⁰⁸Pb/²⁰⁴Pb_m ratios from 38.63 to 38.49. The newly acquired data, combined with pre-existing information from the literature, strengthen the connection between the Transminas and the Rio Ceará-mirim dikes in NE Brazil, as well as among Transminas and other high-Ti dike swarms of the PEMP. Therefore, the magmatic events associated with the South Atlantic rift system represent indeed a single LIP of Early Cretaceous age in West Gondwana realm.

Palavras-chave: Mafic dikes, South Atlantic, West Gondwana, Continental breakup.