

EARLY JURASSIC THOLEIITIC MAGMATISM IN BRAZIL: EVIDENCE FOR HETEROGENEOUS SOURCE MANTLE.

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The Early Jurassic Brazilian magmatism (EJB, 198 ± 4 Ma) covers about 2.5×10^6 Km² and belongs to the Central Atlantic Magmatic Province (CAMP). This magmatism is represented by tholeiites: the sills of Amazonia basin; the dyke swarms of Cassiporé and Roraima; the stratoid basalt flows of Mosquito and Anari-Tapirapuá Formations, and rare alkali basalts: Lavras de Mangabeira. In general, the EJB tholeiites are evolved ($MgO < 6$ wt%) and mainly characterized by low TiO₂, as most tholeiites from North America and western Africa. Both LTi (< 2 wt%) and the scarce HTi (> 2 wt%) EJB tholeiites may be distinguished in two main groups characterized by $(La/Nb)_{PM}$ (a) lower and (b) higher than 1.0. These tholeiites have $(La/Sm)_{cn}$ of 1.04-1.28 and 2.15-2.25 for the (a) and (b) groups, respectively. It should be noted that, for similar $\epsilon(Sr)$ - $\epsilon(Nd)$ ranges (-17 to +40 and +6 to -3, respectively), $(La/Nb)_{PM}$ spans from 0.4 to 2.0. This points to heterogeneous source mantle. EJB tholeiites have Sr-Nd isotopes distinct from those of the Capo Verde volcanics (CAMP hot spot?) having higher $\epsilon(Sr)$ (-8 to -25) for similar $\epsilon(Nd)$ (-0.6 to +7.2), and plot in the $\epsilon(Sr)$ - $\epsilon(Nd)$ depleted quadrant as the volcanics from Fernando de Noronha (CAMP hot spot?). T(Nd)_{DM} model ages of the EJB tholeiites (1.1-1.3 Ga.) correspond to the middle Proterozoic orogenic cycle, i.e. Namaqua "Mobile Belts". Petrology, geochemistry and Sr-Nd isotopes strongly support that the Early Jurassic tholeiitic magmatism from Brazil mainly reflect source mantle with dominant lithospheric features.