

# **Proterozoic Granitic Magmatism in the Borborema Province, northeastern Brazil**

**FERREIRA, V.P. and SIAL, A.N.-** NEG-LABISE, Dept. of Geology, Federal Univ. of Pernambuco, C.P. 7852, Recife, Brazil, 50732-970

The Borborema structural province (BP), NE Brazil, encompasses an area of 380,000 km<sup>2</sup> and is composed of a complex network of Proterozoic supracrustal belts surrounding Archean to Paleoproterozoic blocks or inliers. Two E-W continental-scale shear zones subdivide the BP into three domains: Northern (ND), Transverse Zone (TZD) and Southern (SD). Neoproterozoic granitoids in these domains can be classified into nine groups that are enriched in K and Ba and have low Nb (< 20 ppm).  $t_{DM}$  model age > 2.0 Ga in the ND ( $\epsilon Nd = -15$  to  $-20$ ), 1.1 - 1.4 Ga and 2.1 - 2.4 Ga in the TZD ( $\epsilon Nd -1$  to  $-4$ ;  $-9$  to  $-14$ ;  $-15$  to  $-19$ ), and granitoids in the SD group display three age intervals.

The geochemical and isotopic characteristics of the different granitoid groups point to important contrasts among the three major tectonic domain: (1) the ND is rather homogeneous, at least vertically, in spite of lateral differences in terms of composition of source rocks and magmatic processes that produced the granitoids; (2) the TZD has lateral and vertical heterogeneities, except for one of its terrane (Cachoeirinha-Salgueiro), which is very homogeneous; (3) the SD is even more heterogeneous than the TZD. It had a long and complex accretionary history, as suggested by large in situ, leucocratic melts associated with large areas of migmatization, both at the northern and southern boundaries of the Pernambuco-Alagoas terrane, coupled with a large volume of high-K calc-alkalic granitoids emplaced in several pulses.