

ND, AND U-PB ISOTOPE STUDY OF EARLY PRECAMBRIAN NORITIC INTRUSIONS IN THE SÃO FRANCISCO CRATON, BAHIA-BRAZIL: EVIDENCE FOR MULTIPLE PROCESSES AND ORIGIN

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Noritic intrusions in Precambrian shield areas are the subject of increasing interest, mainly because they may reflect a major global change in the Earth's regime of basic magmatism generation with time. They are also important for the mineral deposits they may host. On the northeastern region of the São Francisco Craton, three types of noritic intrusions have been recognized, namely, the Medrado chromite-bearing peridotite-norite sill, the Caraiba Cu-sulfide-bearing norite-hypersthene complex, and the Uaua norite-pyroxenite dykes. Conventional U-Pb dating of zircons on rocks from Caraiba and Medrado indicate ages, respectively of 2,050 Ma and 2,066 Ma. The Uaua dykes can be timely constrained between 2.9 Ga and 2.2 Ga on the basis of field relationships. The Caraiba and Medrado rocks, and some Uaua dykes have a strong cumulate signature, whereas other dykes from Uaua are much closer to liquids, owing to their fine-grained quench textures. Nd isotope data yielded model ages (TDM) of 2.81-2.96 Ga for Caraiba and 2.84-3.20 Ga for Medrado, with negative epsilon Nd, indicating either derivation from enriched lithospheric sources or contamination with the continental crust. The Uaua dykes can be separated into two TDM age groups (3.13-3.67 Ga; 2.52-2.66 Ga). Because the first group is composed of coarse-grained cumulate norite, it is suggested that they may have been contaminated with Archaean gneisses of the Uaua Block. If this reasoning is correct, then the TDM ages of the other Uaua group set a maximum age of 2.5-2.6 Ga to all Uaua norite dykes.