

ND ISOTOPIC EVIDENCE FOR TWO MAGMATIC SYSTEMS IN THE NIQUELÂNDIA COMPLEX, CENTRAL BRAZIL

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The Niquelândia Complex is one of three very large layered complexes in the central part of the Brasília Belt, in central Brazil. Previous field and petrological studies have demonstrated that the complex is made of two distinct intrusions, separated by a NNE fault. These have been called the Lower Series (LS) forming the eastern part of the complex, and the Upper Series, in the west. Available geochronological data suggest that rocks of the LS crystallized at ca. 2.0 Ga (U-Pb SHRIMP and Re-Os isochron data) and were metamorphosed at granulite facies at ca. 770-790 Ma. Sm-Nd isotopic data for cumulate rocks of the US have yielded an isochron age of 1347 \pm 69 Ma, and initial Epsilon of +4.1. Their metamorphic equivalents (amphibolites and leucoamphibolites) yielded a very similar isochron age of 1352 \pm 99 Ma, with initial Epsilon of +4.8. The ca. 1.35 Ga age is interpreted as the crystallization age of the US and the positive Epsilon values indicate a MORB-like source for the original magma, without crust contamination. Rocks of the LS yielded a poorly-defined Sm-Nd isochron indicating the age of ca. 1880 Ma, which agrees, within error, with previous geochronological data. The initial Epsilon value of -1.2 contrasts with those found for the US. This negative value clearly indicates crustal contamination of the original magma of the LS intrusion. The Nd isotopic data supports the idea that the Niquelândia Complex is made, in fact, of two different intrusions, which have crystallized at different ages and in different tectonic settings, and were put together during the Brasiliano orogeny.