presencia de valores diferentes de las relaciones $^{208}Pb/^{204}Pb$ y principalmen- $^{Pb}/^{204}Pb$ podria explicarse en algunos casos por procesos posteriores de re- ización, que permitirían la incorporación al sistema de plomo más radigénico. ncias geológicas, apoyadas por datos isotópicos de $\delta^{34}S$ y $^{87}Sr/^{86}Sr$ estarian acuerdo con esta hipótesis.

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A REVIEW ON THE GEOCHRONOLOGY OF THE RIO ITAPICURU GREENSTONE BELT, NE BAHIA (BRAZIL), AND THE TIMING OF THE LODE-GOLD DEPOSITS

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RODUCTION

The Rio Itapicuru greenstone belt (RIGB) is the largest of a series of Precambri- granite-greenstone remnants preserved in the north-east portion of the São ncisco Craton. This geotectonic unit comprises a N-S belt of approximately 100 length and 60 km width, where the supracrustal sequence is involved by grani- gneisses and migmatites terrains, some forming elliptical-shaped domes with di- ters varying from a few kilometers up to 50 km. The supracrustals may be divi- into three distinct domains: (1) Mafic Volcanic Domain - tholeiitic basalts; (2)

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Felsic Volcanic Domain - andesites, dacites/rhyodacites/rhyolites and related p clastics; and (3) Sedimentary Domain - volcanically-derived turbidites and chem sediments (Kishida et al,1980; Silva, 1984). The metamorphism of the supra tals varies from greenschist to amphibolite facies (Silva,1984), and at least two jor deformational events have recently been established for the greenstone (Al da Silva et al., 1995). The plutonic activity in the RIGB is marked by the empl ment of several intrusive bodies of tonalite to granodiorite composition, and is i preted to have taken place mainly during the D2 deformational event, except Barrocas dome (southern sector of the RIGB), attributed to the D_3 event (Alves Silva et al., 1995). The most important gold deposits are located in the nort sector (Maria Preta, Rio Salitre, Mari e Ambrósio) and southern sector (Faze Brasileiro) of the RIGB, where they appear controlled by N-S and E-W regional-s le shear zones, respectively.

The scope of this work is to provide a synthesis of the geochronological d available for the volcano-sedimentary sequence and the plutonic suite of the RI and attempt to broadly constrain the timing of the gold mineralization, with particu reference to the Fazenda Brasileiro deposit.

GEOCHRONOLOGY OF THE RIO ITAPICURU GREENSTONE BELT

An inventory of the geochronological data for the São Francisco Craton was p presented during the I Symposium of the São Francisco Craton (Pedreira et a 1978). In the context of this contribution, the geochronological data of the RI were limited to a few Transamazonian K/Ar ages obtained for the granitic intrusiv gneisses and migmatites, and interpreted as indicative of either a heating proc or rock formation. Eleven years later, Brito Neves et al. (1980) elaborated a n synthesis and updated the geochronological knowledge of the São Francisco C ton, which was then succeded by a number of other similar works.

The geochronological data available for the supracrustal sequence and pluto suites of the RIGB are grouped in Figure 1, which attempts to illustrate a possib sequence of the tectonometamorphic/magmatic events, including the gold mineri zation. The ages obtained from granitic rocks considered as part of a sialic base ment are mostly derived from the Rb/Sr systematic and point to an isotopic hom genization process during the Transamazonian Cycle (2.0 Ga.; Brito Neves et al.,op. cit.). The only Archean age of 2930 ± 32 Ma for the sialic basement was ob tained by U/Pb dating of a megaxenolith hosted by gneisses of the Ambrósio dom (Gáal et al., 1987). The onset of the mafic volcanic activity between 2209 ± 60 M and 2200 Ma is constrained by whole-rock Pb/Pb and Sm/Nd (T_{Dm}), respectively, o metabasalts (Silva, 1992), whereas the felsic volcanism may have occurred be tween 2178 ± 12Ma (Pb/Pb - three-point mineral isochron; Gáal et al., op. cit.) and 2100 Ma ((Sm/Nd-TDM; Silva,1992). The latter two values are consistent with

ole-rock Pb/Pb isochron of 2109 ± 80 Ma (Silva,1992) and with a Rb/Sr refer- e isochron (05 points) of 2080 ± 90 Ma (Brito Neves et al., op. cit.) . The closing the Paleoproterozoic basin was culminated with an intense plutonic activity, ich lasted for approximately 100 Ma (Alves da Silva et al., op. cit.), mainly repre- ted by the emplacement of the Barrocas, Ambrósio, Poro Grande, Santa Luz Nordestina~CansanQAo domes. The early stages of this collisional regime is naled by a zircon Pb/Pb age of 2127 ± 5 Ma in the Barrocas dome, and of 2023 9 Ma in the Pogo Grande dome (Alves da Silva et al., op. cit.). Most of the geo- nological record in the greenstone falls within this period of time and are either ted to rock forming processes or isotopic homogenization during the Transama- lan. U/Pb dating on monazite and zircon from the Poro Grande and Santa Luz es yielded 2079 ± 47 Ma and 2107 ± 23 Ma, respectively, and were interpreted the crystallization ages (G&al et al, op. cit.). The Rb/Sr isotopic data obtained for CansanrAo monzonitic intrusion allowed to define the age of the pluton empla- ent around 2025 ± 47 Ma (whole-rock isochron), whereas the TDM, Sm/Nd age 2400 Ma pointed to protolith age differentiation (Sabaté et al.,1990).

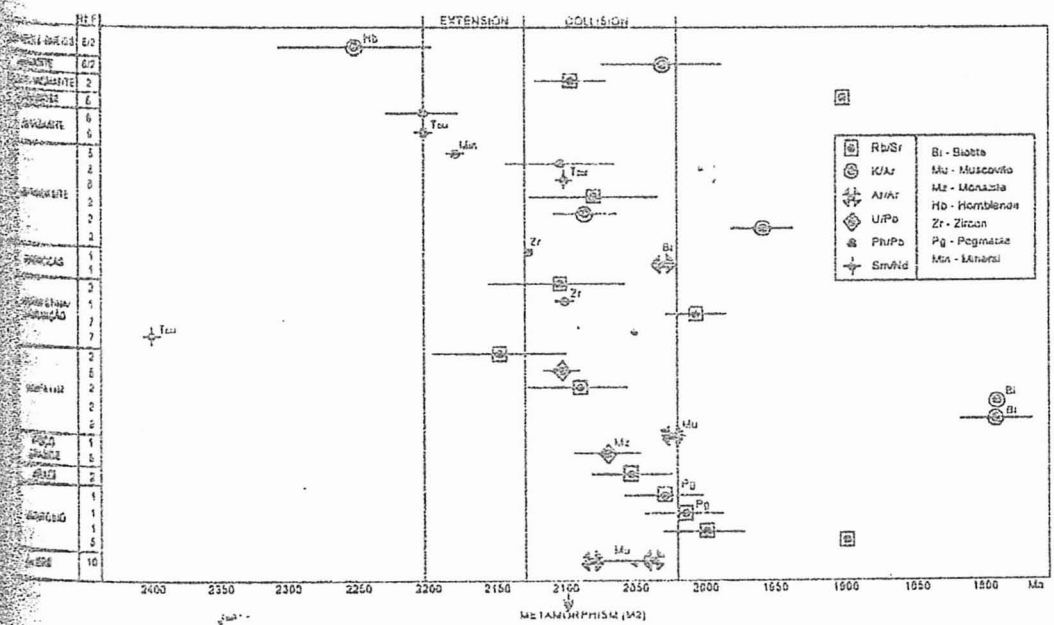

Figure 1 - Geocronological synthesis of the Rio Itapicuru greenstone belt.

AGE OF THE FAZENDA BRASILEIRO GOLD DEPOSIT

A few age values attributed to the gold mineralization have only been obta for the Fazenda Brasileiro deposit, in the southern sector of the RIGB. The h gold mineralization in this deposit i related to a vein system which comprises distinct types of quartzalbite-carbonate-sulfide veins, generally enveloped by hy thermal alteration halos (albite + carbonate + biotite + arsenopyrite + pyrrhot pyrite + ilmenite), within quartz-chlorite-magnetite and/or quartz-carbonate-chl schists (Mello et al., 1996). Ar/Ar dating on gold-related muscovite and biotite y values between 2083 Ma and 2031 Ma (Vasconcelos et al.,1992), revealing its nection to the Transamazonian Cycle and a post-metamorphic peak.

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