Granulites and Granulites 2006

Program and Abstracts

Editors
Michael Brown and Philip M. Piccoli

Brasília, July 10-12, 2006

Granulite Facies *P-T* Conditions of Rocks From the Northern Portion of the Araçuaí Belt, Bahia, Brazil

Moraes[1], Renato; Niccolet[2], Christian; Barbosa[3], Johildo S.F.; and, Fuck[4], Reinhardt A.

[1]Instituto de Geociências, Universidade de São Paulo, Rua do Lago, 562 Cidade Universitária, CEP 05508-080 - São Paulo, SP Brasil (moraes@igc.usp.br); 2 Laboratoire Magmas et Volcans, Université Blasise Pascal–CNRS, 5, Rue Kersler, 63038 Clermont-Ferrand CEDEX, France (c.nicollet@opgc.univ-bpclermont.fr); [3]Universidade Federal da Bahia, Instituto de Geociências, Departamento de Geoquímica, Rua Caetano Moura, 123Federação40210340 - Salvador, BA, Brazil (johildo@cpgg.ufba.br); [4]Instituto de Geociências, Universidade de Brasília, Brasília, DF, 709110 - 900, Brazil (reinhardt@unb.br)

The Araçuaí Belt is one of the youngest among the Neoproterozoic Belts in Brazil, with the metamorphic peak at *ca*. 570-580 Ma. It is composed of greenschist to granulite facies rocks, which are intruded by syn- to late-orogenic granites and charnockites. Granulite facies rocks are represented by migmatites and felsic granulites. Migmatites are stromatic and composed of quartz, plagioclase (An_{47}), orthoclase, garnet ($alm_{70}pyr_{25}grs_3sps_2$), cordierite ($X_{Mg}$ 0.69), biotite (X_{Mg} = 0.54, and 0.37 apfu of Ti), sillimanite, and rare spinel, rutile and ilmenite. Leucosome is quartz-feldspathic and bears cordierite ± garnet aggregates. Spinel occurs at the cores of cordierite + sillimanite aggregates, which are surrounded by orthoclase ± biotite, and has not been seen in contact with quartz. Felsic granulites are composed of quartz, orthoclase, plagioclase (An_{24}), orthopyroxene (X_{Mg} = 0.48, and 0.07 apfu of Al), biotite (X_{Mg} 0.65, and 0.35 apfu of Ti), rare garnet ($alm_{65}pyr_{25}grs_{10}sps_5$) and ilmenite. *P-T* calculations were done with THERMOCALC – *P*, *T* and average *P-T* methods. Due to widespread leucosome occurrence in migmatites, in all calculations water-saturated conditions were considered. *P-T* conditions for two migmatite samples are 855 ± 55°C and 6.5 ± 0.8 kbar and 880 ± 30°C and 6.7 ± 0.5 kbar. For felsic granulite, several calculations were done with varying water activity values. Best calculated conditions were accepted when lowest uncertainty values are reached within the best coherence with calculated values for migmatites. Water activity was then set as 0.3 and *P-T* conditions for two samples are 850 ± 50°C and 6.8 ± 1.1 kbar, and 768 ± 45°C and 5.8 ± 1.2 kbar.