

NEAR-ISOTHERMAL DECOMPRESSION IN GRANULITES OF THE SOCORRO SHEAR ZONE, SÃO PAULO, BRAZIL

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Neoproterozoic Socorro Shear Zone affects high-grade metamorphic rocks of the Ribeira Belt, such as basic granulites, charnockite, enderbite and sillimanite-garnet-biotite gneiss. The early compressive regime was a low-angle ductile shear, reworked by strike-slip faulting. Basic granulites are composed of porphyroblastic diopside and garnet separated by coronas of ferrosilite and bytownite, in a groundmass of andesine, hornblende, ilmenite and quartz. Garnet is almost completely replaced by the corona assemblage. Decompression coronas were generated by the reaction $\text{garnet} + \text{clinopyroxene} + \text{quartz} = \text{plagioclase} + \text{orthopyroxene}$ and $\text{garnet} + \text{quartz} = \text{orthopyroxene} + \text{anorthite}$. TWQ geothermobarometry indicates equilibrium only in latter paragenesis (coronas and garnet pseudomorphs) at 7 kbar and 720°C. Pre-decompression assemblage, represented by garnet-clinopyroxene-andesine-quartz, is partially stable, corresponding to the intersection of the garnet-clinopyroxene-plagioclase-quartz geobarometer and garnet-clinopyroxene geothermometer at 11-13 kbar and 780-850° C. The jadeite-quartz-plagioclase geobarometer indicating pressure around 20 kbar illustrates a possible disequilibrium among plagioclase, Na concentration in clinopyroxenes and Ca in garnets. Despite lack of better quantitative data for the peak pressure, the mineral assemblage allows classifying this rock as high-pressure granulite. The decompression event was probably triggered by low-angle shear thrust, which resulted in the observed metamorphic inversion. Fapesp Grant 98/13639-8