PETROLOGY AND FLUID INCLUSIONS IN GARNETIFEROUS GNEISSES AND CHARNOCKITES FROM WEDDAGALA (RATNAPURA DISTRICT, SRI LANKA)[1]

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ABSTRACT

Fluid inclusions have been studied in garnetiferous gneisses and igneous charnockites from Weddagala, Sri Lanka. Fluid distribution (brines in metasediments, CO_2 in charnockites) compares well with other regions, notably Bamble (southern Norway). For the brines, it suggests an ultimate pre-metamorphic origin and for CO_2, initial entrapment during metamorphic crystallization. The fluid density has been completely reset during post-metamorphic evolution. Maximum CO_2 densities indicate much lower pressure than those at peak metamorphic conditions recorded by the solid assemblages (about 5 vs. 8 kbars). The evolution of CO_2 densities with time suggests a post-metamorphic trajectory concave toward the pressure axis ("Adiabatic uplift") and local redistribution and reequilibration of CO_2 inclusions between 500 and 600°C. Fluid movements were mostly limited to grain scale (millimeter order of magnitude) and did not transgress the lithological boundaries.