

Decompressional evolution of Granulites from Palni hill ranges, Southern India

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Palni hill represents a portion of the granulite facies terrain of Southern India. The area comprises of variety of granulitic rocks having diverse mineralogical assemblages. The supracrustal rocks of Palni area are represented by metapelites, quartzites and calc-silicates. Charnockites is the common country rock prevailing in the Palni hill. Most exposures of basic granulites are scattered throughout the area. In places, the basic rock occur as small enclaves or pods within the country rock. The occurrence of sapphirine-bearing granulites has been recorded from Palni hill ranges e.g. Kodaikanal, Panrimalai, Usilampatti and Ganguvarpatti. These sapphirine-bearing granulites have been successfully exploited for reconstruction of the petrotectonic evolution of the belt. Remarkable textural relations reveal multiphase reactions responsible for the formation of diverse mineral paragenesis during prolonged metamorphic history of the area. Development of spectacular reaction texture and symplectitic intergrowths in metapelites preserve a record of their evolutionary stages because of strong refractory nature and varied mineralogy. The P-T trajectories inferred from different localities of Palni hill are consistent with clockwise P-T path and implies formation of this granulite facies terrain in overthickened crust.