

ARCHEAN Al-Mg GRANULITES WITH HERCINITE AND QUARTZ - JEQUIÉ COMPLEX, BAHIA, BRAZIL

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The granulitic Jequié Complex includes important diapiric charnockites intrusive in Al-Mg granulites. In the latter, the primary paragenesis exhibits quartz, plagioclase, cordierite (Cd1), garnet, sillimanite and biotite, in addition to ilmenite, magnetite, pyrite, spinel (Sp1), rutile, graphite and monazite/zircon. Few samples are characterized by: (i) large orthopyroxene (Opx1) in equilibrium with the paragenesis; (ii) hercinite-type spinel (Sp2) in contact with quartz and (iii) symplectite of orthopyroxene (Opx2) and K-feldspar, around biotite (Bi1) and opaque minerals. Secondary minerals, include: (i) cordierite (Cd2) between hercinite and quartz; (ii) symplectitic of cordierite (Cd2) and orthopyroxene (Opx3), around garnet and quartz and, (iii) symplectitic intergrowth of biotite (Bi2) and quartz around orthopyroxene. The following reactions are indicated for the paragenesis developed during peak metamorphism: $Gt + Sil \pm (Qz) = Cd1 + Sp1$, $Bi1 + Qz = Opx2 + Fk (+H_2O)$ and $Op + Qz = Opx2 + Fk (+H_2O)$. Retrograde metamorphic is indicated by: (i) cordierite (Cd2) formed by the reaction $Sp2 + Qz (+H_2O) = Cd2 (+H_2O)$; (ii) orthopyroxene (Opx3) and cordierite (Cd2), produced by the reaction $Gt + Qz (+H_2O) = Opx3 + Cd2$ and, (iii) Bi-Qz symplectites generated by temperature decrease and/or hydration reactions Opx (or Gt , or Op) $+ Fk + H_2O = Bi + Qz$. Estimated pressures, in the order of 5-8 kbar, are in agreement with the granulite facies. The estimated temperatures (900-1000°C) are higher than expected and it is suggested that the diapiric bodies were responsible by temperature increase and formation of the paragenesis with hercinite and quartz.