Mantle mineral associations and Stratified textures in South China

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Mantle magma components in South China are heterogenous according to the study of mantle rocks and mineral associations in xenoliths. Two mantle mineral associations and stratified textures are as following formed as a result of the various temperatures and pressures in the different depths.

Subcontinental mantal rocks of Yangtze Craton consist mainly of kimberlites, lamproites and eclogites. There are oxidizing gases of high contents such as CO_2 and SO_2 in the fluids. Mineral associations in xenoliths belong to Mg-Cr series, for example, the lower mantle: perovskte $(Fe,Mg)SiO_3$, γ -spinel → ilmenite, pyroxene with oriented lath-shaped garnet solid solution, corundum; transition zone: α -olivine, $\alpha + \beta$, $\beta + \gamma$ -spinel and diamond; the upper mantle: pyrope, picotite, omphacite and coesite. There are not low-velocity layers in the upper mantle. The depth of lithospheric root is about 300Km.

Subcontinental mantle rocks of Wuyi block are chiefly kimberlites and highly alkaline basalts. Fluids composed mainly of reducing gases, for example, H_2 and CO. Mineral associations in xenoliths belong to Mg-Ti series, for example, the lower mantle: magnesiowüestite, low temperatural ilmenite, graphite peloid; transitional zone: α -olivine, β -spinel, pyrope; the upper mantle: garnet lherzolite, spinel lherzolite. The depth of lithospheric root is about 80Km. The depth of South China lithosphere is progressively thinned from west to east.