

The Distribution of Granites from South China and its petrogenesis

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There are about 170,000 km² granites in South China. These granites are major formed during four stages: late Proterozoic, early Paleozoic, early Mesozoic and late Mesozoic. Late Paleozoic granites are rare in South China and need check.

Late Proterozoic granites are constrained in the Banxi Group in the peripheral area of Yangtze Craton. They are major peraluminous (about 78.4%), and coexist with late Paleozoic island-type volcanic- sedimentary rocks. These granites are the productions of the collision of Yangtze and Cathay Blocks.

Early Paleozoic granites intruded into the Caledonian folding belt of southeastern China, such as Wuyishan Mt. and Yunkai region. It is about 58.6% of peraluminous granites during this stage. They are different from the Late Proterozoic granites; don't have the characteristics of active continental margin relating to subduction, without coeval volcanic rocks. Caledonian Movement, the re-collision of Yangtze and Cathay Blocks in south China, made for the origin of Caledonian granites.

Early Mesozoic granites have small acreage of single body and scatter in all plane. They are major peraluminous (about 72.7%). More and more indosinian granites prove that Indosinian Movement is very important for the petrogenesis of ganites in South China. These early Mesozoic granites are almost generally late than the pink of the Movement. Post-collision setting may be appropriate for the geological background of early Mesozoic granites.

Late Mesozoic granites have the largest acreage with more than 64,000 km² among all granites in South China, and coexist with abundant contemporaneous volcanic rocks which is about 2 times area of this stage granites. They distributed along NE directions coupling with the subduction of Pacific Plate, and moved from inland to coastal area with time going, which shows that the oceanic plate subduction induced the forming of late Mesozoic granites from South China. At the same time, the proportions of metaluminous granites are increasing from 6.2% to 38.4% from early stage to late stage of Mesozoic. It is obviously that the affect of subduction was enhanced, and more and more magams derived from mantle add into the granitic magmas.