

The Formation and Evolution of the Continental Crust in the North China Craton

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The Archean-Paleoproterozoic metamorphic basement is well exposed in the southern North China Craton (NCC), which provides important insights into understanding the formation and evolution of NCC during the Precambrian. The modeling combined zircon U-Pb and Lu-Hf isotopic studies suggest that about 60% of the present crustal volume of the NCC was generated in the period between Mesoproterozoic and late Neoproterozoic (3.0 to 2.50 Ga). Since then, the continental crust kept a stable rate of growth, and completely formed at the end of the Neoproterozoic (600Ma). 2.85-2.70 Ga and ca. 2.50 Ga are the most prominent time of magmatism and the period of continental rapidly growth, respectively, indicating that the North China Craton has been obviously experienced twice growth of continental crust.

The global distribution of U/Pb ages of both subduction-related granitoids and detrital zircons pointed out a pronounced and robust age gap between 2.45 and 2.2 Ga. However, the early Paleoproterozoic (2.45-2.2 Ga) magmatic rocks are widespread in the southern NCC, those rocks were likely generated in an Andean type continental margin arc setting; and probably due to the Early Paleoproterozoic subduction-collision between the southern block with other microcontinents of the NCC..

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