

Two Stages High-pressure Granulite in the Joining Region of Shanxi--Hebei-Inner Mongolia: the Crustal Evolutions of New Archean to Palaeo-Proterozoic of North China Craton

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There are two stages high-pressure granulite (HPG) with khondalite suite, granulite complex and granite belt in the joining region of Shanxi-Hebei-Inner Mongolia, North China.

Both early HPG and late one have some similar characters such as rock types, mineral assemblages and mineral textures. However they also have a significant difference from their occurrence, distribution and age. The early HPG is occurred as a xenolith in the potassic granite, which is extended from northeast to southwest with 2km width and 300km long. Isotopic data of zircons from granite yield a U-Pb age of 2370Ma, so the early HPG as a xenolith must be older than 2370Ma. The late HPG is only distributed near the contact of the khondalite suite and granulite complex. They are occurred as a structural lens or dikes of one part of tectonic-magmatic melange, and the isotopic ages show the intruded time is about 1800~2000Ma.

Basing on HPG, two tectono-thermal events can be distinguished in new Archean to Palaeo-Proterozoic. A possible process as follows: 1) 2500~2400Ma, East Hebei continent collide with Ordos continent in the Western Hebei. The crust is quickly thickened and shortened whilst the early HPG is formed, then is uplifted to super crust by potassic granite. 2) 2400~2000Ma, the crust was becoming stable, the basin was formed by extending, in which khondalite suite were deposited. 3) 2000~1800Ma, the basin was closed by continent-continent collision when the ocean is not formed. The late HPG was formed by inrush mantle along tectonic-magmatic melange belt.