



## **High pressure granulite facies metamorphism in the Huangtuyao, Xinghe, Inner Mongolia, northern edge of North China Craton**

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Whether Paleoproterozoic high pressure granulite facies metamorphic event existed in the junction area of the Fengzhen mobile belt and Jinyu mobile belt is a key question to illuminate the paleoproterozoic evolution of North China Craton. Based on detailed field mapping (Wang et al, 2016a), pelitic granulite samples were collected for petrographic description and phase equilibria modelling. Three-stage mineral assemblages are recorded in most samples. The first stage is characterized by the muscovite, biotite, plagioclase, sillimanite, rutile, quartz occurred as inclusions of garnet and core part of garnet. The second stage is characterized by the narrow mantle part of garnet which contains less inclusions and plagioclase, sillimanite with kyanite pseudomorph, K-feldspar, quartz and few rutile, biotite. The third stage is characterized by the rim of garnet equilibrated with flaked biotite, as rim of garnet show decreasing of pyrope composition on the line profile of the garnet.

Phase equilibria modelling is performed to describe the P-T evolution of the samples. Based on the presence of kyanite pseudomorph in the matrix and kyanite inclusions in the zircons of S-type granite (Wang et al., 2016b), the assemblage of  $Bt+Pl+Kf+Gt+Ky+Q+R\pm melt$  and  $Bt+Pl+Kf+Gt+Sill+Q+Ru\pm melt$  and  $Mg\#$  of garnet, An content in the plagioclase are used to determine the peak condition of 850-900 celsius degree and 11-13kbar.

Compiling zircon age results in the previous studies (Wang et al., 2016a, b), high pressure granulite metamorphic event also possibly occurred during 1.95-1.85 Ga. This study may also refer that two high pressure granulite facies metamorphic events occurred in the northern edge of North China Craton, which is an important suggestion to the evolution of North China Craton.

### References:

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