Paper Number: 830

Protolith features of “Jiageda Group” metamorphic rock series in north Great Xing’an Range, NE China

Changqing Z[1], Xuechun X[1], Jiulei X[1], Fanghua C[2], Tao J[3], Lu S[1], Xiaomeng H[1], Zhaoyuan W[1], Bo L[1]

[1] College of Earth Science, Jilin University

[2]Shandong University of Technology

[3]College of Instrumentation and Electrical Engineering, Jilin University

---

“Jiageda Group” at first refers to the middle-high metamorphic crystalline schists, gneisses with intense deformation in Jiageda Village, Erguna area in Proterozoic. Since 1990s, “Jiageda Group” has made a general reference to low metamorphic grade, strong deformed rock series near Erguna Youangelie River, including all kinds of schists with different colours,leptites, quartzites and minor metasandstones and its formation age corresponds to Nanhua System(Guo et al., [1]).

After a closer study concerning this issue, it is found that the defined “Jiageda Group” metamorphic series actually includes granitic mylonites, structural schists and gneisses with orthometamorphic rock features, Grt-Bt schists, Grt-St-Bt schists, Mica schists, sericite phyllites with parametamorphic rock features, rich silicon quartz schists, rich calcium schist, along with femic chlorite schists and amphibole schists metamorphosed from volcanic rocks (Cui et al., [2]).

The isotope ages of “Jiageda Group” are characterized by multiple stages. For exampale, mica schists present three age stages: the first group has 395-452Ma with a peak value of 413Ma; the second group has 490-538Ma with a peak value of 520Ma; and the third has 550-963Ma age value. In addition, the zircon age of granitic gneiss is 300-350Ma, with mica 40Ar/39Ar age of 115-131 (Changqing Z et al.[3]).The magmatic zircon age of granitic mylonites in Heishantou, Badaguan area is 148-211Ma (Cui F H et al., [2]). All these show that “Jiageda Group” consist of metamorphic and deformed granites in different periods.

In that case, Jiageda Group” in north Great Xing’an Range are not entirely Precambrian metamorphic strata. Actually they contain rocks of different types of metamorphism, including regional low T dynamometamorphic rocks, dynamometamorphic rocks related with large tectonic fault and contact

metamorphic rocks related with intrusive body. “Jiageda Group” are tectonic mélanges with different period and different metamorphic type.

Funding support: National Natural Science Foundation of China (No. 41472164)

References:

[1]Guo L J (2005), GEOLOGICAL BULLETIN OF CHINA, 24(9).

[2]Cui F H, (2015) Journal of Asian Earth Sciences 113(2015):427-442

[3] Changqing Z (2009). Acta Petrologica Sinica, 25(8): 1989-2000