

Metamorphic P - T evolution of garnet-kyanite-staurolite schist and garnet amphibolite from Bodonch area, western Mongolian Altai

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This is the first detailed report of petrological data of pelitic schists and amphibolite from Bodonch area, southwestern Mongolia, which occupies a significant part of the Paleozoic history of the Altai Orogen in the southwestern margin of the Central Asian Orogenic Belt (or Altaids), and discuss pressure-temperature (P - T) evolution of the area. The dominant mineral assemblages of pelitic schist in Bodonch area are garnet + kyanite + staurolite + biotite + plagioclase, garnet + biotite + staurolite + cordierite, and garnet + biotite + sillimanite + plagioclase with quartz and ilmenite, while amphibolite contains calcic amphibole + quartz + plagioclase + garnet + ilmenite assemblage. Application of conventional geothermobarometers yielded amphibolite-facies conditions of 615-635 °C/8.2-8.9 kbar. Slightly higher but nearly consistent P - T condition of 640-690 °C/6.3-10.7 kbar was obtained by mineral equilibrium modelling of garnet-kyanite-staurolite and garnet-staurolite-cordierite assemblages using Theriak-Domino software. The peak high-pressure amphibolite-facies condition and clockwise P - T evolution of Bodonch area estimated in this study is consistent with available reports of other localities in the Altai Orogen outside Mongolia. For instance, P - T conditions of 630 °C/8.7 kbar estimated for kyanite-bearing pelitic schists (garnet + biotite + staurolite + kyanite + quartz) from Xinjiang in Chinese Altai, which is about 350 km WNW from my locality along the regional structure, are comparable with our results. We therefore suggest that both Bodonch and Xinjiang areas underwent a similar metamorphism possibly related to regional accretionary and collisional evolution of the Central Asian Orogenic Belt.

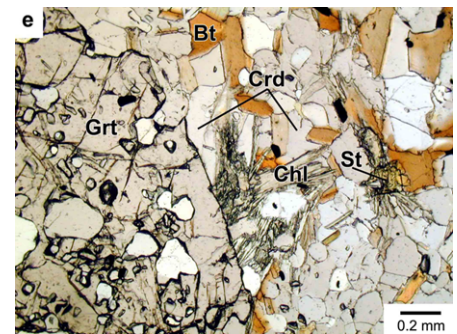
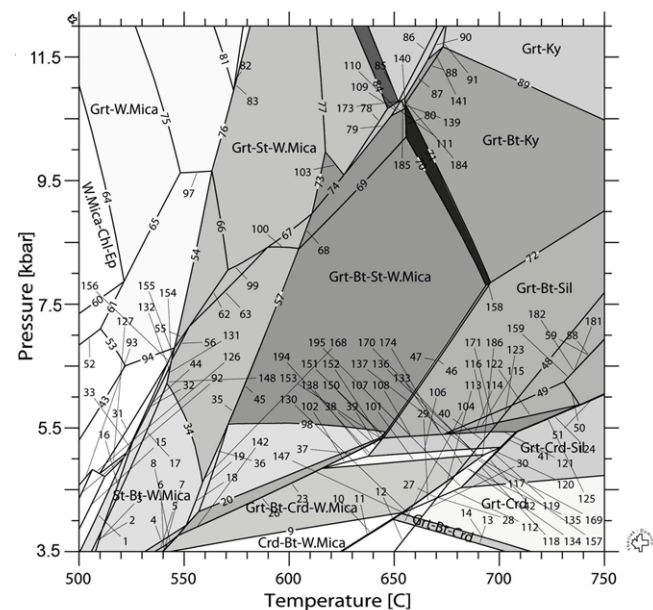


Fig. 1. Photomicrograph of Grt-Crd-St schist

Fig. 2. P - T pseudosection for Grt-Ky-St schist

次回のお知らせ

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