Origin of Marumori metamorphic rock

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Marumori metamorphic rocks exist surrounded by Marumori granitic complex as the roof pendants(Fujita et al, 1988). One of them is garnet-quartzite like orthoquartzite. It is known that its origin is a sandstone made from well selected roundness quartz grains (>90%). Marumori metamorphic rocks including garnet-quartzite have not been affected by only contact metamorphism of granitic rocks in early Cretaceous period but also regional metamorphism before. Though there is a few study of regional metamorphism, because of overwritten by metamorphism in Cretaceous period. Then this reports considered the effect of regional metamorphism using mineral assemblage and chemical composition.

This study focuses on garnet quartzite, garnet-biotite-quartz schist and amphibolite. Garnet quartzite consists garnet, biotite, sillimanite, quartz, plagioclase, and opaque minerals. Garnet-biotite-quartz schist consists garnet, biotite, quartz, plagioclase, and opaque minerals. Amphibolite consists amphibole(almost hornblend), plagioclase, quartz, and opaque minerals. All the rocks suggest schistosity plane(as for garnet quartzite, garnets line up). Quartz grains are observed roundness form and occupy 90% in garnet quartzite, but dust ring is not observed. And garnet-biotite-quartz schist(pelitic metamorphic rock) is a possibility of continental sediment from chemical composition. Nb/TiO2 > 10 indicates it. Trace elements of amphibolite isn' t same quantity of island arc basalts.

Garnet quartzite suggests its original rock is orthoquartzite. And garnet-biotite-quartz schist is metamorphosed from continental sediment. It is considered original rock of amphibolite is igneous mafic rock before Japan island arc formed(ca. 500Ma).

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