

## Protolith and tectonic environment of blueschist from the Kurosegawa tectonic zone, South-west Japan.

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Blueschists from the Kurosegawa tectonic zone are distributed from central Kyushu to Kanto mountains. These rocks are usually embedded in the serpentinite melange. Blueschist is layered and can be divided into two layers; blue and green layers. Coexisting minerals of the blue layer are crossite-glaucophane, lawsonite, and less amount of sodic pyroxene. Secondary minerals that can be found in the blue layer are epidote, pumpellyite, actinolite and chlorite. Mineral assemblage of the green layer is similar to that in the blue layer. However, chlorite and actinolite of the green layer are more abundant than that of the blue layer, which might be due to hydration during retrograde metamorphism.

It is also noted that the green layer is enriched in LIL elements in comparison with the blue layer affected by the retrograde metamorphism, and then we used the data only from the blue layer for later discussion.

Based on several discrimination diagrams using HFS and REE elements of the blueschists, their protoliths can be divided into following four types of basalt: (1) N-MORB type, (2) E-MORB type, (3) OIB type, (4) T-MORB type.

Rb-Sr isotopic analysis (using blueschist samples from Kyushu, Shikoku, and Kii peninsula) yields a whole rock isochron age of 269 +/- 8Ma (SrI=0.70513 +/- 0.00018). Zircon U-Pb ages were also determined to be an inherited age (430-490Ma) of pelitic schist from Itsuki area in Kyushu and as a protolith age (480-520Ma) of gabbro from Engyoji area in Shikoku. Therefore, the Rb-Sr isochron age of 269Ma might reflect the timing of the blueschist-facies metamorphism from the Kurosegawa tectonic zone.

Results of these studies suggests that the formation process of Kurosegawa tectonic zone was possibly prior to continental collision of the North China craton and South China craton during the age of early Triassic (ca. 230-220Ma).

In addition, Nd-Sm isotopic analysis (using blueschist samples from Itsuki area in Kyushu) yields a whole rock isochron age of 804 +/- 64Ma (NdI=0.511781 +/- 0.00073). Therefore, blueschists in Kurosegawa tectonic zone were formed by subduction of the oceanic plate that was located in front of the South China craton.

Keywords: Kurosegawa tectonic zone, blueschist