

Metasomatic and metamorphic signature of the MORB in the Shimanto belt

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Subduction and accretion history of Pacific plate is well reconstructed in the orogenic belt in SW Japan (e.g. Maruyama et al., 1997). Shimanto belt is composed of accretion complex from Cretaceous to Tertiary (e.g. Kimura et al., 2013). It distributes from the Kanto to Kyushu area extending over 800 km. Protoliths of the Shimanto belt is mainly composed of terrigenous sandstone and pelitic rocks and minor amount of limestone, chert and basalt. Origin of the Cretaceous basalt has been considered as either in-situ MORB due to ridge-subduction or accreted MORB due to the ridge subduction (e.g. Onishi and Kimura, 1995). Recently Nozaki et al. (2018) have shown that the ridge hydrothermal ore deposit is associated the MORB in the Shimanto belt. To testify the extent of the hydrothermal alteration, we investigated the outcrops from Gobo area, in western Kii district. and Makimine area, Nobeoka district. From the Gobo area, the MORB outcrop is included as pillowed basalt in the sandstone mélangé. The pillow margin suffered cataclastic deformation with alteration. In the Makimine area, there is a porphyry granite intruding the sandstone, and suffered contact metamorphism. Surrounding layers also suffered mylonitic deformation with metamorphism. Presence of large ring-dike (Okureyama dike) and Miocene granite are considered as overriding accreted margin on the subducting ridge due to back-arc rifting at 15 Ma. Contribution of the melt and heating effect from the hanging wall side of the Nobeoka thrust (the out-of-sequence thrust) might be greater than fluid facilitation of the thrust movement.

Keywords: MORB, contact metamorphism, the out-of-sequence thrust