

SVC007-06

Room:301B

Time:May 27 16:00-16:15

Oceanic plateau accretion viewed from greenstones in the Permian and Jurassic accretionary complexes in Japan: A review

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Mode of occurrence of greenstones in the Jurassic accretionary complexes (Mino-Tamba Belt) includes two major types; melange type and basal type (Koizumi and Ishiwatari, 2006; *Is. Arc*, 15, 58-). The melange-type greenstones occur as small (1 to 100 m size) blocks in melanges, but the basal-type ones occur as a large stratum of about 1 km thick and more than 100 km long in the basal part of a nappe. These occurrences correspond to rock chemistry such that the melange type includes N-MORB and OIB while the basal type consists mostly of homogenous E-MORB. The mixed occurrence of N-MORB and OIB suggests subduction-accretion of the thin (N-MORB) oceanic crust spotted with seamounts (OIB), while the homogenous, large E-MORB slabs suggest accretion of a thick oceanic plateau (*ibid.*). The oceanic plateau origin of the basal greenstones are further supported by the occurrence of ultramafic volcanic rocks such as meimechite (HFSE-rich picrite; Ichiyama and Ishiwatari, 2005; *CMP*, 149, 373-) and ferropicrite (Ichiyama et al. 2006; *Lithos*, 89, 47-) as well as related high-Ti basaltic rocks rarely with olivine-spinifex texture (Ichiyama et al. 2007; *Is. Arc*, 16, 493-). The association of voluminous, low-Ti, E-MORB (LTS) and high-Ti mafic-ultramafic volcanic rocks of HIMU affinity (HTS) correspond to that in oceanic plateau, possibly formed by a deep-seated, large-scale mantle plume (superplume) (Ichiyama et al. 2008; *Lithos*, 100, 127-). Tatsumi et al. (2000) already postulated mantle plume-origin of Carboniferous greenstones in accretionary complexes in SW Japan, but the age of superplume magmatism may also be Permian and in some places Triassic. Tatsumi et al. (1998) postulated a mid-Cretaceous superplume from greenstones of the Sorachi Group in Hokkaido. However, Takashima et al. (2002) postulated Late Jurassic marginal basin environment for volcanism of the Sorachi Group (or their Horokanai Ophiolite). Ishiwatari and Ichiyama (2004) reviewed Jurassic greenstones in Russian Primorye and the adjacent Northeast China, and pointed out that the late Jurassic meimechites occurs in the Late Jurassic-Early Cretaceous accretionary complexes, suggesting that the superplume magmatism happened very near to the subduction zone. We envisage that the Permo-Carboniferous superplume activity recorded in the Japanese greenstones happened in the middle of a large ocean, but the Jurassic superplume activity may have taken place near the subduction zone.

Keywords: accretionary complex, greenstone, oceanic plateau, Permian, Jurassic