

SCG059-P10

Room:Convention Hall

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Volcanic history and surrounding oceanfloor of the Marcus Island, Western Pacific

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Most of seamounts on the western Pacific Plate formed before 70 Ma in the so-called West Pacific Seamount Province (WPSP) which is characterized by relatively short seamount chains maybe indicating a significant short-lived hotspot system (Koppers *et al.*, 2003). The geochronological studies of each Cretaceous seamount, on the other hand, show the long-lived main shield stage of volcanism, because a seamount remained above a hotspot for a long time (approximately 10 m.y.: Hirano *et al.*, 2002). This may be attributed to either of the following two possibilities: 1) An abundant heat supply as in the superplume episode in the Early Cretaceous (Cox, 1991; Larson, 1991; Larson and Kincaid, 1996). 2) Slow absolute motion of the Early Cretaceous Pacific Plate (3-6 cm/yr.) (Duncan and Clague, 1985; Henderson *et al.*, 1984).

The research cruise using R/V *Yokosuka* equipped with the submersible *SHINKAI 6500*, was conducted around the Marcus Island (Minamitori-shima) on May 2010 in order to know the detail history during the formation of the Marcus Island. The shipboard multibeam acoustic surveys showing the detail bathymetry discovered the volcanic cones on seamount slope and the clusters of small conical volcanoes on surrounding abyssal plain (Oikawa and Morishita, 2009; This study). Most of cones are several hundred meters in height and 1-10 km in diameter. We observed the stratigraphy of Cretaceous volcanoes near the Marcus Island using the submersible *SHINKAI 6500*. Highly vesicular lavas were sampled at the volcanic cone on the seamount slope. The olivine-bearing dense lavas, on the other hand, were obtained at the steep slope beneath the lava platform in bathymetry, implying main-shield stage lavas in contrast to volcanic cones probably erupted at the rejuvenated stage during the Marcus Island formation.

Keywords: Pacific plate, Marcus Island, seamount, hotspot, Cretaceous, alkali basalt