

Post-back-arc spreading magmatism: an example of the Seifu Seamount in the Sea of Japan

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The Sea of Japan in the northern part of the Western Pacific region is a typical back-arc basin formed between an island arc and continent (Uyeda and Kanamori, *JGR*, 1979; Tamaki and Honza, *Tectonophysics*, 1985). The continental breakup and oceanic spreading began at the eastern margin of the continent at 32-28 Ma, and back-arc magmatism ceased at 18-15 Ma (Tamaki et al., *Proceedings ODP Sci. Rep.*, 1992). Many studies have been conducted to elucidate the magmatism during back-arc rifting (e.g., Martinez et al., *Nature*, 2001). However, a chain of seamounts and islands are formed in these basins after the main phase of the back-arc magmatism. The Seifu Seamount is located at the northeastern margin of Tsushima Basin, and an alkali basalt (SSM basalt hereafter) with an ⁴⁰Ar/³⁹Ar plateau age of 8Ma was dredged by the KT85-15 cruise of R/V Tansei Maru of the Ocean Research Institute, University of Tokyo, in 1985 (Shimamura et al., *Bull Earthq. Res. Inst.*, 1987). The SSM basalt was formed in a post-back-arc magmatism by the low-degree of partial melting of a depleted MOR mantle-like mantle containing an enriched mantle component (EM1) (Morishita et al., *Solid Earth*, 2020). The SSM basalt contains mantle xenoliths (Ninomiya et al., *Jap. Mag. Mineral. Petrol. Sci.*, 2007). It is also interesting to note that alkali basalts were also reported from the Philippine Sea Plate (Sato et al., *Geochem. J.*, 2002; Ishizuka et al., *EPSL*, 2009) and the Pacific Plate (Hirano et al., *Science*, 2006; Machida et al., *EPSL*, 2009). The SSM basalt is similar to those of the Kinan Seamount Chain. In this presentation, we will introduce the nature of the SSM basalt and discuss the formation processes of the Sea of Japan back-arc basin and their implications for developing the Western Pacific region.

Keywords: back-arc basin, Western Pacific