Re-Os systematic of volcanic rock from East Cone, Kamchatka Peninsula

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The Kamchatka Peninsula is one of the largest volcanic arcs in the world located near the northern edge of the Pacific Plate. It has highly active volcanic chains and groups, and characteristic lavas that include adakitic rocks.In the East Cone volcanic group(hereafter, EC) in the northeastern forearc area in the northern termination of the Eastern Volcanic Front(EVF) and to the east of the Kliuchevskoy Volcanic Group(KVG), primitive volcanic rocks of various petrographic and geochemical compositions with ages of <1 Ma have been found, including high-Mg andesite (HMA).Previous studies have reported finding HMA in a variety of specific and temporal tectonic settings, including the subduction of a young slab and asthenospheric injection around the slab edge, and the initiation of subduction of an oceanic plate.The Kamchatka Peninsula has a unique tectonic setting in the EC where the Emperor Seamounts subducted from the southeast.One of the possible causes of HMA in Kamchatka Peninsula is thought to be the temporal evolution of local magmatism due to the collapse of this subducted seamount(Nishizawa et al., 2017).

In general, it is known that the Re/Os ratio of the oceanic crust or continental crust has a much higher value than that of primitive upper mantle (PUM) (e.g., Martin 1991; Roy-Barman and Allegre 1994), so it can be a useful tracer in considering the contribution.

In this study, we measured the concentration of HSE and Re-Os isotopic composition of EC samples, Kamchatka Peninsula by high-temperature acid decomposition.

We discuss magmatism in the characteristic tectonic setting of Kamchatka Peninsula using the HSE and Re-Os isotopic systematics determined in this measurement and the measured major and trace element(Nishizawa et al., 2017).And we investigate the contribution of seamount collapse to the pathogenesis of HMA in EC from an approach based on Re-Os isotope system.

