

Characteristic Eruption Sequence and its Magma Plumbing System at the Nakamachineshiri Stage-I in the Me-Akan Volcano

Keisuke Anzai^{1*}, Keiji Wada¹

¹Hokkaido University of Education at Asahikawa

Throughout the eruption history of Me-Akan volcano on the Akan caldera, eastern Hokkaido, the largest eruptions occurred about 13000 years ago, which are referred to as Nakamachineshiri eruptive stage-I (Nak-I). Nak-I can be subdivided into two eruption stages. The initial eruptive stage is characterized by pumice-rich pyroclastic flows followed by lava eruptions (Nak-I-E), whereas the following main eruptive stage by continuously eruptive sequence of lava fragment-rich pumice and scoria pyroclastic flows, Plinian pumice and scoria eruption, and pyroclastic flow eruptions (Nak-I-M). This study elaborated multi-stage processes of magma mixing and mingling in the magma plumbing system during Nak-I through mineralogical and petrological analyses of the eruption products. Deposits of Nak-I contain pumice ($\text{SiO}_2=63\text{wt.}\%$), scoria ($\text{SiO}_2=55\text{wt.}\%$) and heterogeneous scoria. The core composition of plagioclase phenocrysts of these scoria and pumice shows a same bimodal distribution of compositions such as low-An plagioclase ($\text{An}=59$) and high-An plagioclase ($\text{An}>70$). This indicates that heterogeneous ejecta were exactly mingling products of both mixed mafic and felsic magmas, which were derived from continuous magma mixing of felsic and mafic end-member magmas in a zoned magma chamber.

Keywords: Me-akan volcano, Nakamachineshiri, eruption sequence, magma plumbing system, pyroclastic flow