

十勝岳 1962年, 1988-89年噴火におけるマグマ活動の推移-噴火様式の違いとマグマ供給系-

The transition of Magma Activity between 1962 and 1988-89 eruptions in Tokachidake Volcano, Central Hokkaido

日向 宏伸^{1*}, 和田 恵治¹, 中塚 裕¹

Hironobu Hinata^{1*}, Keiji Wada¹, Yu Nakatsuka¹

¹ 北海道教育大学旭川校地学教室

¹ Earth Science Laboratory, Hokkaido University of Education at Asahikawa

Tokachidake volcano, located in Taisetsu-Tokachi volcanic group in central Hokkaido, is one of the most active volcanoes in Japan; recently magmatic eruptions occurred 1926, 1962, and 1988-89. Eruption styles between 1962 and 1988-89 are different; 1962 eruption is characterized by sub-plinian eruption which raised high eruption column, whereas 1988-89 eruption is by magmatophreatic explosion, caused by almost same the basaltic andesite magma as 1962 eruption. We observed groundmass textures and the bubble morphology using polarizing microscopes. Groundmass texture of 1962 scoria is glassy but that of 1988-89 bomb is relatively crystalline. The bubbles in 1962 scoria are mostly rounded in shape and connected each other, showing a porosity of 70.3%, but those in 1988-89 bombs are almost irregular and isolated, a porosity of 38.0%. The compositions of plagioclase phenocryst cores in the 1962 and 1988-89 ejecta range widely from An=92 to An=60. Most of plagioclase phenocrysts in both of ejecta have resorbed texture in the core. The rims in plagioclase phenocrysts in both 1962 and 1988-89 ejecta are reversely zoned, but some plagioclase rims in 1988-89 bomb show two-step reverse zoning. Olivine and titanomagnetite microphenocrysts in 1988-89 bombs are widely ranging in composition. The Cl contents in groundmass glass in 1988-89 bombs were depleted as compared with glass inclusions in phenocrysts, but those in 1962 scoria not depleted. These features suggest that before in both eruptions magma mixing caused by injection of basaltic magma into andesitic magma chamber occurred in common, but in 1962 eruptions since magma ascending velocity was probably fast because of high injection of basaltic magma, degassing was insufficient and explosive eruption was a large-scale. However in 1988-89 eruptions, since magma ascending velocity was slower because of low injection of basaltic magma, sufficient degassing was performed and crystallization was facilitated, resulting in small scale of eruption.

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