Eruptive history of Mashu volcano, as inferred from boring core to the east of Mashu volcano

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Mashu volcano is caldera volcano located on the eastern wall of Kucharo caldera, eastern Hokkaido. The history of Mashu volcano was divided into the following three stages: 1) Stratovolcano forming stage, 2) Caldera forming stage, 3) Central cone forming stage (Katusi et al., 1975). Hasegawa et al. (2009) revealed that Mashu volcano produced more than 50 plinian eruptions over the period from 35 to 1 ka, with no dormant period exceeding several thousand years in duration. However, the eruptive history of Stratovolcano forming stage is not revealed enough, because outcrops of this stage are limited. To reveal eruptive history of the active phase of mafic magma, we conducted a boring survey to the east of Mashu volcano and are analyzing pyroclastic deposits. The deposits of Central cone forming stage (Ma-b, -c2, -c3, -d, -e', -e) are recognized in depth 0.10 - 2.54 m. The deposits of caldera forming stage (Ma-f - j) are recognized in depth 2.60 - 32.42 m. Four pyroclastic deposits and several lahar deposits are recognized in depth 35.63 - 50.37 m. These pyroclastic deposits can be identified to Ma-l. Deposits in depth 66.45 - 107.79 m are mainly composed of scoria and lithic fragments of lapilli - sand size. These deposits can be divided into 6 groups by soil. In addition, accretionary lapilli and pyroclastic flow deposits are recognized in these units. These tephras can be identified to deposits of Stratovolcano forming stage of Mashu volcano. Accretionary lapilli in pyroclastic deposits indicate that wet eruption (phreatomagmatic) columns are formed.

Keywords: caldera, tephra, eruptive history, phreatomagmatic explosion