

北海道中央部, 十勝岳火山の最近 3,300 年間の噴火史

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Eruptive History of Tokachi-dake Volcano during the Last 3,300 Years,
Central Hokkaido, Japan

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Tokachi-dake volcano is one of the most active volcanoes in Japan, and magmatic eruptions occurred three times during the 20th century. We reinvestigated the recent eruptive history and eruption style of this volcano on the basis of geological and petrological studies. Distinct whole-rock chemistry of proximal deposits from each source crater area allows us to correlate distal tephra with proximal deposits.

The volcanic activity during the last 3,300 years can be divided into four stages, which has occurred from distinct craters areas. Stage I: Most explosive and voluminous eruptions had occurred after >10,000 years' repose period to form the Ground crater. The eruption was initiated by scoria and pumice fallout followed by pyroclastic flows (3,300 calyBP). This stage was terminated by effusion of lava flow. Stage II: Explosive eruptions had repeated three times to form a maar and multiple scoria cones at the northwestern flank of the edifice. The activities were followed by effusion of basaltic lava flows. These activities would occur around ca. 1,000 yBP. Stage III: After several hundreds years' dormancy, magmatic activity started again with explosive eruption to form the Central cone, which was followed by effusion of lava flows from the cone. This possibly continued from 800 to 300 years ago. Stage IV: Since AD1926, magmatic eruptions have repeated near the Central cone. In AD 1962, explosive and voluminous eruption occurred to form new craters at the southern flank of the cone. Considering the similar temporal change of eruption style in each stage, from explosive to lava effusion, it could be considered that 1962 eruption was the initial explosive eruption of the new stage.

Total amount of effused magma during 3,300 years is about 0.1 km³ DRE (dense rock equivalent), and that of each eruption is less than 0.02 km³ DRE. Thus, magma discharge rate of the volcano is quite small compared with other active volcanoes in Japan. However, mud flows had repeatedly occurred during the last 3,300 years, suggesting that serious hazard by mud flows should be considered in the volcano as in the case of 1926 eruption.

Key words: Tokachi-dake volcano, eruptive history, eruptive style, tephra

1. はじめに

北海道中央部, 北東-南西方向に連なる十勝岳火山群の中央部に位置する十勝岳火山は, 20世紀に3度のマグマ噴火を数え, さらに最近では2004年2月および同年4月にごく小規模な水蒸気噴火を起こすなど, 国内でも最も活動的な火山のひとつである。これまで十勝岳火山に対しては山体形成の概要が高橋(1960), 勝井・他(1963a)によって構築され, その後石川・他(1971)によって放射性炭素年代のデータが加えられ, 本火山が2,000-3,000年前に爆発的噴火を発生させて以来, 噴出源を移

動させながら現在まで活動を継続していることが明らかにされている。これらに加え, 20世紀における3度のマグマ噴火(1926, 1962, 1988-89年)に対する研究も数多く行われてきた(例えば, 勝井・他, 1963b; Katsui *et al.*, 1990; 多田・津屋, 1927)。しかしながら, 20世紀以前の本火山の噴火史, またそれぞれの噴火の様式や噴出量, およびマグマの多様性の詳細はいまだ明らかにされていない。近年, 伊藤・他(1997), 尾関・伊藤(1999), 伊藤・尾関(1999)では東部に分布するテフラを記載し, 北西側の噴出物を含め, 3,000年前以降の噴火層序につ

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