

北海道十勝岳火山 1926 年噴火大正泥流堆積物層序の
再検討と古地磁気特性

上 澤 真 平*

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Restudy of Stratigraphy and Paleomagnetic Characteristics of Taisho Lahar Deposit Associated
with the 1926 Eruption on Tokachidake Volcano, Central Hokkaido, Japan

Shimpei UESAWA*

On May 24th 1926, the eruption of Tokachidake volcano, in central Hokkaido, efficiently melted the snow pack on the hill slope, triggering the Taisho lahar which killed 144 people in the towns of Kamifurano and Biei. A geological survey and paleomagnetic and granulometric studies were conducted on the northwestern slope of Tokachidake volcano to reconstruct the sequence of the 1926 eruption and decipher the triggering mechanism for the Taisho lahar. The Taisho lahar deposits in the proximal area of the volcano are divided into five distinct units (unit L1, L2, and A through C, from oldest to youngest). Unit L1 is an older lahar deposit that underlies the 1926 deposits. The 1926 sequence consists of debris avalanche deposits (unit A and C), a laminated sandy debris flow deposit (unit B), and a lahar deposit including scoria clasts (unit L2). Each unit contains hydrothermally altered rocks and clay material with more than 5 wt.% fragments smaller than 2 mm in diameter. The progressive thermal demagnetization experiments show that the natural remanent magnetization (NRM) of all samples in unit A, B and C have a stable single or multi-component magnetization. The emplacement temperatures are estimated to be normal temperatures to 620°C for unit A, 300 to 450°C for unit B, and normal temperature to 500°C for unit C. On the basis of geological and paleomagnetic data and old documents, a sequence for the eruption and the mechanism of formation and emplacement of the Taisho lahar can be reconstructed. The first eruption at 12:11 May 24th triggered a small lahar (unit L2). Collapse of central crater at 16:17 May 24th 1926 then resulted in a debris avalanche containing highly altered hydrothermal rocks with hot temperatures ranging from 300 to 620°C (unit A). The debris avalanche flowed down the slope of the volcano, bulldozing and trapping snow. Immediately following the collapse, a hot (approximately 400°C) hydrothermal surge (unit B) melted snow and transformed into a lahar causing significant damage and deaths in the towns downstream. Just after the generation of the lahar, another collapse occurred at the crater causing another debris avalanche (unit C).

Key words: debris avalanche, emplacement temperature, lahar, remanent magnetization, Tokachidake volcano

1. はじめに

融雪型ラハールは高温の火山噴出物が山体の雪氷を急速に融かして発生し、河川沿いの流域を埋没させる破壊的な火山現象の一つである。1985年南米コロンビアのネバド・デル・ルイス火山の噴火に伴って発生した融雪型ラハールでは、約25,000人が犠牲になった(勝井・他、

1986)。ネバド・デル・ルイス火山の場合、噴火による高温の火砕流が山体の氷河を急速に融解することによってラハールが発生したと考えられている。またこのほかにも、火砕流や火砕サージによる噴火に伴い発生した融雪型ラハールの事例は複数報告されている(Major and Newhall, 1989)。

* 〒156-8550 東京都世田谷区桜上水 3-25-40
日本大学大学院総合基礎科学研究科
(現在 〒060-0810 札幌市北区北 10 条西 8 丁目
北海道大学大学院理学院自然科学専攻)
Graduate School of Integrated Basic Sciences, Nihon
University, 3-25-40, Sakura-jyosui, Setagaya-ku, Tokyo
156-8550, Japan.

(Present address Department of Natural History Sciences, Graduate School of Science, Hokkaido University, N10 W8, Kita-ku, Sapporo 060-0810)

Corresponding author: Shimpei Uesawa
e-mail: s-uesawa@mail.sci.hokudai.ac.jp