

日光男体火山における約1万年前の火砕流堆積物の発見

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A Newly Found Pyroclastic Flow Deposit around 10 ka
at Nikko Nantai Volcano, Northeast JapanYasuyuki MIYAKE*, Miyuki SAITO**, Yoshihiro TAKESHITA***,
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Nantai Volcano is a symmetrical stratovolcano, situated in the southern part of the Northeast Japan arc. Many geologic studies hitherto have suggested that the stratovolcano was formed during the Main stage, and the overlying pyroclastic materials and a lava flow were formed in the Later stage. Because no sedimentary gap is found between any deposits of the Later stage, it is inferred that all of the activity in the Later stage took place successively around 12 ky BP (15–14 cal ka BP) and went dormant until now. However, we found a pyroclastic flow deposit named Bentengawara Pyroclastic Flow Deposit (BPFDF) at the northeastern flank of the Nantai volcano about 2 km from the summit crater. This deposit overlies an 80 cm thick deposit of weathered ashly sediments that in turn overlies the Arasawa Pumice Flow Deposit, a member of the Later stage.

The lower half of the BPFDF consists of volcanic lapilli and ash that is remarkably fine-depleted while the upper half contains abundant scoria of mainly lapilli-block sized clasts. The deposit also includes a small number of breadcrust blocks and occasional accessory lava blocks and fragments of charred wood. The breadcrust blocks consist of a dense outer crust that is significantly fractured and a vesiculated interior. It is noteworthy that the edges of the cracks are sharp and never rounded, suggesting that the vaporization of the inner magma that produced these cracks took place just before or immediately following the settlement of the blocks. Paleomagnetic data from three breadcrust block samples indicate that the magnetic vectors of high temperature components are aligned with our present-day poles. Two pieces of charred wood were measured for their ^{14}C ages with results of 12–11 cal ka BP. The whole rock chemistry of scoria and breadcrust blocks are determined to be significantly different from any of the rocks of the Later stage, but the accessory block in the BPFDF has the similar chemistry to the Osawa Lava, the last product of the Later stage.

We therefore suggest that the BPFDF was deposited after the Later stage with a short (~3 ka) dormant period between them. Since the age is possibly around 10 ka, the Nantai volcano should be counted as active volcano based on the definition provided by the Meteorological Agency of Japan.

Key words: Nantai volcano, pyroclastic flow, breadcrust block, active volcano

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