

伊豆大島火山: 史料に基づく最近3回の大規模噴火の 推移と防災対応

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Izu-Oshima Volcano: Precise Sequence and Mitigation Program of the Latest Three Large-Scale Eruptions Revealed by Historical Documents

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Inflation of Izu-Oshima volcano has been observed since soon after the latest middle-scale eruption occurred in 1986. Such deformation is understood as re-storage of magma beneath the volcano. Because more than 230 years have passed since the last large-scale eruption in 1777, Izu-Oshima is overdue for an average recurrence interval of large-scale eruptions, 100 to 150 years.

Preparing for the forthcoming eruption, we aim to improve the resolution of volcanic activities in historic time. Archives on historical eruptions, as well as topography, and stratigraphy of the volcano are reviewed. The results are summarized as follows. (1) Based on historical archives as well as stratigraphy of the volcano, we reviewed sequences of Y_3 (1552 Ten'bun), Y_2 (1684 Jokyo) and Y_1 (1777 An'ei) eruptions. All these three eruptions occurred inside the caldera and proceeded in the order of scoria fallout - lava effusion - ash fall, which is the typical sequence in Izu-Oshima. Duration of main eruption stage, start from basal scoria eject to lava effusion, ranges from 1 to 2 weeks in Y_3 and Y_2 eruptions, to 14.5 months in Y_1 eruption which is bigger than the former two. Those of magma-withdrawal stage, ash-fall stage, lasted 6 years in Y_2 and 9 years in Y_1 , respectively. (2) In Y_1 eruption (1777-1792), the local government of Izu grasped the sequence of volcanic activities by frequent reports from the island and by inspections of government officers. The local government submitted reports and mitigation programs to the central government. (3) In case of future large-scale eruption occur in caldera, accurate information of magma-head level is indispensable for the prediction of eruption behavior. (4) We pointed out the significance of topographic lows on the northwestern and the northern flank to predict the flow of lavas.

Key words: Izu-Oshima volcano, historical eruptions, historical documents, sequence of an eruption, hazard mitigation program

1. はじめに

伊豆大島火山は東京の南南西約100 kmの伊豆・小笠原弧の北部、火山フロント上に位置する主に玄武岩からなる成層火山である (Fig. 1)。最新の噴火は1986年11月15日に山頂で始まり、同21日には北西山腹で割れ目

噴火が起こった。割れ目噴火は500年ぶりの出来事であった。噴火後1989年ころからは山体の膨張が継続しており (国土地理院, 1996)、次の噴火へ向けてマグマが地下に着実に蓄えられていると考えられる (村上, 2007など)。

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