

## 安達太良火山, 1900年爆発的噴火の再検討

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## Reconsideration of the 1900 Explosive Eruption at Adataro Volcano, Northeastern Japan

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Of the historic eruptions at Adataro volcano in northeastern Japan, the 1900 eruption caused the worst volcanic hazard taking a toll of over 80 human lives. Although the eruption was thought to be phreatic, details of the volcanic events have had remained uncertain. In order to reveal the course of the 1900 eruption, historic documents, particularly the reports of newspapers published by three local newspaper companies, were reexamined and mutually crosschecked. By correlating the revealed eruption sequence to the facies of the 1900 eruption deposits at outcrops, characteristics of the fatal blasts that accompanied the eruption were examined.

The sequence of the eruption is revealed as follows. (1) The first explosion occurred at 16:00 of 17<sup>th</sup> July. Because the explosion was very small, all the workers stayed and kept working at the sulfuric mine located in the very bottom of the Numanotaira crater. (2) Immediately after the second explosion occurred at about 18:00, one boy ran away and over 40 workers commenced evacuation toward west. (3) When the workers reached the western rim of the crater, they witnessed the third explosion which violently damaged the sulfur refinery and lodging houses in the crater. A small pyroclastic surge accompanied the third explosion which occurred near the eastern rim of the crater, blowing away the pieces of pottery, wooden sandals and clothes, together with the housing materials. (4) Around 18:30, the largest explosion entirely destroyed the sulfur refinery and lodging houses. The fourth explosion caused strong pyroclastic surge and broadcasted dense ash in the crater area, and was also accompanied with the wet surge which ran down through the Iou river. The strong surge hit the evacuating workers near the western rim of the crater. Among the workers, 22 people were killed and the others were seriously scalded. Probably, most of the fallout ash erupted during the fourth eruption.

Characteristics of the surge are summarized as follows. (1) total volume of the surge was  $2.9 \times 10^5 \text{ m}^3$ , including  $6000 \text{ m}^3$ , 2.4 km long and 4–10 cm thick deposit along the Iou river. (2) The discharged energy to form the new crater was  $10^{14} \text{ J}$ , roughly  $10^{-2}$ – $10^{-3}$  of the energy discharged at the Bandai 1888 or St. Helens 1980 eruptions. (3) The velocity of the surge near the old Numajiri spa (1.5 km west of the crater) is estimated to be 80–130 m/s. (4) The temperature of the surge near the crater is estimated to be over  $100^\circ\text{C}$  but lower than  $400^\circ\text{C}$ . (5) At its margin, the surge swept straight up the side slope of the valley at the corner of the Iou river, and delivered thin surge deposits at the top flat area.

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