

## Eruption sequence of Ontake-san (Ontake Volcano) 2014 eruption, based on the images and the field survey.

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Over 60 casualties including missing people were recorded in a phreatic eruption at Mount Ontake (3,067 m) on 27 September 2014, 11:52. We clarified the eruption sequence of the 2014 eruption, based on the recording images (photographs and videos from climbers), the interviews with Workers in the mountain huts, and the field survey of the summit area. The onset of eruption was sudden without any clear surface precursory phenomena such as ground rumbling and strong smell of sulfur. The eruption started with pyroclastic surges descending about 2.5 km from the craters to SW and moving horizontally about 1 km to N and W beyond summit ridges. That time, rock fragments up to 50 cm showered densely on the summit area: 20-30 cm-across fell about 1.3 km away from the craters. In the summit area, the first 30 minutes of the eruption there was a violent falling rock fragments. Then, the number of falling rock fragments become gradually less. At that time, the plume rose up to maximum high (7 km above the summit); mud rain has been falling from the plume. In about 16:00 after, Lahar generated by the hot water overflowing from the crater, flowed down the Jigoku-dani.

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