

Source mechanism of a VLP event immediately before the 2014 eruption of Mt. Ontake, Japan

Additional File 1

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Estimating the eruption onset time

According to the official eruption report issued by the Japan Meteorological Agency, the phreatic eruption of Mt. Ontake in 2014 started at around 11:52 Japan Standard Time (JST), but the precise time (to the second) of the onset of the eruption is not provided in the report. Ichihara et al. (2014) estimated the onset time of the eruption to be 11:52:29 JST, based on infrasonic records at V.ONTA and V.ONTN, even though the eruption signal is not clear at these two stations.

We estimated the eruption onset time using an on-site infrasonic record from ROPW. A clear eruption signal arrived at this station at 11:52:40 JST (Figure S1). The minimum and maximum distances from the eruptive vents estimated by the Geospatial Information Authority of Japan (2014) to ROPW are 3228 m and 3563 m, respectively, suggesting a travel time of 9.5–10.5 s assuming a sound velocity of 340 m s⁻¹. These onset and travel times of the pressure wave lead to a more precise estimate of the eruption start time at around 11:52:30 JST. This estimate is consistent with the estimate by Ichihara et al. (2014).

References

Ichihara M, Nishida K, Tsunematsu K (2014) Infrasonic analyses for the 2014 phreatic eruption of Ontake (in Japanese). In: Abstract of the Volcanological Society of Japan Fall Meeting, Fukuoka, 2–4 November 2014

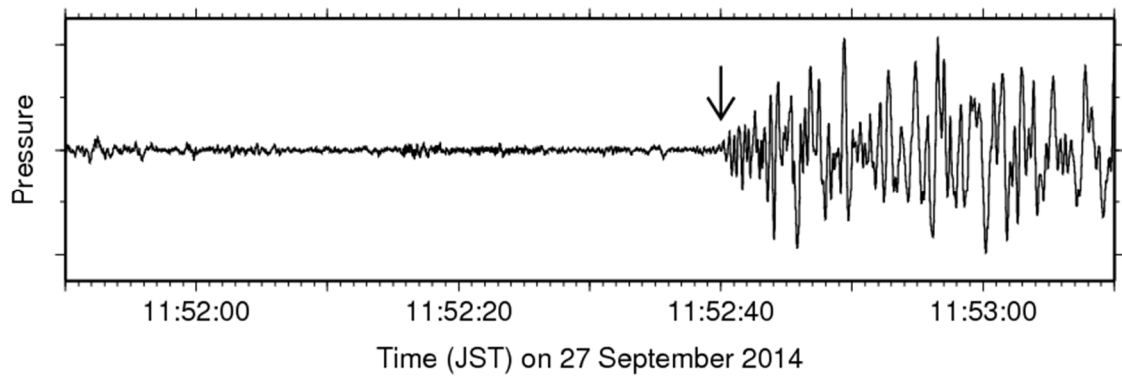


Figure S1. An infrasonic record from ROPW around the eruption onset time. The arrow indicates the arrival time of the eruption signal (11:52:40). The vertical axis scale is not shown because we have no reliable information on the absolute scale; only the arrival time is used in our analysis.