
[JJ] Evening Poster | S (Solid Earth Sciences) | S-VC Volcanology

[S-VC41]Active Volcanism

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This session discusses various aspects of active volcanisms including, but not limited to, recent and historical eruptions, various phenomena associated with the volcanic activities, underground structures of the volcanoes, and developments of new instruments based on geophysical, geochemical, geological, and multidiscipline approaches. We also welcome studies on understanding and predicting the transitions of the eruptive activities from observational, theoretical, and experimental approaches.

[SVC41-P23]Vertical Deformation Detected by the Precise Levelling Survey after the 2014 Mt. Ontake Eruption (2014-2017)

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Keywords:Precise Leveling Survey, Ontake Volcano, Vertical Deformation

We conducted the precise leveling surveys in the Ontake volcano in October 2014, April 2015, September 2016 and April 2017, and discussed vertical deformations in the periods of after the 2014 Mt. Ontake Eruption.

The leveling routes of about 38 km with 98 benchmarks were established on the eastern flank of Mount Ontake volcano. The main routes were extended to the Yashikino village (Kakehashi and Yashikino routes). In order to improve the spatial layout of the benchmarks, a branched leveling routes were established (Kiso-Onsen, Ontake Ropeway and Nakanoyu routes).

In the half year after the 2014 eruption (October 2014-April 2015), the small uplift less than 4mm was detected on the Ontake Ropeway route. In the period between April 2015 and September 2016, the uplift of about 6mm was detected in the Ontake Ropeway and Nakanoyu routes. However the subsidence of about 5mm was detected in the Ontake Ropeway and Nakanoyu routes in the period between September 2016 and April 2017.

In the period of before the 2014 eruption (2006-2009), notable uplifts were detected on theYahikino and the Kiso-Onsen routes. The pressure source model based on this notable uplift was estimated to infer preparatory process preceding the 2014 eruption.

Although small uplifts were detected in the period between 2014 and 2016, the subsidence of 5mm was detected in the period between September 2016 and April 2017. This result suggests that the volcanic

activity associated with the 2014 eruption was decreased in Mt Ontake.

The M5.6 earthquake occurred just beneath the leveling routes in June 25, 2017. In order to detect the vertical deformation associated with this earthquake, the leveling survey was conducted in the Yashikino and Kiso-Onsen routes. The benchmarks of the Yashikino and Kiso-Onsen routes showed uplift. The maximum uplift of 28mm was detected in central part of Yashikino route. We need continued and careful observation of the deformation in Mt. Ontake volcano.