Vertical Deformation Detected by the Precise Levelling Survey after the 2014 Mt. Ontake Eruption (2014-2016)

*Masayuki Murase[1], Hitoshi, Y. Mori[1], Kazuki Ofuchi[1], Mitsusato Nannbu[1], Yuta Maeda[2], Shinichiro Horikawa[2], Takashi OKUDA[2], Takeshi Matsushima[3], Kazunari Uchida[3], Yoshiko Teguri[3], Ayaho Mitsuoka[3], Keigo Yamamoto[4], Sin Yoshikawa[5], Hiroyuki Inoue[5], Fumiaki Kimata[6], Hiroaki Yanagisawa[7], Yoshiaki Imai[7], Kazuhiro Kimura[7]

1. Department of Earth and Environmental Sciences, College of Humanities and Sciences, NIHON University, 2. Graduate School of Environmental Studies, Nagoya University, 3. Graduate School of Science, Kyushu University, 4. Disaster Prevention Research Institute Kyoto University, 5. Graduate School of Science, Kyoto University, 6. Tono Research Institute of Earthquake Science, 7. Japan Meteorological Agency

We conducted the precise leveling surveys in Ontake volcano in October 2014, April 2015 and September 2016 and discussed vertical deformations detected 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 6mm and the small subsidence of 3mm were detected in the Nakanoyu and the Yashikino routes, respectively.
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 of after the 2014 eruption, the spatial pattern of uplift is different from that in the period of before the 2014 eruption.
We need continued and careful observation of the deformation in Mt. Ontake volcano.

Keywords: Mt. Ontake, precise leveling survey, vertical deformation

