

Possible detection of fine ash particle from 2014 phreatic eruption at Ontake Volcano by pollen sensor network

MIWA, Takahiro^{1*} ; NAGAI, Masashi¹ ; KAWAGUCHI, Ryohei¹ ; TANADA, Toshikazu¹

¹NIED

Very fine ash particle with size of $<30\mu\text{m}$ is considered to remain suspended for days to week due to their small terminal velocity, and influence many environmental and economic factors (e.g., Rose and Durant, 2011). This study presents continuous data of pollen sensor network that possibly detected fine ash particle from 2014 phreatic eruption at Ontake volcano. The pollen sensor shoots polarizing laser, and counts a particle introduced into the chamber. Also the shape of particles is estimated from scattering and polarization properties of the particles. The particle size that can be counted by the pollen sensor ranges from 20 to $30\mu\text{m}$ which corresponds to fine ash. We examined continuous data from 150 pollen sensor stations installed in Nagano, Gifu, and Yamanashi prefectures that were around the Ontake volcano during September 26-28th, 2014. We evaluated temporal change of the counting number of the particles on the basis of ratio of the counting number at a time to average value in each station. The ratio shows step-like increasing at few hours after the eruption which occurs in 11:52 September 27th. The increasing of ratio could be explained by falling and resuspension of fine ash particle after the eruption. Examination of shape of particle and extension of studied term are future work.

Keywords: volcanic ash, Ontake volcano, pollen sensor