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The 2011 Volcanic Activity of Mt. Shinmoe inferred from seismic and tilt data

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We have monitored the 2011 volcanic activity of Mt. Shinmoe using data recorded by seismometers and tiltmeters. First we deployed a dense seismic array at 5 km in the direction of N255E to Mt. Shinmoe to monitor its volcanic activity. We applied the zero-lag cross-correlation method (Frankel et al., 1997) to waveforms of vertical components of the array. We estimated that the apparent velocities and back-azimuths of seismic waves excited by the volcanic eruptions are 4-6 km/s and N280E, respectively. We also detected continuous seismic waves with apparent velocities of 1.8-2.4 km/s and back-azimuths of N270E - N285E from February 1 to 7. It indicates that continuous weak volcanic tremors which were not detected by JMA had occurred at Mt. Shinmoe for the 7 days. However, we cannot detect such continuous seismic waves since February 8. We also examined characteristics of spectra and duration times of seismic waves associated with sub Plinian eruptions on January 26 and Vulcanian eruptions after the day.

Keywords: Mt. Shinmoe, volcanic tremor, Array analysis