

B 型地震群発と爆発的噴火に後続するハーモニック微動の比較研究

○Sukir MARYANTO • Masato IGUCHI • Takeshi TAMEGURI

Two cases of harmonic tremor originating at Sakurajima volcano were identified. The first case is harmonic tremor which occurred almost 2 hours quasi-continuous in July 20, 1990. This event follows B-type earthquake swarm and occurs before an explosive eruption. In the second case, harmonic tremor occurred immediately after an explosive eruption on October 11, 2002. The data were obtained at 1 ground based and 4 boreholes seismic stations with three components and 1 Hz seismometers with sampling rate of 200 Hz. Before analysis, to reduce the site effect at each station the harmonic tremor amplitude was corrected by amplitude distribution of distant tectonic earthquakes at various frequencies correspond to the fundamental and harmonic frequencies of tremor.

For the first case, the spectra show a relatively stable of fundamental frequency at about 1.6 Hz and 10 overtones. The second case, the harmonic spectra appears for 3 minutes after a Vulcanian explosion and the fundamental frequency gradually increased from 0.9 Hz to 3.5 Hz. The spectra of the two events were mostly consistent for three components of the five stations. This suggests that the spectra were caused by the effect of sources.

We also have analyzed the particle motion of harmonic tremor base on their fundamental and harmonic frequencies. Our analysis shows that particle motion of harmonic tremor are compatible with a shallow sources, due to change of identified of wave type at station near the crater from P-wave at initial part of wave packet to Rayleigh waves at the principal part and at further stations only Rayleigh waves