

Characteristics of volcanic tremor in Kirishima volcano based on seismic array (2)

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Volcanic tremors are indicators providing clues for magma behaviour, which is strongly related to volcanic eruptions and activity. Detection of spatial and temporal variations of volcanic tremors is important for understanding the mechanism of volcanic eruptions. However, short-term temporal variations within a tremor event have not always been previously detected by seismic array observations around volcanoes. Here, we show that volcanic tremor sources were activated at the top of the conduit (i.e. the crater) and at its lower end by analyzing seismograms from two dense seismic array about 3.5 km from the Shinmoedake volcano, mount Kirishima, Japan. We observed changes in the seismic ray direction during a volcanic tremor sequence through MUSIC spectrum processing and inferred two major sources of the tremor from the slowness vectors of the approaching waves. One was located in a shallow region beneath the Shinmoedake crater. The other was found in a direction N30W from one of the arrays, pointing to a location above a pressure source. The time evolution of the tremor suggests that instability occurs at the edge of the conduit due to magma intrusion.