

Tilt changes associated with eruptions by the tiltmeter array at Aso volcano.

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Aso volcano started magmatic eruptions from November 25, 2014. Eruptive activity once became quiet in mid 2015. However, a phreatomagmatic eruption occurred on 14 September 2015, and phreatic eruptions have sporadically occurred until February 2016. We investigate the space-time variation of pressure sources associated with volcanic eruptions in order to understand the eruption process in the shallow volcanic conduit of Aso volcano.

In general, an observation using tiltmeter is arranged so as to surround the volcano, for the estimation of location of pressure sources. In this study, however, a tiltmeter array deployed in a straight line to the first crater of Nakadake, assuming the pressure sources locate beneath the crater. By calculating the cross-correlation of tilt variations recorded at each station, we can estimate the depth change of pressure source with time associated with eruption at the first crater of Nakadake of Aso volcano.

The tiltmeter has been installed three points (KU.AS01, KU.AS02, KU.AS04) to the south of the first crater of Nakadake (Fig.1). At KU.AS01 and KU.AS02, the tiltmeters were set in the ground. In addition, we have installed a microphone and a broadband seismometer at KU.AS01 and KU.AS03, respectively. The observation started from July 14, 2015, and we successfully observed the tilt changes associated with eruptions of 14 September, 23 October and 7 December 2015.

Keywords: Aso volcano, Tilt array

