

## Muon radiography of Satsuma Iwojima

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Muon radiography can provide a cross section through the object parallel to the plane of the detector, on which the average density along all the muon paths is projected, somewhat like X-ray radiography. We developed a portable assembly type cosmic-ray muon telescope module to image the density distribution of magma in the conduit of Mt. Iwodake volcano, Japan. A muon detector with an area of 1 m<sup>2</sup> was set up at the foot of the volcano. We mapped differentially absorbed cosmic-ray muons, which depend on the varying thickness and density beneath the crater floor. We successfully imaged density distribution in the conduit as well as the conduit shape, assuming the density anomaly is localized in the vent area. The observed location of the magma head is consistent with the degassing model of rhyolitic systems proposed by Kazahaya et al. in 2002.