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The first radiography result of the latest lava dome in Unzen by cosmic muons

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The latest lava dome in Mt. Unzen was formed in the eruption from January 1991 to early 1995 and the activity was calmed down in 1995. The researchers kept to observe the eruption in this period precisely. Some of them proposed the growth model, another person proposed different model from their data. It is significant for the growth model of lava dome which has viscous magma to investigate the density structure in it. The observation of the lava dome density 2D map was performed by using cosmic-ray muon and muon detector in Unzen. The muon detector, nuclear emulsion films which has high position resolution and 0.85m2 effective area, was installed in a natural cave from early December 2010 to the end of March. The developed nuclear emulsion films has been scanned by automated muon readout system.
The systematic analysis of efficiency and random noise ratio are performed by taking a pattern match and making a connection of muon tracks between three films. After estimation and removing unwanted low energy electron tracks, the density map of Unzen lava dome appeared. The performance of the detector and the first result of radiography will be shown in this topic.