

Volcano deformation detected by GPS observation around Shinmoe-dake crater of Kirishima and pressure source estimation by FEM

Keiichi Fukui[1]; Keita Torisu[2]; Tomoyuki koeda[2]; Takayuki Sakai[1]; Akimichi Takagi[1]

[1] MRI; [2] Fukuoka District Meteorological Observatory

Kirishima volcano group is composed of twenty several volcanoes, and the most active volcanoes are Shinmoe-dake and Ohachi. The continuous GPS observation has carried out at 11 stations around Kirishima volcano since February 2001 by JMA and MRI. The campaign GPS observation has carried out at 6 sites on Shinmoe-dake and at 9 sites on Ohachi. The campaign sites have installed at the crater rim and the crater bottom. Total number of the campaign observations is 25 on Shinmoe-dake and 28 on Ohachi until 2007.

The GPS observation on Shinmoe-dake shows that the center of crater inflated from the mid of 2004. The pressure source evaluated that the depth is 600 - 1000 masl and the volume change is 1×10^4 - 10×10^4 m³/year by using the modified Mogi model. The crater affects this estimation. We simulated the surface deformation by using 3D-FEM include the precise terrain model and estimated the pressure source from the simulated deformation. We investigated the effect of crater to the pressure source estimation.