

Recent seismicity and crustal deformation around Mt. Fuji

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Mt. Fuji is located on the middle of Honshu, Japan, and is about 100 km south-west of Tokyo. This volcano is also situated on the triple junction where the Philippine Sea Plate, the Okhotsk Plate and the Amurian Plate meet. The last eruption (Hoei eruption) occurred in 1707, and the total volume of this eruption was estimated about 0.7 km^3 . National Research Institute for Earth Science and Disaster Prevention (NIED) has started monitoring of Mt. Fuji in 1980s and installed borehole seismometers, tiltmeters, GPS, and broadband seismometers at 6 stations around Mt. Fuji since 1990's. We have found that low frequency earthquakes are occurring at the depth from 10 to 20 km beneath of the edifice, where the magma reservoir is estimated from the result of seismic tomography. The activity of low frequency earthquakes became rather high in 2000 and the higher activities have not been observed since then. On the other hand, non-low-frequency (volcano-tectonic) earthquakes also often occur around the volcano. The number of VT earthquakes beneath south flank of Mt. Fuji has been increased since 2008. The crustal deformation data had not indicated volcanic deformation so far.

There was the $M_{\text{JMA}}6.4$ earthquake beneath south flank of Mt. Fuji, at the depth of 15 km, on March 15, 2011, where the seismicity had increased since 2008 as noted above. From the inversion of co-seismic crustal deformation data obtained by GPS (GEONET and NIED) and tiltmeters (NIED), we got a proper fault model as almost vertical, running NNE-SSW and the dimension of 6km x 6km, almost same extent with the distribution area of aftershocks. These aftershocks are tectonic earthquakes and have occurred until now but its numbers are decreasing.

It had been feared that Mt. Fuji may erupt followed by this big earthquake because of stimulation to the subsurface magma reservoir, however non-increasing number of the low frequency earthquakes and volcanic-tremor have been observed by our observation network. Moreover a result of simulation which calculates the effect of stress to the magma reservoir induced our speculation that the big earthquake affect slightly into the magma chamber. We also should keep monitoring of Mt Fuji carefully.