SVC48-14　　　　　　Room:104　　　　　　　　Time:May 19 16:30-16:45

Earthquake swarm activities and dilatational crustal deformation in Hakone volcano

Masatake Harada[1]*, Kazuki Miyaoka[1], Yohei Yukutake[1], Akio Kobayashi[2], Ryou Honda[1], Kazuhiro Itadera[1], Hiroshi Ito[1], Tamotsu Aketagawa[3], Akio Yoshida[1]

[1]Hot Springs Research Institute of Kanagawa Prefecture, [2]Meteorological Research Institute, JMA, [3]Japan Meteorological Agency

Hakone volcano is located in the northernmost part of the Philippine Sea plate. The Hot Springs Research Institute (HSRI) has been carrying out seismic observation in and around Hakone volcano since 1968. In June, 2001, the largest swarm activity after introduction of telemeter system occurred and it lasted about a half year. Since then, notable swarm activities were observed in 2006 and in 2008-2009. These activities were accompanied with dilatational crustal deformation.

We have been observing a new swarm activity. It started in the first days of 2013. Tilt meters operated by the HSRI have been showing crustal movements similar to that observed at the 2001 event. The GSNN data of the Geospatial Information Authority of Japan also show appearance of crustal deformation. This is the 4th time which dilatational deformation is observed by the GNSS.

We investigated progress of the dilatational crustal deformation and the swarm activity for the four cases and found a feature that crustal deformation tends to precede notable swarm activities. A notable feature is a tendency which rise occurrence of the clustered activity are delayed to the start of the dilatational crustal deformation. This suggests a possibility that occurrence of swarm activity might be forecasted by monitoring progress of crustal deformation. We discuss plausible causal relationship between a deep source of dilatation and shallower swarm activities.

Keywords: Hakone volcano, earthquake swarm, de-cluster, crustal deformation, forecasting