

## Seismic activity beneath the Hakusan Volcano in Oct. 2012 and Jan.-Feb. 2013

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No volcanic activities have not observed since the 1659 eruption except the appearance of a blowhole in 1935. It is, however, pointed that the Hakusan volcano may reactivate its volcanic activity on the near future from studies of past activities based on tephra stratigraphy and historical records (Moriya, 2000). The seismogenic zone just beneath the Hakusan volcano is shallow, 0~1 km (Takahashi et al., 2003), and a low velocity and high  $V_p/V_s$  region exists in the depth of 10~14 km beneath the volcano (Takahashi et al., 2004). Four swarm activities and the largest event of  $M_j4.5$  for recent 30 years were observed in 2005 beneath the volcano. We observed swarm activities in 2008 and 2009. We report here recent seismic activity, seismic activity in Oct. 2012 and Jan.-Feb 2013, beneath the Hakusan volcano.

We use the velocity structure of Takeuchi (1978) and the formula of magnitude of Watanabe (1971) in this study. For seismic events in Oct. 2012, most of the events are distributed 1 km off north from the summit and the hypocentral depths are 0-1.5 km. We estimate fault plane solutions using the polarity of P-waves for larger six events. Five events show strike-slip types with the compression axes of E-W and NW-SE while one event normal type with the extension axis of NW-SE. Seismic events in Jan.-Feb 2013 are characterized by two events as mainshock over  $M3$ , which has never observed since 2005. The hypocenters are distributed 0.5 km off east from the summit and 1-2 km in depth. The largest five events show strike-slip types with the compression axes of E-W and NW-SE, which are coincident with the regional stress field. We observe no volcanic tremors and low frequency events through the analysis period. These facts suggest that these seismic activities do not relate to the magmatic activity beneath the Hakusan volcano.

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