

Intense Swarm Activity in the Vicinity of Yake-dake Volcano, Central Japan, Started in November 2018

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An intense seismic swarm activity started in November, 2018 in the vicinity of the Yakedake volcano, Hida mountain range, central Japan. It started on November 22 and lasted for about 10 days (hereafter sited as Series A). Hypocenters are located at the western flank of the Yakedake volcano in the depth range from 3 km to 4 km below sea level. On December 4, a small swarm activity occurred in the Kamikochi area, where is the eastern flank of Yake-dake volcano, that lasted for two days (Series B). Other small activities took place at the end of January 2019 (Series C) to the western area of the activity of Series A, as well as an activity just beneath the ridge of Hida mountain range where is several kilometers south to the summit of the Yake-dake volcano in the beginning of February 2019 (Series D).

Earthquakes in Series A exhibit ordinary characteristics of tectonic earthquakes with NW-SE compressional stress field and neither significant hypocenter migration nor change in source mechanism were observed during the activity. Earthquakes in Series B, however, some exhibit normal fault type stress field which is not coincide with the regional stress field.

The maximum intensity reported by JMA was less or equal to level 2 for all the events during the activity, however, instrumental seismic intensity observed nearby hypocentral area by DPRI recorded as large as level 4 for some earthquakes. Monitoring data of Yakedake volcano, that include crustal movement by GNSS and tiltmeter, geomagnetic total intensity by proton magnetometer, and ground temperature nearby summit, did not show the anomalous behavior during the swarm activity.

Keywords: Yake-dake volcano, volcano tectonic earthquakes, swarm activity