

Monitoring system of Kelud volcano, Java, Indonesia before and after the February 13, 2014 eruption

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Kelud volcano is located on the island of Java, Indonesia is a very active volcano. The last eruption occurred on February 13, 2014. Monitoring network of Kelud before the eruption on Feb 13, 2014, consists of five Seismic stations, two Tiltmeter stations, one Water Temperature Sensor, and one CCTV. Tiltmeter data show a gradual change since the beginning of 2011. A few days before the eruption of February 13, 2014 tiltmeter the data showed a sharp rise. Increase in seismic activity observed since the end of November 2013 and then recorded more frequently in mid January up to early February 2014. It made alert level of Kelud was raised to Level II on 2 February 2014. All monitoring stations recorded intensive increase in volcanic activities after the alert level was raised to Level III on 10 February. The appearance of continuous tremors with over scale amplitude on 13 February 2014 at 21:11 WIB (local time) caused alert level was upgraded to Level IV. Eruption started at 22:50 WIB on February 2014, less than 2 hours after upgrading of alert level.

Eruption with VEI of 3-4 destroyed all of instruments, except one seismic station still work which is located 5 kilometers south of the crater. After the eruption, Center for Volcanology and Geological Hazard Mitigation (CVGHM) has added several instruments of monitoring. The monitoring network at Kelud is currently equipped with 5 Seismic stations, 2 Tiltmeters, 2 CCTV, and 3 additional stations which are equipped with seismic and CCTV for monitoring Lahar. In 2015, the network will be added with 3 stations of Seismic, Tiltmeter and continuous GPS as part of Project SATREPS. Until February 2015, activity of Kelud volcano is relatively quiet with volcanic earthquakes less than 10 events/month and domination of tectonic earthquakes. Visually, the activity in the crater is weak emission. Alert level of Kelud volcano is Level I.

Keywords: Kelud volcano, Multiparameter monitoring