

Monthly Volcanic Activity Report (November 2014)

Japan Meteorological Agency



Zaozan (Normal)

4 volcanic tremors were recorded on 18 and 19 November. A tremor occurring at around 21:49 on 19 November was one of the largest observed to date. Long-period tremors were recorded during this tremor and during another volcanic tremor that occurred at around 15:13 on 18 November. Such tremors have occasionally been observed since 2013.

According to data from a tiltmeter, ground deformation with a rising trend began on the southeastern side (southern side of the summit) right before the first volcanic tremor at around 15:13 on 18 November. A slow rising trend was observed until 24 November. After that, ground deformation with a slight rising trend on the eastern side (southeastern side of the summit) began and continued to be observed until 30 November.

Aerial observation conducted in collaboration with the Japan Ground Self-Defense Force (JGSDF) on 20 November revealed no fumarolic gas or geothermal field around Okama (a crater lake) or any water discoloration was observed. No remarkable change in fumarolic or geothermal activity in Maruyamasawa geothermal area was observed.

No remarkable change in ground deformation (according to continuous GNSS* observation data) or fumarolic activity has been observed.

Volcanic activity has remained at high levels since August 2014.

* GNSS (Global Navigation Satellite System) is a generic name for satellite positioning systems such as GPS.

Kusatsu-Shiranesan (Alert Level: 2)

According to the results of field surveys conducted from 4 to 5 and from 10 to 11 in November, fumes were observed clearly in a fumarolic area to the north and on the north to northeastern slope of the Mizugama crater as before, but no remarkable change in ground surface temperature distribution was seen in infrared observation since the last survey (10 July 2014).

Volcanic seismicity beneath Yugama (a crater lake) and its southern area began to fluctuate at high levels in early March 2014, but has remained at relatively low levels since 20 August of the same year. Data from ground deformation observation show a trend of inflation around Yugama. According to the Tokyo Institute of Technology, composition of gas in a fumarolic area to the north has also shown the changes indicating increased volcanic activity. Geomagnetic total intensity variations, considered indicative of a temperature rise beneath Yugama, were seen in observation data from May onward but stopped around July.

Ontakesan (Alert Level: 3)

The white-plume height was approximately 100 - 300 m above the crater rim in visual observation.

The results of volcanic gas observation conducted at the foot of the volcano indicate that amounts of SO₂ emissions have been smaller at 100 - 200 tons a day.

Volcanic seismicity has remained at low levels, but has not yet returned to the levels observed before August.

Small-amplitude volcanic tremors were recorded at around 03:07 and 16:12 on 21, 14:55 on 22 and 19:25 on 23 November. The longest tremor lasted around 2 minutes and 20 seconds (at 03:07 on 21 November). These were the first volcanic tremors observed since 6 October. No remarkable changes accompanying these volcanic tremors were seen in other data from monitoring activities such as visual observation and tiltmeter observation.

According to data from a tiltmeter installed around 3 km southeast of the Kengamine summit, ground deformation with a rising trend began on the mountainside seven minutes before the eruption of 27 September but subsided after the eruption. A slow subsiding trend continues to be observed on the mountainside. Continuous GNSS observation data show no remarkable change. According to GSI's analysis of GNSS data, long-term slight extension of the baseline across Ontakesan has been observed since early September and a tendency of slight contraction has been seen since late September.

Although volcanic activity has shown a declining trend, the potential for minor eruptions remains. If fumarolic activity and/or seismicity increase, eruptions may be accompanied by pyroclastic flows with scattering of ballistic projectiles around the crater.

Miyakejima (Alert Level: 2)

The rate of volcanic gas emission has exhibited a long-term declining trend and has remained relatively low since February 2013. According to a report from Miyake Village, relatively high concentrations of SO₂ were recorded only occasionally in inhabited areas.

Volcanic seismicity has generally remained at low levels, and no volcanic tremors have been observed.

According to continuous GNSS observation data, ground deformation indicating contraction in shallow parts of the mountains began to diminish gradually in 2000 and stopped around 2013. Long-term extension of the baselines along the long section of Miyakejima has also been observed since 2006, indicating expansion in deeper parts.

Nishinoshima (Near-crater Warning)

A report from the Japan Maritime Self-Defense Force (JMSDF) and other institutions shows that eruption and lava flow have continued and the area of newly formed land has expanded.

Aerial observation conducted by the National Institute of Advanced Industrial Science and Technology (AIST) on 14 November 2014 found a remarkable pyroclastic cone with a single clear conical crater at the summit. At the crater, Strombolian eruptions were observed which produce a grayish-brown plume containing volcanic ash and emit pieces of lava over a short period. Lava was observed flowing northward from the crater. The flow split and ran to an area covering the northwestern-northeastern coast, then formed white-vapor spouts as it entered the

ocean.

No discoloration of sea water was observed.

Data from infrasound monitoring on Chichijima Island facilitated by The University of Tokyo's Earthquake Research Institute (ERI) show the occurrence of air shock starting on 13 November, indicating high volcanic activity along with a series of eruptions. According to Ogasawara Village Office, rumbling was heard on the island and air shock was also reported. ERI also reported that it measured around 1.6 km in the east-west direction and 1.8 km in the north-south direction, creating an area of around 2 km² from analysis of satellite imagery as of 9 November (1.85 km² as of 16 October 2014).

Ioto (Near-crater Warning)

Volcanic tremors have occasionally occurred, but volcanic seismicity has generally remained at relatively low levels.

The results of continuous GNSS measurement showed a rising trend of ground deformation from late February 2014 onward. However, deformation entered an almost-static state in September 2014. No anomalies were observed in other data.

Fukutoku-Oka-no-Ba (Near-sea-area Warning)

Data from aerial observation conducted by the Japan Coast Guard (JCG) on 26 November 2014 indicated no volcanic activity-related discoloration on the sea surface around Fukutoku-Oka-no-Ba.

Past observations conducted by JCG, JMSDF and JMA have frequently identified discoloration and floating objects in the water surrounding Fukutoku-Oka-no-Ba in recent years. These are considered to stem from volcanic activity. The latest submarine eruption occurred on 3 February 2010.

Asosan (Alert Level: 2)

At the Nakadake No.1 crater, an eruption occurred at 10:11 on 25 November 2014. After 26 November onward, eruptions continuously occurred and a grayish plume rose to 1,500 m above the crater rim on 27 November.

According to field surveys and reports on 25 and 26 November, volcanic ash fell on areas stretching from the Nakadake No. 1 crater to Bungo City in Oita Prefecture (about 40 km east of the crater), in Gokase Town in Miyazaki Prefecture (southeast of the crater) and from Minamiaso Village in Kumamoto Prefecture (south of the crater) to Yamato Town in Kumamoto Prefecture (south of the crater). Reports from 27 November indicate that volcanic ash fell over a wide region on the western side of the Nakadake No. 1 crater, which includes Kumamoto City and other areas.

The amplitude of volcanic tremors began to gradually increase at around 07:00 on 25 November and remained large with fluctuations.

AIST analysis of volcanic ash gathered on 25 and 26 November revealed that more than half of that emitted on 25 November was essentially ejecta originating from magma, and that it contained pieces of well-foamed light-brown volcanic glass. Lapilli pieces accumulating on the southern side of the crater on 26 November were well-foamed light-brown vitreous scoria, indicating an environment of dry magma burst. This suggests continuous magmatic eruptions.

Kirishimayama (Shinmoedake) (Alert Level: 2)

According to GNSS observation data, ground deformation indicating magma chamber inflation at a depth of several kilometers northwest of Shinmoedake stopped in December 2011 before resuming again around December 2013.

Volcanic seismicity immediately under the Shinmoedake crater has generally remained at low levels.

Kirishimayama (around Ebino highland) (Near-crater Warning)

Volcanic earthquakes have occasionally occurred around the Ebino highland area.

According to field surveys conducted on 12, 17 and 18 November, no fumes were observed at Ioyama and on the northern side of Karakunidake. No thermal anomalies were seen in thermal infrared observation at Ioyama and on the northern side of Karakunidake.

Sakurajima (Alert Level: 3)

Eruption activity at the Showa crater has remained at high levels, with 30 explosions during this period.

An eruption occurring at 23:25 on 28 November sent ballistic projectiles as far as the third station (1,300 to 1,800 m from the Showa crater). The maximum plume height from an eruption at 00:48 on 30 November was 3,800 m above the crater rim.

No eruptions were observed at the Minamidake summit crater.

Kuchinoerabujima (Alert Level: 3)

No eruptions were observed. Volcanic earthquakes occasionally occurred, and the rate of volcanic gas emissions has been relatively high compared to that before the eruption. Volcanic activity has remained high.

A field survey conducted on 14 and 15 November 2014 revealed plumes at the Shindake crater, around a fissure to its west and on the southwestern slope of a crater newly observed in the previous survey (7 October 2014). Thermal infrared data indicated thermal anomalies to the west of the Shindake crater rim, around a fissure in the area and in the fumarolic area on the southwestern slope.

Suwanosejima (Alert Level: 2)

Eruptions occasionally occurred at the Otake crater. Grayish plumes accompanying these eruptions rose as high as 1,200 m above the crater rim. According to the Suwanosejima branch of the Toshima Village administration, no ash fall was observed in the village (located around 4 km SSW of Otake).