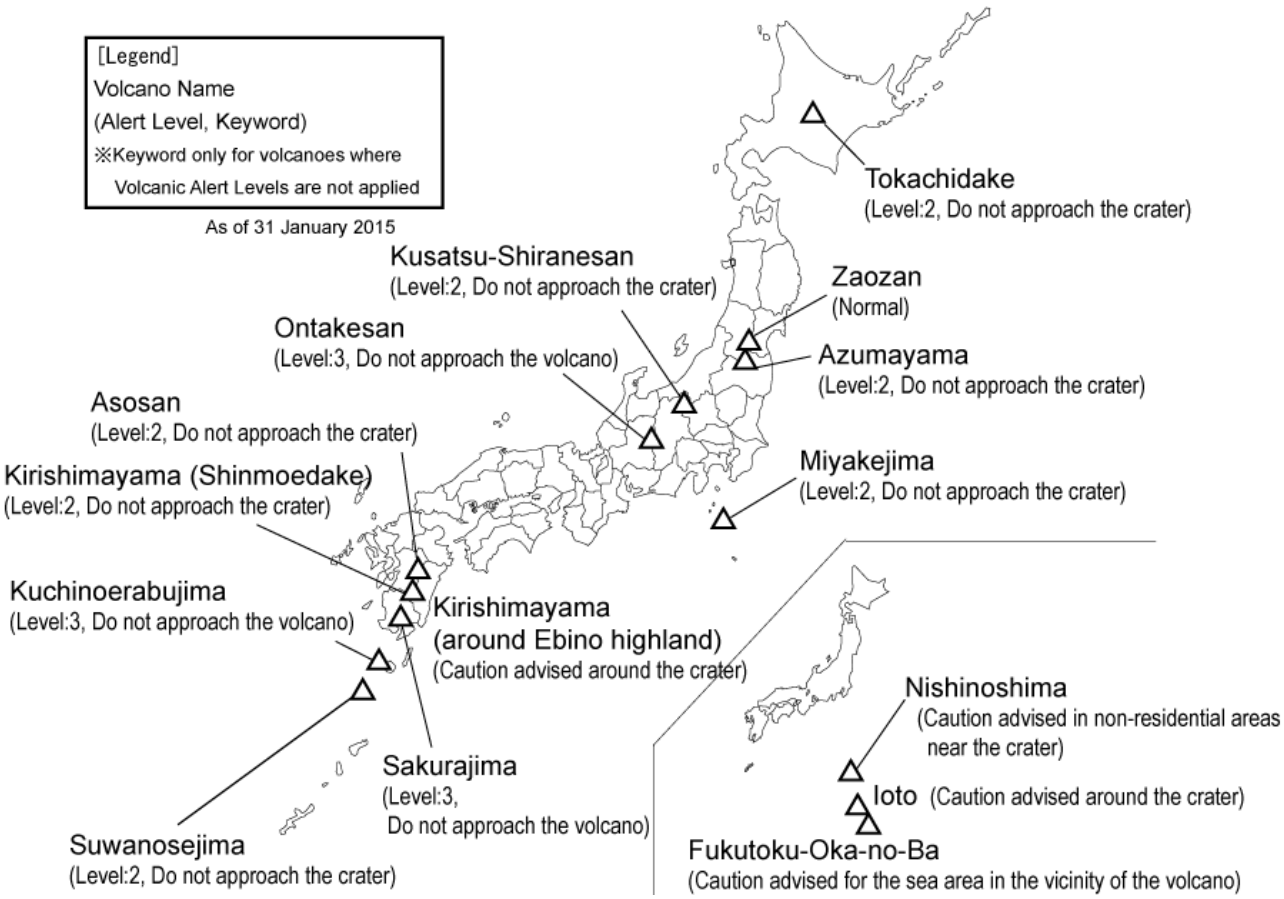
Monthly Volcanic Activity Report (January 2015)

Japan Meteorological Agency



Tokachidake (Alert Level: 2)

Ground deformation observed since 2006 indicates expansion in shallower parts of crater 62-2. Since around July 2014, the rate of change has increased. This suggests that expansion may have also extended to shallower parts. Amplitude levels of micro-tremors indicating high hydrothermal activity in shallower parts started to increase around November 2014. The potential for a very small phreatic eruption remains high. No remarkable changes were seen in ground deformation caused by magma intrusion into deeper parts.

Zaozan (Normal)

Aerial observation conducted in collaboration with the Japan Ground Self-Defense Force (JGSDF) on 14 January 2015 revealed no fumarolic gas or geothermal field around Okama (a crater lake). No remarkable change in fumarolic or geothermal activity in Maruyamasawa geothermal area was observed since the last survey (20 November 2014).

A volcanic tremor occurred on 19 January. No changes in seismicity or tiltmeter observation data were seen before or after the volcanic tremor. Volcanic seismicity has remained at low levels with 6 volcanic earthquakes recorded.

According to data from a tiltmeter at Boudaira Station (around 5 km southwest of the summit), ground deformation with a rising trend on the southeastern side has been observed during this period.

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

Volcanic activity has been at high levels since August 2014.

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

Azumayama (Alert Level: 2)

A volcanic tremor occurring at around 08:15 on 28 January lasted around 2 minutes and 50 seconds. According to data from a tiltmeter at Joudodaira Station (around 1 km ESE of the Oana crater), ground deformation with a subsiding trend was observed on the western side (in the direction toward the crater) in conjunction with the volcanic tremor. However, its development has now stopped and the situation is similar to how it was previously.

Volcanic seismicity began to fluctuate at high levels from 7 December 2014 to 17 January 2015 and activity further increased on 14 January, when 193 volcanic earthquakes were recorded. Seismicity is high with relatively large-amplitude earthquakes. Seismic activity is estimated to be occurring in shallow parts immediately under the Oana crater as before.

According to data from a tiltmeter at Joudodaira Station (around 1 km ESE of the Oana crater), ground deformation with a slow rising trend has remained on the western side since April 2014 and the trend has increased since 26 January 2015.

No anomalies have been observed in the characteristics of fumes in and around the Oana crater as viewed with a high-sensitivity camera at Joudodaira (installed by the Tohoku Regional Bureau Ministry of Land, Infrastructure, Transport and Tourism) or at Kaminodera.

Continuous GNSS observation data show a slow change in the baseline at Issaikyouzan-Minamisanpuku Station (around 500 m north of the Oana crater), indicating the possibility of inflation in shallow parts near the crater.

Kusatsu-Shiranesan (Alert Level: 2)

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) ←Alert level update on 19 January

Volcanic activity has followed a continued decline to low levels, and the potential for eruptions on or exceeding the scale of the one that occurred on 27 September 2014 is low. . In recognition of the level of plume activity from a row of craters, seismic activity and the potential for only minor eruptions, JMA issued a Near-crater Warning at 17:00 on 19 January and the area in which caution is required against pyroclastic flows and scattering of ballistic projectiles was reduced to cover the zone 3 km from the summit crater.

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

The results of a field survey conducted at the foot of the volcano indicate that amounts of SO_2 emissions have been smaller at around 300 tons a day.

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

Data from a tiltmeter installed around 3 km southeast of the Kengamine summit indicate no remarkable changes

during this period. Continuous GNSS observation data show no remarkable change but GSI analysis of GNSS data indicates a long-term slight extension of the baseline across Ontakesan since early September. A tendency of slight baseline contraction was seen from late September onward, but by December this has returned to the extent observed in early September.

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 field survey conducted on 7 January, amounts of SO_2 emissions have been small at 300 tons a day (400 tons a day on 15 December 2014).

According to a report from Miyake Village, relatively high concentrations of SO_2 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 Coast Guard (JCG) and other institutions shows that eruption and lava flow have continued and the area of newly formed land has expanded.

Aerial observation conducted by JCG on 21 January revealed that eruptions at the 7th crater have continued and gray plumes have risen as high as around 500 m drifting westward. Lava was flowing to the eastside of the island and spread like a fan. Lava was also found cropped out at the foot of the eastern side of a pyroclastic cone, and bluish-white volcanic gas was emitted.

Discolored water was seen along the coastline of the island from east to north and from the west coast near the original island to the south coast.

Ioto (Near-crater Warning)

Volcanic seismicity has generally remained at relatively high levels. Volcanic tremors were recorded occasionally but no anomalies were observed in other data.

Field surveys conducted in collaboration with the Japan Maritime Self-Defense Force (JMSDF) on 19 and 20 January showed no remarkable change at Million Dollar Hole (the old crater), either in vents or from the land around them since the last survey (August 2014) and no fumes were observed.

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 and it has shown a rising trend again since early December at a rate that has increased since mid January 2015.

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

Data from aerial observation conducted by JCG on 27 January 2015 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)

Volcanic activity has remained at high levels at the Nakadake No. 1 crater. Eruptions occurred continuously and

gray plumes rose as high as 1,300 m above the crater rim on 13 January.

According to a field survey conducted at night on 13 January, Strombolian eruptions were observed with red-hot volcanic projectiles intermittently ejected as high as 300 m above the crater rim.

The amplitudes of the volcanic tremors remained large.

According to field surveys conducted on 7 and 9 January, amounts of SO_2 emissions have been large at 2,500 – 2,600 tons a day (2,000 – 3,100 tons a day in December 2014).

Kirishimayama (Shinmoedake) (Alert Level: 2)

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

According to GNSS observation data, ground deformation indicating deeper magma chamber inflation several kilometers northwest of Shinmoedake stopped in December 2011, but extension has been observed since December 2013.

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

No fumes were observed at Ioyama and on the northern side of Karakunidake.

Volcanic earthquakes have occasionally occurred around the Ebino highland area.

Sakurajima (Alert Level: 3)

Eruption activity at the Showa crater has remained at high levels, with 61 explosions during this period.

Eruptions occurring at 01:06 on 4 and 06:00 on 30 January 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 explosion at 20:36 on 23 January was 4,000 m above the crater rim. No eruptions were observed at the Minamidake summit crater.

According to field surveys conducted on 16 and 30 January, lapilli pieces with diameters of up to 2 cm were found near Arimura Town (around 3 km south of the Showa crater) and Kurokami Town (around 3.5 km east), both on Sakurajima Island (part of Kagoshima City). These were estimated to have come from eruptions at 23:02 on 15 January and 06:00 on 30 January.

Daily SO_2 emissions amounted to 3,600 tons on 7 January, 5,000 tons (an exceptionally high value) on 15 January and 2,300 tons on 16 January. This was the first time that more than 5,000 tons of SO_2 had been emitted in one day on the island since 29 October 2012, when a figure of 5,700 tons was recorded.

Data from tiltmeter and strainmeter observations show changes indicating expansion of the volcano since 1 January. These instruments were installed around 2.5 km southeast of the Minamidake summit crater by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and around 3.2 km northwest of the Showa crater by the Disaster Prevention Research Institute (DPRI) of Kyoto University.

Kuchinoerabujima (Alert Level: 3)

No eruptions were observed. Volcanic earthquakes occasionally occurred, and the rate of volcanic gas emissions has remained high. Volcanic activity has remained high.

According to a field survey conducted from 13 to 16 January 2015, plumes were observed around a fissure to the west of the Shindake crater and on the southwestern slope of the crater as before. 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 as before.

Data from volcanic gas observation conducted on 19, 20, 22, 23, 24, 27, 28 and 30 January by the Graduate School of Science at The University of Tokyo, DPRI at Kyoto University and Yakushima Town, and from volcanic gas observation conducted on 14 and 28 February by JMA's Fukuoka Regional Headquarters, JMA, amounts of SO_2 emissions have been large at 1,100 – 3,100 tons a day (1,000 – 1,900 tons a day in December 2014).

Volcanic seismicity temporarily increased on 24 January. A M2.2 earthquake (provisional value) occurred at a depth of 5 km beneath the island at 23:14 on the day. The tremor registered a seismic intensity of 1 on the JMA

scale at Ikeda on the island (part of Yakushima Town).

Suwanosejima (Alert Level: 2)

Four explosive eruptions occurred at the Otake crater. Eruptions also occurred occasionally. Grayish plumes accompanying the eruption rose as high as 1,000 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).

According to a field survey at the Otake crater on 25 January, a pit formed in the southeastern part of the Otake crater since the last survey (8 November 2012). No remarkable changes were seen in the internal form of the Bunka crater. Thermal infrared observation indicated no remarkable change in thermal anomalies.