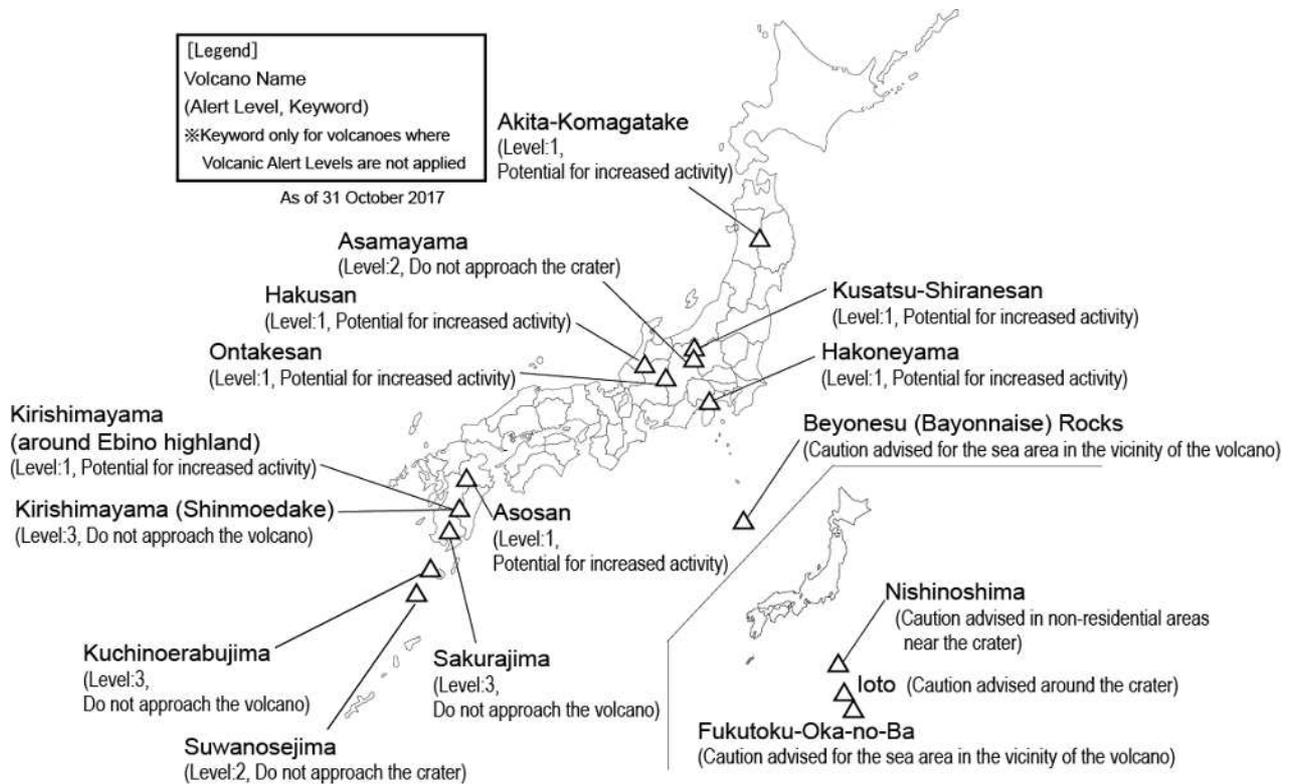


# Monthly Volcanic Activity Report (October 2017)

Japan Meteorological Agency



## Akita-Komagatake (Alert Level: 1)

Volcanic seismicity increased on 14 September, but has remained low since 15 September.

## Kusatsu-Shiranesan (Alert Level: 1)

Thermal activity remains high around the Yugama crater and the Mizugama crater.

## Asamayama (Alert Level: 2)

The number of imperceptible volcanic earthquakes in very shallow parts immediately under the summit crater has remained high since April 2015. Also amount of volcanic gas (SO<sub>2</sub>) emissions have remained at high levels and weak volcanic glows were occasionally observed, so volcanic activity is now quite high.

The potential for small eruptions affecting areas around the crater remains.

## Ontakesan (Alert Level: 1)

No eruptions have been recorded since 2014, indicating a declining trend in plume activity and seismic activity beneath the summit.

However, output has continued from some fumarolic holes among the row of craters where the eruption occurred in 2014. The potential for very minor ejections of volcanic ash is present.

## Hakusan (Alert Level: 1)

A M2.3 earthquake occurred at a depth of about 4 km beneath the summit area at 22:03 on 10 October. After that, small amplitude earthquakes increased **until** around 05 o'clock on 11 October. A short-term increase in earthquake frequency has been observed. Related activity is considered to be similar to that recorded previously. No remarkable changes were seen in other data, and there were no eruption precursors.

### **Hakoneyama (Alert Level: 1)**

Volcanic seismicity has remained at low levels. No remarkable changes have been seen in data of ground deformation. However, fumarolic activity on some fumaroles around the Owakudani has remained at high levels.

### **Beyonesu (Bayonnaise) Rocks (Near-sea-area Warning)**

According to observations conducted by Japan Coast Guard (JCG) and 3rd Regional Coast Guard Headquarters so far, discoloration or bubbles on the sea surface around Myojin Sho was reported. Minor submarine eruptions may occur in the future.

### **Nishinoshima (Near-crater Warning)**

In aerial observation conducted on 3 and 7 October in collaboration with 3rd Regional Coast Guard Headquarters, no eruption was reported.

No eruption from the summit crater has been confirmed since the eruption on 11 August. However, as eruption-related activity at Nishinoshima continued from 2013 to 2015 and related action was recommenced in April 2017, eruptions may resume in the future.

### **Ioto (Near-crater Warning)**

Volcanic seismicity has remained at relatively low levels. Continuous GNSS measurement showed repeated rising trend and static state.

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

According to observations conducted by Japan Coast Guard (JCG), 3rd Regional Coast Guard Headquarters, the Japan Maritime Self Defense Force (JMSDF) and JMA so far, discoloration or other anomalies have frequently been identified in the water surrounding Fukutoku-Oka-no-Ba in recent years. Volcanic activity has remained at relatively high levels.

### **Asosan (Alert Level: 1)**

Small-amplitude volcanic seismicity has remained at high levels.

Volcanic gas (SO<sub>2</sub>) emissions remained at relatively high levels but fluctuated between 700 – 1,700 tons a day.

Green hot water covered 100 percent of the Nakadake No. 1 crater as same as the previous month. No sediment blowouts have been observed.

No remarkable changes in tiltmeter observation data related to volcanic activity have been seen. The extension of the baseline indicating inflation of a magma chamber, which is considered to be present in deeper parts of Kusasenri, was observed since around July 2016 in the results of continuous GNSS measurement, but has stopped since mid-November.

No signs of eruptions affecting the area around the crater have been seen, but the potential for sediment blowouts and volcanic ash emissions inside the crater is present.

### **Kirishimayama (around Ebino Highland) (Alert Level: 1)** Alert level downgrade from 2 to 1 on 31 October

Volcanic earthquakes around the Ioyama increased on 5 September and data from a tiltmeter around Ioyama changed. However, after that, the volcanic seismicity has remained at low levels, and the changes observed with the tiltmeter stopped. No volcanic tremors have been recorded.

The height of fumes has remained at 100 m or less since Mid September. A field survey conducted on 26 October showed that reduction of thermal anomalies in and around the crater of Ioyama was observed. A field survey conducted on 25 October showed volcanic gas (SO<sub>2</sub>) emissions lower than the detection limit.

Accordingly, it is considered that the supply of high temperature volcanic gas and hot water from the deep underground has been declining. JMA issued a forecast at 14:00 on 31 October and lowered the Volcanic Alert Level from 2 (Do not approach the crater) to 1 (Potential for increased activity) due to the low potential for eruptions that will affect areas within about 1 km of the crater.

However, at the Ioyama crater, where active fumarolic and thermal anomalies are observed, minor effusions may scatter materials such as hot sediment and fumarolic hot water over an area covering 100 m from the relevant

fumaroles. Data from continuous GNSS observation show that there was ground deformation indicating expansion along the baselines on Kirishimayama from July to October. Considering this fact, there is a possibility of accumulation of magma in deep places of Kirishimayama.

**Kirishimayama (Sinmoedake) (Alert Level: 3)** Alert level upgrade from 1 to 2 on 5 October, upgrade from 2 to 3 on 11 October, update on 15 and 31 October

The number of volcanic earthquakes increased from around 23 September, it increased further from 4 October and the amplitude of the volcanic earthquake gradually increased. Continuous GNSS observation data by the Geospatial Information Authority of Japan (GSI) had shown an extension along the baselines on Kirishimayama since around July 2017, indicating the possibility of inflation in deep parts of Kirishimayama.

Accordingly, due to the potential for a small eruption, JMA issued a Near-crater Warning at 23:35 on 5 November and raised the Volcanic Alert Level from 1 (Potential for increased activity) to 2 (Do not approach the crater).

Small eruption at east side of Shinmoedake crater occurred around 05:34 on 11 October and continued until around 16 o'clock on 13 October. Volcanic tremors continued with fluctuating seismicity. The volcano continued to rise on the Shinmoedake side and contract on the Ebinodake side. Because there was a possibility that the eruption activity becomes active, JMA issued a Near-crater Warning at 11:05 on 11 November and raised the Volcanic Alert Level from 2 (Do not approach the crater) to 3 (Do not approach the volcano).

Eruption resumed on 14 October, and a plume rose to 2,300 m. On 15 October, the amount of volcanic gas (SO<sub>2</sub>) rapidly increased to 11,000 tons a day. Because there was a possibility that the eruption activity becomes more active, JMA issued a Near-crater Warning at 19:00 on 15 October and the area where warning was required was expanded to cover the zone about 3 km.

Amounts of volcanic gas (SO<sub>2</sub>) emissions have decreased since 16 October to several hundred tons or less a day. It seems that the eruption stopped at around 00:30 on 17 October. Volcanic tremors remained ongoing until 21 October.

However, low frequency earthquakes that are thought to indicate the activity of volcanic fluids such as magma continue to occur.

Accordingly, due to the potential for eruption that ballistic rocks eject from the Shinmoedake crater to approximately 2 km, pyroclastic flow reaches approximately 1 km, JMA issued a Near-crater Warning at 14:00 on 31 October and the area where warning was required was reduced to cover the zone about 2 km.

Data from continuous GNSS observation show that there was ground deformation indicating expansion along the baselines on Kirishimayama from July to October. Because of this, there is a possibility of accumulation of magma in deep places of Kirishimayama.

### **Sakurajima (Alert Level: 3)**

Eruptive activity at Sakurajima has remained at high levels.

5 of 37 eruptions at the Showa crater observed were explosive. An eruption occurred at the Minamidake summit crater at 12:21 on 31 October. Along with this eruption, a plume rose to 1,000 m above the crater rim. No explosive eruptions occurred.

The magma chamber inflation under the Aira Caldera is ongoing. The data collected may indicate a possibility that the eruptions continue.

### **Kuchinoerabujima (Alert Level: 3)**

Amounts of volcanic gas (SO<sub>2</sub>) emissions had remained 200 - 400 tons a day. Amounts of volcanic gas (SO<sub>2</sub>) emissions have been at relatively higher levels than that of before the eruption on August 2014. The number of small-amplitude earthquakes has remained high since around June 2017. Eruptions may still occur.

### **Suwanosejima (Alert Level: 2)**

Volcanic activity has remained at high levels with four explosive eruptions occurred at the Otake crater.

The potential for eruptions affecting areas around the crater remains.