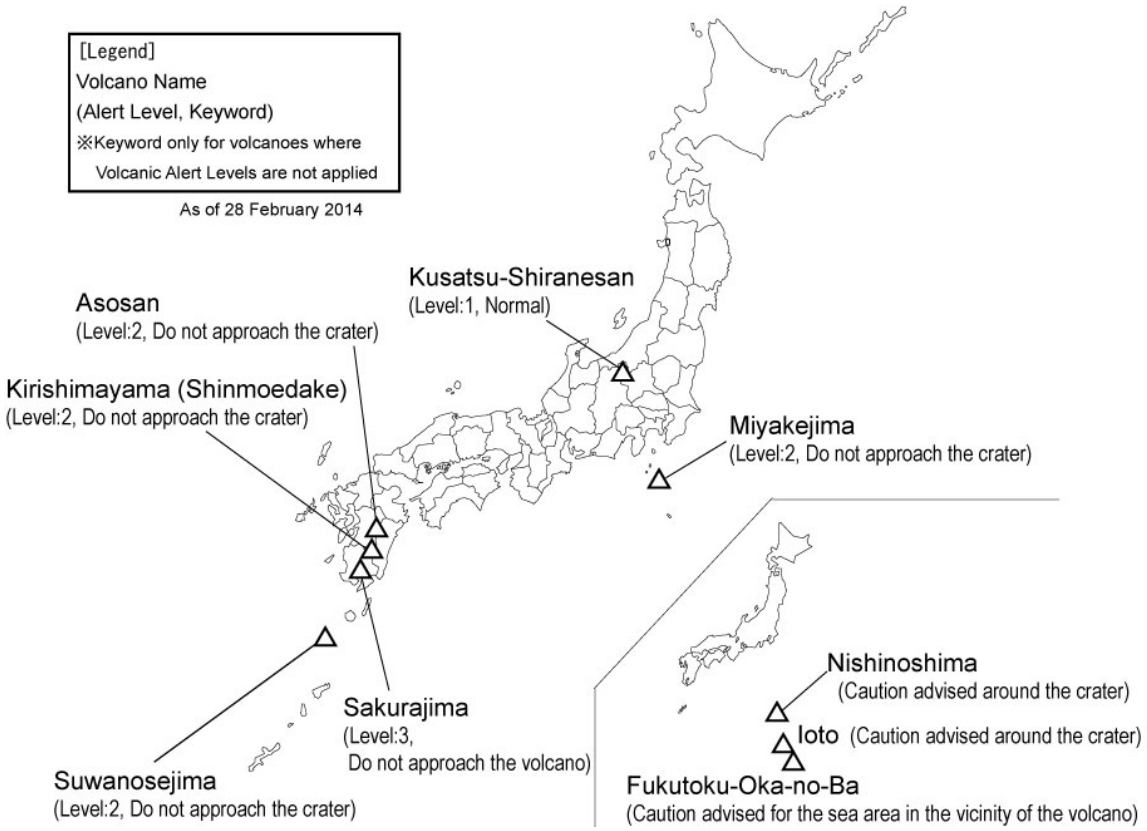
Monthly Volcanic Activity Report (February 2014)

Japan Meteorological Agency



Kusatsu-Shiranesan (Normal)

Volcanic seismicity beneath Yugama (a crater lake) was relatively high from around 16:00 on 6 March onward. It was particularly prominent on 6 and 7 March, when 10 and 48 volcanic seismic events were observed, respectively. Seismicity then gradually declined to background levels, with three and one events on 8 and 9 March, respectively. No volcanic tremors were observed.

Weak fumes were observed in the fumarolic area around the northern part of Yugama as before. No fumes were observed at Ainomine (at the southern part of the main crater) or inside the crater. No significant changes in fumarolic activity were observed on 6 or 7 March when seismicity was relatively high.

No remarkable change was seen in GNSS* observation data.

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

Miyakejima (Alert Level: 2)

The rate of volcanic gas emission has been on a long-term declining trend and has remained relatively low since February 2013. 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 mountain began to diminish gradually in 2000 and stopped around 2013. Long-term extension of the baseline along the north-south section of Miyakejima has also been observed since 2006, indicating expansion in deeper parts.

Nishinoshima (Near-crater Warning)

A report by the Japan Coast Guard (JCG) and other institutions showed that the eruptive activity of Nishinoshima, including expanding lava flows, remained at high levels. Eruptions occurring at two craters were accompanied by plumes rising as high as 1,500 m. JCG reported that the land newly formed by lava flows had an area of 0.45 km^2 as of 11 February, and that discolored water had been observed around the eastern part of the new land.

Photo 1. Aerial view from SSE at 14:07 on 28 February (courtesy of JCG)

JCG revealed that eruptions had continued and that discolored water had flowed out from the bay around the eastern part of the new land.

Ioto (Near-crater Warning)

Phreatic eruptions have occasionally occurred since early February 2012 at the old crater (known as Million-dollar Hole) on the western part of the island. However, no eruptions were observed in this period.

Volcanic seismicity has remained at relatively low levels. No volcanic tremors were recorded.

Data from the Geospatial Information Authority of Japan (GSI) show that the ground began subsiding in November 2013 and entered an almost static state around January 2014.

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

Aerial observation conducted by JCG on 2 February revealed no discoloration was observed. Discoloration and floating objects have been frequently observed in the waters surrounding Fukutoku-Oka-no-Ba in recent years,

which are considered to be caused by volcanic activity. The latest submarine eruption occurred on 3 February 2010.

Asosan (Alert Level: 2)

Very small eruptions were observed at the Nakadake No. 1 crater on 13, 16 and 19 February, and a grayish-white plume rose to 300 m above the crater rim during this period. Results from a field survey conducted on 12 February indicated the presence of small amounts of volcanic ash around the Nakadake No. 1 crater. It is presumed that a small eruption occurred from nighttime of 10 February to the morning of 11 February while bad weather prevented visual observation.

Volcanic earthquakes and isolated tremors remained at relatively low levels.

A field survey revealed that hot water covered less than 10 percent of the Nakadake No. 1 crater. The SO_2 flux was around 1,100 – 2,300 t/d, which was generally as high as that measured in the previous survey on January 2014 (1,300 – 1,500 t/d).

Photo 2. Very small eruptions captured on camera on 16 February
A grayish-white plume rose to 300 m above the crater and drifted southward.

Kirishimayama (Shinmoedake) (Alert Level: 2)

No eruptions were observed at Shinmoedake in the reporting period (the last explosive eruption occurred on 1 March 2011, while the last eruption of any kind was on 7 September of the same year).

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 has generally remained at low levels, but was temporarily elevated from 20 February onward. Occasional earthquakes also occurred around Onamike and Karakunidake, which are located adjacent to Shinmoedake.

Sakurajima (Alert Level: 3)

Explosive and other types of eruption activity at the Showa crater have remained at high levels. During this reporting period, 14 of the 33 eruptions observed were explosive. The maximum plume height from an explosive eruption on 28 February was 3,000 m above the crater rim. One occurring at 07:36 on 12 February produced a small pyroclastic flow that reached a distance of about 400 m southeast of the Showa crater. Ballistic rocks were ejected as far as the forth station (800 – 1,300 m from the Showa crater) in 12 explosive eruptions.

No eruption was observed at the Minamidake summit crater.

While volcanic seismicity remained at low levels in this period, volcanic tremors accompanied the eruptions.

Regarding ground deformation, the uplifting observed from around February 2013 stopped in July 2013 according to data from a water-tube tiltmeter installed 2.5 km southeast of the Minamidake summit crater by Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT). The results of continuous GNSS measurement had shown that a tendency of inflation on Sakurajima Island began around February 2013, while an almost static state or a tendency of slight contraction has been seen since around July 2013. Some baselines across Kagoshima Bay (Kinko Bay) had shown a tendency of extension, but have exhibited an almost static state since June 2013.

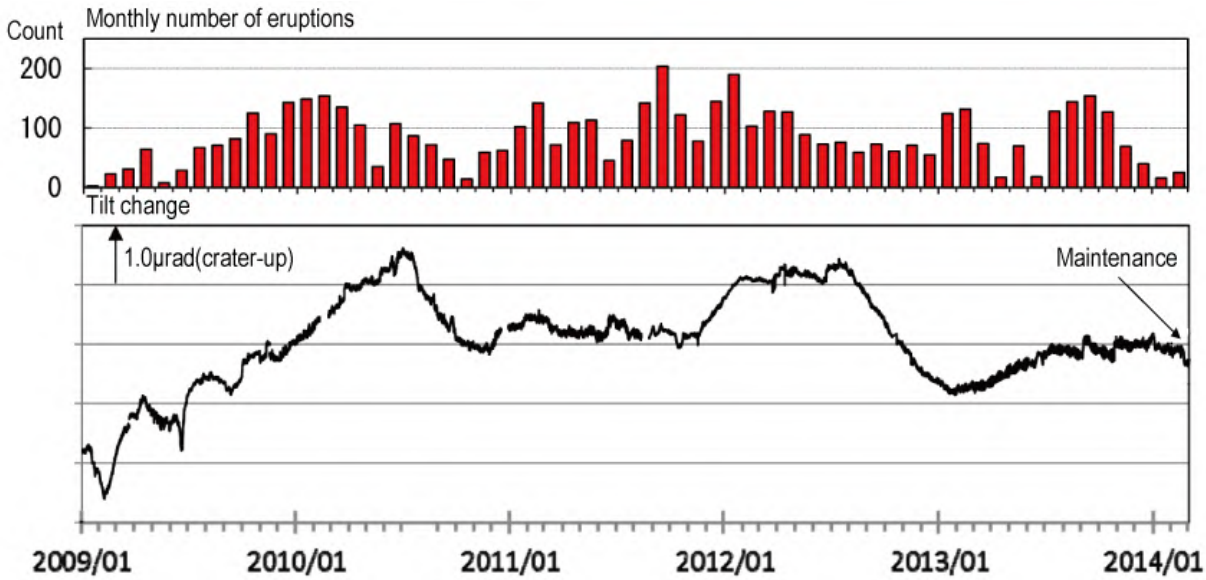


Fig. 1 Tilt change observed with a water-tube tiltmeter at Arimura Station from January 2009 to February 2014 with tidal response eliminated. Upheavals of the summit side correspond to positive tilts. The red bars in the figure denote monthly number of eruptions at the Showa crater.

Suwanosejima (Alert Level: 2)

Eruption activity at Suwanosejima has remained at high levels, with 7 explosions at the Otake crater in this period. Maximum plume height was 1,200 m above the crater rim. Weak volcanic glows in the crater were recorded at night with high-sensitivity cameras.

Volcanic seismicity remained at relatively high levels. Volcanic tremors sometimes occurred.