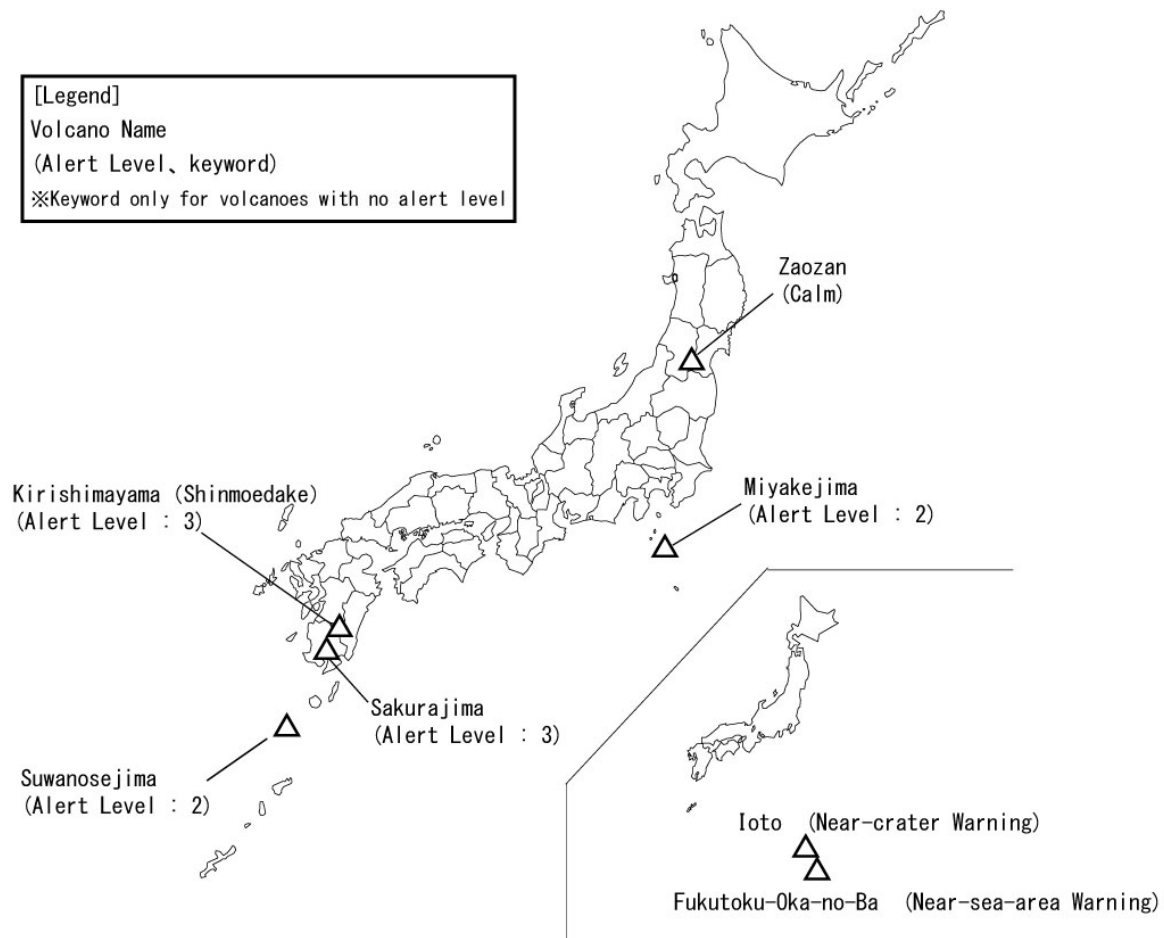


Monthly Volcanic Activity Report (April 2013)



Zaozan (Calm)

Small-amplitude volcanic tremors were recorded on April 7 (duration: 3 min 20 sec), 9 (4 min 20 sec) and 21 (5 min 40 sec). These were the first volcanic tremors observed at Zaozan since January 27, 2013. In addition, continuous low-frequency earthquakes were occasionally recorded, and the number of volcanic quakes in April was relatively high at 46.

Slight tilt changes were observed at Boudaira Station (about 5 km southwest of the summit) just before the volcanic tremors of April 7 and 21.

No changes in infrasound or surface phenomena were observed at any time, including the periods during which tremors occurred.

Miyakejima (Alert Level: 2)

Seismic activity was observed at a point about 10 km west of Miyakejima from 10:00 JST on April 17, and a magnitude-6.2 earthquake (provisional value) occurred there at 17:57 JST on the same day. Seismic intensities on the Japan Meteorological Agency (JMA) scale were 5⁺ in Miyake Village, 4 in Kozushima Village and Mikurajima Village, and between 3 and 1 in other regions on the Izu Islands and in the Kanto-Koshin, Tokai and Chubu regions. The number of earthquakes with seismic intensities of up to 1 or more was 53 (1 with a maximum intensity 5⁺, 7 with a maximum intensity 3, 11 with a maximum intensity 2, 34 with a maximum intensity 1). Afterward, the seismicity has been weakening gradually.

Volcanic seismicity inside Miyakejima has largely remained at low levels. The hypocenters of these quakes were located just beneath the summit crater of Miyakejima as before. No tremors have been observed.

Gas-and-steam plumes rose to heights of approximately 100 – 200 m above the crater rim. According to a report from Miyake Village, relatively high concentrations of SO₂ were occasionally recorded in inhabited areas.

Geomagnetic observation revealed that there was no change in an inner-heat state beneath Miyakejima.

No remarkable change in ground deformation was observed before or after the magnitude-6.2 earthquake to the west off Miyakejima. According to continuous GPS observation data, ground deformation indicating contraction in shallow parts of the mountain has continued since 2000, but has been gradually diminishing. Long-term extension of the baseline along the north-south section of Miyakejima has also been observed since 2006, indicating expansion in deeper parts.

Ioto (Near-crater Warning)

On April 11, a small phreatic eruption occurred at the Old-crater (known as Million Dollar Hole) located on the western part of the island. A volcanic tremor with duration of about 8 min 50 sec accompanied the eruption. At the Old-crater, phreatic eruptions have sometimes occurred since early February 2012.

According to ground deformation data obtained by GSI, a slight uplift had been observed since around January 2013, but this has nearly been in a static state since the April.

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

According to aerial observation conducted by the Japan Maritime Self-Defense Force (JMSDF) on April 10, an area of green sea water discoloration with a radius of 630 m due to volcanic activity had been formed around upwelling points.

Another aerial observation conducted by the Japan Coast Guard (JCG) on April 21 also revealed an area of milky-white sea water discoloration with a radius of 50 m around the points. However, no changes in temperature condition around or inside the discoloration water were observed; and neither were floating objects.

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 February 3, 2010.

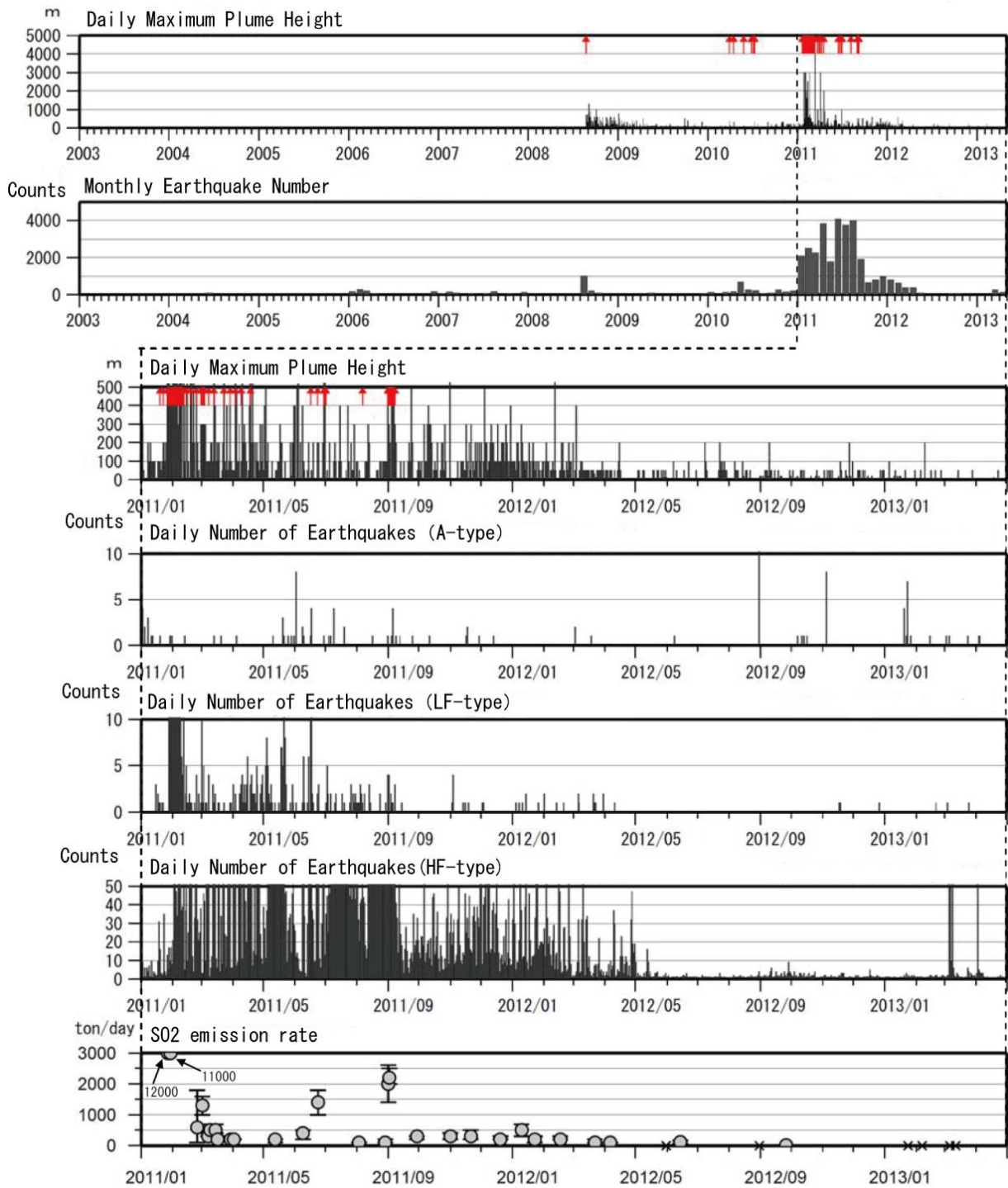
Kirishimayama (Shinmoedake) (Alert Level: 3)

No eruptions were observed at Shinmoedake in the reporting period (the last explosive eruption occurred on March 1, 2011, while the last eruption of any kind was on September 7 of the same year). As before, the white-plume height was less than 50 m above the crater rim.

The incidence of small-amplitude volcanic earthquakes temporarily increased in April 2; a total of 112 earthquakes, with very shallow hypocenters near the Shinmoedake, occurred in April (263 in March). No volcanic tremors have been observed since March 2012.

According to regional deformation observations conducted by GSI, baseline extension caused by magma supply to a deeper chamber to the northwest of the crater has gradually slowed down to a static state since December 2011. However, some baselines had shown a tendency to shorten slightly since May 2012, but have been in a static state since September of the same year.

Supply of magma from deeper parts to the magma chamber located several kilometers northwest of Shinmoedake has stopped. However, a large amount of lava has accumulated in the crater, and volcanic earthquakes have occasionally been observed. Based on this information, the possibility of small eruptions cannot be ruled out even now.



※ The notation “↑” represents an eruption.

Fig. 1 Seismicity, plume activity and SO₂ emission rate at Shinmoedake from January 2003 to April 2013.

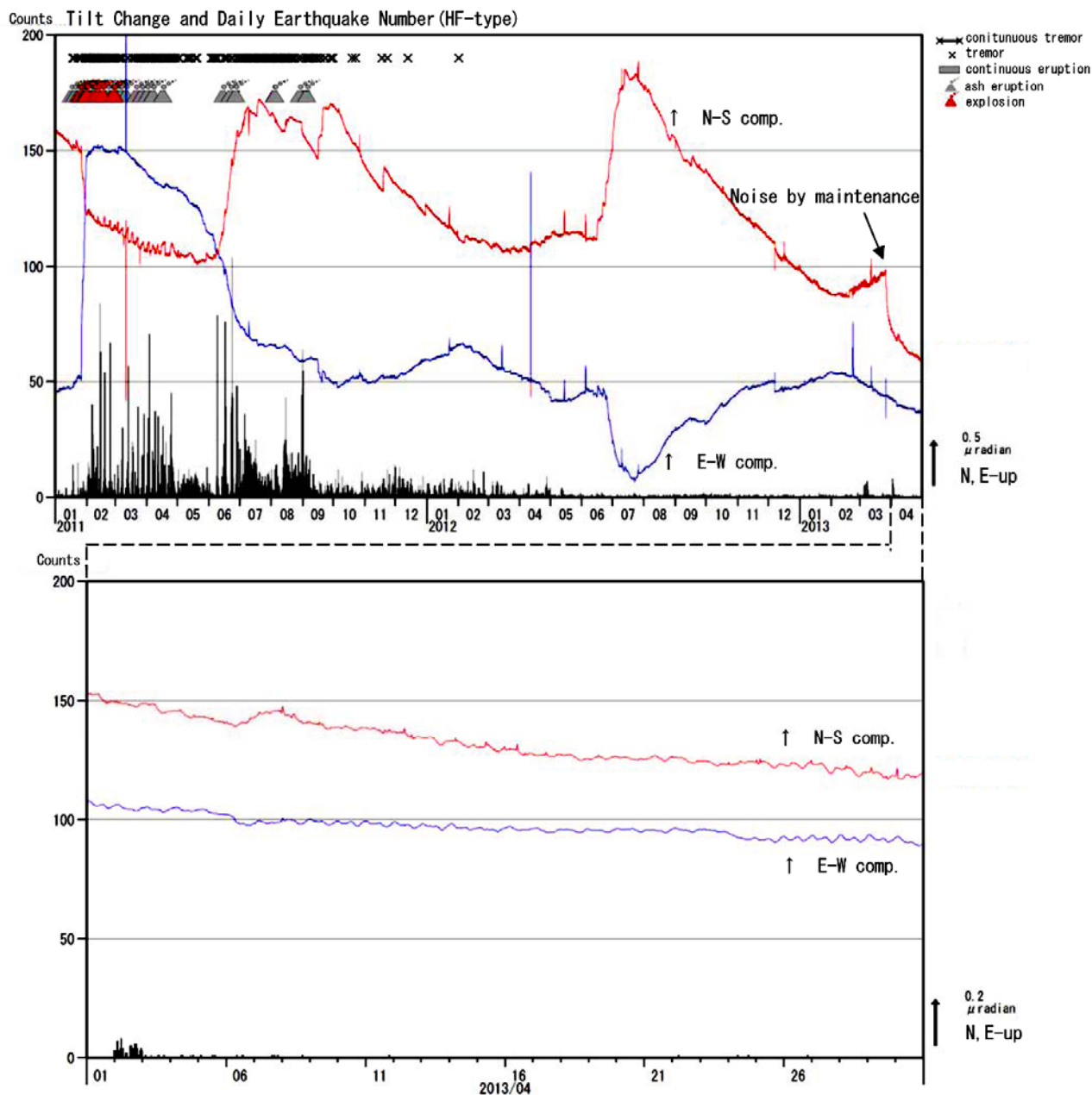


Fig. 2 Tiltmeter observation at Shinmoedake from January 2011 to April 2013.

Sakurajima (Alert Level: 3)

Eruption activity at the Showa crater has been continuing. During the reporting period, 17 eruptions were observed (74 in March), and 14 of them were explosive (61 in March), which were fewer than that in March. The explosive eruptions with ballistic rocks reaching third station (1,300 – 1,800 m from the Showa crater) occurred at 20:18 JST on April 2. The maximum plume height was 2,000 m above the crater rim during this period; no pyroclastic flows occurred. Clear volcanic glows in the Showa crater were sometimes recorded at night with high-sensitivity cameras. No eruption was observed at the Minamidake summit crater.

A total of 287 earthquakes occurred in April (552 in March), showing lower levels. Hypocenters were located at a depth of 2 km below sea level just under Minamidake. The number of tremors accompanying eruptions amounted to 56 in April (321 in March) with a total duration of 4 h 41 min, which substantially decreased compared to March (138 h 8 min).

Field surveys to measure SO₂ flux were conducted on April 5, 11 and 25. The SO₂ flux was approx. 1,600 t/d –

2,300 t/d (approx. 2,800 t/d in March), showing roughly high levels.

Regarding ground deformation of the mountain, the subsidence observed from around August 2012, stopped in January 2013 and turned to uplift in February according to observations made with 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 GPS measurement show that baselines on Sakurajima Island shortened slightly after around October 2012, and that activity slowed around January 2013. Deformation observations made by GSI indicate that expansion in the deeper part of the Aira Caldera (in a closed-off section of Kagoshima Bay) remains in an almost-static state, while some baselines across the caldera have exhibited slight extension.

Less than 0.5 g/m^2 of ashfall was observed at Kagoshima Local Meteorological Observatory (KLMO) on April 22. The total amount of ashfall estimated from data provided by the Kagoshima prefectural government was about 0.6 million tons in March 2013.

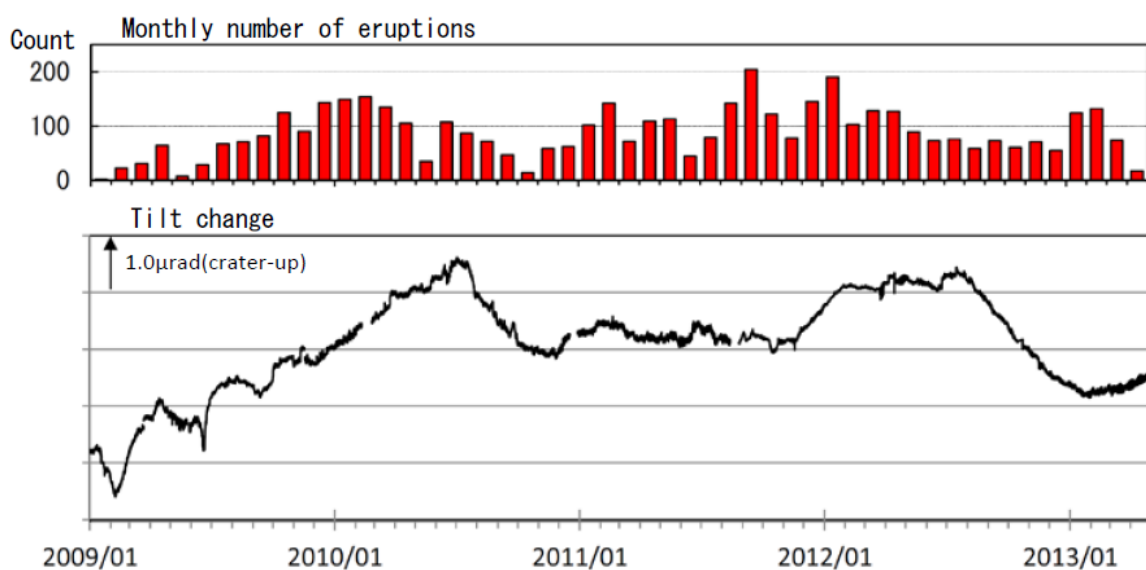


Fig. 3 Tilt change observed with a water-tube tiltmeter at Arimura Station from January 2009 to April 2013 with tidal response and eruptions eliminated. Upheavals of the summit side correspond to positive tilts. The red bars in figure denote monthly eruption frequencies at the Showa crater.

Suwanosejima (Alert Level: 2)

Eruptions over a certain size did not occur at the Otake crater in April. However, a very small eruption occurred on April 13, and the plumes rose to 700 m above the crater rim, Weak volcanic glows in the crater were continually recorded at night with high-sensitivity camera.

Volcanic tremors have occurred almost continuously since September 28, 2012.