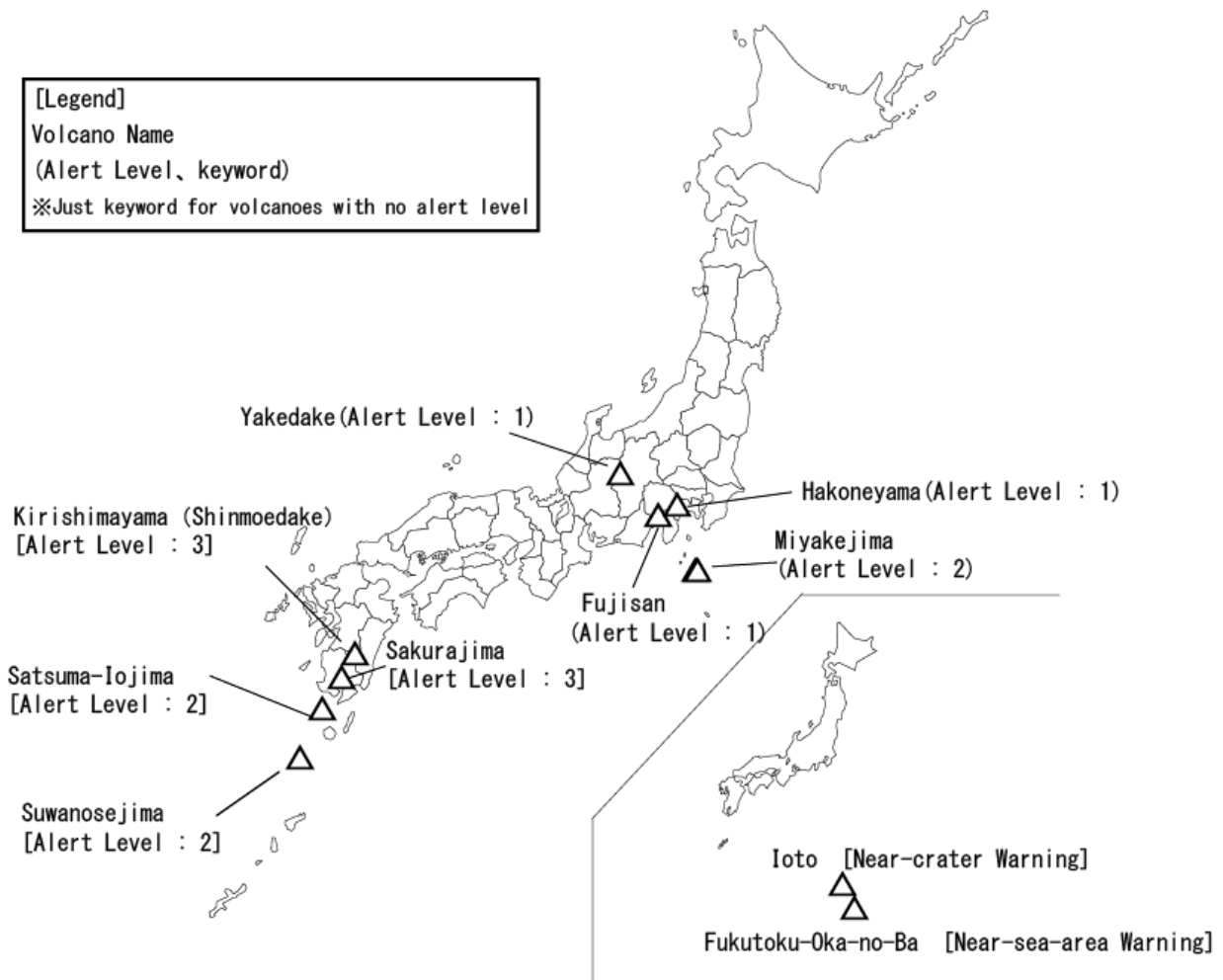


Monthly Volcanic Activity Report (March, 2011)

Japan Meteorological Agency



Yakedake[Alert Level : 1]

Just after "The 2011 off the Pacific coast of Tohoku Earthquake" on 11th March, seismicity became higher in the shallow parts beneath the summit and at NW foot of Mt. Yakedake, which included many felt-earthquakes, subsequently became at lower level of seismic activity.

Another high seismicity just after M4.8 earthquake on 21st March at 13:15 became active again, but it tends to return to the background level.

No volcanic tremor and low-frequency earthquake were observed.

No remarkable fume was observed.

Fujisan[Alert Level : 1]

A M6.4 earthquake occurred at around SSW 5km and 14km depth of the summit on 15th March at 22:31. Max seismic intensity of 6+ in JMA scale was observed in Fujinomiya-city, Shizuoka Pref. Many earthquakes following the main shock extended to right below the summit from the main shock. Seismicity have been becoming at lower level. These earthquakes are considered as aftershocks of the earthquake on 15th.

No volcanic tremor and low-frequency earthquake in the shallow parts were observed, and no fume was observed.

Hakoneyama[Alert Level : 1]

After the Tohoku Earthquake on 11th March, seismicity along both the area from Mt.Komagadake through lake Ashinoko, and around Mt.Kintoki became higher. it turned to lower level after 14th March, earthquakes temporarily increased around Mt.Hakoneyama. Moreover, small scale of activity was confirmed at the northern part of Owakudani.

A M 4.2 earthquake on 21st March at 23:14 occurred around Mt.Komagadake with JMA max seismic intensity

of 2. Some other earthquakes recorded with the intensity of 1 or 2 within the reporting period.

No volcanic tremor and deep low-frequency earthquake were observed.

Few fume at Sounjigoku was observed with the height of 50-200 meters.

No remarkable crustal change by strainmeter was observed.

Tiltmeter network by Hot springs Research Institute of Kanagawa Prefecture showed no relevant crustal change to earthquakes.

Miyakejima [Alert Level : 2]

Gas-and-steam plumes rose to a height of 100-500m above the crater rim.

The sulfur-dioxide flux was 600-1100 t/d in March 2011 (cf. 1000 t/d; February; Fig.1).

According to the report from Miyake village, high SO₂ concentration was sometimes recorded in some inhabited areas.

Seismicity has stayed at low level.

There was no geomagnetic change reflecting inner heat state beneath Miyakejima.

GPS observation shows continuous deflation of the volcano originated from the shallow source.

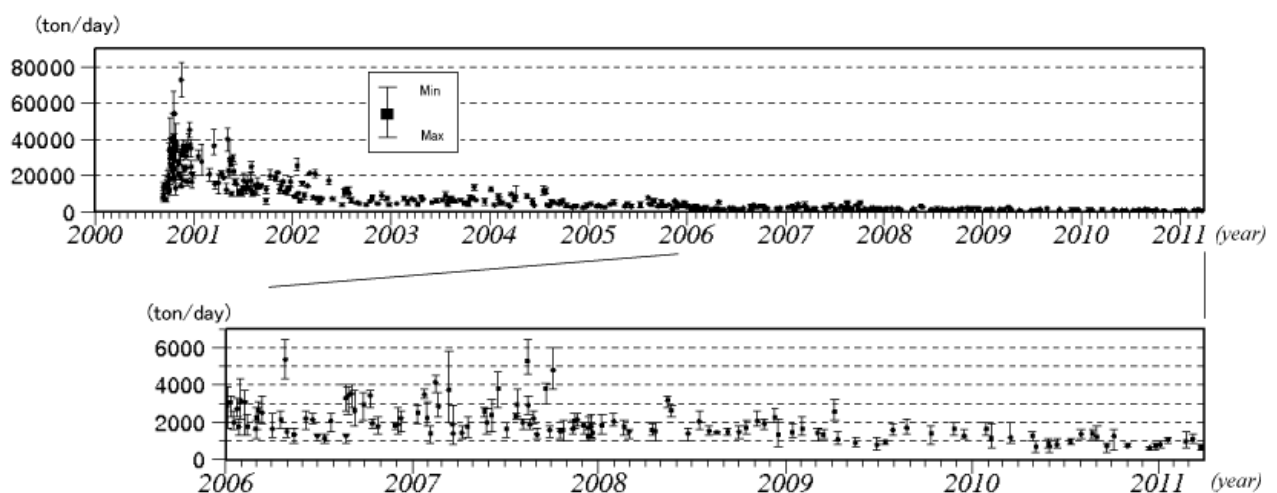


Fig.1 Emission rate of SO₂ at Miyakejima.

Ioto [Near-crater Warning]

According to the observation by NIED (National Research Institute for Earth Science and Disaster Prevention), seismicity in shallow parts in Ioto has been higher than before since February 2011.

According to the GPS observation by GSI, landwide upheaval that was first observed from August 2006 slowed down since middle November to December 2010, but has been on the increase since late January 2011. The extension of the baseline in NS direction is still continuing and recently southward displacement has been remarkably seen in the south end.

Fukutoku-Oka-no-Ba [Near-sea-area Warning]

According to the information from the JCG(Japan Coast Guard), JMSDF (Japan Maritime Self-Defense Force), and JMA, discolored water has frequently been observed around Fukutoku-Okano-Ba in recent years.

Kirishimayama (Shinmoedake) [Alert Level : 3]

Volcanic activity at Shinmoedake have become lower compared to the peak activity from January to February although intermittent eruptions have occurred

On 22nd March at 17:00, alert level was downgraded, and target alert area was reduced from 4 km to a 3 km radius from the crater, taking into the consideration of ballistics.

Maximum plume height rose as high as 4000m above the crater rim on 13rd March at 17:45.

The last explosive eruption occurred on 1st March at 19:23. No pyroclastic flow was observed.

The explosive eruption on 1st March at 19:23 had a small amount of ashfall to the eastern direction, accompanying air shock of 69.6Pa at Yunono (SW 3km from the crater).

For the eruption on 3rd March at 18:08, ashfall reached to SW direction from the crater in the partial area of Miyakonojyo-city, Nichinan-city, and Miyazaki-city.

For the eruption on 13rd March at 17:45, ashfall reached as far as the sea of Hyuga.

A field survey was conducted on 14th March, and showed that small lapillus with the diameter of 1 to 4 cm were sent up to approximately 9 kilometers away in a south-eastern direction such as Natsuo town, Miyakonojyo-city.

Volcanic glows were sometimes confirmed at night with a high-sensitivity camera from 1st through 14st March.

Seismicity has stayed at high levels. Seismic events occurred 2,262 times in this period (cf. 2,520 times; February).

Temporal increases in seismicity just before and after eruptions (including explosive ones) were sometimes observed. But such seismicity observed on 17th to 18th March with no eruption accompanied.

A small-scale of consecutive tremor on 28th February at 07:33 continued till 4th March at 11:05 (Fig 1).

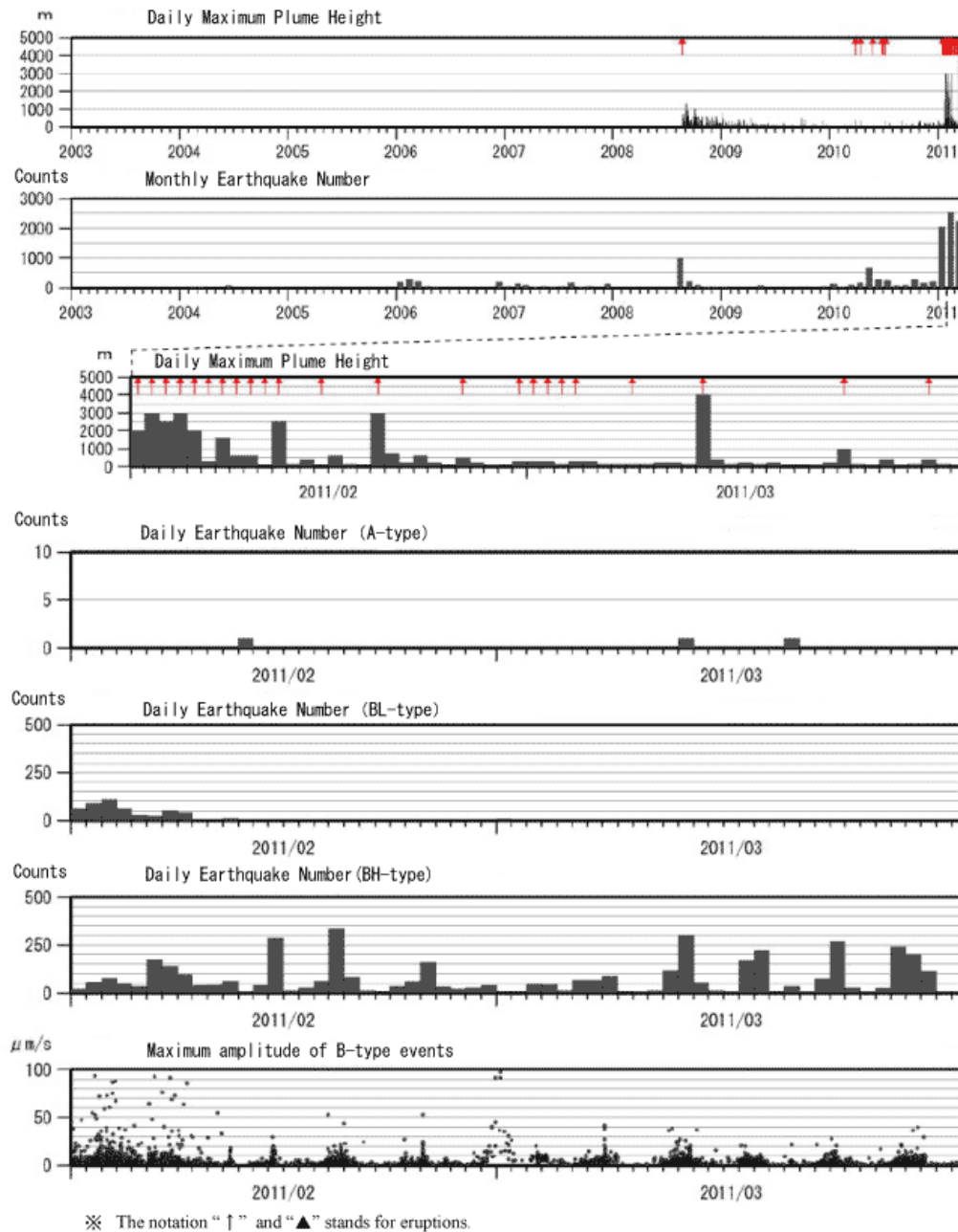


Fig.1 Seismicity and plume activity at Shinmoedake from 2003 to March 2011.

Aerial observations were conducted in corporation with Kyushu Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism, JASDF (Japan Air Self-Defense Force), and JMSDF (Japan Maritime Self-Defense Force) on 2nd, 4th, 7th, 11st, and 22nd March, and they revealed that the lava accumulated inside the crater was 500-600m in diameter, and that it remain unchanged. Moreover, a pit with a diameter of approximately 100m was confirmed in the SE part inside the crater on 11st March (Photo 1).

According to the analysis by MRI (Meteorological Research Institute, JMA) and NIED from PALSAR (Phased Array type L-band Synthetic Aperture Radar) data of the ALOS(Advanced Land Observing Satellite), no change was observed in the reporting period.

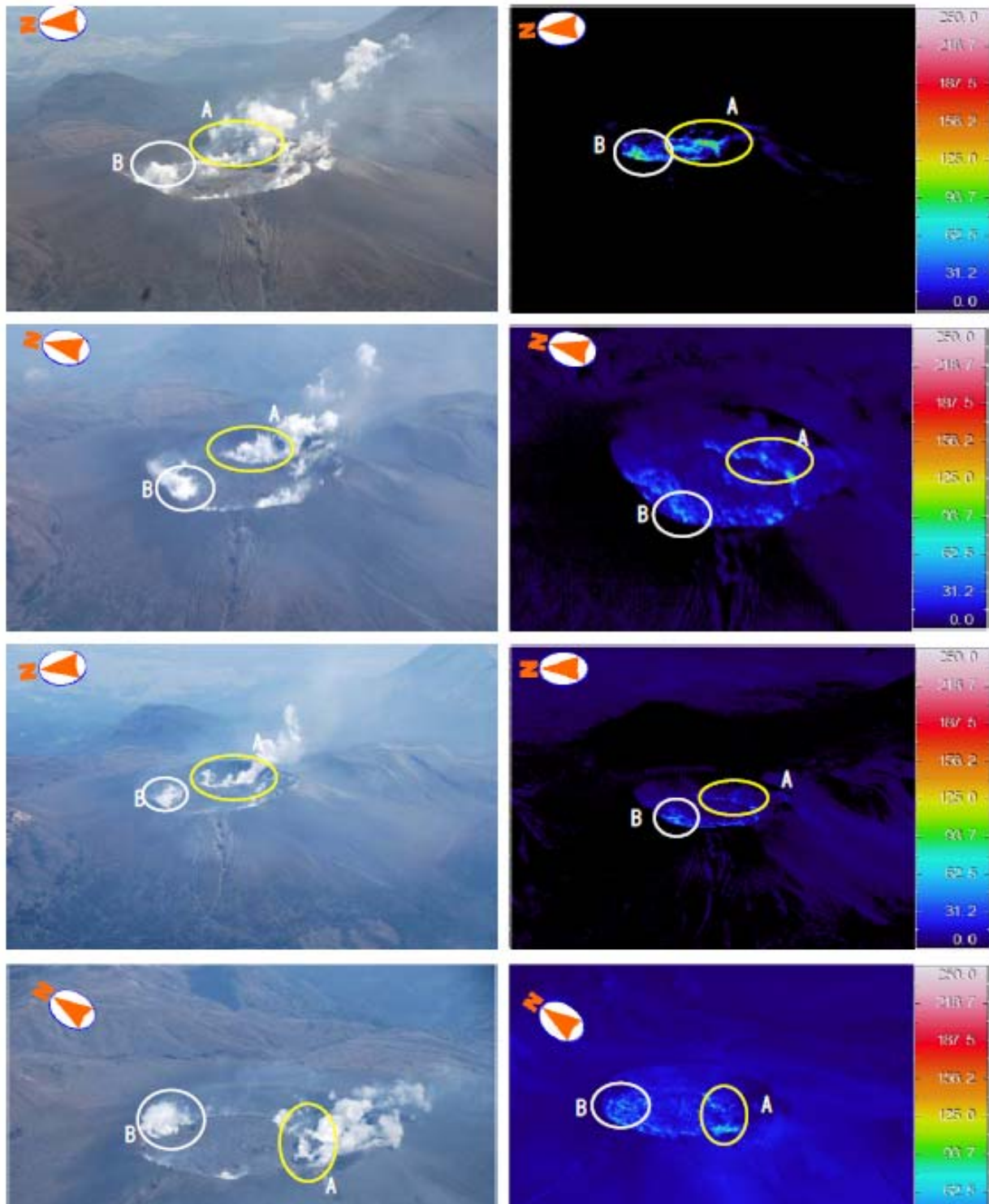


Photo.1 Aerial survey from 4th to 22nd March 2011. Region A and B show relatively high temperature, corresponding to the plume area. Courtesy of JASDF and JMSDF.

The sulfur-dioxide flux of 1,300 t/d was observed on 2nd but subsequently decreased with an average of 200-500 t/d (cf. 11,000-12,000 t/d; January, 600 t/d; February).

GPS measurements by GSI revealed that magma supply to deeper magma chamber around several kilometers NW of Shinmoedake has continued.

According to tilt observation (about 3km SE of Shinmoedake), Both upheavals in summit area before several hours to 2days of eruptions and subsidences just after eruptions were confirmed. In some cases, eruptions and/or explosive eruptions with no tilt change were observed. Conversely, no eruption occurred even though some tilt change was confirmed. Tilt changes as noted above indicate that magma ascent from magma chamber to Shinmoedake have been intermittently continuing (Fig. 2).

(*The PALSAR data used in the analysis were prepared by the ALOS ‘Daichi’ Domestic Demonstration on Disaster Management Application that Volcano Working Group coordinated by the CCPVE (Coordinating Committee for Prediction of Volcanic Eruptions). The PALSAR data belongs to JAXA/METI (Japan Aerospace Exploration agency/Ministry of Economy Trade and Industry). We would like to thank Dr.Shimada (JAXA) for the use of his SIGMA-SAR software.)

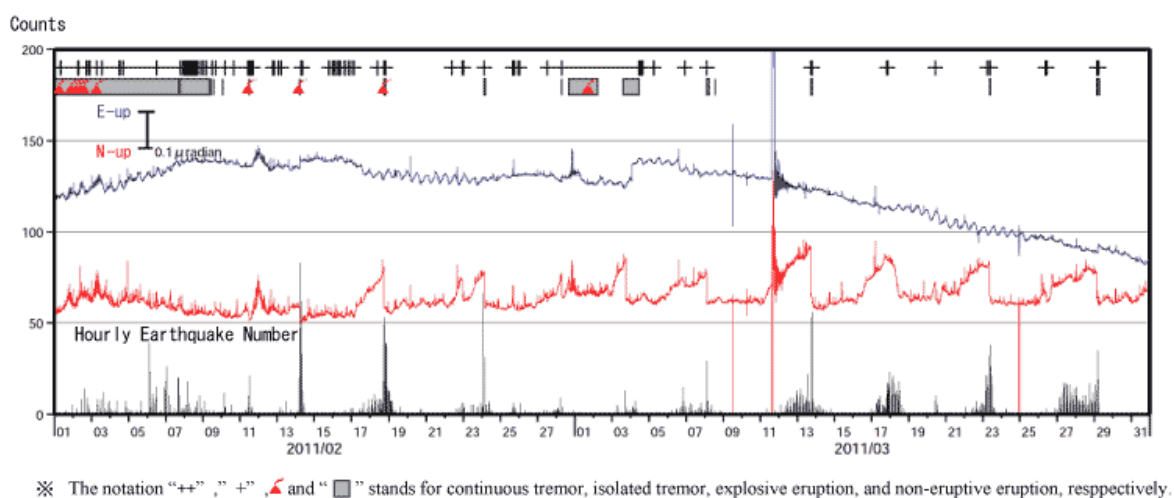


Fig.2 Seismicity and plume activity at Shinmoedake from 2003 to March 2011.

Sakurajima[Alert Level : 3]

Eruptions including explosive eruptions at Showa-crater remained at high level. In this period, eruptions occurred 72 times (cf. 142; February), of which 57 times were explosive eruptions (cf. 108; February). Volcanic projectile reached to about 800-1300m from Showa-crater. Volcanic glows were sometimes confirmed at night with a high-sensitivity camera.

No pyroclastic flow was observed.

There was no eruption at Minamidake summit crater.

Volcanic seismicity has remained at relatively low level.

The sulfur-dioxide flux was measured with an average of 700-1,700 t/d in March (cf. 300 t/d; February).

According to GPS measurement, no volcanic change at Sakurajima island was observed this period.

The water-tube tiltmeter by MLIT (Ministry of land Infrastructure, Transport and Tourism; 2.5km SE of Minamidake summit crater) suggested that the subsidence of summit has been slowing down since late November, but has been accelerating since early February 2011 due to the trend of emitting much volcanic ash (Fig. 3).

According to GPS measurement by the GSI, extension of the baselines that traverse Aira-Caldera (at closed-off section of Kagoshima bay) has been confirmed.

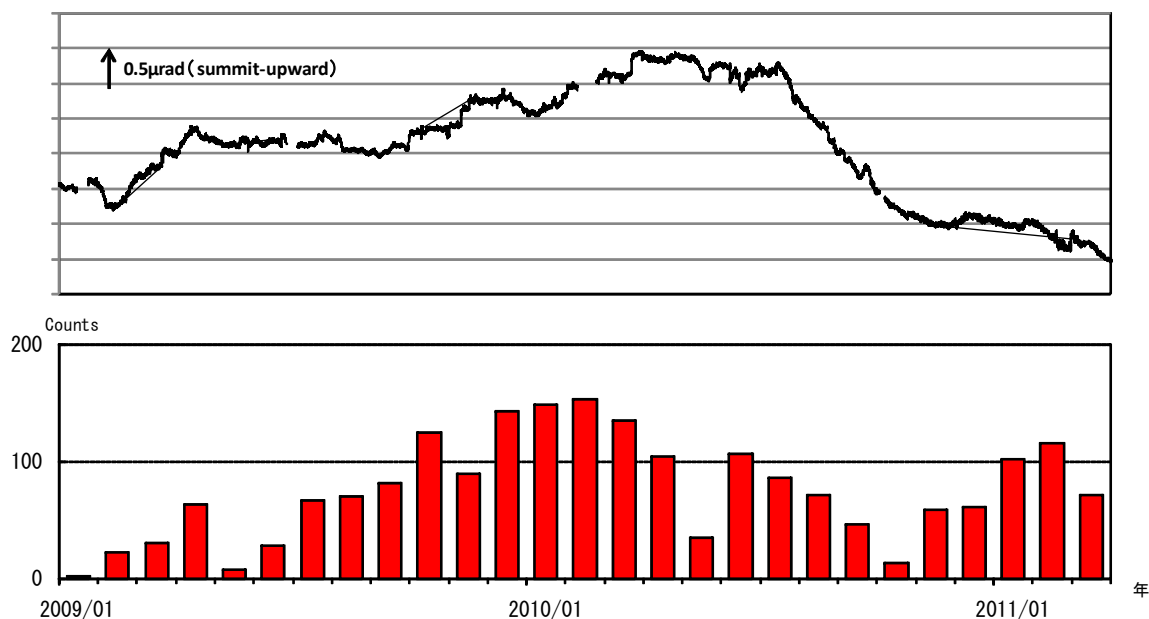


Fig. 3 Tilt change observed by water-tube tiltmeter at station Arimura from January 2009 to March 2011, corrected for tidal response and eruptions. Summit upheaval corresponds to positive tilt. In the upper figure, red bars denote monthly frequencies of explosions from Showa-Crater.

Satsuma-Iojima [Alert Level : 2]

White-plume activity at Iodake summit crater remained above background levels, and rose less than 200 meters (maximum; 400m) above the crater rim in this period. Volcanic glows were sometimes confirmed at night with a high-sensitivity camera.

Seismicity has stayed at low level.

A volcanic tremor with small amplitude and short duration occurred in this period.

Suwanosejima [Alert Level : 2]

Possible ash explosions occurred intermittently through this period. 5 explosive eruptions (cf. 15; February) occurred in this period. Volcanic earthquakes and volcanic tremors remained at high level. Toshimamura village received a report from an inhabitant that ballistics flew around the summit crater. No plume and ballistics were identified by surveillance camera due to the badness of the weather. Also, volcanic glows were sometimes confirmed at night with a high-sensitivity camera.

Just after "The 2011 off the Pacific coast of Tohoku Earthquake" on 11th March, A-type activity became higher, subsequently became at lower level. Volcanic earthquakes and tremors remained relatively high.