

The volcanic tremor and relevant activities of Ohachi Volcano/Kirishima from December 2003

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<http://fukuoka-jma.go.jp/kagoshima/kago1.html>

1.Introduction

Several volcanic tremors took place at Ohachi volcano, which is one of the active volcano of the Kirishima volcano group, have been recorded since June 2002. On 12 December 2003, the longest volcanic tremor in the past took place and subsequently fuming became active from created two new fumaroles. Simultaneously, seismic activity became higher. Also on 3 January 2004, after volcanic tremor, whose magnitude is as same as one in 12 December 2003, took place, fuming and seismic activity was higher temporarily. Since then, volcanic activity declined gradually up to now. Volcanic activities on Ohachi volcano from December 2003 are summarized as follows.

2.Fuming activity

On 12 December 2003, Dr. Kobayashi (Kagoshima University) observed and informed us that fuming activity at Ohachi volcano was higher than usual. On 14 December we investigated and found two new fumaroles was created on the SSW flank of the inside crater. The height of fume of new fumaroles was 50 to 100 meters high from the crater rim. The jet-like sound was heard from the rim clearly and smells fumarolic odor. Emitted small white stones like hard mud with 2 to 3 centimeters in diameter were found within 10 meters from new fumaroles. The maximum temperature of new fumarolic area was 96 degree, which is the average temperature at other fumarolic areas in Ohachi crater.

The fume above the rim was observed from 13 to 22 December 2003, and not found from 23 December 2003 to 2 January 2004 by the visual camera located at the Kirishima Royal Hotel. After the volcanic tremor at 06:36 3 January, the fume with 200 meters high above the rim was observed between 07a.m. and 04 p.m. Since then, fume over the rim had been found only occasionally.

According to the thermal analysis, abnormal thermo area was detected corresponding to the two new fumaroles while no other newly abnormal area was found.

3.Earthquake and tremor activity

The daily number of volcanic earthquakes took place around Ohachi had been 0 to 3 times during the past 2 years. After the occurrence of two distinct tremors as above, seismicity in the area rose. All earthquakes dominated high-frequency components over 5Hz. The daily frequency of volcanic earthquakes reached 22 times on 16 December 2003 but decreased and returned to normal levels shortly. All of them were located within 1 km from Ohachi in horizontal distance and shallower than 3km in depth.

Volcanic tremors with long durations had been observed occasionally since June 12 2002. Before 12 December 2003, all tremors did not accompany with any surface changes in and around the summit crater.

At Ohachi, high-frequency earthquakes with a preceding emergent phase have been observed over the several years. Also since December 2003 the same type of earthquakes was observed. The duration between a beginning of emergent phase and successive main phase differ from 1 to 6 seconds.

4.Ground deformation

Fukuoka/JMA and MRI/JMA have installed 10 GPS stations, and continuous and repetitious measurement have been carried out. The repeated observations have been carried out three times per year since August 2001. Also additional stations were installed in March 2003. As of now, no remarkable deformation in association with volcanic activity has been observed.

Tiltmeter, installed at 1.3km SSW away from Ohachi by MRI, recorded some changes corresponding to the volcanic tremors since December 2003. The changes showed downward tilt in the radial direction to Ohachi, namely deflation of beneath the crater (Fukui et. al. 2004).

5.G geomagnetic total intensity observation

The geomagnetic total intensity measurements have been repeated in and around Ohachi, no detectable changes, however, were detected so far.

6.Conclusion

The current activity of Ohachi volcano is to be temporarily higher, and require careful observation for the time being.