

Recent activity of Miyakejima Volcano(6)

Volcanological Division, Seismological and Volcanological Department, Japan Meteorological Agency and Miyakejima Weather Station, Japan Meteorological Agency, # Tomoaki Takizawa[1]

[1] VOIC, JMA

1. Introduction

Miyakejima volcano has been emitting a huge amount of volcanic gas(SO₂) and all resident has still been forced to evacuate from the Island since September 2000. The recent several observations show the decline of volcanic activities.

In this paper, we introduce on the recent observations obtained.

2. The current status of volcanic smoke and the volcanic gas

The periodical COSPEC SO₂ measurements have been carried out getting supports from Japan Defense Agency, Japan Coast Guard, Metropolitan Police Department and Tokyo Fire Department. Although the amount of released SO₂ was more than 70,000 ton/day at maximum in autumn 2000, it has been gradually decreasing since that time. The recent measurements show 3,000-10,000 ton/day during the period between the end of 2002 and 2003.

The SO₂ concentration sometimes exceeded 20 ppm along near the coast areas before summer 2002. But since the end of 2002, it becomes lower to several ppm at maximum.

3. The temperature of the crater

In February 2002, the temperature of the crater measured by infrared observation sometimes exceeded 450 degrees. But since the end of 2002, it does not exceed 300 degrees and is dropping gradually.

4. Seismicity

The recent seismicity in and near Miyakejima volcano is going lower. The occurrence of high frequency earthquakes are decreasing and number of observed events are about 50 times/month since July 2002. On the other hand, that of intermediate low-frequency earthquakes have gradually increased from July 2002 and have showed more increase since October 2002. On the contrary, that of low-frequency earthquakes have decreased since October 2002 and it has hardly seen since winter 2002. The hypocenters of intermediate-low and low frequency earthquakes were located in the shallow depth just beneath the crater. The period of the increase of intermediate low-frequency earthquake and the decrease of low-frequency earthquake took place simultaneously, the reason of this, however, is not clarified yet. The amplitudes of these intermediate low-frequency earthquakes were not significant changes but rather constant amplitudes. On the other hand amplitudes of low-frequency earthquakes have become smaller in accordance with the decrease of occurrence.

The amplitudes of volcano tremors which are considered to be associated with the gas emission have been decreasing especially since September 2002.

5. Geodetic observation

According to the GPS geodetic observation, the ground deformation showing the deflation of Miyakejima had been observed since 2000. The deflation rate, however, became gradually lower and finally it turned to expansion in sometime summer 2002. It is known that Miyakejima shows continuously tendency of expansion due to a supply of magma. We understand that, the deflation due to volcanic gas emission since the eruption of 2000 was larger than the inflation rate due to continuous supply of magma. The observed inflation, therefore, will simply mean that the ground deformation rate in Miyakejima returns to the steady state.