

Unzen Volcano : the 1900-1992 eruption

Ohta, Kazuya

Shimabara Earthquake and Volcano Observatory, Kyushu University

Nakada, Setsuya

Department of Earth and Planetary Sciences, Kyushu University

Okada, Hakuyu

Department of Earth and Planetary Sciences, Kyushu University

Matsuo, Norimichi

Shimabara Earthquake and Volcano Observatory, Kyushu University

他

<https://hdl.handle.net/2324/9836>

出版情報 : 1992. The Nishinippon Co., Ltd.

バージョン :

権利関係 : (c)1992 The Nishinippon Co., Ltd., Kyushu University Press : You may not use this work for commercial purposes. For any reuse or distribution, you must acknowledge your source.

1. Chronological Table

- 4 July 1990
The first record of volcanic tremors (premonitory symptom of a volcanic eruption).
- August — October
A series of earthquakes and tremors beneath summit craters.
- 17 November
Steam eruptions from old Jigokuato and Kujukushima Craters at the top of the Fugendake Cone.
- 22 November
Start of a joint committee of 22 organizations, including local governments around the volcano, to take action against disasters.
- December
Gradual decline in eruptive and seismic activities.
- 15 January 1991
Recurrence of swarm earthquakes.
- 16 January
A new fumarole opened at the western rim of Jigokuato Crater.
- 12 February
A new crater opened (Byobuiwa Crater).
- 26 February
Shimabara City Government's evacuation plan for 16,000 people.
- 25 March
Recurrence of eruptions from Jigokuato Crater.
- 29 March
Simultaneous eruptions from three craters.
- 13 May
Increase in number of earthquakes and tremors near the top of the Fugendake cone.
- 15 May
A small debris flow in the headwater of the Mizunashi River. Evacuation of 461 people of 117 families living along the Mizunashi River.
- 17 May
Coordinating Committee for the Prediction of Volcanic Eruptions announced that the volcanic activity had got into a new phase.
- 19 May
A debris flow in the Mizunashi River. Warning against debris flows and advise of evacuation to about 3,500 people living along the Mizunashi River.
- 20 May
Emergence of a lava dome (Dome 1) in the Jigokuato Crater.
- 24 May
First occurrence of a pyroclastic flow. Then pyroclastic flows occurred intermittently.
- 26 May
One person working in the upper stream of the Mizunashi River got burnt due to a pyroclastic flow. Warning against pyroclastic flows and evacuation of 911 families.
- 3 June
A big pyroclastic flow in the Mizunashi River. 31 people missing, 11 people seriously wounded.
- 6 June
33 dead and 4 missing were confirmed.
- 7 June
Shimabara City Government set up the off-limit quarters along the Mizunashi River and forced people to evacuate.
- 8 June
Fukae Town Government set up off-limit quarters. After that, another big pyroclastic flow ran about 5.5 km from the crater.
- 9 June
Emergence of a new dome (Dome 2). Prime Minister Toshiki Kaifu's visit to Shimabara City.
- 10 June
Death of a fireman injured by the 3 June pyroclastic flow. The total toll of 34 lives. Five high schools were closed.
- 11 June
A small-scale explosion at midnight and resultant pumice fall in the northern part of Shimabara City.
- 12 June
Marked inflation of the summit area of the Fugendake Cone. People in Shimabara City were advised not to go out of their houses. Primary and junior high schools in Shimabara

City were all closed. Fukae Town Government expanded the off-limit quarters.

● 13 and 19 June

Death of firemen injured by the 3 June pyroclastic flow. The total toll of 36 people.

● 14 June

Dome 2 grew to a size of 100 m long and 50 m high.

● 17 June

A heavy ash-fall in Obama Town, 9.3 km southwest of Mt. Fugen.

● 18 June

Continuous growth of Dome 2. Pale-blue smoke rich in SO₂ from the Jigokuato crater.

● 19 June

A large-scale pyroclastic flow in Mizunashi River ran about 4 km from the Jigokuato Crater. A part of it entered into the Akamatsudani Valley.

● 20 June

Closing of primary and junior high schools for earlier summer vacation. Hotels in Shimabara City offered to about 250 people of 68 families.

● 22 June

Evacuees moved to houses built by Nagasaki Prefectural Government.

● 24 June

182 people of 56 families were accommodated on board a passenger boat "Utopia" chartered by Nagasaki Prefectural Government.

● 25 June

Death of an NHK cameraman injured by the 3 June pyroclastic flow. The toll of 37 people.

● 27 June

Extension of the evacuation period invoked by Shimabara City and Fukae Town Governments.

● 30 June

A large-scale debris flow due to a heavy rainfall flowed down into the Ariake Bay, destroying 134 houses.

● 2 July

Dome 2 grew to a size of 250 m wide and 250 m long.

● 7 July

The study group of debris flow disasters, sponsored by Ministry of Education, Science and Culture, confirmed old debris flow de-

posits from the southern slope of Mt. Mayuyama.

● 8 July

The dome length, 400 m long.

● 9 July

Surface temperatures of about 430 °C recorded at the leading edge of the dome. The Japanese Government approved a special measures for relief of the evacuees.

● 10 July

Visit of the Emperor and the Empress to Shimabara City.

● 12 July

Second extension of the evacuation period.

● 13 July

Ash fall in Shimabara City, originated from pyroclastic flows.

● 14 July

The dome length, about 470 m.

● 15 July

Visit of the Investigating Committee organized by the Japanese Government to Shimabara City and Fukae Town.

● 18 July

The dome length, 500 m. Discovery of a corpus of a woman killed by the 3 June pyroclastic flow. The death toll of 38. Three people still missing.

● 20 July

The dome length, 520 m.

● 21 July

The dome length, 530 m.

● 27 July

Third extension of the evacuation period.

● 28 July

Mitigation of the traffic control for Route 252 after 50 days past from 8 June.

● 1 August

Earlier end of vacation of primary and junior high schools.

● 8 August

Death of an NHK news reporter injured by the 3 June pyroclastic flow. The death toll of 39.

● 11 August

Increase in number of volcanic tremors and earthquakes beneath the summit area of the Fugendake Cone. A small-scale explosion and a resultant heavy ash fall in Shimabara City.

- Third extension of the evacuation period.
- 12 August
Eruption of ash early in the morning.
 - 15 August
Emergence of a new dome (Dome 3).
 - 23 August
Japanese Government approved the financial support to the fund for taking actions to Unzen volcanic disasters.
 - 24 August
The dome 3 continued to grow.
 - 25 August
Frequent occurrence of pyroclastic flows on the northeastern slope towards the Taruki hill. Dome 3 continued to grow.
 - 26 August
Fifth extension of the evacuation period.
 - 27 August
Shimabara City Government allowed their short-time home-visiting to people living in 4 districts within the off-limit quarters.
 - 28 August
Death of a fireman injured by the 3 June pyroclastic flow. The death toll of 40.
 - 29 August
People living in the Senbongi district advised to evacuate immediately, because of frequent occurrence of pyroclastic flows on the northeastern slope.
 - 31 August
Frequent occurrence of pyroclastic flows on the northeastern slope. Shimabara City Government decided to advise people in the Senbongi district to evacuate.
 - 3 September
Frequent occurrence of pyroclastic flows on the northeastern slope.
 - 5 September
Sixth extension of the evacuation period.
 - 6 September
Increase in number of volcanic tremors and earthquakes beneath the summit area.
 - 7 September
A daily occurrence of earthquakes is 268, the largest since 20 May.
 - 10 September
Temperatures of about 600 °C recorded from around fumaroles. Shimabara City Govern-
- ment set the off-limit quarter at the Senbongi district.
 - 11 September
Shimabara City Government allowed their short time home-visit to people living in a few restricted districts within the off-limit quarters.
 - 15 September
Frequent occurrences of pyroclastic flows in the evening. One of large-scale pyroclastic flows burned 176 houses. Seventh extension of the evacuation period, and the off-limit area partly reduced.
 - 17 September
Emergence of a new dome (Dome 4) on the northeastern side of the summit. The new dome was 200 m wide, 100 m long and 20-30 thick, which emerged in houseshoe-shaped crater formed after the 15 September pyroclastic flow event.
 - 18 September
Shimabara City Government allowed their short-time home-visit to people living near the downstream of the Mizunashi River.
 - 25 September
Eighth extension of the evacuation period.
 - 28 September
All evacuees living temporarily in gymnasiums and other places were advised to move into hotels.
 - 6 October
White clouds from lava domes all day long.
 - 8 October
Frequent occurrences of rock-fall from Dome 4. Pale-blue smoke from everywhere in the crater.
 - 15 October
Ninth extension of the evacuation period. Shimabara City and Fukae Town governments allow 384 families living near the downstream of the Mizunashi River to go home. Bus service between Shimabara City and Kuchinotsu was reopened after 134 days.
 - 24 October
Earthquakes increased in number after 37 days of quiescence.
 - 25 October
Increase in number of earthquakes. Rapid growth of the lava dome. Flaming over the

- domes at night.
- 26 October
Pupils studying in the refuge places returned to their primary and junior high schools.
 - 30 October
Ash clouds to a height of about 1,500 m.
 - 4 November
Tenth extension of the evacuation period.
 - 14 November
The dome grew to a size of 500 m long, 400 m wide and 250 m thick. A daily occurrence of earthquakes beneath the crater was more than 100 times.
 - 23 November
Earthquakes were increasing in number. A daily occurrence of earthquakes was more than 200 times.
 - 24 November
A mass of lava in petal shape was growing to the west of Dome 4.
 - 27 November
Medium-scale pyroclastic flows in the upper stream of the Akamatsudani River.
 - 1 December
The daily occurrence of earthquakes, more than 500 times, the maximum since 17 November 1990.
 - 3 December
Emergence of a new dome (Dome 6).
 - 12 December
Medium-scale pyroclastic flows towards the Akamatsudani River. The leading edge of the main flows reached a point 300 m behind the nearest house.
 - 19 December
Simultaneous growth of Domes 5 and 6.
 - 20 December
A size of Dome 6, about 200 m long and about 70 m thick.
 - 27 December
The Shimabara Railway service was reopened after 206 day-long closing.
 - 11 January 1992
The top of Dome 5 became the same in altitude as the peak of the Fugendake Cone (1,359m).
 - 3 January
Temperatures of the dome surface, more than 200 °C.
 - 5 January
Medium-scale pyroclastic flows. The leading edge stopped 300 m behind the nearest house.
 - 16 January
Successive pushing due to the growth of Dome 5 resulted in the collapse of Dome 4.
 - 6 February
Dome collapse occurred more than 400 times a day.
 - 10 February
Emission of hydrothermal water from the northeastern slope.
 - 12 February
The 14th extension of the evacuation period. Shimabara City and Fukae Town governments reduced the off-limit quarters.
 - 18 February
The top of the Dome 5 became higher by about 20 m than the peak of the Fugendake Cone.
 - 22 February
Continuous growth of Dome 6.
 - 13 March
The off-limit quarters were partly reduced.
 - 14 March
Prime Minister Kiichi Miyazawa's visit to Shimabara City and Fukae Town.
 - 22 March
The leading edge of medium-scale pyroclastic flows stopped 150 m behind of the nearest house.
 - 23 March
Earthquakes and volcanic tremors occurred 586 and 98 times, respectively.
 - 25 March
Dome 7 started growing at the southern root of Dome 6.