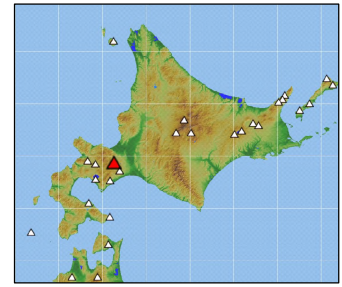


13.Eniwadake

Latitude: 42°47'36" N, Longitude: 141°17'07" E, Elevation: 1,320 m
(Eniwadake) (Triangulation Point)



Overview of Eniwadake taken from northwest side on July 19, 2011 by the Japan Meteorological Agency

Summary

This is an andesite (The SiO_2 content is between 56.0 and 65.0 wt %) post-caldera volcano formed on the interior northwest wall of the Shikotsu caldera. It is approximately 5 km in diameter, and has a relative height of 1.1 km. The volcanic edifice was formed by large pumice eruptions (the largest occurring approximately 20,000 years ago) and an andesite lava flow (Nakagawa et al., 1994b). Fumaroles have been observed in the explosion crater on the east side of the summit.

Photos



Explosion crater at east side of summit, taken from east side on June 18, 2008 by the Japan Meteorological Agency



Explosion Crater at the east side of summit, taken from east side on December 6, 2010 by the Japan Meteorological Agency

Topography around the Crater

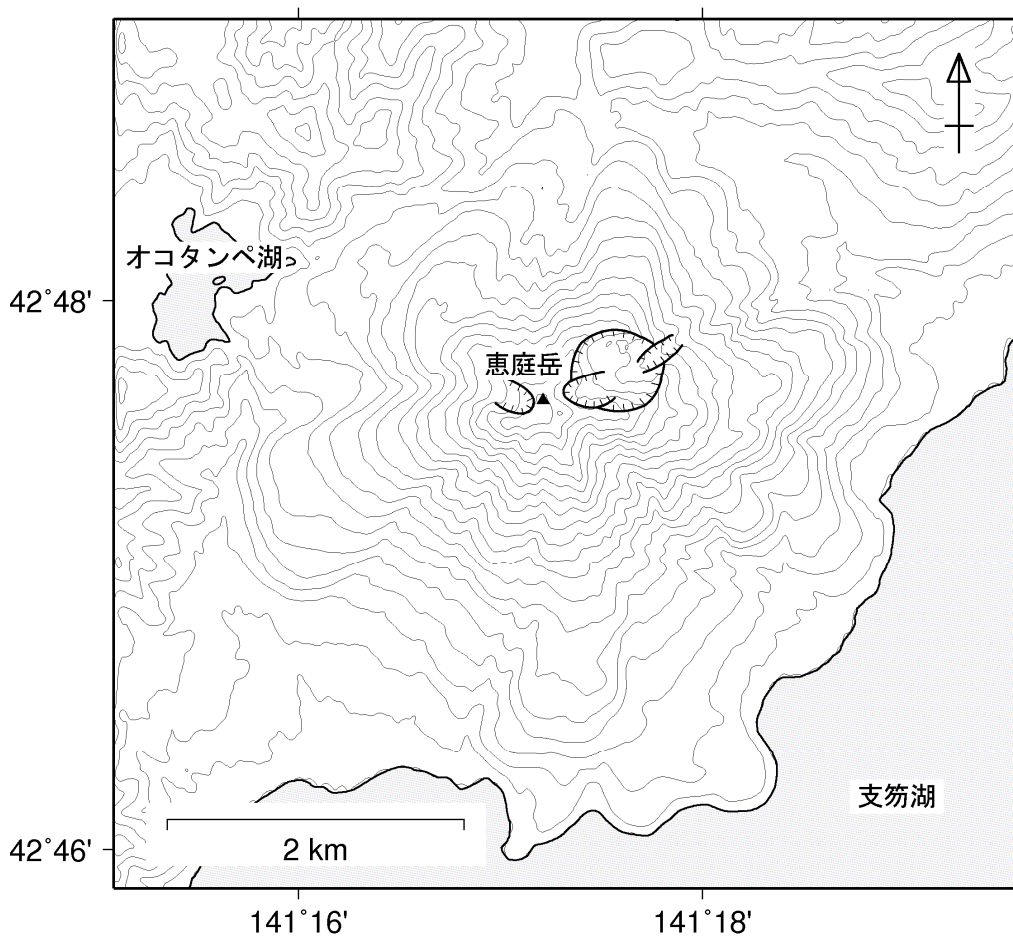


Figure 13-1 Detailed topography of the crater area.

Red Relief Image Map

See the Tarumaesan

Chronology of Eruptions

▪ Volcanic Activity in the Past 10,000 Years

After the large scale pumice eruption approximately 20,000 years ago (Kato et al., 1995), foamation of lava dome and lava flow occurred near the summit, at the east and west feet of the volcanic edifice. The last magmatic eruption of the Eniwa volcano occurred approximately 2,000 years ago.

After a dormant period of approximately 1,700 years, phreatic eruptions began at the summit in the 17th century, and the eastern side of summit collapsed, forming an explosion crater. The collapse materials formed a debris avalanche, which flowed down the volcanic edifice into Lake Shikotsu. At least 2 more phreatic eruptions occurred in the about following 150 years, accompanying debris flows (Nakagawa et al., 1994a; Nakagawa, 1998).

Period	Area of Activity	Eruption Type	Main Phenomena / Volume of Magma
2.2←→2ka	Summit and volcanic edifice northwest foot	Magmatic eruption	Lava flow and tephra fall.
2ka>	Unknown	Unknown	Collapse at western side of summit. Debris avalanche flowed into Lake Shikotsu.
0.5←→0.4ka	Summit crater	Phreatic eruption	Debris avalanche flowed into Lake Shikotsu.
0.5←→0.3ka	Summit crater	Phreatic eruption	Debris flow.
0.4←→0.261ka	Summit crater	Phreatic eruption	Debris flow.

* Reference documents have been appended with reference to the catalog of eruptive events during the last 10,000 years in Japan, database of Japanese active volcanoes, and AIST (Kudo and Hoshizumi, 2006) for eruptive period, area of activity and eruption type. All years are noted in calendar years. "ka" within the table indicates "1000 years ago", with the year 2000 set as 0 ka.

A←→B: Eruption events taking place at some point between year A and year B

A>: Eruption event after year A.

▪ Historical Activity

Year	Phenomenon	Activity Sequence, Damages, etc.
1981 (Showa 56)	Earthquake	Earthquake swarm (with felt earthquakes) near volcano in October.

Whole Rock Chemical Composition

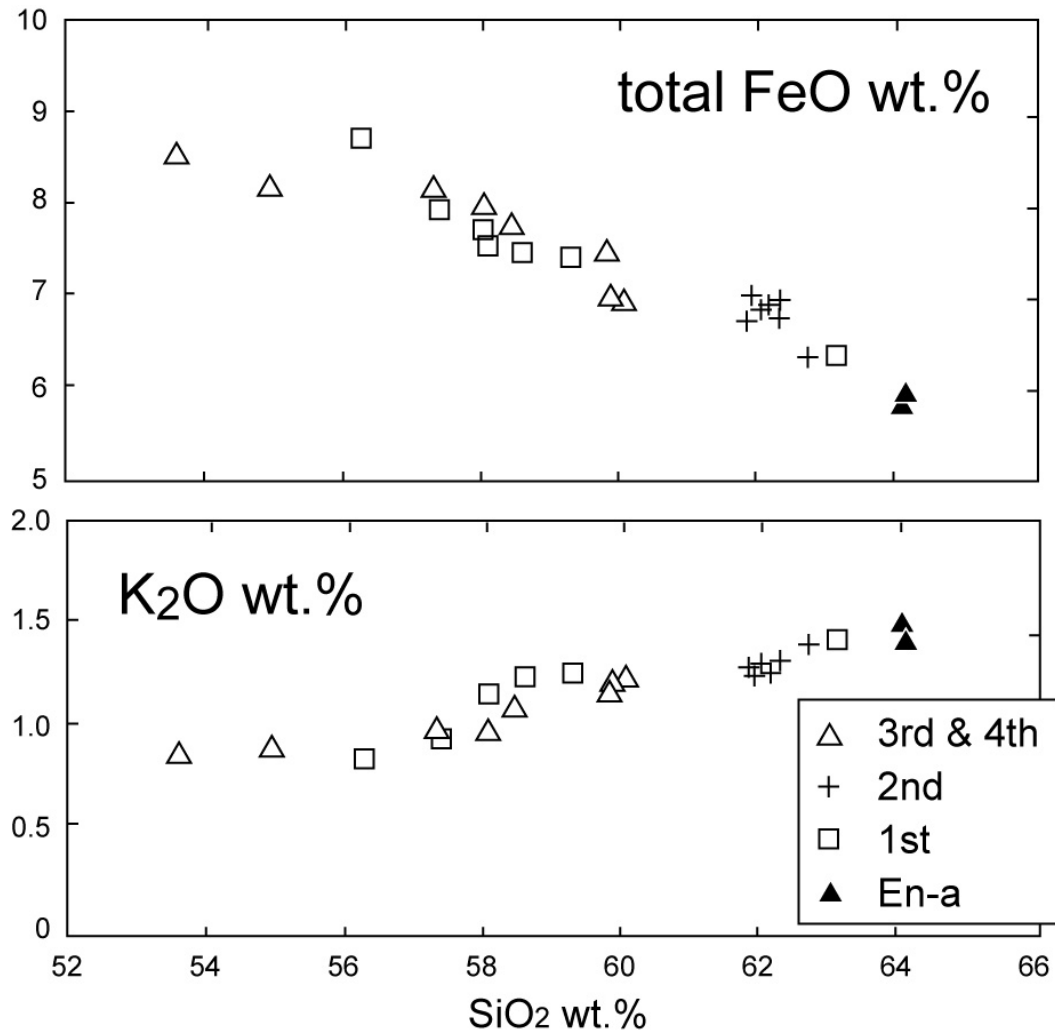


Figure 13-2 Whole rock chemical composition by Harker diagram of Eniwa volcano ejecta (Nakagawa, 1993).

Major Volcanic Activities

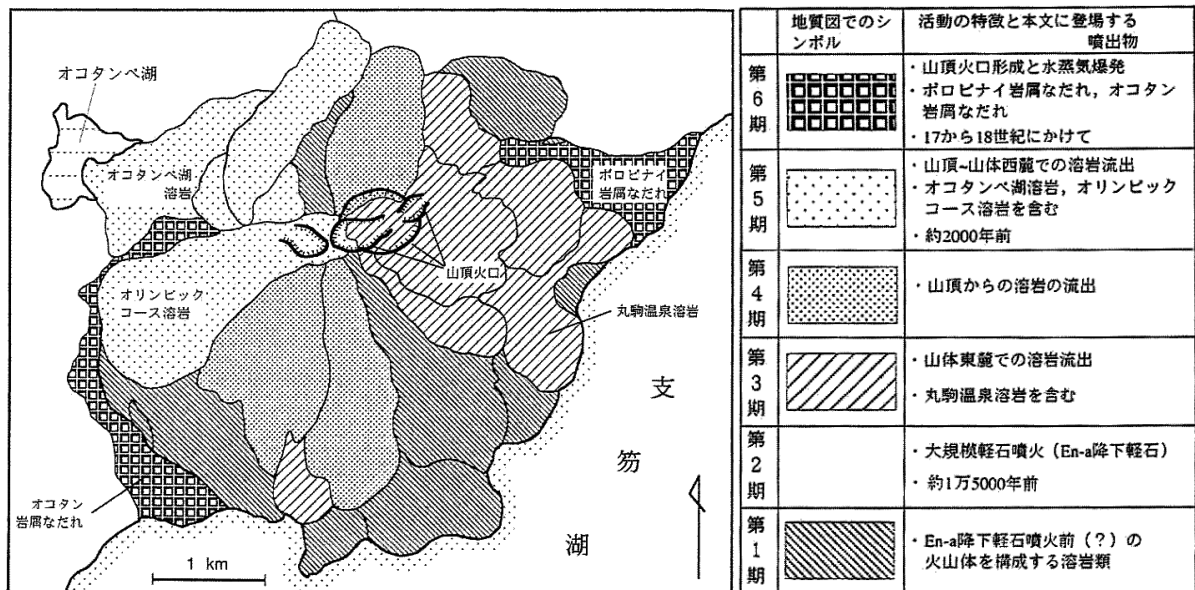


Figure 13-3 Distribution of summit volcanoes and debris avalanches, formed by eruptions during 17th and 18th century (Nakagawa, 1998).

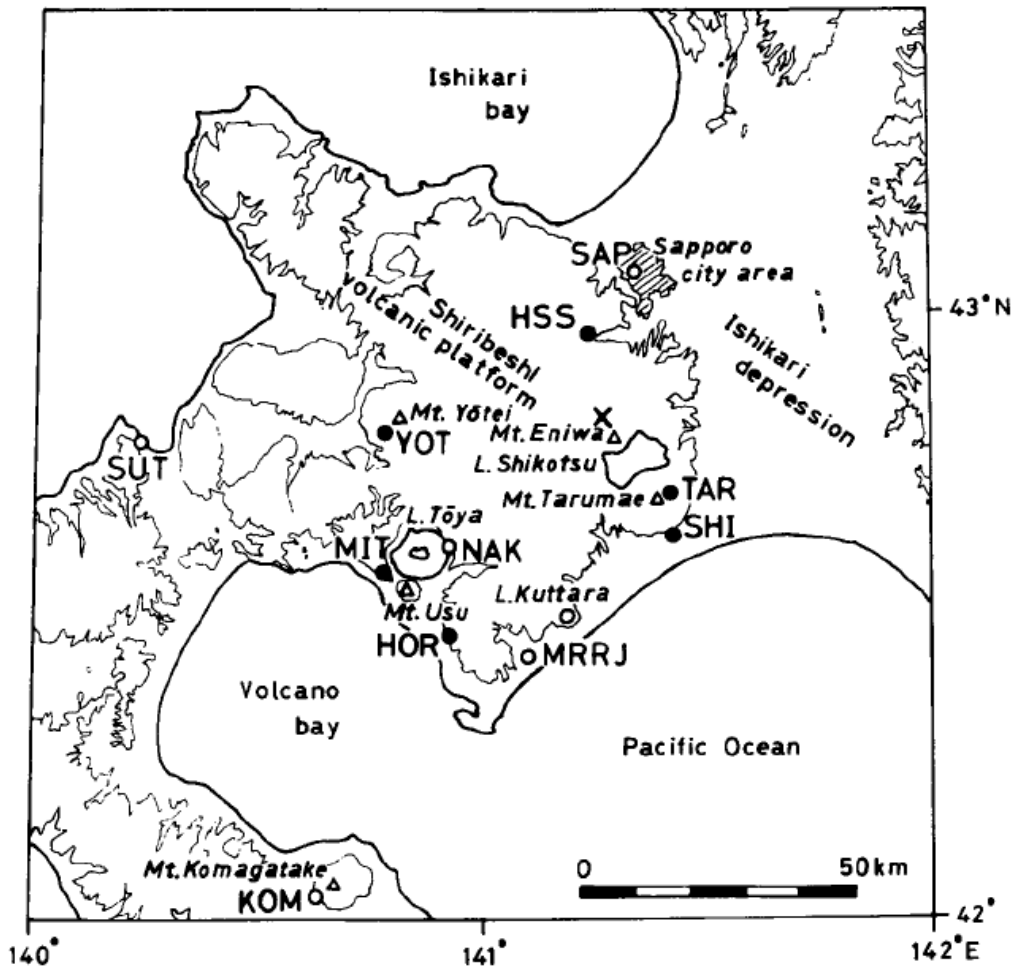


Figure 13-4 Epicenter on October 18, 1981 earthquake (Motoya and Okada, 1986).

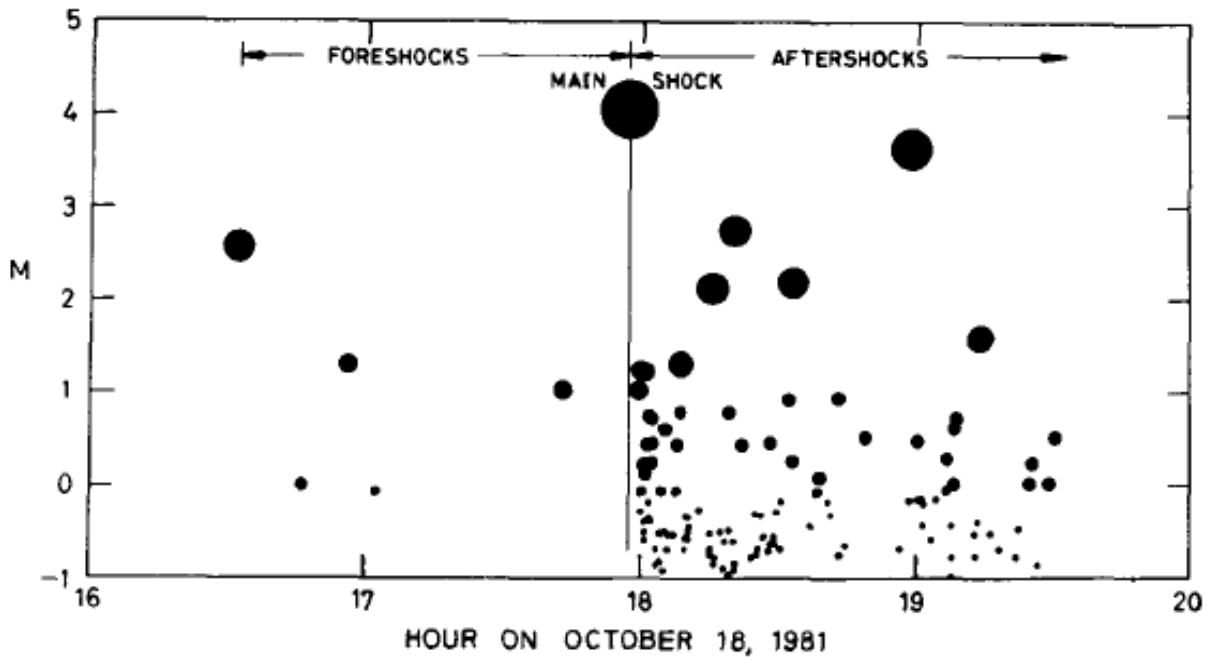


Figure 13-5 Time series of October, 1981, earthquakes (Motoya and Okada, 1986).

Recent Volcanic Activity

See the Tarumaesan

Information on Disaster Prevention

① Hazard Map

None

Social Circumstances

① Populations

- Eniwa City: 68,935 (as of October 31, 2011)
- Chitose City: 94,292 (as of November 1, 2011)

② National Parks, Quasi-National Parks, Number of Climbers

- Shikotsu-Toya National Park

Number of sightseers per year: Eniwa City: 1,224,100

” :Chitose City: 4,894,500

(according to 2010 Bureau of Tourism Department of Economic Affairs Hokkaido Government Hokkaido sightseeing estimate study)

Number of mountain-climbers per year: 5,738 (from 2010 mountain-climber ledger)

③ Facilities

Chitose City Lake Shikotsu Onsen

- Lake Shikotsu Visitor's Center

Monitoring Network

See the Tarumaesan

Bibliography

Kato, S. et al. (1995): Quarter. Res., **34**, 309-313 (in Japanese with English Abstract).

Motoya, Y. and Okada, H. (1986): Geophys. Bull. Hokkaido. Univ., **47**, 17-31 (in Japanese with English Abstract).

Nakagawa, M. (1998): Field Guide, Volcanoes of Japan, 3, Tsukijishokan, 62-76 (in Japanese).

Nakagawa, M. et al. (1994a): Bull. Volcanol. Soc. Japan, **39**, 237-241 (in Japanese with English Abstract).

Nakamura, T. (1973): Chikyukagaku, **27**, 42-43 (in Japanese).

(Nakagawa, M.)