

48. Myokosan

Latitude: 36°53'29" N, Longitude: 138°06'49" E, Elevation: 2,454 m (Myokosan)
(Elevation Point)



The eastern view of Myokosan taken from on May 7, 2009 by the Japan Meteorological Agency

Summary

Myokosan is an andesitic stratovolcano which became active approximately 300,000 years ago. It was formed by 4 stages of activity, separated by long periods of dormancy. Its current topography is formed by the youngest stratovolcano with an explosion caldera of 3km across at the top, and lava dome, central cone, inside the caldera. A fumarolic area (Jigokudani) develops on the south side crater floor. The SiO₂ content is between 49.6 and 63.9 wt. %.

Red Relief Image Map

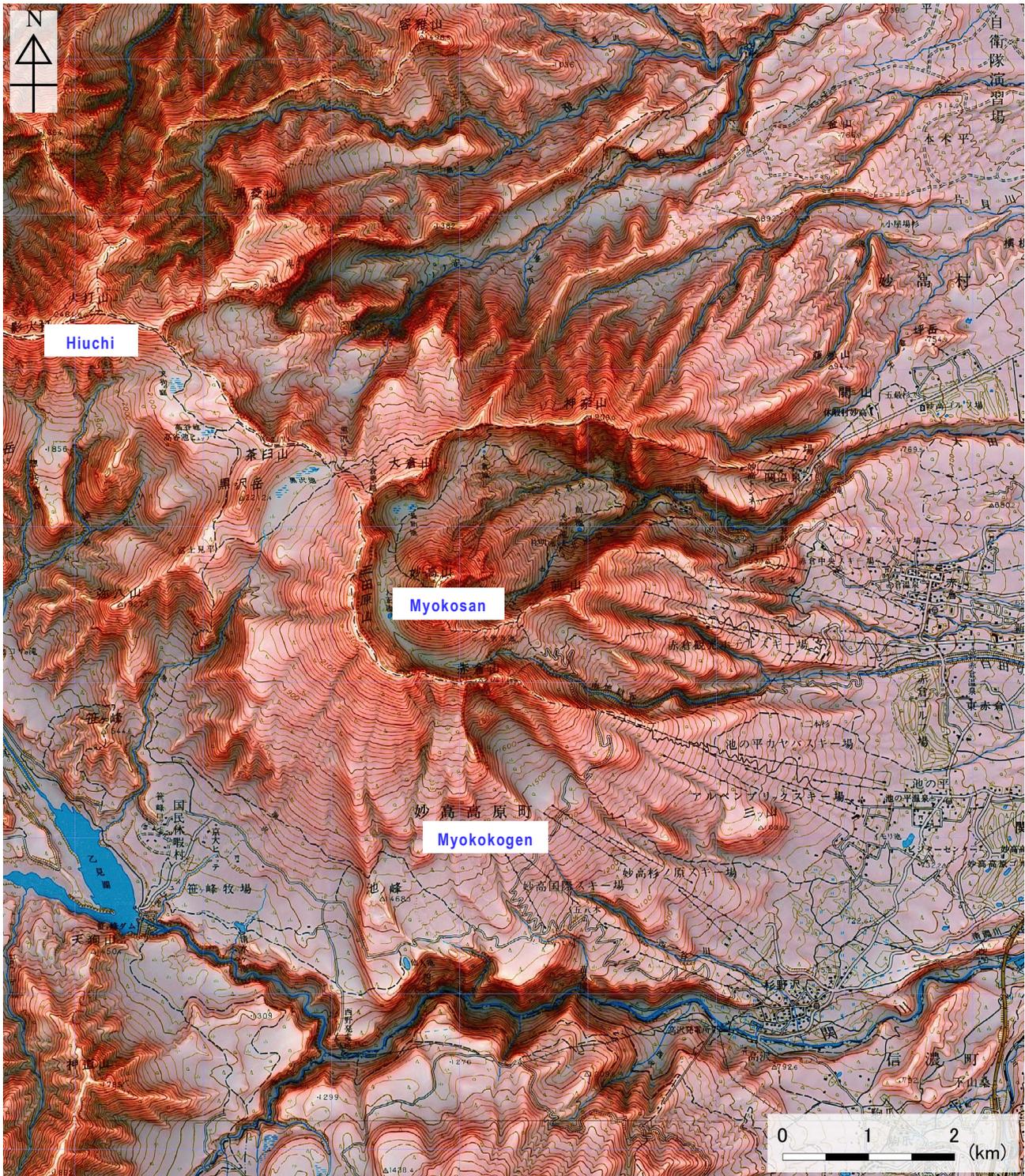


Figure 48-1 Topography of Myokosan.

1:50,000 scale topographic maps (Togakushi and Myokosan) and digital map 50 m grid (elevation) published by the Geospatial Information Authority of Japan were used.

Chronology of Eruptions

▪ Volcanic Activity in the Past 10,000 Years

Formation of the caldera, which is currently visible at the summit, began approximately 20,000 years ago. Taguchi debris avalanche (upper) occurred by the collapse of the volcanic body about 8000 years ago. Then, volcanic activity moved inside the caldera. The activity between approximately 5,300 and 4,200 years ago generated the Akakura and Otagirigawa pyroclastic flows, which reached the foot of volcano. The most recent magmatic eruption occurred 4,200 years ago. The most recent eruption confirmed was the phreatic explosion roughly 3,000 years ago, but small explosion craters inside the caldera may have been formed within these 3,000 years (Hayatsu, 1985 and 1998).

Period	Area of Activity	Eruption Type	Main Phenomena / Volume of Magma
11.1←→10.8 ka	Area between Hiuchiyama and somma, Okurayama	(Collapse)	Debris avalanche.
9.5←→9.3 ka	Area between Akakurayama and Maeyama	(Collapse)	Debris avalanche.
8.8←→8.5 ka	Area between Akakurayama and Maeyama	(Collapse)	Debris avalanche.
6 ka	Central cone	Phreatic eruption → phreatomagmatic eruption → magmatic eruption	Tephra fall → pyroclastic surge.
6 ka	Central cone	Phreatic eruption → magmatic eruption	Tephra fall.
6 ka>	Tanegaike (Taishoike)	Phreatic eruption	Tephra fall.
5.8 ka	Central cone	Magmatic eruption	Tephra fall, lava flow.
5.8←→5.6 ka	Central cone	Phreatic eruption	Tephra fall.
5.6 ka	Central cone	Phreatomagmatic eruption	Pyroclastic surge.
5.3 ka	Central cone	Phreatomagmatic eruption	Pyroclastic surge.
5.1 ka	Central cone	Phreatic eruption	Tephra fall.
5 ka	Central cone	Phreatic eruption → phreatomagmatic eruption → magmatic eruption	Otagirigawa volcanic ash / Otagirigawa pyroclastic flow eruption: Tephra fall → pyroclastic surge, tephra fall → pyroclastic flow. Magma eruption volume = 0.08 km ³ DRE. ⁷ (VEI 3)
4.6 ka	Jigokudani area	Phreatic eruption	Tephra fall.
3.7 ka	Jigokudani area	Phreatic eruption	Tephra fall.
2.8 ka	Central cone summit area	Phreatic eruption	Pyroclastic surge, tephra fall.
2.8 ka	Akakurayama southern flank (Akakura Yachi)	(Collapse)	Debris avalanche.
430 ←→ 690	Phreatic eruption	Phreatic eruption	Pyroclastic surge. The eruptive activity occurred at the top of Minami-Jigokudani.

* Volcanic periods, areas of activity, and eruption types taken from the Active Volcano Database of Japan, AIST (Kudou and Hoshizumi, 2006). All years are noted in Western date notation. "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

There are no records of volcanic activity.

Whole Rock Chemical Composition

See Niigata-Yakeyama

Recent Volcanic Activity

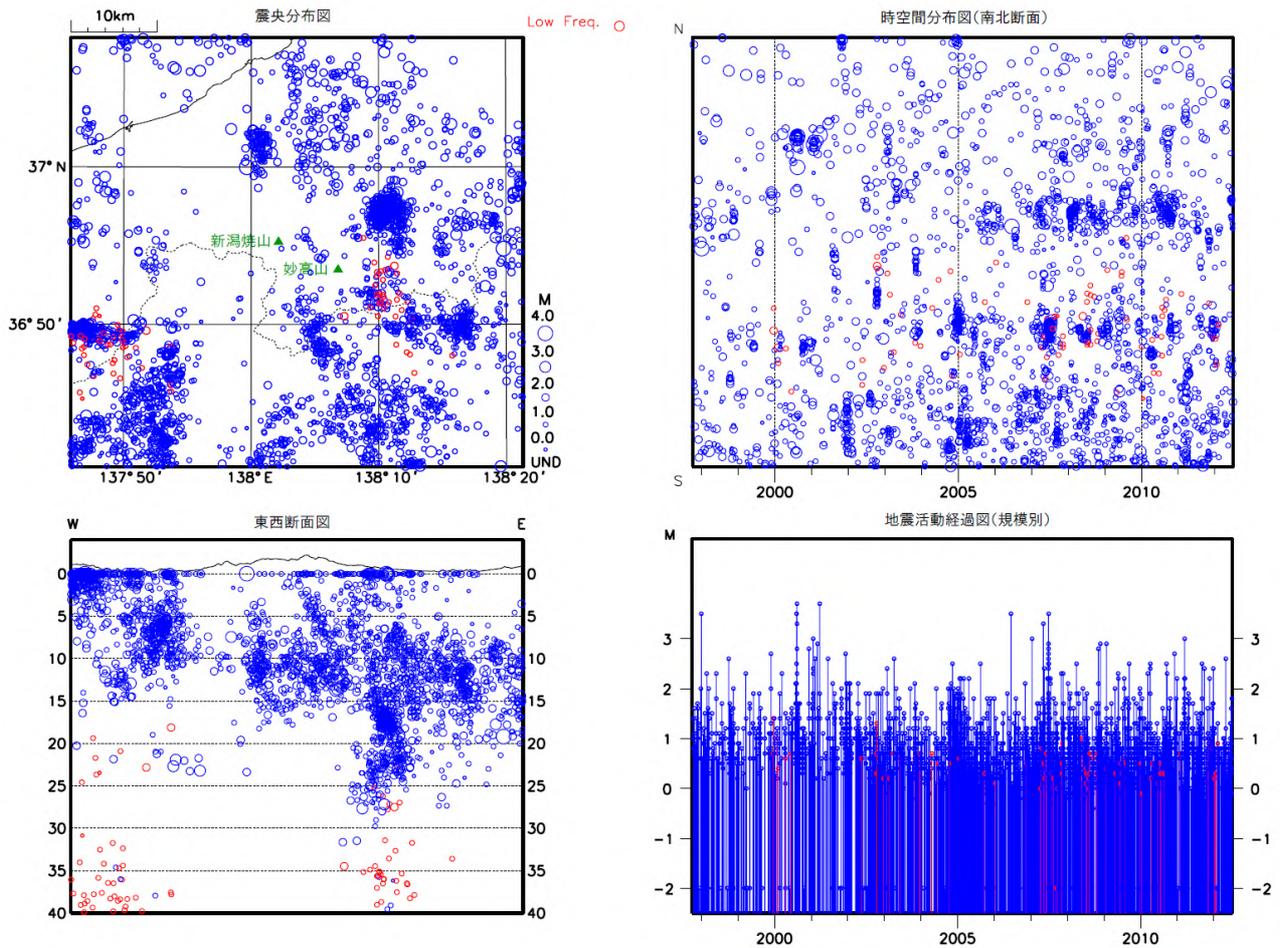


Figure 48-2 Activity of shallow VT earthquakes (blue circles) and deep low-frequency earthquakes (red circles) observed by a regional seismometer network (October 1, 1997, to June 30, 2012). Epicenter distribution (upper left), space-time plot (N-S cross-section) (upper right), E-W cross-section (lower left) and magnitude-time diagram (by scale) (lower right).

Information on Disaster Prevention

① Hazard Map

None

Social Circumstances

① Populations

- Myoko City, Niigata Prefecture: 35,103 (as of October, 2011)

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

- Joshinetsu Kogen National Park
- Number of mountain-climbers: 20,000 to 30,000 per year (according to Myoko Commerce and Sightseeing Department)

③ Facilities

None

Monitoring Maps

- * See Niigata-Yakeyama

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