

22. Iwakisan

Continuously Monitored by JMA

Latitude: 40°39'21" N, Longitude: 140°18'11" E, Elevation: 1,625 m (Iwakisan)
(Triangulation Point)



Overview of Iwakisan, taken from Ajigasawa on November 30, 2009 by the Japan Meteorological Agency

Summary

Iwakisan is an andesite stratovolcano. The main stratovolcano is composed of gently sloping flanks and a steep upper volcanic edifice. A collapsed crater 800 m in diameter is located at the summit. It was filled in, forming two lava domes, one being the current summit of Iwakisan. Three flank volcanoes exist at the western and southern feet of the volcano, and many explosion craters at the summit and on the volcano's flanks. The horseshoe-shaped Akakurazawa crater, located on the northeastern side of the summit, is the site of a large collapse. The avalanche deposits at the northeastern foot of the volcano of the volcano have produced many hummocky topographies. Eruptions within recorded history have been phreatic. The volcano is prone to producing lahars. Earthquake swarms occur frequently over a roughly 10 km area to the northeast. The SiO₂ content is between 54.9 and 63.7 wt %.

Red Relief Image Map

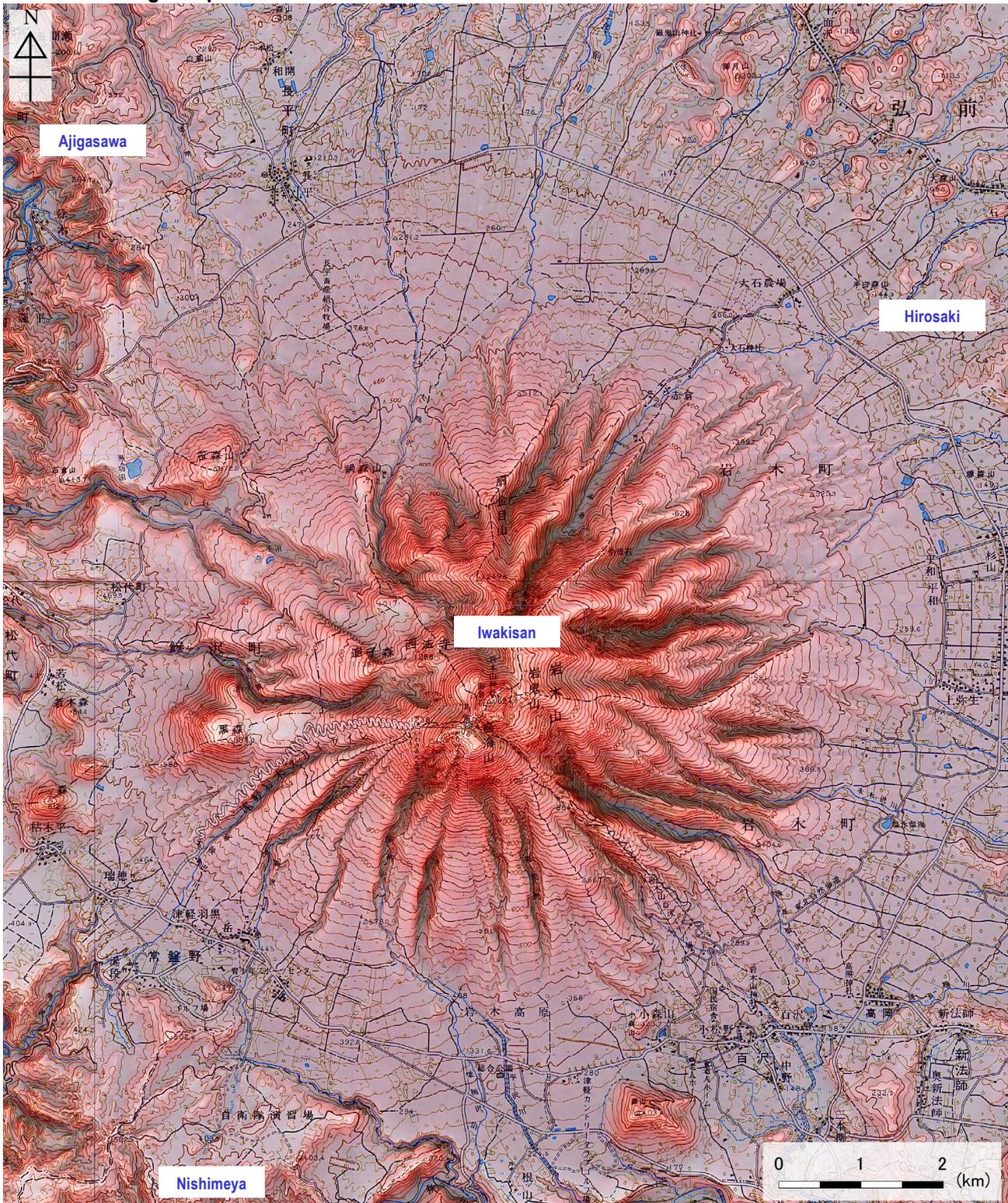


Figure 22-1 Topography of Iwakisan.

1:50,000 scale topographic maps (Kawaratai, Hiroaki, Ajigasawa and Goshogawara) 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

The history of eruptions before 1600 is incomplete, and details are unavailable for many areas of the volcano's prehistoric activity, but the lava domes which make up the summit are considered to be less than 10,000 years old.

Period	Area of Activity	Eruption Type	Main Phenomena / Volume of Magma
10 ka	Chokaisan	Magmatic eruption	Lava dome.
6 ka		Magmatic eruption	Tephra fall.
6 ka?	Iwakisan summit	Magmatic eruption	Lava dome.
3 ka		Magmatic eruption	Tephra fall.
3 ka?	Iwakisan summit	Magmatic eruption	Lava dome.
3 ka?	Iwakisan summit	Magmatic eruption	Lava dome.
3←→2ka	Torinoumi crater summit	Magmatic eruption	Lava dome.

* 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 apparently occurred in year A, but there is a possibility that it actually occurred in a different year.

▪ Historical Activity

Year	Phenomenon	Activity Sequence, Damages, etc.
1571 (Genki 2)	Volcanic activity?	February 15 to 17. Glowing.
1600 (Keicho 5)	Moderate: Phreatic eruption (producing lahar)	February 22 and July 23. Tephra fall, lahar. The eruptive activity occurred at the Torinoumi crater. Tephra fall and lahar on February 22. Torinoumi crater explosion and volcanic block and sand ejection. Earthquake, tephra fall. Tephra fall and lahar on July 23. Earthquake. (VEI 3)
1605 (Keicho 10)	Volcanic activity?	April 10. Glowing.
1618 (Genna 4)	Phreatic eruption?	January 31. Tephra fall.
1672 (Kanbun 12)	Earthquake	June 27 and July 28. Collapse caused by earthquake
1686 (Jokyo 3)	Volcanic activity?	March 23. Glowing.
1770 (Meiwa 7)	Volcanic activity?	February 3. Rumbling, glowing.
1782 to 1783 (Tenmei 2 to 3)	Phreatic eruption	November to June. Tephra fall. The eruptive activity occurred at the Torinoumi summit crater. Rumbling, volcanic block and sand ejection, new crater formation.
1845 (Koka 2)	Phreatic eruption?	April 4. Volcanic plume, sulfur emission. The eruptive activity possibly occurred at the Torinoumi crater.
1863 (Bunkyo 3)	Small-scale: Phreatic eruption	March 23. Tephra fall. Volcanic blocks. (VEI 1)
1970 (Showa 45)	Earthquake and hot spring anomaly, fume	January 9. M4.6 near Tsuruta. Temperature rise at Dake Onsen, some withering and dying of trees.
1972 to 1973 (Showa 47 to 48)	Earthquake	November 5 to August. Maximum magnitude of M4.1 at northeastern foot of the volcano.
1976 (Showa 51)	Earthquake	October 6. Rumbling at approximately 13:00 at Dake Onsen, at the foot of the volcano.
1977 (Showa 52)	Earthquake	July 10. Earthquake swarm accompanied by rumbling at eastern foot of the volcano for approximately 30 minutes, beginning at 6:30. The area with the greatest number of felt earthquakes was Susono, in the city of Hirosaki, approximately 7 km east of Iwakisan. Maximum JMA scale seismic intensities of 3 to 4. Maximum magnitude of M4.4.
1978 (Showa 53)	Fume	May 6. A high level of fumarolic activity was detected at Akakurazawa.

Year	Phenomenon	Activity Sequence, Damages, etc.
1985 (Showa 60)	Earthquake	November. Earthquake swarm at northeastern foot of the volcano, with a maximum magnitude of M3.6.
1986 (Showa 61)	Earthquake	March 2. Earthquake swarm at southwestern foot of the volcano, with a maximum magnitude of M4.5.

* 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.

Recent Volcanic Activity

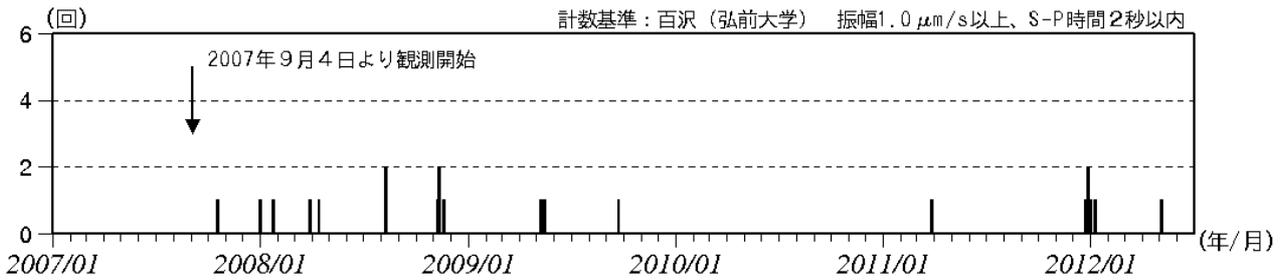


Figure 22-2 Number of earthquakes per day (September, 2007, to June 30, 2012).

Data provided by Hirosaki University. Observation began on September 4, 2007.

Count criteria: Hyakuzawa (Hirosaki University) Amplitude of 1.0 μm/s or more, S-P time of 2.0 seconds or less

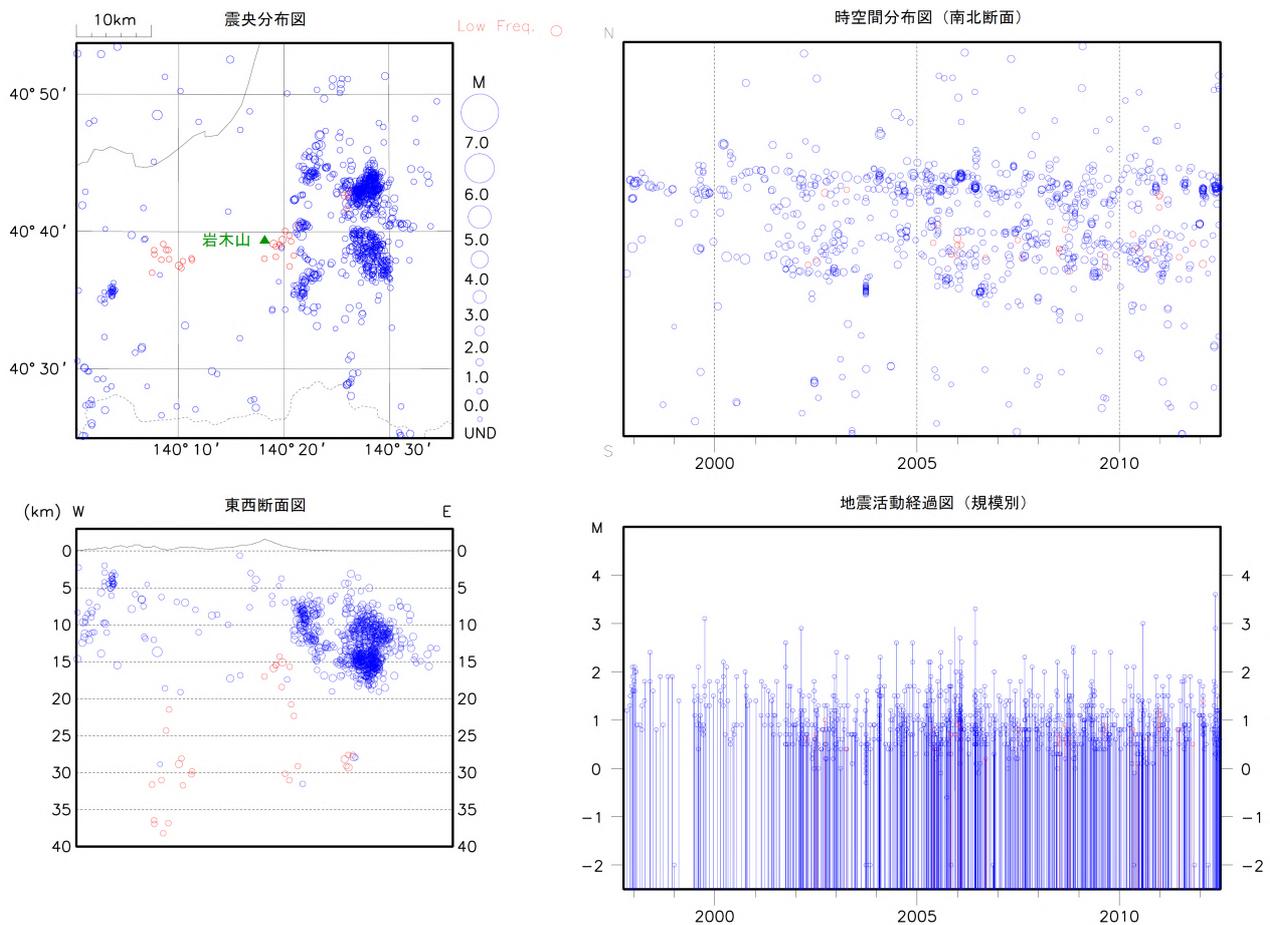


Figure 22-3 Shallow VT seismic activity (blue circles) and deep low-frequency seismic activity (red circles) observed by a regional seismometer network (October 1, 1997, to June 30, 2012). Epicenter distribution (upper left), space-time plot (N-S cross-section) (upper right), E-W cross-section (lower left) and magnitude-time diagram (lower right).

Information on Disaster Prevention

① Hazard Map

Iwakisan Hazard Map (Wide Area Version) February, 2002 (Heisei 14) - Published by Aomori Prefecture - Editorial supervision by Iwakisan Hazard Map Deliberating Committee

Source: Iwakisan Hazard Map

Created: February, 2002

Created by: Aomori Prefecture (Department of Prefecture Land Development, River Erosion Control Bureau)

Iwakisan Hazard Map URL:

http://www.pref.aomori.lg.jp/kotsu/build/dosha_keikai_itiran.html

岩木山火山ハザードマップ

火山ハザードマップとは、噴火による様々な現象の影響がどこまで及ぶかを予測して、地図の上にまとめたものじやな。



凡例・予想される被害

火口 スカイライン・登山道、リフト施設等の破壊
現在の山頂火口列を囲む半径800mの円内では、どこでも噴火口ができる噴火範囲

噴石 人体への被害、リフト施設等の破壊
噴石が弾道を描いて飛び散る範囲を、全方向について示しています。

降灰 健康障害、施設等の崩壊、交通障害、農作物・森林等の被害
西風の場合の、風下(東側)の予想降灰範囲を示しています。
風下の場合の予想降灰層厚を、全方向について示しています。

溶岩流 施設等の破壊、山火事
溶岩流が流下する可能性のある範囲を全方向について示しています。全ての方向に、同時に流下するわけではありません。マグマの粘り気が強い時は、溶岩ドームという盛り上がった地形を作ります。

火砕流 人体への被害、施設等の破壊、山火事、農作物・森林等の被害
火砕サージ
赤い部分 火砕流の土砂(本体)の流下範囲を示しています。
ピンクの部分 熱風(火砕サージ)の到達範囲を示しています。
全ての方向に、同時に流下するわけではありません。

雪の多い時期には…
火山泥流 人体への被害、家屋・畑・道路等への被害
融雪型火山泥流が流下し、氾濫する範囲を示しています。
火山泥流は、火砕流が流下した斜面で雪が融けて発生します。全ての方向で同時に発生するわけではありません。

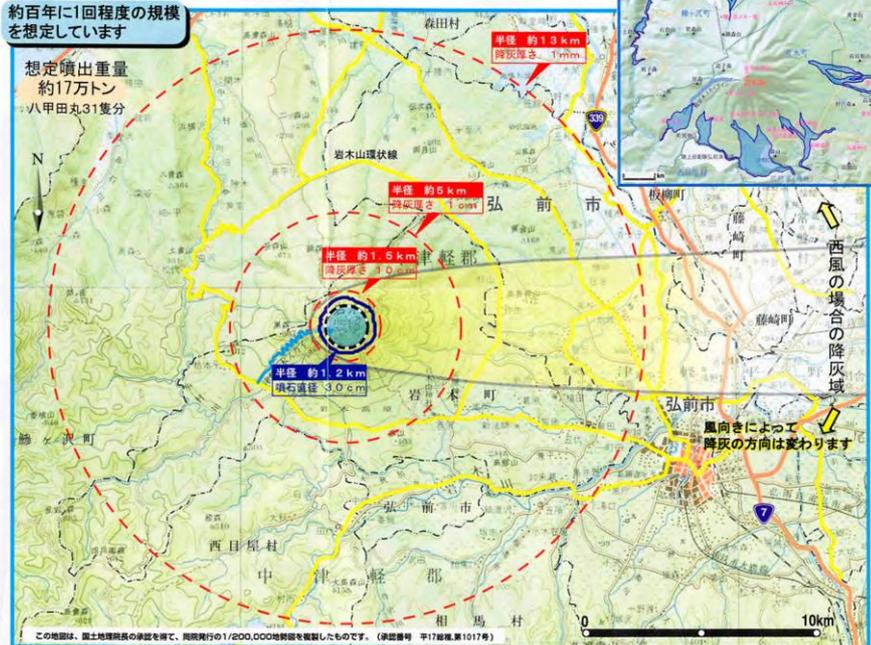
噴火の直後には…
土石流 人体への被害、家屋・畑・道路等の被害
噴火後の降雨による土石流の予想氾濫範囲を示しています。降灰後は土石流が起こりやすくなります。

噴気の活動が強まると…
火山ガス 生命の危険(火口付近)、健康障害(山麓)、農作物・森林等の被害
※影響範囲は予測していません。

水蒸気爆発の場合の災害予想区域図

約百年に1回程度の規模を想定しています

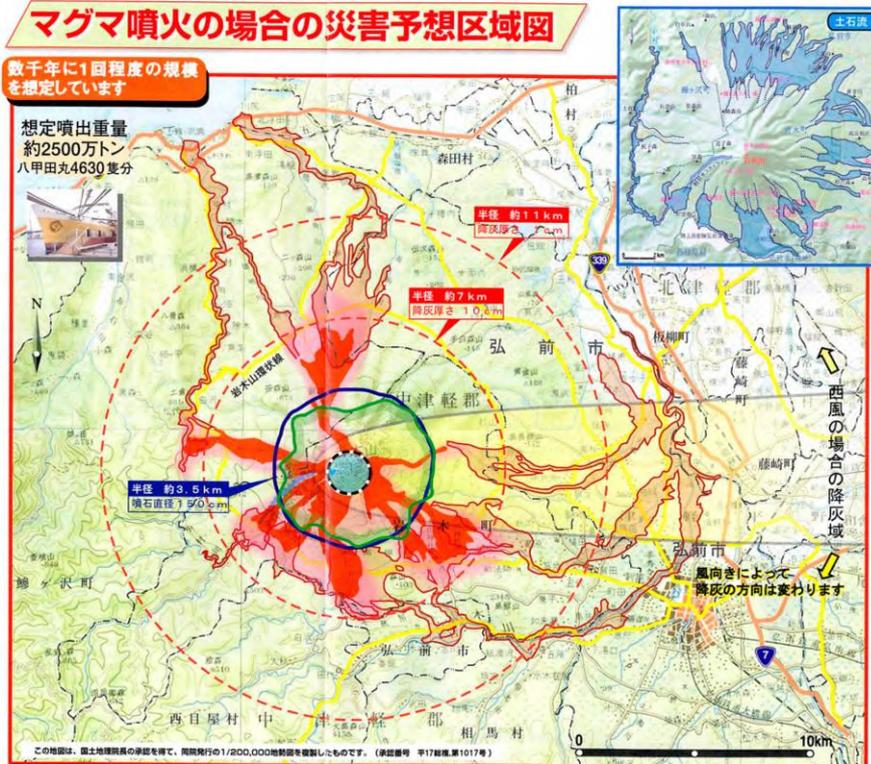
想定噴出重量 約17万トン
八甲田丸31隻分



マグマ噴火の場合の災害予想区域図

数千年に1回程度の規模を想定しています

想定噴出重量 約2500万トン
八甲田丸4630隻分



Social Circumstances

① Populations

- Hirosaki City: 182,593 (as of October 1, 2011)
- Ajigasawa Town: 11,839 (as of October 31, 2011)
- Nishimeya Village: 1,541 (as of October 31, 2011)

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

- Tsugaru Quasi-National Park

Number of sightseers: 817,000 (according to Aomori Prefecture sightseeing statistics from 2009)

Number of vehicles using Iwakisan Skyline in 2011: 18,371

Number of people using Iwakisan lift in 2011: 23,653

(Numbers of vehicles and people courtesy of Iwaki Skyline Co, Ltd.)

③ Facilities

None

Monitoring Network

Wide Area

* Monitoring sites with multiple observation instruments are indicated by small black dots, and other symbols indicate types of monitoring.



1:200,000 scale regional maps (Aomori and Hirosaki) published by the Geospatial Information Authority of Japan were used.

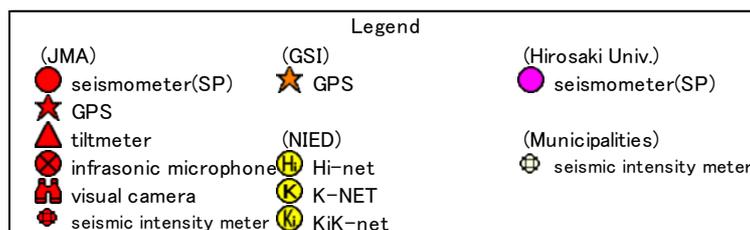


Figure 22-4 Regional monitoring network.

Bibliography

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15-17 (in Japanese).
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