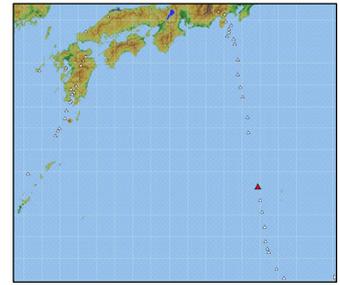


70. Nishinoshima

Latitude: 27°14'49" N, Longitude: 140°52'28" E, Elevation: 25 m
(Elevation Point - Measured by JMA)



Eruption at Nishinoshima on September 14, 1973
Courtesy of the Maritime Safety Agency



Overview of Nishinoshima on December 21, 1980
Courtesy of the Maritime Safety Agency



Overview of Nishinoshima on March 3, 1983
Courtesy of the Maritime Safety Agency



Overview of Nishinoshima on November 4, 2003
Courtesy of the Maritime Safety Agency

Summary

Nishinoshima is an andesitic volcanic island. It is located at the summit of a large submarine volcano approximately 30 km in diameter. The island is approximately 650 m long (southwest to northeast) and approximately 200 m wide. It has an area of approximately 77,000 m², an elevation of 25 m, and several reefs on its northeast side. The first eruption in recorded history occurred in May, 1973, on the sea floor approximately 400 m east of the southern tip of the island, forming a new island in September. The eruption began as an undersea phreatomagmatic explosion and moved semicircularly. Five craters ejected volcanic blocks and lava flow. Each volcanic edifice lost the majority of its edifice due to severe erosion, but removed deposits linked the old and new island, and the mouth of the bay became closed off by deposit movement in 1982. The SiO₂ content of ejecta is between 51.8 and 60.1 wt % .

Submarine Topographic Map

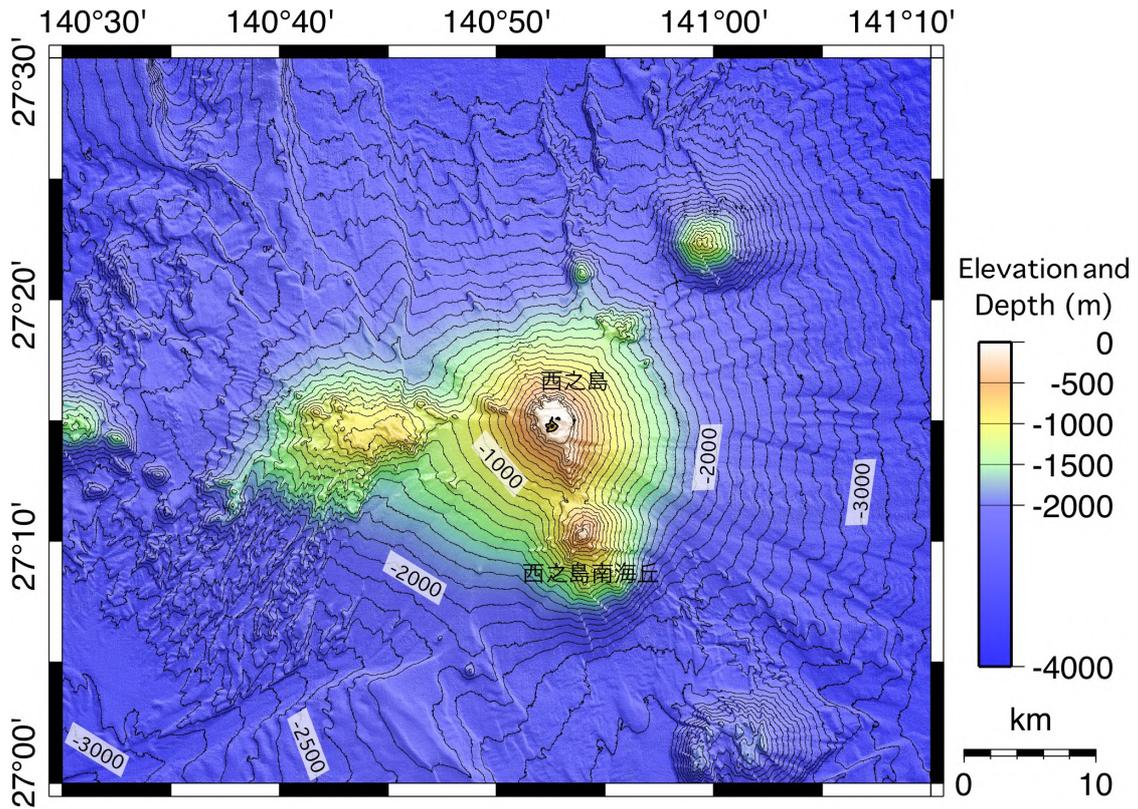


Figure 70-1 Submarine topographic map of the Nishinoshima area.
(Japan Coast Guard)

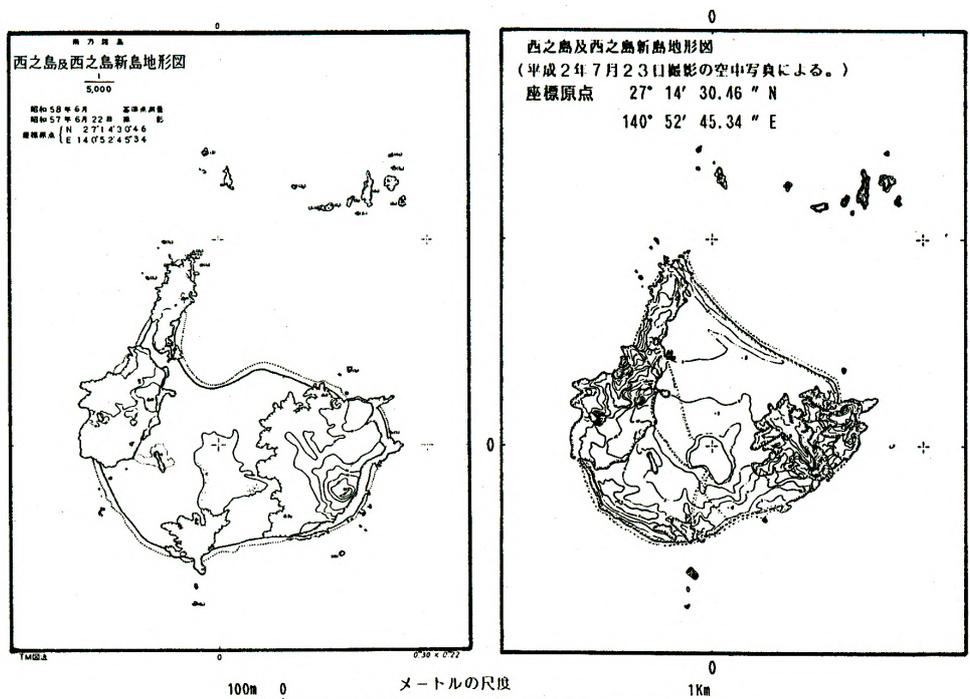


図55-3 西之島及び西之島新島地形図 (左: 1972年, 右: 1990年) (海上保安庁水路部)

Figure 70-2 Topologies of Nishinoshima and Nishinoshima Shinto (left: 1972, right: 1990) (Hydrographic Department, Maritime Safety Agency).

Geological Map

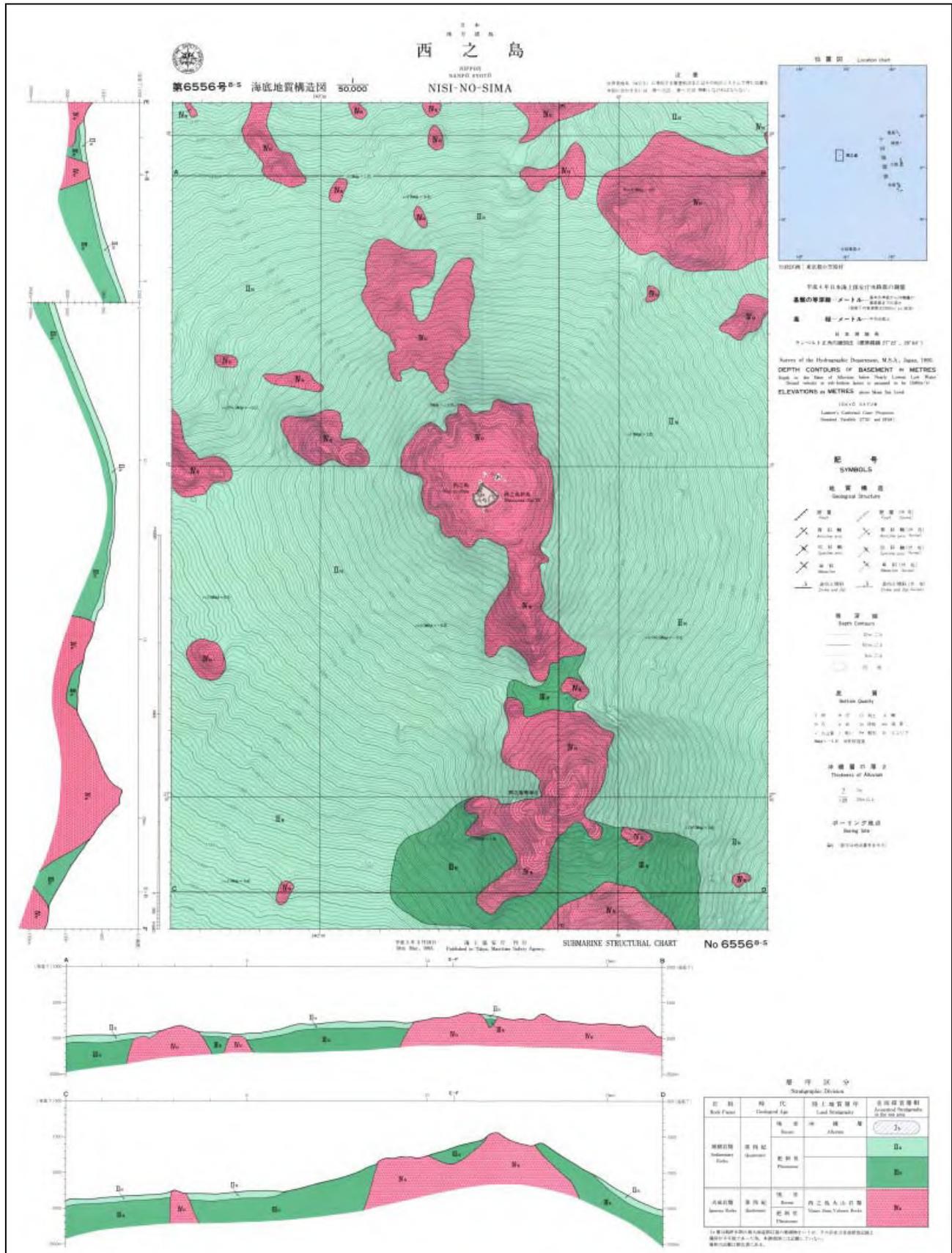


Figure 70-3 Submarine geological map of the Nishinoshima area (Maritime Safety Agency, 1993).

Chronology of Eruptions

▪ Historical Activity

| Year | Phenomenon | Activity Sequence, Damages, etc. |
|-------------------------------|---|---|
| 1973 to 1974 (Showa 48 to 49) | Moderate: Phreatomagmatic eruption, magmatic eruption | <p>Early April, 1973 to roughly June, 1974. Air-fall pyroclastics and lava flow. The eruptive activity occurred at the new Nishinoshima island.</p> <p>1973 eruption: April 12 - Discolored water to the east of Nishinoshima. May 30 - White volcanic plume. June 27 - Volcanic plume, volcanic block, water column. July 11 - New island, 30 to 50 m in diameter, discovered. September 14 - New island located 116° (south-southeast) from southern tip of main island, at a distance of 600 m. Approximate diameter of 150 m. 40 m tall. Volcanic blocks and 200 m water column. September 29 - Lava flow from main new island crater. A second new island was discovered approximately 40 m to its west. October 9 - A third new island appeared to west of second new island. October 10 - New islands 1 to 3 connected above sea level. December 21 - The Maritime Safety Agency named the new land form Nishinoshima Shinto.</p> <p>1974 eruption: (Activity continued from previous year) March 2 - Another new island appeared at northeastern tip of Nishinoshima Shinto. Lava flow. June 10 - Nishinoshima Shinto and the old island were connected. August 3 - Maritime Safety Agency airborne survey measured island area to be 316,000 m² (Nishinoshima Shinto land area: 238,000 m²). Magma eruption volume = 0.017 km³ DRE.</p> |
| 1975 (Showa 50) | Discolored water | Discolored water around Nishinoshima Shinto. |
| 1990 (Heisei 2) and later | Discolored water | Constant slightly yellow Discolored water observed. |

* Reference documents have been appended with reference to the Active Volcano Database of Japan, AIST (Kudo and Hoshizumi, 2006 onwards) for volcanic periods, areas of activity, eruption types, and eruption events.

Major Volcanic Activity
▪ 1973 to 1974 Eruption Activity

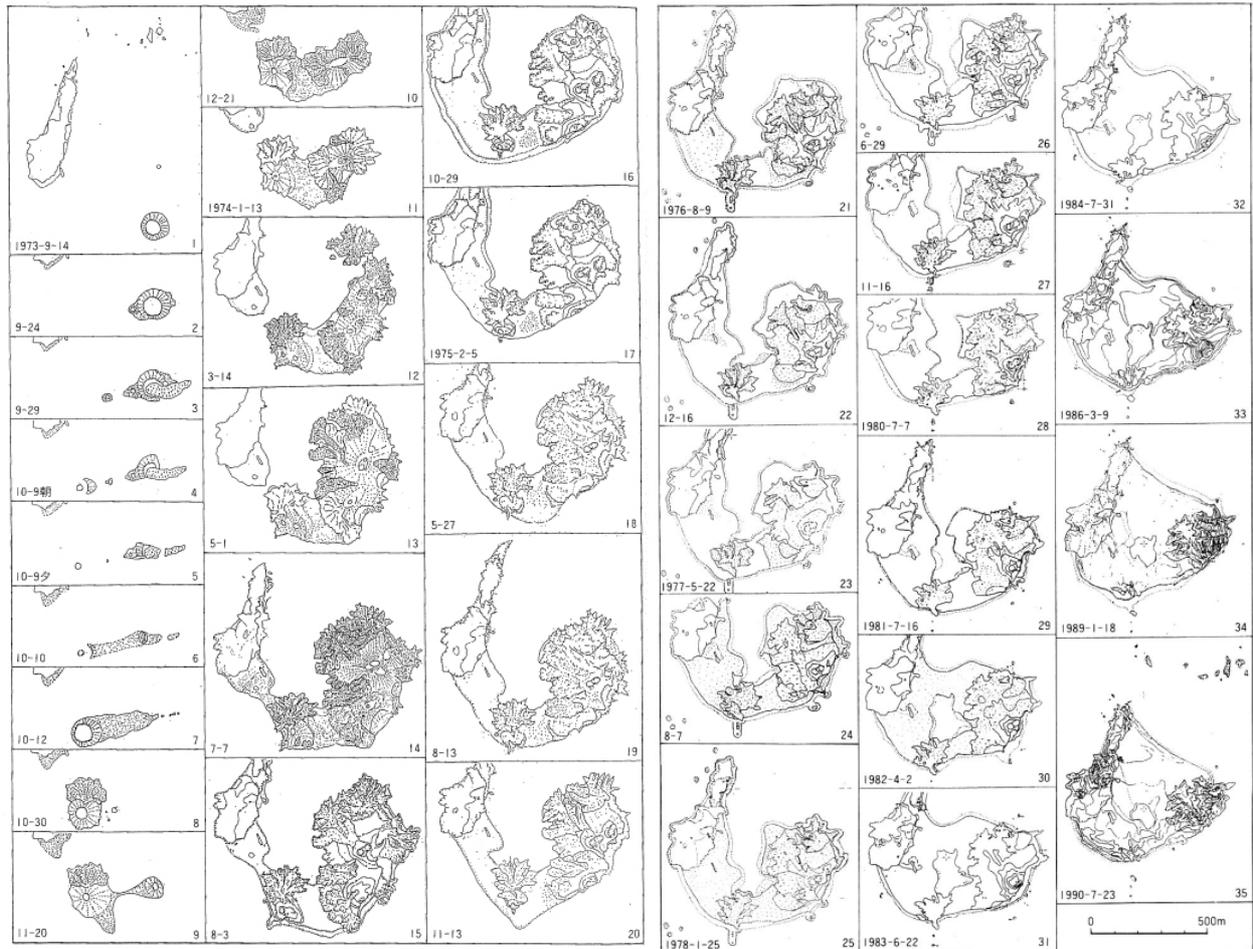


Figure 70-4 Formation of Nishinoshima Shinto (September 14, 1973, to July 23, 1990) (Osaka, 1991).

Island expansion caused by volcanic activity (pyroclastic cone formation, lava flows, eruption point movement, etc.) and shrinkage caused by severe sea erosion resulted in gradual changes to the shape of the island.

Information on Disaster Prevention

① Hazard Map

None

② National Parks, Quasi-National Parks

- Ogasawara National Park

Bibliography

Maritime Safety Agency (1993): Basic Map of the Sea in Coastal Waters, 6556^{8-S}, Maritime Safety Agency (in Japanese with English Abstract).

J. Osaka (1991):

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