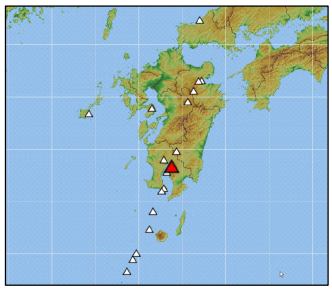
89. Wakamiko

Latitude: 31°39.8' N, Longitude: 130°47.9' E, Depth: -77 m (Central cone)



Summary

Wakamiko is a submarine caldera located in the northeast corner of the Aira caldera, located deep in Kagoshima Bay. It is considered to have been the main vent of the large scale "Ito" pyroclastic flow eruption which occurred about 29,000 years ago. The outer edge of the caldera from the northern to the eastern sides corresponds to the rim of the Aira caldera, but the edge from the southern to the western sides is submerged. The caldera is about 10 km in diameter. A relatively flat sea floor exists, at a depth of aabout 200 m (2.5 km north-south, 3.5 km east-west) at the bottom of the caldera. The Amori River alluvial plain borders the northern rim of the caldera, but aggradation has not been processing. The eastern flank of the caldera is home to a lava dome volcano that is approximately 100 m high (at a depth of 75 m), and a slight roll (Hirase: depth of 43 m) also exists on the northern rim. With regards to activity since approximately 29,000 years ago, the Shinjima pyroclastic flow and Takano base surge, etc. are considered to have originated from the caldera, but no definitive evidence has identifies it as the discharge source. No clear evidence exists of eruptions within the past 10,000 years. Fume activity exists in the sea floor and eastern caldera sea hill of the Wakamiko caldera, and bubbles are known to well up to the sea surface (this phenomenon is known locally as "Tagiri").

Red Relief Image Map

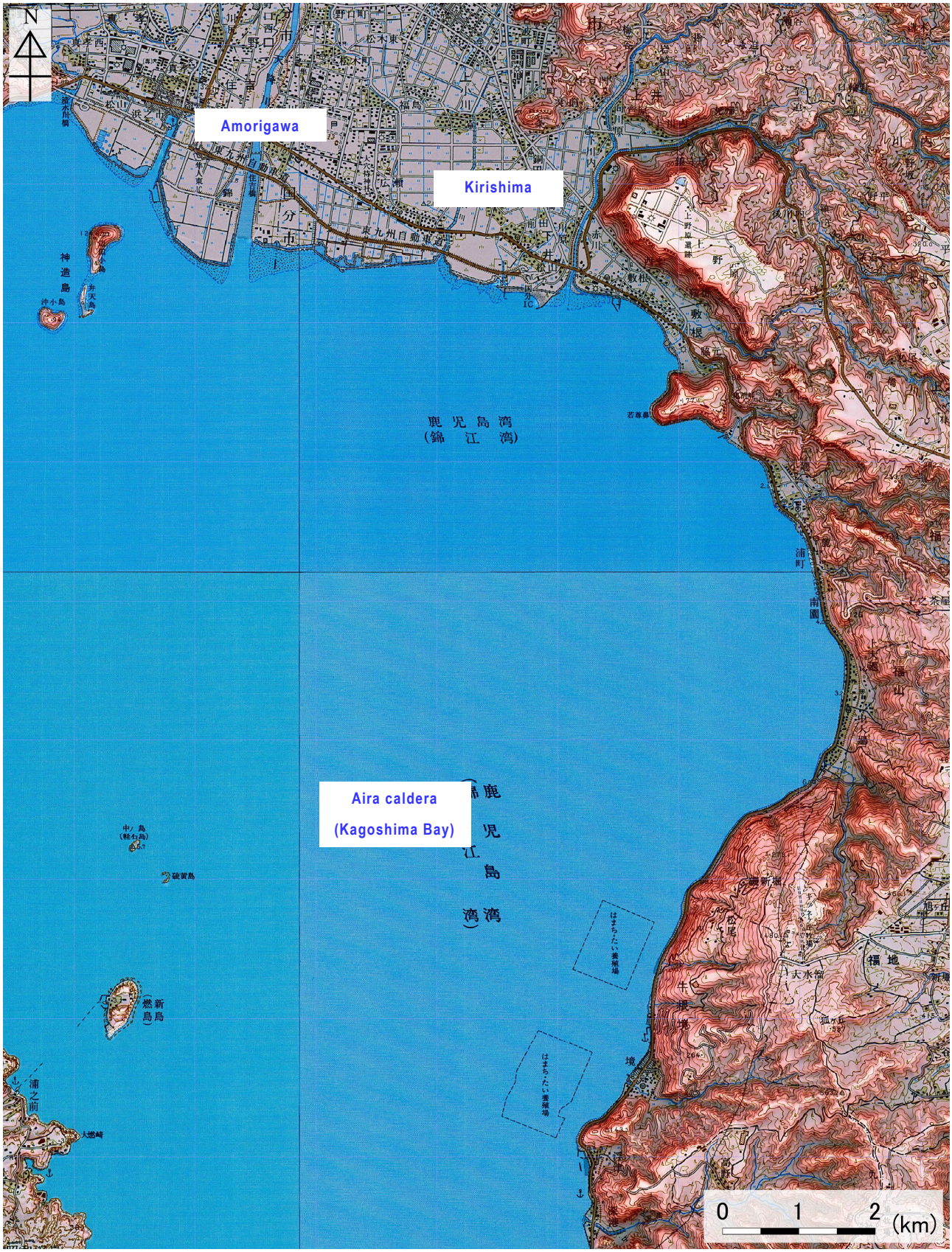


Figure 89-1 Topography of Wakamiko.

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

Submarine Topographic Map

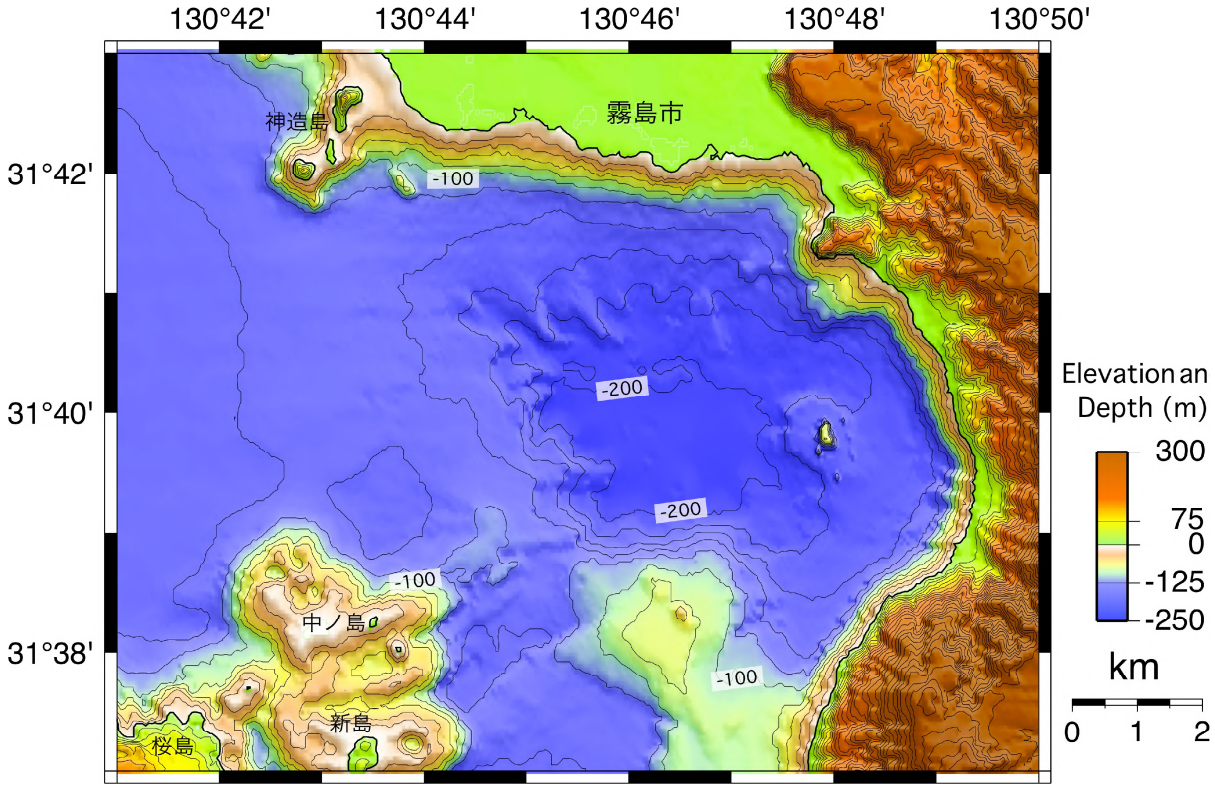


Figure 89-2 Submarine topographic map of the Wakamiko area (The Hydrographic and Oceanographic Department of the Japan Coast Guard).

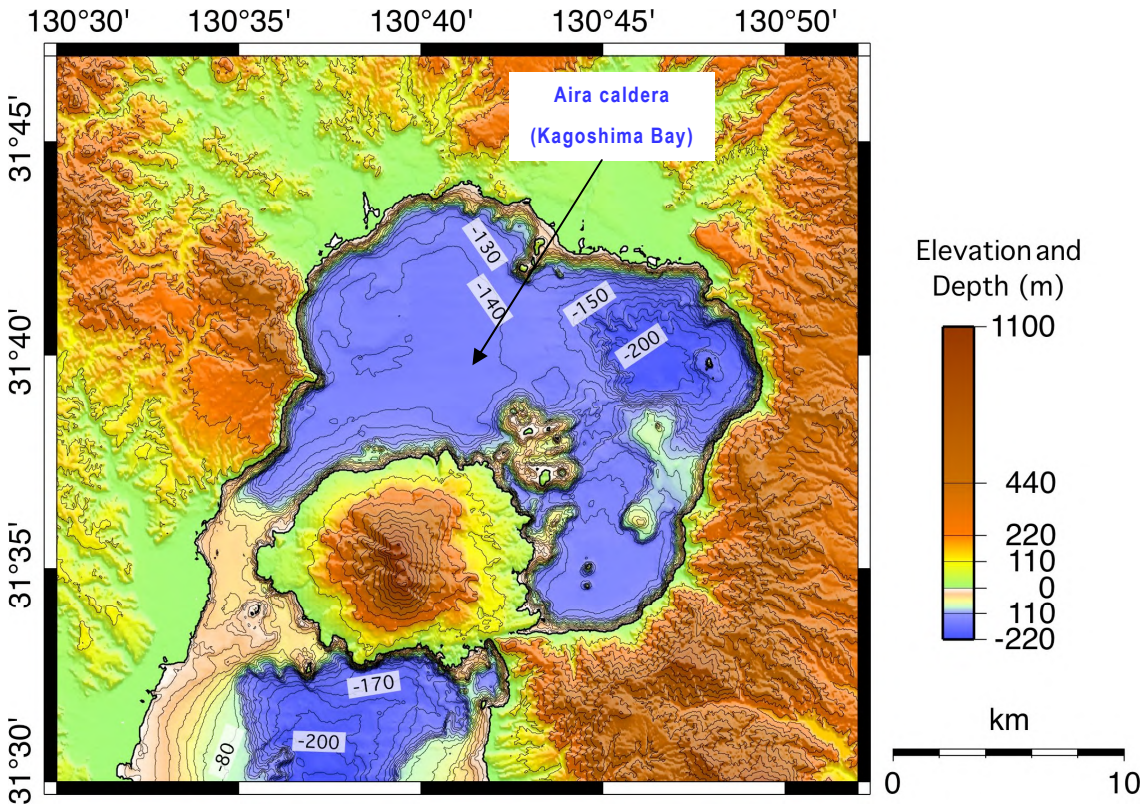


Figure 89-3 Submarine topographic map of the Aira caldera (The Hydrographic and Oceanographic Department of the Japan Coast Guard)).

Chronology of Eruptions

・Volcanic Activity in the Past 10,000 Years

No eruption events are known to have occurred within the past 10,000 years. A dome-shaped geographical structure is identified inside the caldera, which appears to be a post-caldera lava dome. The caldera is designated as an active volcano because strong hydrothermal activity is present at the bottom of the caldera (Kosaka et al., 1977; Kikawada et al., 2007, etc.). It is very likely that the Wakamiko caldera is the discharge source of the Shinjima pyroclastic flow which makes up Shinjima (Moejima) (Fukuyama and Ono, 1981; Aramaki, 1984). The eruption age of Shinjima's pumice is estimated to be about 16 ka (FT) (Kameyama et al., 2005). The Takano base surge is distributed across the caldera's eastern flank, and the petrographic features of the pumice are extremely similar to those of the Moejima pyroclastic flow (Kobayashi, 1986). However, the eruption age of the Takano base surge is about 19,000 years ago (Okuno, 2002), so it is unclear if the two can be stratigraphically compared.

・Historical Activity

There are no records of volcanic activity.

Recent Volcanic Activity

See Sakurajima

Information on Disaster Prevention

①Hazard Map

None

Social Circumstances

①Populations

- Kagoshima City: (608,219: as of November 1, 2011 - from Kagoshima City website)
- Tarumizu City: (17,348: as of November 1, 2011 - from Tarumizu City website)
- Kirishima City: (127880: as of November 1, 2011 - from Kirishima City website)
- Aira City: (75,747: as of November 1, 2011 - from Aira City website)

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

Kirishima-Kinkowan National Park (Marine Park Area)

③Facilities

None

Monitoring Network

See Sakurajima

Bibliography

Aramaki, S. (1984): J. Geophys. Res., **89**, 8485-8501.

Fukuyama, H., and Ono, K. (1981): Geological map of Sakurajima volcano. Geological Survey of Japan, 1-8 (in Japanese).

Kameyama, S., et al. (2005): The Quaternary Research., **44**, 15-29 (in Japanese with English Abstract).

Kikawada, Y., et al. (2007): Onsen Kagaku., **57**, 30-41 (in Japanese with English Abstract).

Kobayashi, T., (1986): Volcanic history and pyroclastic flows of Sakurajima Volcano. In: Aramaki, S. (Ed), Characteristics of dry high concentration flows (pyroclastic flows) associated with volcanic eruption and their disasters, 137-163 (in Japanese).

Okuno, M. (2002): The Quaternary Research., **41**, 225-236 (in Japanese with English Abstract).

Ossaka, J., et al. (1977): Reports for undersea mud and gas research at North Kagoshima Bay from Ministry of Education, 48-63 (in Japanese).