

GEOMAGNETIC SURVEY AT SEA

This is a continuation of the report of geomagnetic surveys at sea conducted by the Hydrographic Department. This report gives brief summary of four cruises carried out in 1998, 1999 and 2000. This report gives the compiled results of four cruises, South-eastern area off Izu Peninsula, Myojin-Sho, Fukutoku Okanoba and Western area off Miyake-jima.

Key word: marine geomagnetic survey.

1. Surveys

The total magnetic intensity at sea surface was measured by a proton precession magnetometer of Kokusai electronics corporation PMM-200 installed on the survey vessel Shoyo and Meiyo of the Hydrographic Department (JHD). The sensor was towed about 200m (Meiyo) or 300m (Shoyo) behind the vessel. The data from the sensor were sampled every 20 seconds.

2. Data processing and Results

The measured total magnetic intensity include components of external field variation. The correction of the external field variation was carried out based on the continuous magnetic observations at a reference magnetic observatory close to the survey area. The details on the compiled magnetic surveys, the name of the reference magnetic observatory, the reference values for external field correction and the epoch year of data processing are listed in Table 1.

For calculations of the total intensity magnetic anomaly values, the IGRF model were used as the core field model in accordance with the recommendation of the IAGA.

Geomagnetic total intensity anomaly maps are shown in Fig. 1~4 on reduced scales from the original chart sheets.

Reduction and compilation of this report have been made by K. Onodera, T. Kato and N. Seo of the Geodesy and Geophysics Division.

GEOMAGNETIC SURVEY AT SEA

References

The result of geomagnetic surveys at sea for preceding years are found in the following publication series.

Data Report of Hydrographic Observations, Series of Astronomy and Geodesy, No.18, 1984,

Ibid., No.19, 1985,

Ibid., No.20, 1986,

Ibid., No.21, 1987,

Ibid., No.22, 1988,

Ibid., No.23, 1989,

Ibid., No.24, 1990,

Ibid., No.25, 1991,

Ibid., No.26, 1992,

Ibid., No.27, 1993,

Ibid., No.28, 1994,

Ibid., No.29, 1995,

Ibid., No.30, 1996,

Ibid., No.31, 1997,

Ibid., No.32, 1998.

Ibid., No.33, 1999.

Table 1. Details on the compiled magnetic surveys at sea

Cruise index	98IZ	98MY
Area	South-eastern area off Izu Peninsula	Myo jn-sho
Period	Nov. 16 - Nov. 26, 1998	Sep. 1 – Sep. 23, 1998
Vessel	Meiyo	Shoyo
Magnetometer	PMM-200	PMM-200
Positioning	Integrated Navigation System	Integrated Navigation System
Track lines	0.5 naut. Mile	1 naut. Mile
Anomaly map	Fig. 1	Fig. 2
Scale of original map	1/100,000	1/50,000
Map projection	TM	TM
Reference Magnetic Observatory	Kakioka (34° 45.'0 N, 138° 46.8' E)	Hachijo (33° 04.'2 N, 139° 49.'7 E)
Reference value for an External field correction	46,383nT	45,222nT
Core field model	IGRF1995	IGRF1995
Contour interval	50nT	25nT
Epoch year	1998.9	1998.9

Cruise index	99FU	00MI
Area	Fukutoku Okanoba	Western area off Miyake-jima
Period	Jun. 25 - Jul. 14, 1999	Jun, Jul, Aug, Oct, 2000
Vessel	Shoyo	Shoyo, Meiyo
Magnetometer	PMM-200	PMM-200
Positioning	Integrated Navigation System	Integrated Navigation System
Track lines	0.1 naut. Mile	600m
Anomaly map	Fig. 3	Fig. 4
Scale of original map	1/50,000	1/50,000
Map projection	TM	TM
Reference Magnetic Observatory	Hachijo (33° 04.'2 N, 139° 49.'7 E)	Hachijo (33° 04.'2 N, 139° 49.'7 E)
Reference value for an External field correction	45,232nT	45,235nT, 45231nT
Core field model	IGRF1995	IGRF2000
Contour interval	100nT	50nT
Epoch year	1999.7	2000.7, 2000.9

GEOMAGNETIC SURVEY AT SEA

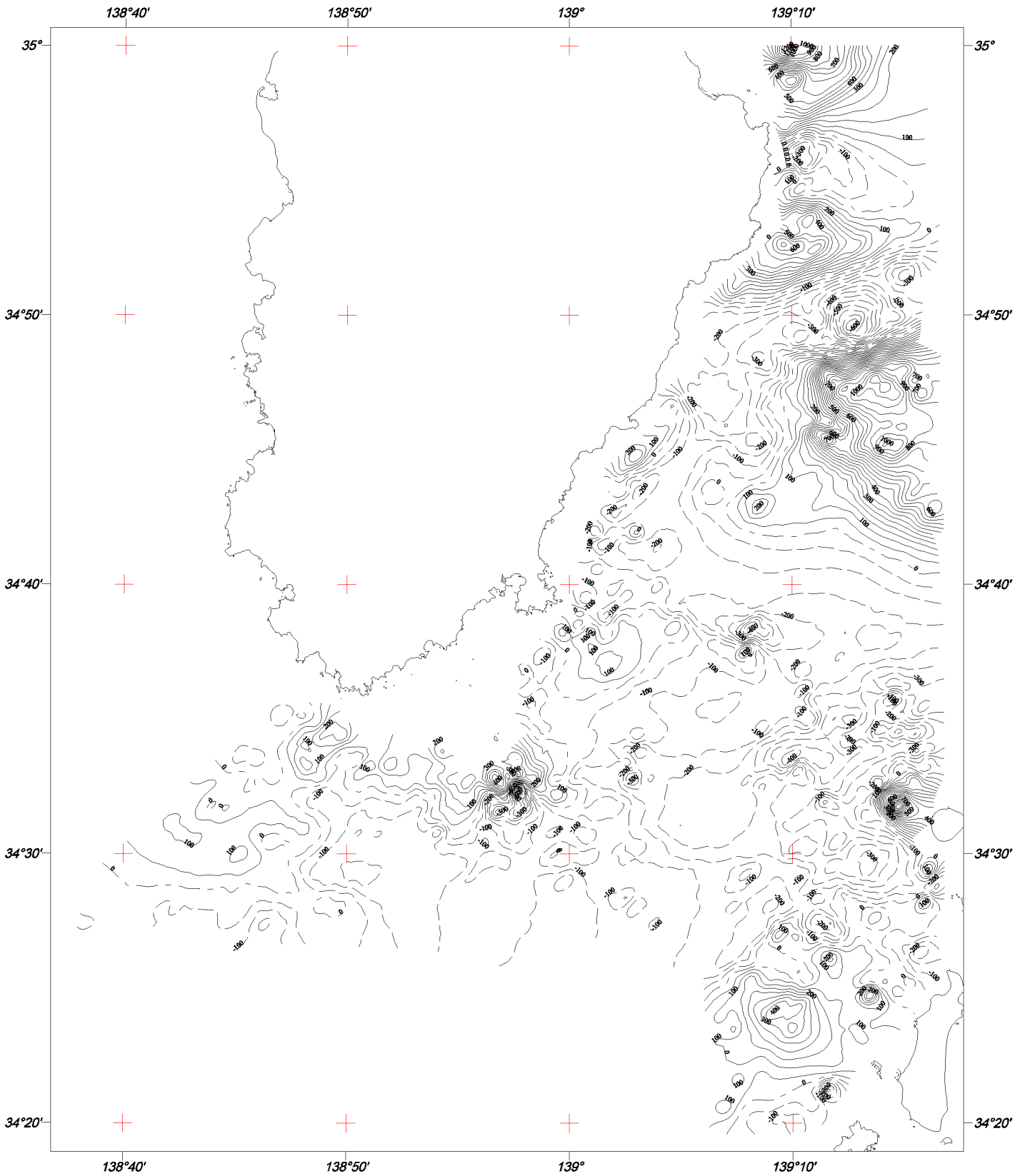


Fig 1. Geomagnetic total intensity anomaly map in South-eastern area off Izu Peninsula.

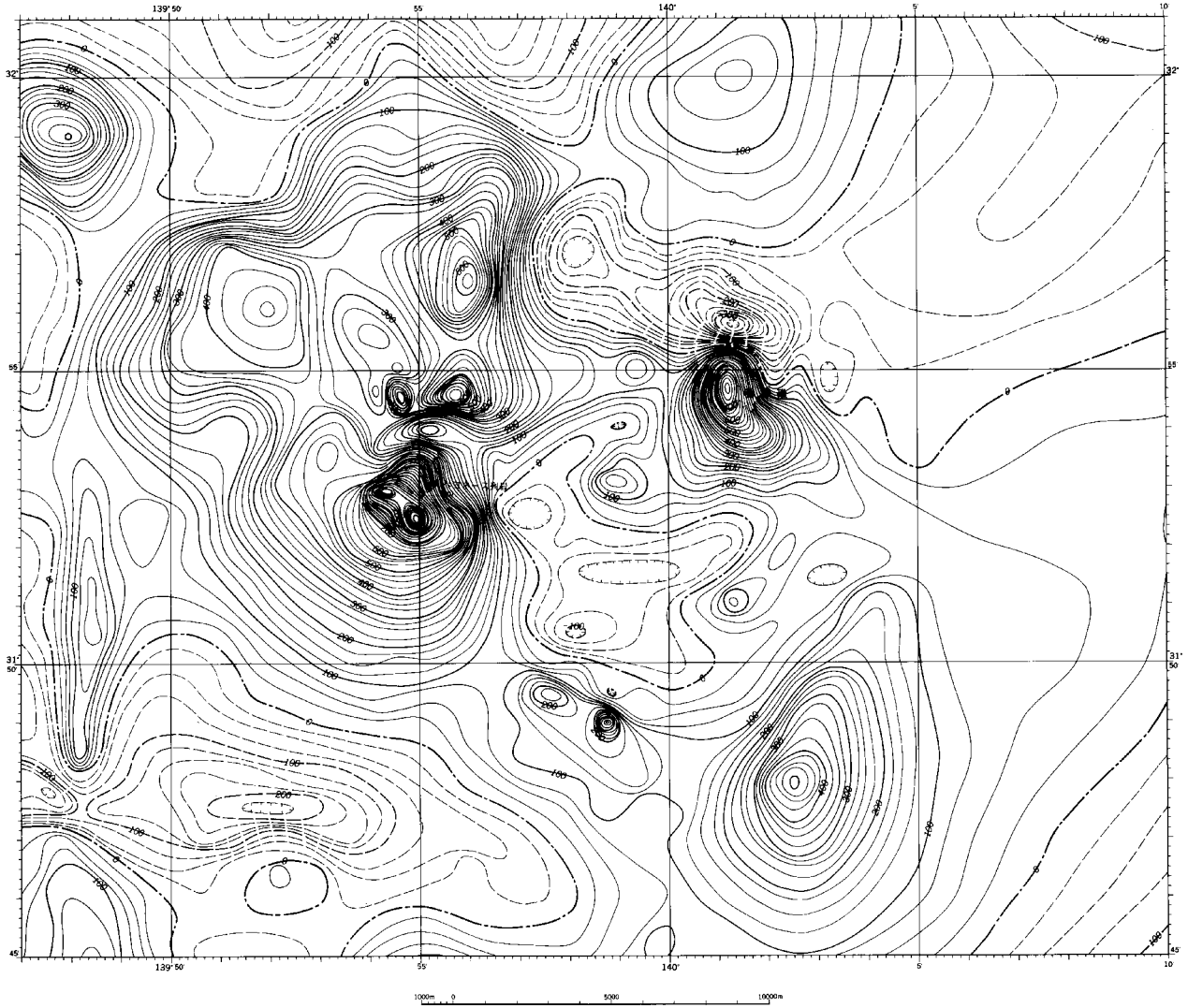


Fig 2. Geomagnetic total intensity anomaly map in and around Myojin-sho.

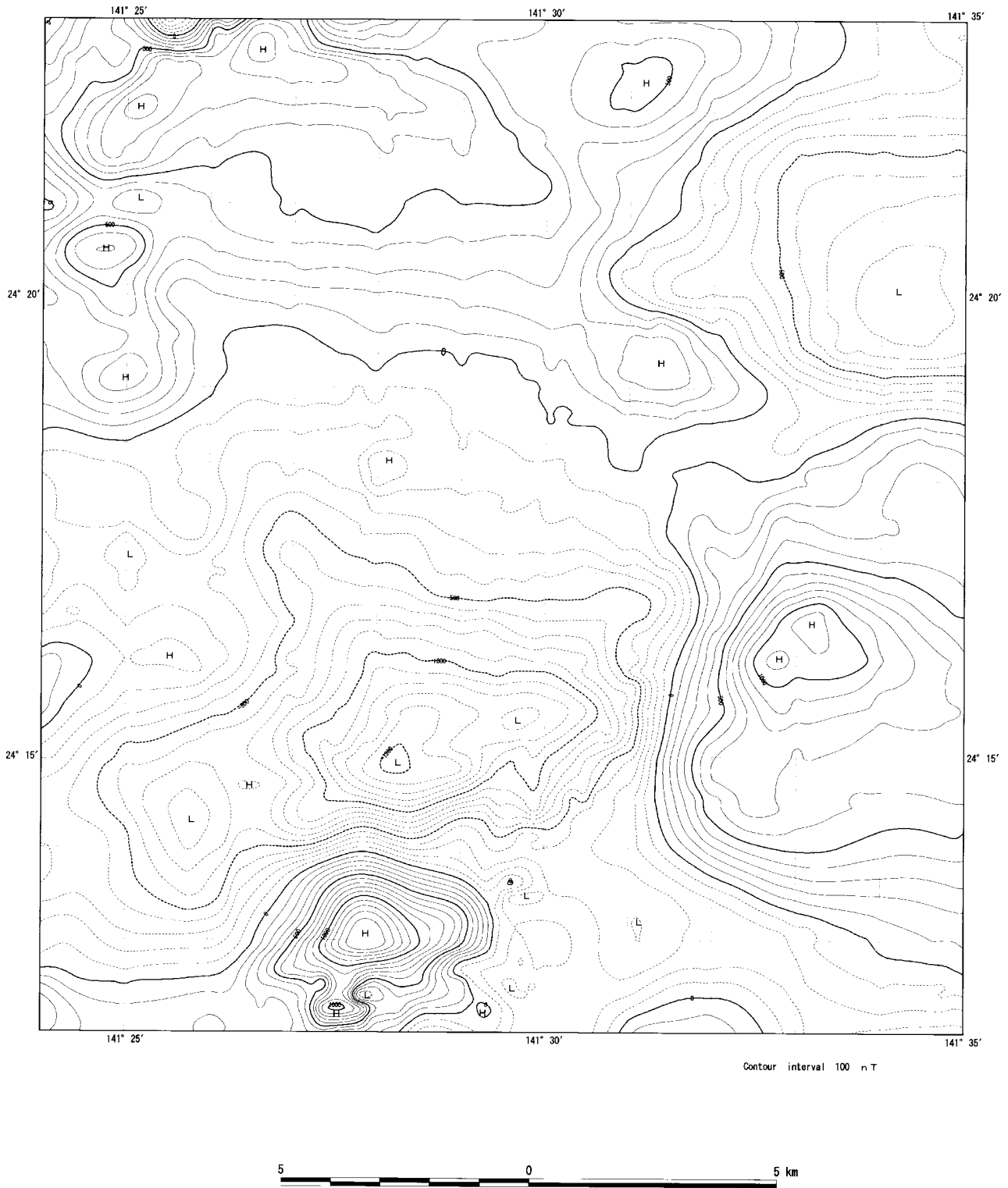


Fig 3. Geomagnetic total intensity anomaly map in and around Fukutoku Okanoba.

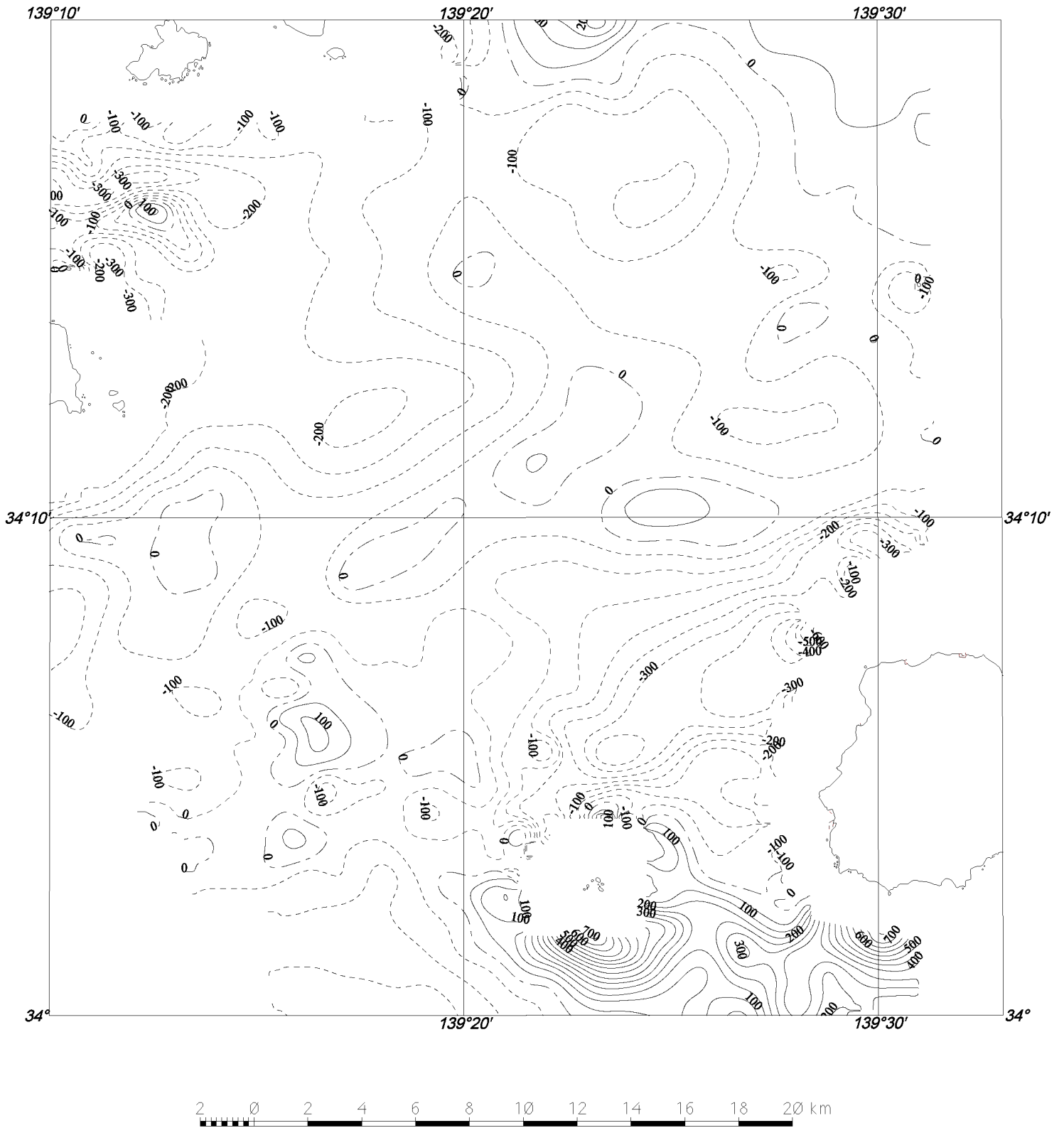


Fig 4. Geomagnetic total intensity anomaly map in Western area off Miyake-jima.