

AEROMAGNETIC SURVEY

This is a continuation of the report of aeromagnetic surveys by the Hydrographic and Oceanographic Department. The results of three surveys, Izu-Torishima, Nishinoshima and Miyake-jima carried out in 2011, 2012, 2013 are presented in this report.

Key word: aeromagnetic survey.

1. Survey

The aircraft used for the survey was MA725(DHC-8). The aircraft was equipped with a tail-stinger of non-magnetic plastics of 1.5 meters long at the rear of the fuselage. The instruments used for the survey are an optical pumping magnetometer and GPS receiver.

The optical pumping magnetometer measured geomagnetic total intensity sampling rate 20Hz with an accuracy of 0.01nT.

2. Data processing and results

The measured total intensity includes 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.

For calculations of magnetic anomaly, the IGRF2010 was used as the core field model in accordance with the recommendation of the IAGA.

The details on the compiled aeromagnetic surveys are listed in Table 1.

Fig. 1~3 show the magnetic anomaly of the total intensity.

Reduction and compilation of this report have been made by K.Ogata, K.Onodera and K.Koyama belong to Geodesy and Geophysics Office.

Reference

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AEROMAGNETIC SURVEY(2003-2008)
AEROMAGNETIC SURVEY(2009-2010)

Table 1. Details on the compiled aeromagnetic surveys

Cruise index	11TORI	12NISI
Area	Izu-Torishima	Nishinoshima
Period	Nov. 15,17 2011	Aug. 23 2012
Aircraft	MA725	MA725
Flight Altitude	710m	310 m
Magnetometer	ABOP-35(Opticalpumped Potassiumom Magnetometer)	ABOP-35(Opticalpumped Potassiumom Magnetometer)
Positioning	GPS	GPS
Track lines	0.5 naut. Mile N-S	0.5~1 naut. Mile N-S
Anomaly map	Fig. 1	Fig. 2
Scale of original map	1/100,000	1/100,000
Map projection	TM	TM
Reference Magnetic Observatory	Kanoya (31°25.'2 N, 130°52.'9 E)	Chichijima (27° 06.'0 N, 142° 10.'8E)
Reference value for an External field correction	46,421 nT	41,120 nT
Core field model	IGRF2010	IGRF2010
Contour interval	50nT	50nT
Epoch year	2011.11	2012.8

Cruise index	13MI	
Area	Miyake-jima	
Period	Jun.27 2013	
Aircraft	MA725	
Flight Altitude	1,525m	
Magnetometer	ABOP-35(Opticalpumped Potassiumom Magnetometer)	
Positioning	GPS	
Track lines	0.25 naut. Mile N-S	
Anomaly map	Fig. 3	
Scale of original map	1/50,000	
Map projection	TM	
Reference Magnetic Observatory	Kakioka (36° 13.'9 N, 140° 11.'2 E)	
Reference value for an External field correction	46,555 nT	
Core field model	IGRF2010	
Contour interval	25nT	
Epoch year	2013.6	

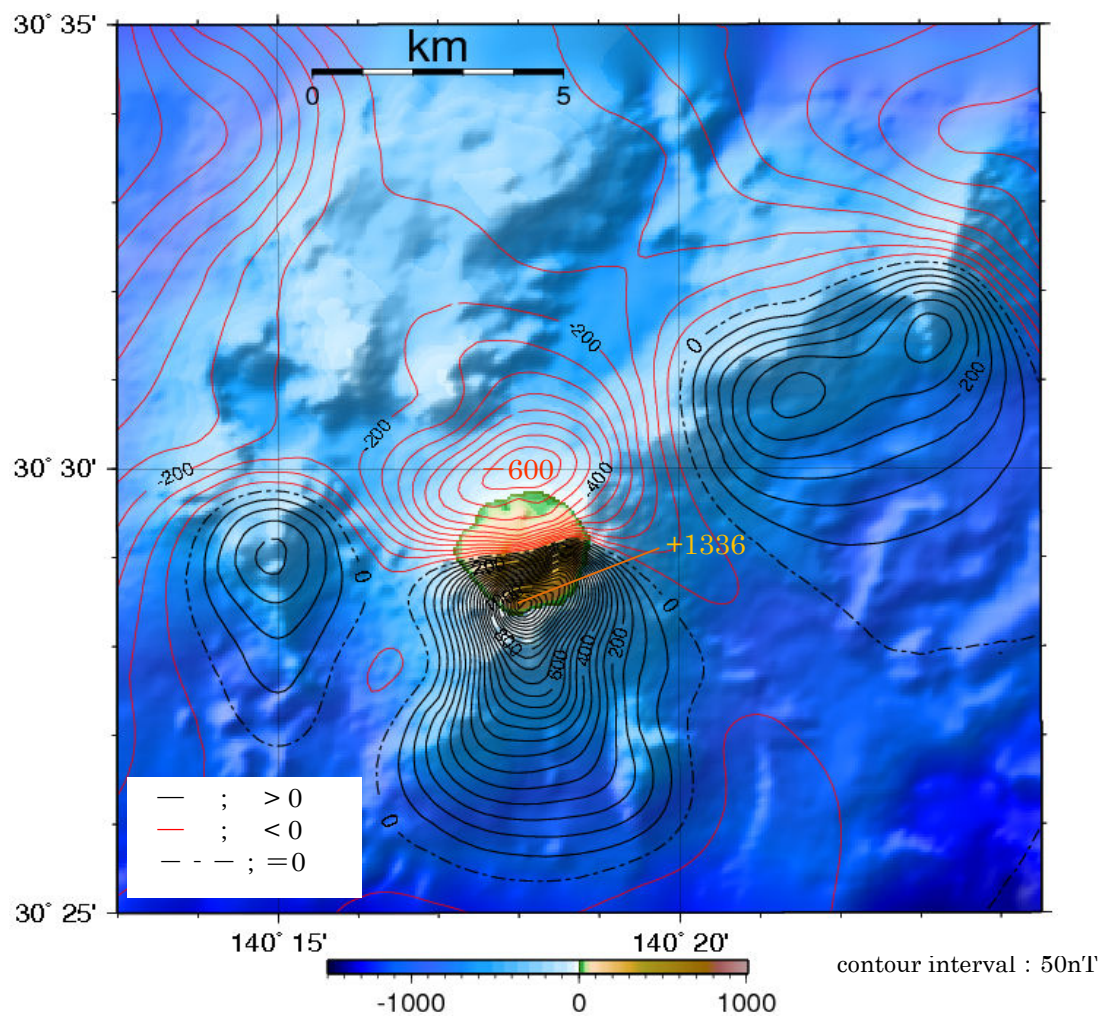
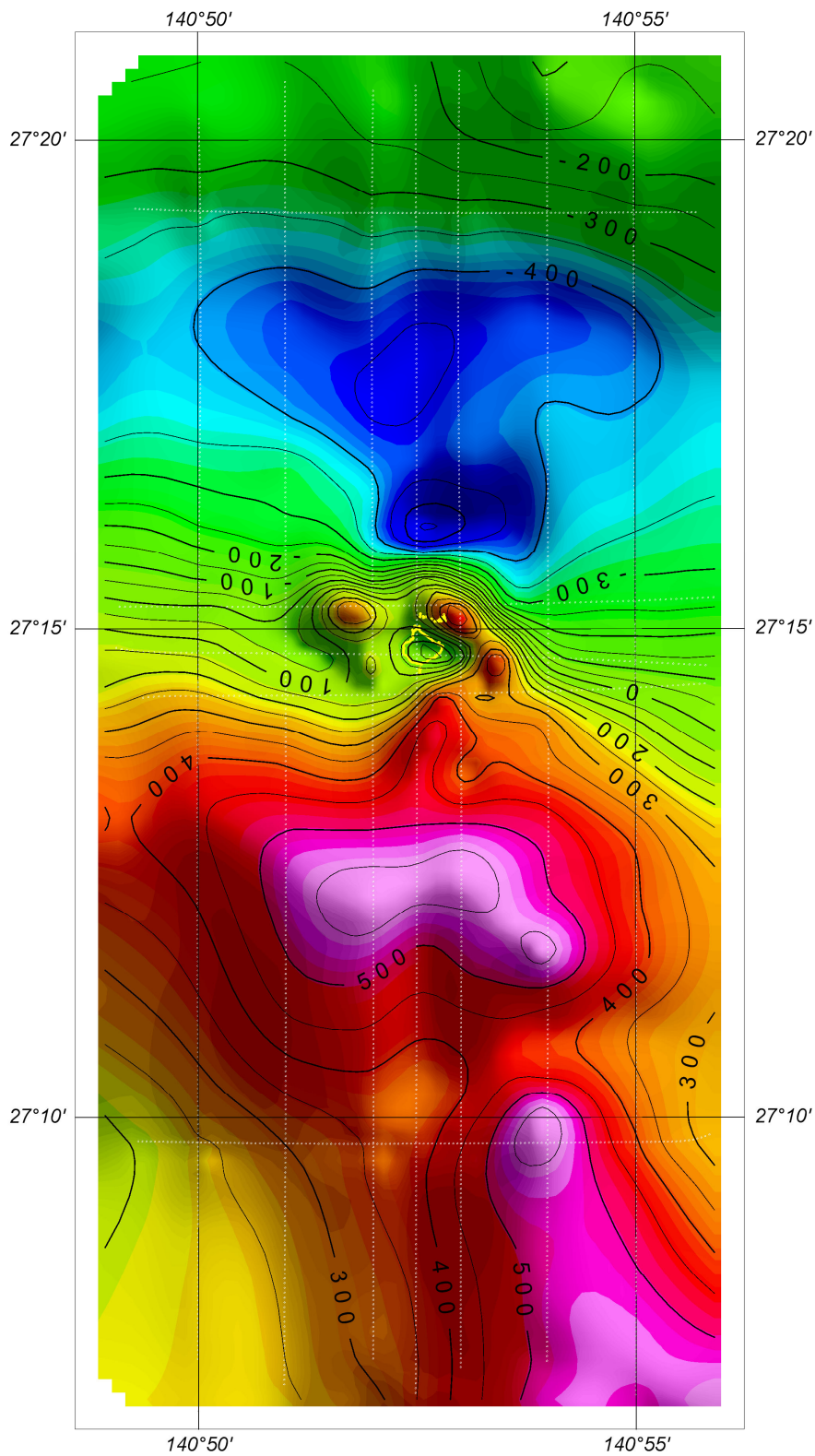


Fig.1 Geomagnetic total intensity anomaly map in and around Izu-Torishima.
 (Land area based on material Geographical Survey Institute)



contour interval : 50nT

Fig.2 Geomagnetic total intensity anomaly map in and around Nishinoshima.

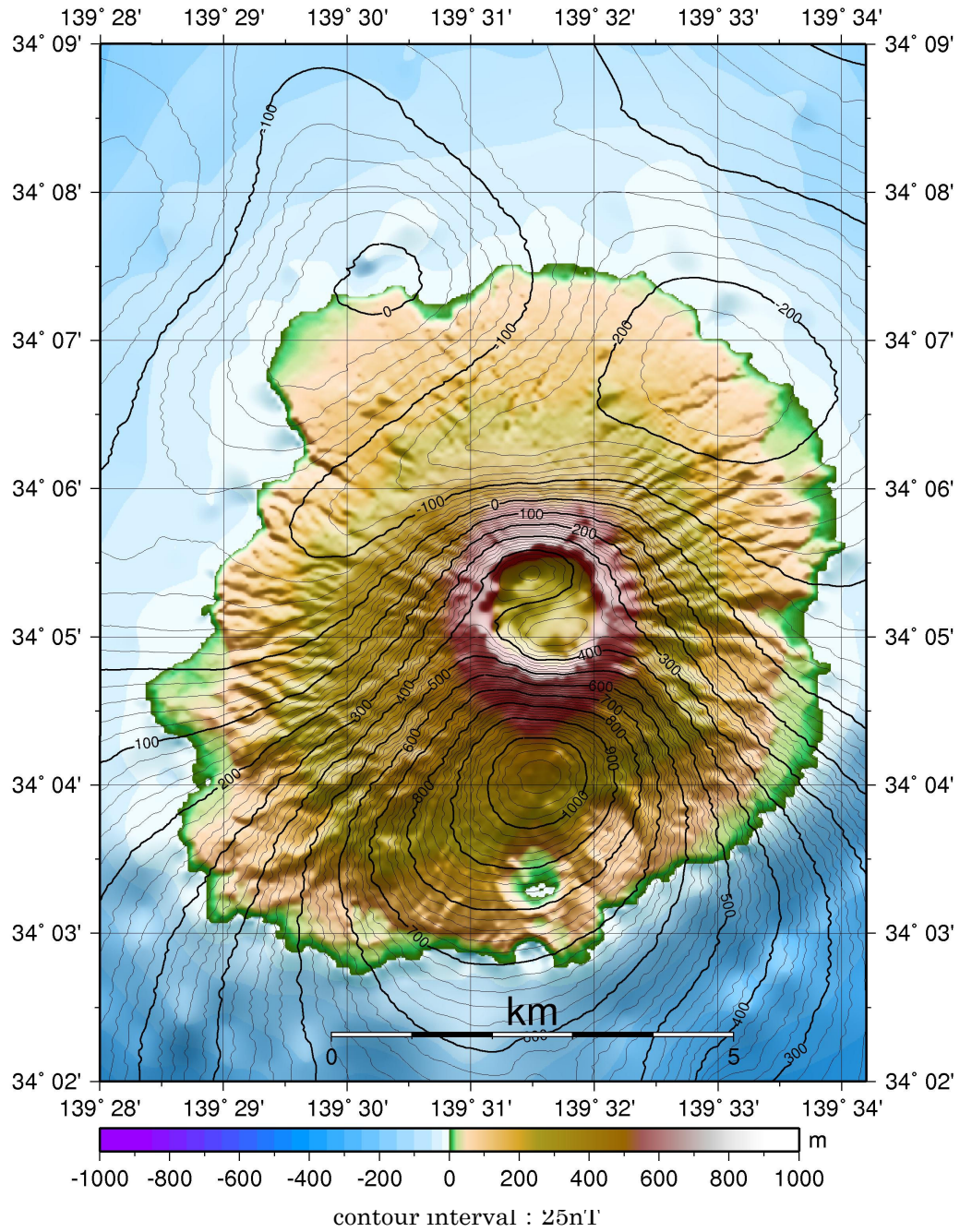


Fig.3 Geomagnetic total intensity anomaly map in and around Miyake-jima.
 (Land area based on material Geographical Survey Institute)