

AEROMAGNETIC SURVEY

This is a continuation of the report of aeromagnetic surveys by the Hydrographic and Oceanographic Department. The results of three surveys, Kozu-shima, Suwanosejima and Nakanoshima carried out in 2009 and 2010 are presented in this report.

Key word: aeromagnetic survey.

1. Survey

The aircraft used for the survey was YS-11 which had been remodeled so that its flying range be extended and that magnetic survey be carried out on board. 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 a proton magnetometer and GPS receiver.

The proton magnetometer measured geomagnetic total intensity once per two seconds with an accuracy of ± 1 nano-tesla.

2. Data processing and results

The measured total 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.

For calculations of magnetic anomaly, the IGRF2005 and 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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Table 1. Details on the compiled aeromagnetic surveys

Cruise index	09KOZU	09SU
Area	Kozu-shima	Suwanosejima
Period	Dec. 23-25 2009	Dec. 7-8 2009
Aircraft	YS-11	YS-11
Flight Altitude	1,100 m	1,100 m
Magnetometer	M-123	M-123
Positioning	GPS	GPS
Track lines	0.125~1 naut. Mile N-S	0.5~1 naut. Mile N-S
Anomaly map	Fig. 1	Fig. 2
Scale of original map	1/50,000	1/50,000
Map projection	TM	TM
Reference Magnetic Observatory	Kakioka (36° 13.'9 N, 140° 11.'2 E)	Kanoya (31°25.'2 N, 130°52.'9 E)
Reference value for an External field correction	46,449 nT	46,378 nT
Core field model	IGRF2005	IGRF2005
Contour interval	25nT	25nT
Epoch year	2009.12	2009.12

Cruise index	10NA	
Area	Nakanoshima	
Period	Oct. 21 2010	
Aircraft	YS-11	
Flight Altitude	1,330 m	
Magnetometer	M-123	
Positioning	GPS	
Track lines	0.5 naut. Mile N-S	
Anomaly map	Fig. 3	
Scale of original map	1/50,000	
Map projection	TM	
Reference Magnetic Observatory	Kanoya (31°25.'2 N, 130°52.'9 E)	
Reference value for an External field correction	46,392 nT	
Core field model	IGRF2010	
Contour interval	25nT	
Epoch year	2010.10	

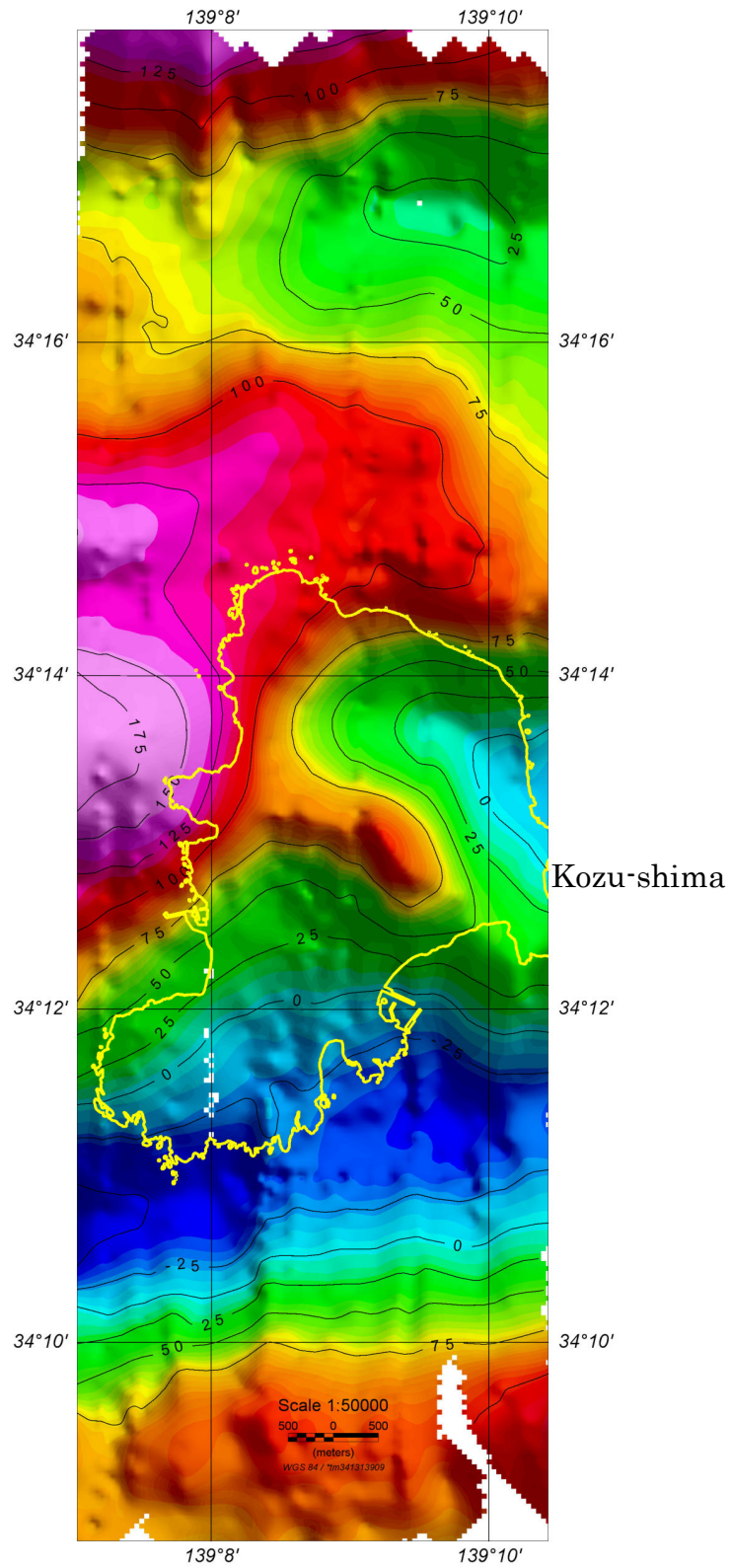


Fig.1 Geomagnetic total intensity anomaly map in and around Kozu-shima.
 (Coastline based on material Geographical Survey Institute)

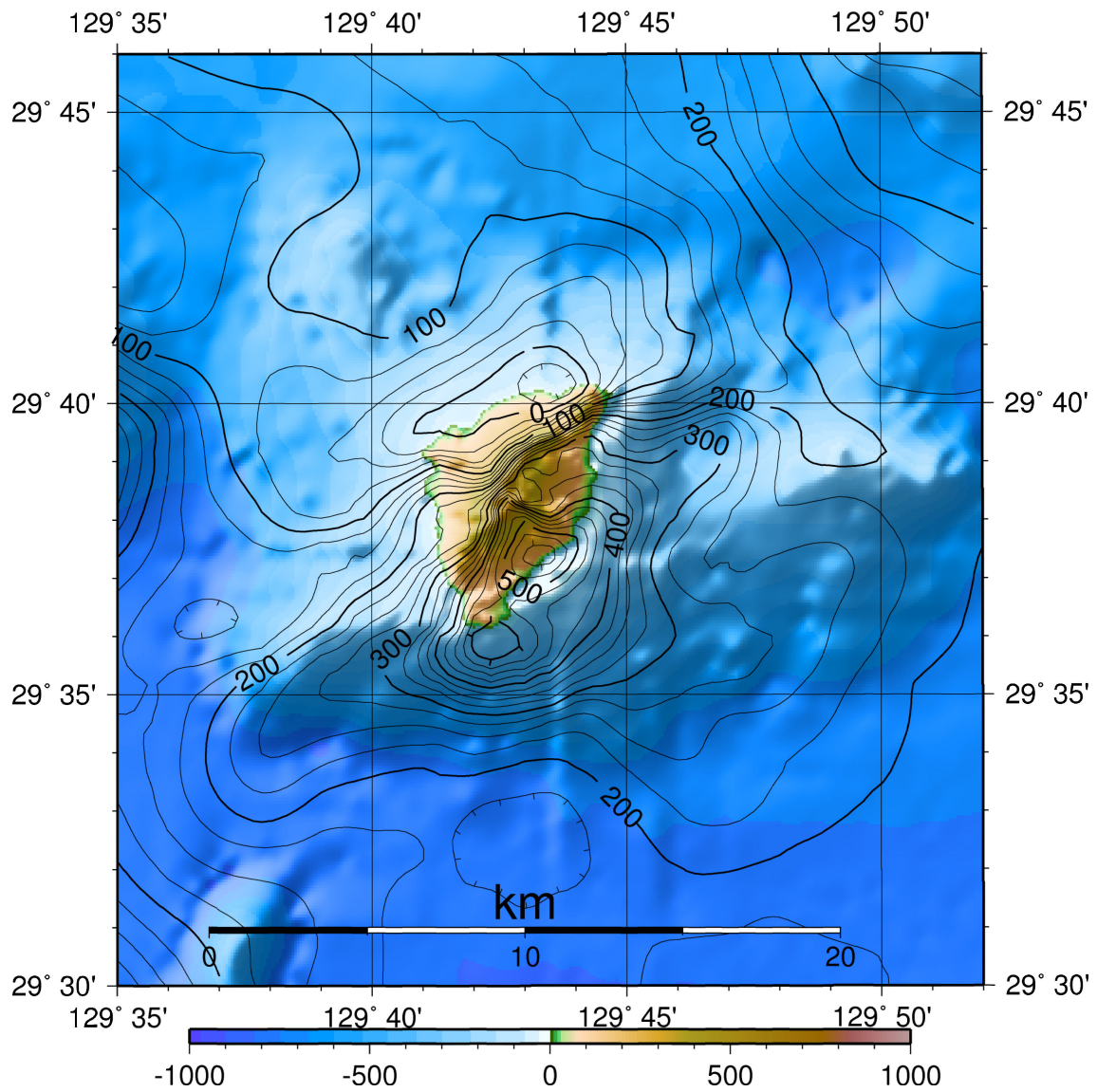


Fig.2 Geomagnetic total intensity anomaly map in and around Suwanosejima.
(Land area based on material Geographical Survey Institute)

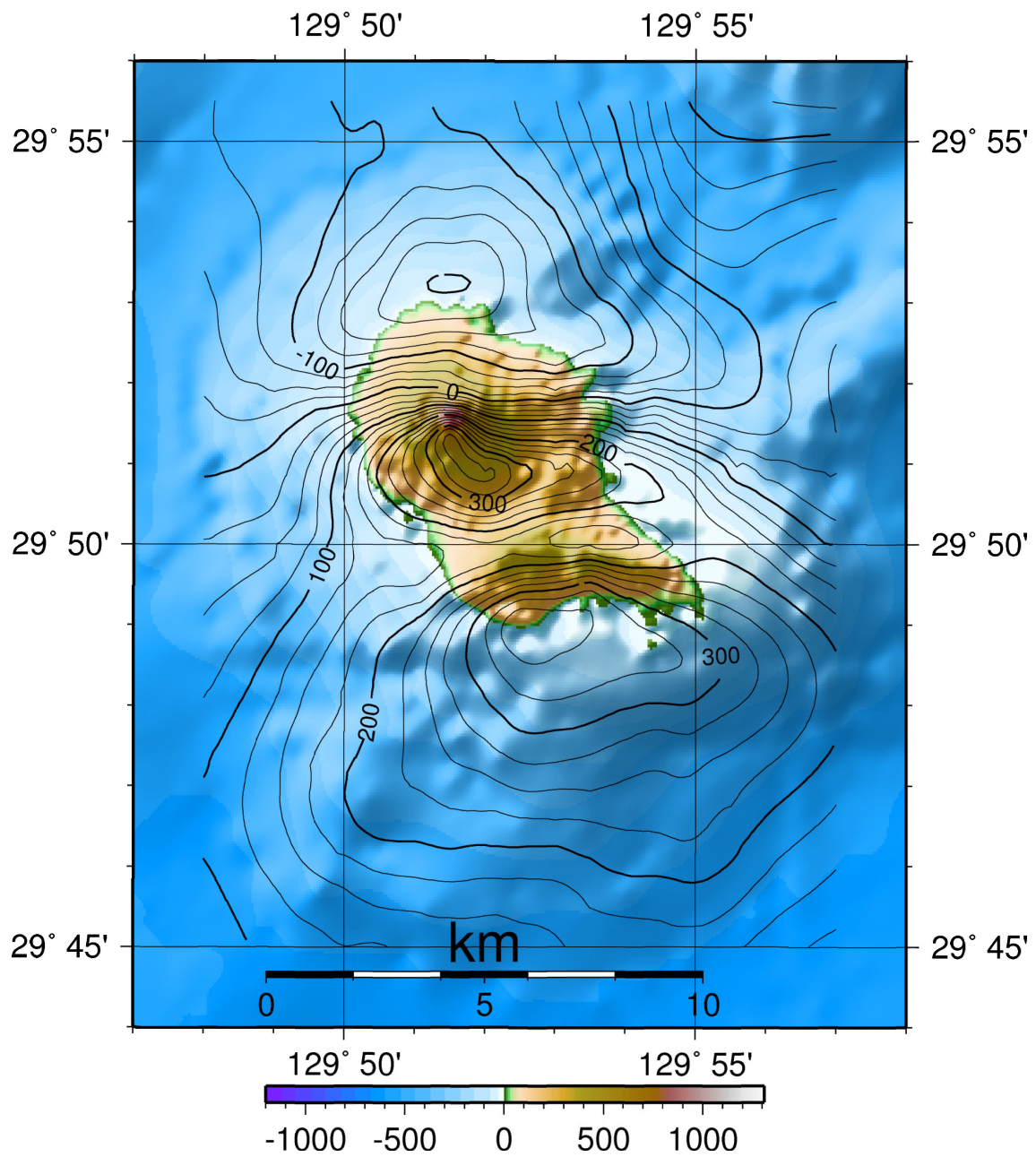


Fig.3 Geomagnetic total intensity anomaly map in and around Nakanoshima.
 (Land area based on material Geographical Survey Institute)