

Geophysical and geographical features of chains of sea-mounts off Tohoku, Japan, North-western Pacific Ocean

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Multi-narrow-beam, Gravity, and geomagnetic intensity measurements, etc. were carried out in the area off Erimo-cape, off Joban and off Hachijo-east in the cruise GH05 of No.2 Hakurei and T.h17_2 cruise of Shoyo.

The survey area is approximately included in the box 32N to 42N, 140E to 147E in the Western Pacific Ocean off Tohoku, Japan.

Geomagnetic anomaly is calculated by deducting IGRF2005 values from the measured values.

Gravity anomaly and geomagnetic anomaly could be mapped around the summit of a mountain part in each sea-mount, where data density is enough.

Hitachi guyot 3.3km in height 33km foot diameter has an anomaly of about 125 mgal, Ryofu-Daini 3.8km in height 28km foot diameter about 100 mgal, Bosei 3.4km in height 24km foot diameter about 75 mgal.

Magnetic anomaly patterns of many sea-mounts indicate that positive eyeball on the south side and negative one on the north side of the sea-mount.

P-p value of the eyeball magnetic anomaly which became a pair is close to 1000nT, and a typical pattern is seen by the distance of the eyeball about 20km in Daigo-Kashima, Kazuaki, Takahiro, Mogi, and so on.

The magnetic anomaly p-p value of Ryofu2 is small with about 300nT, and the distance of the eyeball is about 5km, and it is near comparing to other seamounts. It might mean rather shallow magnetization body.

Bosei shows that the eyeball pair doesn't get clear, and anomaly value is less than 100 nT, and anomaly itself is very small comparing with the size of sea-mount.

It might be caused by the effect that the magnetization of sea-mount is weak reversal and cancel each other with induced magnetization.

Rather strong parts of the reflection exist in some places whose heights are about 50-100m in the flat area of the guyot, Takuyo-Daisan.

The fact of many patches whose reflectivity is rather strong might be caused by that the rather tough volcanics remain against the erosion or by that coral reef have grown at some places when the guyot sunk rapidly.

There is low possibility that the drilled sample is fresh and good for the investigation of whole basement of sea-mount, because the age of sea-mount is thought very old, even if the drilled samples are igneous ones.

It is thought useful to investigate that the area is covered with accumulation thing, or bare rocky parts.

Starting from the pile of wide area data, and it is the important judging equipment for the area selection to proceed to final decision on a site of BMS boring machine which uses a deep sea camera also, and besides, it can be said that it is being used effectively enough under the present condition where there is no conclusive means.

There is a pattern that something flows with rather strong reflection though it hardly reflects on the bathymetry at almost flat geographical features of the SWW foot of a mountain part in the Takuyo-Daisan.

Although it seems to be the mark which the low viscosity lava seemingly flowed from around the foot of a mountain, reflection strength isn't so strong, and it is near the foot area of a mountain, the pattern might be caused by debris flow which happened near the foot of the sea-mount.

Dredging around the extreme top of this pattern obtained some volcano-clastic rocks.