

Aeromagnetic survey by a small unmanned airplane over northern part of Deception Island

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Part of the Scientific program incorporated with researchers in (Japanese) National Institute of Polar Research (NIPR), Korea Polar Research Institute, Chile Antarctic Institute, Bulgarian Antarctic research and Spanish Antarctic team, magnetic anomaly data were acquired over the Deception Island in Bransfield Strait. It was probably the first time to succeed to get the geophysical data by a long-flight unmanned aerial vehicle (UAV) in the area of Antarctica. Due to the severe weather the flight was only over the northern half of the Deception Island and its surrounding sea area.

Fig. 1 shows obtained magnetic anomaly, flight lines and coastline. The flight altitude is about 780m averaged. The main survey lines are directed east-west and the intervals of the lines are about 1000m. Longest length of the main survey line is about 18km. Probably due to the unstable attitude of the UAV body by strong wind, some east-west lines are shortcutted regardless of pre-programmed 18km length courses. The flight courses were overlapped on the survey lines along the latitude of 62deg53min and the longitude of -60deg28min. On these lines each direction of the flight is opposite. Some unnatural unduration can be seen around overlapped lines. These kinds of unduration are occurred due to the difference of the observed magnetic field on each line. These differences have to be corrected, now we have the tolerable data for estimate the structure of the Deception Island.

Standing high magnetic anomaly is recognized over the eastern peak of the island. Although we don't have precise topographic data of the Deception Island and bathymetric data on surrounding sea area, we will try to estimate of the distribution and the length of magnetization.

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