

## Magnetic anomalies due to subsurface structure of Mitsuishi ultramafic rock body

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The Mitsuishi ultramafic rock body in Hokkaido, Japan, consists mainly of serpentinitized peridotites that originated from a depleted mantle. The Mitsuishi body occurs as a narrow horst with a length and a width of approximately 10 km and 0.5 km, respectively. The rock body is divided into two parts by the Mitsuishi River. The eastern part is the Mt. Gunkan-yama and the western part is the Mt. Shamanbe-yama. The Mitsuishi ultramafic rock body has a large fabric with a mappable body. The exotic blocks in the rock body are scattered in a sheared serpentinite matrix showing knocker topography. Amphibolites are the predominant rock type in the blocks. Foliations that are also observed in the metamorphic blocks are randomly oriented and discordant with the trend of the large fabric. A high magnetic anomaly is shown along this rock body (Aeromagnetic database of Japan: Nakatsuka et al., 2005). A ground-magnetic-survey on the Shamanbe-yama was carried in 2000 and the rock samples were corrected from Shamanbe-yama and Gunkan-yama in 2001 and 2002. Rock magnetic study suggested that the blocks in the matrix must have obtained crystallization remanent magnetization (CRM) during serpentinitization and serpentinite blocks were magnetized prior to uplifting. The results of the study indicate that the magnetic carrier of the serpentinite blocks in the matrix is mainly composed of magnetite, and it can keep original magnetization before uplifting (Morijiri and Nakagawa, 2005).

The 200m grid data for modeling were obtained by survey altitudes was about 450m and track line intervals was about 3 km. It was enough to regard to Mitsuishi ultramafic body as a single magnetic body with unique magnetization. Direction of magnetization was given as parallel to present magnetic field. Moreover, the ground-magnetic-survey data indicate negative peak of profiles on the north side of the narrow horst. It suggested that subsurface structure of magnetic body was like a thin board was stood perpendicularly.