

北海道中軸部における比抵抗構造：超塩基性岩のテクトニクスへの制約 Electrical resistivity distribution around the middle axis of Hokkaido Island: constraint for tectonics of ultra-mafic rocks

*市原 寛¹、茂木 透¹、山谷 祐介²

*Hiroshi Ichihara¹, Toru Mogi¹, Yusuke Yamaya²

1. 名古屋大学地震火山研究センター、2. 産業総合研究所

1. Earthquake and Volcano Research Center, Nagoya University, 2. AIST

Middle axis of Hokkaido Island is located on a tectonic boundaries between NE Japan arc and Kurile arc. In the south part of the boundary, collision due to migration of fore-arc aliver is known (Hidaka Collision zone). Huge serpentine rock bodies are exposed in the high P/T metamorphic belt (kamui-kotan belt) located on the NE Japan arc side near the boundary. In addition, a fresh peridotite rock body (Horoman peridotite) is also distributed in the south part around the boundary. However, tectonic process to bring the surface has not been understood although it is the key to understand the tectonics. In this study, we discuss the crustal structure beneath the arc-arc boundary especially for ultra-mafic rock area based on electrical resistivity distribution obtained in following three areas: (1) middle part of Hidaka collision zone where serpentine is exposed, (2) north part of Kamui-kotan belt where serpentine is exposed but the collision is not occurred, and (3) south part of Hidaka collision zone where the Horoman peridotite is distributed. In the area (1) and (2), very low resistivity (1-10 ohm-m) anomalies area found in the depth around 10-40 km beneath the surface serpentine body but they are not significant beneath out of the serpentine area. We interpreted them as high fraction of aqueous fluid area related to serpentine forming and bring them to the surface. In the area (3), we found thin sheet-like high resistivity body near the surface embedded to low resistivity body (Ichihara et al., G3). The surface high resistivity correspond to the peridotite because unaltered igneous rocks are basically resistive. The underlying conductive area possibly reflect cretaceous sedimentary rock based on integrated interpretation of geomagnetic anomaly, gravity anomaly and the resistivity distribution. If these interpretations in the area (3) are true, the Horoman peridotite covers over the sedimentary rock, implying the unknown tectonics processes occurred on the south part of Hidaka collision zone.

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