Intrusive behavior of ultramafic bodies of the Mineoka belt from Miocene to Recent monitored by sediments in the Boso Peninsula

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Geological structure of the Hayama-Mineoka belt, where serpentinized peridotites are one of main constituents, is a key to reveal asperities of the southern Kanto region. Geophysical studies such as seismic reflection profilings (Sato et al., 2003), geomagnetic surveys (Tonouchi and Kobayashi, 1982, 1983; Fujiwara et al., 1990) have been operated around the Mineoka belt, but the problem has not been completely solved.

Serpentinites are widely exposed at the Mineoka belt, from which gravels and clastic particles derive from serpentinites are embedded in several strata from early Miocene to Recent in the Boso Peninsula. They indicate exposition of serpentinite bodies in each age. Their serpentinite gravels and particles indicate changes of petrologic characteristics of the serpentinite bodies from early Miocene to Recent, and give us information of the processes of protrusion and dimensions of the serpentinite bodies. The information may constrain the geological structure of the Mineoka belt. In this presentation, we discuss this problem using data of our own and from the literature about the serpentinite gravels and particles.

Serpentinite gravels and particles in the strata of the Boso Peninsula are as follows: clastic sandstone in the Mineoka Group (early Miocene: Okuzawa and Hisada, 2004), serpentine sandstones in the Hota Group (early Miocene: Arai et al., 1983), conglomerates in the Sakuma Formation, Miura Group [middle Miocene (15Ma): Okuzawa and Hisada, 2004], conglomerates in the Senhata Formation, Miura Group [late Miocne (6Ma) : Arai et al., 1990], sands and gravels in Ichijuku Formation, Kazusa Group [middle Pleistocene (0.7Ma) : Arai et al., 1990] and gravels of the Nagahama Formation, Kazusa Group [middle Pleistocene (0.6Ma)]. The serpentinite gravels and particles from the Senhata and Icijuku Formation are considered to be derived from the 'Fudoiwa body' (a part of the Circum-Izu massif serpentinites as well as the Hayama and Mineoka belt) in the Uraga Channel between the Miura and Boso Peninsula (Arai et al, 1990), and the others were brought from the Mineoka belt. A petrographical examination of the serpentinite gravels indicates that harzburgites frequently accompanying with plagioclase (saussurite) are commonly dominant, and dunites and lhrzorites are subordinate. Chemical compositons of chromian spinels, low $Fe^{3+}/(Cr+Al+Fe^{3+})$ ratios and high $Mg/(Mg+Fe^{2+})$ ratios, are very similar to each other. The serpentinite gravels and particles in all strata examined are inferred to be derived from common serpentinite bodies.

Serpentinite bodies have protruded intermittently at the Mineoka belt from early Miocene to Recent. If the horizontal position of the Mineoka belt has not been seriously changed through the age, the serpentinite bodies have a large vertical dimension. Lower extension of the serpentinite bodies is, however, not clear now. Understanding of the origin and emplacement process of the serpentinites helps us to solve the problem. We should unravel the development history of geological structure of the Hayama-Mineoka belt to thoroughly understand the problem in this region.