

Mineoka ophiolite in Izu arc collision zone: MOR origin or island-arc origin? - Constraints from chemistry, dating and metamorphic rock exhumation -

Yujiro OGAWA¹, Ryota Mori¹, Naoto HIRANO², Masanori KUROSAWA¹, Toshiaki TSUNOGAE¹, Teruaki ISHII³, and Satoru HARAGUCHI³ (¹*Earth Evolution Sciences, Univ. Tsukuba (yogawa@arsia.geo.tsukuba.ac.jp)*; ²*Earth and Planetary Sciences, Tokyo Institute of Technology*; ³*Ocean Research Institute, University of Tokyo*)

Mineoka ophiolite appears in the forearc sliver fault zone in Boso Peninsula, south of Tokyo. The zone is between the Honshu forearc and Izu forearc, resting in a unique tectonic setting of the Izu arc collision zone just around the TTT-type triple junction of the NW Pacific. Since the triple junction came to the present position in middle Miocene from the west, the sandwiched area between the Eurasia (now North America) and the Philippine Sea plate has acted as the smash tectonics of normal to oblique subduction or transpression tectonics, which results in the ophiolitic rock emplacement. The ophiolitic rocks include basaltic rocks with pelagic covers (from Cretaceous to Paleogene). Early to middle Miocene pelagic limestone and alkalic basalts are the final activity of oceanic magmatism and sedimentation. The problem is what is the oceanic plate which is embedded into the forearc ophiolite belt? Is that the same stuff of the present Pacific plate, or different plate? Was the so-called forearc ophiolite originated as in situ ophiolite within the island arc, or as an exotic product incorporated to the island arc by some tectonic process? What is the main mechanism for emplacement of the ophiolitic rocks, and particularly of the metamorphic rocks? The dating and chemical results for the basaltic rocks elucidated that the plate stratigraphy is almost the same to that of North New Guinea, and composed of both MORB and IAT origin. Also all the metamorphic rocks are deformed by strong shearing by transpression in two stages during exhumation. Pelagic covers include island arc tuffaceous materials. These lines of new evidence indicate that the Mineoka ophiolite has the composite origin, as the counter part of the North New Guinea plate, both oceanic and island arc realms from Cretaceous to Miocene, and was finally incorporated into the triple junction area with large-scale smash tectonics.