

## Zircon U-Pb age and geochemistry of plutonic rocks in the Mineoka-Setogawa Belts: Fragments of middle to lower crust of the IBM Arc?

\*Yuji Ichiyama<sup>1</sup>, Hisatoshi Ito<sup>2</sup>, Natsumi Hokanishi<sup>3</sup>, Akihiro Tamura<sup>4</sup>, Shoji Arai<sup>4</sup>

1.Chiba University, 2.Central Research Institute of Electric Power Industry, 3.The University of Tokyo, 4.Kanazawa University

The Mineoka-Setogawa Belts are Paleogene accretionary complexes distributed around the Izu Peninsula. These belts contain the various sizes of detrital and tectonic fragments of serpentinized mantle peridotites, plutonic rocks (gabbro, diorite and tonalite), metamorphic rocks and volcanic rocks (e.g., Arai 1994), which likely show ophiolitic constituents. Although Middle Eocene microfossils were reported from sedimentary rocks in these belts (e.g., Saito, 1992; Sugiyama and Shimokawa, 1990), reliable data of the isotopic age have not been obtained yet. In this study, we determined the precise age of the plutonic rocks in the Mineoka-Setogawa Belts using the zircon U-Pb method, and compared with the current age models proposed for the Philippine Sea and IBM Arc.

The U-Pb age was measured from zircon grains collected from 10 samples of gabbros, diorites and tonalites using LA-ICP-MS (Thermo Fisher Scientific ELEMENT XR). The zircon U-Pb ages obtained from all samples concentrate at approximately 35 Ma, regardless of the rock types. These ages are coeval with the Eocene to Oligocene arc magmatism in the IBM Arc.

The whole-rock chemistry of the plutonic rocks from the Mineoka-Setogawa Belts shows calc-alkali affinity and distinct negative anomalies of Nb and Ta in their trace element patterns, which indicates that these plutonic rocks were formed by arc magmatism. Comparing the plutonic rocks with the possible analogues of the IBM middle crust, the Tanzawa Plutonic Complex and the Komahashi-Daini Seamount (Tamura et al., 2009), the major and trace elements of the plutonic rocks from the Mineoka-Setogawa Belts are very similar to those of the Tanzawa Plutonic Complex and the Komahashi-Daini Seamount.

The zircon U-Pb ages and geochemistry of the plutonic rocks in the Mineoka-Setogawa Belts probably indicate that the ophiolitic fragments in the Mineoka-Setogawa Belts are derived from the crust and upper mantle of the IBM Arc. More thorough investigations of the ophiolitic fragments in the Mineoka-Setogawa Belts will help us to understand the petrological evolution of the crust and upper mantle beneath the IBM Arc.

Keywords: Mineoka-Setogawa Belts, Zircon U-Pb age, Plutonic rocks