

## Does Tanzawa Plutonic complex represent the middle crust of the IBM arc? New constraint from SHRIMP zircon U-Pb geochronology

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The Tanzawa plutonic complex (TPC) is located at the Izu-Tanzawa collision zone where the northern extent of the Izu-Bonin-Mariana (IBM) arc is colliding with the Honshu arc. TPC is composed of rocks ranging from tonalite to gabbro, and have been considered to represent the exposed middle crust section of the IBM arc (e.g. Arima et al., 1999 and Kitamura et al., 2003). The TPC is important in studying the crustal evolution of the intra-oceanic arcs such as IBM arc, since the exposure of crustal section of the active intra-oceanic arc is extremely scarce.

In spite of this importance, the emplacement and crystallization age of the TPC is not well constrained. Wide range of K-Ar hornblende/biotite ages from 11 to 4 Ma have been reported (Sato et al., 1986 and Saito et al., 1991), but these K-Ar ages have been questioned from the Ar-Ar age study (Saito, 1993).

Using the sensitive high-resolution ion microprobe (SHRIMP II) installed at the National Institute of Polar Research (NIPR), we are successful in obtaining zircon U-Pb ages of tonalite and gabbro samples from the six major plutonic bodies of TPC as well as other plutonic rock samples collected from the IBM arc. The newly acquired zircon U-Pb ages (4-5 Ma) clearly show that the main pulse of TPC emplacement post-dates the collision of the Tanzawa block which occurred at ~6 Ma (Niitsuma, 1989).

The rocks of TPC are characterized by depletion of incompatible elements such as  $K_2O$ , LIL elements, and REEs (Kawate and Arima, 1998), and these geochemical characteristics have been widely accepted as the general characteristics of the IBM arc crust. But our new age constraint on the formation of TPC demands us to reexamine whether these geochemical characteristics of TPC are related to the collisional tectonic environment or not.