

Incrementally emplaced Tanzawa plutonic complex

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With the development of geology, an idea of how the Tanzawa plutonic complex (TPC) has emplaced has changed. For a long time, in brief, a kind of diapiritic ascent and/or ballooning space creation of the TPC was advocated by many geologists in 20th century (e.g., Takita et al., 1976, J. Geol. Soc. Japan). Thus, these ideas mean that the TPC was intruded/emplaced as one huge mass. The diapir and ballooning was imagined through domal structure, centered on the TPC, of the Tanzawa Group which was composed of pyroclastic and volcanoclastic rocks generated before the Tanzawa mountains collision event (e.g., Amano, 1991, Modern Geol.). Metamorphic phase analyses of the metamorphic aureoles seemed to support the diapiritic ascent (e.g., Arai, 1986, J. Geol. Soc. Japan). On the other hand, in recent year, U-Pb zircon geochronology for many plutons showed that they were incrementally aggregated to form huge batholithic pluton (e.g., Glazner, et al., 2004, GSA Today). For the TPC, Kanamaru and Takahashi (2005, J. Geol. Soc. Japan) revealed that the main tonalite, which was largest body of the complex, of the TPC were composed of at least four independent emplace units by means of magnetic fabric and whole-rock chemistry. This was supported by the zircon U-Pb age (Tani, et al., 2010, Geology). Tani et al. (2010, Geology) revealed that each small intrusive unit of the TPC showed different age. These recent findings above are evidences for the incremental emplacement of the TPC. In addition, Tani et al. (2010, Geology) also showed that the Doushigawa fault, which bisected over the Tanzawa mountains, separated the TPC into two quite different age groups. This may indicate that the domal structure given rise by the diapirism of the TPC needs to be reconsidered.

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