Zircon U-Pb age and tectonics of shirakamidake granitic complex

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The Shirakamidake granitic complex in the Southwest of Aomori prefecture, is divided into the East, Central and West bodies. The East body and the Central bodies are mainly composed of coarse to medium grained hornblende biotite granodiorite and coarse to medium grained granite, respectively. The West body consists of schistose medium to coarse grained hornblende biotite granodiorite and light color schistose medium to coarse grained hornblende biotite granodiorite with mylonite zone (hujimoto, 2010). A large number of petrological studies have investigated the cooling history of the Shirakamidake granitic complex. Apatite (U-Th)/He age of 4.2±2.0 Ma, biotite K-Ar age of 86-100 Ma, amphibole K-Ar age of 89-94 Ma and whole-rock Rb-Sr age of 110.1±6.0 Ma have been reported. Generally, the ages of the West body are younger than those of the East body.

In this study, we describe geological and petrological features each bodies by polarizing microscopy, XRF spectrometry and EPMA analysis. We also present geochronological data utilizing laser ablation ICP mass spectrometry technique on the zircons that provides zircon U-pb age of 107.7±1.4Ma.
Thermochronological data suggests two distinctive cooling stages for the Shirakamidake granitic complex; 1) a first rapid cooling stage in which the granitic magma was cooled to the temperature of host rock soon after intrusion, and 2) second slow cooling stage associated with the uplift and subsequent erosion of the granite intrusion after ~90 Ma.

Keywords: The Shirakamidake granitic complex , Zircon, U-Pb age

