

## U-Pb ages of zircon in plutonic rocks within the southern Abukuma Mountains

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Abukuma Plutonic and Metamorphic Rocks are widely distributed in the southern Abukuma Mountains. These rocks had been studied in detail (e.g. Miyashiro, 1958; Research Group of the Abukuma Plateau, 1969; Kano et al., 1974; Maruyama, 1979). Radiometric age datings of the Abukuma Plutonic Rocks were carried out by Kawano and Ueda (1965), Maruyama (1978), Shibata and Uchiumi (1983), Shibata (1987), Shibata and Tanaka (1987) and others. These studies indicated that radiometric ages of the Abukuma Plutonic Rocks are almost 90 to 120 Ma. Recently, Ar-Ar age dating of hornblende (Takagi and Kamei, 2008) and U-Pb age dating of zircon (Kon and Takagi, 2012) for plutonic rocks in northern Abukuma Mountains were carried out. They showed that the ages of gabbro and granitic rocks are similar. On the other hand, U-Pb age dating of zircon for plutonic rocks in southern Abukuma Mountains is not yet performed. Therefore, U-Pb age dating of zircon for major plutons of southern Abukuma Mountains was carried out, result of which is reported and tectonics of the Abukuma Mountains is discussed based on the cooling history of the plutons.

Plutonic rocks in the southern Abukuma Mountains are classified into gabbro and diorite, fine-grained diorite, hornblende-biotite granodiorite (Irishiken Pluton, Kamikimita Pluton, Tabito Pluton, Ishikawa Pluton, Miyamoto Pluton and Samegawa Pluton), biotite granodiorite (Torisone Pluton), biotite granite and fine-grained leucogranite, based on the geological relations. The U-Pb ages of zircon for gabbro are 102.7 $\pm$ 0.8 Ma (Tabito Pluton), 109.0 $\pm$ 1.1 Ma (Hanawa Pluton), 114.2 $\pm$ 0.8 Ma (Miyamoto Pluton). As for the hornblende-biotite granodiorite, U-Pb ages are 105.3 $\pm$ 0.8 Ma (Irishiken Pluton), 105.2 $\pm$ 0.8 Ma (Kamikimita Pluton), 113.8 $\pm$ 0.7 Ma (Tabito Pluton), 104.4 $\pm$ 0.7 Ma (Ishikawa Pluton) and 106.4 $\pm$ 0.8 Ma (Miyamoto Pluton). Also for the biotite granodiorite (Hanawa Pluton), the biotite granite and fine-grained leucogranite U-Pb ages are 105.7 $\pm$ 1.0 Ma, 104.5 $\pm$ 0.5 Ma and 100.2 $\pm$ 0.8 Ma, respectively. These data indicate that the intrusion ages of Gabbro and surrounding granitic rocks are similar to each other. Furthermore, K-Ar ages of biotite and or hornblende, and fission track ages of the same rock samples were measured. Accordingly, it is clear that these rocks had been cooled rapidly to 300 degree C (Ar blocking temperature of biotite) after their intrusion. This implies that the Abukuma Mountains were uplifted rapidly after the intrusion of the Abukuma Plutonic Rocks.

### References

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Keywords: Abukuma Granites, Gabbro, Abukuma Belt, UU-Pb age, zircon