

Integrated radiometric dating of schist clasts from the Eocene and Miocene conglomerates in Shikoku

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The age that the high P/T type Sanbagawa metamorphic rocks reached at erosion level gives an important constraints for considering exhumation processes of the Sanbagawa metamorphic rocks. It is shown by the oldest age of the conglomerate containing schist clasts derived from the Sanbagawa Belt. Integrated radiometric dating has been carried out for schist clasts from the Paleogene and Neogene conglomerates in Shikoku. The results of K-Ar and fission-track (FT) ages for the schist clasts from the Eocene Hiwadatoge Formation and the Miocene Furuiwaya Formation (Kuma Group) were already reported (Takagi and Sakisaka, 2012; Takagi et al., 2013). We have been doing U-Pb dating of zircon grains from the same clasts for the FT dating using NanoSIMS 50 ion microprobe of AORI. The youngest U-Pb age of zircon grains approximates the sedimentary age of the protoliths of the schist, because the zircon grains in the low-grade metamorphic rocks are detrital origin. The tentative results shown by the youngest peak yield around 110 Ma in all samples. We will report on details of the U-Pb ages at the meeting. FT dating was also carried out for the schist clasts from Eocene Oyamamisaki Formation in the Shimanto Belt where K-Ar ages (78.2-71.4 Ma) of the clasts have been already reported by Yoshikura et al (1991). The FT ages were 67.3 +/- 9.0 Ma and 68.4 +/- 8.2 Ma. From the results of K-Ar phengite ages and FT zircon ages for schist clasts (Table 1), it is suggested that the exhumation rate of the schist eroded at Eocene time is faster than that eroded at Miocene time.

References :

- Takagi and Sakisaka, 2012, 119th Geol. Soc. Japan Congress, Abstracts, p.93.
 Takagi et al., 2013, 120th Geol. Soc. Japan Congress, Abstracts, p.49.
 Yoshikura et al., 1991, 98th Geol. Soc. Japan Congress, Abstracts, p.434.

Keywords: Sanbagawa belt, schist, radiometric dating

Table1. Phengite K-Ar and zircon fission track ages of schist clasts from the Miocene and Eocene strata in Shikoku.

Series	Formation Name	Sample	Phengite K-Ar age (Ma)	Zircon FT age (Ma)
Miocene	Kuma Group Furuiwaya Formation	32204-2 psamm.sch.	81.5 ± 1.3	68.7 ± 6.0
		112101-2 pel.sch.	83.5 ± 1.3	64.9 ± 5.8
Eocene	Hiwadatoge Formation	2003-8 psamm.sch.	86.8 ± 1.3	85.2 ± 7.7
	Oyamamisaki Formation	1-B psamm.sch.	78.2 - 71.4 (Yoshikura et al., 1991)	67.3 ± 9.0
		1-F psamm.sch.		68.4 ± 8.2