

HQR023-P08

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Exposure age of cirque wall and cirque bottom of Nogaïke Cirque and Komakainoike Cirque: estimates from cosmogenic Be-10

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This study revealed exposure ages of blocks on cirque wall and cirque bottom of Nogaïke Cirque and Komakainoike Cirque near Mt. Kiso-komagatake in Central Japanese Alps, using TCNs (Terrestrial Cosmogenic Nuclides). TCNs enable us to know how long rock surfaces have been exposed on the ground. Formation age of cirque has been estimated from TCN exposure ages of glacial deposits, but disappearance of glacier is not clear. We measured the concentration of ¹⁰Be and ²⁶Al in rocks, using Micro Analysis Laboratory, Tandem Accelerator (MALT), The Univ. of Tokyo. As a result, the concentration of ¹⁰Be ranged from 10⁴ to 10⁵ atoms g⁻¹ (¹⁰Be) and ²⁶Al ranged from 10⁵ to 10⁶ atoms g⁻¹. Calculated results showed that the upper part of Nogaïke Cirque (NOG-7B and NOG-8B) exposed 4.1-4.7 ka, the lower part (NOG-2B, NOG-3B and NOG-4B) exposed 2.3-6.0 ka, the lower bedrock of Komakainoike cirque (KC-1) exposed 11.8-12.9 ka, the upper bedrock (KC-2) exposed 6.0-7.6 ka, considering with the production rate of ¹⁰Be is 31.6-34.4 atoms g⁻¹ yr⁻¹ and ²⁶Al is 194.2-210.0 atoms g⁻¹ yr⁻¹). These results imply that the cirque glacier had also existed in both cirques between Neoglaciation and Younger Dryas Period, not only during Last Glacial Period.

Keywords: cirque, Terrestrial Cosmogenic Nuclides (TCN), exposure age, Accelerator Mass Spectrometry (AMS)