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Formative age of relict periglacial smooth slope around Mt. Kiso-komagatake: estimates from cosmogenic Be-10

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This study aims to reveal formative age of periglacial smooth slope near the top of Mt. Kiso-komagatake in central Japanese Alps, using TCNs (Terrestrial Cosmogenic Nuclides). Periglacial smooth slopes are considered to be a relict landform, which imply past occurrence of intensive periglacial processes in high-mountain altitudes during glacial periods. Several studies have discussed the formative age of periglacial smooth slopes, yet no absolute dating have been carried out for initiation and/or cessation of the development of such a gravelly surface. TCNs enable us to know how long rock surfaces have been exposed on the ground. As a result, the concentration of measured ¹⁰Be is from 4.62×10^5 to 1.45×10^6 atoms g^{-1} , considering with the production rate of ¹⁰Be is about $35 \text{ atoms } g^{-1} \text{ yr}^{-1}$, the exposure ages are $12 \sim 39 \text{ ka}$. This result implies periglacial smooth slope was formed during the last glacial period, which has been thought so far.

Keywords: periglacial smooth slope, Terrestrial Cosmogenic Nuclides (TCNs), exposure age, the last glacial period, periglacial process, paleoenvironments