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A seasonal variation in Chlorophyll a concentration in the surface snow of the Tateyama

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Snow algae are cold-tolerant algae growing on snow and ice and have been reported on glaciers and snow fields in many parts of the world. Blooms of snow algae are well-known as red snow and can be commonly seen on snow surface in thawing season. Although there have been some taxonomical studies of snow algae, their ecological information is still limited. In this study, we investigated a seasonal variation in abundance of snow algae on snow fields in Tateyama Mountains in Toyama Prefecture, Japan. Surface snow was collected and Chlorophyll a in the snow was measured. The chlorophyll-a concentration in the surface snow ranged from 0.02 to 203 $\mu\text{g L}^{-1}$. It gradually increased from April to August, then significantly increased to September. Microscopy confirmed that the increase was due to bloom of snow algae. Chlorophyll-a is also detected in snow 30 to 200 cm below the surface. This Chlorophyll-a may be derived from windblown algal spore or plant fragment.

Keywords: snow algae, chl-a