

Change of chemical property in snowpack at the Japanese Alps

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The chemical components accumulated with snowfall in the winter season are stored in the snowpack. Chemical concentrations preserved in the snowpack of the mountainous region during low air temperature in winter season can be obtained through various atmospheric information. The Japanese Alps is backbone of Japan where winter precipitation is observed; mainly two patterns such as winter monsoon pattern and low pressure pattern that passed along the south coast of Japan. The different path of water bringing these precipitations is thought to be the different sources of chemical components included in the snowpack. In addition, we clarify the chemical concentrations changed by the snowmelt process. The purpose of this study was to clarify changes of chemical concentrations in the snowpack.

In this study we performed multiple snow survey at the east slope of Mt. Norikura, the Japanese Alps between winter seasons 2006/2007. The snow samples were collected in between January and April 2007. The snow pits dug out and samples were collected up to ground level at intervals of 3cm each. The sample was inserted into the sample bag and sealed to transport the laboratory. Sample was preserved without melting into deep refrigerator until analysis. It was allowed to melt at the room temperature before analysis. The pH, electric conductivity and major ion (Na^+ , NH_4^+ , K^+ , Mg^{2+} , Ca^{2+} , Cl^- , NO_3^- , SO_4^{2-}) were measured with pH meter, conductivity meter and ion chromatograph (Dionex: DX-500) respectively. The low pH was observed in some layers. In these layers, the concentration of NO_3^- and SO_4^{2-} was high. Therefore, pH was decreased and electric conductivity was increased.