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# Chemical Characteristics of Snowpack due to Differences in Snowfall Type in Japan Alps

**Takayuki KURAMOTO[1], Shailendra Kumar SHAH[1], Motoki TANAKA[2] and Keisuke SUZUKI[1,2]**

1 Department of Environmental Sciences, Faculty of Science, Shinshu University, Asahi, Matsumoto 390–8621, Japan
2 Institute of Mountain Science, Shinshu University, Asahi, Matsumoto 390–8621, Japan

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## Abstract

We conducted a snow survey in February 2006 and January 2007 in Japan Alps. Approximately 0.60 m and 1.05 m snowfalls were deposited at the study site in February 2006 and January 2007, respectively. It was observed that the occurrence of snowfall was due to the low pressure formation in the vicinity of Japan and it also being the winter monsoon period. As a result of the analyzed snowpack, including new snow at a high resolution every 0.03 m, a plurality of high-electric conductivity layers were observed at different depths. From the measurement of the major ion concentrations, it was observed that the high-electric conductivity layers had different chemical characteristics. High concentrations of $NO_3^-$ and $SO_4^{2-}$ deposits were observed in the snowpack layer that was formed due to the low-pressure system that passed in the vicinity of Japan. On the other hand, the layer that formed during the winter monsoon pattern, large amounts of sea salts were deposited in the snowpack in January 2007. However, layers with a high sea-salt concentration were not observed in February 2006. We analyzed the movement of the air mass that flowed into the study area. Air mass passed through the city at the time of the passage of the low-pressure system. In addition, the air mass that crossed the Sea of Japan entered the study area during the winter monsoon pattern. However, the movement of the air mass was different during the winter monsoon pattern in February 2006 and January 2007.