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SNOW CHEMISTRY ON MT. CHANBAI, CHINA

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The seasonal wind i.e. the winter monsoon that blows from China and Siberia, plays an important role in the control of the weather of Japan in winter. Also, it is conceivable that acid substances are carried from China and Korea by the winter monsoon. Little research regarding the chemistry of snow on the windward side of the winter monsoon that blows to Japan has been reported.

Snow samples were collected at three points of the north slope of Mt. Chanbai, China on 12 March, 1996. At each point, a snow trench was dug through the snow cover to the ground surface. The wall facing north was made vertical and smooth, following which the snow stratigraphy was observed. Snow samples were taken from each layer with a clear plastic scoop. Each collected snow sample was filtered through a 0.45 micron pore size membrane filter. Conductivity and pH of filtered samples were measured with a conductivity meter and pH meter, respectively. The concentrations of major ions (Na^+ , NH_4^+ , K^+ , Mg^{2+} , Ca^{2+} , F^- , Cl^- , NO_2^- , NO_3^- , SO_4^{2-}) were determined by ion chromatography (Dionex DX-500, 2020i/SP). The isotopic composition of oxygen-18 ($\delta^{18}\text{O}$) was determined by a mass spectrometer (Finnigan MAT: delta S) on CO_2 equilibrated with samples.

Snowfall was observed from 7 to 9 March, 1996 at The Research Station of Chanbai Mountain Forest Ecosystems. This snow layer was distinguished clearly on 12 March at each point. A mutual relationship between the $\delta^{18}\text{O}$ value of this surface layer and the altitude of sampling point is recognized. The pH of the surface layer varied from 4.90 to 5.76. SO_4^{2-} is a major anion in every sample.

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