Compression of Thin Section of Snow*

— A Motion Picture —

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Abstract

Thin section of snow, 0.7~1 mm thick and of area 2×2 cm, prepared by Kojima's method, were laterally compressed at slow constant speeds (strain rate 1~10%·hr). In order to see the changes occurring in the microscopic ice network of snow during the compression, time-lapse motion pictures were taken with 16 mm movie camera under polarized light. Experiments were carried out in a cold room at −5 and −15°C.

The compression caused many kinds of deformation to occur in the ice grains composing the snow. It was found that the predominant processes in plastic deformation of snow were basal glide, slip at grain boundary and separation of ice grains. Internal fracture in ice grains, migration of grain boundary and cell formation in ice grains were also observed.

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