

ABSTRACTS

NAKAYA, UKITIRÔ, HANAZIMA, M. and DEZUNO, K. Experimental researches on window hoar crystals, a general survey. Investigations on Snow, No. 12. *Journal Faculty of Science, Hokkaido Imperial University, Series II, Vol. 3, No. 1, 1939, p. 1-13.*

The difference in the origin and structure of window hoar and window rime is discussed. A laboratory apparatus for making window hoar is described and the crystals grown on a glass surface are examined under various conditions of that surface. The relationship between the cleanliness of the surface and the form of hoar is investigated: (1) the glass plate is thoroughly cleaned and dried under natural conditions; (2) it is dried in a desiccator; (3) it is rubbed gently with cotton. It was found that the tendency of the water molecule to combine with glass exerts a strong influence on the form and structure of the crystals. The crystals developed on a new cleavage-face of mica showed a strong star-like pattern and it was made clear that the form of surface hoar is strongly influenced also by the action of the "atomic force" of the base solid. [From author's abstract.]

YOSIDA, ZYUNGO. Window hoar crystals on clean glass surfaces. Investigations on Snow, No. 13. *Journal Faculty of Science, Hokkaido Imperial University, Series II, Vol. 3, No. 2, 1940, p. 43-55.*

A continuation of Nakaya's work cited above, the hoar crystals being observed under a powerful microscope as they develop. "Uniform frost," an assemblage of separated small ice crystals, is produced by the freezing of water droplets formed by the condensation of water vapour on the surface of a glass plate. After a detailed description of the process and an explanation of the crystals formed, the conclusion is reached that the germ of an isolated hoar crystal is so small as to be invisible even under a powerful microscope, but it seems to possess the power to determine to a large extent the form of the hoar which develops from it. [G. S.]

ALIVERTI, G. Sulla struttura del ghiacciaio del Lys presso la linea del nevato. *Bollettino Comitato Glaciologico Italiano* (Turin), N. 25, 1948, p. 13-23.

Data from observations near the snow line of the Lys Glacier show that the surface temperature of the glacier is a definite indication of the local climate and meteorological factors. [G. S.]

VANNI, MANFREDO. Le variazioni frontali dei ghiacciai italiani negli ultimi venticinque anni e l'opera del Comitato Glaciologico Italiano. *Bollettino del Comitato Glaciologico Italiano* (Turin), N. 25, 1948, p. 75-85.

Examination of the Italian glaciers from 1927 to 1942 shows that: (1) they are in process of intense regression; (2) the winter snowfall during the last 25 years has decreased owing to a tendency of the cold front to penetrate further south; (3) the spring temperature has oscillated considerably and cannot by itself be the cause of regression; (4) the most accurate observations in deducing the relationship between meteorological conditions and the variations of the glaciers are those carried out on the glaciers themselves. [From author's abstract.]

VANNI, MANFREDO. Le variazioni dei ghiacciai italiani nel 1946. *Bollettino del Comitato Glaciologico Italiano* (Turin), N. 25, 1948, p. 87-90.

During the summer of 1946 four glaciers advanced, fifty-three receded and six were stationary or doubtful.

[From author's abstract.]

SCHAEFER, VINCENT J. The natural and artificial formation of snow in the atmosphere. *Transactions American Geophysical Union*, Vol. 29, No. 4, 1948, p. 492-98.

Experiments, both in a laboratory and in nature, are described, in which small quantities of solid carbon dioxide have been used to produce enormous quantities of snow crystals from clouds of supercooled water droplets. The solid carbon dioxide, or any other object colder than about -39°C ., converts the supercooled water droplets to tiny ice crystals which grow by vapour exchange and become snow crystals. The conditions in which such action may be followed by precipitation are discussed. [Author's abstract.]

WORK, R. A. Snow-layer density changes. *Transactions American Geophysical Union*, Vol. 29, No. 4, 1948, p. 525-46.

A 25-ft. square area of snow pack near Crater Lake, Oregon, was studied systematically during the 1940-41 season. By successive excavation and refilling of portions of the study site, and by means of identifying ribbons, the metamorphosis of each layer of the snow pack was observed at regular intervals during the accumulation and melting seasons. Many of the results confirm existing knowledge. Other results add to, or modify, well-established opinions.

[From author's abstract.]

WEBB, C. E. Investigations of glaciers in British Columbia. *Canadian Alpine Journal*, Vol. 31, 1948, p. 107-17.

Conclusions reached from recent research are that a general recession has taken place since 1890 and that the rate

of recession, though mainly determined by weather, is also effected by morphology. Thus the Franklin Glacier receded far more rapidly in a wide portion of the valley than in a constricted area and the Illecllewaet Glacier most rapidly when the forefoot was on a steep slope. [L. C. W. B.]

BOARDMAN, H. P. Snow survey versus winter precipitation for forecasting runoff of the Tuolumne River, California. *Transactions American Geophysical Union*, Vol. 28, No. 5, 1947, p. 752-65.

This paper is an attempt to analyse the available data to show by comparison the relative accuracy of snow surveys and winter precipitation as applied to forecasting the spring and summer runoff of a typical Sierra Nevada western-slope river. Fifteen years of snow-survey data were available and the same years of precipitation were used in the comparison. It was obvious on examination of the graphs that several years, four in the case of snow surveys and three in the case of precipitation, were much out of harmony with the other years. Justification for these discrepancies was found; they were usually caused by abnormal fall or spring precipitation. These years with abnormal precipitation were omitted in determining the position of the line on the graph showing the relationship of snow-water equivalent or of winter precipitation to streamflow. The conclusion in favour of snow surveys seems fully justified. [Author's abstract.]

LUDLAM, F. H. The forms of ice-clouds. *Quarterly Journal Royal Meteorological Society*, Vol. 74, No. 319, 1948, p. 39-56.

The observation of the forms of high clouds suggests that ice clouds usually arise at humidities representing saturation with respect to water and therefore at a considerable supersaturation with respect to ice, which in combination with a sparsity of effective nuclei leads to the rapid growth and high falling-speed of the few ice particles. Recent theoretical and experimental investigations, principally by German meteorologists, fully support this view. It is shown how these new views provide an explanation of the distinctive fibrous structures of ice-clouds, and give additional insight into the nature of various other clouds. Possible practical applications include that of dispersing natural clouds and the production of rain by the use of artificial ice nuclei. [From author's abstract.]

CARDIS, HONORA T. and HOGG, W. H. The frequency of snow-cover in Sweden and Finland and its relation to temperature. *Quarterly Journal Royal Meteorological Society*, Vol. 74, No. 319, 1948, p. 83-98.

Daily values of the percentage frequency of snow-lying have been computed for seventeen Swedish and seven Finnish stations. A relationship has been established between these frequencies and the dates of the beginning and end of the period with mean temperature below freezing point. Using this relationship, a method is described for estimating the frequency of snow-lying on any date anywhere in Sweden and Finland. A tendency is mentioned for southern Sweden to be less frequently snow-covered about the middle of February than in late January or late February. [Author's abstract.]

FINSTERWALDER, R. Eishaushalt von Gletschern und Niederschläge in Gletschergebieten. *Geologische Rundschau*, Bd. 34, Heft 7/8, 1944, p. 705-12.

Photogrammetric methods facilitate the simple and quick estimation of the surface conformation and speed of glaciers. The glacier depth and the volume of ice flowing through the cross-section of the glacier can be calculated by means of the theory of flow of viscous liquids. If the amount of ablation is ascertained these factors allow a reasonably accurate estimate of the precipitation in the accumulation area to be made, so that general mean precipitation figures can be arrived at—an otherwise difficult or impossible task. [G. S.]

TROLL, C. Strukturböden, Solifluktion und Frostklimate der Erde. *Geologische Rundschau*, Bd. 34, Heft 7/8, 1944, p. 545-694.

Comprehensive treatise on the structure of soils and types of solifluction in the different subnival climates of the world based on field studies in the tropical Andes, in East and South Africa, in the Alps and Himalaya and from 420 literary sources. [From author's abstract.]

WALLACE, ROBERT E. Cave-in lakes in the Nabesna, Chisana and Tanana River Valleys, Eastern Alaska. *Journal Geology*, Vol. 56, No. 3, 1948, p. 171-81.

Cave-in [kettle-hole] lakes, resulting from ground caving following the thawing of permafrost, have developed in areas underlain by fine-grained sediments in the Nabesna, Chisana and Tanana River valleys of eastern Alaska. It is suggested that the vegetal cover has an important control over the presence of permafrost and that a cave-in lake is initiated by a break in this cover. Once a lake is formed, the banks retreat at a rate indicated to be of the order of a few inches a year. The recession of lake banks thus enlarges the lake and is responsible for a typical sequence of areal patterns of the cave-in lakes. [Author's abstract.]

OECHSLIN, M.

Writes (*Die Alpen*, Vol. 24, No. 7, 1948, Part 2, p. 118) that owing to the warm spring of 1948 melting of the glaciers proceeded with new vigour, causing large ice masses to break away. Apart from the technical aspects, the danger to climbers has been great and a fatal accident occurred in an ice avalanche on the Rosenlauri Glacier. The same issue (p. 120) describes an enormous fall of the Sillern Glacier into the Gasterntal, a fall which bears close resemblance to the famous catastrophe on the Ältels in 1895. [G. S.]