

A Science Service Feature

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: WHY THE WEATHER :

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MEASURING GLACIER SNOWS

The scientific study of glaciers involves measurements of several kinds, for which special methods and instruments have been evolved. The speed at which the ice travels is shown by the annual displacement of stakes set up on its surface. The depth of the ice is determined by drilling holes down to the rock, and also, of late, by acoustic sounding methods. The advance and retreat of the "snout" is measured by a device called a "cryocinometer".

The snowfall on the glacier is usually measured in two ways. The current growth or diminution of the snow cover is shown by graduated snow stakes. The total amount of snowfall is, in the Alps, determined by means of snow-gauges designed to hold the snowfall of an entire year. The form of gauge most generally used is known as the Mouglin "totalizer". The snow falls into a reservoir containing a saline solution, by which it is melted. A thin coating of oil prevents evaporation. Once a year the mixture is removed and either weighed or measured to ascertain how much snow (in terms of its water equivalent) has fallen.

In some cases more frequent measurements are made without emptying the gauge. A small amount of the liquid is drawn off and the degree of dilution of the solution due to the snow that has entered the gauge is determined in the laboratory. From this the amount of snowfall can be computed.

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