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A Science Service Feature

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? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University,
discusses:

EVAPORATION OF SNOW

In the Great Basin of the western United States where snow furnishes the water for irrigation it is particularly desirable to know how much of the winter snow cover will be lost by evaporation. The Utah Forest Experiment Station, on studying this question in the winter of 1915-16, found that that season about 14 per cent of the total snowfall, or an amount equivalent to three inches of water, evaporated. In central Greenland, De Quervain estimated that the loss from evaporation was about two inches of water per year, while R. E. Horton near Albany found an evaporation rate as high as one inch of water per month.

Temperature, wind and humidity, all control evaporation of snow. The Utah experiments indicated that, on the average, snow evaporated about twice as fast at 32 degrees Fahrenheit as at 20 degrees Fahrenheit, while at 45 degrees Fahrenheit the evaporation was three times that at 32 degrees. Increase in wind velocity also tends markedly to increase evaporation from a snow cover, and the drier the air, the greater will be evaporation. But if the dewpoint is higher than the temperature of the snow surface evaporation may become a minus quantity. That is, moisture will condense from the air onto the snow surface. It was found in the Utah experiments that evaporation was generally more rapid in the day time than at night, for sunlight and a lower humidity offset the slightly greater wind velocity at night. The effect of a forest cover on snow evaporation is somewhat uncertain. A forest offers shelter from heavy winds, but trees on the other hand, conifers, particularly, increase the evaporating surface by holding the snow on their branches.

(Tomorrow: Ice Pillars and Ground Heaving)

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