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A Science Service Feature

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? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University.

Discusses

WINTER TEMPERATURES ALOFT

In summer the lower part of the atmosphere is much warmed by the warm earth, in winter, this effect is less marked. Thus we find at a latitude of about 40° in the United States the average air temperature in summer is 77° Fahrenheit at the surface and only about 45 degrees Fahrenheit at an elevation of 2 miles. In winter, on the other hand, at the same latitude the average surface air temperature is 28 degrees and the temperature at 2 miles, 16 degrees Fahrenheit. Hence, where the fall in temperature in ascending 2 miles is 32 degrees in summer, it is only 12 degrees in winter. Between 2 and 5 miles up there is little difference between summer and winter rates of temperature decrease with altitude, and at any level winter temperatures are about 25 degrees below summer temperatures. As we go still higher, however, we find a smaller seasonal change till at 7 miles the temperature remains about 65 degrees below zero throughout the year. An aviator, then, who attempts to make an altitude record must be prepared for bitter cold at any season. In February Schroeder observed a temperature of 67 degrees Fahrenheit below zero at an altitude of about 33,000 feet over Dayton, Ohio. The normal winter temperature at this elevation is about as low as the lowest surface air temperature ever observed in the United States, which is 68 degrees Fahrenheit below zero.

(Tomorrow: Window Frost)

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