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A Science Service Feature.

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
Secretary, American Meteorological Society.
discusses:

WINDS ALOFT.

Air currents in the free atmosphere flow under the influence of gravity just as water flows down hill; but the rotation of the earth so affects the moving air that, instead of flowing down the hill, it flows around it, or at right angles to the slope. Meteorologists call the imaginary hill down which the air tries to flow, a "pressure slope" or "gradient".

These pressure slopes in the free air are often greatly influenced by the temperature of the lower levels of the atmosphere. For example, on a winter's day, it may be excessively cold at Duluth, and balmy at New Orleans and Jacksonville. Under such conditions, the expanded warm air of the south and the contracted cold air of the north create in the upper air a pressure slope from south to north, - and often a very steep one, - so that in the free air the winds blow rapidly from the west over the region between these cities. On the other hand, on a warm day in summer, there may be very little difference in temperature throughout a wide region of the country, and then the winds aloft are light and variable in direction.

A recent development in aeronautical meteorology has produced pressure maps of the free air which enable one to know, upon the basis of surface weather conditions alone, how the winds are blowing aloft, even when the sky is covered with clouds. These new charts were first used at the recent balloon race from Indianapolis, and they enabled the aeronauts to form better ideas as to the flying courses they wished to follow.

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