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A Science Service Feature

? WHY THE WEATHER ?

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PRESSURE WAVES CONTROL WEATHER

The kaleidoscopic weather changes characteristic of winter are merely the accompaniments of pressure waves rapidly crossing the continent from the west. The high pressure areas or ridges are the crests of these waves and the lows the troughs. As a high approaches, the air near the ground tends to flow away from it, and to the right. Thus a cold, dry northwest wind is typical. When a low is coming on, the air tends to flow toward it, and a warmer, damper southeast wind is characteristic.

The pressure waves are so large that they are usually over a thousand miles, from crest to crest. They do not present an even front, but correspond more to a choppy sea. The crests or peaks generally move toward the southeast, while the troughs slide northeastwards. The waves move fast in Canada much as if there were open sea through Canada, but they go slower in the southern United States, as if hindered by shallow water. Thus a crest may cut off the lagging southern end of a trough, thereby forming a separate low in the South, to follow after, and perhaps merge with the next following trough. Thus arise some complexities difficult to forecast.

The nature of the weather is determined by the source of the wind started by the passing pressure wave, and by the crowding and lifting of the wind or the spreading and descent. The low is naturally a region where converging winds crowd and raise one another. It is a cloudy, rainy area, especially in front where the south to east winds are warmest and dampest. The high, on the contrary, is a region of spreading and descent and therefore characteristically clear and dry, particularly in front where the wind is northwest.

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(Tomorrow: Dry Vs Wet Storms)

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