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A Science Service Feature

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? WHY THE WEATHER ?

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

TORRENTIAL RAINS ON THE FRONT OF A MOUNTAIN OF COLD AIR

The excessive rains which have been occurring in parts of the South and occasionally in other parts of the eastern United States during the past several weeks are in many respects like the heavy rainfall characteristic of the windward face of a steep mountain. Unlike the mountain of solid rock, however, the obstructing mountain of cold air is mobile, and often rushes forward under, or even falls onto, the warm wind. Instead of concentrating the heavy rainfall along a relatively narrow belt/<sup>it</sup> spreads it over a considerable strip of country. Fortunate it is that such is the case, for instead of general rainfalls of two or three inches, or even ten or more inches in a day, as reported locally in the South, the falls at certain places might reach 20 or even 30 inches in a day, approaching some of the extreme amounts observed in India where the southwest monsoon strikes the Khasi Hills. At Cherrapunji, at an elevation of about 4000 feet, a rainfall of 40.8 inches was measured on June 14, 1876.

Once the warm, moist wind has risen over the mountain front, whether it be a front of rock or of cold air, the cooling has so reduced its moisture content that little more rainfall can occur. Anyway, beyond the mountain front the air tends to descend and be warmed by compression, thus dissipating the clouds. So the interior is rainless. In our West the driest deserts are behind the wettest mountains, so in the East <sup>dry</sup> ~~the driest~~ weather is likely to occur in the Northeast while the South is being deluged.

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