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A Science Service Feature

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? WHY THE WEATHER ?

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

WHY JULY IS HOTTEST

The period of the highest sun is not the period of hottest weather. The highest average temperature occurs toward the end of July. As the sun comes northward the heating of the earth lags behind the increased heat of the sun. On June 22 when the sun turns south the temperature of the ground and of the atmosphere are still some weeks from their maxima. The surface of the ground has to be heated and often dried as well. The layers of earth directly below the surface quickly take up some of this heat. The air in contact with the ground heats from the ground, but no sooner does it get somewhat warm than cold air from above or from a cooler, perhaps grassy, place flows down or under and forces this warm air up. It takes some time by this process for the heated ground to warm an appreciable layer of the atmosphere.

So, even after the heat from the sun begins to diminish, it is still more potent in warming the air than radiation is in cooling it. As the air becomes warmer, however, the radiation loss becomes greater, while the heating by the sun becomes less, until at about a month after the highest sun the cooling becomes stronger than the heating, and the temperature starts down.

The same principles apply to the daily course of temperature, which shows a maximum two hours or more after noon. In an arid climate the delay is not so great as in a humid climate, for the dry, bare ground heats and cools more readily.

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