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A Science Service Feature

? WHY THE WEATHER ?

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THANK THE ATMOSPHERE

Perhaps you think the sunlight terribly hot and glaring on a scorching summer day. So it is, but you still have something for which to be thankful. Were it not for our atmosphere, the sunshine would be half again as intense.

Consider the man in the moon. The moon has no known atmosphere to absorb sunlight, no clouds to reflect it away. Moreover, the time from sunrise to sunset is nearly 15 of our days. True, the moon appears bright to us, but if it were a perfect mirror it would be 6 times as bright. While about a sixth of the moon's sunlight is reflected as "moonlight"; the rest is absorbed and makes the moon's surface extremely hot by day, something like 200 degrees Fahrenheit, while at night, lacking an atmospheric blanket, it probably falls lower than 100 degrees below zero Fahrenheit.

The situation on the earth is quite different. Of the solar radiation reaching the earth as a whole only about three tenths gets through to and is absorbed by the surface of the earth. About an equal amount is absorbed directly by the air, while some four tenths of all the sunlight is reflected away, making the earth bright in the heavens. The "earth shine" on the moon is sunlight thus reflected from the earth.

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