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A Science Service Feature

? WHY THE WEATHER ?

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TIDES AND THE WEATHER

While it is not conceivable that the moon can have any direct effect on our weather sufficient to be appreciable, the moon-caused tides, may, nevertheless, produce such local changes in ocean temperatures as to affect the air temperatures on neighboring shores.

Pillsbury has shown that "the position of maximum flow in the Gulf Stream is intimately associated with the changes in the declination of the moon and indeed not only the position of maximum flow but also the velocity and width of the whole stream are affected." When the moon is in the vicinity of its greatest declination, that is, farthest from the celestial equator, the currents below the surface at the axis of the Gulf Stream are inclined to the westward of north, and the mean temperature of the surface water on the west side of the stream is half a degree Fahrenheit colder and on the east side one half to nearly two degrees warmer than it is when the currents are inclined toward the Bahama side of the channel.

Such changes in the surface water temperatures may affect shore weather through their influence on the temperature, the direction and velocity of the local sea-breezes.

Tides also have their direct effects on the coastal winds. The rising tide pushes some air out of the way, while the falling sea provides space for its return. Perhaps such air movements are responsible for the reported connections between tides and thunderstorms or the onset of certain winds. In Massachusetts thunderstorms are supposed not to come up against the tide; while southwesterly winds and rain with southeasterly winds are said to begin only with the turn of the high tide.

(Tomorrow: Storm Tides)

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