Abstract View

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Measurements of the Vertical Heat Flux in the Upper Ocean Layer

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ABSTRACT

By measuring the time rate of change of temperature in the upper 65 m of the sea at night with a precision sounding device, the amount of heat transported upward at various depths and through the sea surface as a function of time during the night was determined. The heat flux through any surface of depth z was given by $e^{-\alpha t}(1-Az^{2/3})$ for $z<z_{max}$ (40–65 m). The amount of heat released from the sea surface ranged from 1.34 to 0.311 ly min^{-1}, the release rate decreasing with time after sunset.

The data also allowed estimates of the spatially averaged thermal boundary layer thickness in the sea surface, 0.2 cm or less.