



## Abstract View

[Volume 7, Issue 6 \(November 1977\)](#)

### Journal of Physical Oceanography

Article: pp. 865–875 | [Abstract](#) | [PDF \(650K\)](#)

## On the Dynamics of the Ocean Surface Mixed Layer

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(Manuscript received 22 September, in final form 2 May)

DOI: 10.1175/1520-0485(1977)007<0865:OTDOTO>2.0.CO;2

### ABSTRACT

This paper describes a theoretical model of the ocean surface mixed layer. A nonstationary one-dimensional system of equations for an Ekman ocean layer and for heat conduction is closed with a system of dynamic turbulence equations. The latter consists of the turbulent energy equation and an equation for the turbulent energy decay function. The eddy viscosity coefficient is then determined from these equations. The values of the surface and lower boundary temperature and of wind velocity as a function of time are taken from Halpern (1974) data. The computational results show that an increase of wind velocity produces deepening of the mixed layer with some time lag. In the region of the jump in density at the bottom of the layer, the increase in the surface wind generates large velocity gradients across an inner boundary layer. Comparison of the solution with experimental data shows that the model realistically simulates the dynamics of mixed layer deepening both qualitatively and quantitatively.

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