Abstract View

Observations of the Horizontal Interactions between the Internal Wave Field and the Mesoscale Flow

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ABSTRACT

Momentum and energy transfers from the mesoscale horizontal velocity shear to the internal wave field have been deduced from an analysis of a closely spaced, 25 km, moored current-meter array. The correlation between the low-frequency horizontal shear and internal-wave-field continuum effective stress implies a significant horizontal eddy viscosity of O (10^6 cm^2 s^{-1}), somewhat larger than predicted by Müller (1976). A simple steady-state energy balance for the internal wave field using the observed correlation between the internal wave kinetic energy and the square of the low-frequency shear implies a 10-day relaxation time for the internal-wave Acid and a combined vertical viscosity and horizontal diffusivity not significantly different from zero. These estimates are within the experimental uncertainty of previous observational analyses.

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