Abstract View

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Mixing and Intrusions in a Rotating Cold-Core Feature off Cape Blanco, Oregon

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ABSTRACT

During August 1986, a large cold anomaly was observed in satellite and in situ measurements near Cape Blanco at 42°N, 126°30′W off the Pacific Coast. Detailed vertical profiles of temperature, conductivity, turbulent dissipation, and horizontal currents showed 1) surface water temperature changes as large as 2 degrees in 1 kilometer (but smaller gradients at depth); 2) a structure in the mean currents resembling that of either a cyclonic eddy or a current meander, 3) a current field in geostrophic balance on scales of 10 km and greater, 4) a region of intrusions on the northern side of the eddy; 5) a concentration of turbulence (as indicated by the kinetic-energy dissipation rate) on the edges of the eddy and in the region of intrusions, the core of the eddy being turbulence-free; and 6) a substantial change in the surface structure in 24 hours.