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Vertical Mixing of Nutrients in the Canary Basin

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Two oceanographic surveys were carried out within a project multidisciplinary: September-October 2002 (COCA1) and May-June 2003 (COCA2). These campaigns consisted of the realization of 66 stations in a single closed box using the African coast and three sections: 26º N (North), 26º W (west) and 21º N (south). In 17 CTD (Conductivity-Temperature-Depth) stations were taken nutrients: phosphates, silicates, nitrites and nitrates. In all stations were obtained vertical profiles of velocity in cells of 8 meters using ADCP (Acoustic Doppler Current Profiler) mounted on the ship, until about 500 meters deep.

With the data obtained we were able to determine the diapycnal diffusivity coefficients depending of the turbulent diffusion process: vertical shear instability of flow with the gradient Richardson number and double diffusion with the ratio of stability.

The maximum diapycnal diffusivity values, between 10-5 and 10-4 m2 s-1, were found in areas of maximum gradient of nutrients, mainly in the southern section where interact the central water masses of Atlantic North and South. In these areas there were high diapycnal fluxes with zones of convergence and divergence that may have a high impact on the development of biological systems.