



Seasonal variability of the diapycnal mixing in the Canary Islands channels

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Trimonthly surveys of XBT and XCTD (Expandable Bathythermograph and Conductivity-Temperature-Depth) crossing the whole Canary Islands channels were carried out (projects TRAMIC and PROMECA) from November 2012 until September 2013 using opportunity ships (Naviera Armas Ferries). With this data set and using salinity analytical relationships (Machín et al, 2010), vertical sections of temperature and potential density were obtained for each channel and season. In order to estimate the intensity of the diapycnal mixing in the first 500 m of the pycnocline, vertical sections of Thorpe length scale, Turner angle and gradient Richardson number (from the geostrophic vertical shear) were calculated for all the cases. The first results show how the diapycnal mixing due to the vertical shear instabilities is more intense close to the islands and in summer when the seasonal pycnocline is present. Mixing due to double diffusion processes (salt fingers) was found without sizable changes in the permanent pycnocline. Net turbulence diffusivities and diapycnal diffusive fluxes with their variability spatial and temporal will be estimate for each channel taking into account that processes of double diffusion and turbulence induced by vertical shear are present at the same time. Additionally the results obtained from hydrographic data from the cruise RAPROCAN-2013 (IEO) (October 2013) around Canary Islands will be used to compare them with the channels results. This work was co-funded by Canary Government (TRAMIC project: PROID20100092), European Union (FEDER) and Spanish Government (PROMECA: CTM2008-04057/MAR and CTM2009-06993-E/MAR)