



On the variability of diapycnal mixing in the equatorial Atlantic ocean

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Sea surface temperatures (SST's) in the equatorial Atlantic are crucial for the positioning of the intertropical convergence zone and hence influence rainfall patterns in sensitive regions of the adjacent continents. A robust feature of the SST's seasonal cycle is the equatorial cold tongue. The exact mechanisms driving this pattern remain unclear and the role of diapycnal mixing as a contributor to the mixed layer heat budget is still variously discussed. Microstructure measurements are in general sparse, in the tropical Atlantic nearly non-existent. We present our recent microstructure measurements data set consisting of 7 cruises (2005-2007), which have occupied several sections repeatedly within the cold tongue area during its onset/full extent (early summer), just after its peak (September) and its retraction phase (November). Averaged mixing parameters below the mixed layer depth are compared. Regional as well as seasonal variability is observed with highest diapycnal heat fluxes in early summer of up to $90 \frac{W}{m^2}$ and reduced values of 10-40 $\frac{W}{m^2}$ towards the end of the year. The importance of the observed diapycnal heat fluxes for the mixed layer heat budget is discussed as well as possible processes leading to the observed variability.