Geophysical Research Abstracts
Vol. 14, EGU2012-1633, 2012
EGU General Assembly 2012

Current Meter Measurements of Ocean-Bottom Eddy Dissipation

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Using the world's largest collection of in-situ ocean current meter time series, estimates of the eddy dissipation due to quadratic bottom boundary layer drag in the deep ocean are calculated, both for the globe and, at a higher spatial resolution, specifically for the North Atlantic. These results are compared to the energy which enters the system due to wind working on the ocean surface. We show that a significant proportion of the wind power input is dissipated through BBL dissipation. When combined with previous estimates of energy dissipation due to ocean-base lee wave generation, this mechanism may potentially be sufficient to close the global ocean mechanical energy budget. We further show that, in the North Atlantic, the majority of this dissipation occurs at shallow depths, <500m; this has significant implications for the power available for abyssal mixing.