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Turbulent mixing studies in an Oceanic Overflow Facility PHILIPPE ODIER[1], ENS Lyon, JUN CHEN, ROBERT ECKE, MICHAEL RIVERA, CNLS - Los Alamos — We have built a facility (Oceanic Overflow Facility) allowing to study a gravity current along an inclined plate, flowing into a steady ambiant medium. At small values of the Richardson number, the shear dominates the stabilizing effect of the stratification and the flow at the interface of the current becomes unstable, resulting in a turbulent mixing. These currents occur in the oceanic thermohaline circulation and their mixing properties with the ambiant fluid have a strong influence on the dynamics of the overall circulation. Using PIV and PLIF to characterize respectively the velocity and density field, we study the statistical properties of the vertical mixing. Spatial spectra, as well as correlation functions and higher order moments are computed from the data, allowing to better characterize and parametrize the small scale turbulent mixing. This kind of parametrization can be a valuable input for ocean circulation models such as MICOM, HIM, POP or MIT General Circulation.

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