

Observations of Turbulence in the Surface Ocean Boundary Layer

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Abstract

The mixed layer depth (MLD) of the ocean is an important lengthscale for modelling many upper ocean processes. Turbulence in the surface ocean boundary layer (SOBL) is the key process for deepening the MLD, and therefore it is critical to correctly scale the different types of turbulence arising from wind, waves, and buoyancy. Turbulence is also a key process for increasing the exchange between the ocean and atmosphere.

Here is presented observations of upper ocean turbulence using the autonomous profiling instrument ASIP (Air-Sea Interaction Profiler) in different ocean basins which have enabled studies on internal breaking waves, air-sea exchange of CO₂ and the impact of rainfall on upper ocean salinity.