

Experimental investigation of the marine surface layer dynamics in transient wind conditions from HF radar remote sensing controlled by high resolution profilers.

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We present a tridimensional investigation of the ocean surface layer dynamics in the NW Mediterranean under unsteady wind conditions. Current velocities in the surface layer were measured simultaneously by ground based High Frequency (HF) radars and a downward looking towed and freely drifting ADCP. Wind, wave parameters and heat fluxes were also measured. Hydrology was recorded along the water-column thanks to MASTODON-2D low cost mooring lines. Eulerian and Lagrangian velocities derived from in situ measurements are compared with radial velocities measured by HF radars. The measurement technique and high resolution velocity profiling by mobile ADCP offers a good opportunity of turbulent model validation and optimization, and direct estimation of the turbulent viscosity for unsteady wind conditions, including inertial motion and Ekman layer deepening.

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