

## WAVE BREAKING TURBULENCE IN THE SURF ZONE

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Breaking waves are very effective generators of turbulence and play a key role in understanding coastal dynamics problems. The wave-induced macro-turbulence due to breaking in the surf zone is studied using experimental field data. Measurements of the velocity fluctuations were made at different locations in the Ebro Delta, in the Spanish Mediterranean coast. Times series of current velocities were measured with six electro-magnetic current meters, Delft Hydraulics-S type, placed at different depths in the sledge. The vertical distribution of the electro-magnetic sensors, span from 0.1 m to 0.8 m above the sea-bottom. The sampling frequency was 20 Hz. The probability distribution functions and the intermittency exponents of the velocity fluctuations at different locations and depths were studied. We found that the deviations from the Kolmogorov law K41 due to the breaking waves are more pronounced near the coast, where the flow is non-homogeneous. These results are in good agreements with similar laboratory experiments in non-homogeneous turbulence.