



Intermittency and scaling in wave breaking turbulence

O.B. Mahoub (1,2), R. Alami (2), and M.O. Bezerra (1)

(1) Laboratório de Oceanografia Física Estuarina e Costeira-LOFEC, Departamento de Oceanografia, Universidade Federal de Pernambuco UFPE, Brasil, (2) Univ. Abdelmalik Essaidi, Tanger, Morocco.

The main objective of this work would be to find the better turbulent parameterisation as possible for a range of processes in the environment. Therefore, the idea is to insert, at sub-grid scales in numerical models, different new parameterisations with a non homogeneous and non uniform diffusion and the enstrophy cascade), in order to test them. The observation of the geometry at different space and time scales (e.g. remote sensing radars that give information on the roughness and by this way calculate the micro scale atmospheric turbulence), that implies using the multi fractal analysis, would lead us to create, or to modify the mathematic algorithms. In other words, the goal of this work would be the use of the wealth of geometrical and dynamical measurements that the satellites, or other types of remote sensing, may provide, in order to describe and parameterise better the environmental turbulent processes. The importance of measuring intermittency in wave breaking flow is that the use of structure functions and their difference may be used as a test for changes in the spectrum of turbulence from 2D to 3D or from a local to a non-local situation. Experiments on a large 100 m Wave breaking tank at LIM, Spanwave were used to evaluate intermittency for different types of forcing. Irregular waves exhibit much more intermittency than regular ones. Velocity measurements are then compared with coastal zone diffusion.