Geophysical Research Abstracts, Vol. 9, 10046, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-10046

Derivation of the marine surface layer conditions from fino-1 measurements

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The description of the atmospheric surface layer requires a thorough knowledge of turbulent phenomenas by making accurate simulations of the wind flow.

A project has been started to validate the current methods for site assessment in the required precision using state of the art “Large Eddy Simulation” (LES) numerical model methods and measurements. This validation is essential for sites with low (offshore) or insufficient (complex terrain) measurement density.

In this study, it is used a selected period of FINO-1 offshore measurements to calculated parameters such as vertical wind shear, temperature profile, turbulence intensity, turbulent momentum fluxes as well as the turbulence kinetic energy (TKE) for different eddy scales through an spectral analysis. These parameters will be used in further studies to setup and validate the LES model for selected cases of offshore conditions.