

Improving boundary layer convection schemes for high resolution NWP

P. M. A. Miranda (1), P. Soares(1,2), J. Teixeira (3) and R. Salgado (4)

(1) University of Lisbon, CGUL, IDL (pmmiranda@fc.ul.pt), (2) ISEL, (3) NURC, (4) University of Evora

New high resolution Numerical Weather Prediction Models run at horizontal resolutions that are getting close to the horizontal wavelenghts of boundary layer convective elements, such as thermals in unstable boundary layers. That fact may lead to a loss of accuracy in NWP simulations, and put an obstacle to the operational implementation of NWP models at horizontal resolutions higher than about 5km. Numerical simulations with the MesoNH mesoscale model at resolutions from 5km to 250m, indicate what problems one may encounter. Some diagnostics and sensitivity experiments with a new boundary layer convection scheme suggest ways to improve the behaviour of the model.