



Summer Boundary Layer structure and circulations in the presence of a large man made lake

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The evolution of the thermodynamic structure of the atmospheric boundary layer over and in the vicinity of the Alqueva reservoir, a 250 km² man made lake in south Portugal, is studied using mesoscale simulations and observations.

The Observations were carried out during the intensive period (IOP) of the ALqueva hydro-meteorological Experiment, ALEX 2014 (www.alex2014.cge.uevora.pt), which took place between 22 and 24 July 2014. Twomodels were used, and the results have been inter-compared: The Weather Research and Forecasting, WRF, andthe non-hydrostatic Meso-NH.

During the ALEX 2014 IOP, radiosondes were launched every tree hours and the near surface fluxes of energy, vapor and momentum were measured using an eddy covariance system installed on a floating platform in the lake. The ALEX field campaign includes also several surface meteorological stations, over water and land in order to characterize the local horizontal structure of the surface layer.

The simulations, validated by the observations, allows the study of the effects of the lake in the boundary layer and on the atmospheric flow.