



The Nocturnal Atmospheric Boundary Layer during the field campaign SABLES2006

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From 19 June to 2 July 2006 an intensive field campaign took place in Spain at the CIBA (Research Centre for the Lower Atmosphere) site which is placed on a fairly homogeneous terrain in the centre of an extensive plateau (41°49' N, 4°56' W) in order to study different features of the nocturnal atmospheric boundary layer. Different instrumentation at different levels was available on a 100-m meteorological tower, including temperature and humidity sensors, wind vanes and cup anemometers, as well as three sonic anemometers and three quartz-based microbarometers. Three additional microbarometers and a sonic anemometer were deployed on the surface on a triangular array of approximately 200 m side. The pressure perturbations measured make possible to estimate both vertical and horizontal displacement of coherent structures. A tethered balloon was used during night time in order to record vertical profiles up to 1000m and estimate the boundary layer height through different methods. Data from a RASS Sodar and a CO₂ sensor which are part from the regular CIBA facilities, have also been included in the SABLES2006 (*Stable Atmospheric Boundary Layer Experiment in Spain*) database. This field campaign was intended to complement the SABLES98 campaign also carried out at CIBA in 1998. This work will show some preliminary results from SABLES2006, regarding the overall conditions present during the whole period through different stability parameters (gradient Richardson number, inversion strength), turbulent parameters (friction velocity, eddy diffusivities, etc), and the presence of low level jets (LLJs) and its possible relationship with coherent structures measured from the surface. The evolution of CO₂ concentration with Richardson number

and the nocturnal boundary layer height will also be studied.