



Application of the Micro-Meteorological UAV (M²AV) Carolo T200 for the Study of Barocline Flows

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The micro-meteorological unmanned aerial vehicle (M²AV) Carolo T200 has been used to study the boundary-layer flows over complex terrain for different regimes. During summer 2009, an experimental campaign took place near Lleida, northeast of the Iberian Peninsula, in the eastern part of the Ebro valley, with the aim to explore the topographically driven currents within the basin, including the nocturnal Low-Level Jet (LLJ). Currently, an attempt to measure main features of the sea breeze over the island of Majorca is being carried out. In both cases, the generators of these flows are spatial thermal gradients induced by surface heterogeneity due to the presence of either a valley or the sea-land discontinuity.

The flights performed during such experimental campaigns are suitable for the analysis of the vertical structure of the atmospheric boundary layer (ABL), up to several hundreds of metres above ground level. Moreover, airborne data have been complemented with the information obtained from other devices, like a RASS-Sodar in the case of Lleida or the radiosoundings launched operationally in Majorca. For the former case, the remote sensor probes the lowest 360 m of the ABL every 10 minutes, providing data that have been compared with the UAV measurements. The current communication will give a brief overview of the experimental campaigns and the corresponding preliminary results.