

A katabatic flow study in mid-latitudes

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An analysis of the dynamics of a relatively large-scale katabatic flow is made through a two-layer model following the framework set out in Mahrt (1982). The analyzed data is provided by a very-high resolution mesoscale simulation of the northern Spanish plateau. A verification of the simulation is made using available data from the meteorological network, a densely instrumented 100m-tower and the surface radiative temperature estimated from satellites.

The study of a vertically integrated downslope momentum budget for the katabatic layer leads to an estimation of the relevancy of each forcing term. The same methodology is applied as well to the thermodynamic equation. The evolution of the different features of the downslope wind, *i.e.* katabatic-layer depth or mean velocity and temperature, is studied along the slope and over time. The results are compared to those obtained for a smaller scale slope flow on the Majorca Island, at the same latitude.