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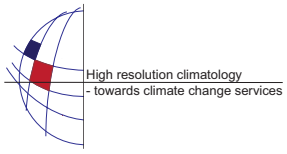

The influence of mountain-valley breeze circulations on the formation and maintenance of dry lids in the COPS region

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The Convective and Orographically-Induced Precipitation Study (COPS) is an international field campaign which took place during the summer of 2007 over the Vosges, the Rhine Valley and the Black-Forest. The aim of this intensive observation campaign was to study various phases of convection and convective environment and improve quantitative precipitation forecasts. An analysis of water-vapor profiles shows the existence of tropospheric dry air layers for several days. These dry air layers, also known as lids, are hypothesized to play an important role in the inhibition and the initiation of convection over the COPS region. Sometimes, these layers are very thin and require instruments with a good vertical resolution to be observed, such as radiosoundings or Lidar profilers.

Firstly, from some COPS case studies, the poster will shortly mention the origins of these dry layers and how they are advected over the Rhine Valley region. By studying the climatological occurrence of these meteorological situations an estimation of the representativeness of these processes will be done.

In addition, due to the presence of orography, breeze circulations interfere strongly with many atmospheric phenomenons, from aerology to large mesoscale environment. So, in second part, we will describe the influence of breeze circulations on dry layers from several COPS case studies. The understanding of the changes and the evolutions of these layers is very important to determine and quantify the convective capping. To complete observation data, high resolution simulation has been made with the Meso-NH model. For some cases, using both observations and numerical simulations, we will show how thermally and orographically induced circulation can explain a significant part of these changes.