



Dependence of air masses type on PBL vertical structure retrieved at the Mace Head station during EUCAARI campaign.

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During the EUCAARI Intensive Observing Period held at the Mace Head GAW station from mid-May to mid-June, 2008, the PBL depth has been continuously measured by two ceilometers (Vaisala CL31 and Jenoptik CHM15K) and a microwave radiometer (RPG-HATPRO). The Lidar-Ceilometer, through the gradients in aerosol backscatter profiles, and the microwave profiler, through gradients in the specific humidity profiles, were used to remotely-sense the boundary layer structure. An automatic, newly developed Temporal Height-Tracking (THT) algorithm (Martucci et al., 2010) have been applied to both type of instruments data to retrieve the 2-layered structure of the local marine boundary layer. The two layers are defined as a lower, well mixed layer, i.e. the surface mixed layer, and the layer occupying the region below the free Troposphere inversion, i.e. the decoupled residual or convective layer. A categorization of the incoming air masses has been performed based on their origins and been used to assess the correlation with the PBL depths. The study confirmed the dependence of PBL vertical structure on different air masses and different type of advected aerosol.