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Boundary Layer height evaluation over Lindenberg

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Wide networks of ceilometers are a modern reality and the continuous monitoring of the vertical profile is performed as routine in many European countries. The Jenoptik CHM15K ceilometer is used by the German Meteorological Service (DWD) since the 2008 in more than 30 sites, covering almost the full area of Germany.
In preparation of the acquisition in atmospheric modelling of the Planetary Boundary Layer (PBL) height estimated using these instruments, calibration over backscatter coefficient of molecular signal and four algorithms are tested and comparisons are performed with the information obtained from radiosondes. Standard methods as Gradient Method, Haar wavelet analysis and Steyn method have been tested on the data acquired at the meteorological Observatory at Lindenberg, Germany. Also a new methodology involving neural network is evaluated.
The comparison is performed with the PBL height retrieved from the radiosondes using the Richardson Bulk Number technique considered as the most reliable estimation. The windows of time and space for averaging used in the different methods are tuned in order to optimize the correlation with the results of the Richardson Bulk Number method.