

## ***Interactive comment on “Mixing height determination by ceilometer” by N. Eresmaa et al.***

### **Anonymous Referee #2**

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The paper describes a new method to derive mixing layer heights from ceilometer data and compares the results to mixing layer heights derived from radiosonde data. Accepting that remote sensing becomes more and more important and that this method is more flexible and yields continuous data in contrast to radiosondes, this contribution is important and well suited for publication.

The only major drawback of the manuscript is that the review of existing methods already published in the literature is nearly completely missing. E.g. a paper like: “Urban Boundary-Layer Height Determination from Lidar Measurements Over the Paris Area” by: Menut, Laurent; Flamant, Cyrille; Pelon, Jacques; Flamant, Pierre H. Applied Optics LP, vol. 38, Issue 6, pp.945-954 should be mentioned. Also work within the own organisation of the authors is ignored like e.g.: Münkel, C., Räsänen, J.: "New optical concept for commercial lidar ceilometers scanning the boundary layer", Proceedings

of SPIE Vol. 5571, pp. 364-374, 2004. There also exists related work using different remote sensing techniques. Mixing layer height determination from acoustic remote sensing has recently been described in: Emeis, S., M. Türk, 2004: Frequency distributions of the mixing height over an urban area from SODAR data. Meteorol. Z., 13, 361-367.

A section dealing with existing mixing layer height retrieval techniques should be added. The presented technique in this manuscript should be compared carefully against these already existing retrieval techniques and not just against radiosonde data. If this is done properly the manuscript should be published.

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Interactive comment on Atmos. Chem. Phys. Discuss., 5, 12697, 2005.

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