

Interactive comment on “Recommendations for processing atmospheric attenuated backscatter profiles from Vaisala CL31 Ceilometers” by Simone Kotthaus et al.

Anonymous Referee #1

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This manuscript is a very valuable contribution which helps the scientific community to better interpret CL31 ceilometer data. This interpretation has sometimes turned out not to be trivial. Therefore, the analysis and hints given here are urgently needed.

I wonder whether there could be achieved a somehow better balance between the Introduction and the Conclusions. Otherwise, I recommend to publish this manuscript after minor revisions.

The Introduction is rather short and does not really reflect the widespread use of this type of ceilometer in scientific research. Only a few references are given. There is, e.g., a study where CL31 ceilometers are compared to older ceilometers and to temperature profiles obtained by a RASS (Emeis et al., 2009) which could be mentioned as well.

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One reason why backscatter intensity from ceilometers have to be free of artefacts is that these instruments are frequently used to track the depth of the atmospheric boundary layer. The necessity could be illustrated by making reference to a paper which summarizes such tracking schemes (Emeis et al. 2008).

The Conclusions are rather long and therefore not really handy for the reader. Maybe, there could be made a split between more technical issues (which hardware to be used with which firmware) and some general conclusions being independent of specific hardware and firmware versions.

References

Emeis, S., K. Schäfer, C. Münkel, 2008: Surface-based remote sensing of the mixing-layer height – a review. *Meteorol. Z.*, 17, 621-630. DOI: 10.1127/0941-2948/2008/0312

Emeis, S., K. Schäfer, C. Münkel, 2009: Observation of the structure of the urban boundary layer with different ceilometers and validation by RASS data. *Meteorol. Z.*, 18, 149-154. DOI: 10.1127/0941-2948/2009/0365

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