**Atmospheric
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Interactive comment on "What is the benefit of ceilometers for aerosol remote sensing? An answer from EARLINET" _by_ M. Wiegner et al.

Anonymous Referee #2

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General comments: This paper investigates what information is available from the ceilometer measurements based on the results of the two types of ceilometers (CHM15kx and CL51) and EARLINET lidar. The author introduces several types of ceilometers, data analysis technique, and discuss the uncertainty of the measurement based on the numerical simulation. They also compare the ceilometer data with those obtained with more powerful EARLINET lidar and with the chemistry transport model. The information provided in the paper is beneficial for the atmospheric scientists who use ceilometer data. The paper is well organized. The data present in the paper is original. Thus, I think that the paper is acceptable for the publication in AMT after minor revision. The minor comments are given below.

Specific comments: 1) P2499, L7: I do not think that the vertical distribution of air

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density is not a smooth function when strong inversion is present.

2) P2499, L13: Add "particle' before optical property.

3) P2506, L27: Please explain night time problem briefly.

4) P2508, Eq. (15): What is the colon before the equal sign?

5) P2509, L1: I cannot find the slight increase in the deviation with increasing Zovl. Please specify the altitude range. In addition, please explain why the increases is found only for the lower lidar ratio.

6) P2510, L25: Please cite the reference of US standard atmosphere.

7) P2514, L12: Please explain possible reasons for the large variability in the overlap function between 0.1 and 0.5 km in Fig. 7.

8) P2515, L21: no → not.

9) P2518, L9: Add the reference of the hybrid algorithm if available.

10) P2519, L1: Tough → Though.

11) P2527, L32: J. Tech. → J. Atmos. Ocean. Technol.

12) P2532, Fig. 3: Add the explanation for the two solid lines (Are they different zovl?).

13) P2537, Fig.8: Add the unit of height.

14) P2538, Fig.9: Please check the unit of height (m. a. g.).

15) P2539, Fig. 10 Same as 15).

16) P2540, Fig.11: Add the notation of the vertical axis.

17) P2541, Fig. 12: Same as 17).

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 2491, 2014.