Atmospheric
Chemistry
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Discussions

Interactive comment on "Atmospheric boundary layer top height in South Africa: measurements with lidar and radiosonde compared to three atmospheric models" *by* K. Korhonen et al.

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This interesting paper shows data from lidar/radiosonde/model to determine the PBL height, in relation to the EUCAARI project.

I would like to add some comments to improve the quality of the paper.

1) The overlap height of the lidar system used should be provided, so as to know if it is within the PBL height or not.

2) Some previous work on PBL studies and methods should be cited, e.g.

a) Menut, L., et al.: Urban boundary-layer height determination from lidar measurements over the Paris area, Appl. Opt., 38, 945–954, 1999.

b) Matthias, V., et al.: Vertical aerosol distribution over Europe: Statistical analysis of Raman lidar data from 10 European Aerosol Research Lidar Network (EARLINET) stations, J. Geophys. Res., 109, D18201, doi:10.1029/2004JD004638, 2004.

c)Tsaknakis, G., et al.: Atmos. Meas. Tech., 4, 1261–1273, 2011.

d) Haeffelin, M., et al.: Boundary-Layer Meteorol. 143:49–75.

3) The 3.7.2 section on the PBL height retrieval is not convincing, mostly the part describing how the PBL height is calculated, as they write: "The inversion was determined subjectively using measured vertical profiles of T and RH". This kind of phrase should be replaced by stronger and more documented arguments, as we know that T and RH are not sufficient (some times) to determine the correct PBL height. Why the authors do not mention the Richardson number in connection to previous studies on the PBL determination?

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