

## ***Interactive comment on “Inter-comparison of lidar and ceilometer retrievals for aerosol and Planetary Boundary Layer profiling over Athens, Greece” by G. Tsaknakis et al.***

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**Overall Remarks** The paper presented is very sound and provides important issues in different instruments performances for atmospheric profiling of aerosols and clouds. It is important that the measurements were carried out in different conditions so the instruments special features could be put a test. There are some phrases in the current text that could be clarified if rewritten and are listed below.

**General remarks**

In the paper there is no discussion about the different instrument accuracies and precisions that could be better explored by some statistical analysis in the data. Maybe

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some comments on that could be added to the discussion.

**Specific text remarks**

**Abstract**

Line 3 - replace determining by to determine Line 4 - replace retrieving by to retrieve  
Line 10 - add data to data...to the other instruments Line 13 - Which height are you referring to ? PBL height ? Line 15 - Replace agreement is found by agreement was found

**Introduction**

Line 1 - replace being by as

Page 76 Line 1 - optical, microphysical and chemical Line 3 - Laser remote sensors such as lidars and ceilometers Line 7 & 8 - There is some redundancy in the phrase please rewrite - As the size of particles... Line 19 - replace weaker by less powerful  
Line 20 & 21 - Invert order of statements by putting "According to Markowicz" first. Line 28 - Explain the Quality Assurance in the aerosol profiles.

Page 77 Line 3 - Add In this paper, in section 2...

**Instrumentation**

Line 10 What does MOCVD stand for ?

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What is raymetrics f number ???

**Intercomaprison** Page 80

Line 8 - delineates

Page 81 Some discussion has to added here concerning what are the lasers instruments versus radiosondes probing - the former are probing aerosols (even indirectly)

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and the latter temperature so it might be a source of the discrepancies observed.

Also a table to record all different limits of detection and performances might be handy for the discussion and understanding of the whole text.

Intercomparison Line 25 - replace inter-compared by compared Line 26 - no need to mention again 2 lidars and 1 ceilometer

#### 4.1 Case Studies

Geo coordinates might be useful for the different site locations

Fig 1, 2, 5 and 8 have very small fonts Also in Fig 5 changing the color scale might increase the contrast among the layers

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